National Park Service
U.S. Department of the Interior



Olmsted Center
for Landscape Preservation

Cultural Landscape Report for Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area

Volume I: Site History



When the Japanese attacked Pearl Harbor, everybody scrambled...They could have landed on the beach down there [Rodeo Beach]. It was wide open.

Recollection of Willis Spitzer, Battery E, 6th Coast Artillery Regiment, Fort Cronkhite

Cultural Landscape Report Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area

Sausalito, California

Volume I: Site History

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Olmsted Center for Landscape Preservation
National Park Service, Boston, Massachusetts, 2016

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Boston, MA 02129 617.241.6954 www.nps.gov/oclp/

This report was prepared under the North Atlantic Coast Cooperative Ecosystem Studies Unit Task Agreements J1851-08-0023 and J1851-10-0020, Cooperative Agreement H4503090700, between the National Park Service and the University of Rhode Island.

National Park Service, Denver Technical Information Center Report #GOGA 641 132825

Library of Congress Cataloging-in-Publication Data

Names: Auwaerter, John E. (John Eric), 1964- author. | Curry, George W., 1940- project director.
Title: Cultural landscape report: Forts Baker, Barry, and Cronkhite, Golden Gate National Recreation Area, Sausalito, California / by John Auwaerter ; George W. Curry, project director (State University of New York, College of Environmental Science and Forestry).
Other titles: Forts Baker, Barry, and Cronkhite, Golden Gate National Recreation Area, Sausalito, California
Description: Boston, Massachusetts : Olmsted Center for Landscape Preservation, National Park Service, 2016. | Includes bibliographical references.
Identifiers: LCCN 2016023510
Subjects: LCSH: Cultural landscapes--California--Golden Gate National Recreation Area--Evaluation. | Fort Baker (Calif.)--History. | Fort Barry Military Reservation (Calif.)--History. | Fort Cronkhite (Calif.)--History. | Fortification--California--Golden Gate National Recreation Area--History. | Military bases--California--Golden Gate National Recreation Area--History. | Historic sites--Conservation and restoration--California--Golden Gate National Recreation Area. | Golden Gate National Recreation Area (Calif.)--Management. | Sausalito (Calif.)--Buildings, structures, etc.
Classification: LCC F868.S156 A89 2016 | DDC 979.4/62--dc23 LC record available at https://lccn.loc.gov/2016023510

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Cover Image: Forts Barry and Cronkhite, looking north from the Golden Gate, ca. 1945 (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.0975)

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Foreword

The cultural landscape of the Marin Headlands is home to a sophisticated system of defenses that once protected the great harbor of San Francisco from the post-Civil War years through the Cold War. Park visitors encounter history through surviving elements of this system in a tangible way, the defensive features preserved amidst an otherwise natural setting; gun positions and parade grounds framing iconic views to the city. This compelling landscape may be appreciated through its setting of great natural beauty, its handsome post buildings, hulking concrete and earth-covered gun batteries, and navigational aids. These and less monumental elements including roads, fire-control stations, searchlight shelters, and World War II foxholes serve as local manifestations of wars that had a global reach. Located amidst the serenity of the Pacific Ocean and the San Francisco Bay, this landscape honors those who gave their lives defending the United States; their names forevermore recorded as Fort Baker, Fort Barry, and Fort Cronkhite; names of yet more war heroes pressed into the once moist concrete of gun batteries, and more names applied to roads, all beckoning us to remember.

The Cultural Landscape Report for Forts Baker, Barry, and Cronkhite, Golden Gate National Recreation Area, Volume I: Site History will be of enduring service to current and future stewards of this complex landscape. John Auwaerter, with the support of park staff, park partners, and university students and colleagues, has done outstanding work in narrating the story of this complex landscape, pulling together many once-forgotten details of vast military systems and the underlying cultural and natural systems that extend over nearly 2,700 acres. The well-illustrated narrative and detailed plans, which have been available to the park for some time, have already been of great use in guiding rehabilitation projects, informing interpretation, and revealing the historic military identity and commemorative associations of the three military reservations. This report will be followed by a second volume making recommendations for preservation and enhancement of the landscape's historic character and significant features.

On behalf of myself and park staff, we acknowledge this exceptional work, and offer our thanks to John and his partners at the NPS Northeast Region's Olmsted Center for Landscape Preservation and **the State University of New York College of Environmental Science and Forestry, particularly Bob Page and George W. Curry. We are grateful for the collective effort that has brought this report to its successful and impressive conclusion.**

Aaron Roth
Acting Superintendent
Golden Gate National Recreation Area

ACKNOWLEDGMENTS

The authors gratefully acknowledge the many individuals who contributed to the completion of the Cultural Landscape Report for Forts Baker, Barry, and Cronkhite, which includes this volume containing the Site History and a second volume covering Existing Conditions, Analysis and Evaluation, and Treatment.

For a landscape of over 2,700 acres with significant natural resources and layers of historic development, this project has presented many challenges in compiling a concise history, documenting existing conditions, inventorying and evaluating landscape features, and addressing solutions to design and planning issues. The report is the result of a collaborative effort among park staff, park partners, National Park Service Olmsted Center staff, and landscape architecture students from the State University of New York College of Environmental Science and Forestry (SUNY ESF).

Special thanks to John Martini, historian and retired park ranger, for his extensive assistance with historical research, existing conditions documentation, and review of draft reports. Steve Haller, Historian, and Amy Hoke, Historical Landscape Architect, were instrumental as project leads who provided vision, assisted with research, reviewed draft reports, and facilitated communication with park staff and partners. Many thanks also to Amanda Williford at the Park Archives and Records Center for her valuable research assistance and in providing copies of maps and photographs.

Many others assisted with research and review of draft reports, or participated in site visits and workshops to discuss future management of the landscape, including park staff Maria Alvarez, Brian Aviles, Leo Barker, Kate Bickert, Jay Eickenhorst, Darren Fong, Abby Sue Fisher, Alison Forrestel, Susan Ewing Halley, Sue Fritzke, Peter Gavette, Daphne Hatch, Bob Holloway, Barbara Judy, Craig Kenkel, Kimball Koch, Donald Mannel, William Merkle, Mia Monroe, Keith Stegall, Gerald Scheumann, Paul Scolari, Johanthan Sifuentes-Winter, Keith Stegall, Kim Sykes, Jennifer Treutelaar, Joanne Wilkins, and Melanie Wollenweber; and conservancy staff Sharon Farrell and John Skibbe. We would also like to acknowledge the support of the project from Superintendent Frank Dean (retired).

Others who provided valuable research materials, existing conditions documentation, and input on treatment issues included Steve Rasmussen Cancian, Carey Feierabend, Aaron Rich, and Gary Roth. Special thanks to E. McKee for providing historic aerials and photographs of Fort Cronkhite, and to Paul Petosky for sharing his personal photographs during his service in the B

Battery, 2nd Battalion, 51st Air Defense Artillery during the early 1960s. Lastly, thanks to John Prince for checking gun emplacement designations on the period plans.

From the Olmsted Center, the authors are grateful to Bob Page, Director, for his support, essential guidance, and assistance with project management and research. Christopher Beagan and Eliot Foulds provided direction from their work on Fort Mason's cultural landscape.

From SUNY ESF, we thank landscape architecture graduate student Laura Roberts, who completed the initial mapping and feature inventory for the Forts Baker, Barry, and Cronkhite landscape over the course of a summer and two semesters. Thanks also to other students who helped with mapping, inventory, preparation for meetings, editing, and layout, including Matthew Herbert, Alexandra von Bieberstein, Ella Braco, Haichao Wang, Cathy Ponte, and Chris Anderson.

John Auwaerter and George Curry

Introduction

The headlands at the rugged southern end of the Marin Peninsula along the straights of the Golden Gate have been shaped by a long history of agricultural, navigational, recreational, and military use. The three-mile-long expanse, from San Francisco Bay to the Pacific Ocean, was historically occupied by Fort Baker, Fort Barry, and Fort Cronkhite—three related reservations of the U.S. Army that covered more than 2,700 acres. Intimately tied to the growth of San Francisco into one of the country's most important ports, this cultural landscape remains a well-preserved example of a historic harbor defense installation that illustrates changes in military strategy and technology from the post-Civil War period through the Cold War. Seacoast batteries, fire-control stations, Nike missile installations, military housing complexes, road networks, and navigational aids remain within a natural setting of high ridges, rocky cliffs, rolling hills, sand beaches, chaparral, oak woods, and grasslands. Panoramic views of the San Francisco skyline and other distant prospects in the Bay Area dominate the dramatic coastline of the Golden Gate (fig. 0.1). As part of Golden Gate National Recreation Area, the three former military reservations are today a popular destination for tourists and local residents, used for a wide range of activities from conservation, heritage tourism, and luxury accommodations, to hiking, biking, dog walking, and youth education. The National Park Service works with numerous partner organizations to manage this large and complex landscape.



Figure 0.1. The Forts Baker, Barry, and Cronkhite landscape looking east from near Point Bonita with the Golden Gate Bridge and San Francisco in the distance, November 2009. (SUNY ESF)

This site history, the first volume of the Cultural Landscape Report for Forts Baker, Barry, and Cronkhite, traces the development and use of the landscape from the time that it was home to native peoples through European settlement, military development, and most recently, conservation as public parkland. While the National Park Service has undertaken numerous studies of the district in the past, this is the first to focus on the cultural landscape across all three historic military reservations. This history provides the basis for existing conditions documentation, evaluation of historic significance, and treatment planning in Volume II of the Cultural Landscape

Report. Together, the entire report will aid ongoing efforts by the park and its partners to preserve and enhance the landscape's historic character, defined by many layers of natural and cultural history.

PROJECT SCOPE, ORGANIZATION, AND METHODS

In the National Park Service, a Cultural Landscape Report is the principal treatment document for historic landscapes and the primary tool for their long-term management. The park service defines a cultural landscape as a geographic area that includes both built and natural resources, and is associated with a historic event, activity, or person.[1] A cultural landscape, defined by the interactions of people with the natural environment, includes not only landforms, roads, walks, and vegetation, but also buildings, views, and small-scale features, as well as less tangible uses and associations.

The project area for this report is the landscape within the historic boundaries of Forts Baker, Barry, and Cronkhite as they existed at the height of military development during World War II. Included within this district are areas historically managed and developed by the Coast Guard and other agencies through lease arrangements with the U.S. Army. All of the land within the 1945 limits of the three military reservations is today part of Golden Gate National Recreation Area, although thirty-nine acres at Point Bonita and two acres at Point Diablo remain under Coast Guard jurisdiction, but are anticipated for transfer to the National Park Service in the future.

This report has been developed according to methods outlined in *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (National Park Service, 1998), and synthesizes documentation in numerous prior studies while also incorporating new primary research.[2] It provides a comprehensive historical overview of Forts Baker, Barry, and Cronkhite that evaluates the cultural landscape holistically, including its ranching, military, navigational, recreational, and natural resources. It is not a comprehensive history of the site, but rather a chronicle of physical changes in landscape use and character. Historic contexts pertaining to the strategy, administration, armament, and garrisoning of the San Francisco coastal defenses are addressed only to the extent they inform the history of the landscape. A similar approach also applies to the history of Native Americans, navigation aids, and ranching at the headlands. These contexts are well documented in several existing historic resource studies.[3]

Due to the large size and complexity of the district, this report omits some details of use and development in favor of emphasizing the broad patterns, major developments, changes in use and ownership, and shifts in landscape character. Additional details on the physical development and use of the landscape are documented in cultural landscape reports and historic structure reports that focus

on small areas within the headlands. To date, these completed reports address the main post, marine repair facility, and Kirby Cove area at Fort Baker; the rifle range, balloon hangar, Nike SF-88 launch site, Bird Island Overlook, and Point Bonita area at Fort Barry; and the Rodeo Beach wetlands at Fort Cronkhite (see Appendix C for a list of these documents).

The site history is organized into five periods defined by changes in land use and landscape character based on documented historic contexts. These include the period prior to American takeover of California in 1846; the initial period of American military ownership and development between 1846 and 1890; the Endicott-Taft period between 1890 and the U.S. entry into World War I in 1917; the period from World War I through the end of World War II in 1945; the Cold War period from 1945 to the establishment of Golden Gate National Recreation Area in 1972; and finally, the time from park establishment to the present (2015) during National Park Service administration. The body of each historical period consists of a narrative of the physical development of the landscape that is followed by a summary of the landscape changes organized by landscape characteristics, including natural systems, spatial organization, circulation, vegetation, buildings and structures, and small-scale features.

At the end of each period are plans for each of the three military reservations that depict landscape changes over the course of the period. These plans were developed from a combination of historic maps and plans, historic photographs, field inventory, the park's GIS data, and current aerial photographs. A plan is not included for the pre-1846 period due to lack of documentation. Detail plans for the main posts, Fort Cronkhite cantonment, and Bonita Ridge area provide additional documentation on these highly developed areas.

Research for this report has been undertaken at an overall "thorough" level of investigation as defined by NPS DO-28, focusing on secondary sources and primary materials, mostly Army building records, photographs, and plans in the Park Archives and Records Center at the Presidio, which includes materials copied from the National Archives.[4] Other repositories consulted were the park historian's files at Fort Mason, the Sausalito Historical Society, the San Francisco Public Library, and the Coastal Defense Study Group online and printed materials. Research also included consultation with historians who are experts in the military and cultural history of the Marin Headlands.[5]

PROJECT SETTING

Forts Baker, Barry, and Cronkhite, which together comprise a historic district listed in the National Register of Historic Places, are located at the headlands of the Marin Peninsula along the north side of the Golden Gate across from San Francisco, extending from San Francisco Bay on the east to the Pacific Ocean on

the west (fig. 0.2). Fort Baker is at the southeastern side of the headlands, and Fort Barry occupies the southwestern part. Fort Cronkhite is north of Fort Barry and extends north along the Pacific coastline.

Forts Baker, Barry, and Cronkhite are located within two units of Golden Gate National Recreation Area: the Fort Baker unit, the part of the historic Fort Baker reservation east of US 101, and the Marin Headlands unit, the western part of Fort Baker reservation and all of Forts Barry and Cronkhite (see fig. 0.2). The Marin Headlands unit also includes a large area of former ranch lands north of the historic district extending toward Muir Woods National Monument that are not part of this study. Across the Golden Gate is Presidio that was historically the Army's headquarters in the region. To the west of the Presidio along the Golden Gate are the Baker Beach, China Beach, and Lands End units of the park, with Ocean Beach along San Francisco's Pacific frontage. To the south is Fort Funston and lands in San Mateo County. East of the Presidio is Fort Mason, location of the park's administrative offices. Together, these units comprise an expansive park system that conserves much of the Golden Gate and adjoining Pacific coastlines.



Figure 0.2. Location of Forts Baker, Barry, and Cronkhite on the Marin Peninsula showing the proximity to San Francisco and relationship to other lands of Golden Gate National Recreation Area. The three forts are within two park units: Fort Baker and the Marin Headlands. (SUNY ESF)

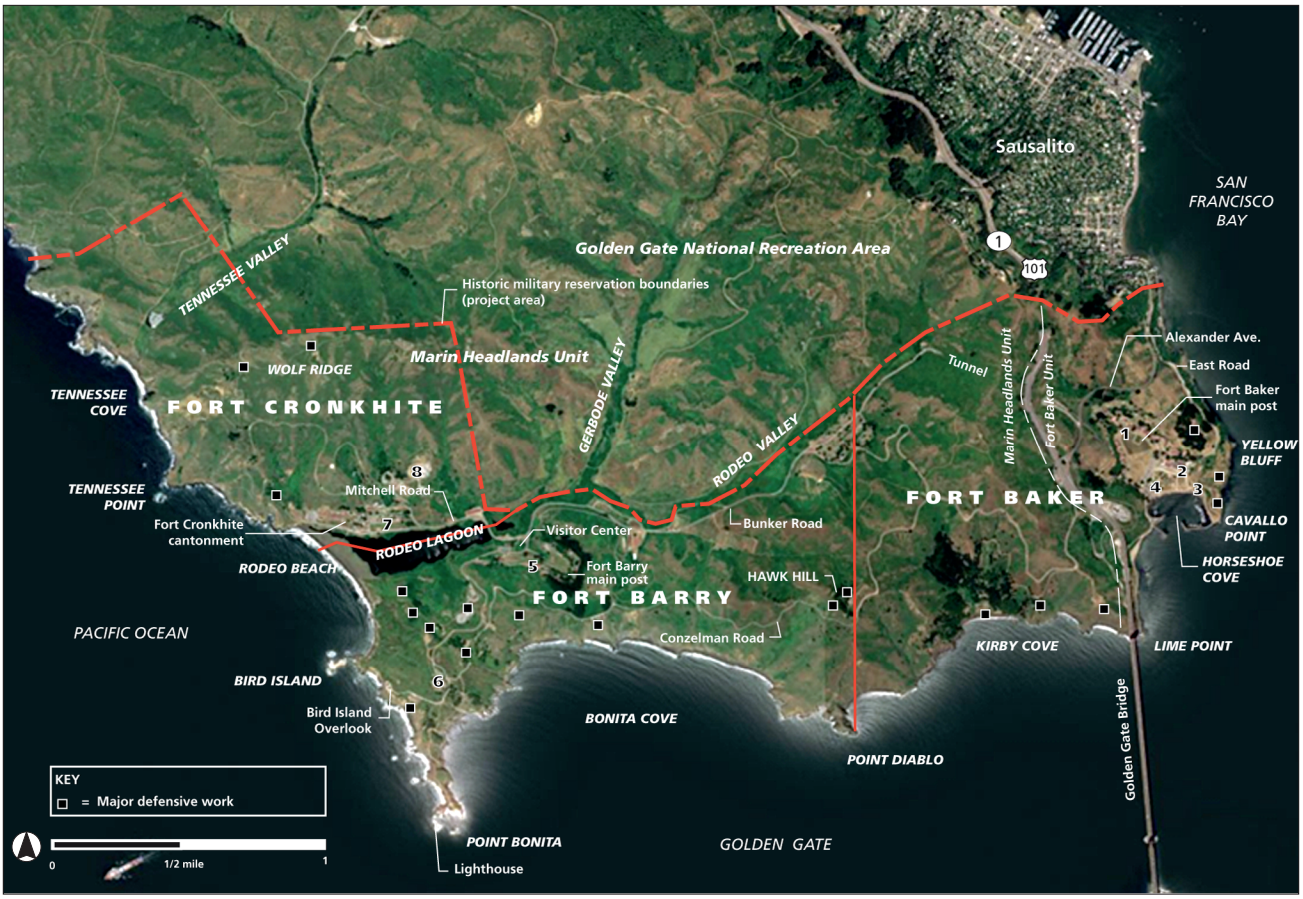


Figure 0.3. Current aerial photograph of Forts Baker, Barry, and Cronkhite showing boundaries of the three forts and major natural and cultural features. The numbers refer to the following partner organizations: 1. Cavallo Point Lodge; 2. Bay Area Discovery Museum; 3. Presidio Yacht Club (Travis Sailing Center); 4. U.S. Coast Guard Golden Gate Station; 5. Headland Center for the Arts; 6. YMCA; 7. NatureBridge; 8. Marine Mammal Center. (U. S. Geological Survey imagery, ca. 2011, annotated by SUNY ESF)

Most of Forts Baker, Barry, and Cronkhite consists of undeveloped land (fig. 0.3). The San Francisco Bay side is characterized by relatively low elevations and two promontories, Yellow Bluff and Cavallo Point, the latter defining the natural harbor of Horseshoe Cove that transitions to a rocky shoreline terminating at Lime Point beneath the shadow of the Golden Gate Bridge. The shoreline of the Golden Gate features two large coves, Kirby Cove on the east and Bonita Cove on the west, divided by Point Diablo that marks the boundary between Forts Baker and Barry. On the ridge above Diablo Point is Hawk Hill, the highest point along the Golden Gate. The western entrance to the Golden Gate is formed by Point Bonita, a long, rocky promontory separating Bonita Cove from the Pacific Ocean.

The mostly steep and rocky coastline along the Pacific features two main promontories, Bird Island and Tennessee Point to either side of Rodeo Beach, a sandy bar at the head of Rodeo Lagoon, the only natural inland water body within the three forts. North of Tennessee Point is Tennessee Cove at the head of Tennessee Valley, one of three main valleys within or adjoining the district. The other two are Rodeo Valley, which forms the northern boundary of Forts Barry and Baker, and Gerbode Valley, which extends northeast from Rodeo Valley.

Historic military development consists primarily of roads, clusters of fortifications along the coastlines, housing and administration buildings, and other infrastructure such as reservoirs and power stations. There are also aids to navigation, notably the Point Bonita lighthouse, and contemporary park trails, campgrounds, picnic areas, and parking lots. The primary vehicular access is by the Golden Gate Bridge and US 101, the Redwood Highway that links San Francisco with its northern suburbs. The first exit off US 101 is Alexander Avenue (Sausalito Lateral), which provides access to Fort Baker and Sausalito, a small city north of Fort Baker along San Francisco Bay with a population of approximately 7,000. Direct access between Fort Baker and Sausalito is by East Road that parallels the bay shoreline. Forts Barry and Cronkhite are accessed from Fort Baker by two roads: Conzelman Road that parallels the Golden Gate, and Bunker Road on the inland side in Rodeo Valley (see fig. 0.3). To reach Fort Barry, Bunker Road passes through a tunnel beneath the highlands west of US 101. Both roads provide access to the Marin Headlands visitor center, the Point Bonita lighthouse, Rodeo Beach, an overlook at Bird Island, and a YMCA conference center. The northern end of the Fort Cronkhite reservation at Tennessee Valley is not accessible by vehicle from the rest of the historic district, but is connected by trails. Access to Tennessee Valley is from Tennessee Valley Road, a public road accessible from US 101 at Marin City north of Sausalito.

Each of the three forts has a central administrative and housing area known as a main post or cantonment (see fig. 0.3).The Fort Baker main post is located in a valley, facing San Francisco in the distance. Most of the buildings and grounds were recently redeveloped in partnership with the private sector as CavalloPoint: The Lodge at the Golden Gate, which features luxury accommodations, restaurants, and conference space. To the south along Horseshoe Cove are a contemporary Coast Guard station, the Bay Area Discovery Museum, and a private yacht club. The smaller Fort Barry main post, home to the Headland Center for the Arts and a branch of Hostelling International, is at the western end of Bunker Road in a sheltered valley facing Rodeo Lagoon. The nearby Cronkhite cantonment, home to park offices and Nature Bridge, a center for nature education formerly known as the Headlands Institute, faces the north side of the lagoon. Northeast of the Cronkhite cantonment is the Marine Mammal Center, a contemporary facility constructed at the site of a Nike missile installation.

HISTORICAL OVERVIEW

The phenomenal growth of San Francisco that began in 1848 with the Gold Rush was due in large part to its large natural harbor, entered from the Pacific through the Golden Gate. To the south, the sheltered and relatively gentle topography of the San Francisco peninsula was ideal for a city, but the rugged and steep coastline to the north was less hospitable. On these northern headlands, long home to the Coast Miwok people and then Mexican ranchers, the United States set aside a vast

military reservation in 1850 to protect the West Coast's most important harbor. For the next century, this protection involved the development of seacoast defenses and navigational aids, but by the latter twentieth century, federal stewardship shifted toward conservation of the headlands for their scenic, recreational, and historical value.

BEFORE THE MILITARY, TO 1846

At the time of European contact in the eighteenth century, the Marin Peninsula had been home to the Coast Miwok people for generations. They lived in small villages and fished, gathered, and hunted, and mostly likely managed the land to enhance its productivity, resulting in a dominant grassland character. Following their arrival into San Francisco Bay in 1775, Spanish colonists established a fort and mission on the south side of the Golden Gate and began to convert the native people to Catholicism. In 1817, missionaries settled on the Marin Peninsula, which the Spanish called *Saucito* (later spelled Saucelito or Sausalito), and began to alter the landscape through introduction of grazing and other European agricultural practices. Following the loss of control to Mexico in 1822, maritime commerce increased and a port named Sausalito was established on the bay side of the peninsula. At this time, most of the headlands was acquired by an English immigrant, Captain William Antonio Richardson, who named his nearly 20,000-acre tract, *Rancho Saucelito*. By 1846, the landscape within the future Forts Baker, Barry, and Cronkhite remained primarily grassland with trees and shrubs in the valleys and along the shoreline of the bay. The present site of the Fort Baker main post was known as *Plaza de los Caballos* (Place of the Horses).

EARLY MILITARY DEVELOPMENT, 1846–1890

In 1850, four years after American takeover of California and two years after the start of the Gold Rush, President Millard Fillmore issued an executive order establishing a military reservation along the entire stretch of headlands from Sausalito to the Pacific Ocean, encompassing 1,899 acres. At the time, the land remained part of the privately owned Rancho Sausalito, which Captain Richardson had conveyed to an American businessman, Samuel Throckmorton. Not until 1866 did the government finally acquire title to the military reservation. During the intervening years, the federal government completed a lighthouse and keeper's dwelling in 1855 on a ridge overlooking Point Bonita under a presumed informal agreement with Throckmorton.

Following acquisition of the land in 1866, the U.S. Army proceeded with plans to erect fortifications to protect the inner harbor entrance within the later limits of Fort Baker. Beginning in 1867, the Army constructed a complex of support buildings and a wharf at a sheltered valley on the east side of Lime Point, where the Golden Gate Bridge viaduct was later built. At this time, site preparation was

begun for a Third System fort at the tip of Lime Point, but the project was halted in favor of constructing four dispersed earthen barbette batteries. Completed between 1870 and 1876, these batteries— Gravelly Beach (Kirby Cove), Cliff and Ridge (later Battery Spencer), and Cavallo, were designed for Rodman guns, but only one was emplaced. The batteries stood vacant for the next two decades due to lack of appropriations.

In the decades after the Civil War, the U.S. Lighthouse Board made a number of improvements to its facilities at Point Bonita, including construction of road and wharf to access a steam-powered fog signal at the tip of the point. This signal building was completed in 1872 and rebuilt in 1875 following damage from landslides. In 1876, Congress appropriate funds to move the 1855 lighthouse from Bonita Ridge to the tip of Point Bonita so that the light would be visible in high fogs. Construction of the new lighthouse, which featured the relocated lantern from the old lighthouse, was completed in 1877. The old tower was retained as a daymark. Other improvements at Point Bonita during this time included construction of a second house for the lighthouse keepers completed in ca. 1875, and addition of barns and sheds. At Lime Point, the Lighthouse Board completed another fog signal station in 1883, complete with a two-story brick keepers' dwelling.

Samuel Throckmorton and his heirs sold off Rancho Sausalito in several tracks following the Civil War. At the future Fort Cronkhite, these include a 540-acre parcel bordering Rodeo Lagoon sold in 1881 to a horse rancher, J. B. Haggin, who leased it to dairy rancher Louis Gioli. The property included a ranch house and barn in the valley northwest of the lagoon. North of the Haggin property at Tennessee Valley were other tenant dairy ranches that the Tamalpais Land and Water Company had acquired from Rancho Sausalito in 1889.

ENDICOTT-TAFT MODERNIZATION, 1890–1917

In 1890, the Army began a massive national modernization of its harbor defenses following recommendations of the Endicott Board, appointed by President Cleveland in 1885 under the lead of Secretary of War William Crowninshield Endicott. At San Francisco, this modernization, which created much of the landscape that endures today, saw the redesignation of the Lime Point Military Reservation as Fort Baker in 1897, and establishment of Fort Barry on the west half in 1904. Plans for development of Fort Barry led the Army to complete a connecting road with Fort Baker in ca. 1901. The landscape across the headlands remained primarily grassland, with woods and scrub along the bay front and drainage corridors. The Army introduced exotic vegetation, primarily eucalyptus and Monterey cypress trees near some of the batteries. Iceplant was established as a stabilizing groundcover around some of the defensive works.

The Endicott modernization included construction of new batteries, reconstruction of existing batteries, and addition of secondary defense elements. To build

these works, Army engineers reoccupied the 1867 camp at Fort Baker in ca. 1894, and built a second camp next to the Point Bonita lighthouse keepers' dwellings in 1901 for construction of the new defenses at Fort Barry. The Endicott improvements maintained Fort Baker as the stronghold of the inner harbor, and added a new line of defenses in the outer harbor at Fort Barry. The large-caliber gun batteries, which featured massive concrete emplacements and earthen parapets, included batteries Spencer (1897), Duncan (1899), Kirby (1900), and Yates (1905) at Fort Baker; and Mendell (1905), Smith-Guthrie (1904), Alexander (1905), Rathbone-McIndoe (1905), and O'Rorke (1905) at Fort Barry. Four remote fire-control stations were built near the batteries at Fort Baker, and a variety of support buildings were erected, including powerhouses and latrines. Development of submarine mine defenses led to construction of a mine casemate (1895) at Fort Baker servicing a minefield in San Francisco Bay, and another (1908) at Fort Barry for a minefield in the Pacific.

To service the Endicott defenses, the Army built roads, buildings, and permanent posts with barracks, offices, and hospitals at both Baker and Barry. Fort Baker's main post, largely completed between 1902 and 1905, was built in the large U-shaped valley north of Horseshoe Cove, and featured Colonial Revival-style officer quarters, barracks, a gymnasium, post exchange, and an administration building facing onto a central parade ground. A side road (Kober Street) to the north was lined by additional housing and terminated at the post hospital. A target range was laid out nearby in ca. 1905. The grounds were planted with windbreaks of Monterey pine and cypress, and roadside eucalyptus and acacia trees. Off the southeast end of the main post was the Quartermaster area with its maintenance shops, stables, and storehouses. The Quartermaster wharf (site of current mine wharf) was built well to the southwest on Horseshoe Cove, near the engineer camp.

The first post facilities at Fort Barry were a collection of temporary buildings and tent grounds laid out in a U-shaped valley south of Rodeo Creek (present site of Balloon hangar). This camp served a rifle range built in 1904 in the adjoining valley to the east, which served as a training facility for the Army's Western Department. Permanent facilities at Fort Barry followed the same pattern as those at Fort Baker, but on a smaller scale. Its main post, completed between 1905 and 1907, was situated in a similar, U-shaped valley southeast of Rodeo Lagoon, with Colonial Revival-style barracks, officer quarters, administration building, and a hospital facing a central open area used partly as a parade ground. A windbreak of eucalyptus was planted on the hillside behind the buildings, and the main road (Simmonds Road) was lined by Monterey cypress trees and other plantings. Due to the small size of the valley, several officer quarters, the gymnasium, and post exchange were built to the west of the main complex at the west end of the valley. The Quartermaster area, with its cluster of eleven buildings completed by 1907, was built still farther away, at the south end of a valley between Battery Alexander and the main post (present Three Sisters and Upper Fisherman's parking lot).

The military's Taft Board, established in 1905 by Secretary of War William Howard Taft, called for a new round of modernization for the nation's harbor defenses stemming largely from advances in communications and electrical power. Taft-era improvements at the headlands included the addition of numerous fire-control stations and searchlights to illuminate the submarine minefields. At Fort Baker, six new fire-control stations, searchlights at Lime Point and Cavallo Point, and two powerhouses for generating electricity were added between 1907 and 1912. At Fort Barry, the Army added ten fire-control stations, searchlights at Bonita Cove, Point Bonita, and Bird Island, and two powerhouses between 1905 and 1917. The Taft modernization also led the Army to acquire the five-acre Tennessee Point Military Reservation in 1914 (within later Fort Cronkhite), where two fire-control stations, two searchlights, and two powerhouses were erected in 1915. Access was by a government right-of-way from Fort Barry through a dairy ranch that had been acquired by Antoine Borel, a San Francisco financier, from J. Haggin in 1892.

Navigation aids at the headlands also underwent big changes during this period. These included establishment of the Point Bonita Life-Saving Station in 1899 along Bonita Cove, east of the lighthouse keepers' dwellings. It featured a prominent Shingle-style station building and three secondary buildings, and boathouses on Bonita Cove and south of Rodeo Beach. These were replaced by a single boathouse built along Bonita Cove in 1912. The lighthouse station was improved with a new fog signal building erected below the lighthouse in 1903, two new keepers' dwellings built in 1908, and a school in 1912.

WORLD WAR I TO WORLD WAR II, 1917–1945

The advent of World War I in Europe led the U.S. Army to plan another modernization program for its harbor defenses in 1915. To prepare for improvements at Fort Barry, the Army began work in 1917 on a tunnel (Baker-Barry Tunnel) to provide a more direct connection with Fort Baker in place of the winding road over Diablo Ridge (Julian Road). The program led to construction of just one new defensive work, Battery Wallace begun in 1917 on a ridge south of Battery Alexander. Two fire-control stations were also added on Point Bonita, and temporary war-time buildings, including a mess hall, barracks, and officer quarters, were constructed at the Fort Barry main post and scattered elsewhere across the reservation. The World War I years also witnessed construction of Navy facilities on and near Bird Island for ship-to-shore radio communication, and shift of the line of defenses away from the inner harbor. This led to disarming of batteries Orlando Wagner and Duncan in 1917.

During the years between World War I and the build-up to World War II, the Army made few major changes to its defenses at the headlands, except for the addition of a balloon hangar at the site of the rifle range camp in 1921, a fire-control station for Battery Wallace completed in 1921, and an anti-aircraft battery on Rodeo Hill to the east of Battery Wallace completed in 1925. Many of the post

facilities were shuttered, with changes limited to addition of a small Mission-style building at Fort Baker and demolition of the temporary World War I buildings at Fort Barry. Changes to navigational aids included the addition of small electric beacons at Point Diablo in 1922 and Yellow Bluff at Fort Baker in the late 1930s. The Lighthouse Service erected a tall radio tower to the rear of the Point Bonita lighthouse in 1938, a year before the agency was reorganized as the Coast Guard.

Construction during the early and mid-1930s at the headlands was dominated by the Golden Gate Bridge, with its north tower situated at Lime Point. Completed in 1937, the bridge also included construction of US 101 along the hillside above the Fort Baker main post, a tunnel through the ridge north of the post, and a lateral access road (Alexander Avenue) to Sausalito from US 101 to East Avenue. The 1930s also saw other civilian public works at the headlands, including the construction of a camp for the Civilian Conservation Corps (CCC) along Bunker Road (present Capehart Housing Area), garages and stone walls at the Baker and Barry main posts, and lengthening of the Baker-Barry tunnel.

The biggest change to the headlands landscape during this period came with establishment of Fort Cronkhite in 1937 on 801 acres of ranchland north of Rodeo Lagoon. The new military reservation, which absorbed the five-acre Tennessee Point Military Reservation, was created to accommodate construction of Battery Townsley, one of the harbor's two largest gun batteries. To prepare for construction, the Army built a new access road (Bunker Road) that connected with Fort Barry across a causeway in Rodeo Lagoon. The new battery was completed in 1940 on a hill above Tennessee Point and required six fire-control stations, including two on Wolf Ridge.

As construction of Battery Townsley was underway, the Army issued plans in 1937 for a massive modernization program in a document entitled "Annexes to the Harbor Defense Project, Harbor Defenses of San Francisco." Implementation of this program was accelerated following declaration of the Limited National Emergency in 1939, and the pending entry of the U.S. into World War II. At the headlands, the program included completion of a mine depot at Fort Baker in Horseshoe Cove, a new anti-aircraft battery on Wolf Ridge, and construction of new fire-control stations.

The years of the Limited National Emergency between 1939 and 1941 also witnessed extensive development of temporary post facilities to accommodate troop mobilization. At Fort Baker, this included construction of barracks and a chapel at the main post and the Station Hospital along the Horseshoe Cove waterfront. At Fort Barry, the CCC camp was expanded into the West Portal Housing Area, several new buildings were added to the main post, and two new housing complexes were built: the Mendell Housing Area near Battery Mendell, and the Smith Housing Area in Rodeo Valley. At Fort Cronkhite, a large cantonment was built along the north side of Rodeo Lagoon.

The approach of U.S. entry into World War II not only brought many troops, but also construction of field fortifications, including foxholes, trenches, and mobile anti-aircraft gun emplacements scattered throughout the headlands at strategic locations such as high ridges and near housing areas. The defensive works received camouflage, or "protective concealment" from enemy aircraft, including netting, plantings, fake rock covers, and dummy buildings and roads. With U.S. entry into the war on December 7, 1941, the threat of Japanese attack along the West Coast appeared imminent, and defenses at the headlands went on high alert. As troops went into position, barbed-wire entanglements and barbed-wire fences were erected along beaches to prevent enemy landing and additional anti-aircraft field emplacements were set up. Temporary dug-in field quarters known as hutments were built near Anti-Aircraft Battery #1 on Wolf Ridge, and at Battery Smith-Guthrie and Battery Rathbone-McIndoe. The Army continued with its modernization program begun in 1937 with construction of a new battery on Diablo Ridge known as Battery Construction 129, and modernization of Battery Wallace. Fire-control stations were added and improved, including the addition of a mine station at remote Tennessee Cove in Fort Cronkhite. Other fixed armament installed during World War II addressed the threat attacks on the submarine mine defenses. This included construction of AMTB (anti motor torpedo boat) batteries at Bonita Cove, Kirby Cove, Horseshoe Cove, and Cavallo Point. Radar stations designed to detect enemy aircraft were installed on Wolf Ridge and Point Bonita Ridge.

COLD WAR ADAPTATION, 1945–1972

With the end of World War II in 1945, the Army began a period of transition to the changed conditions of the Cold War, with long-range antiballistic defenses replacing the old coastal guns of the Endicott and Taft periods. Although the Army issued a plan in November 1945 calling for modernization of the coastal defenses at San Francisco, within several years it had abandoned all of the old works for defensive purposes. The submarine minefields were transferred to the Navy in 1949, leading to scrapping of the last seacoast guns in San Francisco. Much of the headlands grew quiet, except for training uses by the Army Reserves. Some of the facilities, including Battery Construction 129 and the mine defenses in Tennessee Valley, were transferred to Navy use.

With the outbreak of the Korean War in the early 1950s, the Army activated two anti-aircraft batteries at the headlands: Position No. 81 near Battery Mendell, and Position No. 10 near the World War II-era Anti-Aircraft Battery #1 on Wolf Ridge. These were soon replaced by a new system of long-range anti-ballistic defenses under Project Nike, which required relatively small areas of land in comparison with the earlier harbor defenses. The headlands received two Nike sites: SF-87 and SF-88, each with three component sites including a launch area, control (radar) area, and an administrative area. The SF-87 site, completed in 1955,

contained its administrative area in the Fort Cronkhite cantonment and its launch area north of the Fort Cronkhite parade ground. The control area was built on top of Battery Construction 129 (Hawk Hill) on the Baker-Barry boundary. The east wing of the cantonment was demolished for a new Nike administration complex of flat-roofed cinderblock buildings completed in 1966. The SF-88 site, also completed in 1955, contained its administrative area in the Mendell Housing Area, and its launch area was in an undeveloped area between Battery Alexander the former Fort Barry Quartermaster area. The control site was built on the eastern end of Wolf Ridge in Fort Cronkhite. The Mendell housing was replaced with a new Nike administration-building complex in 1965.

During the Cold War, the Army maintained most of its post facilities at the headlands, with the exception of those removed for the Nike administration areas in the mid-1960s. In 1959, new housing was added to Forts Baker and Barry as part of the Capehart Housing Act, intended to address shortage of adequate housing for military personnel. Constructed by private developers, the new ranch-style housing included thirty-five units built on the hillsides surrounding the Fort Baker main post, and sixty-three units at Fort Barry in place of the World War II-era West Portal Area. The Coast Guard made major changes to its facilities as its need for staffing diminished in an increasingly automated era. During the 1960s, it demolished the Life-Saving Station main building and three keepers' dwellings at Point Bonita, and the keepers' dwelling at Lime Point. Additions included a pedestrian suspension bridge to the Point Bonita lighthouse in 1954, and two ranch-style houses at the Life-Saving Station in 1961.

As the Army's need for land at the headlands declined during the Cold War, it transferred and sold large tracts. These included 192 acres at Tennessee Valley transferred to the Navy in 1956; 146 acres in the northern part of Fort Baker to the state of California in 1961; 222 acres on Wolf Ridge to the Coast Guard in 1965; 39 acres at Point Bonita to the Coast Guard in 1966; and 338 acres along the Golden Gate in Forts Baker and Barry to the State of California in 1967. The Navy sold its Tennessee Point property to the state between 1961 and 1964, which together with the other two tracts sold by the Army formed Marin Headlands State Park. The state made few improvements to the park during this period, aside from development of a day use area and campground at Kirby Cove.

TRANSITION TO A NATIONAL PARK, 1972–PRESENT

In the 1960s and early 1970s, development pressures, military land disposition, and expansion of the National Park System led to establishment of Golden Gate National Recreation Area in 1972. The park, spearheaded by a strong grass-roots parks movement and Congressman Phillip Burton, was created to preserve the natural, historic, scenic, and recreational values of the headlands and other lands in San Francisco and Marin Counties totaling over 34,000 acres. The legislation did not instantly open the park to the public, but rather set forth a process of land transfer

to the National Park Service. At the headlands, the initial legislation transferred all Army owned land in Forts Barry and Cronkhite, and land in Fort Barry west of US 101 (West Fort Baker), which together became the Marin Headlands unit of the park. The Army was allowed to continue use of certain portions of the Marin Headlands unit. Following deactivation of Nike SF-87 and 88, the Army completed transfer of management to the park in 1974. The park service added the Marin Headlands State Park parcels to Golden Gate National Recreation Area in 1978.

The 1972 park legislation called for all Coast Guard and remaining Army land in Fort Baker to be transferred to the National Park Service once it was declared surplus. The Coast Guard transferred its Wolf Ridge, Yellow Bluff, and Lime Point properties to the park between ca. 1978 and 1985. The Army transferred its remaining property in East Fort Baker to the park in three parcels between 1985 and 2002. As of 2015, Point Bonita and Point Diablo remain under Coast Guard jurisdiction.

The National Park Service opened a visitor center for the Marin Headlands vat the Fort Cronkhite cantonment in 1974. Much of the open space was converted to recreational uses, with built improvements largely limited to parking lots, hiking trails, and a single campground established to the rear of Battery Wallace in 1976. Because there were many more buildings than needed, the park service issued permits for non-park use and entered into partnerships with organizations that shared a similar mission. These included the Presidio Riding Club at Fort Barry, which predated the park; the Marine Mammal Center at the Fort Cronkhite cantonment in 1975, joined by the Headlands Institute in 1977; the YMCA Point Bonita conference center at the SF-88 administration area in 1977; and Hostelling International at the Fort Barry main post in 1978, joined by the Headlands Center for the Arts in 1982. With acquisition of portions of East Fort Baker in 1985, the park permitted the Coast Guard to build a new station along Horseshoe Cove that was completed in 1990, and entered into a partnership with the Bay Area Discovery Museum, which opened in the former Quartermaster area in 1991. The park also allowed the Travis Sailing Center (formerly the Presidio Yacht Club) founded in ca. 1960 to continue operating at Horseshoe Cove. After the Army transferred the remaining parts of Fort Baker to the National Park Service in 2002, the park partnered with the private sector to rehabilitate the main post into a resort and conference center, “Cavallo Point: The Lodge at the Golden Gate.” The lodge was designed as a partner venue for the Institute at the Golden Gate, a program of the Golden Gate National Parks Conservancy that advances environmental preservation and global sustainability.

Over its more than four decades of management, the National Park Service oversaw a number of changes in the Marin Headlands unit, notably demolition of the Smith Housing Area at Fort Barry, and completion of the Marine Mammal Center headquarters complex at the Fort Cronkhite SF-87 launch area. At the Fort Baker unit, the Army demolished the Station Hospital prior to transfer of the property

to the park. The CavalloPoint Lodge project at Fort Baker, which was completed in 2008, rehabilitated the pre-1940 buildings and parade ground, demolished the 1959 Capehart housing, and erected thirteen new lodge buildings in their place. Small changes throughout the headlands included addition of park signs, roadside overlooks, picnic tables, and campsites; conversion of Army roads to trails; and construction of new trail segments and visitor parking lots. Beginning in 2011, a comprehensive road improvement project was begun to increase safety, improve operations, and repair deteriorated infrastructure. Changes included new black asphalt pavement, addition of guiderails and drainage structures, and redesigned intersecctions, parking areas, scenic overlooks, and trailheads.

There were also many unmanaged changes in the landscape after 1972 that changed the cultural landscape in subtle, but far-reaching ways. These included spread of Monterey pine, Monterey cypress, and eucalyptus woods, death of Monterey pine due to blight, and a landslide on Wolf Ridge that destroyed part of Bunker Road and two fire-control stations. Many of the remote defensive structures were also impacted by vandalism and deterioration.[6]

NOTES, INTRODUCTION

1 Robert Page, Cathy Gilbert, and Susan Dolan. *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*, (Washington D.CA. : U.S. Department of the Interior, National Park Service, Park Historic Structures and Cultural Landscapes Program, 1998), 129.

2 These prior studies include a cultural landscape report that was completed in 2005 for the Fort Baker main post in anticipation of its redevelopment as the CavalloPoint Lodge.

3 These reports include Anna Coxe Toogood, A Civil History of Golden Gate National Recreation Area and Point Reyes National Seashore, California (1980), Erwin N. Thompson, Historic Resource Study, Seacoast Fortifications San Francisco Harbor, Golden Gate National Recreation Area (1979), and Erwin N. Thompson, Historic Resource Study, Forts Baker, Barry, Cronkhite of Golden Gate National Recreation Area (1979).

4 According to *NPS-28: Cultural Resource Management*, a "thorough" level of investigation is defined as reviewing "published and documentary sources of known or presumed relevance that are readily accessible without extensive travel and that promise expeditious extraction of relevant data, interviewing all knowledgeable persons who are readily available, and presenting findings in no greater detail than required by the task directive." The other two levels of investigation are "exhaustive" and "limited."

5 These include Steve Haller, Historian, Golden Gate National Recreation Area and John Martini, Historical Consultant, Fairfax, California, as well as members of the Coast Defense Study Group, http://www.cdsg.org/.

6 The park service completed a new General Management Plan for Golden Gate Natioanl Recreation Area in 2012 that sets forth guidelines for use and treatment of the cultural landscape at the headlands, including several projects presently underway on roads, visitor amenities, and partner facilities.

1. Before the Military, to 1846

The dramatic natural landform of the Marin Headlands has been the dominant characteristic of the cultural landscape for millennia, with its sheer cliffs rising to high ridges over the waters of the Golden Gate and Pacific Ocean (fig. 1.1). The beauty of this natural passageway captivated early European explorers, such as the French trader August Duhaut-Cilly, who entered the Golden Gate in January 1827:

> The morning of the 26th we had, at last, clear weather; and as soon as it was light, we made out the entrance to San Francisco [Presidio], distant about three leagues... the northern coast [Marin Headlands] presented steep walls of rock of a violet color; and the southern coast, lower [San Francisco peninsula], was composed of sand-dunes mixed with large scattered rocks, some of which projected a few hundred metres into the sea, at the entrance to the channel.[1]

The origins of this natural landscape trace back to between 200 and 80 million years ago, deep underwater in the primordial Pacific Ocean. Here, marine sediments and volcanic eruptions of molten rock formed thick bedrock on the ocean floor that migrated very slowly eastward, where it deformed as the ocean plate moved beneath the North American plate. Although the region experienced several periods of major upheaval, the most recent occurred approximately three to four million years ago, when the primordial Marin Mountains were uplifted from the seafloor as the two plates collided. These forces crumpled the once horizontal strata of bedrock into giant



Figure 1.1. A ca. 1840 French lithograph of the Golden Gate looking east from the Pacific, showing dominance of the Marin Headlands (mountains at left). The original drawing was made during the voyage of the frigate "Venus" between 1836 and 1839. (Detail, Ménard, Vue de l'entrée de la Baie de San Francisco, ca. 1840, courtesy of The Bancroft Library, University of California, Berkeley, BANC PIC 1963.002:0546-B)

wave-like folds. The edge of uplifted bedrock, known as thrust faults, created multiple ridges across headlands.[2]

After this period of upheaval, the ground became relatively stable, but underwent a long period of erosion and continued fracturing. During the last ice age, when ocean levels were low and the coastline was well west of its present location, meltwaters from glaciers in the Sierras flowed down the Sacramento and San Joaquin Rivers and through a canyon at the Golden Gate, along the south edge of the Marin Mountains. With the melting of the glaciers approximately 10,000 years ago, ocean levels rose and flooded the canyon to form San Francisco Bay in a wide interior valley. The high waters submerged a portion of the Marin Mountains and isolated them into a peninsula. The undercutting force of the waves against the coastline created landslides, resulting in sheer cliffs (fig. 1.2). Hard, erosion-resistant rock formed promontories such as Bird Island and Points Bonita, Diablo, and Cavallo.[3]

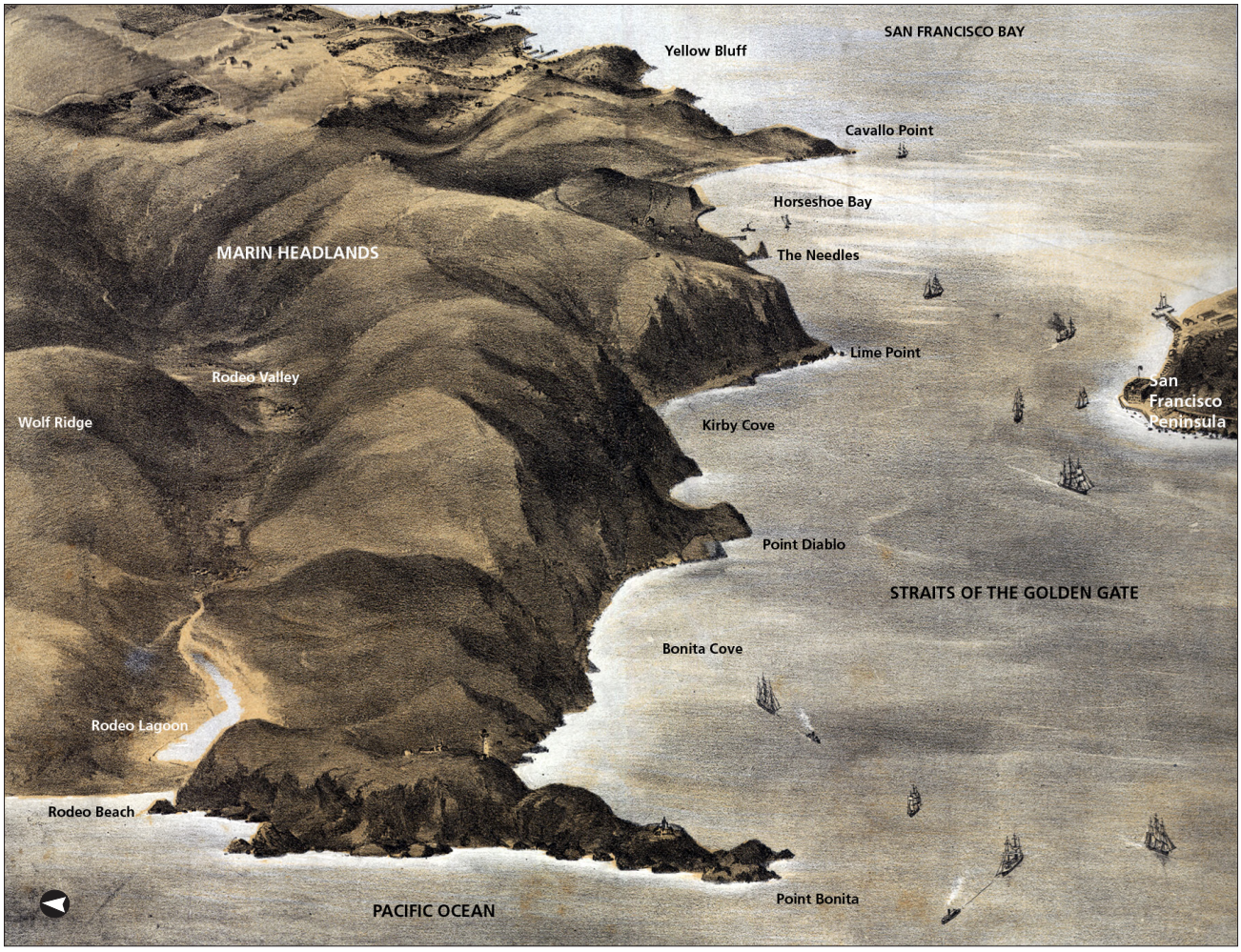


Figure 1.2. A nineteenth-century bird's-eye view of the Marin Headlands looking east from Point Bonita showing landforms and other natural features identified by current names. The illustration does not show Tennessee Cove in the northern part of Fort Cronkhite. (Detail, G. H. Goddard, "Birds Eye View of the City of San Francisco and Surrounding Country," Britton & Ray, 1868, Library of Congress digital ID pm00370, annotated by SUNY ESF)

The raised sea levels and centuries of weathering softened the topography into the Marin hills of today. Small perennial and intermittent streams drained the landscape, fed by numerous springs on the inland hills. The major streams drained into valleys that opened onto coves, two on the Pacific Coast (Rodeo and Tennessee) and three along the Golden Gate (Bonita, Kirby, and Horseshoe). Ocean currents deposited sands along these coves, blocking inland valleys that had been flooded during the post-glacial sea level rise, creating marshes and inland lagoons (see fig. 1.2). Some of the sand collected inland, forming dunes along the Pacific coastline near Rodeo Beach.

COAST MIWOK HOMELAND

Although much of the natural landscape appears forbidding when viewed from the Pacific and Golden Gate, the Marin Peninsula supported human culture for thousands of years prior to the first European settlements in the Bay Area in the eighteenth century. The earliest evidence of human habitation on the Marin Peninsula, found along the hospitable shores of San Francisco Bay, dates back more than 5,000 years. For centuries, the region was the home of the Coast Miwok people, whose population ranged from an estimated 1,500 to 10,000 prior to European contact in the eighteenth century. Among the Coast Miwok's several independent tribes were the Huimen, who lived in the southern part of the Marin Peninsula and included the headlands within their homeland.[4]

The Coast Miwok lived primarily off a diet of fish, shellfish, nuts, greens, berries, and game. As with other Native American people in the bay area, the Coast Miwok hunted elk, deer, rabbits, and fowl with bows and obsidian-tipped arrows, and fished the rich bayside estuaries from canoes made from long marsh reeds (fig. 1.3). The Coast Miwok lived in conical houses framed with poles and sheathed in bark and grasses, generally in hamlets consisting of extended family units.[5]



Figure 1.3. A painting of Native Americans illustrating the landscape around the Golden Gate, possibly near present-day Lime Point, showing grasslands on upper elevations and scrublands or woods along valleys and coastal margins, ca. 1815. The Marin Headlands at the time remained the homeland of the Coast Miwok. (*"Bateau du port de San Francisco,"* lithograph of a painting by Louis Choris, courtesy of The Bancroft Library, University of California, Berkeley, image fG420.K84C6.1822 Part 3, Plate X)

These hamlets were mostly located along the bay or eastern side of the peninsula. The closest known Huimen settlement to the headlands was *Liwanelowa,* near present-day Sausalito.[6] On the interior, in sheltered valleys alongside streams and lagoons, the Coast Miwok established seasonal camps. Although they relied heavily on waterways for transportation, the Coast Miwok also created networks of paths and trails, generally following streams and ridges.[7]

The character of the California coast experienced by European settlers in the eighteenth century, with its grasslands, scattered trees, park-like forests, and abundant game, was in many cases the result of centuries of tending by Native American people, as well as natural disturbance such as fire caused by lightning strikes.[8] While they did not practice agriculture in the European sense, Native American people in California enhanced the productivity of the land by burning, harvesting, tilling, pruning, sowing, and tending.[9] Among many practices, the Coast Miwok trimmed and shaped oak branches to create broad, short trees that allowed acorns to be in easy reach, and managed willow to produce straight branches for basketry. Burning enhanced forage for game, seed production, and soil regeneration, while maximizing views for hunting. Controlled burns were so widespread a practice in California that in 1783 Governor Arrillaga ordered Spanish missions to prohibit them.[10] The extent to which these practices altered the landscape of the Marin Headlands is not known for certain, but most likely enhanced an open character dominated by grasslands and shrublands, with wooded margins along the coast and streams (see fig. 1.3).

Higher elevation grasslands, known as coastal prairie, were characterized by perennial broad-leaved herbs and grasses including Douglas iris, California poppy, blue-eyed-grass, red fescue, purple needlegrass, and California oatgrass. Grasslands in the valleys were often dominated by bunchgrasses, miniature lupine, blue dicks, stinkbells, clovers, goldfields, fiddleneck, and yellow carpet. Shrublands included coastal scrub and chaparral (Spanish for short woody vegetation) on dry south-facing slopes. Chaparral consisted of a wide variety of plant species, often dominated by tough-leaved evergreens including manzanita, chamise, scrub oak, and ceanothus. Sheltered coastline and inland streams were often lined by deciduous woods that included coast live oak, willow, alder, and maples. Marshes occurred along Rodeo Lagoon and on the San Francisco Bay side of the peninsula, where California cord-grass, pickelweed, jaumea, and arrow-grass, and California sea-blite were found. Forests of redwood and Douglas fir grew in sheltered, inland valleys and along higher elevations where fogs eased summer droughts, mostly north of the headlands.[11]

August Duhaut-Cilly described this variety of plant communities on the Marin Peninsula during his trip in January 1827, as he observed from his ship traveling south toward the Golden Gate along the Pacific coast:

> The coast was formed of vertical rocks whose base, fortified by scattered rocks, seemed only with an effort to resist the violence of the waves lashed into torrents of foam. Above the wall of rock began the very steep slope of lofty mountains crowned with fir trees. In the narrow valleys left among them were seen, in addition, thick woods of these trees, mixed with live oaks; but all the rest was covered only with a yellowish and hardly living grass.[12]

SPANISH AND MEXICAN SETTLEMENT

While explorers may have encountered the Coast Miwok as early as the sixteenth century, European settlement in the San Francisco Bay area did not begin until two centuries later. In 1775, Jose Carnizares made the first survey of San Francisco Bay, sailing the *San Carlos* through the Golden Gate and lending the ship's name to an inner point along the north side of the straits, later known as Lime Point (fig. 1.4).[13]

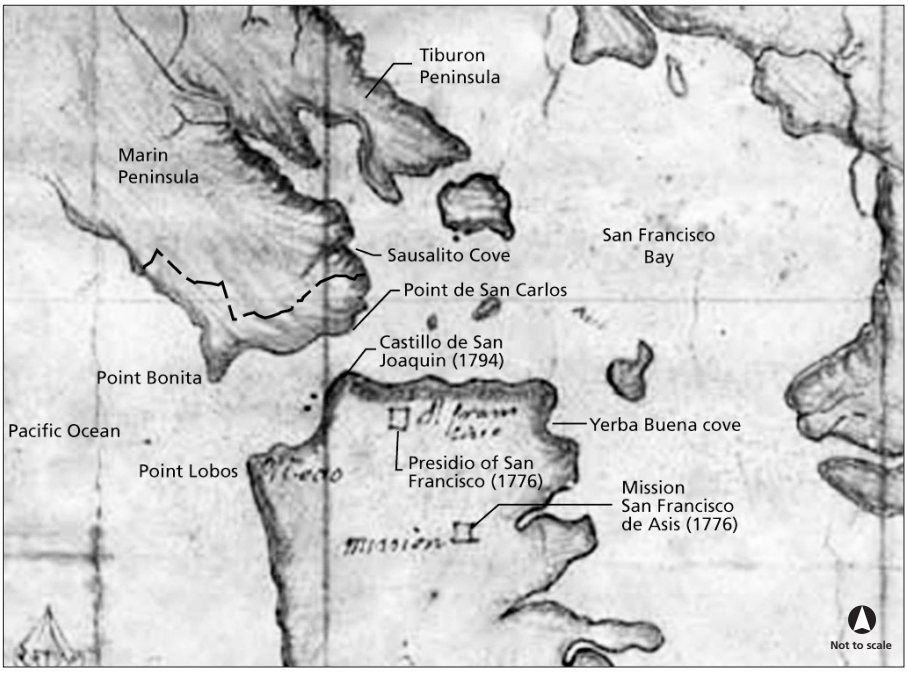


Figure 1.4. An early nineteenth-century map showing location of the presidio and mission of San Francisco and other features in relation to the Marin Headlands. The later boundary of Forts Baker, Barry, and Cronkhite is shown by the black dashed line. (Detail, John Bradshaw, "Chart of the Bay of St. Francisco, ca. 1830, annotated by SUNY ESF, courtesy of The Bancroft Library, University of California, Berkeley, map G 04362 S22 1830 B7Case XB)

The Spanish military and Roman Catholic missionaries arrived in the bay the year following the *San Carlos*, settling on the San Francisco peninsula, whose gentler terrain was better suited to building and agriculture than the steep headlands along the north side of the Golden Gate. Here in the homeland of the Ohlone, the Spanish military established a *presidio* (fort) to guard the entrance to the bay (see fig. 1.4). South of the Presidio, the missionaries established *Mission San Francisco de Asis*, also known as Mission Dolores, one of what would become a line of twenty-two missions along the California coast. Aside from their function to convert perceived heathens, the missions were self-sustaining economic operations with large agricultural components and home industries. To operate the mission, the Spanish brought in the Ohlone and Coast Miwok people, who were forced to adapt to European ways of life. Many died from exposure to European diseases, against which they had no natural immunity. Records list as many as 2,020 Coast Miwok living at the mission.[14]

In the decades following the establishment of the San Francisco presidio and mission, the Spanish strengthened their defenses and laid claim to additional lands. In 1794, they built a fort, *Castillo de San Joaquin*, near the presidio on a promontory in the Golden Gate known today as Fort Point (see fig. 1.4). Around the same time, an expedition was sent out from San Francisco to explore the nearby but uncharted Marin Peninsula, named after a Miwok chief.[15] Spanish settlement did not occur there until more than two decades later, when Mission San Rafael Arcángel was established in 1817 along the upper bay, approximately nine miles north of Lime Point. Dedicated to the patron saint of good health, mission fathers established the San Rafael mission to provide a location more hospitable than the one at San Francisco.[16] The mission took over most of the Marin Peninsula, which

was known as *Saucito*, probably referring to groves of willow that grew along the shores of the bay.[17] The Spanish altered the landscape of the Coast Miwok's old homeland through the introduction of grazing livestock, planting of exotic crops, and by logging redwood forests. Mission San Rafael reportedly maintained upwards of 10,000 head of livestock, mostly Spanish longhorn cattle, which grazed freely across parts of the peninsula. The mission may have used the southern bay side of the peninsula in the present vicinity of Fort Baker to corral the livestock prior to shipping them off to market.[18]

In 1822, Spain lost control of California to Mexico, beginning a period of increased maritime trade as the new government ended Spanish restrictions. Mariners used two sheltered coves, both named after vegetation growing along their banks, as places to anchor: Yerba Buena, meaning good herb, on the San Francisco peninsula, and Sausalito, meaning little willow grove, on the Marin Peninsula a short distance north of Fort Baker (see fig. 1.4). Due to a favorable microclimate, Sausalito became the favored port in the 1820s and 1830s when it was known as *El Puerto de los Balleneros,* meaning whalers' harbor. The trade led to the construction of stores and houses to service the ships. During this period of growth for Sausalito, the Mexican government secularized the vast missions lands in 1833 and began to grant large tracts to private owners.[19] In 1834, the government sold the first part of the San Rafael mission lands, a four thousand acre tract on and adjoining the Tiburon peninsula across from Sausalito. The following year, it granted a far larger tract of 20,000 acres, encompassing most of the Marin Peninsula includ-

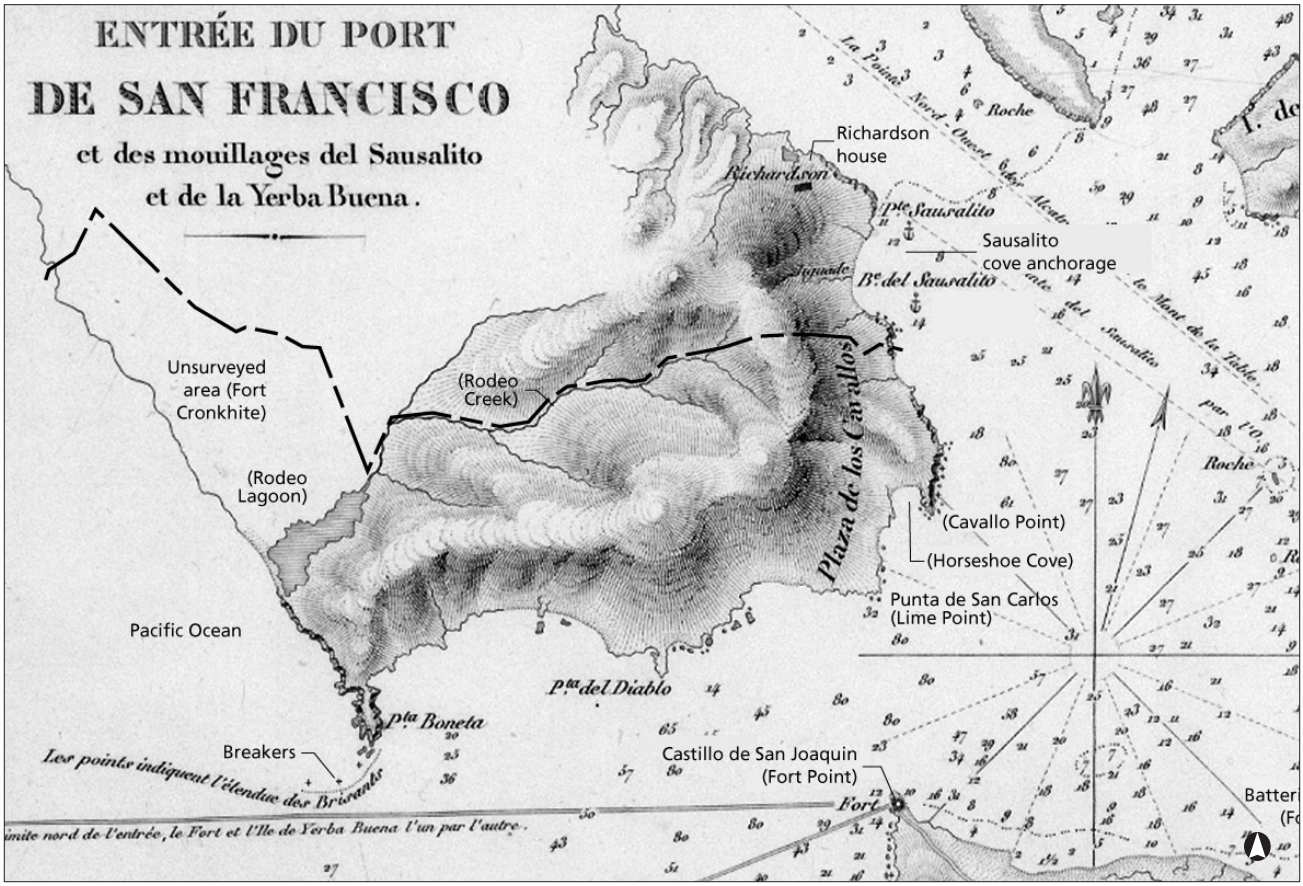


Figure 1.5. An 1844 map of the port of San Francisco and its two anchorages at Sausalito and Yerba Buena during Mexican rule, in relationship to the *Marin Headlands*. The later boundary of Forts Baker, Barry, and Cronkhite is shown by the black dashed line. Names in brackets refer to current place names. The map does not indicate buildings that probably existed at Sausalito.(Detail, M. Duflot de Mofras, *Entree du Port de San Francisco*, University of California, Berkeley, Earth Sciences Library, G4362.S22 1844.D8, annotated by SUNY ESF)

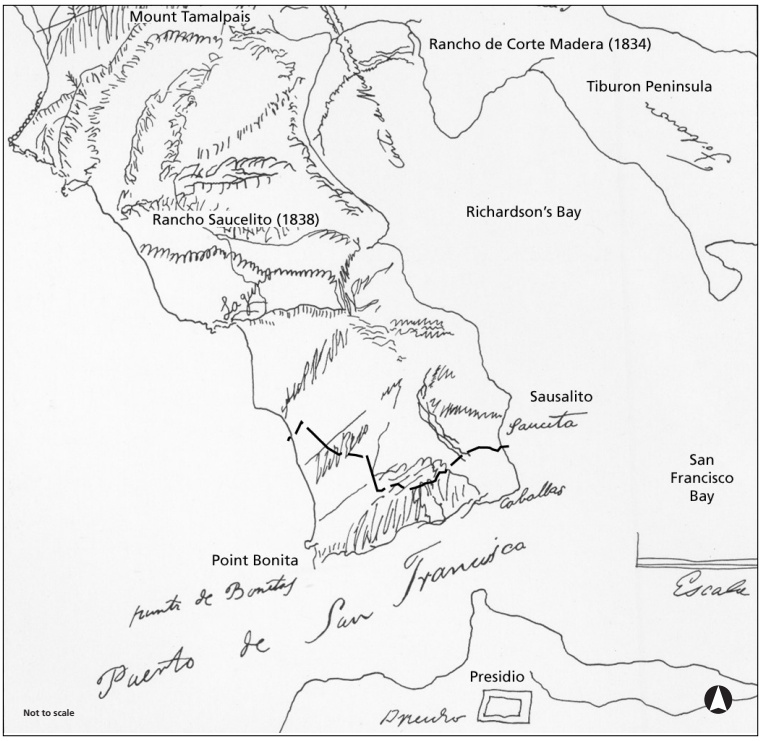


Figure 1.6. Detail of the diseño, or sketch map that accompanied William Richardson's 1835 land grant application for Rancho Sausalito showing location of major landmarks at the headlands, including *Punta de Bonitas* (Point Bonita), *Sauceta* (Sausalito), and *Caballas* (meaning mackerel or horses) , the area corresponding with the present site of Fort Baker. The later boundary of Forts Baker, Barry, and Cronkhite is shown by the black dashed line. (Courtesy, California Historical Society, annotations by SUNY ESF)

ing the headlands, to José Antonio Galindo, but sold the grant in 1836 to Captain William Antonio Richardson.[20]

Born in England, Richardson came to San Francisco in 1822, and over the next decade became a leading figure in the area through trade and real estate dealings. In 1828, after gaining Mexican citizenship and marrying the daughter of the Presidio *Commandante*, Richardson applied for a grant to the Marin lands of Mission San Rafael Arcángel including the headlands. The government denied his application because it had reserved the land for military purposes.[21] Richardson subsequently turned his attention to the Yerba Buena port, where he helped to lay out a town, *Puebla de la Yerba Buena,* which would grow into the city of San Francisco and surpass Sausalito as the bay's main port (fig. 1.5).[22] Richardson submitted another application to the Mexican government for the former Mission San Rafael Arcángel lands, shown the limits on a *diseño* (sketch map) he submitted with the application (fig. 1.6). Although Richardson acquired the 19,572-acre grant from José Galindo in 1836, the Mexican government did not issue a formal grant until February 15, 1838. Richardson named his grant *Rancho Saucelito* (anglicized, Rancho Sausalito) after the name the Spanish had long used for the area. He moved his family to the ranch in 1838 or 1839, and in 1841, built his *hacienda* near Point Sausalito, north of present Fort Baker (see fig. 1.5).[23]

During eight years under Mexican rule, William Antonio Richardson and his family enjoyed a prosperous life at Rancho Sausalito, becoming well known for lavish fiestas at their *hacienda*. He ran a large livestock operation, raising thousands of cattle, horses, and sheep on the vast rangelands that extended into the Marin Headlands. He also built a business providing ships that anchored in Sausalito cove with water and other supplies.[24]

LANDSCAPE SUMMARY, 1846

In 1846 on the eve of American takeover of California, the landscape of Forts Baker, Barry, and Cronkhite formed the southern extent of William Richardson's Rancho Sausalito. These headlands were largely undeveloped and unfortified lands along the Golden Gate, opposite *Castillo de San Joaquin* (Fort Point), the *Presidio*, and *Batteria San Jose* (Fort Mason). The young town of Yerba Buena, on the east side of the San Francisco peninsula largely out of view from the head-

lands, was growing into the main port in the bay area, although it still consisted of only a scattering of buildings.

Little is known about the details of the Marin Headlands landscape during this period except for its natural systems characterized by sheer cliffs along much of the coast, high ridges, and grasslands, with oak and willow woods along streams and sheltered coastline. The ecosystem had changed due to livestock grazing and the introduction of forage crops and European weeds, notably wild oat that spread across inland areas.[25] Lieutenant Henry Wise, who rode across Rancho Sausalito in 1847, wrote that "there was no timber to be seen, and except the stunted undergrowth netted together in the valleys and ravines, all was one rolling scene of grass, wild oaks, and flowers." Wise also wrote of the abundant wildlife that remained at the ranch, including deer, bear, and waterfowl, indicating that ranching operations by this time had not significantly altered the natural environment.[26] There were probably paths crisscrossing the landscape, possibly following old Coast Miwok trails.

As documented by French cartographers in 1844, the headlands were identified by their major promontories including *Punta Boneta* and *Punta del Diablo* (see fig. 1.5). *Punta de San Carlos*, later known as Lime Point, was not shown on the map. The cartographers identified the eastern side of the headlands, adjoining San Francisco Bay and the existing site of Fort Baker, as *Plaza de los Cavallos*, meaning "place of the horses." The origin of this name is not known for certain, but it may have reflected a section of the headlands where livestock were herded, possibly by Richardson and earlier mission ranchers, prior to loading on ships at Horseshoe Cove. Richardson may have fenced in a square area for the livestock along the cove. There may have been a small ranch building along the west side of this area, probably the only building within the future area of Forts Baker, Barry, and Cronkhite during this period.[27] It may have been this landscape that inspired Bret Harte's story published in 1867, "The Legend of Devil's Point:"

> On the northerly shore of San Francisco Bay, at a point where the Golden Gate broadens into the Pacific stands a bluff promontory [probably Point Diablo]. It affords shelter from the prevailing winds to a semicircular bay on the East. Around this bay the hillside is bleak and barren, but there are traces of former habitation in a weather-beaten cabin and deserted corral. It is said that these were originally built by an enterprising squatter, who for some unaccountable reason abandoned them shortly after...[28]

NOTES, CHAPTER 1

1 A. Duhaut-Cilly, *Voyage Autour Due Monde Principalement, A la Californie et aux Iles Sandwich pendant les annees 1826, 1827, 1828, et 1829*, reproduced as "Durhaut-Cilly's Account of California, *California Historical Society Quarterly,* volume 8, number 2 (June 1929), 140.

2 Arthur David Howard, *Evolution of the Landscape of the San Francisco Bay Region* (Berkeley and Los Angeles: University of California Press, 1962), 53–55; M. C. Blake, Jr., R. W. Graymer, and D. L. Jones, *Geologic Map and Map Database of Parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California* (U. S. Geological Survey, Miscellaneous Field Studies MF 2337, Online version 1.0, 2000).

3 John W. Harbaugh, *Geology Field Guide to Northern California* (Dubuque, Iowa: Wm. C. Brown, 1974), 6–7; William P. Elder, "Geology of the Golden Gate Headlands" (Unpublished National park Service field trip guide, ca. 2008), stop 4.

4 Leo Barker with Hans Barnaal, Martin Mayer, Frank Ross, and Wesley Barker, "Big Lagoon Wetland and Creek Restoration Project: Cultural Resources Survey" (Unpublished National Park Service Report, 5 February 2005), citing Moratto 1984, Kroeber 1925, Kelly 1978, and Sarris 2002a, and 16, 20; Barry M. Pritzker, *A Native American Encyclopedia* (New York: Oxford University Press, 2000), s.V. "Miwok." The Coast Miwok, together with their historic neighbors to the north, the southern Pomo, are part of the present tribe, Federated Indians of Graton Rancheria.

5 Pritzker; R.F. Heizer and M. A. Whipple, editors, *The California Indians: A Source Book* (Berkeley: University of California Press, second edition 1971), 74–75, 76–77.

6 Ann G. King, "An Archaeological Survey and Cultural Resource Evaluation of the Tennessee Valley and Oakwood Valley, Marin County, California" (Sonoma State University, April 1979), 9.

7 Pritzker.

8 M. Kat Anderson, *Tending the Wild: Native American Knowledge and Management of California's Natural Resources* (Berkeley: University of California Press, 2005), 2, 17.

9 Anderson, 8; Joshua Paddison, "California Cultures: Before 1768: Pre-Columbian California," University of California Calisphere website, http://www.calisphere.universityofcalifornia.edu/calcultures/eras/era1.html (accessed March 4, 2010).

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11 Anderson, 26, 28–30; National Park Service, "Natural Features & Ecosystems," Golden Gate National Recreation Area Nature & Science webpage, www.nps.gove/goga/naturescience/naturalfeaturesandecosystems.htm (accessed March 4, 2010).

12 "Durhaut-Cilly's Account of California," 137.

13 Erwin N. Thompson, *Historic Resource Study, Forts Baker, Barry, Cronkhite of Golden Gate National Recreation Area* (Denver: National Park Service, November 1979), 1.

14 Barker et al, 16; Anna Coxe Toogood, *Historic Resource Study, A Civil History of Golden Gate National Recreation Area and Point Reyes National Seashore, California* (Denver: National Park Service, 1980), 12–13, 19.

15 Jack Mason in collaboration with Helen Van Cleave Park, *Early Marin* (Petaluma: House of Printing, 1971), 49.

16 Toogood, 14–15.

17 Barker et al, citing Bancroft, 1889, 22. *Saucito* is one of a number of variations of the present place name, Sausalito. Others include *Sauzalito* and *Saucelito.*

18 Toogood, 15; Brown, Bliss, *Marin County History,* m.s., s.l, 1936, cited in Emily Bookstein, "Preliminary Cultural Landscape Report: Rodeo Beach Wetlands and Parking Lot" (unpublished report prepared for the National Park Service, September 2009), 7. On his 1836 *diseño* accompanying his land grant application (see fig. 1.6), William Antonio Richardson

identified the southeastern point of the peninsula *Caballas*, possibly a misspelling of *Caballos*, Spanish for horse. *Caballas* translates as mackerel or horse mackerel, perhaps referring to fish that washed up on shore.

19 Lisa M. Benton, *The Presidio: From Army Post to National Park* (Boston: Northeastern University Press, 1998), 18.

20 Toogood, 22–24, 47, 52.

21 J. P. Munro-Fraser, *History of Marin County, California, &c.* (San Francisco: Alley, Browent & Co., 1880), 386.

22 William A. Richardson biography, Sonoma State University Library Research website, http://libweb.sonoma.edu/regional/notables/Richardson.html (accessed March 4, 2010); Munro-Fraser, 386.

23 Toogood, 54; Richardson biography, Sonoma State University Library; Toogood, 52, 54.

24 Toogood, 56-57.

25 Kent G. Lightfoot and Otis Parrish, *California Indians and Their Environment: An Introduction* (Berkeley: University of California Press, 2009), 67.

26 Henry Wise, *Los Gringos or An Inside View of Mexico and California with Wnaderings in Peru, Chili, and Polynesia* (New York, 1849), quoted and cited in Toogood, 56.

27 A rectangular area enclosed by a dashed line is shown on an 1850 map of the headlands by the U. S. Coast Survey (see fig. 2.2). This map also appears to show a small building on the west side. Golden Gate National Recreation Area, Park Archives and Records Center, plan 3512, F1, Sheet 1. See also Thompson, *Forts Baker, Barry, Cronkhite*, 38.

28 Bret Harte, "The Legend of Devil's Point," *Bret Harte Condensed Novels* (Boston: Elibron Classics Replica of the 1867 G. W. Carleton & Company edition, 2005), 267.

2. Early Military Development, 1846–1890

The Mexican government did little to maintain the old Spanish fortifications at San Francisco, so it was ill prepared to defend the region against American expansion with the outbreak of war between the two countries in May 1846. When the U.S. Navy landed a force of seventy sailors and marines at Yerba Buena on July 9, 1846, they quickly laid claim to the area by taking possession of the Mexican customs house and the Presidio. On November 3rd of that same year, the U.S. War Department announced that California would be organized as the Tenth Military Department, officially beginning the Army's long presence at the Golden Gate.[1] On February 2, 1848, the Mexicans signed a peace treaty with the United States that ceded all of present-day California and a large expanse of territory to the east. The discovery of gold at Sutter's Mill approximately 120 miles northeast of San Francisco Bay that same year ushered in a flood of settlement to the area that quickly led to California's admittance as a state in 1850. Yerba Buena grew from a small town with a population of around 500 in 1848, into the renamed city of San Francisco with a population of over 25,000 just two years later.[2]

During the early years of American governance, Captain William Antonio Richardson retained control of his Mexican-issued grant at Rancho Sausalito, with its headlands framing the northern horizon of the thriving city (fig. 2.1). While he prospered through the trade and real estate boom of the Gold Rush, none of the development occurring across the Golden Gate reached the Marin Head-

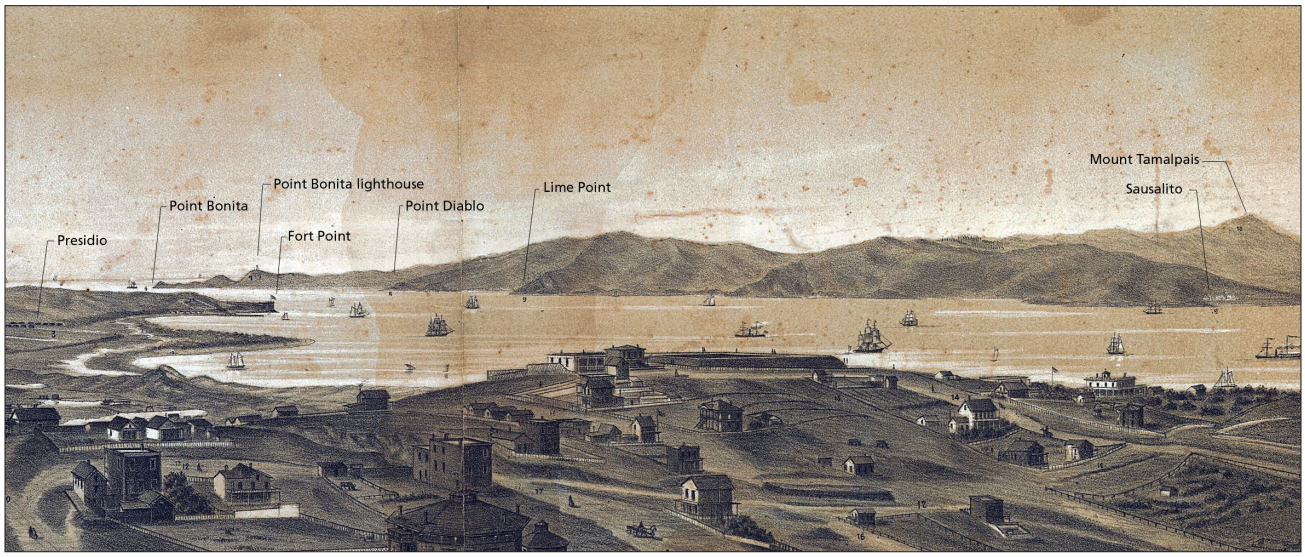


Figure 2.1. An 1862 panorama of San Francisco looking northwest from Russian Hill with William Antonio Richardson's Rancho Sausalito on the Marin Headlands in the distance. (Detail, C. B. Gifford, "San Francisco from Russian Hill," 1862. Library of Congress digital ID cph3b36887, annotated by SUNY ESF)

lands. Old Sausalito, the once busy port, was an isolated and largely abandoned place during the early American years, with about a dozen buildings, although it remained a favored port for transporting water and other supplies to the city.[3] Despite this, there were changes in the landscape, notably the transformation of the once quiet waters of the Golden Gate into a busy channel of maritime commerce. This activity reflected the growing economic and political importance of San Francisco that demanded improved navigation and fortification of its harbor against enemy attack. Although remote from the development boom, the Marin Headlands played a key role in navigation and fortification during the first four decades of American governance.

FIRST AIDS TO NAVIGATION

The earliest American development at the Marin Headlands was not for military purposes. With its strong tides, rocky promontories, and breakers close to shipping lanes, the approach to San Francisco harbor posed hazards to thousands of mariners, especially when visibility was limited during heavy summer fogs.[4] To improve navigation, President Taylor authorized the United States Coast Survey in 1849 to map the California coast and recommend sites for lighthouses. The survey for the north side of the Golden Gate at the Marin Headlands, corresponding to Sausalito and the later area of Forts Baker and Barry, was completed in 1850 (fig. 2.2). The survey identified a "signal" on a ridge north of Point Bonita, an unknown type of navigational aid that either was proposed or had been erected since 1844.[5] The map also indicated the lack of development at the headlands, except for a small number of buildings at Sausalito and an apparent rectangular, fenced and graded area near Point Cavallo that had been identified on the 1844 map of the harbor near or within the *Plaza de los Cavallos* (see fig. 1.5). The large lagoon at the Pacific side of the headlands was not named on the Coast Survey, but became known as Rodeo Lagoon—perhaps another place where livestock were herded in preparation for shipping to market from the adjoining beach.[6]

The Coast Survey map showed the anglicizing and renaming of natural landmarks at the headlands, notably the promontory at the narrowest part of the gate known as *Punta de San Carlos*, which the Americans renamed Lime Point. This name was taken from the white color of the rocks that was not a result of calcium carbonate (lime), but rather bird droppings. A promontory on the Pacific coastline south of Rodeo Beach, later named Bird Island, was a similar favorite of the birds. Point Bonita was also known locally as North Point or Land's End, although the Coast Survey did not recognize these names.[7]

With its mapping complete, the Coast Survey recommended sixteen lighthouses for the California coast, including four at San Francisco harbor at the Farallon Islands approach in the Pacific, at Fort Point (site of Castillo de San Joaquin) along the Golden Gate, and at Alcatraz Island at the entrance to the bay.[8] The U.S. Light-

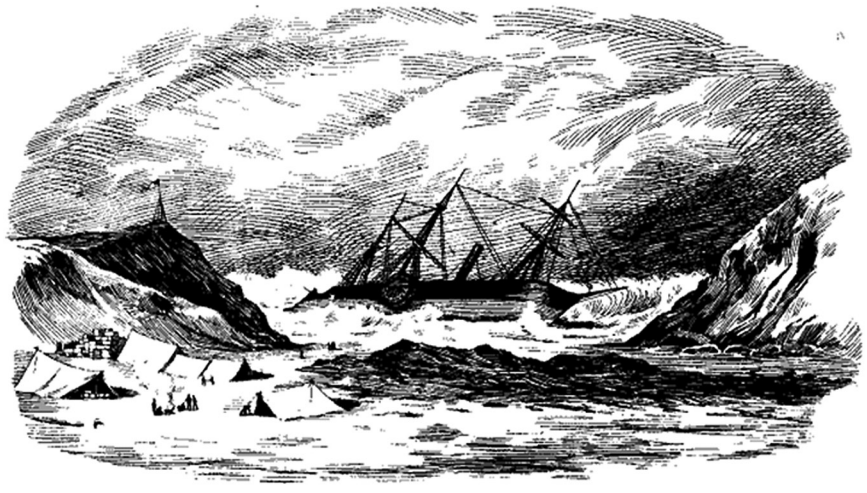
house Board, an agency within the U.S. Treasury Department established in 1852, proposed another lighthouse at either the north or south entrance to the Golden Gate, and upon the advice of local mariners, selected the north side at Point Bonita. The need for a lighthouse here became more urgent after the steamer *Tennessee* with upwards of one thousand passengers ran aground in heavy fog just north of the point, at what was then known as Indian Cove, on March 6, 1853. The crew and passengers made it to shore on the small beach flanked by steep cliffs, and there brought the luggage and set up tents while waiting for rescue (fig. 2.3). Others hiked four miles across the headlands to Sausalito.[9]

Just three days prior to the wreck at what became known as Tennessee Cove, Congress had approved funding for a lighthouse at Point Bonita, but construction stalled for nearly two years. During this time, the Lighthouse Board negotiated with William Richardson to use his Point Bonita land for constructing the lighthouse, and by December 1853, he had agreed to donate one hundred acres for this purpose, although this was never formalized.[10] At the time, Richardson was negotiating with the government for a far larger tract encompassing all of the headlands.

Figure 2.2. Survey of the headlands completed in 1850 by the U. S. Coast Survey. See following page for full spread.

Plans and authority for construction were not issued until nearly a year later in November 1854.[11] Construction began soon thereafter, with materials brought to the site by ship, probably at a landing constructed at Rodeo Beach.[12] Completed in April 1855, the new lighthouse was located on a barren ridge close to the edge of the cliff along the Pacific coast, overlooking the promontory of Point Bonita (figs. 2.4, 2.5).[13] This location, at the highest point along the coast at an elevation of 260 feet above sea level, was selected because of the lack of access and level land on the actual point. Most likely, the location was also chosen because the higher elevation increased the visible range of the light. The lighthouse measured fifty-six feet tall and featured a tapered, round brick tower with an iron and glazed lantern containing a second-order Fresnel lens. On May 2, 1855, the Point Bonita lighthouse began operation. The following year, its red-brick exterior was whitewashed to improve its visibility as a day mark.[14]

Figure 2.3. Illustration of the wreck of the Tennessee at Indian Cove, later renamed Tennessee Cove, in March 1853, based on a first-hand sketch. The cove was one of two beaches along the Pacific coastline in the area later developed as Forts Barry and Cronkhite. (Fred M. Stocking, "How We Gave A Name to Tennessee Cove," *Overland Monthly*, April 1891)



THE WRECK OF THE TENNESSEE.
Drawn by Lyon from Wood Cut of Capt. Totten's Sketch.

Due to the exposed, precipitous surroundings of the tower, the lighthouse keeper's residence, a one-story three-bay stuccoed brick house, was built 650 feet back from the cliff, facing south toward the Golden Gate (fig. 2.6, see also fig. 2.4). The building was completed at the

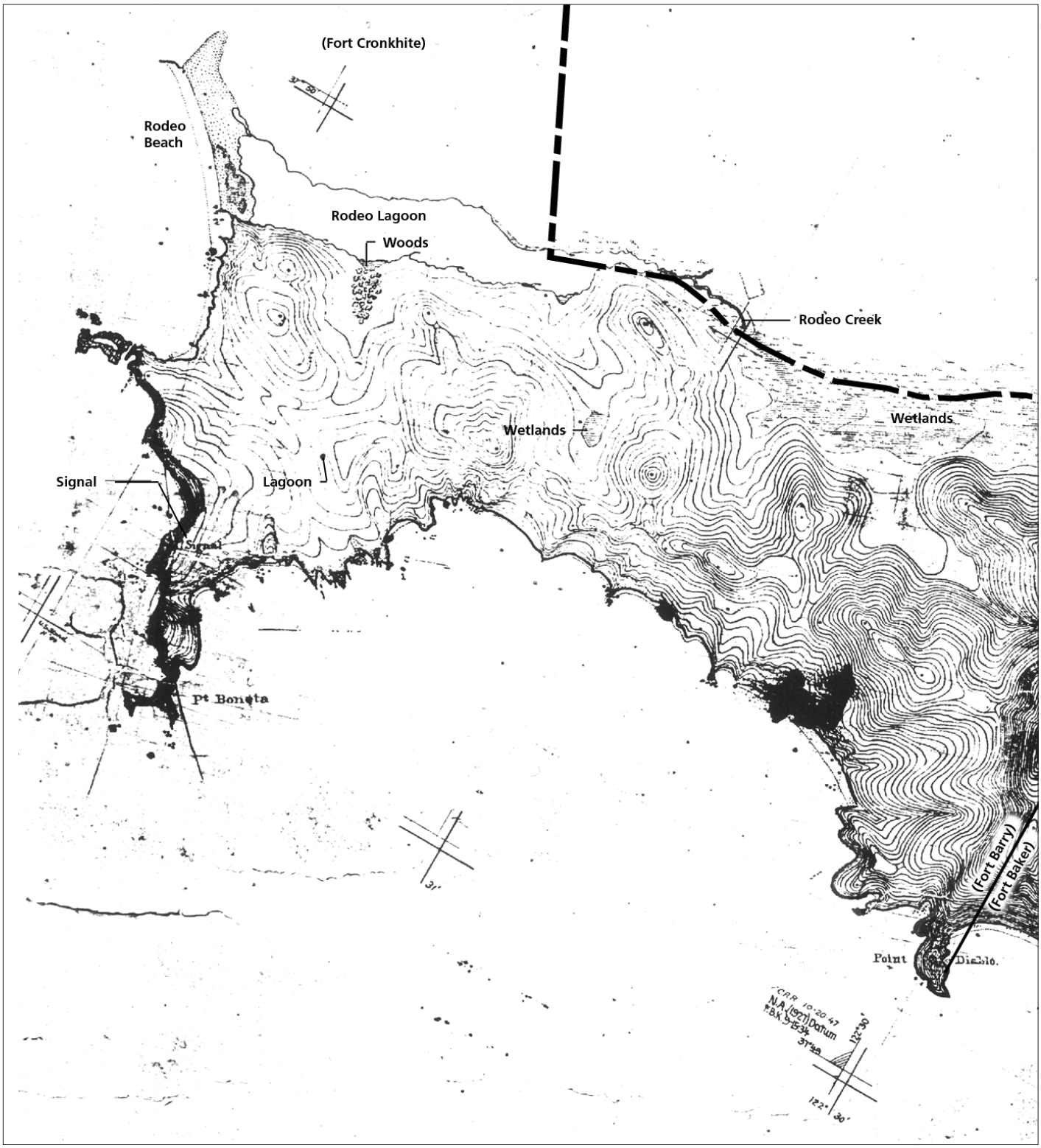
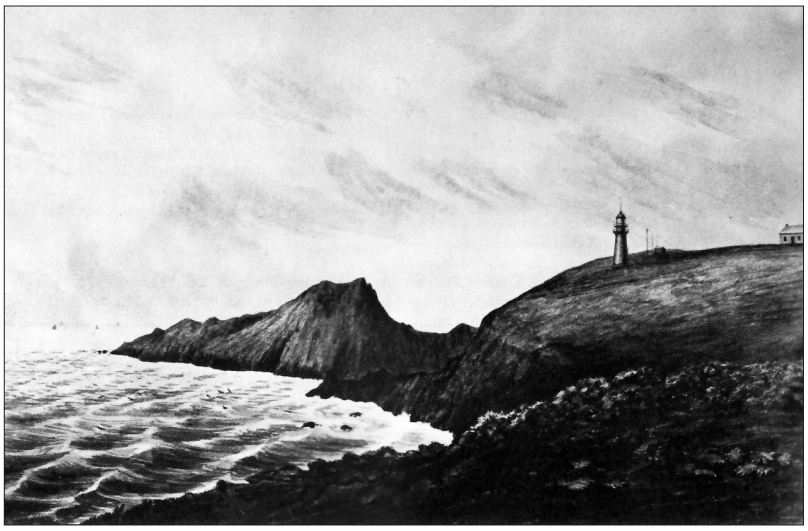

(Fort Cronkhite)
Rodeo Beach
Rodeo Lagoon
Woods
Rodeo Creek
Wetlands
Wetlands
Signal
Lagoon
Signal
Pt Bonita
(Fort Barry)
(Fort Baker)
Point Diablo.
CRR 10-20 47
N.A. (1927) Datum
37°45
122°30
122°30'



Figure 2.2. Survey of the headlands completed in 1850 by the U. S. Coast Survey showing either an existing or proposed "Signal" near Point Bonita, and isolated development at Sausalito and near Point Cavallo. The map also shows the change in place names following the American takeover. The dashed black line shows the approximate later boundary of Forts Baker, Barry, and Cronkhite. (M. E. F. Rogers, "North Side of the Entrance to San Francisco Bay," U.S. Coast Survey, 1850, Register No. 321," Golden Gate National Recreation Area, Park Archives and Records Center, map 3512, F1, Sheet 1)



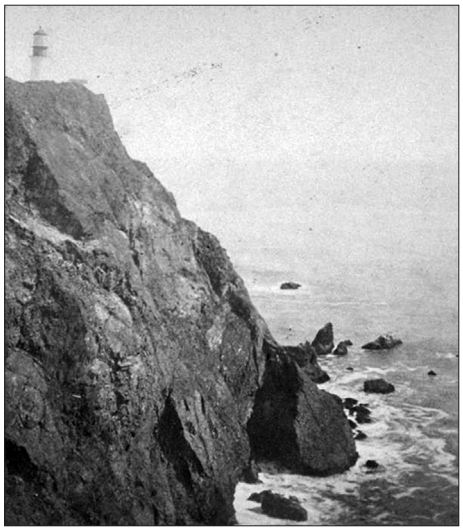


Figure 2.4 (top, left). Painting of the Point Bonita lighthouse and keeper's dwelling (far right) made soon after completion in 1855, looking west toward the Pacific Ocean. (National Archives, U. S. Coast Guard records, graphic 26-LG-67-1, reproduced from Francis Ross Holland Jr., *America's Lighthouses*, 1988 edition, 158)

Figure 2.5 (top, right). The Point Bonita lighthouse in its original location looking southwest showing proximity to the cliff along the Pacific coast, ca. 1872. In the early twentieth century, this ridge became the site of Army fire-control stations. (Courtesy of The Bancroft Library, University of California, Berkeley, Lone Mountain College Collection of Stereographs by Eadweard Muybridge, BANC PIC 1971.055:ID 1650--STER)



Figure 2.6 (bottom). The Point Bonita keeper's house looking northeast at the front of the building, ca. 1872. (Courtesy of The Bancroft Library, University of California, Berkeley, Lone Mountain College Collection of Stereographs by Eadweard Muybridge, BANC PIC 1971.055:1648--STER)

same time as the lighthouse. A cistern was built off the west side of the house to hold water that was probably pumped by a windmill from a spring to the north.[15]

During the year following completion of the lighthouse, the Lighthouse Board made plans to install a cannon that would provide an audible fog signal to Point Bonita. Fog cannons had been used on the East Coast as early as 1719, but by the mid-nineteenth century, bells were more common. The eight-foot long cannon was positioned along the coast on a ridge approximately 500 feet northwest of the keeper's house, near the future location of Battery Mendell (fig. 2.7). On August 6, 1855, the Point Bonita fog cannon was put into service, intended for firing every half hour during fog. It soon proved inadequate and costly, and was replaced in March 1856 with a 1,500-pound mechanical fog bell that was installed in a shed next to the lighthouse. The fog cannon was retained as a supplemental signal, but was retired in 1857. Although no longer used, the fog cannon was left at its cliff-side location.[16]

GOVERNMENT ACQUISITION OF THE HEADLANDS

At the time that the Point Bonita lighthouse was approved in March 1853, it had already been three years since the government had announced its intent to acquire the entire stretch of the Marin Headlands as a military reservation, amounting to an estimated 2,300 acres.[17] The government's plans began with the findings of a joint military commission created in 1848 to identify military sites for the protection of San Francisco harbor. The commission recommended enlarging the Presidio and establishing new military reservations at Yerba Buena Island, Alca-



Figure 2.7. The Point Bonita fog cannon along the Pacific Coast, looking north toward Rodeo Lagoon, photographed when they were no longer in use, ca. 1900. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35219)

traz Island, and Angel Island at the interior entrance to San Francisco Bay; and at Lime Point (Marin Headlands) as the northern counterpart to the Presidio guarding the entrance to the bay along the Golden Gate (fig. 2.8). These reservations were established by President Millard Fillmore through executive order on November 6, 1850. The order described the limits of the Lime Point reservation as extending "from the southern boundary of the Sau Saolito [sic] Bay, a line parallel to the channel of entrance to the Pacific."[18]

At the time of the executive order, the Lime Point reservation land was part of William Antonio Richardson's Rancho Sausalito. For several years, U.S. land commissioners questioned his claim from the Mexican government, but finally accepted it in 1854 when Richardson agreed to sell the reservation land to the government. Instead of the original reservation tract, military engineers negotiated with Richardson for a smaller 640-acre tract surrounding Lime Point, where they were planning the main fortification.[19]

The government did not reach a deal with Richardson, who at the time was in financial ruin due to his loss of three trading vessels within a six-month period. He mortgaged Rancho Sausalito, but was not able to return his merchant marine business to profitability. Desperate for solvency, he made an agreement in 1855 to transfer Rancho Sausalito to San Francisco real estate broker Samuel Throckmorton, except for 640 acres surrounding his Sausalito *hacienda* that he deeded to his wife, Maria. Under this agreement, Richardson was to give four-fifths of the property to Throckmorton, and Throckmorton was to return one-fifth debt free to Richardson within three years.[20] Throckmorton was apparently attracted to Richardson's offer due to the pending sale of

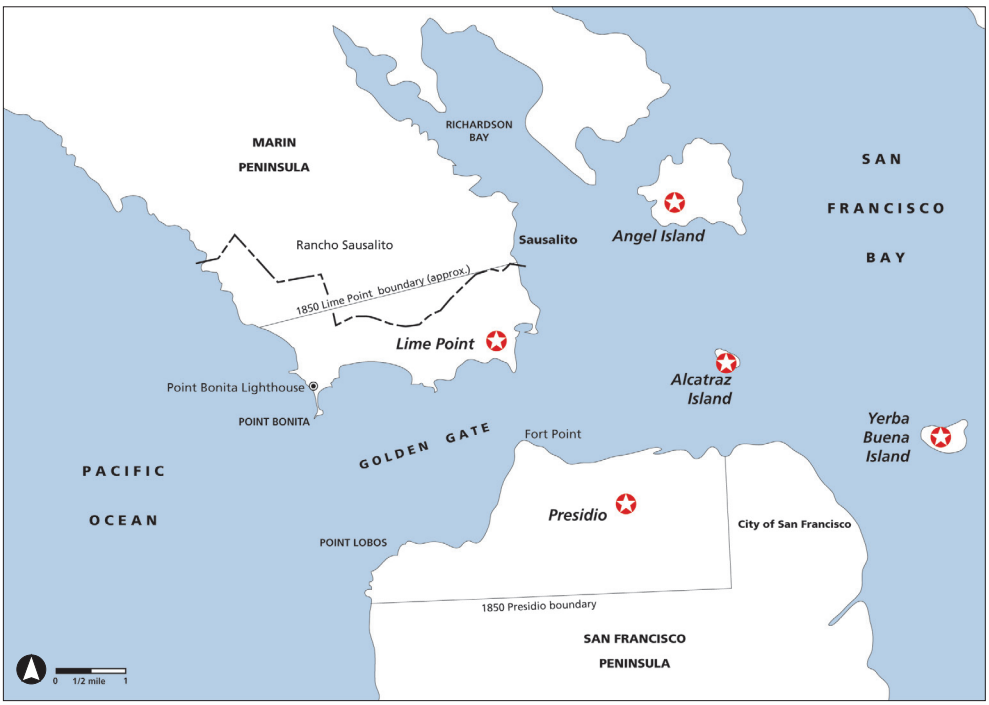


Figure 2.8. Map showing the location of the military reservations established by President Fillmore in 1850 on the north and south sides of the Golden Gate. The dashed black line indicates the later boundary of Forts Baker, Barry, and Cronkhite. (SUNY ESF)

the headlands to the government, which would allow him to pay off Richardson's debts and make a profit.

By October 1855, the War Department had returned to the idea of acquiring the entire 2,300-acre Lime Point reservation tract, and informally offered Throckmorton, then the acknowledged owner, $200,000 for it. Confident of receiving these funds, Richardson signed a deed on February 9, 1856 transferring title in Rancho Sausalito to Throckmorton, who thereby assumed the property's $130,000 mortgage.[21] Despite this, William Richardson remained heavily in debt, and on April 20, 1856, his creditors entered a suit against him. The following day, he died and Samuel Throckmorton apparently withdrew his agreement to return the one-fifth of Rancho Sausalito to the Richardson family. Throckmorton's main concern was reaching an agreement with the government to sell the 2,300 acres at the headlands to gain the funds he needed to meet the high mortgage payments. Around this time, he also began to rent out the ranch lands to earn income from the property. These tenant farmers began dairy ranches to supply the growing San Francisco market.[22]

In 1857, Congress appropriated $300,000 for land acquisition and construction of fortifications at the Lime Point reservation, but the purchase stalled due to a questionable title, political maneuvering, and price. By 1860, the War Department had secured a far lower court-assessed price of $125,000. Legal proceedings and a new claim against Rancho Sausalito delayed the government's acquisition another six years. Tired of the proceedings and realizing that he had little leverage for the higher amount, Throckmorton agreed to the $125,000 price in 1865. On July 24, 1866, the federal government finally secured title to the Lime Point Military Reservation, which had been resurveyed as containing 1,899 acres (fig. 2.9).[23] The reservation encompassed the entire stretch of headlands along the Golden Gate, including the lighthouse at Point Bonita, which up to this point existed without legal government title to the property. The northern boundary was established through the middle of Rodeo Lagoon, along Rodeo Creek, and veered northeast over a ridge toward the southern edge of Sausalito Cove.

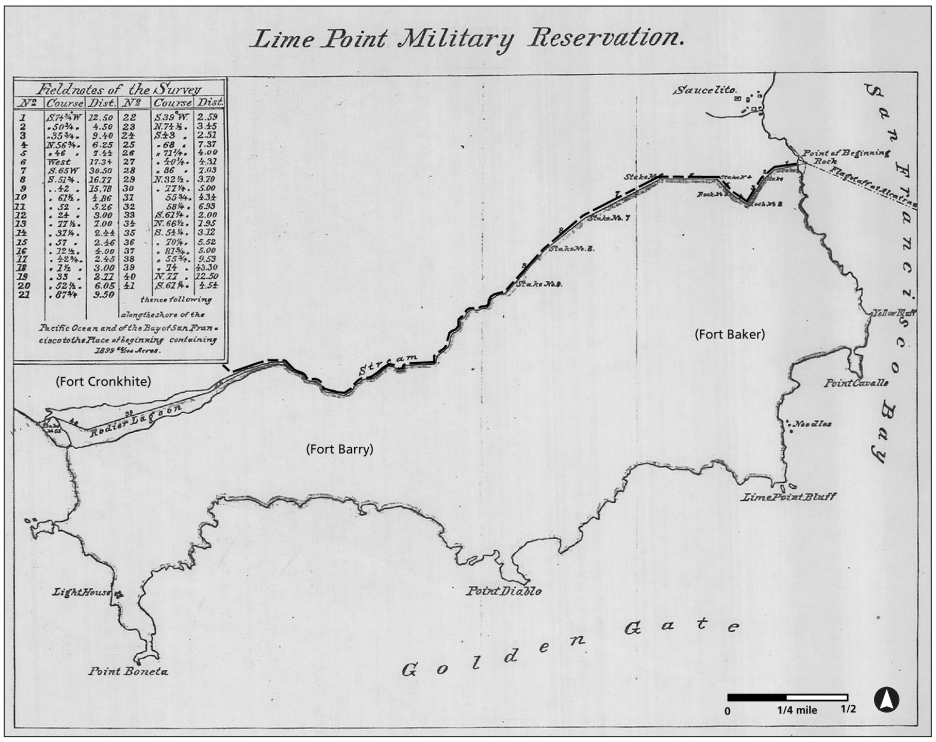


Figure 2.9. Survey of the Lime Point Military Reservation, 1866. The black dashed line indicates the later boundary of Forts Baker, Barry, and Cronkhite. (Golden Gate National Recreation Area, Park Archives and Records Center, D181, 71504, annotated by SUNY ESF)

Soon after acquisition, the War Department installed granite survey markers along the reservation boundary, and in 1867, added a post and rail fence to keep out livestock from Rancho Sausalito. The fence included locked gates at entry points, one of which was at the trail from Sausalito to Point Bonita. The War Department undertook other measures to protect its property, including the construction of a guard shack at Gravelly Beach, the cove west of Lime Point, to stop people from hauling away gravel.[24]

FORTIFICATION OF LIME POINT

While planning for the fortification of the north side of the Golden Gate began shortly after the American takeover in 1848, it was not until 1858 that Army engineers produced a detailed plan for a 250-gun masonry fort at Lime Point, similar to the nearly complete work at Fort Point on the opposite side of the Golden Gate (fig. 2.10). This plan was based on the Third System model of seacoast fortifications that Army developed between the 1830s and the Civil War. Although Third System forts varied in details, most consisted of multi-tiered casemated masonry batteries used to defend primary entry points into harbors, often surrounded by water on the primary sides. Cannons fired through small openings and ammunition storage rooms known as magazines were contained within the structure surrounding an interior parade ground. The open top tier of these forts, known as the barbette tier, contained guns that were mounted to fire over protective masonry parapets.[25]

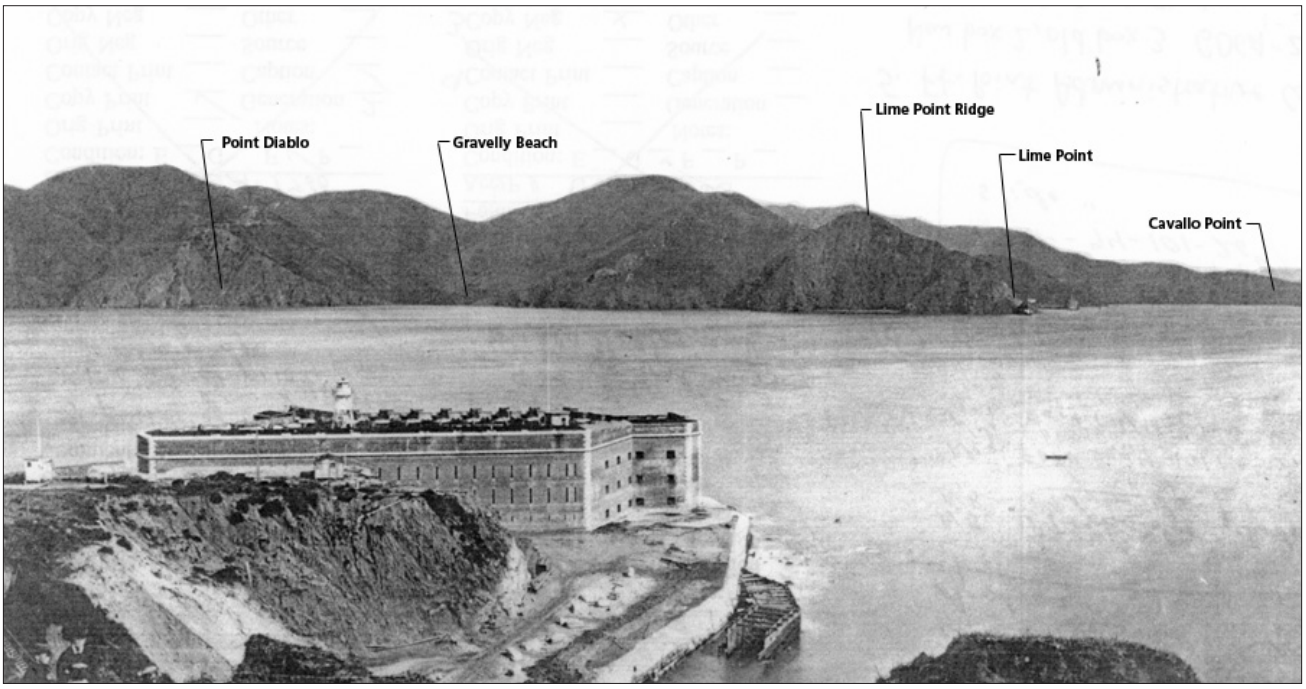


Figure 2.10. Panorama of the Marin Headlands looking north across the Golden Gate from Fort Point, a Third System battery, ca. 1868. The named areas at the headlands indicate places where fortifications were planned or built through the mid-1870s. (National Archives, Records of the Office of the Chief of Engineers, 77-F-94-101-26, reproduced from copy in Golden Gate National Recreation Area, Park Archives and Records Center, 35339.039, annotated by SUNY ESF)

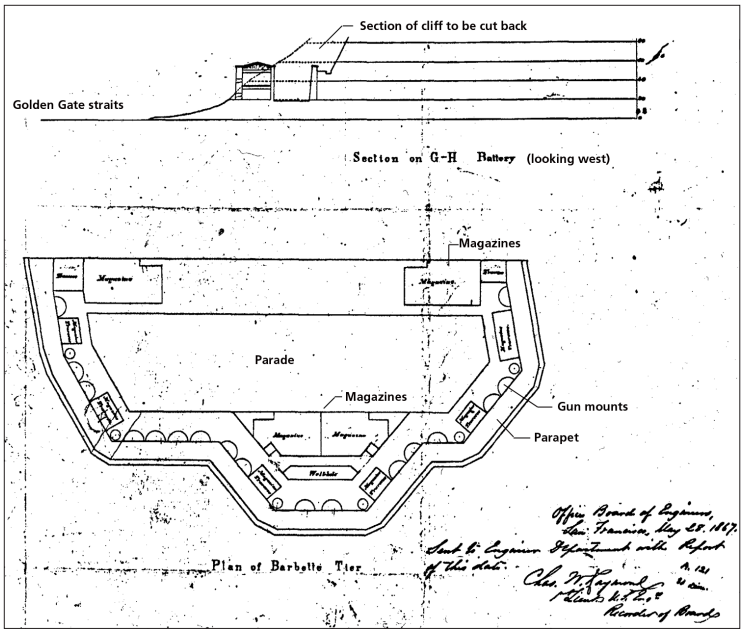
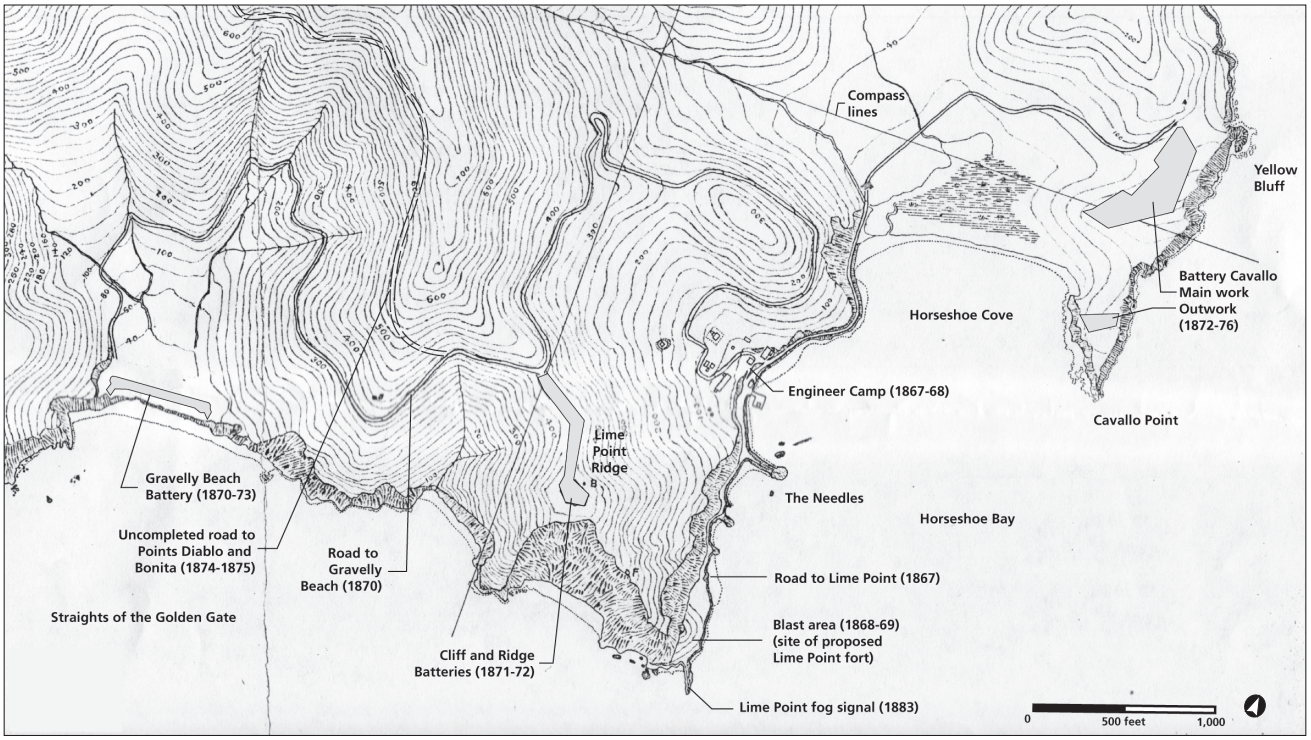


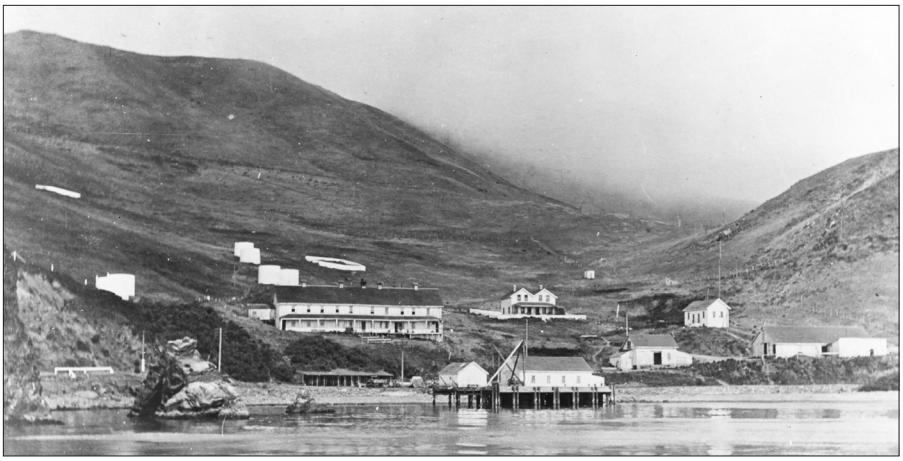
Figure 2.11. North-south section and plan of the top or barbette tier of the Lime Point fort, 1867. (National Archives, RG 77, reproduced from Thompson, 1979, annotated by SUNY ESF)

By 1867, the plans for Lime Point of a decade earlier had been modified, but still called for construction of a Third System fort, featuring an irregular polygonal face and a capacity of 109 guns (fig. 2.11). Plans also included construction of a separate two-tier battery at Point Diablo, the promontory west of Lime Point. Army engineers retained the basic Third System design for these forts despite high costs and experience from the Civil War that showed new rifled guns could destroy masonry walls. The headlands forts also faced obstacles from the topography at both sites, which required extensive blasting to create buildable areas along the sheer cliffs. At Lime Point, plans called for cutting back the 250-foot high cliff by 230 feet, requiring approximately one million cubic yards of rock to be removed from the rear of the fort (see fig. 2.11).[26]

In early 1867, Major George Mendell, who was responsible for the fortifications at Alcatraz Island, took charge of construction at Lime Point, a job he would maintain into the 1890s. At this point, the Army Board of Engineers approved only preliminary construction at Lime Point, recognizing the possible need for redesign. The initial work included construction of support buildings for Army engineers that served as quarters, storehouses, and workshops; building of access roads to Lime Point and Point Diablo; and

Figure 2.12. Map of the eastern end of Lime Point Military Reservation showing location of batteries and other development by 1890. (Map of Fort Baker, pre-1905, National Archives, RG 77, Golden Gate National Recreation Area, Park Archives and Records Center, D189, F3-9, annotated by SUNY ESF)





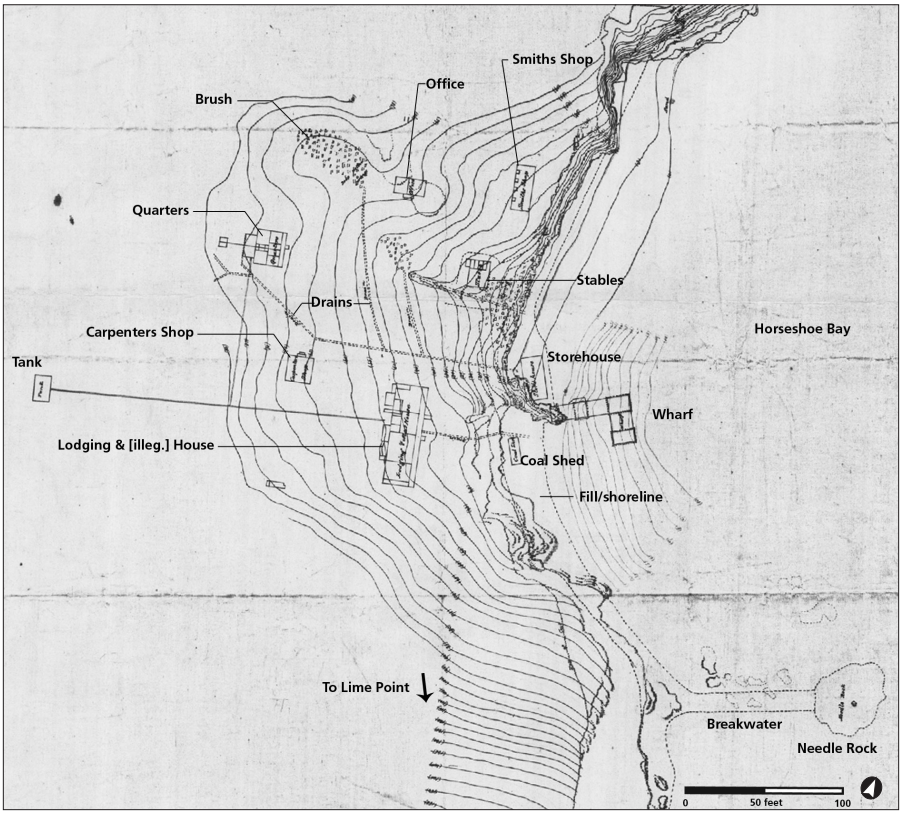


Figure 2.13 (top). The Engineer Camp on Horseshoe Bay north of Lime Point, view looking west, ca. 1870. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 1766)

Figure 2.14 (bottom). Map of the Engineer Camp on Horseshoe Bay, 1868. (Detail, "Map Accompanying the Annual Report Lime Point Cal., 1868," Golden Gate National Recreation Area, Park Archives and Records Center, 71752, D195 F1, annotated by SUNY ESF)

blasting of the rock at Lime Point. Work on the support buildings began in August 1867 at a small valley on the east side of Horseshoe Cove, the small bay between Lime Point and Cavallo Point (fig. 2.12). Horseshoe was an apparent reference to the shape of the bay, or to Cavallo Point (*caballo*, Spanish for horse), referring to the use of the area for livestock during the rancho and mission years of the early nineteenth century. The group of support buildings was referred to as the Engineer Camp because of its temporary nature. A permanent post for the reservation was envisioned for the large valley to the north, which the Army referred to as the Old Ranch Valley.[27]

The Engineer Camp consisted of white-painted frame buildings, the largest of which provided living quarters, while smaller ones functioned as a coal shed, carpenter's shop, smith shop, office, stables, and a storehouse (figs. 2.13, 2.14). Water from springs above the camp was captured in a tank on the hillside above. The waterfront featured a timber wharf to receive supplies barged in from San Francisco, and the surrounding waters were made into a sheltered cove by the construction of a stone breakwater that extended to Needle Rock, the largest of several outcrops in the bay known as the Needles.[28]

As the Engineer Camp was under construction, Major Mendell oversaw blasts at Lime Point between May 1868 and June 1869 to begin site preparation for the Third System fort. Army engineers soon suspended the blasting because they were planning development of a new type of fortifications for the headlands that could be built more cheaply, accommodate a new generation of larger guns, and provide better protection against accurate, high-powered rifled armament. Barbette batteries—much like the top tier of the old Third System forts, but set behind protective earthen parapets—were proposed for multiple locations along the coastline. These also coincided with a new model for the placement of harbor defenses

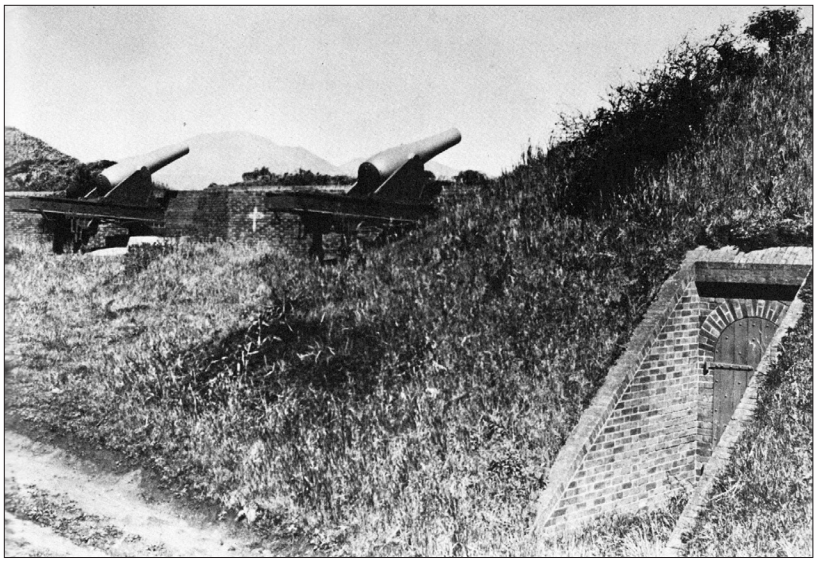


Figure 2.15. A barbette battery at the Presidio, view looking outward, ca. 1880. This image shows dual gun emplacements, earthen parapets with brick walls at the emplacements, and traverses with subsurface magazines (brick doorway at right) typical of the batteries built at Lime Point. (Loretta Block Thompson, from Raymond Lewis, *Seacoast Fortifications of the Untied States,* 71)

that were dispersed at the most tactically favorable positions.[29]

At San Francisco as at other major harbors, Army engineers adopted a design for barbette batteries consisting of paired gun emplacements set behind brick parapet walls and earthen parapets (fig. 2.15). The sides of the emplacements were protected by traverse parapets containing subsurface magazines for storage of ammunition. These earthen parapets were sodded to protect against erosion.[30] Unlike Third System forts, these barbette batteries occupied a larger area, yet were much less conspicuous in the landscape. The greatest strategic advantage to these new batteries was that their low crests and earthen parapets made them harder targets for naval fire than the old masonry forts.

While engineers did not abandon plans for building Third System forts at Lime Point and Point Diablo, work on the projects would never be resumed as the focus shifted for the next seven years to the barbette batteries. The western-most barbette battery was sited at Gravelly Beach, at the cove (Kirby Cove) between Lime Point and Point Diablo. This would serve as one of two batteries near the water level, the other at Point Cavallo, the peninsula separating Horseshoe Cove from San Francisco Bay east of Lime Point. A high-elevation battery was planned

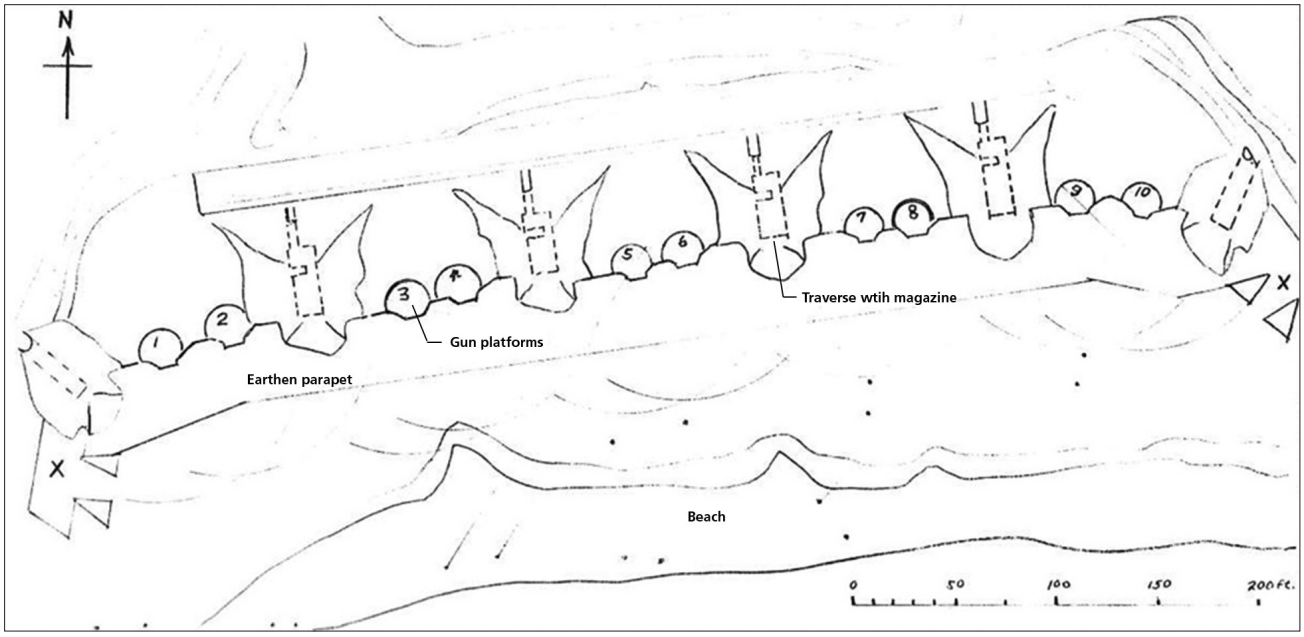


Figure 2.16. Sketch of Gravelly Beach Battery built between 1870 and 1872. The single gun mounted here in 1873 was in emplacement #8. (Emanuel Raymond Lewis, "A History of San Francisco Harbor Defense Installations: Forts Baker, Barry, Cronkhite, and Funston," 1965, figure 13)

for a ridge above Lime Point, protecting the waters surrounding the long-planned Third System fort below. The earth for the batteries consisted of soil and rock blasted from adjoining hillsides, which was built into parapets by six-inch compacted layers. Sand, cement, lime, wood, and brick were barged directly to the water-level batteries, or hauled up to the high battery.[31]

Work on the new batteries began in September 1870 with the construction of a road to Gravelly Beach from the Engineer Camp. Plans had originally called for the road to Lime Point to continue along the shoreline to Point Diablo, but the Army abandoned this in favor of an upland route that wound over Lime Point Ridge and down into the Gravelly Beach valley (see fig. 2.12). The Gravelly Beach battery, begun in late 1870 as the first of the three fortifications, was intended as the first line of protection along the Golden Gate east of the proposed, but still unrealized, work at Point Diablo. In its final design, the work included mounts for twelve Rodman guns (five pairs and two single weapons on the flanks), separated by traverses with magazines (fig. 2.16). The parapet walls were built of timber instead of brick or concrete, and the gun platforms consisted of redwood timbers set in concrete. A large brick culvert carried the creek that ran down the adjoining valley beneath the battery. In 1873, Battery Gravelly was completed and mounted with just one of its proposed twelve Rodman guns.[32]

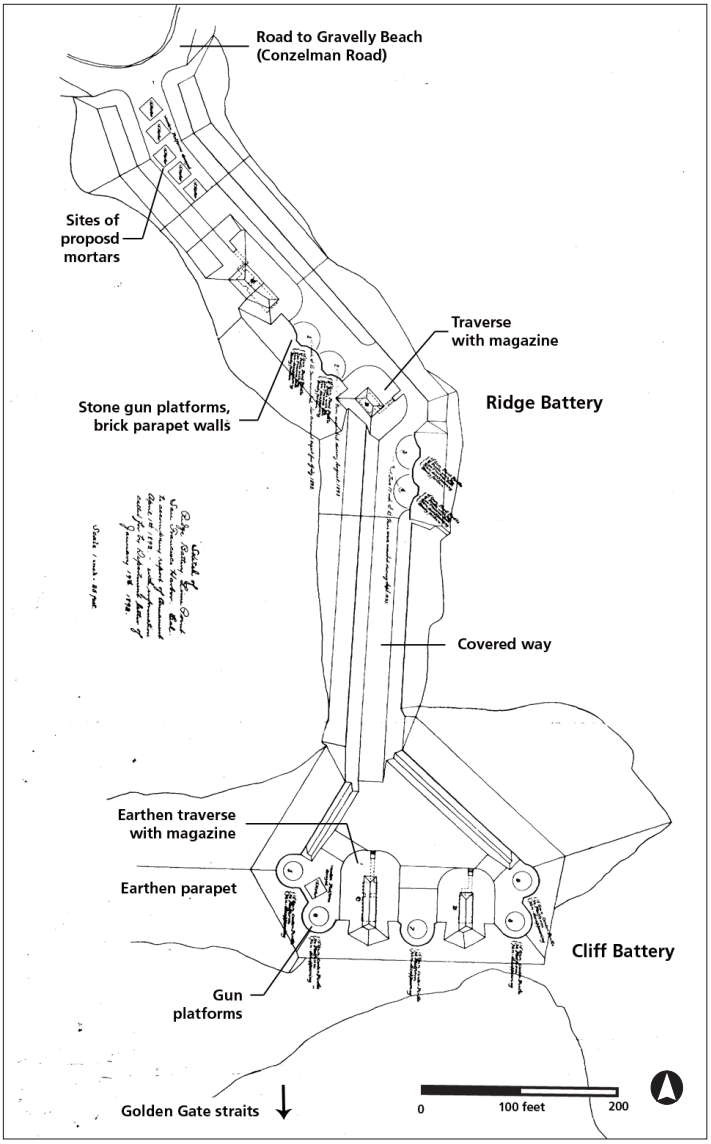


Figure 2.17. An 1872 plan of Ridge and Cliff Batteries built on the ridge above Lime Point in the early 1870s. (National Archives, RG 77, reproduced from Erwin Thompson, *Historic Resources Study, Seacoast Fortifications, San Francisco Harbor,* 1979, drawing 3, annotated by SUNY ESF)

In 1872, work started on the battery atop Lime Point Ridge that was known as two separate works: Ridge Battery with two paired gun emplacements along the spine of the ridge and five mortars (short-barrel guns with a high trajectory) near the road; and Cliff Battery with two paired and a single gun emplacement overlooking the Golden Gate (fig. 2.17). Ridge Battery provided access to Cliff Battery through a covered way, a road surrounded by protective earthen parapets. The gun emplacements at Ridge Battery featured brick parapet walls and granite gun platforms (fig. 2.18). Both batteries were substantially complete by 1873, but no guns would be mounted until the 1890s.[33]

The last and largest of the three barbette batteries was at Cavallo Point, begun in 1872 and substantially completed in 1876. The battery was connected to the Engineer Camp by a road built along the shoreline of Horseshoe Cove. It was a large battery that protected the northern entrance to San Francisco Bay, complimenting existing or

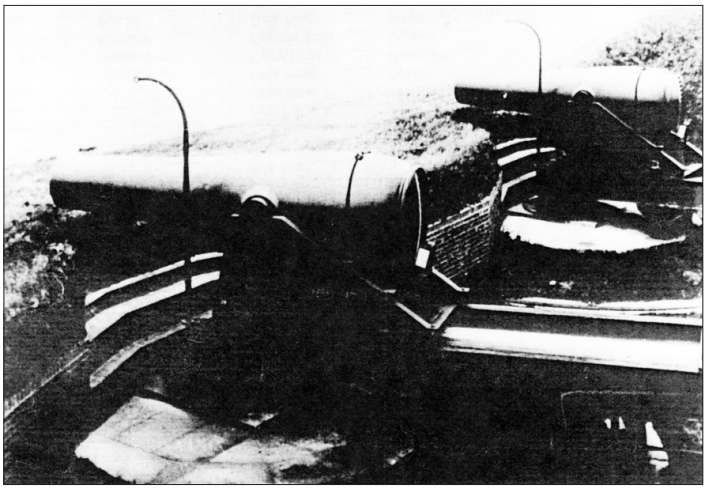


Figure 2.18. Paired gun emplacements at Ridge Battery completed in 1872, showing fifteen-inch Rodman guns installed in 1893, stone gun mounts, brick parapet walls, and turf-covered earthen parapet, ca. 1895. (Golden Gate National Recreation Area, Park Archives and Records Center, photograph 25301.1997)

planned fortifications at Angel Island and Alcatraz Island. Cavallo Battery was also intended to protect Horseshoe Cove, Richardson Bay, and the anchorage at Sausalito.[34] With a unique, enclosed pentagonal shape that responded to the peninsular location, the fifteen-gun and nine-traverse battery had a fortified character recalling the old Third System works (fig. 2.19). It also had an outwork near the tip of Cavallo Point with an additional two gun emplacements and a magazine. Across the center of the interior of the main work was a traverse with two brick connecting tunnels. The battery was complete when work stopped in 1876, except for gun platforms and parapet walls. Like Cliff and Ridge Batteries, no guns were mounted at the time. [35]

Aside from the three barbette batteries, Colonel Mendell continued to pursue development of a fortification at Point Diablo. In 1874, he received approval of the work and began construction of an access road that turned off the road to Gravelly Beach near Ridge Battery (see fig. 2.12). Mendell also considered extending the road to Point Bonita, nearly three miles west of Lime Point where Army engineers had considered construction of a fortification.[36] By January 1875, workers had completed approximately one mile of the road, which extended around the north side of Diablo Ridge into the head of a side valley along Rodeo Valley (later site of the rifle range). At this time, work ceased when Army engineers determined construction of a fortification at Point Diablo was not a priority. The planned access road was left incomplete, although Army personnel probably used it as a trail to Point Bonita.[37]

Beginning in 1876 and for the next fifteen years, Congress appropriated no funds for construction of new batteries or installation of new armament in the nation's seacoast fortifications. During this time, the one gun at Battery Gravelly was the only weapon guarding the north side of the Golden Gate. The old Third-System forts at Fort Point and Alcatraz Island, with their 1870s-style batteries left mostly unarmed, continued to serve as the primary defenses for San Francisco harbor into the early 1890s. With limited funds available for maintenance, many of the earthwork batteries, plagued by burrowing gophers, fell into disrepair. [38]

IMPROVEMENTS TO NAVIGATIONAL AIDS

In the late 1860s as the War Department was beginning its fortifications, the Lighthouse Board was planning to improve its Point Bonita facilities at the far western end of the military reservation. Perhaps seeking to secure the site against future Army encroachment, the Lighthouse Board sought designation of its own reservation, proposing a forty-four acre tract to be called the Point Bonita Lighthouse

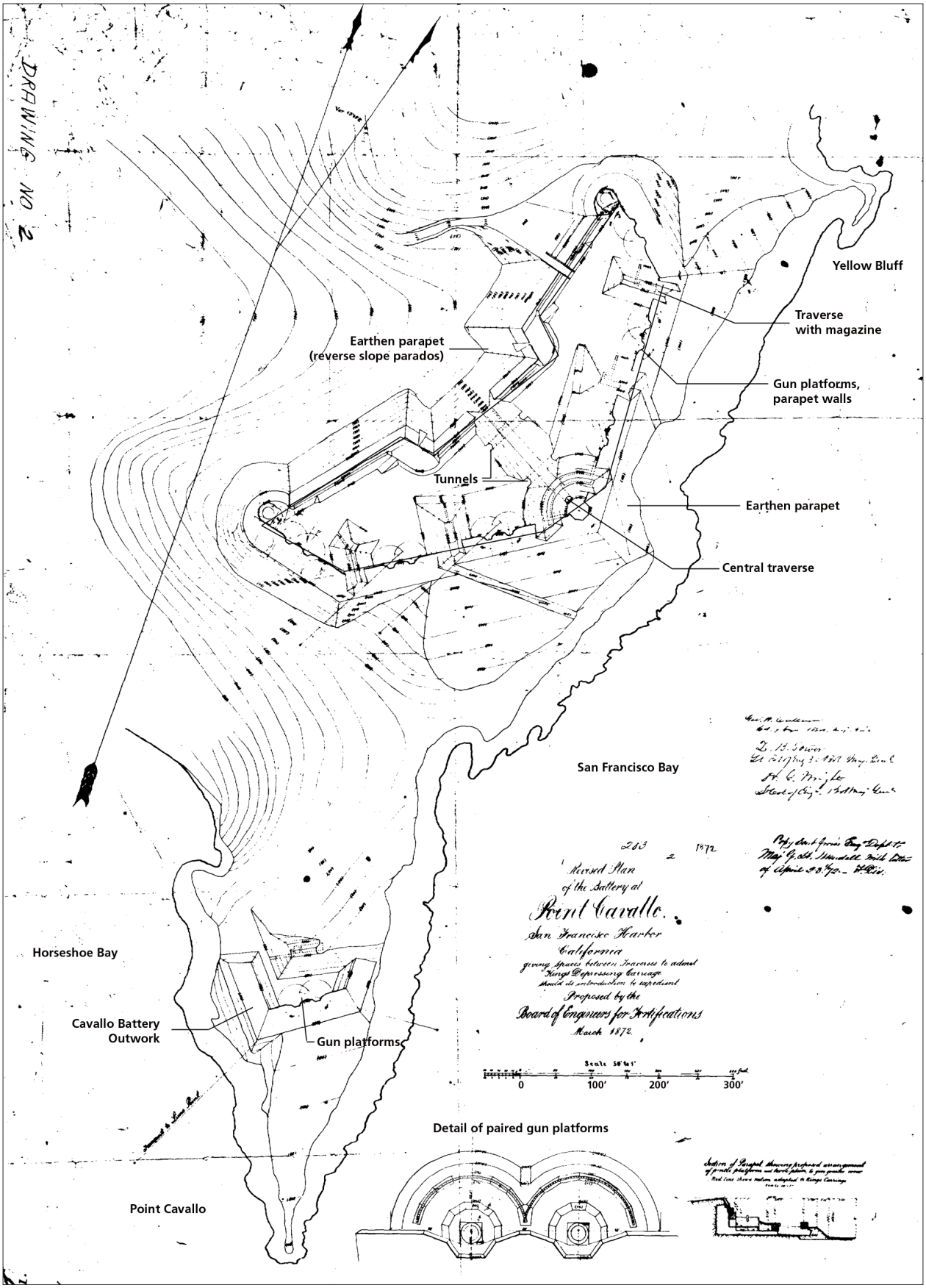


Figure 2.19. An 1872 plan of Battery Cavallo showing the proposed main work and the outwork at the south end of the point. The gun platforms and parapet walls were not constructed during this period. (National Archives, RG 77, reproduced from Erwin Thompson, *Historic Resources Study, Seacoast Fortifications, San Francisco Harbor,* 1979, drawing 2, annotated by SUNY ESF)

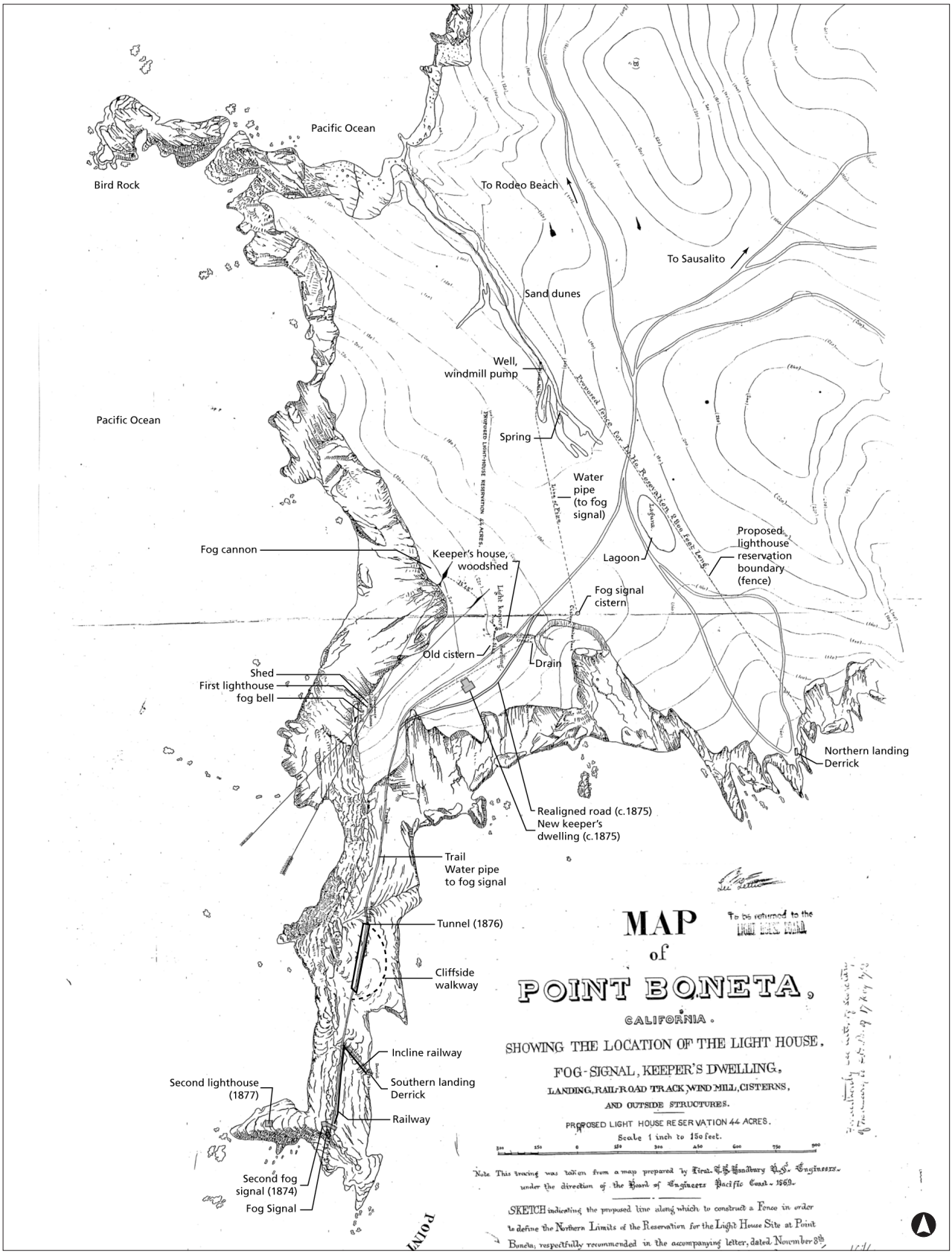


Figure 2.20. An 1872 map of Point Bonita based on an 1869 survey showing the boundary of the proposed lighthouse reservation and location of improvements built since 1855. The trail to Point Bonita is shown as proposed, although it would not be completed for several years. Features added after 1872 are indicated by date. The map and title block have been reoriented from the original to put north at the top. (Golden Gate National Recreation Area, Park Archives and Records Center, War Room Drawings collection, 18–23–19, annotated by SUNY ESF based in part on previous version dated July 1871, drawing 18–20–50)

Reservation (fig. 2.20). This proposal, however, went nowhere and Point Bonita remained under military jurisdiction.[39]

By 1870, Point Bonita was little changed since its establishment fifteen years earlier. It contained the lighthouse, fog bell and cannon, and keeper's house on the windswept ridge above Point Bonita, with only a rough trail connecting it to Sausalito, a three-mile and half-hour ride away. To many in the area, the point was a remote and unknown place within Sausalito Township, known only through published accounts, such as one that appeared in the *Saucelito Herald* in 1871:

> On the bluff, just in the rear of the [keeper's] house, stands the old fog-cannon…It is but a short walk from here to the light-house…Everything is a model of neatness and order…The view from the upper part of the light-house, in clear weather, is unsurpassed. San Francisco and the bay fortifications seem but a short distance off. Almost beneath us a number of vessels, ships, schooners, even the smaller fishing craft passing in and out; the rocky line of coast stretching away to the northward, over which the waves dash with roaring sound, leaving a line of white foam behind; the heavy breakers on the bar beyond; the Faralones [islands] in the distance, altogether a most pleasing picture, an ample return for the trouble experienced in reaching the spot.[40]

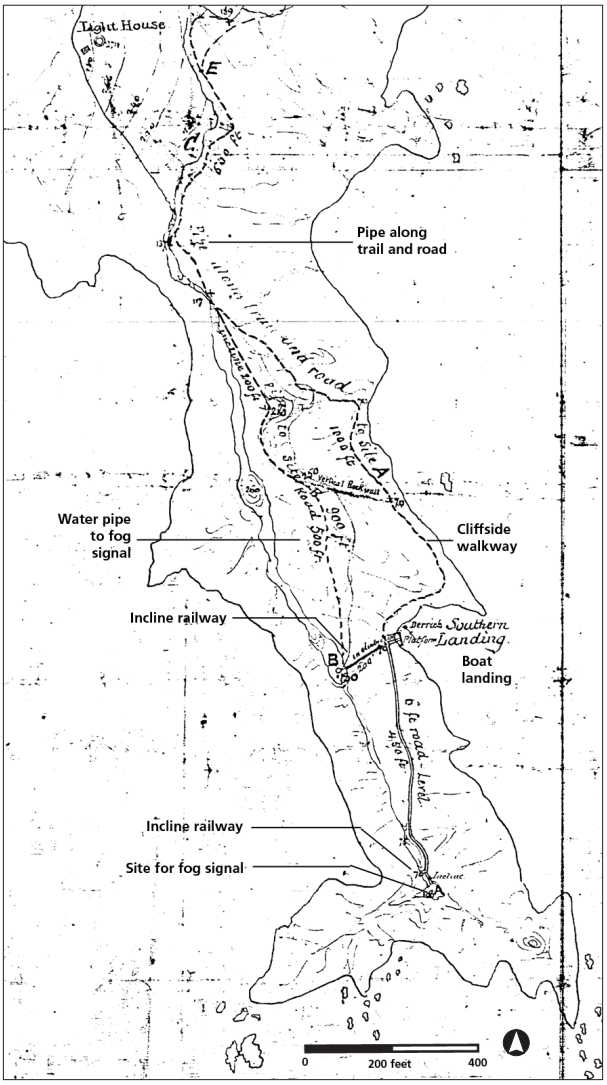


Figure 2.21. Map of the initial land and water access to the site of a new fog signal at Land's End at Point Bonita, July 1871. (Detail, "Map of Point Boneta, The Outer Head Land, North of the Entrance to San Francisco Harbor," Golden Gate National Recreation Area, Park Archives and Records Center, War Room Drawings, 18-20-50, annotated by SUNY ESF)

At the time of this newspaper article, the Lighthouse Board was in the midst of major improvements to the 1850s facilities, which had proved to have a number of drawbacks. The lighthouse was inadequate in the dense high-elevation fogs typical of the Golden Gate, so the light beam was often invisible to nearby ships along the coastline that were in most danger of crashing into rocks. The fog bell's relatively weak signal and location 260 feet above the water did not reach boats far out from the coast. The board's solution to both of these problems was relocation to a lower elevation near the tip of Point Bonita, then also referred to as Land's End, and use of an amplified signal technology marketed as Brown's Steam Fog Siren. This system used steam forced through rotating discs to produce a high-pitched siren, amplified by a thirty-inch wide, sixteen-foot long trumpet.[41]

The first priority was the fog signal, which received a Congressional appropriation in 1871. At the time, there was neither land nor water access to the tip of Point Bonita. In preparation for bringing building materials and supplies to the site, a boat landing was constructed on the eastern side of the point in Bonita Cove, initially connected to the fog signal site by a six-foot wide road (figs. 2.21, 2.22). The landing featured a derrick that raised supplies from boats to an incline railway that ascended a cut in the cliff. From a store-



Figure 2.22. The southern landing at Point Bonita looking north, with the derrick at the lower right and the incline railway to the left leading up to a storage shed, ca. 1872. (Courtesy of The Bancroft Library, University of California, Berkeley, Lone Mountain College Collection of Stereographs by Eadweard Muybridge, BANC PIC 1971.055:1651--STER)

house at the top of the incline, workers laid out a level railway along the ridge to reach the fog signal site. The railway was designed to supply the fog signal with the anticipated seventy-five tons of coal needed annually to fire the steam boilers.[42]

To provide a land route from the mainland, workers constructed a trail from the railway and southern landing north to the lighthouse keeper's dwelling (see fig. 2.20). Due to the weakness of the rock, workers encountered a number of landslides during construction. Along the side of sheer cliff mid-way on the point, workers built a timber walkway (also called The Gallery) that skirted the edge to avoid excavation into the rock (fig. 2.23, see also fig. 2.21). Near the keeper's house, the Point Bonita trail connected to a road or trail to Rodeo Beach, most likely the site of the original lighthouse landing in 1855. Mid-way along this road was the trail leading northeast to Sausalito through Rancho Sausalito. In ca. 1872, Samuel Throckmorton, the owner of Rancho Sausalito, built a road from Sausalito to the light house



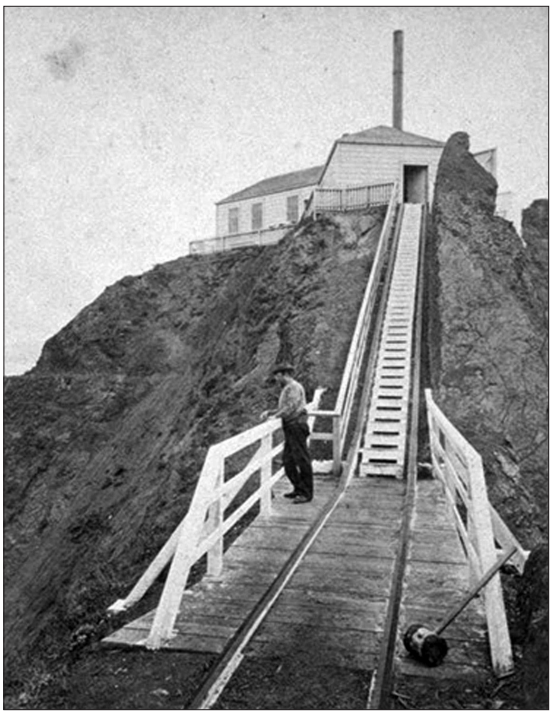


Figure 2.23 (left). The cliff–side walkway to Land's End (Point Bonita) looking south with the first fog signal in the distance, ca. 1872. (Courtesy of The Bancroft Library, University of California, Berkeley, Lone Mountain College Collection of Stereographs by Eadweard Muybridge, BANC PIC 1971.055:1647--STER)

Figure 2.24 (right). The first fog signal station at the tip of Point Bonita, looking south, ca. 1872. The siren trumpets faced the Golden Gate, on the opposite side of the building in this photograph. The railway and incline brought coal and other supplies from the southern landing. This image illustrates the original elevation of the station. (Courtesy of The Bancroft Library, University of California, Berkeley, Lone Mountain College Collection of Stereographs by Eadweard Muybridge, BANC PIC 1971.055:1654--STER)

boundary, probably following the earlier trail.[43] These roads connected to a third boat landing that had been constructed on the north side of Bonita Cove by 1870. Also outfitted with a derrick like the south landing, this northern landing was used to bring supplies to the keepers' quarters and lighthouse.[44]

This north landing was probably also used in 1871 to unload materials for construction of an expanded water system designed to bring large amounts of fresh water necessary for the fog signal's steam boilers. The water source was from the same area used previously, springs within a gully north of the keeper's house that drained into the Pacific north of Bird Island, also known as Bird Rock (see fig. 2.20). Here, workers probably added a new well or enlarged the old one, and installed a windmill to pump the water through a system of pipes to the fog signal station, following the trail and railway to Point Bonita. Near the keeper's house approximately one hundred feet above the elevation of the fog signal, a domed brick cistern was built to supply constant water pressure.[45]

Work on the fog signal station continued through the spring of 1872 and the station went into operation on May 29th. As completed, the station featured a complex of buildings with a narrow steel smoke stack, precariously perched on a high rocky outcrop at the tip of the point reached by an inclined railway (fig. 2.24). Like the old lighthouse, the buildings were whitewashed to serve as day marks. Soon after completion, the steep slopes began to give way. The worst landslide occurred on February 9, 1874, when the south-facing cliff fell into the sea, taking an anchor of the signal trumpet with it and undermining the foundation of the signal house. To remedy this, the Lighthouse Board decided to rebuild the entire complex on a more stable footing by cutting down the point by twenty-five feet. Plans were drafted in February 1874 and work began the following October with removal of the buildings and excavation. The rebuilt fog signal station, completed by May 1875, was similar to the first, with two siren sixteen-foot trumpets facing southwest, an engine room, coal room, kitchen, and a living room (fig. 2.25). The lower elevation allowed for removal of the incline railway.[46]

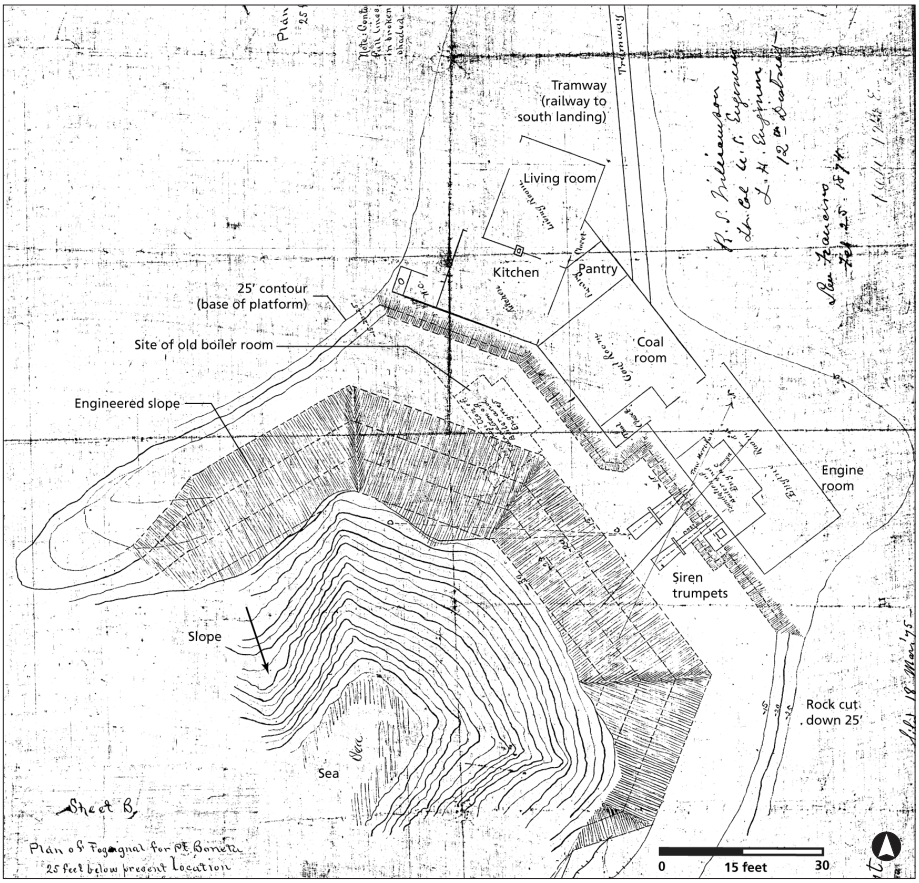


Figure 2.25. Site plan of the second fog signal station built in 1874–75 on the same location by cutting down the rock twenty-five feet and engineering the southern slope to prevent landslides. (Golden Gate National Recreation Area, Park Archives and Records Center, War Room Drawings, 18–2b–46, annotated by SUNY ESF)

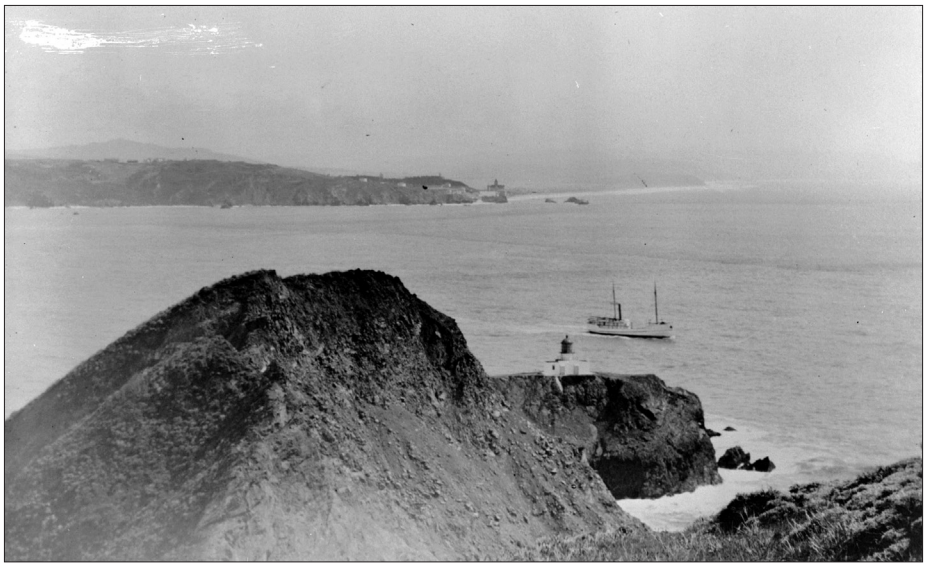


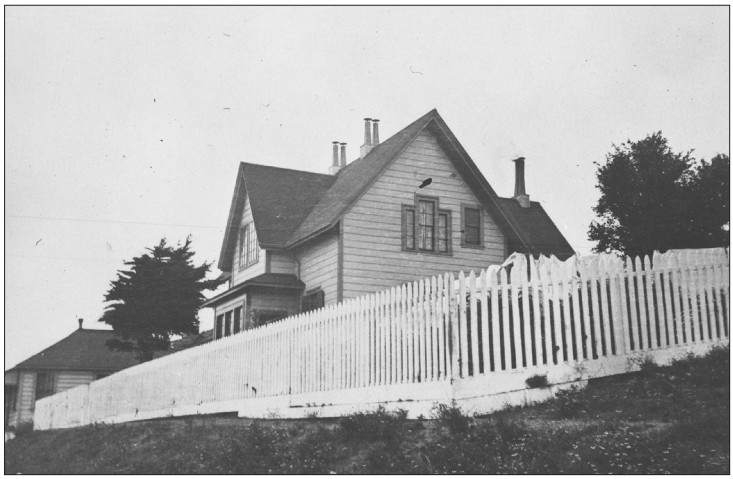
Figure 2.26. The second lighthouse built at the tip of Point Bonita in 1877, looking south across the Golden Gate, ca. 1890. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.0809)

While this reconstruction was underway, the Lighthouse Board began to plan for moving the lighthouse to the western promontory on Point Bonita, 363 feet northwest of the fog signal (see fig. 2.20). Plans were to move the lantern and lens to a new tower at the point, and leave the old tower, capped by a brick dome, as a day mark. Congress appropriated funds on July 31, 1876, and soon thereafter, work began on rebuilding the access trail to improve the safety of the connection to the mainland part of the station, a route plagued by landslides and the precarious cliff-hanging bridge. In place of the cliff-side bridge, workers constructed a 118-foot long, six-foot wide tunnel in 1876 (see fig. 2.20).[47]

The new lighthouse at the tip of Point Bonita, which went into service on February 2, 1877, featured a short, whitewashed brick tower, giving the light an elevation of 140 feet above sea level instead of the previous 306 feet (fig. 2.26). On a clear night, the light was visible eighteen nautical miles out at sea. The tower rose sixteen feet above the roof of a two-winged building containing the keeper's night quarters and an oil storage room. The lighthouse was connected to the trail and railway at the fog signal station by a narrow land bridge that was surfaced with a concrete walk. At the same time, a 12,000-gallon water tank was built next to the fog signal to improve what had apparently been an inadequate water supply from the cistern near the keeper's house.[48]

Following completion of the new lighthouse, a number of other improvements were made to the light station through the 1880s. In ca. 1875, a new keeper's house was built west and south of the original 1855 building, facing south toward Bonita Cove (see fig. 2.20). The one and one-half-story Gothic Revival-style house was much larger than the earlier dwelling, and more refined with its cross-gable roof and chimney pots (fig. 2.27). The old brick dwelling was converted into a duplex for the assistant keepers; it still relied on an outhouse that by regulation had to be moved every three months.[49] At some point in the late nineteenth century, the grounds of both houses were enclosed with picket fences. Several secondary buildings were added near the two residences, including a barn and sheds. Although

Figure 2.27. The new keeper's dwelling constructed in ca. 1875 west of the old dwelling, view looking northwest from a later photograph, ca. 1920. The small building in the background and cypress trees were added after 1890. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 18498.002)



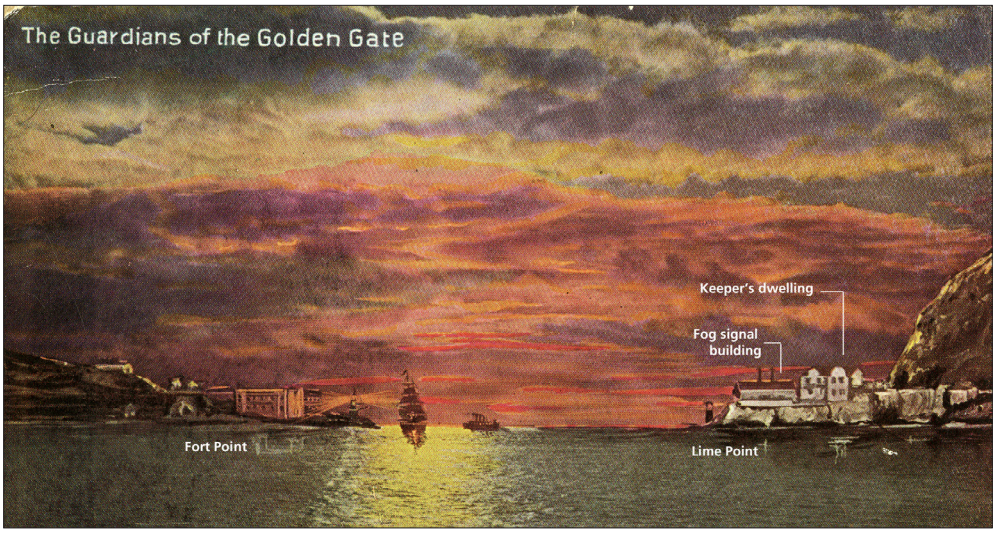


Figure 2.28. The fog signal station at Lime Point built in 1883, view looking west toward the Pacific, from a ca. 1890 postcard. This image illustrates how Lime Point served as a navigational companion to Fort Point, and the white wash applied to the station and its rock base. (Golden Gate National Recreation Area, Park Archives and Records Center, photograph GOGA 35204, annotated by SUNY ESF)

the Army did not grant the Lighthouse Board its own reservation, it did allow the construction of a fence along the proposed border (see fig. 2.20).[50]

Point Bonita was not the only part of the Lime Point Military Reservation that interested the Lighthouse Board. Three miles east of Point Bonita, the rocky promontory at Lime Point, where the military had planned to build a Third System fort, posed a navigational hazard, especially during heavy fog. Fort Point, the southern counterpart to Lime Point, had been outfitted with a lighthouse in the 1850s, but the northern entrance to the bay remained unmarked for the next three decades. In 1882, Congress appropriate funds for construction of a steam fog signal at Lime Point, a decade after the one at Point Bonita. Plans called for two twelve-inch steam whistles, which produced a shorter-range signal than the large trumpets sirens at Point Bonita. Plans did not include the construction of a light.[51]

The site of the new fog signal was a rock at the tip of Lime Point known as Sugar Loaf (see fig. 2.12). As at Point Bonita, the Lighthouse Board did not have a reservation of its own, but rather occupied the site through an agreement with the War Department. To create a buildable site, workers blasted off the top of Sugar Loaf Rock to create a level platform. As completed in 1883, the complex included a one-story brick fog signal building with the two fog whistles rising from the ridge of the gable roof (fig. 2.28). A keeper's dwelling, constructed to the rear of the fog signal building, was a large, two-story brick building containing two separate dwellings. Both buildings had red roofs and their brick walls were whitewashed to serve as day marks. As at Point Bonita, coal and other supplies were brought to the site by a railway following the preexisting road to the engineer wharf. Water for the fog boilers was transported by a flume that ran down the hillside from a reservoir at the Engineer Camp.[52]

SAUSALITO AND HEADLANDS RANCHES

After Samuel Throckmorton sold the headlands of Rancho Sausalito to the federal government in 1866, most of the Marin Peninsula to the north remained ranchlands, but the eastern shore from Old Sausalito north developed into a thriving port and suburban community in the later decades of the nineteenth century. The

origins of Sausalito's revival began shortly after the sale of the headlands to the government, when investors acquired 1,164 acres from Throckmorton and the Richardson heirs in 1869 to form the Sausalito Land & Ferry Company (fig. 2.29). The company laid out lots and streets for a new town north of the old one, and began regular ferry service to San Francisco. According to an 1880 county history, the land and water company "…was destined to cause new life to spring into the old wreck of a town, and to draw the attention of people seeking a quiet rural home in a lovely place…"[53] The fortunes of the land company were greatly improved with establishment of the North Pacific Coast Railroad in 1871, which had its terminus at the Sausalito wharf, crossing Richardson's Bay by a long trestle.[54] Growth of the town by the 1880s extended into Old Sausalito near the northern boundary of the Lime Point Military Reservation, where commercial and industrial buildings lined the waterfront and country houses dotted the hillsides amid the old ranchlands (figs. 2.30, 2.31).



Figure 2.29. An 1873 map of Marin County showing Rancho Sausalito and Sausalito in relation to the Lime Point Military Reservation. The map also shows the two parcels north of the military reservation subdivided from Rancho Sausalito in 1881. The black dashed line indicates the existing boundary of Forts Baker, Barry, and Cronkhite. (Detail, H. Austin, "Map of Marin County, California," 1873, California State Library)

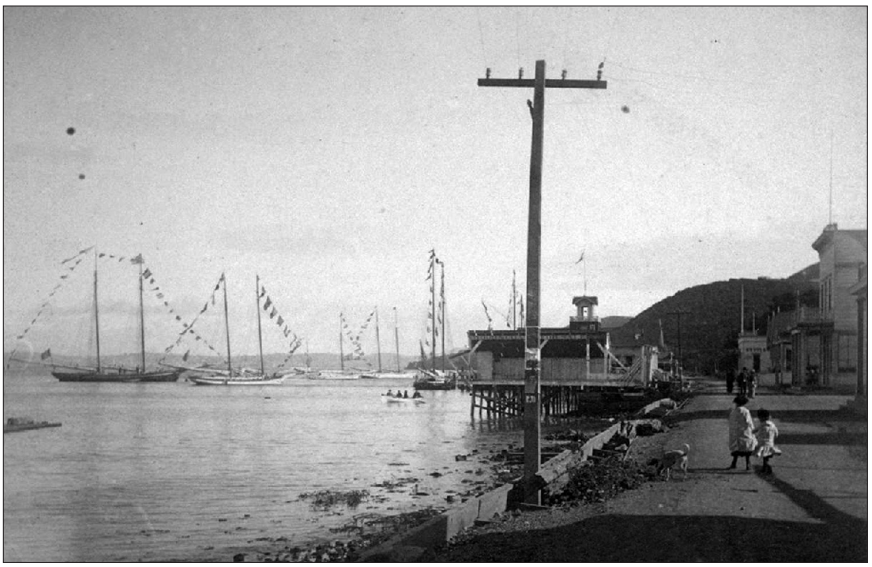




Figure 2.30 (top). The waterfront in the vicinity of Old Sausalito looking south with the hills of Lime Point Military Reservation in the right background, ca. 1888. (George Reed photograph, Courtesy of The Bancroft Library, University of California, Berkeley, BANC PIC 1979.051:09--ALB)

Figure 2.31 (bottom). Hikers gathered along a fence on or near the Lime Point Military Reservation boundary, looking northeast toward Sausalito with country houses on the hillside and waterfront development visible in the background, ca. 1887. (Courtesy of Sausalito Historical Society, photograph P75–1158)

To meet his financial obligations on his heavily mortgaged land, Samuel Throckmorton began to rent out Rancho Sausalito to farmers beginning in the late 1850s. Most farmers established dairy ranches that produced for the burgeoning San Francisco market. According to an 1880 county history, milk and butter production was the principal occupation of farmers in Sausalito Township, "…owing to the fact that a great portion of the land is topographically unfit for farming purposes, and from the more potent fact that the business of dairying pays a better profit on the investment."[55] The western part of the peninsula was ideal for dairy cows due to the fogs that prolonged the growing season of the grasslands into the summer. When the grasses dried up, farmers supplemented with oats, hay, or barley that they raised on valley flats.[56]

By 1880, Throckmorton had twenty-four tenant dairy farms, concentrated at the south and west sides of Rancho Sausalito, with several bordering the Lime Point Military Reservation. The Army probably leased some of its inactive military land at Old Ranch Valley (Fort Baker main post) and near Gravelly Beach to these dairy farmers, who maintained barns and fenced corrals for their cows. The tenant ranches were each run by two or three Portuguese men who formed individual diary companies.[57] Despite his rental income and other real estate enterprises, Samuel Throckmorton remained in financial difficulty, and in 1881, was forced to sell approximately 1,600 acres at the south end of the ranch bordering the Lime Point Military Reservation. This land was sold in two tracts: 1,630 acres between Sausalito and the east end of Rodeo Lagoon that was acquired by E. W. Burr, J. M. Shotwell, and Janet Howard; and a 540-acre parcel from that lot to the Pacific Ocean, which was acquired by J. B. Haggin, a thoroughbred horse rancher (see fig. 2.29).[58] Throckmorton retained the remaining lands of Rancho Sausalito, amounting to approximately 15,000 acres, until his death in 1883. He left the heavily mortgaged property to his daughter, Susannah Throck-

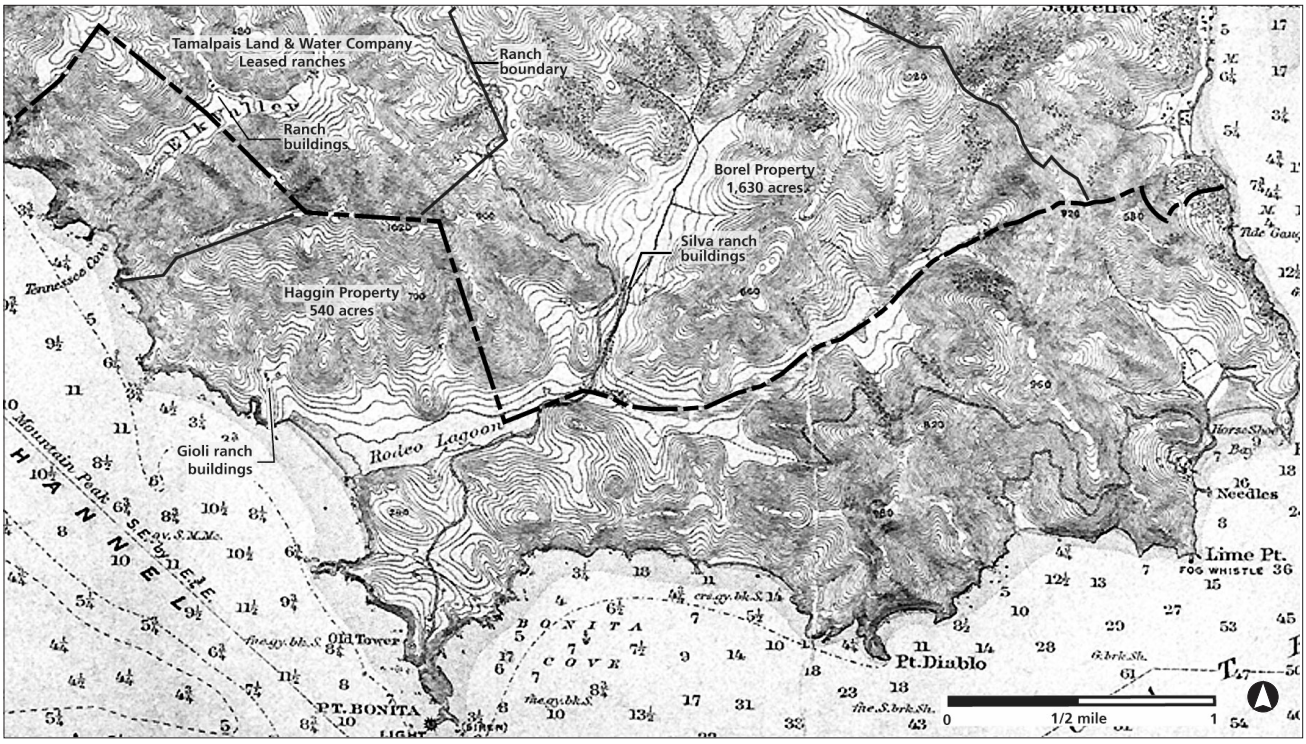


Figure 2.32. An 1886 map showing the ranches acquired by Borel, Haggin, and the Tamalpais Land and Water Company in the 1880s. The black dashed line indicates the later boundary of Forts Baker, Barry, and Cronkhite. (Detail, U.S. Coast Survey, 1886, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 3512, annotated by SUNY ESF)

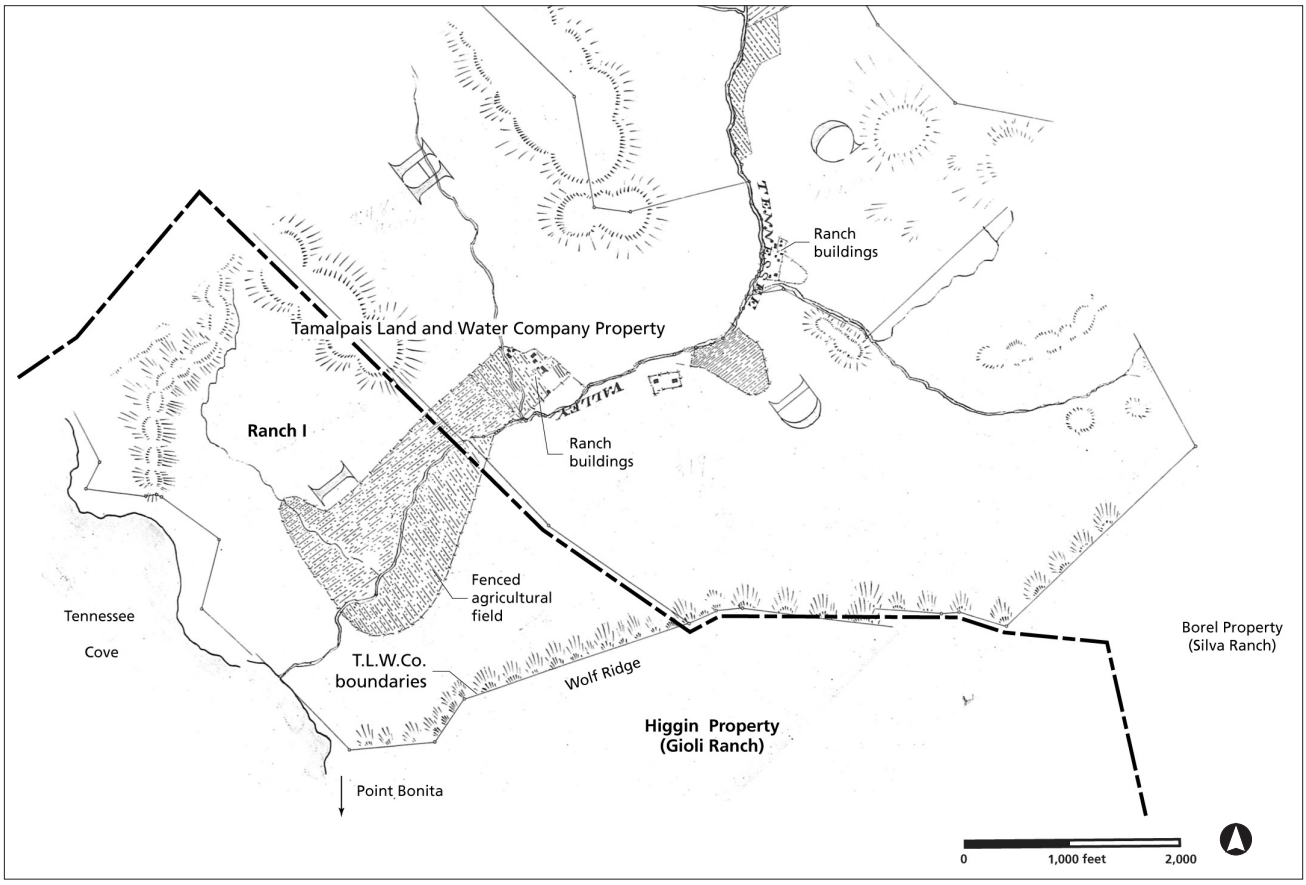


Figure 2.33. Map showing the ranches on Tamalpais Land & Water Company property in Tennessee Valley in ca. 1890. The black dashed line indicates the later boundary of Fort Cronkhite. (Detail, Tamalpais Land & Water Company Map showing subdivision of ranchlands, 1892, annotated by SUNY ESF, Courtesy of Sausalito Historical Society, map 76–498)

morton, who managed it for the remainder of the 1880s. In 1889, she sold Rancho Sausalito to the Tamalpais Land and Water Company, which continued to rent to the dairy farmers while planning to develop a new town north of Sausalito named Mill Valley.[59]

In the early 1880s, Burr, Shotwell, and Howard sold their 1,630-acre tract to Antoine Borel, an immigrant from Switzerland who came to San Francisco during the Gold Rush. Borel was manager of A. Borel & Company of San Francisco, a prominent mercantile and banking firm founded by his brother Alfred in 1855. Antoine Borel was head of the California Street Cable Railway Company, and in 1885, was appointed Swiss Consul. At his Marin Headlands property, Borel continued to rent to the farmers who had settled there during Samuel Throckmorton's ownership between the 1850s and 1870s. In the 1880s, the ranch was operated by Manuel V. Silva, the son of Joseph V. Silva who had immigrated to Marin County from the Azores in 1856, and had established a dairy ranch near Manzanita (north of Sausalito) and a successful grocery business. Manuel's dairy ranch was centered in the valley that branched northeast from Rodeo Lagoon (present Gerbode Valley) (fig. 2.32).[60]

The horse rancher J. B. Haggin also retained a tenant dairy farmer on his adjoining 540-acre parcel to the west of the Borel property. In 1885, Haggin's tenant was Louis Gioli, a Swiss immigrant who ran a dairy ranch with several buildings in a small valley northwest of Rodeo Lagoon. North of the Haggin property were tenant ranches in Tennessee Valley on property owned by the newly formed Tamalpais Land & Water Company (fig. 2.33).[61]

LANDSCAPE SUMMARY, 1846–1890

In 1890, fifty-six years after the American takeover of San Francisco, the landscape of Forts Baker, Barry, and Cronkhite was on the verge of a new era of development following fifteen years of relative inactivity. The landscape, much of which remained little changed from its character at the end of Mexican rule, was dominated by rocky coast, dramatic cliffs, high ridges and rolling hills, sheltered valleys, and expansive grasslands. Trees and shrubs shaded small areas along creeks and in sheltered areas. Changes by 1890 resulted from the development of dairy ranches north of Rodeo Lagoon and Rodeo Creek, construction of fortifications near Lime Point, and addition of navigational aids at Point Bonita and Lime Point.

The 1,899-acre Lime Point Military Reservation encompassed the later limits of Forts Baker and Barry, including Point Bonita where the Lighthouse Board occupied a forty-four acre area, along with a small parcel at the tip of Lime Point under an apparent informal arrangement with the Army. All of Fort Cronkhite in 1890 was privately owned ranchland. The part south of Wolf Ridge was owned by the horse rancher J. Higgin, and the area to the north in Tennessee Valley was part of

a leased dairy ranch within Rancho Sausalito, then owned by the Tamalpais Land & Water Company. The Army may have allowed cattle from these ranches to graze within the military reservation, a use that helped to maintain the open grasslands.

The Marin Peninsula north of Forts Baker, Barry, and Cronkhite remained primarily ranchlands in 1890, except for Sausalito, which had grown into a prosperous village with commercial and industrial development along the waterfront and houses extending up the hillsides. To the west of Sausalito was the Silva ranch, owned by San Francisco financier Antoine Borel. It shared a long border with the military reservation along Rodeo Valley, separated by Rodeo Creek and a plank fence along the boundary erected in 1867. Access to the western part of the reservation, including Point Bonita, was by a farm road (present Bobcat and Miwok Trails) that ran through the Silva ranch from Sausalito via Tennessee Valley.[62]

FORT BAKER LANDSCAPE (DRAWING 1.1)

In 1890, the Army's fortifications and support buildings at the Lime Point Military Reservation still reflected its post-Civil War strategy to protect the inner entrance to San Francisco harbor. The earthwork barbette batteries and support buildings were concentrated in a small area of the reservation around Lime Point, the promontory that formed the northern edge of the narrowest passage through the Golden Gate. The batteries were intended to complement the main harbor defenses at Fort Point, which was renamed Fort Winfield Scott in 1882, and at Alcatraz Island. Due to lack of Congressional appropriations for more than fifteen years, the headlands fortifications by 1890 stood disarmed and in declining condition. [63]

The Fort Baker landscape in 1890 still retained vestiges of its agricultural past, including two clusters of buildings with fenced corrals that were most likely tenant dairy ranches. The complex at Old Ranch Valley (present site of the main post) in part predated arrival of the Army. It included three barns or sheds and a house along the east side of the creek that ran through the center of the valley, and its fenced corral extended east across the valley floor. In the valley just north of Battery Gravelly Beach was another smaller corral with three barns or sheds, established in ca. 1875.[64]

Access to the Lime Point fortifications at this time was by water only, as there were no roads connecting the post with Sausalito or other points north on the Marin Peninsula. The reservation contained one wharf at the Engineer Camp, set within a protected cove formed by a breakwater at the Needles. The wharf provided access to a road (present Moore Road), built in 1867, that ran along the shoreline to Lime Point, where blasting two decades earlier was undertaken in preparation of the unrealized Third System fort. The road extended north and east (present Center and East roads), terminating at Cavallo Battery. A small spur led north into the main valley to a cluster of ranch buildings, and another led to the Cavallo

Battery outwork. A second main road (Old Conzelman Road) extended uphill from the wharf, looping around a knoll (present Vista Point) to Lime Point Ridge, location of Ridge and Cliff Batteries. The road then descended into the valley to the west, terminating at the Gravelly Beach Battery (present Roth Road). The road to Point Diablo (Conzelman and Julian Fire Roads), abandoned in 1875 before it was completed, extended along the upper side of the Gravelly Beach valley and terminated north of Diablo Ridge. It continued as a trail through Rodeo Valley toward Point Bonita (along the present alignment of Bunker Road). Another foot trail most likely paralleled the Golden Gate coastline from Ridge Battery to Point Bonita (present Conzelman Road).[65]

These two trails, which may have dated back to Coast Miwok days and were the only connections between Lime Point and Point Bonita, were probably popular with hikers. A network of other trails most likely crossed the landscape along valleys and ridges, especially near Sausalito. Although the scenic military reservation was closed to the public, the Army allowed visitors to enter, as reported by an engineer in the late 1880s: "The reservation is quite a resort on Sundays and holidays for parties visiting Sausalito for recreation, and no objection has been made to its use by well disposed people, but no hunting or shooting is allowed."[66] The public's demand for access to the headlands was so great that in 1886, citizens of Sausalito proposed building a road at their own expense between the town and Lime Point, but Army officials denied the offer.[67]

Engineer Camp

While Lime Point Military Reservation did not have a permanent post, it did have the camp developed for Army engineers that built the original fortifications, located in the small sheltered valley along the east side of Lime Point Ridge where it was protected from weather coming off the ocean. The camp had not been permanently occupied since major construction at Lime Point ceased in 1876.[68] The simple, white-painted clapboarded buildings were arranged informally, most facing east in line with the slope. The largest building was the two-story lodge or main quarters, with its full-length front porch looking out over Horseshoe Cove. Farther up the hill was another quarters, a house with paired gables. The other buildings were small one-story sheds with gable roofs. A square reservoir tank uphill from the buildings stored water collected from springs on the adjoining hillsides. Six round water tanks were added to the system along the southern side of the camp by ca. 1875. There were most likely no trees or other ornamental plantings around the buildings during this period.[69]

Defensive Works

From the water, the earthwork barbette batteries on the headlands would have appeared to most passing through the Golden Gate as grass-covered knolls with saw-tooth profiles, set within the larger expanse of hilly grasslands. The earthen

parapets, originally planted in oats and barley, had probably naturalized by 1890 with other grasses found in the headlands.[70] The western-most battery, Battery Gravelly Beach, was set back from the main ship channel and enjoyed natural protection from the surrounding valley walls. Its design, a line of twelve gun emplacements separated by traverse magazines, was the outermost defensive work. In 1890, this battery had the only gun in the headlands, a fifteen-inch Rodman. The remaining eleven emplacements stood empty.

Cliff and Ridge Batteries were the most visible of the batteries, with their silhouette standing out along the ridge above Lime Point. This exposed location had been a reason for the use of a covered way, Ridge Battery's earthen parapet-enclosed roadway that connected to Cliff Battery. The nine gun emplacements and four mortars, designed to fortify the narrowest part of the Golden Gate opposite Fort Point, stood empty in 1890.

Cavallo Battery was the largest of the three, and the only one facing directly onto San Francisco Bay. The semi-pentagonal shape of the main battery, which resembled the enclosed form of old Third System batteries, was in an exposed location north of Cavallo Point near Yellow Bluff, at an elevation of approximately fifty feet above the water, while the outwork stood on Cavallo Point at a slightly lower elevation. The main work featured an enclosed interior, with a reverse parapet designed to protect the rear flank. The gun platforms and parapet walls remained incomplete. The main works' twelve paired gun emplacements, designed to protect the inner entrance to the harbor and Horseshoe Bay, stood empty in 1890, as did the two in the outwork.

Lime Point Fog Signal Station

On the southern-most tip of Lime Point known as Sugar Loaf Rock was the Lighthouse Board's recently completed Lime Point Fog Signal Station, with its complex of white-washed masonry buildings, including a two-story residence and a one-story building for the fog signal and steam boilers. This complex was connected to the Engineer Camp by a railway on the Army road (Moore Road) and a water flume, presumably a wooden trough. The railway was used to transport coal for the fog signal's steam boilers from the engineer wharf, while the flume transported water for the boilers from several spring-fed water tanks on the hillside above the Engineer camp.

FORT BARRY LANDSCAPE (DRAWING 1.2)

The Army had no fortifications or other facilities in the west half of the Lime Point reservation in 1890, aside from a fence that followed the government boundary, and the incomplete road (Julian Road) that extended over Diablo Ridge toward Rodeo Valley. The only road into the reservation was the one that ran from Point Bonita through the Silva ranch to Sausalito (part of present Bobcat Trail through

Gerbode Valley). Another road or trail began at Rodeo Beach, site of the original ca. 1855 lighthouse landing, and ran south to the lighthouse reservation. There were also trails across the Fort Barry landscape, which most likely included one paralleling the Golden Gate (on or near present alignment of Conzelman Road), and another from the incomplete road from Fort Baker through Rodeo Valley (present Julian and Bunker Roads).

Point Bonita Lighthouse Reservation

A four-plank fence that ran from Bonita Cove northwest toward Bird Island north of Point Bonita marked the boundary of the unofficial forty-four acre lighthouse reservation.[72] This area was accessed by the Sausalito road, as well as by two wharfs on Bonita Cove. The road terminated at the front of the two keepers' quarters just northeast of the point. These included the original one-story brick and stucco house built in 1855 that was used as a duplex for the assistant keepers, and to the west, the larger frame Gothic Revival-style house built in ca. 1875 that served as the head keeper's quarters. Both houses were enclosed by white picket fences. Acrpss the road was a small frame barn, near the fog signal cisterns.

Given the remote location of the light station, the keepers had to maintain gardens and livestock nearby their dwellings, although the precise location of these is not known. The keepers also planted non-native ornamentals that may have included calla lily, agave, narcissus, myoporum, red hot poker, periwinkle, German ivy, alyssum, cabbage, and iris.[72]

By 1890, navigational aids at Point Bonita reflected four decades of development, although few improvements had been made since the early 1870s. On Bonita Ridge, the rise along the Pacific southwest of the dwellings, was the first lighthouse, which functioned as a daymark topped by a white-painted brick dome in place of its original lantern. Next to the tower was a small shed built in 1855 to house the fog bell, which had been removed after the steam fog signal was completed in 1872 at the tip of Point Bonita. To the north of the old lighthouse tower was the fog cannon, which remained on or near its original site at the edge of the cliff, but had been out of use for four decades. A second matching carriage, whose function is not known, was to its north. [73]

The facilities on Point Bonita were perched precariously along narrow, rocky cliffs. Access was by the trail that continued south from the keepers' houses, crossing a wood truss bridge before passing through a tunnel beneath the highest ridge on the point. The wooden cliffside walkway that the tunnel replaced no longer existed, although a slight cut in the rock was still visible. South of the tunnel, the trail merged with a narrow-gauge railway used to bring coal and other supplies to the fog signal and lighthouse. This railway began at the South Landing on Bonita Cove, which contained a derrick on a raised timber platform where ships unloaded cargo. The incline railway, powered by a steam-driven winch, ascended

the cliff to the top of the ridge, where it continued south on a relatively level grade to the fog signal, the second on the site. This one-story frame building, with its narrow steel smokestack, consisted of three parts: a steam boilers building, a coal room, and quarters for the keeper including a kitchen, living room, water closet, and pantry. The sixteen-foot long trumpets of the fog signal siren pointed southwest toward the entrance of the Golden Gate. The slope below this side of the fog signal had been graded to prevent landslides such as the one that had damaged the first fog signal at the site in 1874.

Water for the fog signal's steam boilers was supplied by an intricate system of pumps and gravity-fed cisterns, pipes, and tanks. The water source was at the head of the sand gully north of the keepers' houses. Here a windmill pumped ground water through pipes that ran southeast to two brick dome cisterns near the old keeper's dwelling (duplex). These cisterns regulated water pressure in the pipes along their hundred-foot drop in elevation to the fog signal station, which was outfitted with two 12,000-gallon tanks. Domestic water came from another cistern near the old keeper's house.

Just north of the fog signal, a concrete walk branched west along a narrow land bridge to the lighthouse, dominated by its short, sixteen-foot-high tower containing the lantern that had been relocated from the first lighthouse in 1877. The tower was flanked by two one-story wings, each containing single rooms for oil storage and workspace.

FORT CRONKHITE LANDSCAPE (DRAWING1.3)

In 1890, the private ranchlands north of Rodeo Lagoon within the later limits of Fort Cronkhite were primarily open grasslands, divided by the highlands known as Wolf Ridge. The western terminus of this ridge was a promontory known as Tennessee Point, named after the wreck of the steamship Tennessee in 1853. North of Wolf Ridge was a large valley initially known as Elk Valley, but better known in 1890 as Tennessee Valley. The valley extended northeast, providing one of the few lowland passages across the interior of the Marin Peninsula from the more populated eastern shore.

The 540-acre property owned by J. Haggin between Rodeo Lagoon and Wolf Ridge was occupied in 1890 by tenant dairy rancher Louis Gioli, a Swiss-Italian immigrant. His ranch included a small complex of buildings, including a hay barn, house, and sheds, that were built at some point between 1859 and 1885 in the center of the valley, along a creek that was fed by numerous springs on the adjoining hillsides. Access was by a ranch road (parts of present Mitchell and Bunker roads, and Miwok Trail) that connected to the Silva ranch to the east, parallel to the shoreline of Rodeo Lagoon. There were also fenced-in fields where the Giolis raised grain. Although much of adjoining Rodeo Beach belonged to the government, many called it Jolly Beach, from the pronunciation of the Gioli name.[74]

The northern part of Fort Cronkhite in Tennessee Valley was part of a larger tenant dairy farm within Rancho Sausalito that had been acquired by the Tamalpais Land and Water Company from Susannah Throckmorton in 1889. The buildings associated with the dairy ranch were located upvalley, along a stream. These buildings were enclosed by fences that continued south into the future Fort Cronkhite around an agricultural field that was most likely used for growing grain. The only access to this area was a ranch road (present Tennessee Valley Road) that ran through the valley and terminated at the ranch buildings. There may have been foot trails heading north toward Coyote Ridge, the ridge north of Tennessee Valley, and south across Wolf Ridge.

NOTES, CHAPTER 2

1 Erwin N. Thompson, *Historic Resource Study, Seacoast Fortifications San Francisco Harbor, Golden Gate National Recreation Area* (Denver: National Park Service, Denver Service Center, 1979), 15–17.

2 Lisa M. Benton, *The Presidio: From Army Post to National Park* (Boston: Northeastern University Press, 1998), 20–21.

3 J. P. Munro-Fraser, *History of Marin County, California, &c* (San Francisco: Alley, Browent & Co., 1880), 387; M. E. F. Rogers, "North Side of the Entrance to San Francisco Bay," U.S. Coast Survey, 1850, Register No. 321," Golden Gate National Recreation Area, Park Archives and Records Center (hereafter, GOGA PARC), map 3512, F181, D1.

4 Anna Coxe Toogood, *Historic Resource Study, A Civil History of Golden Gate National Recreation Area and Point Reyes National Seashore, California* (Denver: National Park Service, 1980), 206.

5 Toogood, 213, dates the documented fog signal cannon at this spot near Point Bonita to 1855. The 1844 map of the harbor by M. Duflot de Mofras, *Port de San Francisco dans la haute Californie; Entrée du Port de San Franicsco et des mouillages del Sausalito et de la Yerba Buena,* shows no signal at this location. The "signal" on the 1850 map may have also indicated a proposed site for a navigational aid.

6 The earliest map naming Rodeo Lagoon is the 1866 survey of the Lime Point Military Reservation (GOGA PARC, D181, F1), where it is named "Rodier Lagoon." It is not known if this is a misspelling of rodeo or a person's name.

7 Lt. Thomas Handbury's 1870 account, cited in Thompson, *Seacoast Fortifications*, 94.

8 Toogood, 206; Francis Ross Holland, Jr., *America's Lighthouses: An Illustrated History* (New York: Dover Publications, 1988), 153–154.

9 Toogood, 207; Fred M. Stocking, "How We Gave a Name to Tennessee Cove," *Overland Monthly*, vol. 17, no. 100 (April 1891), 356.

10 National Park Service, "Cultural Landscape Inventory for Point Bonita Historic District," Part 2a, page 3.

11 Toogood, 213. No documentation was found on whether the federal government actually acquired title to the 100-acre tract; at the time, it was negotiating with Richardson on acquiring all of the Marin Headlands for a military reservation. Richardson sold Rancho Sausalito to Samuel Throckmorton around the time the lighthouse was completed in 1855.

12 "Map of Point Boneta" [sic] dated July 1871 (GOGA PARC, War Room Drawings collection, **18-23-19)**, shows a road leading north from the keeper's house to Rodeo Beach that may have provided access for the original construction. The plan shows a "Northern Landing" at Bonita Cove, but the road system from it does not indicate it originally accessed the keeper's house and lighthouse.

13 Toogood, 219.The area known as Lands End today is in San Francisco.

14 Holland, 68; Toogood, 218.

15 The cistern, pipe, and windmill are documented on "Map of Point Bonita, The Outer Head Land, North of the Entrance to San Francisco Harbor," July 1871, GOGA PARC, War Room Drawings, 18-20-50.

16 Toogood, 213, 219; Holland, 203–204; "Cultural Landscape Inventory for Point Bonita Historic District," Part 2a, page 2. Holland gives incorrect dates of operation for the fog cannon. It purportedly now resides at the U.S. Coast Guard Station, Alameda, California, known at Coast Guard Island.

17 The military may have acquired such large tracts at this time because land was cheap and was useful for maneuvers, target practice, and camping. Steve Haller, Historian, Golden Gate National Recreation Area, communication with authors, September 2010. The U. S. military may also have been following earlier Mexican dictates that reserved the headlands for military purposes.

18 Thompson, *Seacoast Fortifications*, 18–19; Erwin N. Thompson, *Historic Resource Study, Forts Baker, Barry, Cronkhite of Golden Gate National Recreation Area California* (Denver: National Park Service, 1979), 1. The 1850 proclamation also established two military reservations at the north end of San Francisco Bay at Mare Island and Benicia.

19 Thompson, *Forts Baker, Barry, Cronkhite*, 5.

20 Jack Mason with Helen Van Cleave Park, *Early Marin* (Petaluma: House of Printing, 1971), 28.

21 Toogood, 76–77.

22 Toogood, 191.

23 Thompson, *Forts Baker, Barry, Cronkhite*, 15, 17. The lengthy account of the acquisition of Lime Point is covered on pages 5–17.

24 Thompson, *Forts Baker, Barry, Cronkhite*, 18; Munro-Fraser, 393. The location or appearance of this shack is not known.

25 Emanuel Raymond Lewis, *Seacoast Fortifications of the United States* (Annapolis: Naval Institute Press, seventh printing 1993), 45. Barbette is a French term for a gun mount that supports the gun barrel so that it fires over a surrounding parapet or protective armor, rather than through an opening in a fort wall. *Dictionary of Military Terms* (New York: H. W. Wilson, 1986), s.V. "barbette."

26 Thompson, *Forts Baker, Barry, Cronkhite*, 19, 21.

27 Thompson, *Forts Baker, Barry, Cronkhite*, 20, 38.

28 Thompson, *Forts Baker, Barry, Cronkhite*, 20; "Map Accompanying the Annual Report, Lime Point Cal.," 1868, GOGA PARC, map 71752, D195, F1.

29 Lewis, 72. Lewis cites the Marin Headlands as a prime example of the Army's new model of harbor defenses.

30 Lewis, 69–70.

31 Thompson, *Seacoast Fortifications,* 101–102.

32 Thompson, *Forts Baker, Barry, Cronkhite*, 24–25; Drawing, "Gravelly Beach Battery to Accompany Annual Report, 1870–71". National Archives, RG 77, Fortifications, Drawer 99, Sheet 9 (courtesy John Martini).

33 Thompson, *Forts Baker, Barry, Cronkhite*, 25–26.

34 Thompson, *Seacoast Fortifications,* 106–107.

35 Thompson, *Forts Baker, Barry, Cronkhite*, 26.

36 Thompson, *Forts Baker, Barry, Cronkhite*, 26; *Seacoast Fortifications*, 110.

37 Thompson, *Seacoast Fortifications*, 111' "Map of Fort Baker, Cal, May 1905" (GOGA PARC, D195 F1) does not show the road beyond the road to Gravelly Beach. A. H. Sanborn, "Tourists' Map of Mt. Tamalpais and Vicinity: showing railways, wagon-roads, trails, elevations &c." (San Francisco: Galloway Litho. Co., 1898), shows a foot trail along the existing alignment of Conzelman Road.

38 Lewis, 70; Thompson, *Forts Baker, Barry, Cronkhite*, 27.

39 Office of the 12th Lighthouse District, "Map of Point Bonita," 8 November 1872, GOGA PARC, War Room drawings, map 18-23-19.

40 *Saucelito Herald*, quoted in Munro-Fraser, 393.

41 Toogood, 221; Ralph Shanks and Lisa Woo Shanks, *Guardians of the Golden Gate: Lighthouses and Lifeboat Stations of San Francisco Bay* (Petaluma, California: Costaño Books,1990), 73–74.

42 Shanks, 74.

43 Munro-Fraser, 395; Volney Howard et al. vs. S.R. Throckmorton, Sept 26, 1879, page 24, California State Archives, Marin County District Court Files. Throckmorton testified "Since 1872 I made a road through Rodeo Valley to the light house boundary—that I guess must be 5 or 6 miles." Throckmorton may have referred to Gerbode Valley as Rodeo Valley. Research courtesy of Lissa McKee.

44 "Map of Point Bonita," July 1871; Thompson, *Forts Baker, Barry, Cronkhite*, 24.

45 "Map of Point Bonita," 8 November 1872.

46 Toogood, 221–223; "Plan of Fog Signal at Point Bonita, 25 feet below present Location, February 20, 1874," filed 18 May 1875, GOGA PARC, War Room Drawings, 18-2B-46.

47 Toogood, 224; Munro-Fraser, 395.

48 Toogood, 224.

49 Norma Engel, *Three Beams of Light: Chronicle of a Lighthouse Keeper's Family* (San Diego: Tecolote Publications, 1986), 25.

50 Toogood, 232; "Map of Point Boneta and Vicinity. . .September 1902," GOGA PARC, War Room Drawings; 1938 aerial of Fort Barry, Harbor Defenses of San Francisco. Although Munro-Fraser (1880) does not mention the Gothic Revival keeper's duplex, its style is typical of the 1870s. Toogood mentions this building only in reference to its removal by the Army in ca. 1906.

51 Thompson, *Forts Baker, Barry, Cronkhite*, 28; Shanks, 151.

52 Thompson, *Forts Baker, Barry, Cronkhite*, 28–29, 49; Shanks, 150–151.

53 Munro-Fraser, 392.

54 Barry Spitz, *Mill Valley: The Early Years* (Mill Valley, California: Potrero Meadow Publishing, 1997), 50.

55 Munro-Fraser, 383.

56 Toogood, 132.

57 Toogood, 191; Spitz, 28.

58 Darcie Luce, "An Incomplete Dairy Ranching History and Outline of Land use in the Marin Headlands" (Unpublished draft report prepared for the National Park Service, 1993), GOGA PARC, file 6468 F-1, 1.

59 Spitz, 46.

60 Luce, 1, 3; "Antoine Borel Dies, Swiss Banker Was Consul at San Francisco Twenty-eight Years," *New York Times*, 29 March 1915, 9; Obituary of Joseph V. Silva, *Sausalito News*, December 23, 1913.

61 U.S. Coast Survey map, 1886; "Big Yearling Sale Begun, *New York Times*, 16 June 1903, cited in Bookstein, 10.

62 U. S. Coast Survey, 1886.

63 Thompson, *Forts Baker, Barry, Cronkhite*, 27; Thompson, *Seacoast Fortifications,* 117.

64 Thompson, *Forts Baker, Barry, Cronkhite*, 38, citing Army correspondence and a map dating to 1897; U.S. Coast and Geodetic Survey, "San Francisco Bay and Approaches, California, Sheet No. 1, Point Bonita to Sausalito" (July and August 1881), map courtesy of John Martini; U.S. Coast Survey, "North Side of the Entrance to San Francisco Bay" (1850), GOGA PARC 3512. The 1881 survey shows both ranch complexes; the 1850 map appears to only show the one at the main post, and with fewer buildings.

65 A. H. Sanborn, "Tourists' Map of Mt. Tamalpais and Vicinity: showing railways, wagon-roads, trails, elevations &c." (San Francisco: Edward Denny & Company, 1902), GOGA PARC.

66 Quoted in Thompson, *Forts Baker, Barry, Cronkhite*, 30. Thompson does not give the source of this quote.

67 Thompson, *Forts Baker, Barry, Cronkhite*, 30.

68 Thompson, *Forts Baker, Barry, Cronkhite*, 38.

69 Photograph of the Engineer camp, ca. 1870, GOGA PARC, 1766 (fig. 1.19).

70 Joe C. Freeman, Stephen A. Haller, David M. Hansen, John A. Martini, and Karen J. Weitze, "Seacoast Fortifications Preservation Manual" (Unpublished report, Golden Gate National Recreation Area and KEA Environmental, July 1999), 78.

71 Photograph of Point Bonita, ca. 1907, GOGA PARC, image 27994.058. This fence corresponds with the fence proposed on the 1872 Point Bonita map.

72 Toogood, historic base map, sheet 8; National Park Service, "Cultural Landscape Inventory, Point Bonita Historic District" (Unpublished report, 2005), section 3a, p. 12. The barn was built prior to 1905, probably around the time the second dwelling was constructed.

73 Photograph of fog cannon and second carriage, ca.1900, GOGA 35219. The fog bell shed is shown on a 1908 Army map prepared for construction of the Bonita Ridge fire-control stations.

74 Louise Teather, *Place Names of Marin: Where Do They Come From?* (San Francisco: Scottwall Associates, 1986), cited in Bookstein, 10.

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Baker
1846–1890 Period Plan

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

in partnership with
Department of Landscape Architecture
Center for Cultural Landscape Preservation
SUNY College of Environmental
Science and Forestry, www.esf.edu/la/cclp

SOURCES

1. NPS, Marin County GIS data
2. US Coast and Geodetic Survey maps, 1850, 1881,1886
3. US Army, Lime Point [topo] map, 1868
4. US Army, Historic fortification plans
5. Sanborn, Tourist Map of Mt. Tamalpais, 1898
6. US Army, Fort Baker map [topo], pre-1905
7. US Army, Forts Baker and Barry map, 1912

DRAWN BY

John Auwaerter, Laura Roberts, Illustrator CS5, 2011

LEGEND

- Property boundary
- Building
- Structure
- Road
- Trail
- Battery
- Battery glacis/outer parapet
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Open water
- Stream, spring
- Wetland
- Rock cliffs
- Edge of rock cut
- Beach
- 50' contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1890.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Extent of tree and shrub cover is not known due to lack of documentation.
5. Current road and trail names in parentheses.
6. White mask indicates limits of Fort Baker study area.

Drawing 1.1

U. S. Engineer Camp Building/Structure Key (Constructed ca.1867–1883)

1. Wharf
2. Storehouse
3. Smiths Shop
4. Office
5. Quarters
6. Unknown
7. Carpeters shops
8. Lodge (Quarters)
9. Stables
10. Reservoir
11. Site of coal shed
12. Fog signal water tanks

0' 400' 800' 1,600'

Cultural Landscape Report
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SOURCES

1. NPS, Marin County GIS data
2. US Coast and Geodetic Survey maps, 1850, 1881, 1886
3. US Army, Lime Point [topo] map, 1868
4. US Light House Board, Point Bonita map, 1872
5. Sanborn, Tourist Map of Mt. Tamalpais, 1898
6. US Army, Forts Baker and Barry map, 1912

DRAWN BY

John Auwaerter, Laura Roberts, Illustrator CS5, 2011

LEGEND

- Property boundary
- Building
- Structure
- Road
- Trail
- Fence
- Grassland, lawn, or earth
- Shrub cover (riparian, chaparral)
- Open water
- Stream, spring
- Wetland
- Rock cliffs
- Beach, sand
- 50′ contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1890.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Extent of tree and shrub cover is not known due to lack of documentation.
5. Current road and trail names in parentheses.
6. White mask indicates limits of Fort Barry study area.

Drawing 1.2



Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Cronkhite
1846–1890 Period Plan

National Park Service
Olmsted Center for Landscape Preservation
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in partnership with
Department of Landscape Architecture
Center for Cultural Landscape Preservation
SUNY College of Environmental
Science and Forestry, www.esf.edu/la/cclp

SOURCES

1. NPS, Marin County GIS data
2. US Coast Survey map, 1886
3. Tamalpais Land & Water Co., Map #3, 1892
4. USGS Tamalpais Quadrangle, 1897

DRAWN BY

John Auwaerter, Laura Roberts, Illustrator CS5, 2011

LEGEND

- Period property boundary
- Tenant ranch boundary
- Building or structure
- Road (current name in parentheses)
- Fencing
- Grassland, earth
- Woods, shrub cover (riparian, chaparral)
- Open water
- Stream, spring
- Wetland
- Rock cliffs
- Beach
- 50′ contours

NOTES

1. Plan shows landscape in 1890.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Extent of tree and shrub cover is not known due to lack of documentation.
5. Location of fences and roads in Gioli ranch not known.
6. Boundaries of TLW Co. leased ranches not known (subdivided after the end of the period in 1892).
6. White mask indicates limits of Fort Cronkhite study area.

Drawing 1.3

3. Endicott-Taft Modernization, 1890–1917

The turn of the twentieth century witnessed two extensive modernization programs for the harbor defenses, and the transformation of the Lime Point Military Reservation into two separate reservations: Fort Baker in the east half and Fort Barry in the west. Each of the reservations was developed with gun batteries and associated fire-control stations, land-side components of submarine defenses, a practice target range, a Quartermaster area containing support buildings and a wharf, and a main post with officer quarters, barracks, administration building, and a hospital around a central parade ground. Along with built features, the Army introduced non-native trees and groundcover to the headlands during this period for aesthetic and utilitarian purposes, including Monterey cypress, blue-gum eucalyptus, and iceplant. While Fort Barry was smaller than Fort Baker, both featured the same type of defensive works, and their buildings were either of the same plans or in a similar architectural style. Both also contained unofficial housing areas near the main posts for civilians and non-commissioned officers. In addition to size, Fort Barry differed from Fort Baker because it served as the front-line of defenses, and its rifle (target) range was far larger and was used by Army units from throughout the West.

This period also saw the enlargement and improvement of navigational aids at Point Bonita and Lime Point, including establishment of a life-saving station on Bonita Cove. Because they were on strategic Army land, extensive military development occurred on and around the navigational facilities during this period.

In contrast to Forts Baker and Barry, the agricultural landscape within the future Fort Cronkhite remained largely unchanged during this period except at Tennessee Point, a promontory between Rodeo Lagoon and Tennessee Cove. Reflecting the growing strategic importance of the Pacific coastline, the Army acquired this land and established an outpost of Fort Barry named Tennessee Point Military Reservation.

IMPROVEMENTS TO NAVIGATIONAL AIDS

As the Army began implementation of its modernization plans in the 1890s, the federal government continued to develop its long-standing aids to navigation, which became increasingly connected with military facilities during this period. Most of these aids remained under the administration of the Treasury Department's Lighthouse Board, which was renamed the Bureau of Lighthouses in 1910,

and was also known as the Lighthouse Service. It was joined by another Treasury Department agency, the U.S. Life-Saving Service, established in 1878. [1]

POINT BONITA LIFE-SAVING STATION

In 1895, legislation was introduced in Congress to establish a station of the U. S. Life-Saving Service at Point Bonita, close to the perilous northern approach to the Golden Gate. While the Lighthouse Board with its lighthouses and fog signals served to prevent shipwrecks, the Life-Saving Service provided assistance to ships in distress, although the agency also helped to alert ships to dangerous conditions.[2] Congress authorized funds for construction of the Point Bonita Life-Saving Station in 1898, the third at San Francisco after the Golden Gate and Fort Point stations established a decade earlier. Originally conceived for construction on the Pacific coast near Rodeo Beach, the station was instead sited on Bonita Cove, east of the keepers' dwellings (fig. 3.1). The Life-Saving Service apparently secured use of the site, located within the original unofficial lighthouse reservation, through a lease arrangement with the Army.

The Life-Saving Service contracted with the Thomson Bridge Company in 1899 to erect a large station building designed in the Shingle style with a prominent turret that overlooked Bonita Cove and Point Bonita (fig. 3.2). The building also contained offices and living quarters for the life-saving keeper and crew of surfmen. As part of the same contract, the station was outfitted with a garage building, concrete walks, and a cistern. Under a separate contract, the station site was enclosed by a redwood picket fence, a feature needed to keep out the lighthouse keepers' livestock and to provide protection from the surrounding sheer cliffs. Soon after completion of the buildings, the service introduced non-native Monterey cypress trees, probably the first on the headlands, along the northeastern side of the windswept station site.[3]

The 1899 Thomson Bridge Company contract also included construction of two frame boathouses designed to shelter the boats that the surfmen dispatched to ships in distress. Both had ramps to launch the boats from the elevated boathouses into the water below. Precariously cut into the cliff next to the lighthouse dock at the South Landing, Boathouse A was built on Bonita Cove. Boathouse B was built at the northern end of the sand gully, on the Pacific coast north of Bird Island and south of Rodeo Beach (fig. 3.3). It was built on post footings set into the sandy ground.[4]

By 1910, the Life-Saving Station was considering construction of a new, larger boathouse to replace the two original boathouses. That year, it stopped using Boathouse A, which was taken over by the Army and remodeled into a fire-control station.[5] The Life-Saving Station selected a new site below the lighthouse keeper residences adjacent to a wharf built by Army engineers in 1901 (fig. 3.4). This new boathouse, a frame building with an iron-track launchway, was designed to

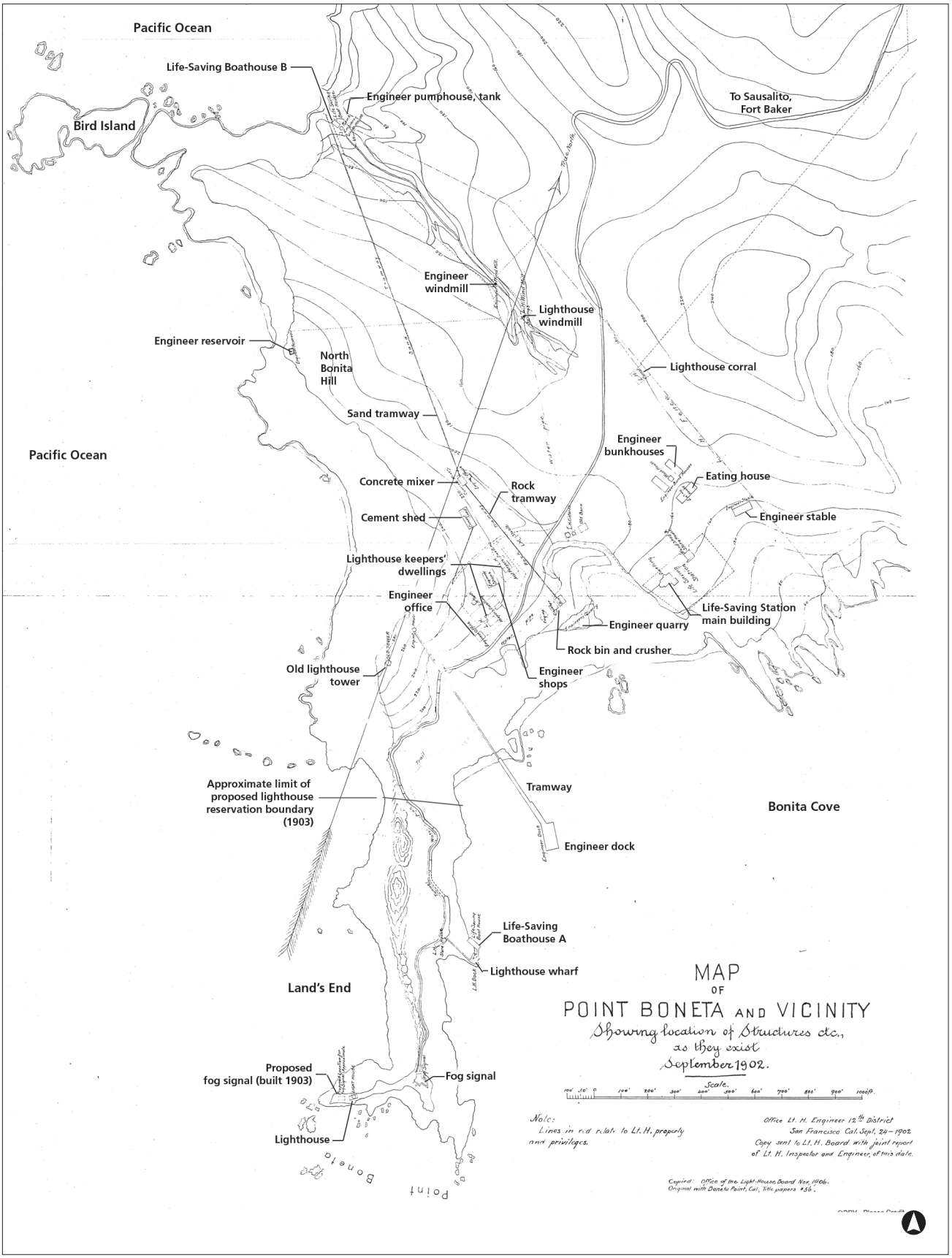
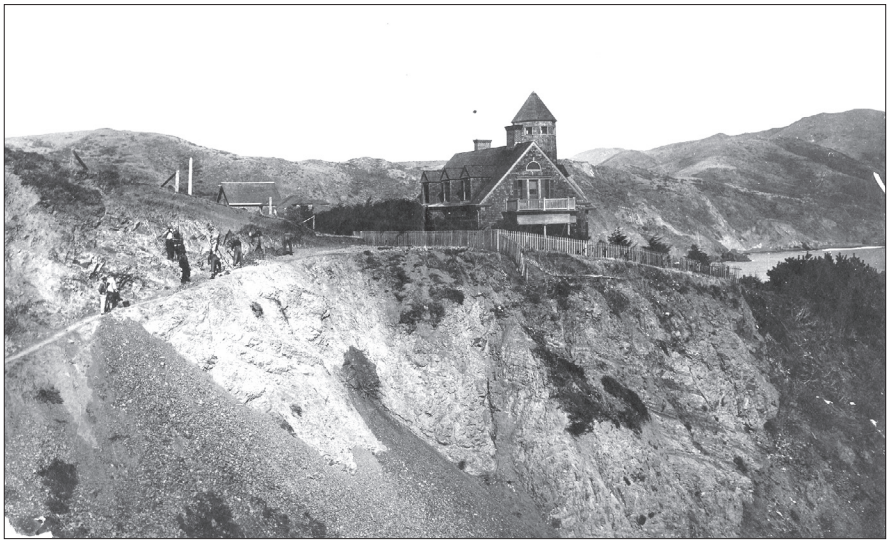


Figure 3.1. A 1902 map of Point Bonita showing the Life-Saving Station main building and two boathouses on the peninsula and east of Bird Island added in 1899. The map also shows the extensive Army infrastructure added over the previous year to construct Fort Barry's Endicott batteries. (Office of the Lighthouse Engineer, "Map of Point Bonita and Vicinity," September 1902, Golden Gate National Recreation Area, Park Archives and Records Center, War Room Drawings, Point Bonita--Historic collection, annotated by SUNY ESF)



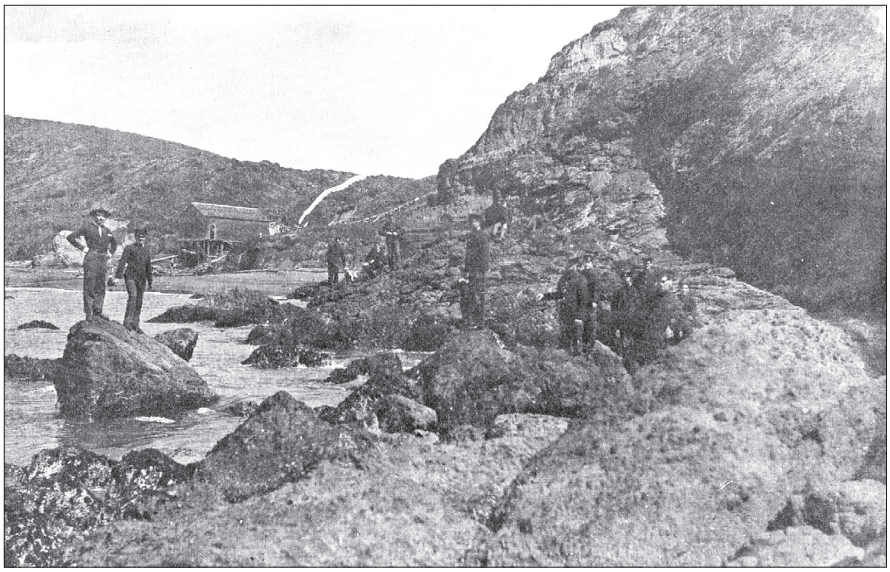


Figure 3.2 (top). The main building of the Life-Saving Station constructed in 1899, looking north with its enclosing picket fence and plantings of Monterey pine or cypress in the background, ca. 1908. Note that the building was not whitewashed at the time. (Golden Gate National Recreation Area, Park Archives and Records Center, Ralph A. Durland collection, image 35290.012)

Figure 3.3 (bottom). Life-Saving Station Boathouse B at the end of the sand gully south of Rodeo Beach, looking northeast from near Bird Island, ca. 1910. Pictured are soldiers assigned to Fort Barry. (Golden Gate National Recreation Area, Park Archives and Records Center, Fort Barry photographs & Menus ca. 1908-12, GOGA 3176)

accommodate one of the Life-Saving Service's first powerboats. It was accessed by a new road constructed by the Army in 1911 to reach the Engineer wharf from the Life-Saving Station main building. The site required grading of the hillside, which may have led to a landslide that damaged the new boathouse shortly after its completion. Boathouse B was moved in 1913 to a spot just north of the Life-Saving Station main building for use as a schoolhouse for the lighthouse keepers' children.[6]

Aside from minor repairs and additions, and planting of more Monterey pine or cypress north of the main station building, there were few changes to the Point Bonita Life-Saving facilities prior to World War I. There was, however, a major administrative change. In 1915, President Wilson signed into law an act creating the U.S. Coast Guard, a Treasury Department agency that replaced the U.S. Life-Saving Service and the Revenue Cutter Service, the latter a maritime law enforcement agency. The Point Bonita Life-Saving Station became Station Point Bonita, Coast Guard Station #311.[7]

POINT BONITA LIGHT STATION

In 1903 soon after the Army had begun to develop its new defenses near Point Bonita, the Treasury Department reached an agreement with the War Department to establish the Point Bonita Light Reservation, occupying the peninsula to 120 feet north of the tunnel (see fig. 3.1). The agreement may never have been formalized, since the Army would continue its military development within the limits of the reservation, which remained a part of the soon-to-be named Fort Barry.[8]

At the time the reservation agreement was drafted, the Lighthouse Board was completing a new fog signal building adjacent to the lighthouse, the first major improvement to the station since the 1870s. The old fog signal, at the southern tip of the Land's End peninsula, was in good condition with its new wing added in

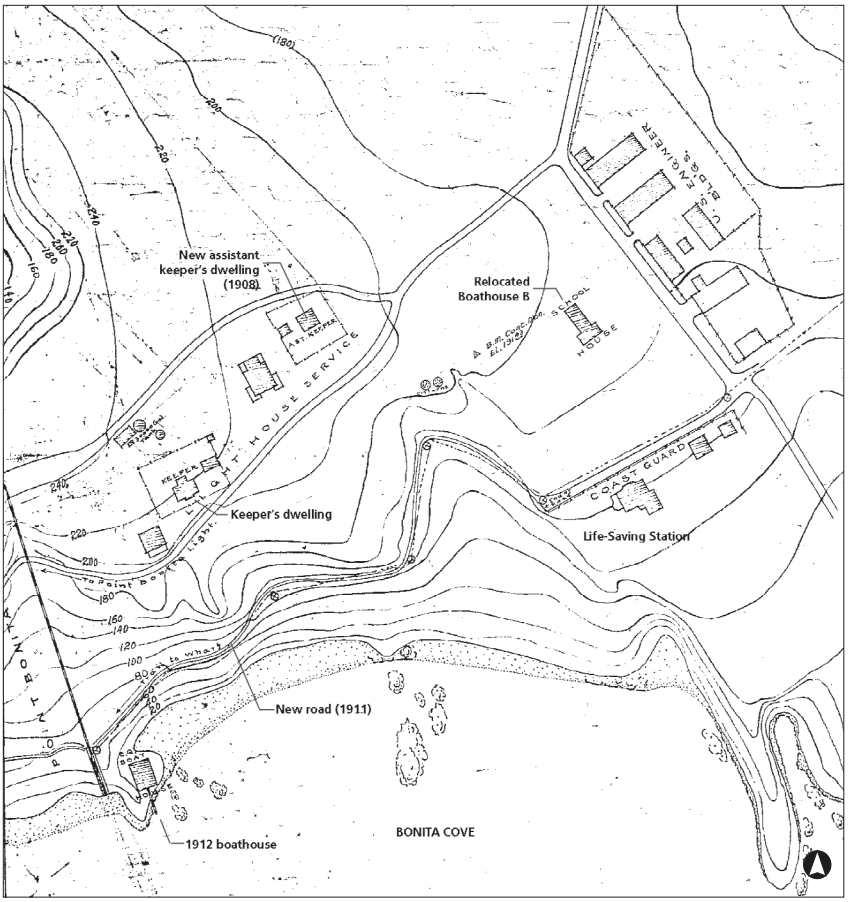


Figure 3.4. Map showing location of the boathouse added in 1912, and the new assistant keeper's dwelling completed in 1908 and Boathouse B relocated in 1913 for use as a school. The unlabeled buildings near the lighthouse keepers' dwellings were Army engineer buildings added in ca. 1901. (Detail, Map of Fort Barry, 1918, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, D211 F3)

1899 to provide additional living quarters (fig. 3.5). However, the southerly direction of its fog signal limited its reach into the Pacific, especially for ships approaching the Golden Gate from the north. The new steam fog signal, with trumpets pointing west directly out to sea, was proposed in 1902 to correct this deficiency. Built into the cliff directly below the lighthouse, the fog signal building was whitewashed brick with a red-slate hipped roof, ninety feet above the water (fig. 3.6). Its floor was thirteen feet below the lighthouse to avoid interference with the light signal. For this same reason, the whitewashed chimney for the fog signal boilers was built behind the lighthouse, connected by a long brick flue bordering the walk across the land bridge. A water tank on the north side of the fog-signal building provided constant water pressure to the boilers. Coal and other supplies were still shipped to the lighthouse wharf on Bonita Cove, up the tramway, and along the level railway to the point.

Figure 3.5 (below). The old fog signal building and water tanks looking south, 1907. The building became the third assistant's quarters in 1903. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 18498.006)

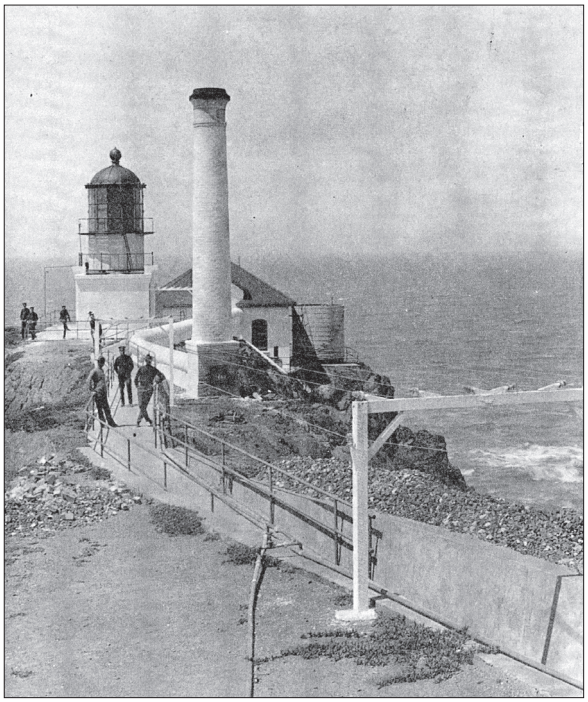


Figure 3.6 (right). The new fog signal completed in 1903 (lower building behind chimney), looking west, ca. 1910. The water tank to the right of the building supplied the fog signal boilers. (Golden Gate National Recreation Area, Park Archives and Records Center, Fort Barry Photos & Menus, GOGA 3176)

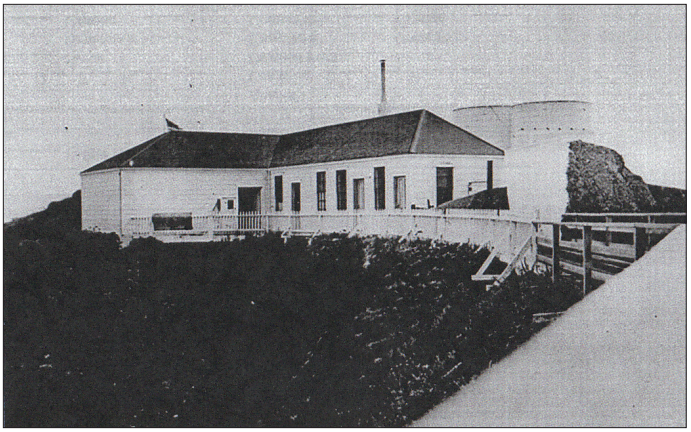




Figure 3.7. The head keeper's dwelling at Point Bonita Light Station, looking northwest across the front of the building with unidentified people, ca. 1909. The buildings in the distance are in the Engineer Department area. (Golden Gate National Recreation Area, Park Archives and Records Center, Krause/Olsen Point Bonita Photograph collection GOGA 15558.001)

Coal shipments ceased once the fog signal boilers were adapted for burning fuel oil in ca. 1910. The oil was piped to the station from a tank above the lighthouse wharf.[9] The railway was most likely abandoned at this time, and the tracks were probably remove by 1911, when the when the Army began developing facilities at the point that required electrical and communication cables that were installed in a trench along the old railway route.[10]

At the time of the new fog signal's completion, the lighthouse station employed four keepers who lived at Point Bonita with their families. The head keeper lived in the Gothic Revival-style house built in the 1870s, with fence-enclosed grounds and ornamental plantings, including Monterey cypress that were the only trees in the area (figs. 3.7, 3.8). The two assistant keepers lived in tight quarters at the old keeper's house built in 1855 with an addition completed in 1902. The third assistant keeper

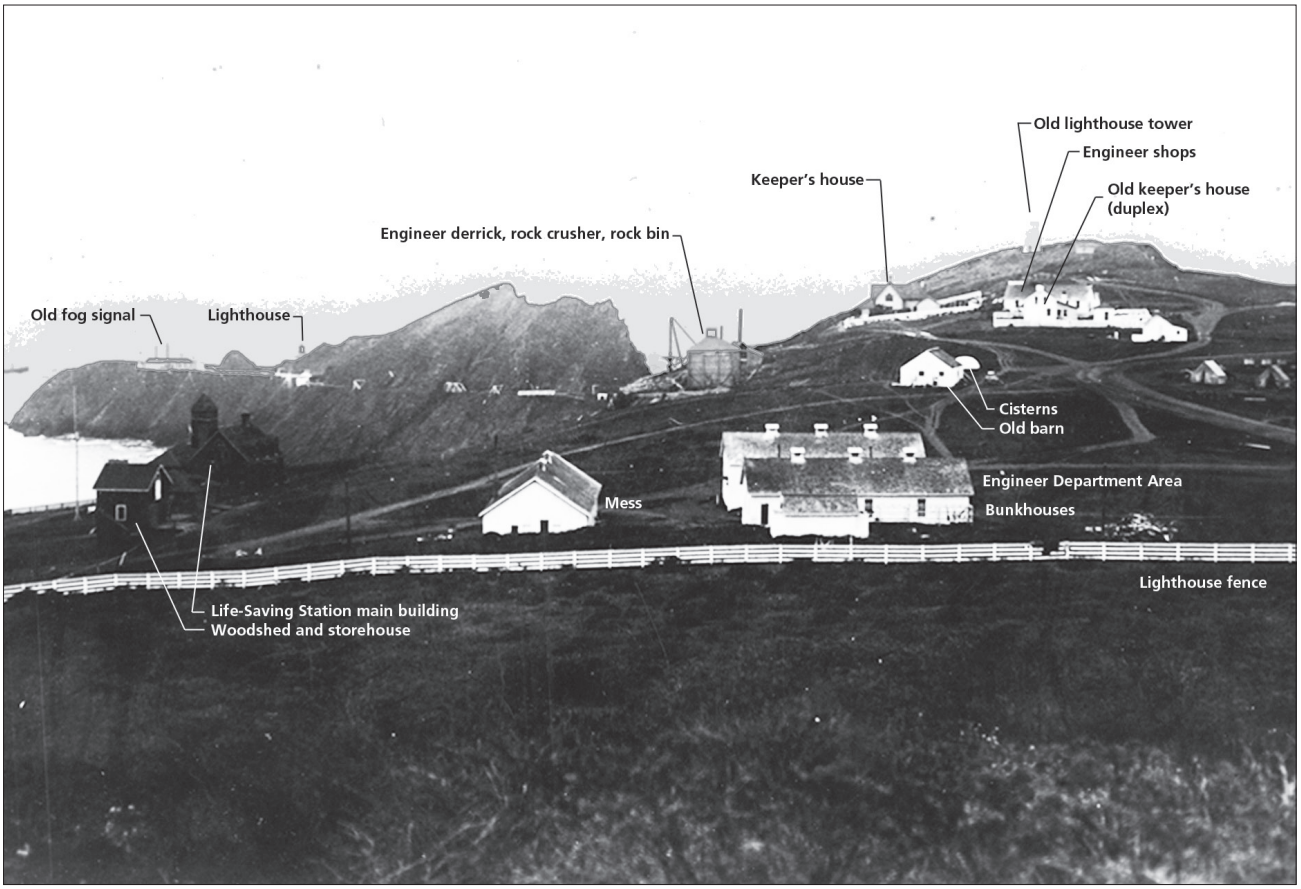


Figure 3.8. Point Bonita looking southwest showing the lighthouse facilities and addition of the Army's buildings and concrete plant associated with construction of the Endicott batteries, ca. 1905. (Photograph annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 1766)



Figure 3.9. The new assistant keepers' duplex completed in 1908 on the site of the 1855 house, looking west, 1929. The building in left distance is the 1870s keeper's dwelling, and to the right is the stables built around the same time as the duplex. (U. S. Lighthouse Service photograph, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 18498.014)



Figure 3.10. The new third assistant keeper's house built in 1908 at the south end of Point Bonita, looking south, ca. 1920. The whitewashed wall at right is a remnant of the fog signal building that stood on the site. (U. S. Lighthouse Service photograph, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 18498.015)

lived on Point Bonita at the fog signal building. The Lighthouse Board had requested funding to replace the original dwelling and the fog-signal dwelling as early as 1899, but did not receive an appropriation until June 1906, following the great earthquake and fire the previous April, which had heavily damaged the keeper's house. The appropriation required the final approval of the War Department because of their jurisdiction over the land. At the time, the Army was considering removal of lighthouse buildings from Point Bonita in order to build fire and mine control stations. By 1907, it had decided to build its new facilities at Bonita Ridge, site of the 1855 lighthouse tower and shed that once contained the fog bell. Since the Lighthouse Board planned the new dwellings outside of this area, the War Department allowed construction to proceed with demolition of the 1855 keeper's house and old fog signal building.[11]

The new houses, completed by 1908 on the sites of the earlier buildings, were both Craftsman-style frame bungalows with unpainted shingle siding, gable roofs, bracketed eaves, multi-paned windows, and enclosed porches (figs. 3.9, 3.10). Within a short time, they were painted white in keeping with the other lighthouse buildings. The picket fence was retained around the assistant keepers' duplex, and a new stable was built to the east, adjoining a plank fence-enclosed corral. The third assistant keeper's house had a tiny front yard enclosed by a picket fence along the steep cliffs. A whitewashed wall, a remnant from the old fog signal building, provided a buffer from strong west winds. Due to the precarious location, single men, rather than families with young children, usually occupied the house.[12] A former resident of Point Bonita remembered, "The surroundings shook with the force of the winter winds and the air reverberated from the hoarse bellowing of the fog signal."[13]

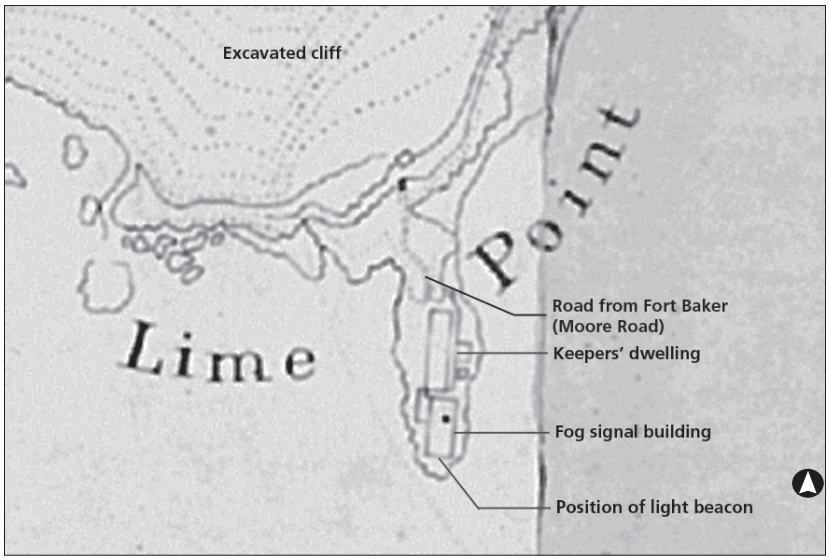




Figure 3.11 (top). Detail of a 1905 map of Fort Baker showing footprint of Lime Point fog signal buildings and location of light beacon added in 1900. (Golden Gate National Recreation Area, Park Archives and Records Center, D195, annotated by SUNY ESF)

Figure 3.12 (bottom). The Lime Point fog signal station looking east, ca. 1908. The box protruding from the end of the fog signal building's right side is the acetylene light added in 1900. The white on the rocks is probably whitewash, although it was most likely in part bird guano that lent the point its name. The Army searchlight installed in 1912 was built on top of the one-story connecting wing. (U. S. Coast Guard photograph, reproduced from Ralph and Lisa Woo Shanks, *Guardians of the Golden Gate*, 1990)

LIME POINT FOG SIGNAL

Unlike the major changes at Point Bonita, the Lighthouse Board maintained its two-building fog signal station at Lime Point much as it had been constructed in 1883. A change in function occurred in 1900, when a minor light beacon was added to the station. This was an acetylene lamp light housed in a small box appended to the south wall of the fog signal building, nineteen feet above the water (figs. 3.11, 3.12). Soon after the addition of the light, the fog signal boilers were adapted for burning fuel oil, which as at Point Bonita, eased maintenance by eliminating the chore of hauling coal along the tram from the Army engineers' wharf to the north.[14]

Despite its longstanding navigational use, Lime Point remained Army property, apparently through an informal agreement with the Lighthouse Board. The overlapping jurisdiction became apparent in 1911 when the Army installed a large, sixty-inch diameter searchlight on top of a one-story wing between the fog signal building and the keepers' dwelling (see fig. 3.12).[15]

ENDICOTT MODERNIZATION PLANS

While development of harbor defenses in the United States largely ceased after the mid-1870s, innovations in armament continued, resulting in the availability of large, powerful rifled steel guns, and disappearing carriages that allowed guns to retract for reloading behind the safety of a parapet. Mortars and submarine minefield systems were likewise improved. At the same time, foreign navies were also making strides in their armament, with battleships mounting powerful guns capable of hitting targets from a distance of up to ten miles. Faced with this threat and the declining condition of the nation's harbor defenses, President Cleveland called together a joint Army-Navy board in 1885, headed by Secretary of War William C. Endicott, to make recommendations for modernizing the country's harbor defenses.[16]

In December 1885, the so-called Endicott Board issued its recommendations for modernization of the nation's harbor defenses. These proposed major improve-

ments to the defenses of San Francisco harbor, which was listed as the second-most important port in the country behind New York. Plans called for barbette and mortar batteries, casemates, turrets (towers enclosing rotating gun mounts), floating batteries, torpedo boats, electric searchlights, machine guns, and submarine mine fields protected by batteries of rapid-fire guns.[17]

The Army did not act on modernization at San Francisco until 1890, when it issued an extensive plan for improvements based on the Endicott Board recommendations. The most notable aspect of the proposed improvements, aside from new and more extensive fortifications, was the relocation of the outer line of harbor defenses from Fort Point and Lime Point west to Point Lobos and Point Bonita on the Pacific coast (fig. 3.13). This move was necessitated by the increased range of naval armament, and also addressed a new tactic of engaging the enemy far out at sea, rather than upon entry to the Golden Gate. At the headlands, the Army's plan called for three batteries at Point Bonita, turrets at Point Diablo and Lime Point, and two new batteries north of Cavallo Battery. The plan also called for replacement of the old Gravelly Beach, Ridge, Cliff, and Cavallo batteries.[18]

The Army standardized its design and construction of the Endicott defenses across the country, but adapted each to the peculiarities of its site, armament, and defensive function. Engineers designed these new batteries, like their post-Civil War predecessors, to be inconspicuous from ships at sea, often set within existing topography and surrounded by native vegetation (fig. 3.14). The built structure, generally conspicuous only from the rear, housed uncovered (barbette) weapons,



Figure 3.13. Map showing the Endicott-era military reservations (indicated by stars) established by 1904 indicating the westward shift of harbor defenses from Lime Point and Fort Point to Point Bonita and Point Lobos. The dashed black line indicates the later boundary of Forts Baker, Barry, and Cronkhite. (SUNY ESF)

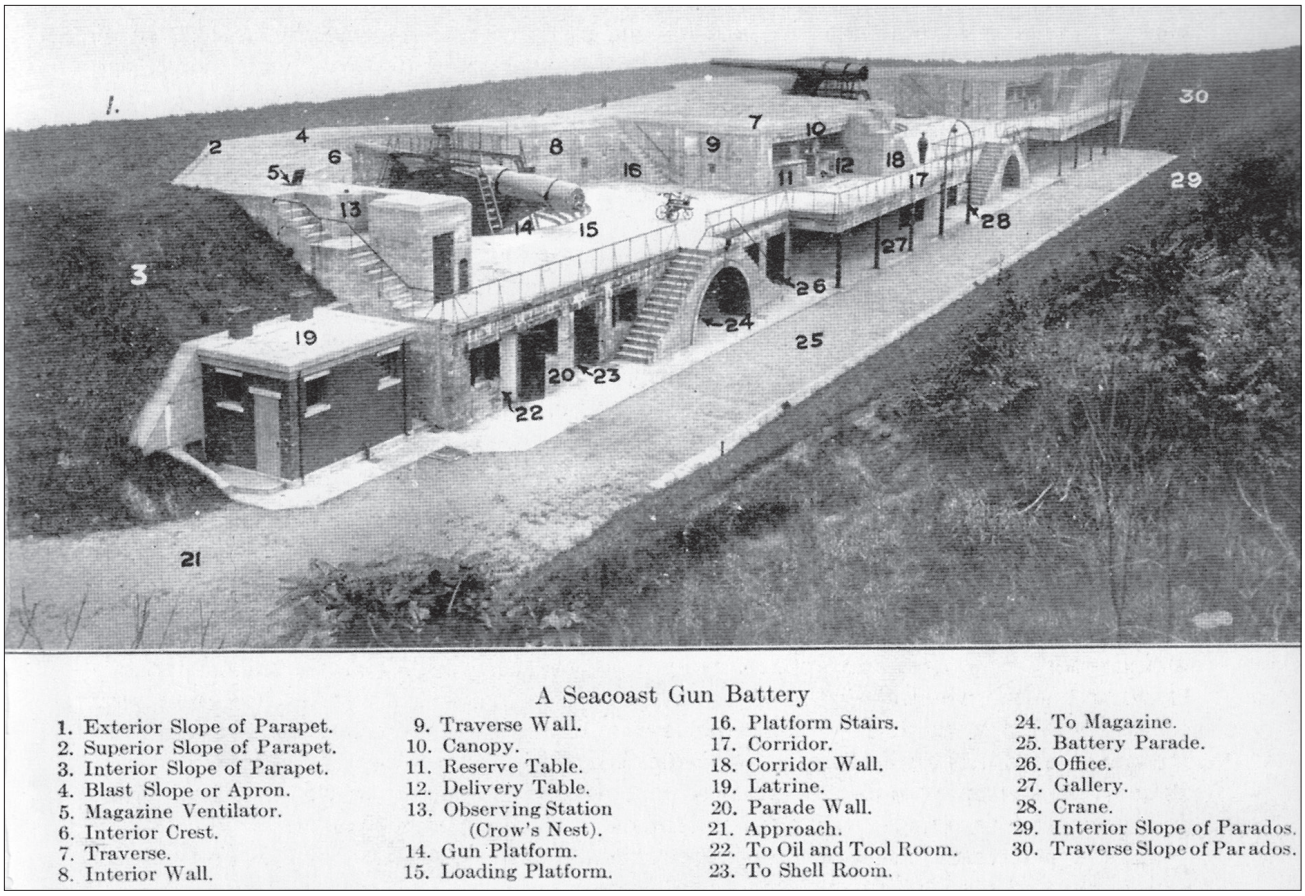


Figure 3.14. Photographic diagram of a major caliber Endicott gun battery at Fort Wadsworth in New York City, completed in 1902, showing a design similar to the batteries built at the Marin Headlands. The image shows one of the guns in the raised firing position, the other in the lower loading position. (Attributed to U.S. Army Coast Artillery Corps, from F. Hines and F. Ward, *The Service of Coast Artillery*, 1910)

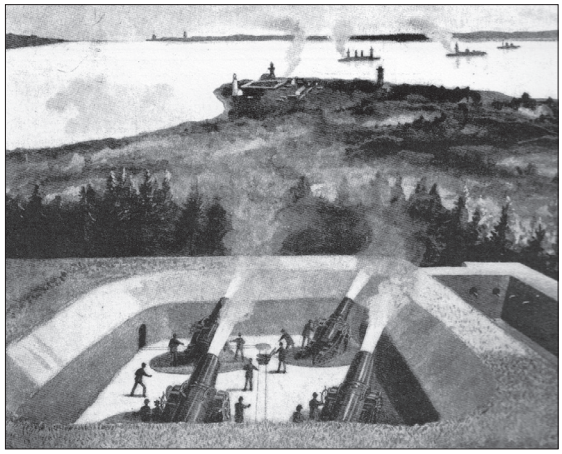


Figure 3.15. Drawing of an Endicott mortar battery at Fort Hancock, New Jersey built in the early 1890s, showing operation of the mortars and typical character of battery, similar to what would be built in the Marin Headlands. (*Scientific American,* 1898, reproduced from L. Polaski and G. Williford, *New York City's Harbor Defenses*, 2003)

since there was not yet a threat from the air. These were protected behind poured-in-place concrete parapet walls that could be up to twenty feet thick and earthen parapets extending out as much as thirty feet. These parapets, designed to absorb heavy bombardment from naval guns, were generally maintained with a turf cover to prevent erosion and stabilize the ground during firing.[19]

Endicott batteries consisted of three types based on their respective armament. The primary type was the seacoast gun battery designed for long-range, major caliber breech-loading rifles: primarily eight, ten and twelve-inch guns, generally arranged into two or more emplacements and set on disappearing carriages (see fig. 3.14). The second type of battery was designed for mortars, a stubby cannon used to fire large projectiles in a high arc for landing almost vertically on the decks of ships. These batteries at first featured groups of four, twelve-inch mortars set within a square, deep pit surrounded by concrete parapet walls and high earthen embankments (fig. 3.15). These two types of major-caliber batteries were supplemented with fire-control stations and plotting rooms for sighting and calculating the location of targets, typically integral with the battery, except where topography and

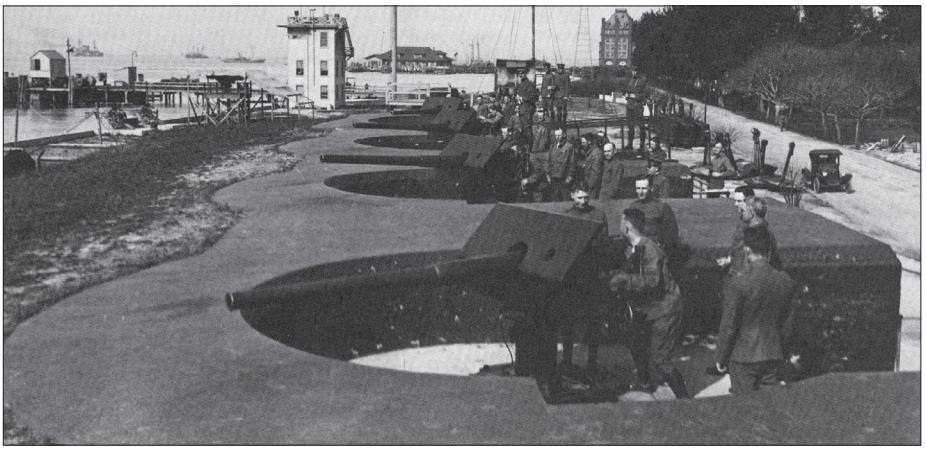
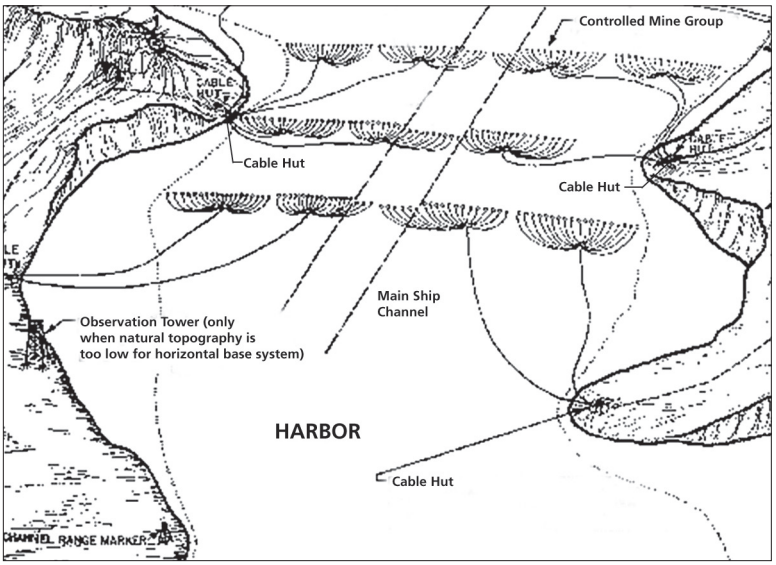


Figure 3.16. A battery of three-inch rapid-fire guns at Fort Monroe, Virginia showing character of minor class of Endicott gun batteries similar to those built at the Marin Headlands, photographed 1918. (National Archives, reproduced from Lewis, *Seacoast Fortifications of the United States*, 1979)

limited sight lines required a remote building. The third type of battery, designed for small, rapid-fire three to six-inch caliber guns, were intended primarily to protect submarine minefields in the harbor from attack by fast minesweeping craft, and to protect the larger seacoast gun batteries. The rapid-fire gun batteries had not been included in the Endicott board's recommendations because the armament was developed later, in the 1890s. Due to the smaller size of the guns and lighter ammunition, the small-gun batteries usually featured simple pedestal carriages set on concrete emplacements behind low parapet walls (fig. 3.16).[20]

Another class of defensive works greatly strengthened the harbor defenses during the Endicott period was the submarine minefield, which although located in the water, was maintained by the Army rather than the Navy.[21] These works consisted of electrically-detonated underwater mines, known as torpedoes prior to the early twentieth century, that were strung along cables connected to onshore facilities (fig. 3.17). The advantage of these mines over earlier nets and chains was that they did not impede friendly navigation, and could destroy enemy ships, rather than simply impede or stop them, without threat to friendly vessels. The landside components of the submarine minefields included mine huts, which were small structures where communication cables came ashore, and mine casemates, which were generally larger structures housing electrical switches and other components used to control the mines. Other landside components of the system included magazines for storing the mines, cable storage buildings and tanks, fire control stations, and loading wharves for use by mine-laying vessels. The minefields, illuminated at night by powerful electric searchlights, were protected by the on-shore batteries of rapid-fire guns. The minefields were typically planted and maintained during times of war; in peacetime, the cables and mines were stored onshore. [22]

Figure 3.17. An Army diagram of a submarine minefield showing characteristic mine groups and onshore cable huts (cable terminals) developed during the Endicott period. The drawing does not show mine casemates where controls were housed. (From U. S. Army Field Manual FM 4-6, 1942, courtesy Coast Defense Study Group)



In addition to the defenses, the Army also began development during the Endicott period of permanent posts that contained housing, offices, hospitals, parade ground,

and Quartermaster buildings, among other support facilities, necessary for staffing and operation of the new defenses.

In 1891, the Army began construction of the first new Endicott defenses in San Francisco at the rear of Fort Point. Over the course of the next fifteen years, the Army built thirty-seven batteries along the Golden Gate, more than triple the number that existed prior to 1890. These were located at six military reservations, three on the north side of the Golden Gate, and three on the south (see fig. 3.13). The southern Endicott-era reservations included Fort Winfield Scott that was formed from the western side of the Presidio, including Fort Point; Fort Miley at Point Lobos, acquired in 1890 to defend the outer harbor entrance, and the preexisting Fort Mason to guard the inner harbor. Endicott batteries at Angel Island, renamed Fort McDowell in 1900, defended the harbor interior.[23]

On the north side of the Golden Gate, the eastern half of Lime Point, redesignated Fort Baker in 1897, defended the inner harbor entrance. It was named in honor of Colonel Edward Dickinson Baker, who died at the Civil War battle of Ball's Bluff, Virginia. The western half of Lime Point, informally known as the Point Bonita Reservation, was renamed Fort Barry in 1904 in honor of General William F. Barry, colonel of the 2nd Artillery who served as commander of Fort McHenry in Baltimore at the time of his death in 1879. The boundary between the two reservations was a line running due north from the tip of Point Diablo. [24]

CONSTRUCTION OF THE ENDICOTT DEFENSES

Construction of the Endicott batteries at the headlands did not begin until 1893, nearly two years after the first battery was begun at Fort Winfield Scott. Colonel Mendell, who had become Senior Engineer at San Francisco, initially oversaw construction prior to his retirement in 1895, when he was replaced by Colonel William Craighill. Direct charge of the work was assigned to Colonel William H. H. Benyaurd. The Army established two major areas of operations, one at Fort Baker, the other at Fort Barry. At each of the two headlands reservations, the Army developed extensive support facilities that included housing for the engineers who designed and oversaw the work; a wharf for delivery of supplies; offices; workshops for blacksmiths and carpenters; water-supply systems; and concrete plants for construction of the batteries.

The need for the new Endicott batteries at San Francisco became more urgent to many following the U. S. declaration of war against Spain in 1898, which witnessed the first activation of the harbor's submarine minefield. Although the Spanish-American War did not reach San Francisco, work continued on the batteries already underway and construction on others soon followed. The old Cavallo Battery was pressed into service through the emplacement of three old Rodman guns, intended to protect the submarine minefield—the first and only guns to be

mounted at the old battery. The earthen traverses were probably enlarged at this time to provide additional cover for the guns. These joined another four Rodman guns that had been installed at Ridge Battery in 1893. [25]

FORT BAKER: INNER HARBOR DEFENSES

In the early 1890s, in preparation for construction of the new defensive works, the Army repaired and improved the Engineer Camp buildings on the east side of Lime Point Ridge that had been built shortly after the Civil War. These buildings provided living quarters for workers and the lieutenants directly in charge of construction. Army engineers also rebuilt the old timber wharf, which was needed to receive shipments and personnel.[26] Between 1893 and 1905, Army engineers oversaw construction of five batteries at Fort Baker, two of which replaced earlier batteries. The Board of Engineers' 1890 plans for turrets at Point Diablo and Lime Point, and for a new battery atop Cavallo Battery, were not implemented.[27]

Construction at Lime Point began on Lime Point Ridge, where Army engineers designed a seacoast gun battery with three emplacements to replace Cliff Bat-

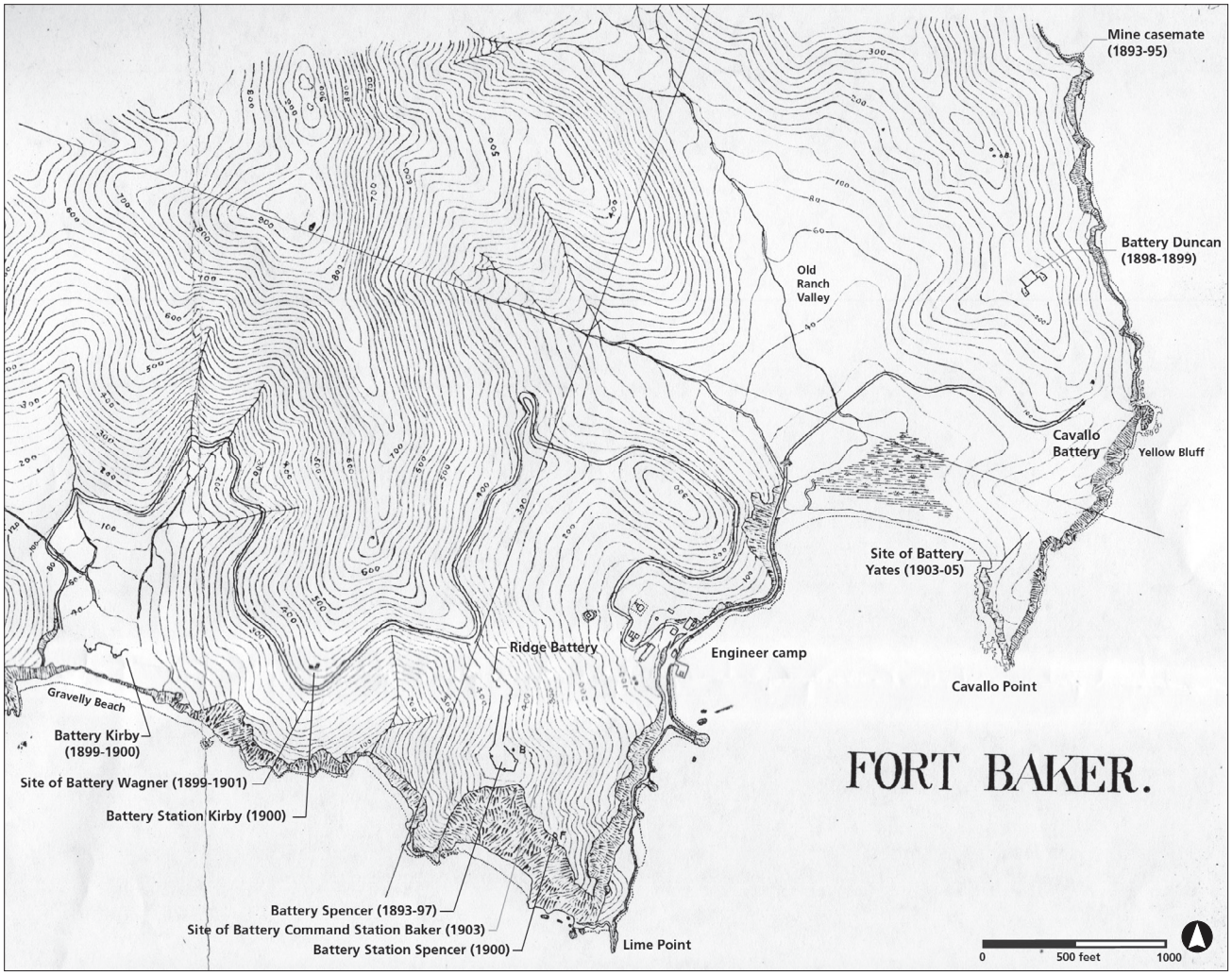


Figure 3.18. A ca. 1900 map of Fort Baker showing completed Endicott defenses and annotated to show other defenses completed by the end of the Endicott modernization program in ca. 1905 (noted as "site of"). (National Archives, RG 77, Dr1893 Calif 3-9, annotated by SUNY ESF)

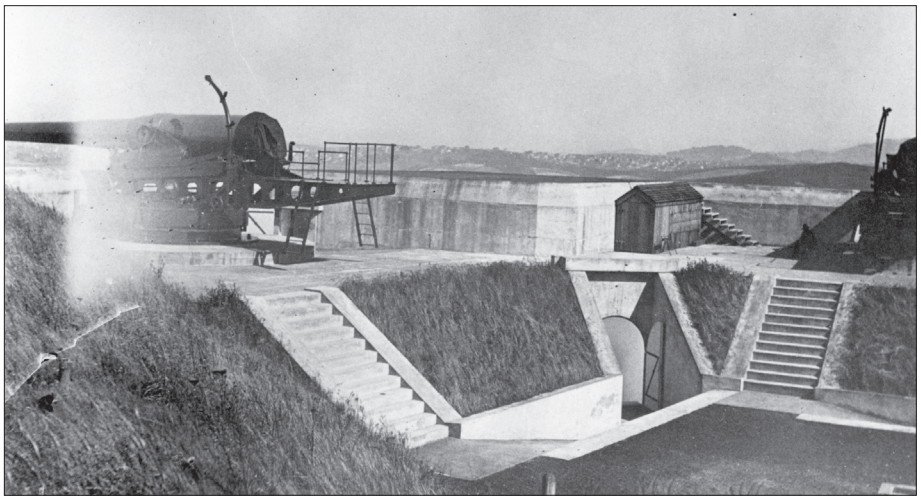


Figure 3.19. Battery Spencer on Lime Point Ridge, view looking from the interior southeast with San Francisco in the distance, ca. 1900. Note the turfed slopes. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 2316)

tery, and a two-emplacement battery to replace Ridge Battery (fig. 3.18). The large amounts of concrete needed to build the structures were supposed to be mixed at the engineers' wharf and transported up the ridge via an inclined tramway, but Colonel Benyaurd instead had the concrete plant built directly on the ridge. The first two gun emplacements were completed in 1893, the third in 1895. The high elevation of the battery gave the twelve-inch guns a wide range of fire directed south toward Fort Point and at the inner and outer entrances of the Golden Gate. The three emplacements converged in a central area at the end of Ridge Battery's covered way, with turfed interior parapets (fig. 3.19). The two proposed emplacements at Ridge Battery were not implemented. Along the entrance to the complex was a group of small service buildings that included a latrine, powerhouse, and guardhouse. In 1897, Army engineers turned over the completed battery, which was named in honor of General Joseph Spencer, a Revolutionary War hero, in 1902. In ca. 1910, a pair of concrete piers was installed at the entrance to the battery, giving it a more fortified character.[28]

Several support structures were added soon after the completion of Battery Spencer as part of the Endicott modernization. In 1900, Army engineers built a fire-control station on the ridge below the battery—the first such defensive work in the headlands. This was a small square one-room flat-roofed concrete building, sunk into the ground with an above-ground height of four feet (fig. 3.20, see also fig. 3.18). Narrow windows spanned two of the walls for the sighting equipment. Around the same time, the engineers began construction of another fire-control

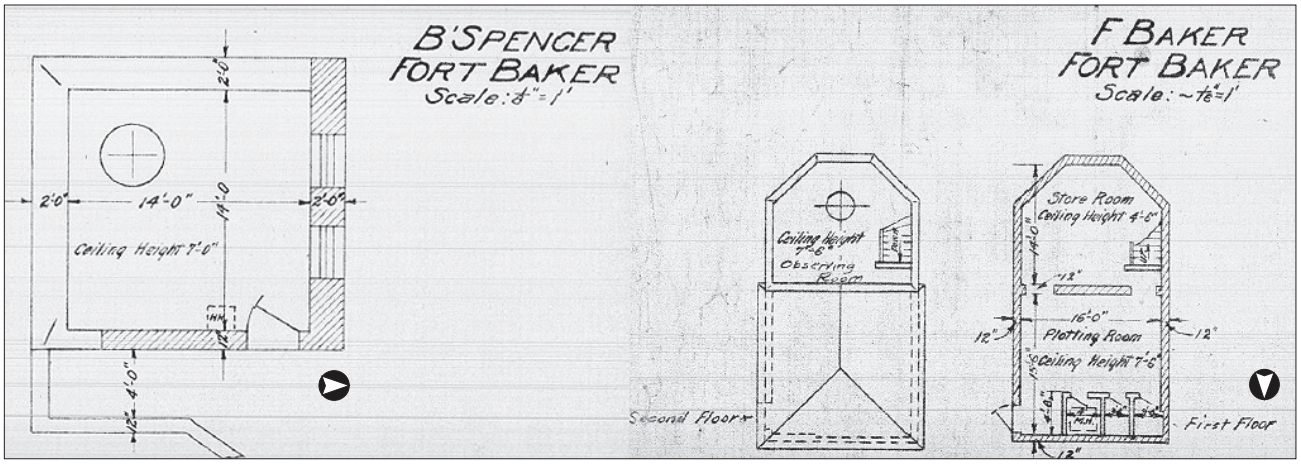


Figure 3.20. Plans of the fire control station (B-1 Spencer, left) and battery command station (F Baker, right) near Battery Spencer built in 1900 and 1903. The fire-command station was depressed, with four feet of the building above grade. (U. S. Army, Reports of Completed Works--Seacoast Fortifications, Fort Baker, F and B1 Spencer updated to March 1920, National Archives II, RG 77, Entry 1007)

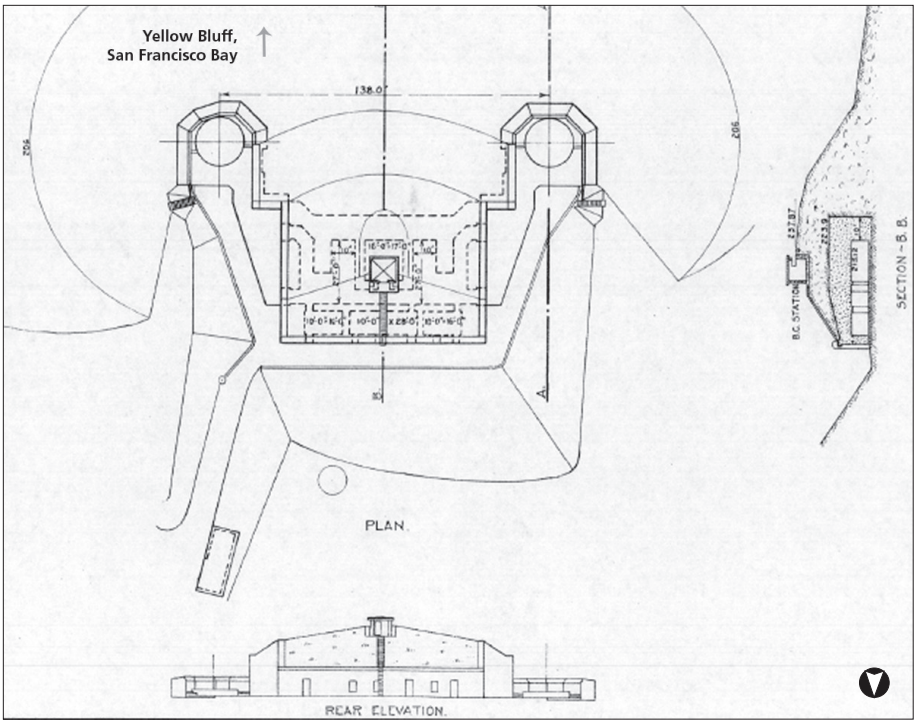


Figure 3.21. Plan, elevation, and section of Battery Duncan completed in 1899 on the ridge above Yellow Bluff. This plan and sections show a Battery Command station added on top of the traverse in 1910. (U.S. Army, Reports of Completed Works--Seacoast Fortifications, Fort Baker, Battery Duncan, 1900 corrected to December 1919, annotated by SUNY ESF, National Archives II, RG 77, Entry 1007)

station high up on the ridge behind the battery, approximately 1,400 feet northwest of the gun emplacements. For an unknown reason, work on this station was never completed, leaving just the concrete walls.[29] Three years later, a fire commander's station—to coordinate firing among all the Fort Baker batteries—was erected between the fire-control station and Battery Spencer. This was a larger two-room building built of brick with a hipped roof and a semi-hexagonal front observing room.[30]

With outbreak of the Spanish–American War, the Army accelerated construction on additional batteries at eastern Lime Point. In 1898, ground was broken for a two-gun emplacement on the top of a hill above Yellow Bluff overlooking the old Cavallo Battery, authorized under a war-generated appropriation. The high elevation of the site provided for a wide range of fire extending from San Francisco Bay and across Horseshoe Cove to Lime Point. The battery, accessed by a new road (present Drown Road) laid out along switchbacks from the road to Cavallo Battery (East Road), required extensive grading at the top of the hill for the massive structure, which featured earthen cover over the central magazine (fig. 3.21). To camouflage the concrete structure, the walls were tinted red to blend in with the natural red-rock land.[31] Completed in 1899 and armed in 1900, the battery was named in 1902 in honor of Colonel James Duncan, who served with distinction in the Mexican–American War. A separate latrine building was constructed at the rear of the battery along the access road, and further up the hill, engineers built a concrete fire control station similar in design to the one at Battery Spencer. Completed in 1900 a year after the battery, this station was designed to increase the range of sight for the battery across the northern end of the minefield in San Francisco Bay.[32]

In 1899, a year after work started on Battery Duncan, the Army began construction of a water-level battery at the old Gravelly Beach Battery. Initial plans had called for four gun emplacements, but given the limited range of the site, the Army reduced this number to three. Due to a lack of available ordnance, engineers redesigned the battery with just two emplacements, each a major caliber, twelve-inch gun (fig. 3.22). The new battery, which obliterated the central part of the old battery containing the paired emplacements, was a low, horizontal work that was inconspicuous along the waterfront site. Four traverse magazines from the old work were retained, as well

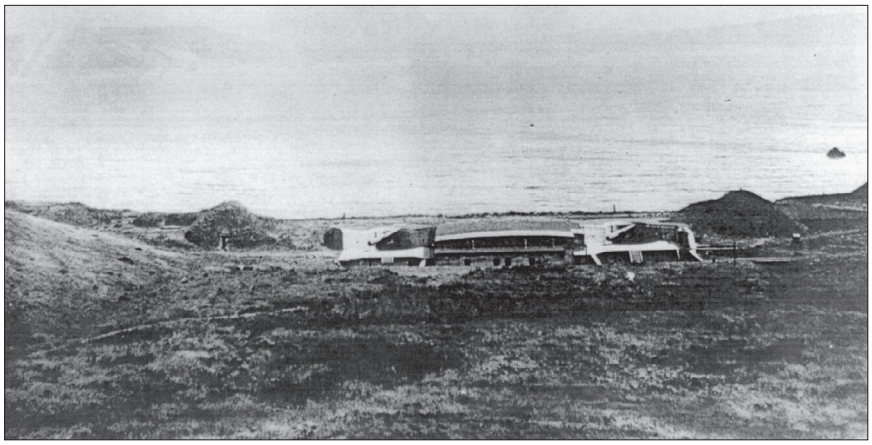


Figure 3.22. Battery Kirby at Gravelly Beach, view looking at the back of the battery south toward the Golden Gate, ca. 1905. The hills to either side of the new battery are traverses remaining from the old Gravelly Beach Battery. (Golden Gate National Recreation Area, Park Archives and Records Center)

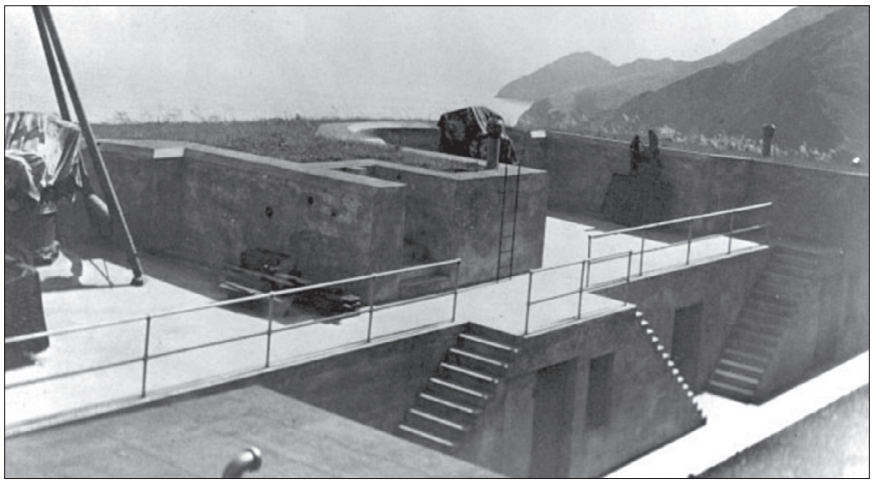


Figure 3.23. Battery Orlando Wagner looking west toward Point Bonita showing the range of fire west beyond Point Diablo, 1902. (Golden Gate National Recreation Area, Park Archives and Records Center, Interpretive Photo Collection. (GOGA 35301.2018)

as a large brick culvert that drained the valley's creek. The new battery was completed in 1900 and named in 1902 after Lieutenant Edmund Kirby, who died at the Civil War Battle of Chancellorsville, Virginia.[33] While work was nearing completion on Kirby, the Army began construction of a smaller, higher-elevation battery on the hill to the east, halfway to Battery Spencer (fig. 3.23). The battery was designed for two five-inch rapid-fire guns to protect Battery Kirby and increase its western range of fire constrained by the narrowness of the cove and Point Diablo. Construction began in 1899 and was completed in 1901. The work, accessible off a short spur from the road to Gravelly Beach (Roth Road), required an extensive cut into the hillside (fig. 3.24). To stabilize these steep banks, the Army experimented with planting a cover of alfalfa in 1901.[34] In 1904, the battery was named in honor of Major Orlando Wagner, who died at the Civil War siege of Yorktown, Virginia.[35] A remote fire-control station for

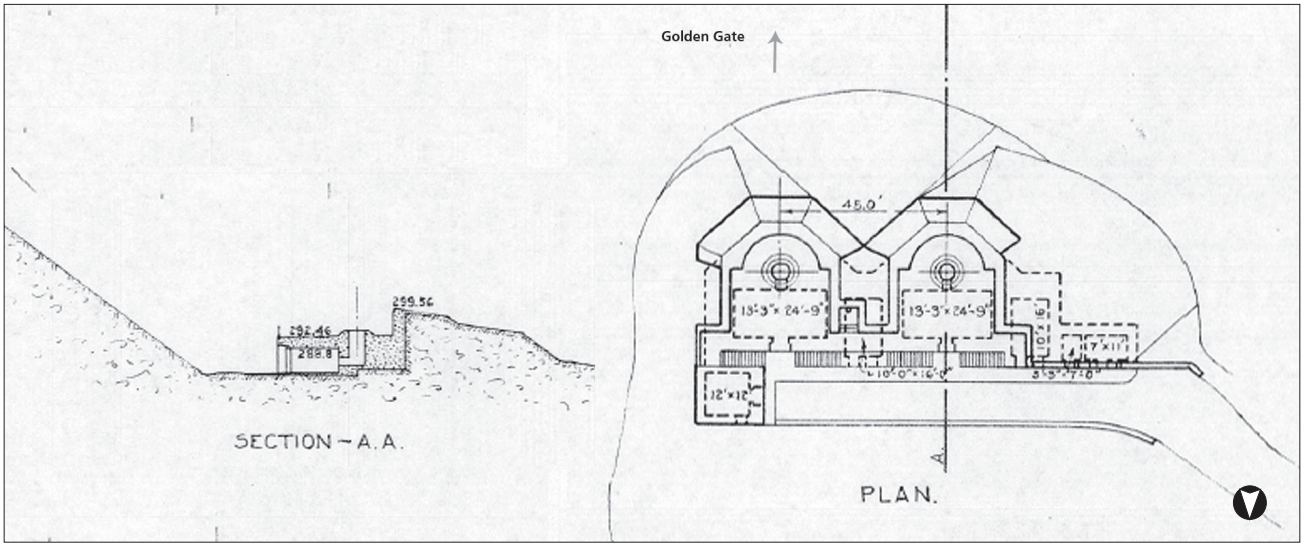


Figure 3.24. North-south section and plan of Battery Orlando Wagner. Note extensive grading of the hillside. (U. S. Army, Reports of Completed Works—Seacoast Fortifications, Fort Baker, Battery Orlando Wagner, 1901 corrected to December 1919, annotated by SUNY ESF, National Archives II, RG 77, Entry 1007)



Figure 3.25. Horseshoe Cove at the back of Battery Yates on Cavallo Point, built in 1903-05 on the site of the Cavallo Battery outwork, looking east, ca. 1910. At the left is the old Cavallo Battery, surrounded by fences. The beach is lined by target sleds. (Golden Gate National Recreation Area, Park Archives and Records Center, Donald A. Thomas collection, GOGA 3311.005)

Battery Kirby, a similar design to the Duncan station, was completed in 1900 on the hillside 310 feet above Battery Wagner.[36]

The last Endicott battery built at Fort Baker was begun in 1903 at the site of the Cavallo Battery outwork on Cavallo Point, oriented southeast toward minefields at the inner entrance of San Francisco Bay, with its rear toward Horseshoe Cove (fig. 3.25). This battery was designed for six, three-inch rapid-fire guns, four in a straight row and two angled to the west. The battery was named in 1904, prior to its completion in 1905, in honor of Captain George Yates who was killed by Sioux Indians in 1876 at the Battle of Little Big Horn in Montana.[37]

Aside from the batteries, other Endicott defensive works constructed at Fort Baker included a mine casemate serving the submarine minefield between Angel Island and the Marin Peninsula. Begun in 1893 and completed in 1895, the mine casemate, the fourth at San Francisco, was located north of Cavallo Battery in a small cove (see fig. 3.18). The Army built a concrete seawall along the steep, rocky shore to support and protect the subterranean structure. This casemate consisted of a single cable and equipment room connected to an entrance tunnel with a portal facing north, covered with a protective earthen parapet planted in turf (fig. 3.26). A concrete channel for the mine cable extended from the bay through the seawall and into the casemate, to the electrical equipment. The casemate soon became outdated,

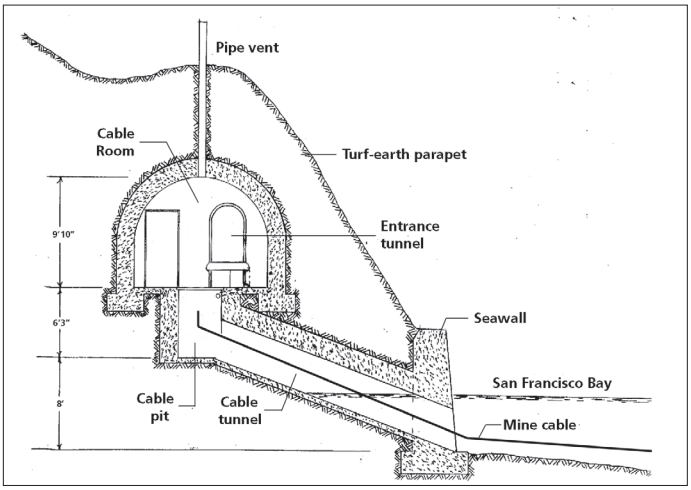


Figure 3.26. A contemporary drawing of an east-west section looking north through the mine casemate (cable hut) north of Yellow Bluff built in 1893. (L. Guidry, Coast Defense Study Group, June 1993, annotated by SUNY ESF)

and its electrical components suffered from the humidity of its underground seaside location. When it came time to deploy the minefield in 1898 during the Spanish–American War, Army engineers moved the electrical components to a wood frame, corrugated iron-sheathed shed built uphill and to the north, in a dryer location. A connecting trough for the cables was built from the casemate to the new shed. The old structure subsequently served as a terminal (cable hut) for the communications cable between Fort McDowell on Angel Island and Fort Baker. [38]

FORT BARRY: OUTER HARBOR DEFENSES

In September 1900, seven years after Colonel Mendell had begun Battery Spencer and the year following establishment of the Life-Saving Station, the Engineer Department prepared plans for the first two outer harbor batteries at Point Bonita. Unlike Fort Baker, the engineers had no preexisting wharfs, housing, or other infrastructure to support construction. There was no connecting road across the headlands, only a circuitous road via Sausalito through the Silva ranch (preset Miwok and Bobcat trails). Given the need for access between Fort Baker and Point Bonita, the Army decided to complete the abandoned road that Colonel Mendell had started in 1874 from a point near Ridge Battery. By ca. 1901, the Army had extended the winding road (later named Julian Road) around the north side of Diablo Ridge to a valley that branched southeast from Rodeo Creek, then through Rodeo Valley to the Sausalito–Point Bonita Road (fig. 3.27, see pages 86-87). The section over Diablo Ridge was narrow and twisting, with steep drop-offs along certain sections that made travel dangerous.[39]

Army engineers began development at Point Bonita in 1901. Disregarding the informal forty-four acre lighthouse reservation, the engineers' construction surrounded the lighthouse keepers, avoiding only the small fenced yards around their two houses, as well as the fence-enclosed Life-Saving Station (see fig. 3.7).

Figure 3.27. A ca. 1912 map of Forts Baker and Barry highlighting the major roads and defensive works added during the Endicott modernization. See following page for full spread.

Figure 3.28. The Engineer wharf at Fort Barry built in 1901, looking southwest toward Point Bonita, ca. 1910. The tide station building at the end was added in 1910 after the wharf had been taken over by the Quartermaster. Visible in the background on Point Bonita, from left to right, are the fog signal station, storehouse and lighthouse wharf with derrick, and the truss bridge at the north portal of the tunnel. (Golden Gate National Recreation Area, Park Archives and Records Center, Elanora Hoop Collection.001)



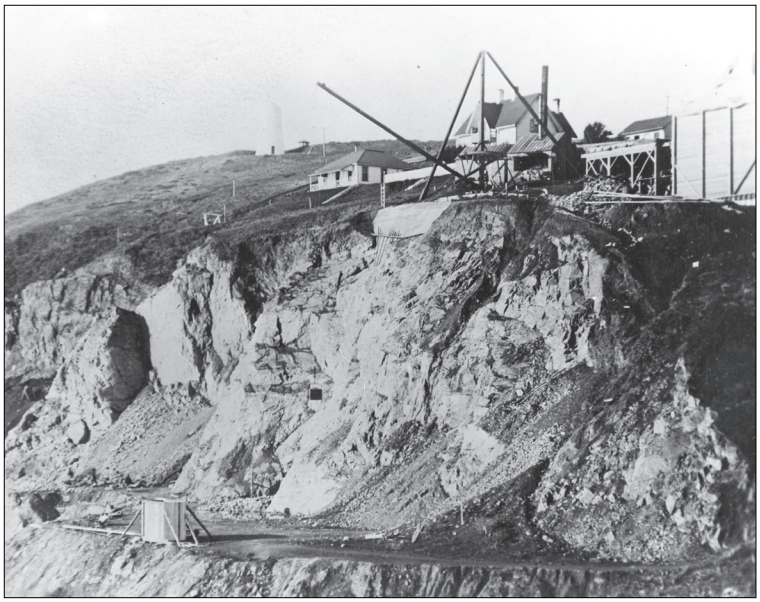
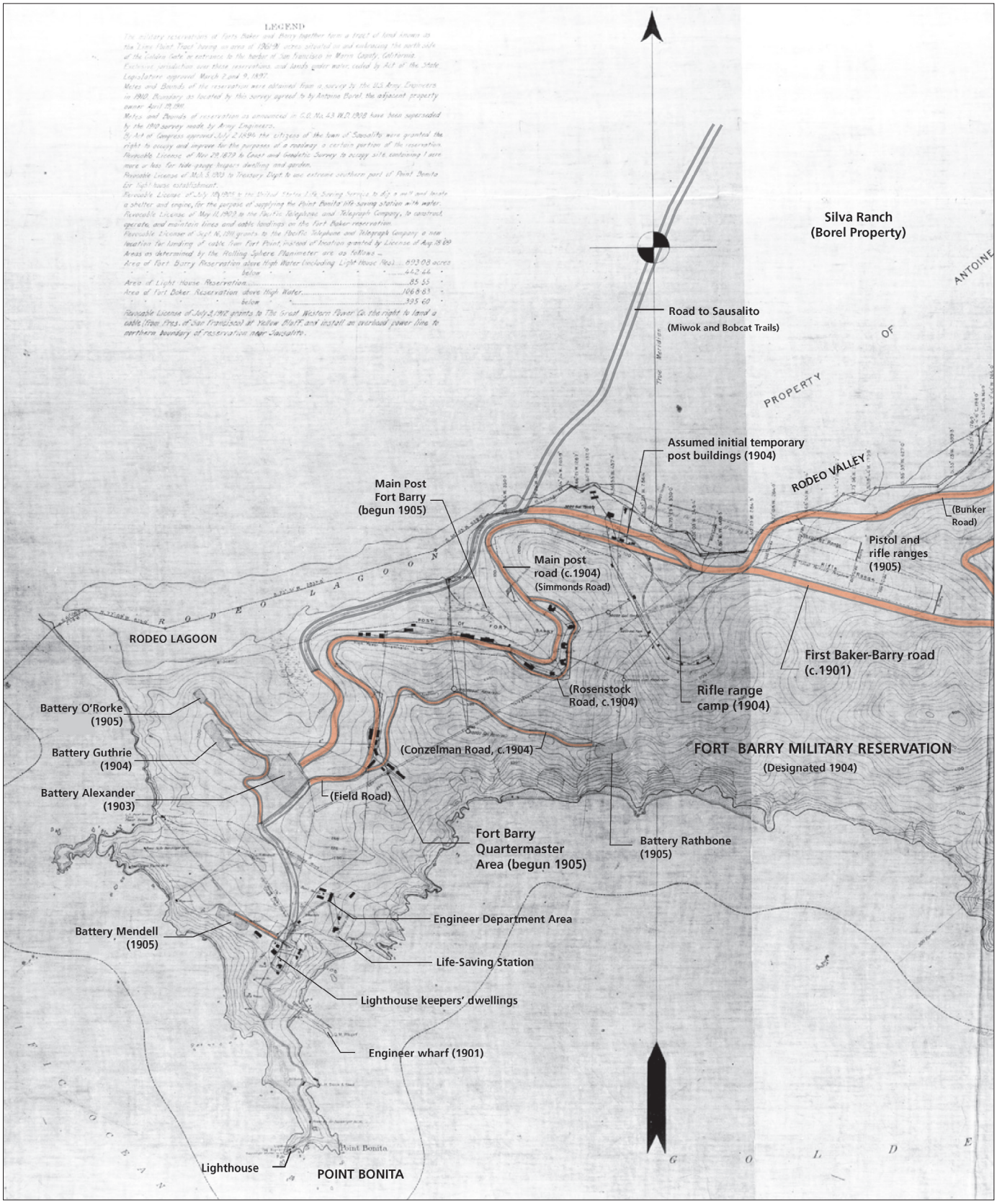


Figure 3.29. The Army engineer quarry along Bonita Cove below the lighthouse keepers' area, view looking northwest, ca. 1905. At the top of the cliff is a derrick that lifted the rock to a crusher and bin; a tramway transported the crushed rock to a concrete plant. The hipped-roof building in the distance next to the keeper's house is the engineers' office. (Golden Gate National Recreation Area, Park Archives and Records Center, Griswold Collection, GOGA 13911.04)

The quiet and desolate setting of Point Bonita that the lighthouse keepers had known for the previous five decades quickly disappeared. First to be constructed was a wharf, necessary for the shipment of building supplies. The engineers considered building the wharf on the Pacific coast north of Bird Island, but decided to site it on the more sheltered Bonita Cove, below the lighthouse keeper's house (fig. 3.28). The timber wharf extended 300 feet into the water, and had a rail system that connected to a tramway that ascended the steep cliff along a 250-foot long trestle. The tramway crossed the lighthouse trail and terminated at an engine house located between the old lighthouse tower and the keeper's house. From here, supplies were transported past the rear of the two keepers' houses to the main road and the battery construction sites.[40]

Concrete, the primary material used to buildthe batteries, was made on site from a central plant. The engineers devised an extensive system to quarry rock and sand, and transport the materials to a concrete mixer. The quarry was located in the cliff along Bonita Cove east of the wharf and below the lighthouse keepers' dwellings, from where the rock it was hoisted by a derrick to the top of the cliff, crushed, and then stored in a large bin (see fig. 3.8). From the bin, the rock was transported on a tramway that passed alongside the old keeper's house to the concrete mixer. A large shed near the mixer housed the cement, and the sand, which came from pits dug in the west side of the gully north of Bird Island, was transported to the concrete mixer along another tramway that measured 1,600 feet long. To supply fresh water for the concrete, the engineers built their own system that tapped into the same springs used by the lighthouse keepers. Water was pumped by a windmill and steam engine at the base of the sand gully to a 20,000 gallon reservoir on North Bonita Hill overlooking the Pacific (site of current Bird Island oerlook).[41]

To provide workshops, housing, and office space, the engineers erected a half-dozen support buildings within and surrounding the lighthouse keepers' area. These were all white-painted one-story frame buildings with clapboard siding and gable or hipped roofs, intended as temporary construction. The engineers' office building was built adjoining the west side of the keeper's house, and the blacksmith and carpentry shops were next to the old keepers' house (see figs. 3.1, 3.7). To the east, north of the Life-Saving Station, the engineers developed an area devoted to living quarters. It included two barracks accommodating 150 men, a mess hall, a wash house, and stables for twenty-four horses. This development required filling of a small lagoon on the site.[42]


LEGEND
Silva Ranch
(Borel Property)
Road to Sausalito
(Miwok and Bobcat Trails)
Assumed initial temporary
post buildings (1904)
Main Post
Fort Barry
(begun 1905)
Main post
road (c.1904)
(Simmonds Road)
RODEO VALLEY
(Bunker
Road)
Pistol and
rifle ranges
(1905)
RODEO LAGOON
First Baker-Barry road
(c.1901)
(Rosenstock
Road, c.1904)
Rifle range
camp (1904)
Battery O'Rorke
(1905)
Battery Guthrie
(1904)
(Conzelman Road, c.1904)
FORT BARRY MILITARY RESERVATION
(Designated 1904)
Battery Alexander
(1903)
(Field Road)
Fort Barry
Quartermaster
Area (begun 1905)
Battery Rathbone
(1905)
Engineer Department Area
Battery Mendell
(1905)
Life-Saving Station
Lighthouse keepers' dwellings
Engineer wharf (1901)
Lighthouse
POINT BONITA

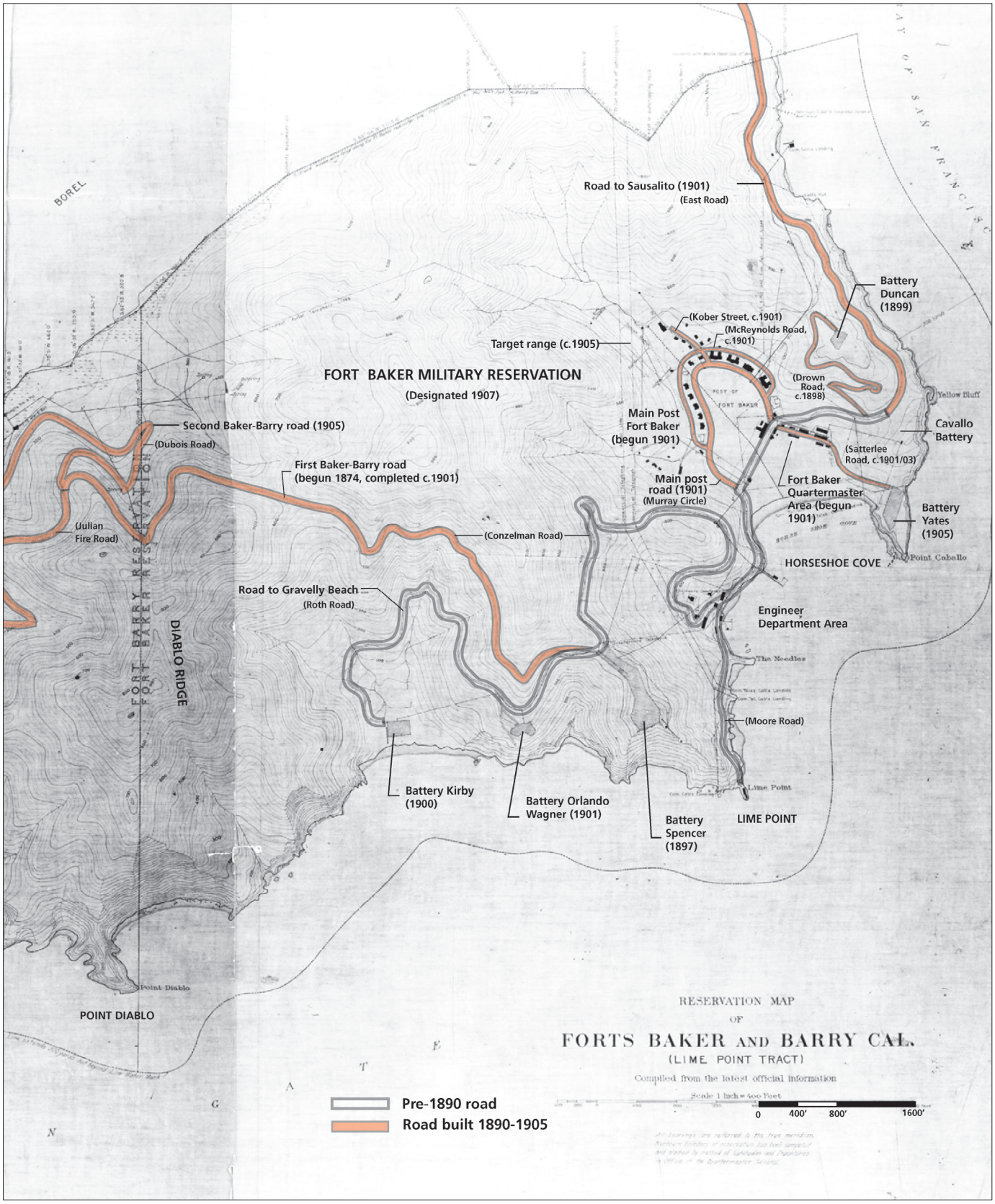


Figure 3.27. A ca. 1912 map of Forts Baker and Barry highlighting the major roads added during the Endicott modernization. Current road names are in parentheses. The map also shows the Endicott batteries and location of the two main posts and Quartermaster areas. ("Reservation Map of Forts Baker and Barry," Golden Gate National Recreation Area, Park Archives and Records Center, D181, 71501, annotated by SUNY ESF)

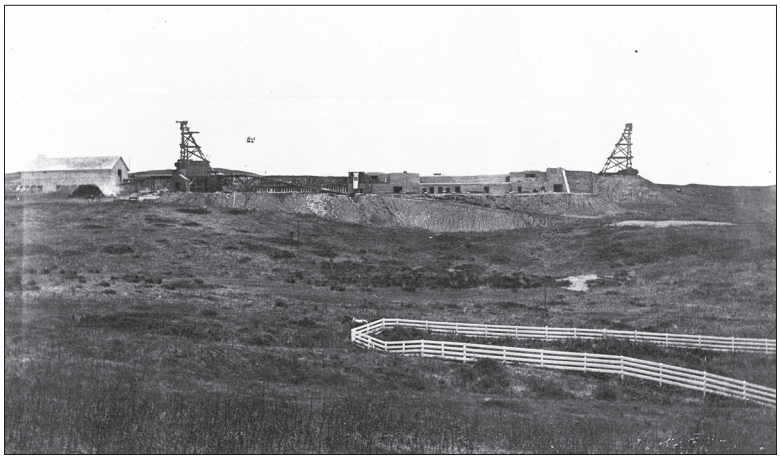




Figure 3.30 (top). Distant view of Battery Mendell nearing completion looking west with the cement shed at left, June 1902. The fence in the foreground enclosed the lighthouse windmill at the top of the sand gully. (Golden Gate National Recreation Area, Park Archives and Records Center, Griswold Collection, GOGA 35301.2035)

Figure 3.31 (middle). Battery Mendell nearing completion, view looking north with North Bonita Hill in the background, June 1902. (Golden Gate National Recreation Area, Park Archives and Records Center, Griswold Collection, PAM Prints Collection, GOGA 35301.2037)

Construction of the engineer facilities was substantially complete by July 1901, when work began on the batteries. That month, ground was broken for a major-caliber seacoast battery positioned north of the keepers' houses above a two-hundred foot high cliff overlooking the Pacific, from where its guns could reach ships far out at sea (fig. 3.30, see also fig. 3.27). To the north was North Bonita Hill, location of the engineer reservoir (fig. 3.31). The concrete plant and sand tramway were a short distance to the rear of the battery. With two twelve-inch guns, the battery was similar in size to Battery Kirby at Fort Baker, but designed for a higher elevation, with its two-story concrete structure concealed behind a cut in the top of the cliff. The cut material was used to fill the slope at the rear, to create a level platform for the approach road. The battery was named in honor of Colonel George Mendell a month after his death on October 19, 1902, but was not completed for another three years.[43]

The second major-caliber battery was built on a low ridge to the rear (northeast) of Battery Mendell, east of the sand gully (see fig. 3.27). Begun in October 1901, this was a mortar battery with two groups of four, twelve-inch mortar guns, the smallest mortar battery at San Francisco. As was characteristic for this type of battery, the guns were depressed within a square pit, surrounded by high concrete walls and earthen parapets (fig. 3.32). Access was from the west, by a spur off the old lighthouse road to Rodeo Beach, and by the old road to Sausalito, which was realigned and terminated at the rear of the battery. Completed in 1903, the battery was named for Colonel Barton S. Alexander, a friend of Colonel Mendell and fellow engineer who died in 1879, having served with distinction in the Mexican–American War and Civil War.[44] The earthen parapets were planted in turf, and within a few years included vines and scrub within the interior that were either planted or naturalized (fig. 3.33).

In 1903, as work was nearing completion on Batteries Mendell and Alexander, Army engineers began construction of two rapid-fire gun batteries to the north

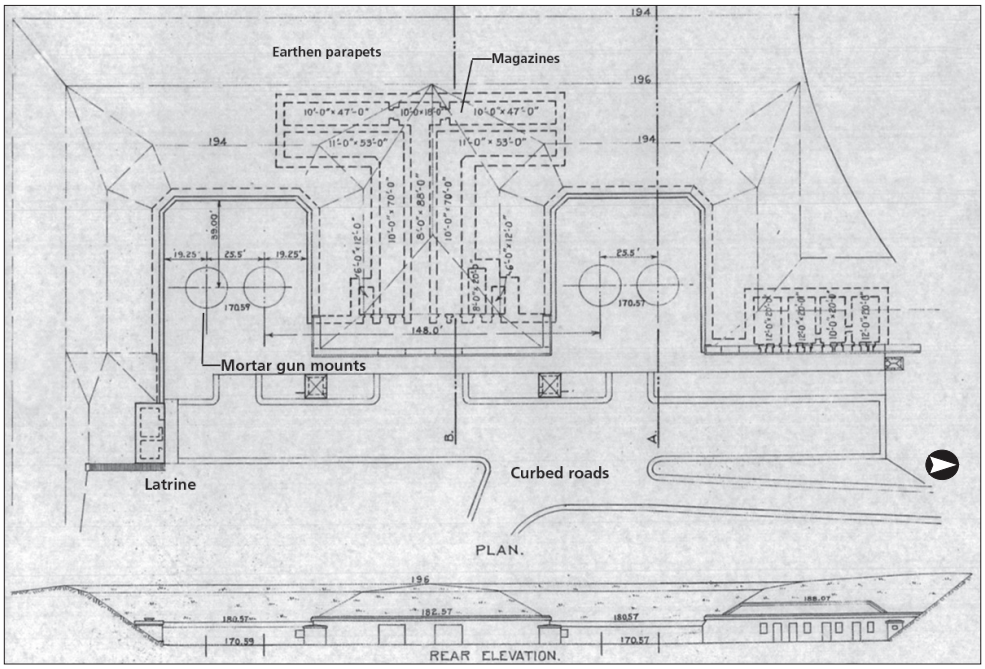


Figure 3.32. Plan and elevation of Battery Alexander illustrating mortar pits and height of earthen parapets. The front of the work facing the Pacific Ocean is at the top. (U. S. Army, Reports of Completed Works--Seacost Fortifications, Fort Barry, Battery Alexander, 1905 updated to 1923, annotated by SUNY ESF, National Archives II, RG 77, Entry 1007)

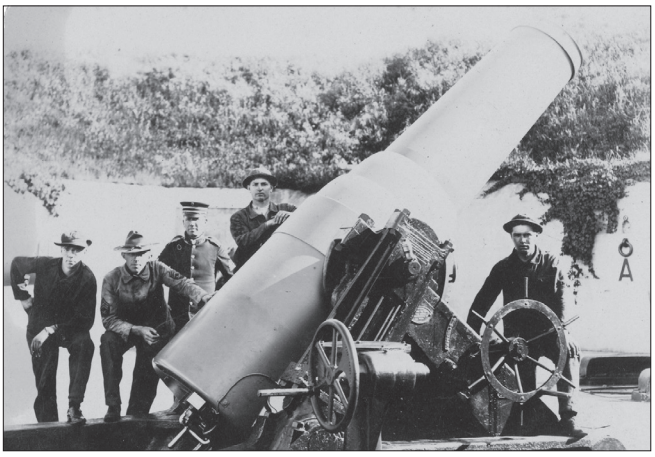


Figure 3.33 (left). The interior of Battery Alexander showing a mortar pit with a twelve-inch mortar gun and the character of vegetation on the earthen parapets, 1908. (Golden Gate National Recreation Area, Park Archives and Records Center, Durand Collection, GOGA 35290.011)



Figure 3.34 (right). The approach road to Battery Guthrie looking east toward Rodeo Hill showing a section with concrete gutter curbs, looking north, ca. 1905. Note the lack of curbs to the section of road in the background. (Golden Gate National Recreation Area, Park Archives and Records Center, Griswold Collection, GOGA 35301.2061)

of Alexander. Access was by a spur off the old lighthouse road to Rodeo Beach that wound up the hill near Battery Alexander (see fig. 3.27). As with most of the Army's new roads, the gravel-earthen surface featured concrete gutter curbs on steep sections and sections adjoining the battery (fig. 3.34). The closest battery to Alexander featured four, six-inch guns, designed to protect a minefield in the Pacific. Completed in 1904, the battery was named in honor of Captain Edwin Guthrie who died in 1847 during the Mexican–American War. The battery featured three traverse magazines, each with an earthen-turf cover (fig. 3.35). A separate latrine building was constructed off the northeast corner of the battery. North of Battery Guthrie was a smaller battery designed for four, three-inch guns, similar to Battery Yates at Fort Baker. It was designed to cover the Pacific mine-

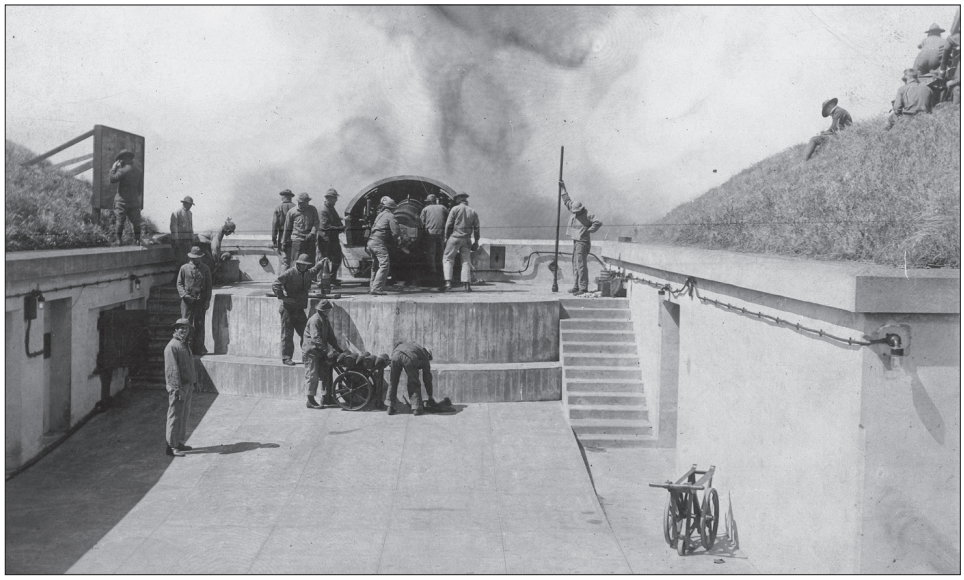


Figure 3.35. A later photograph of Battery Guthrie showing firing of one of its six-inch rapid-fire guns, 1921. Note the mown turf on the earthen parapets above the traverses. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 2039.007)

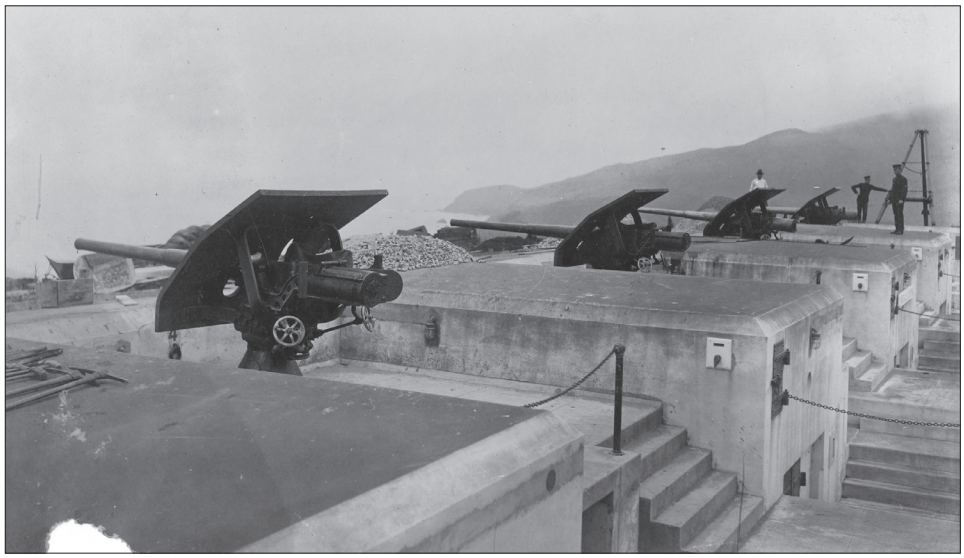


Figure 3.36. Battery O'Rorke looking north toward Rodeo Beach, ca. 1908. (Ralph Durland photograph, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35290.013)

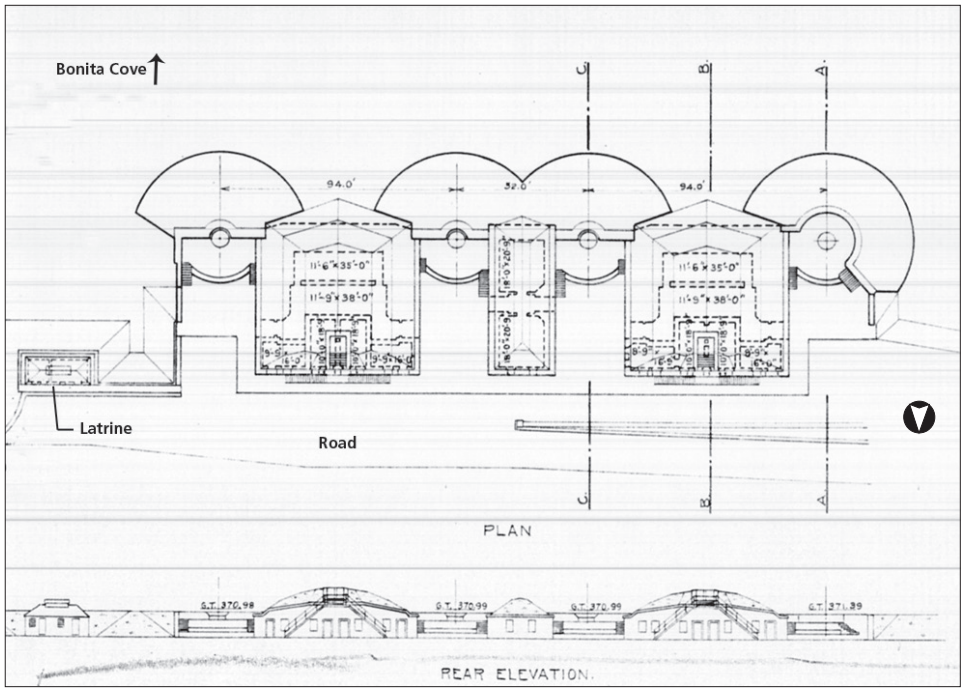


Figure 3.37. Plan and elevation of Battery Rathbone, completed in 1905. The stairs and stations on the traverses were a later addition. (U. S. Army, Reports of Completed Works--Seacoast Fortifications, Fort Barry, Battery Rathbone, ca. 1905 updated to 1919, annotated by SUNY ESF, National Archives II, RG 77, Entry 1007)

fields and Rodeo Beach, which was considered a prime enemy-landing place. The battery was positioned at the north end of a ridge, on a high point above Rodeo Lagoon, its structure depressed into the hill. Unlike Guthrie, this battery did not have earthen cover over its traverses (fig. 3.36). The battery was completed in 1905 and named in honor of Colonel Patrick Henry O'Rorke, killed at the Battle of Gettysburg in 1863.[45]

The last Endicott battery built at Point Bonita, located on a cliff above Bonita Cove more than a half mile east of Battery Alexander, was begun in 1904 (see fig. 3.27). To reach the battery, engineers laid out a road extending east from Battery Alexander. Designed to defend planned minefields and the outer Golden Gate south to Point Lobos, the new battery used the same plan as Battery Guthrie, built into the ground with four six-inch rapid-fire guns and three earthen-turf covered traverses (fig. 3.37). A separate latrine building was off the east flank. The battery, named in honor of Lieutenant Samuel B. Rathbone who died in the War of 1812, was completed in 1905.[46]

TAFT-ERA DEFENSE IMPROVEMENTS, 1905–1917

In 1905, as the last Endicott batteries were being completed at Forts Baker and Barry, President Theodore Roosevelt established a board headed by Secretary of War William Howard Taft to review and update the two decade-old recommendations of the Endicott Board in response to the increasing range of naval guns and the refinement of electrical and communication technology. While the so-called Taft Board called for few new major defensive works in the continental United States, it did recommend the development and improvement of accessory harbor defenses, including powerful searchlights to illuminate harbor minefields at night, electrification of communications and ammunitions handling, and an extensive system to aim the major caliber seacoast guns and mortars. Army engineers had begun to develop some of these systems prior to 1905, but the Taft recommendations provided the basis for additional advancements and systematic implementation through the 1910s.[47]

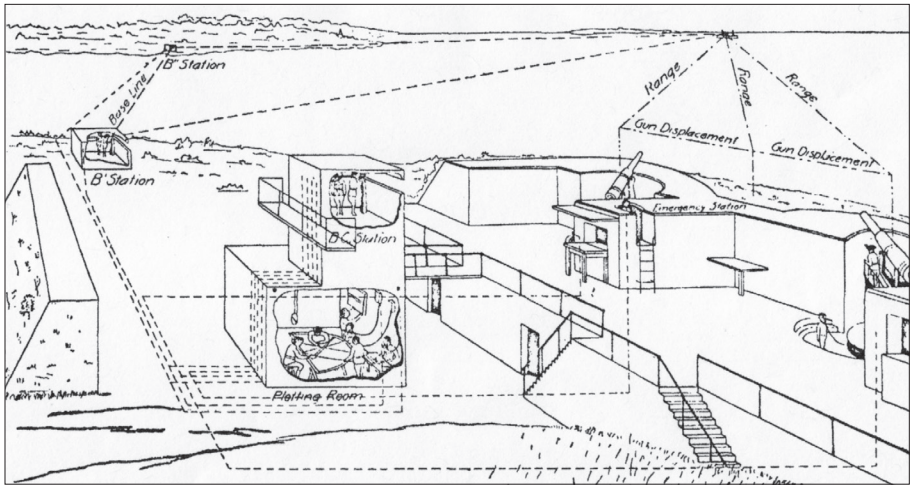


Figure 3.38. Army diagram showing components and function of a typical fire control system for a seacoast battery, following the recommendations of the Taft Board. "B.C." indicates the Battery Commander Station; "B¹" indicates a primary station of a battery, "B²" a secondary station. At San Francisco, batteries usually had multiple fire control stations due to topography and high fog conditions. (*The R. O. T. C. Manual, Coast Artillery,* Military Service Publishing Company, ca. 1940)

In June 1907, the Army finalized a comprehensive fire control project for the major-caliber coastal gun batteries and mines of San Francisco harbor based on the Taft Board recommendations.[48] The main built components of the system were fire control stations used in sighting, calculating, and coordinating the guns and mortars, following the

early system implemented at Fort Baker. These included a central battery commander (BC) station and outlying battery (base-end) stations ranked according to their position within the geometry of the sighting equation (fig. 3.38). Due to high fog conditions, coastal gun batteries at San Francisco often included battery stations positioned at low elevations that were known as fog stations. From these battery stations, data was electrically communicated to the BC station where the target was mathematically calculated, plotted in an adjoining room, and the computed information transmitted to the gun for aiming. Other stations, known as fire command stations, were erected to coordinate fire of groups of batteries. [49]

The Taft-era fire-control stations were typically inconspicuous, flat-roofed concrete buildings that were similar to those built in 1900 for Batteries Kirby, Spencer, and Duncan (see fig. 3.20). Most were square or rectangular, one-story buildings, ten to thirty feet at their widest, with poured concrete walls and flat roofs of iron or wood framing. Narrow window openings extended across two or more walls to provide a broad range of view for the optical instruments. Most of the fire-control stations were surrounded by protective earthen parapets. A later generation of the battery stations, completed prior to World War I, featured removable roofs, usually for low-elevation fog stations. Battery commander stations were typically small flat-roof concrete buildings built on top of a battery's central traverse (see fig. 3.38).[50]

The Taft-era searchlight and mining systems resulted in the addition of other small buildings and structures in the landscape. Permanent, fixed searchlights featured concrete shelters with steel shutters containing high-powered electrical lights ranging from thirty to sixty inches in diameter. Since neither Baker nor Barry had central electrical plants, each searchlight was powered by gasoline-powered generators housed in nearby flat-roofed concrete buildings, most of which were depressed and protected by earth parapets. Taft-era improvements to the mining system were focused on development of minefields in the outer harbor entrance in the Pacific Ocean, which was organized into three channels: South, North, and Central. Land-side components of the system included mine control stations similar in design to the battery stations, and mine casemates. San Francisco's mine depot, the supply and maintenance center for the system, was located at the time at Fort Winfield Scott (Fort Point) on the Presidio. A second one was proposed for Fort Baker, but was not built during this period. [51]

With the expansion of electrical and communications systems in the harbor defense system came additional features in the landscape. The terminals of submarine communications cables connecting the headlands with Army posts across the Golden Gate and San Francisco Bay were contained in small earth-covered concrete buildings known as cable terminals or cable huts, usually located near the shoreline. Concrete bulkheads were built where commercial and government telephone lines came onshore, and overhead utility lines, usually on wood poles, were erected to carry electricity and telephone lines to the Army posts. Most of

the electrical and communication lines critical to the defenses were built in underground duct and cable systems.[52]

While the Army built no new batteries during the Taft era, it did make modifications to the surrounding landscape in an effort to better conceal the works. In 1901, the Office of the Chief of Coast Artillery issued a memorandum calling for "…all exterior slopes…will be made to conform in appearance [sic] as possible [sic] to the surrounding ground, and geometrical contours will be carefully avoided."[53]

FORT BAKER

The 1907 fire-control project at Fort Baker incorporated the three preexisting battery stations and one fire command station completed between 1900 and 1903, and added another six stations between 1907 and 1910. These later stations included three battery commander stations atop Batteries Kirby, Spencer, and Duncan, and three fire command stations for the Tenth Fire Command that coordinated all batteries at Fort Baker. The brick station built in 1903 below Spencer was designated as the primary fire command station; the secondary station was built at the coastline just west of Lime Point; and the tertiary station was

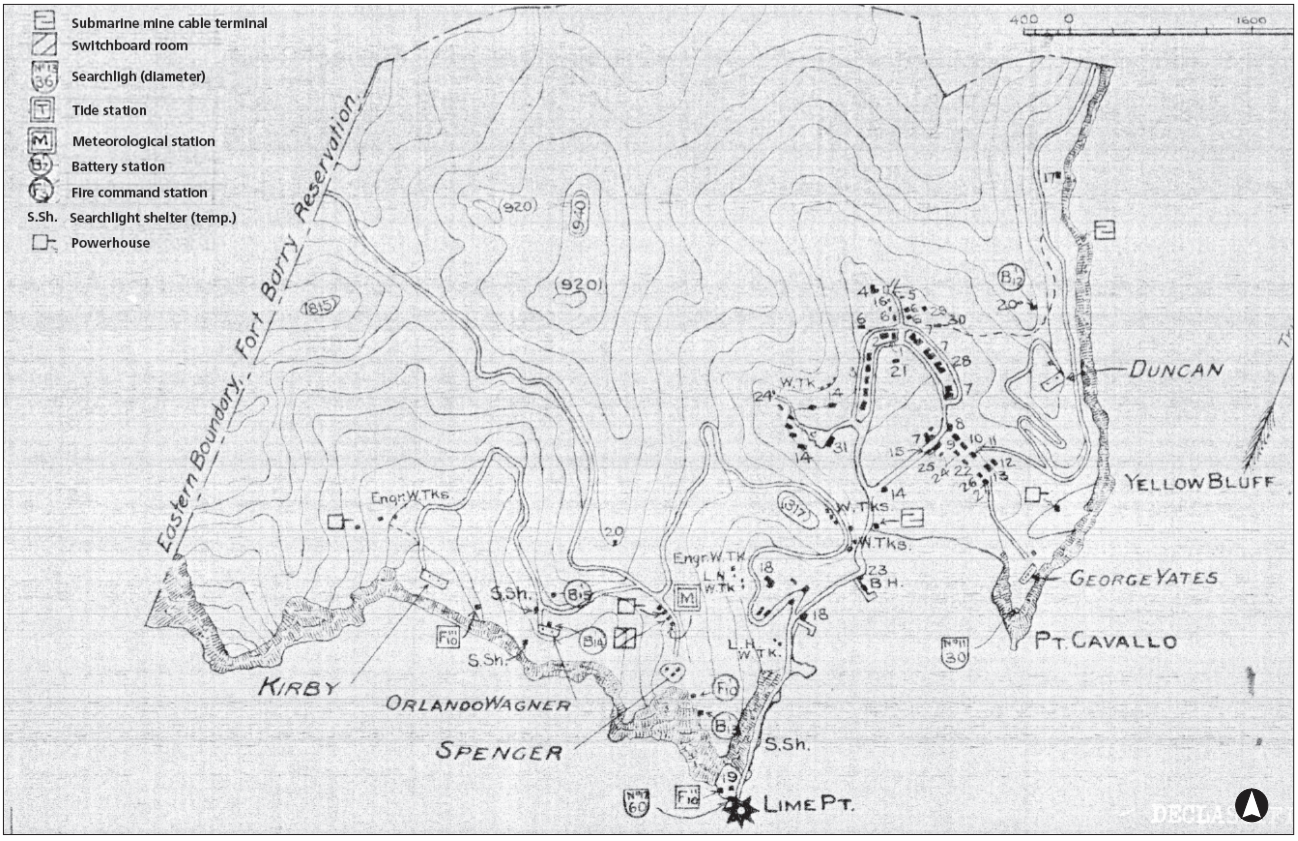


Figure 3.39. A 1916 map of defense works at Fort Baker showing the enlargement of the fire control system and addition of searchlights and cable terminals (the numbers refer to post buildings). The superscript numbers adjacent to the letters indicate whether the station was primary, secondary, or tertiary; the subscript number refers to the fire command or battery number. The map does not show battery command stations and plotting rooms integral with the batteries. (Detail, Army Engineer Notebooks, Fort Baker map, 14 January 1915 updated to 3 November 1916, annotated by SUNY ESF, National Archives I, RG 77, Entry 220)



Figure 3.40. The Lime Point fog signal station looking north from the Golden Gate Bridge showing the Army searchlight shelter installed in 1911, photographed 1937. This same shelter was used at Point Bonita and Bird Island. The white-painted rocks around the station served as a day mark. (Private Collection of Paul Judge)

built on the hillside east of Battery Kirby (fig. 3.39). The only battery station that Army engineers added to Fort Baker was a primary station for Battery Orlando Wagner, built on the hillside above the battery; a second station, on the ridge to the north, was begun but never completed. Construction of the new fire-control stations and electrification of the batteries required three powerhouses: one along the central traverse within Cavallo Battery, one at the entrance to Battery Spencer, and the third in the Gravelly Beach valley, northwest of the battery. Other buildings added for the Tenth Fire Command included a wood-frame meteorological station and a concrete switchboard room, both completed in 1910 at the entrance to Battery Spencer.[54]

After construction of the fire control stations, the Army erected two searchlights at Fort Baker, one at Lime Point, the other at Cavallo Point. The Lime Point searchlight, designated #12 and completed in 1911, consisted of a standard half-octagonal concrete and steel shelter housing a sixty-inch electric lamp, the largest type in the system (fig. 3.40). Window openings were closed off by telescoping steel shutters. The #12 shelter was built at the fog signal station on top of a small one-story connecting wing between the signal building and dwelling, requiring removal of the wing's gabled parapet to create a platform (see fig. 3.12). Power for the searchlight was produced by gasoline generators in a one-story concrete building constructed approximately four hundred feet north of the fog signal station. The Cavallo Point searchlight, designated #11 and completed in 1912, featured a smaller, thirty-inch lamp with a unique design that allowed it to be lowered below the floor of the rectangular iron and glass shelter (fig. 3.41). The searchlight was built at the tip of the point, where rock was removed to create a level site. The searchlight's powerhouse, which also provided power to Batteries Duncan and Yates, was built within Cavallo Battery along the south side of the central traverse. By 1916, the Army had also installed three portable searchlights at Fort Baker. These were kept in frame shelters erected near the Searchlight #12 powerhouse at Lime Point, and two along the short entrance road to Battery Wagner (see fig. 3.39).[55]

Figure 3.41. The searchlight shelter erected at Cavallo Point in 1912, looking northeast, ca. 1915. (Golden Gate National Recreation Area, Park Archives and Records Center, Interpretive Negative Collection, GOGA 2316)

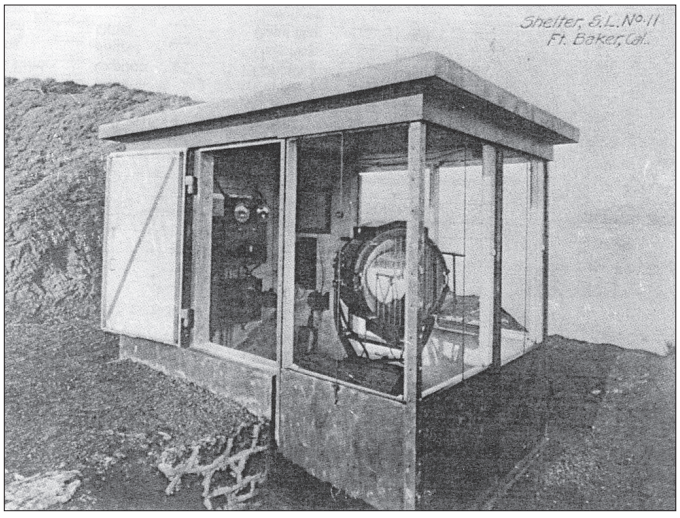




Figure 3.42. The base of the Battery Duncan hill looking southeast to Battery Cavallo showing recent plantings of eucalyptus trees, ca. 1914. The larger trees are eucalyptus planted earlier. The fences to the right are horse corrals in the Quartermaster area. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 1766)

Fort Baker did not receive any major structures associated with improvements to the submarine mine system during the Taft era, a situation related in part to the system's shift toward the outer harbor minefields. Several years before the Taft improvements were begun, the Army had rebuilt the 1895 mine casemate along San Francisco Bay into a cable terminal for a communications cable between Fort Baker and Fort McDowell on Angel Island (see fig. 3.39). In 1908, the Army abandoned the nearby second mine casemate built in ca. 1898, and subsequently used it as a garage.[56]

Aside from the addition of accessory harbor defense features, the landscape of Fort Baker adjoining the major defensive works underwent several other notable changes during the Taft era. In the Gravelly Beach valley, the Army set out thousands of tree saplings on the barren, steep hillsides in the 1910s in an apparent attempt to provide a windbreak, or perhaps to stabilize the ground and prevent landslides (fig. 3.42).[57] Such tree plantings were not new to the San Francisco reservations. In 1893, the Army planted 60,000 Monterey pine on forty acres at the western side of the Presidio to serve as a windbreak and stabilize the sandy soils. The tree plantings at Gravelly Beach also included Monterey pine, along with Monterey cypress, and eucalyptus, introduced from Australia shortly after the Gold Rush and planted widely beginning in the 1880s. By the early 1910s, the Army had also set out irregular groves of eucalyptus on the hillsides surrounding Battery Duncan. These were not planted to stabilize the relatively gentle slopes, but most likely to screen the battery's large earthwork at the top of the hill (fig. 3.43).[58] These tree plantings may also have simply been a desire by Army personnel to beautify the barren character of the natural landscape.

Figure 3.43. Gravelly Beach Valley showing tent grounds and young forest plantations on the hillsides, looking east, ca. 1915. The box-like building on stilts at the battery traverse is the battery commander's station completed in 1910. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35376.04)



FORT BARRY

Fort Barry received more accessory harbor defenses during the Taft era than Fort Baker because it had no prior fire control stations, but also because it had become the front line of defense for San Francisco harbor. Between 1907 and 1910, Army engineers built seven fire-control stations at Fort Barry, most clustered in a row on Point Bonita Ridge between Battery Mendell and Point Bonita (figs. 3.44). Located in the midst of the planned site for these stations was the 1855 lighthouse tower, which the Army took down in July 1907 to make room for the new construction and to remove a visual obstruction. The new fire-control stations were built into the ridge and were surrounded by earthen parapets, largely concealing them from view (fig. 3.45). With roof heights extending no more than six feet above the parapets, the Army assessed that these stations were inconspicuous beyond 1,500 feet at sea. [59]

For the Third Fire Command covering Battery Alexander's eight mortars, the Army built three fire control stations completed in 1910. The primary station was a two-room concrete building containing a plotting room located in the cluster on Bonita Ridge. The Army sited the secondary station within the proposed lighthouse reservation on Land's End, in the remodeled east end of the Life-Saving

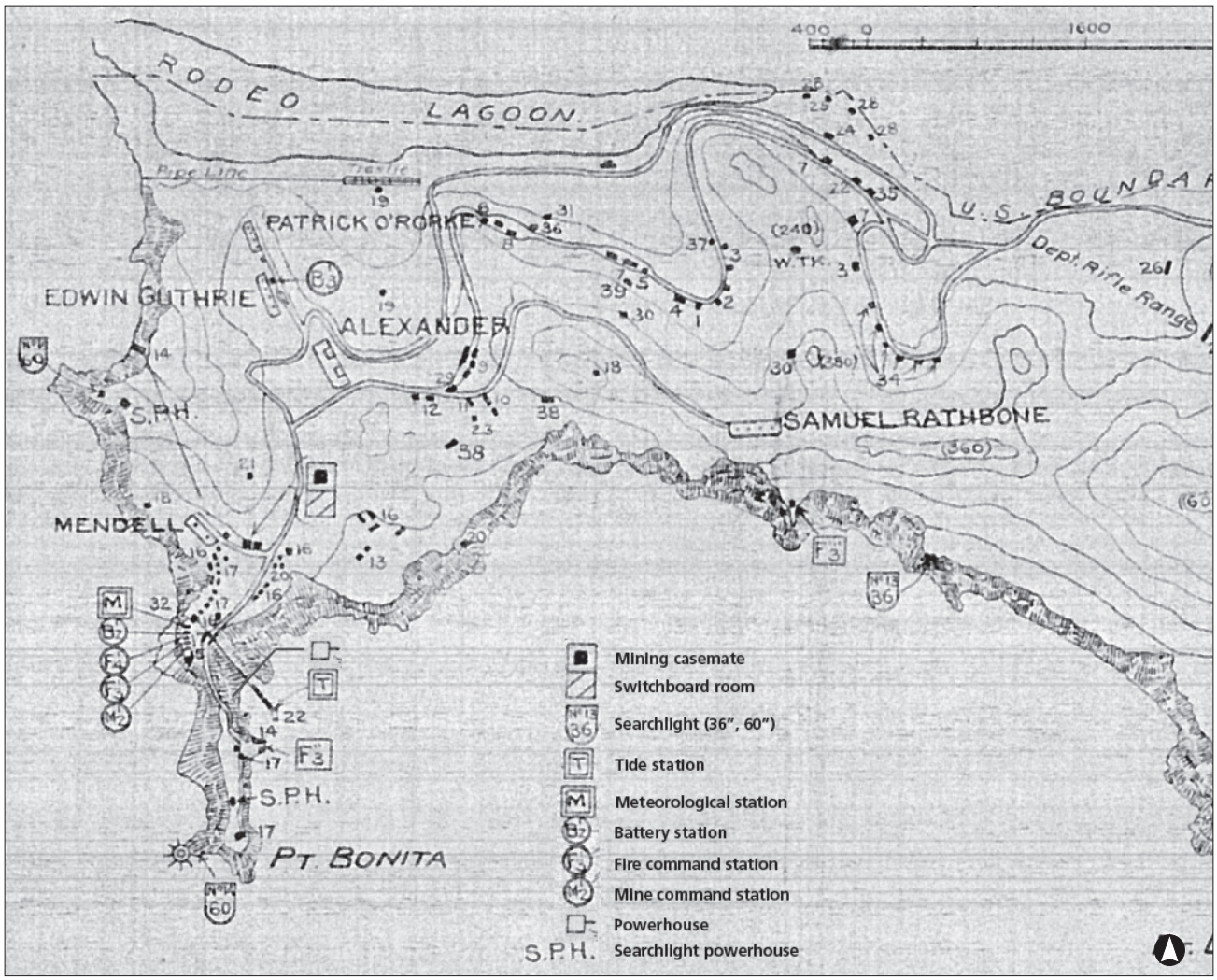


Figure 3.44. A 1916 map of defense works at Fort Barry showing the enlargement of the fire control system and addition of searchlights and mining structures (the numbers refer to post buildings). The superscript numbers adjacent to the letters indicate whether the station was primary, secondary, or tertiary; the subscript number refers to the fire command or battery number. The map does not show battery command stations and plotting rooms integral with the batteries. (Detail, Army Engineer Notebooks, Fort Barry map, 14 January 1915 updated to 3 November 1916, annotated by SUNY ESF, National Archives I, RG 77, Entry 220)

Stations' former Boathouse A, adjacent to the lighthouse wharf on Bonita Cove. The tertiary station was a standard concrete battery station located near the shore of Bonita Cove below Battery Rathbone.

The Fourth Fire Command, covering Batteries Mendell and Guthrie, contained one primary fire command station, a concrete building completed in 1910 in the Point Bonita Ridge cluster. Battery stations included a primary station for Guthrie built on the battery's traverse and completed in 1905 at the same time that a battery command station was built at Battery Mendell. Army engineers completed a primary battery station for Mendell on Bonita Ridge in 1910. The Fourth Fire Command also included a switchboard room, a concrete building protected by earthen parapets next to the mine casemate east of Battery Mendell; a meteorological station, a small wood-frame building in the Point Bonita Ridge cluster; and

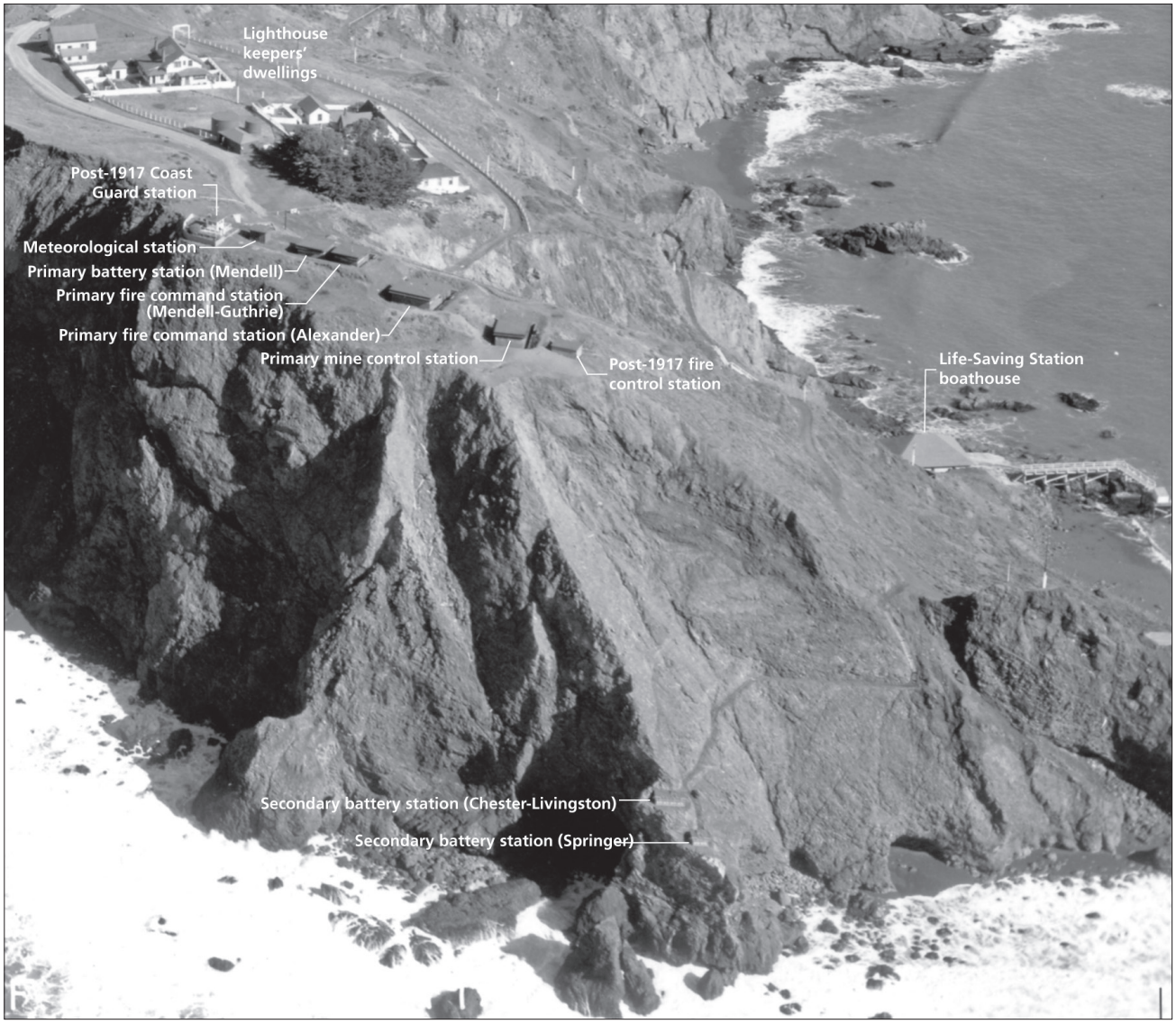


Figure 3.45. The fire control stations at Point Bonita Ridge built between 1907 and 1917, view looking east from a later aerial photograph, 1938. The two at the base of the cliff are fog stations. The Monterey cypress trees west of the ca. 1875 lighthouse keeper's dwelling were planted around 1910. The Engineer wharf near the boathouse had been removed by the date of this photograph. (Detail, U.S. Army photograph, Harbor Defenses of San Francisco, National Archives II (College Park, Maryland), RG 499, E118, annotated by SUNY ESF)

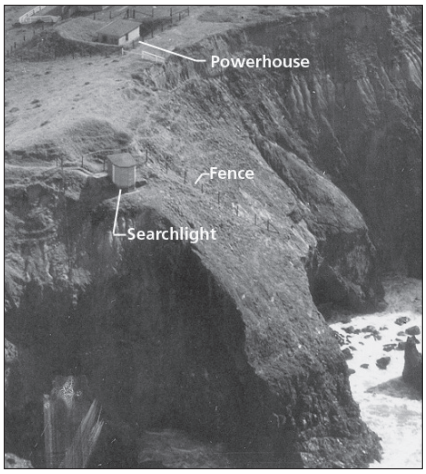


Figure 3.46. A later photograph of the Point Bonita lighthouse taken in 1938 showing the tertiary battery control station for Batteries Mendell and Alexander completed in 1917 in the cliff below the 1903 fog signal station. Between the battery station and the fog signal is searchlight #14 built in 1911. (National Archives, Navy Department records, RG 80, 80-G-71868-2, copy in Golden Gate National Recreation Area, Park Archives and Records Center, Interpretation Negative Collection, GOGA 2316)

a tide station, a small frame building erected at the end of the Engineer (Quartermaster) wharf. Army engineers completed these three buildings in 1910.[60]

Between 1915 and 1917, Army engineers constructed three additional battery stations at Fort Barry, all low-elevation fog stations. Near the shoreline below the Point Bonita Ridge cluster were two concrete battery stations with removable roofs, protected by rock parapets (see fig. 3.45). One of these buildings was a double assigned as secondary stations for Batteries Chester and Livingston at Fort Miley across the Golden Gate. The other battery station was a single assigned to Battery Springer, also at Fort Miley. The third battery station completed by 1917 was a double built on at the tip of Point Bonita below the lighthouse and fog signal station (fig. 3.46). Assigned as tertiary battery stations for Mendell and Alexander, the building featured a removable roof and was built on terrace excavated out of the rock, with the rubble used to build a protective parapet around the station.[61]

Figure 3.47. A view of searchlight #15 built in 1911 near Bird Island, 1938. This same style shelter, for sixty-inch searchlights, was used at Point Bonita and Lime Point, as well as Fort Point and Fort Mason. In the background is the associated powerhouse with is surrounding earth parapets. (Detail, U.S. Army photograph, Harbor Defenses of San Francisco, National Archives II, RG 499, E118)



The Mendell–Alexander battery station was the third building constructed on the point below the lighthouse. The middle of the three was searchlight #14, a sixty-inch type that the Army erected several years earlier in 1911 (see fig. 3.46). It was one of a series of searchlights intended to illuminate the Center and North Channel minefields in the Pacific, and used the same half-octagon concrete and steel shelter as the sixty-inch searchlight at Lime Point. The powerhouse for the searchlight was built along the lighthouse trail between the assistant keeper's dwelling and the lighthouse wharf, protected by a rock cliff along its west side. A matching searchlight, designated #15, was built at the same time on a promontory overlooking Bird Island (fig. 3.47). Its powerhouse, protected by an earth parapet, was erected inland from the

searchlight at the end of the access road that branched off the main road to Point Bonita.[62]

In addition to the batteries and searchlights, Fort Barry received a number of other structures related to the submarine minefields. These included the fifth building in the Point Bonita Ridge cluster, a primary control station for the Second Mine Command covering the submarine minefield in the North Channel (see figs. 3.44, 3.45). Completed by 1910, the two-part building was similar in design to the adjoining fire-control stations with a flat roof and below-grade floor, but had much thicker concrete walls and concrete for the roof of its sighting room instead of wood. The other major mine building at Fort Barry was the mine casemate, built in 1908 southeast of Battery Mendell. It was a concrete flat-roofed structure set below grade that housed the electrical equipment for control of the minefields. Adjacent to the casemate in the same below-grade area surrounded by concrete walls was a switchboard room for the Fourth Fire Command, also built in 1908.[63]

Aside from the accessory harbor defense features, the landscape of Fort Barry adjoining the major defensive works underwent several other notable changes during the Taft era. The Army continued to manipulate the hilly topography, which limited sight lines near some of the major batteries. In 1912, work began on leveling North Bonita Hill, north of the Battery Mendell. On top of this hill was the reservoir that the Engineer Department used to supply water during construction of the batteries, but was apparently no longer needed. Excavation continued for two years, when the project was halted. The Army also leveled a smaller hill to the west of Battery Rathbone.[64]

Unlike the slopes surrounding Batteries Kirby and Duncan, the Army did little tree planting at Fort Barry. Most of the planted trees, primarily Monterey cypress and pine, were at the lighthouse keepers' area and Life-Saving Station. An exception was a row of eucalyptus trees along the seaward side of Battery Alexander, presumably planted to serve as screening for the battery's high parapets. The Army may also have intended the trees as screening for the succulent-like iceplant that was most likely planted on the battery's slopes soon after construction. While very effective at erosion control, iceplant's blankets of showy pink and white flowers would have made the battery conspicuous to ships at sea.[65] Because it was a mortar battery, the trees did not block sightlines.

TENNESSEE POINT MILITARY RESERVATION

One of the most notable Taft-era additions to the military landscape of the headlands was the Army's acquisition of Tennessee Point for the installation of searchlights and fire control stations. This land, a promontory that extended the reach of the searchlight and fire control systems, was north of Rodeo Beach and south of Tennessee Cove (fig. 3.48). It was part of a leased dairy ranch owned by A. Borel & Company of San Francisco, but was remote from the ranch buildings

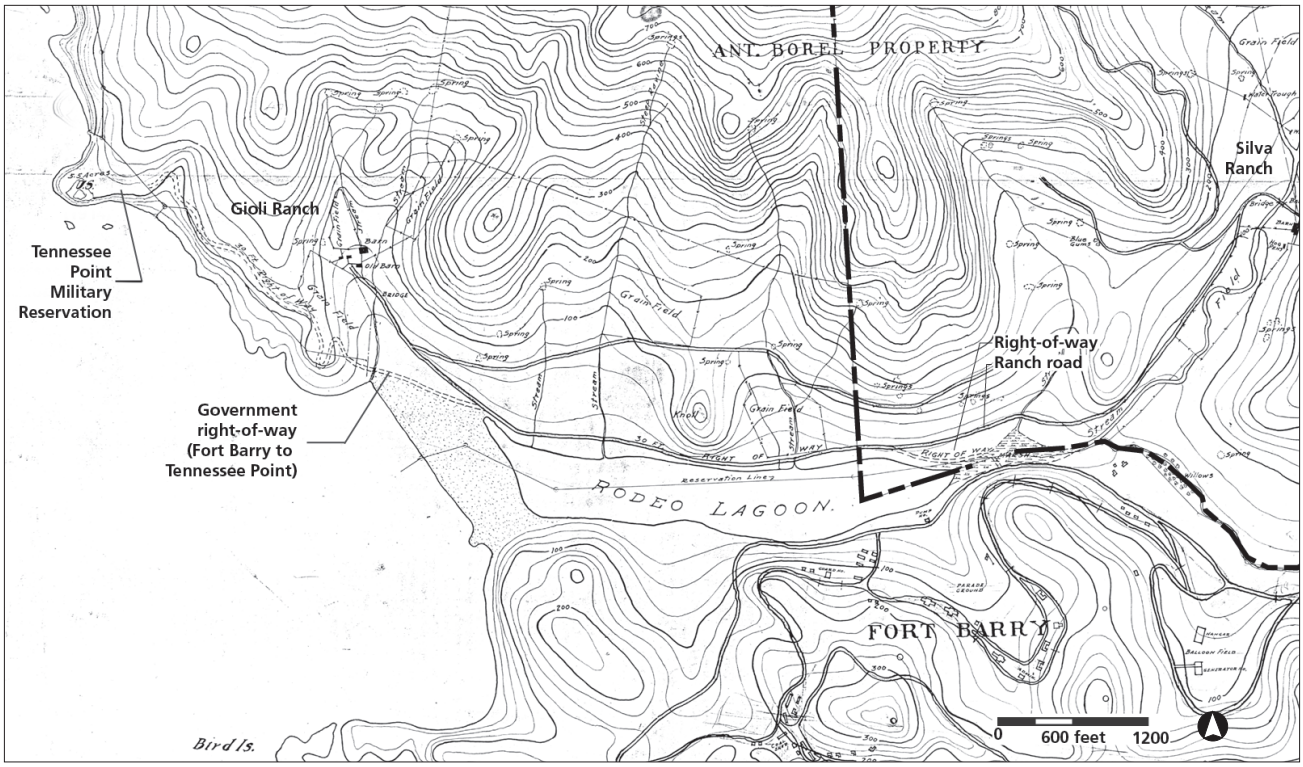


Figure 3.48. A 1925 Army Corps of Engineers map of Fort Barry and private ranchland to the north showing the location of the 5.5-acre Tennessee Point Reservation acquired by the Army from Antoine Borel in 1914. This map also shows the location of buildings, fields, and roads at the Gioli and Silva ranches, both leased from Borel. The black dashed line indicates the later boundary of Forts Barry and Cronkhite. (Golden Gate National Recreation Area, Park Archives and Records Center, D181 F1, annotated by SUNY ESF)

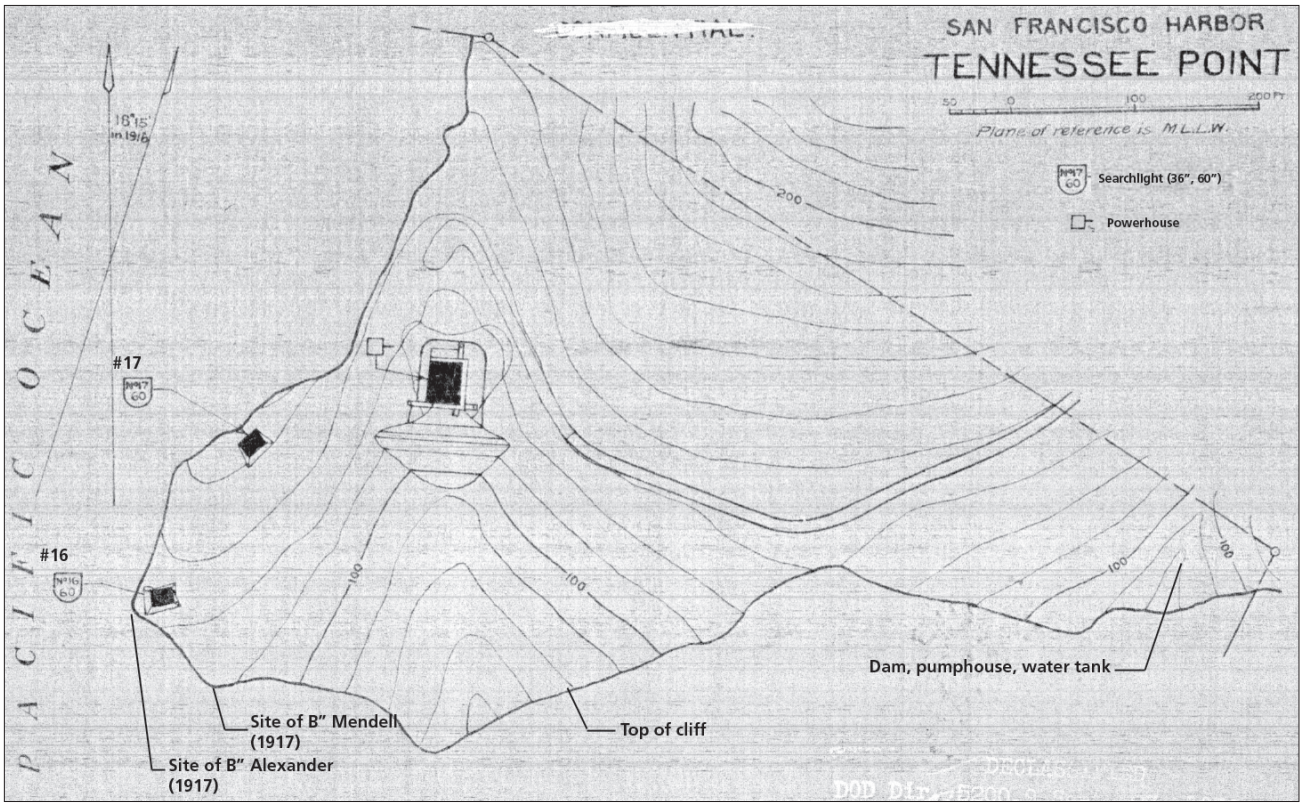


Figure 3.49. A 1916 map of defense works at Tennessee Point showing the location of the two searchlights and powerhouse. Annotations indicate the location of water supply system added in ca. 1915 and two fire control stations completed by 1917. (Army Engineer Notebooks, Tennessee Point map, 14 January 1915 updated to 3 November 1916, annotated by SUNY ESF, National Archives I, RG 77, Entry 220)

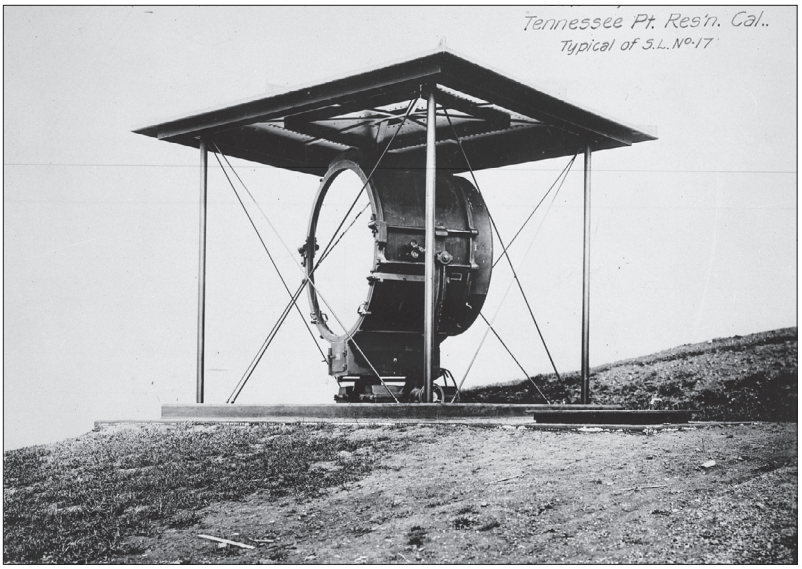




Figure 3.50 (top). One of two matching sixty-inch searchlights at Tennessee Point showing the disappearing shelter, 1915. The shelter allowed the light to lower into the ground, leaving just the roof above grade. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.0977)

Figure 3.51 (bottom). Tennessee Point showing the two disappearing searchlights lowered by underground elevators into their hidden position, looking west, ca. 1915. Trenches that connected these searchlights, with their powerhouse (off lower left of photograph) are visible in the recently constructed site. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.2089)

across a ridge to the east. In 1909, the Army reached an agreement with Antoine Borel to purchase a 5.5-acre tract along with a right-of-way for $2,000 under the 1904 authority establishing Fort Barry. Borel, however, had issues with the use of the right-of-way that ran across his leased ranch property. The Army threatened condemnation, but reached a final purchase agreement with Borel by 1914 that subjected the Army to several conditions for a thirty-foot wide right-of-way, including that it maintain culverts, drains, and certain fences, and that pasture gates be kept closed when not required for passage. Acquisition of the new reservation, to be managed as part of Fort Barry, was finalized on May 4, 1914. [66]

The right-of-way to Tennessee Point began where the old road from Sausalito through the Silva ranch entered the military reservation, and then followed a new roadbed before joining up with a preexisting ranch road (see fig. 3.48). Near Rodeo Beach, the right-of-way veered northwest onto a new alignment to reach Tennessee Point. The Army built a road along the right-of-way soon after the sale of land in 1914 and fenced off the parcel from the adjoining ranch, and then began construction of two long-delayed searchlights, designated as #16 and #17.

One of the searchlights was positioned at the westernmost tip of the point, directed due west; the other was 150 feet to the northwest, on the north side of the point (fig. 3.49). These searchlights had movable shelters that lowered along with the light, leaving just a square iron platform in the ground (figs. 3.50, 3.51). The advantages of this design were its ability to protect the light and its inconspicuousness to ships at sea. Underground cable trenches connected the searchlights to a powerhouse a short distance inland at the head of a small valley, which was closed off with a protective earth parapet. Unlike the others at Forts Baker and Barry, the Tennessee Point powerhouse featured a living room because of its remote location. Water for the powerhouse was supplied by a dammed creek, pumphouse, and water tank built at the south corner of the reservation. Construction was nearing completion when the sixty-inch lights were delivered to San Francisco in May 1915.[67]

Army engineers added two secondary battery stations to Tennessee Point as part of the same project that included the three fire-control stations below Bonita Ridge and at the Point Bonita lighthouse. Begun in ca. 1915 and completed by 1917, the two Tennessee Point stations followed the standard design of the time, with non-movable concrete roofs. One station, on the bluff in front of searchlight #16, was a secondary fire-control station for Battery Alexander at Fort Barry (see fig. 3.49). The second station, built 110 feet south of searchlight #16, was a secondary fire-control station for Battery Mendell. Each was depressed below grade and surrounded by earth parapets, making them inconspicuous beyond 1,500 feet at sea.[68]

DEVELOPMENT OF POST FACILITIES

By the time the battery stations were being completed at Tennessee Point in 1917, both Forts Baker and Barry had well-established posts that housed the permanent garrisons of enlisted men that maintained the defensive works. The first permanent garrison at the headlands, from the Third U.S. Artillery Regiment, arrived at Fort Baker from Angel Island in July 1897 to maintain the recently completed Battery Spencer, and was followed by other companies of the Coast Artillery, established in 1901 to garrison the nation's seacoast defenses. As the Endicott batteries were completed and their guns mounted between 1897 and 1907, the number of troops garrisoned at the headlands increased, with four companies stationed at Fort Baker by 1911. Fort Barry received its first garrison, a small artillery detachment, in July 1903, and by 1908, it had a permanent Coast Artillery garrison.[69]

Prior to the arrival of garrisons, only staff of the Engineer Department lived at the headlands, along with civilian construction workers. The engineers occupied the old camp buildings along Horshoe Cove at Fort Baker, and the complex of building constructed in 1901 at Point Bonita. The civilian construction workers occupied unofficial frame houses and workshops built apart from the engineer facilities. Over the next decade, the Army's Quartermaster Department planned and oversaw construction of the permanent post facilities, which included the main post with administration and residential functions, and the Quartermaster area that deal with supplies and maintenance. The Quartermaster and Engineer departments also developed other post facilities and features during this period, including water and sewage systems, rifle and target ranges, windbreaks, and ornamental plantings.

FORT BAKER

For the location of the Fort Baker main post and Quartermaster area, the Army reserved the valley above Horseshoe Cove, known as Old Ranch Valley. The origins of this post began with the arrival of the first garrison, the Third Artillery, in summer 1897. The troops initially lived in tents in Old Ranch Valley until two wood-



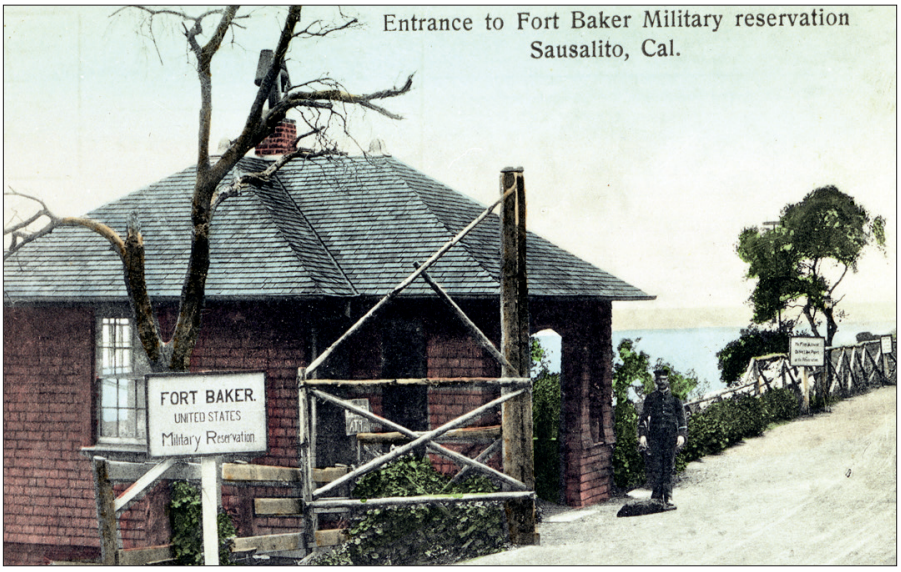


Figure 3.52 (top). East Road looking north showing original 1901 alignment with fence, photographed May 1932. The earlier trail from Sausalito is visible to the right of the road. The buildings on the ridge are private houses in Sausalito. (Private Collection of Paul Judge)

Figure 3.53 (bottom). The gate house at the Fort Baker boundary on the road to Sausalito (East Road), looking south with San Francisco Bay in the background, 1905. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 19193.001)

frame barracks were barged over from the Presidio later that year.[70]

Plans for the Fort Baker post helped spur the long awaited road connecting the military reservation to neighboring Sausalito. Residents of Sausalito had been pressing for this road as far back as the 1880s, but the Army did not want to encourage public access to the largely abandoned reservation. By the turn of the century with plans for the permanent post well underway, the Army realized the importance of the road for times when landing conditions at its wharf were not favorable. Completed in 1901, the new, eighteen-foot-wide mile-long road (present East Road), built by military prisoners from Alcatraz, extended north from the pre-existing road to Cavallo Battery, paralleling the old trail to Sausalito (see fig. 3.18). The new road wound along the hillsides above San Francisco Bay, with a white-painted post and rail fence built along the steep drop-off along the east side in 1905 (fig. 3.52).[71] Around the same time, a shingled gatehouse was built at the reservation boundary, with a simple swinging gate closing off the road (fig. 3.53). This building was replaced within a few years with a smaller gatehouse, possibly due to the 1906 earthquake.[72]

Main Post

As the first garrisons were arriving at Fort Baker in 1897, the Quartermaster Department was planning development of the permanent main post, laid out in an oval facing Horseshoe Cove. Plans included a central parade ground bordered by a loop road (McReynolds Road), with buildings facing inward, each spaced approximately fifty feet apart (fig. 3.54). The old road to Cavallo Battery (Center Road) formed the south boundary of the parade ground. The northeast side of the parade ground was designated for barracks that were the largest buildings on the post. Across the parade ground on the southwest side were duplex houses for officers, and in between, at the head of the parade ground, was the commanding offi-

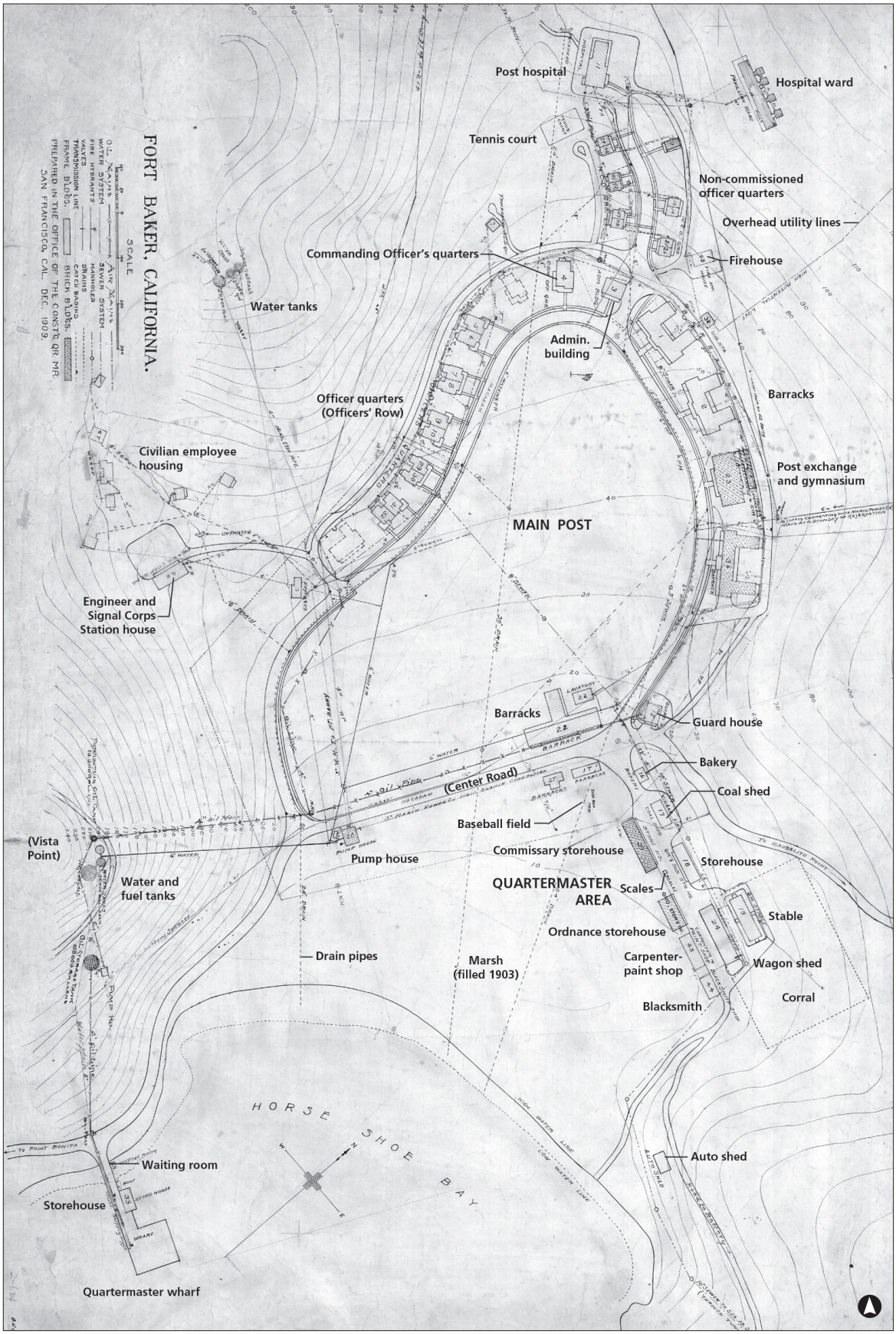


Figure 3.54. Plan of the Fort Baker main post and quartermaster area as developed by 1909. Brick buildings are indicated by hatching and current road names are in parentheses. (Office of the Constructing Quartermaster, "Fort Baker, California," December 1909, annotated by SUNY ESF. Golden Gate National Recreation Area, Park Archives and Records Center, Drawer 195, folder 1)

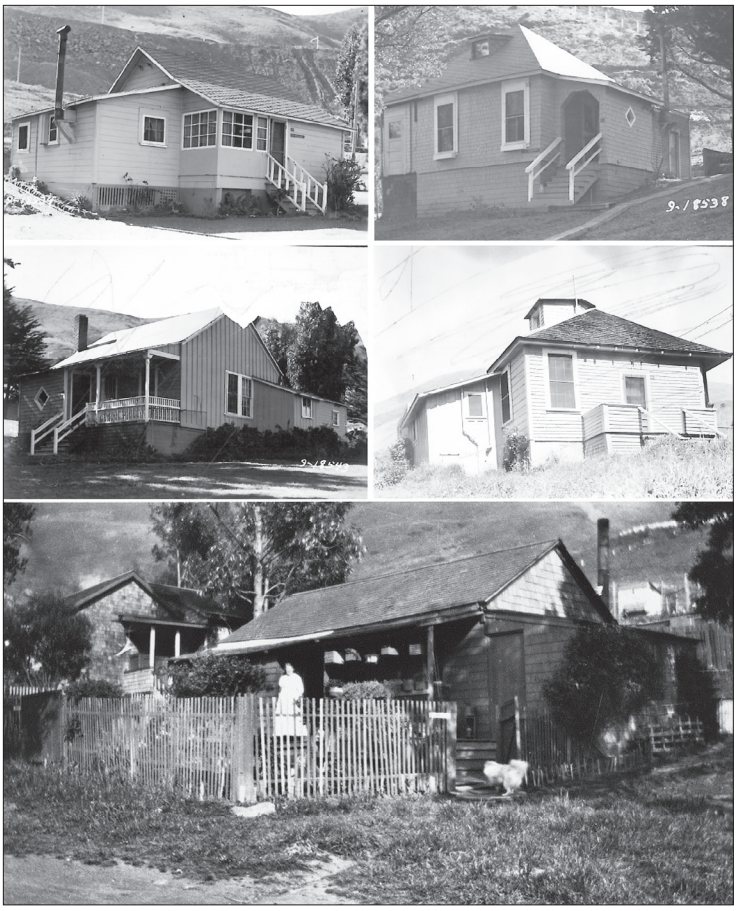


Figure 3.55. Unofficial (civilian) houses at Fort Baker built between 1899 and 1903, photographed ca. 1920 (bottom) and ca. 1939. The middle left house is the oldest. (Bottom photograph: Golden Gate National Recreation Area, Park Archives and Records Center, Donald Thomas Collection, GOGA 3311.013; others: Fort Baker Building Book, 1939 updated to 1946, GOGA 32426)

cer's quarters and the administration building. On a side street extending back from the administration building, plans called for smaller duplex houses for non-commissioned officers, with the post hospital at the end of the street. The quartermaster buildings were to be south and east of the main post, out of view from the parade ground.

As planning was underway for the main post, a number of unofficial small houses were erected off the southwest side of the proposed parade ground, along present Bunker Road, for use by civilian employees involved in construction of the main post. The first of these houses, a one-story gabled building with board and batten siding and a wood-post foundation, was erected in 1899 (fig. 3.55). By 1903, as construction of the main post was well underway, an additional six small houses had been built, all on wood posts, in a widely-space cluster to either side of a small stream.[73]

In 1900, the Quartermaster Department completed plans for the first permanent buildings and sent them out to bid. By this time, preliminary site work was underway with cutting and filling to create level building terraces, piping of streams, and laying out of the streets. These included a main road around the parade ground (Murray Circle), an outer service road in back of the barracks and officer quarters (McReynolds Road), and a street to the post hospital at the rear of the post (Kober Street) (see fig. 3.54).[74]

The initial Quartermaster plans called for Colonial Revival-style brick buildings on stone and concrete foundations, with gable roofs sheathed in black slate, two-over-two and six-over-six sash windows, and porches with classical columns. Because the first bids came back too high, the Quartermaster readvertised for wood-frame buildings with clapboard siding. In June 1901, work was awarded to three private contractors, who completed construction in 1902 on three officer quarters duplexes, a 109-man barracks with two-story front porches, an eleven-bed post hospital, and a hospital steward's quarters. A guardhouse, designed for one guard and fifteen prisoners, was built where the road from Sausalito entered the parade ground. Between 1902 and 1904, work was completed on another matching barracks, three duplexes for non-commissioned officers on the road to the hospital (Kober Street), a brick post exchange-gymnasium, a commanding officer's quarters, and an administration building (fig. 3.56). All buildings were initially painted a light color with white trim and dark window sashes.[75]



Figure 3.56. The administration building (right) and commanding officer's quarters (left) completed in 1903, looking north with non-commisioned officer quarters in the background, ca. 1905. This photograph shows the use of cannonballs as landscape ornaments. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 1766)

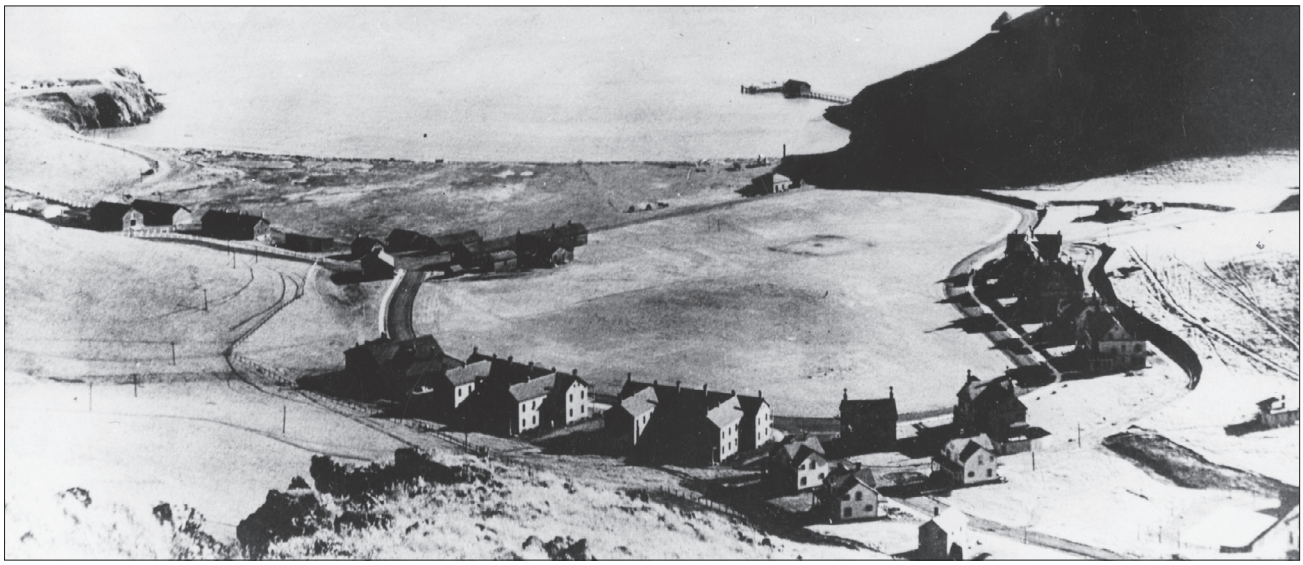


Figure 3.57. Panorama of the Fort Baker main post after completion of initial development, looking south, ca. 1905. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 40039.014)

As the garrison increased following completion of the Endicott batteries in 1905, the Quartermaster continued its building campaign at the main post. In ca. 1905, a one-story frame barracks with three small ancillary buildings were built at the southeast corner of the parade ground. These buildings, presumably designed to be temporary, featured gable roofs, board-and-batten siding and six-over-six sash windows.[76] In 1907, the third permanent barracks was completed on the east side of the parade ground. It was similar in size and design to the earlier two barracks, but was constructed of brick and featured a projecting center portico with arched openings. The rear part of the post also received a number of new buildings, including a hospital pavilion ward in ca. 1908, non-commissioned officer quarters in 1909, and a frame firehouse with a hose-drying tower built in 1910. That same year, a storehouse was built near the civilian housing for the Engineers Signal Corps. In 1909, the post was electrified and a brick electrical transformer substation was built behind the barracks along the service road (McReynolds Road). Power and communication lines on wood poles ringed the rear service road and up the hillside toward Sausalito.[77] By

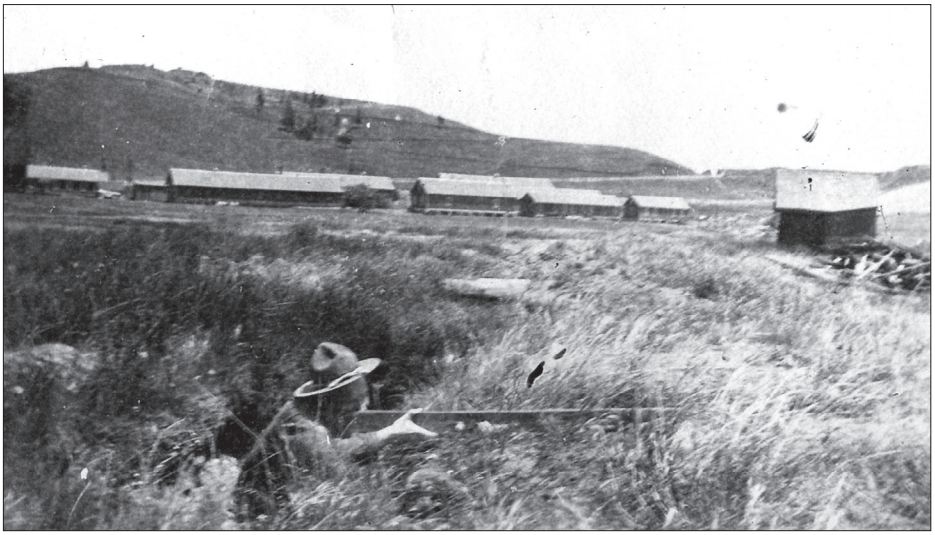


Figure 3.58. The former marsh at the foot of the Baker main post filled in 1903, looking northeast with the Quartermaster Area buildings and Battery Duncan in the distance, 1918. At far right is the Horseshoe Cove shoreline lined by debris. (Private Collection of Paul Judge)

the end of the first decade of the twentieth century, the Fort Baker main post outside of the Quartermaster area contained approximately twenty-eight official buildings, forming a nearly continuous line around the parade ground and extending up the valley to the north (fig. 3.57). Sites for two quarters on the west side of the parade ground, referred to as officers row, and a fourth barracks on the east side, remained vacant. The south side of the parade ground facing Horseshoe Cove was kept open, except for the one-story barracks and pumphouse at either side, allowing for panoramic views toward San Francisco.[78]

As building construction was underway, the Quartermaster implemented a number of landscape improvements for the main post. Final grading on the parade ground was completed in 1903, requiring the filling in of a gully and extending stream drains to Horseshoe Cove. The parade ground was completed with planting of Australian rye turf in 1904. Around the same time, the large marsh to the south was filled to address perceived health threats identified by the post surgeon, and to improve the aesthetics of what was considered a wasteland. Despite this, the Army kept this area in a semi-natural condition, with tall grasses and a natural beach (fig. 3.58).[79]

In 1903, the Quartermaster proposed planting trees to beautify the grounds, stabilize slopes, and create windbreaks. Initial plans called for 30,000 trees, including Monterey cypress, Monterey pine, common eucalyptus (blue gum), elm, and pepper trees. None were native to the Marin Peninsula, but they were fast growing and had been planted at the Presidio over the previous decade. The trees were proposed to line the parade ground and to forest the adjoining hillsides.[80] While this plan was not implemented as proposed, the Quartermaster did proceed with more limited plantings over the next five years, presumably using some trees transplanted from the Presidio. These included windbreaks of Monterey cypress set out in ca. 1905 along a steep bank on the west side of the main post, behind officers' row (fig. 3.59). A smaller windbreak of eucalyptus was planted along the east side of the non-commissioned officer quarters and post hospital. Around the periphery of the parade ground, the Army planted a line of ornamental blue gum eucalyptus and black acacia (Australian Blackwood), but with irregular groupings of the small and large trees.[81]

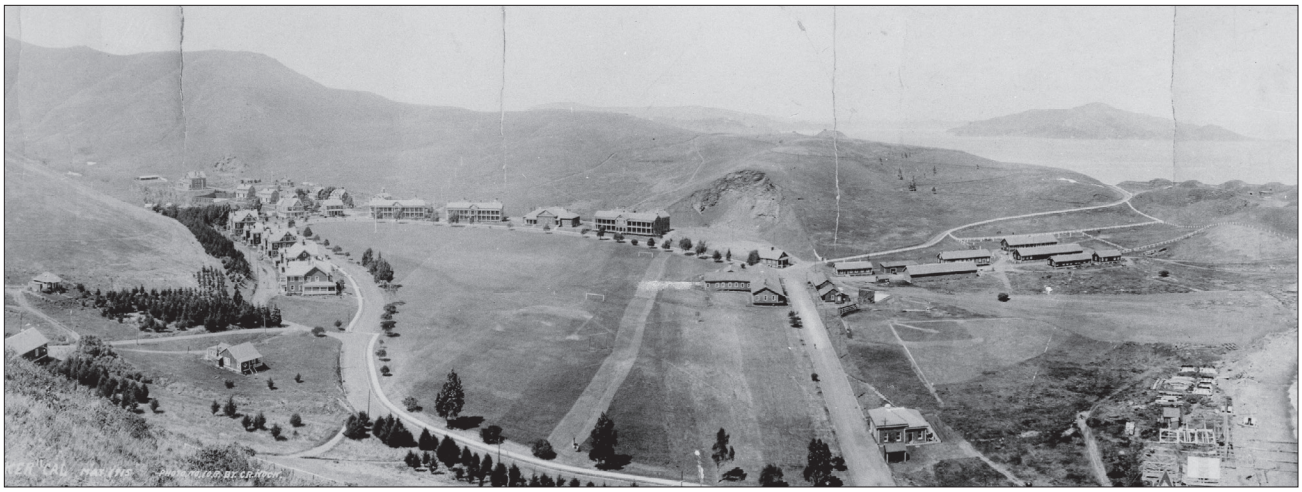


Figure 3.59. Panorama across the Fort Baker main post showing the windbreaks, ornamental plantings, and additional buildings constructed after 1905, looking northeast, ca. 1915. Right of center is the large sandstone quarry opened in 1913. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 1766)

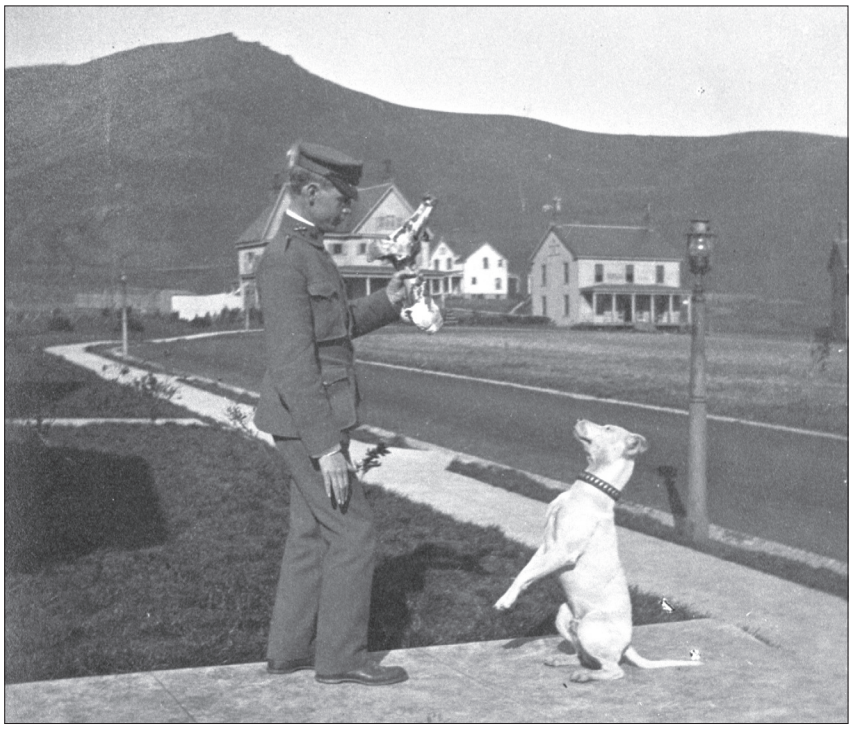


Figure 3.60. In front of the officer quarters at Fort Baker looking north showing concrete walks, road with gutters, street lights, and vegetation, ca. 1905. (Golden Gate National Recreation Area, Park Archives and Records Center, Edwin S. Long Family Album, GOGA 3411.058)



Figure 3.61. The Fort Baker ball field backstop and stands looking northwest, ca. 1915. The building in the background is one of the ca. 1905 barracks along Center Road. (Golden Gate National Recreation Area, Park Archives and Records Center, Donald Thomas Postcard Collection, GOGA 2605.005)



Figure 3.62. Shooting practice at the Fort Baker target range, looking east with the post hospital at far left, ca. 1910. The stockade fence encloses a tennis court, and the small trees are part of a eucalyptus windbreak. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 3311.006)

Other additions to the landscape of the main post during its initial development included concrete stairs to the officer quarters, sidewalks along the main roads, and street lights consisting of turned wood posts with kerosene lanterns (fig. 3.60). These were replaced following electrification of the main post in 1909. Mortared stone gutters were built along the edges of the gravel roads to capture runoff, and the road surfaces were paved in red macadam in ca. 1905, using red chert from quarries in the headlands.[82] Shot (cannonballs) were used as ornament, framing the entrance walk to the commanding officer's quarters and lining the road (see fig. 3.56). Recreational facilities included a tennis court near the hospital and a ballfield with stands near the Quartermaster area, completed in ca. 1905 (fig. 3.61). At the top of the parade ground, a seventy-five foot iron flagpole reinforced by guy wires was erected in 1905.[83]-

Northwest of the parade ground and west of the hospital was Fort Baker's target range, located at the head of the valley (fig. 3.62). Probably laid out during the initial development of the post, the range was a narrow, three hundred yard-long field with target butts at the north end. Lines marked the two- and three-hundred yard firing distances.[84]

Quartermaster Area and Waterfront

Fort Baker's Quartermaster area, developed at the same time as the main post, was a row of utilitarian buildings lining the old road to the Cavallo Battery outwork (Satterlee Road), extending southeast of the parade ground (see figs. 3.54). The buildings followed standard Quartermaster plans with gable roofs, clapboard siding, and double-hung sash windows. The initial 1901 construction contract was for five buildings, including a bakery, storehouse, stable, wagon room, and coal shed, which were completed between 1902 and 1904 along the north side of the road (fig. 3.63). A second phase of construction completed between 1906 and 1908 included an ordnance storehouse and a commissary storehouse along the south side of the road, the latter the only brick building in the area. As at

Figure 3.63. Visitors at the Fort Baker Quartermaster area, looking north with the wagon shed (left), stables (right), and corrals, 1919. (Private Collection of Paul Judge)



the main post, the Quartermaster buildings were initially painted a light color with white trim and dark window sashes.[85]

The landscape of the Quartermaster area initially received none of the ornamental features found at the main post. The area surrounding the buildings was paved in macadam, and fenced corrals extended north and east from the stable and wagon shed. Since shipping was a primary means of transporting supplies at the time, a wharf was a critical facility. Initially, the old wharf at the Engineer Camp on the west side of Horseshoe Cove served this purpose, but in 1903, the Quartermaster constructed its own wharf 600 hundred feet to the north (see fig. 3.57). The wharf was apparently not located closer to the Quartermaster area because of the shallow level of the water there. As completed, the Quartermaster wharf included a storeroom building on the wood-plank deck and a coal bunker. A small waiting room building was built at the head of the wharf in 1904.[86]



Figure 3.64. The entrance gates at Fort Baker's Sausalito boundary on East Road, looking southeast, ca. 1915. The guardhouse replaced a previous building in ca. 1907. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 3311.004)



Figure 3.65. The firehouse at the Fort Baker main post erected in 1910, looking northwest, photographed ca. 1939. This building was located at the foot of Swain Road. (Golden Gate National Recreation Area, Park Archives and Records Center, Fort Baker Building Book, 1939 updated to 1946, GOGA 32426)

Later Changes

During the 1910s up until United States entry into World War I, the Fort Baker post settled into a relatively quiet period, with development limited mostly to refinement of the landscape and expansion of utility systems. This included the addition of entrance gates with concrete piers at primary access points in ca. 1910. At the Sausalito boundary, these gates featured the Fort Baker name and a stack of shot with an electric globe light on top (fig. 3.64, compare with fig. 3.53). Next to them was a small gatehouse that replaced the original larger building erected in ca. 1902. Similar gates were erected around the same time along the road to Lime Point south of the Quartermaster wharf, at the entrance to Battery Spencer, and at the head of the road to Gravelly Beach.[87]

Notable built changes within the main post and Quartermaster area during the pre-war years included construction of a firehouse, a frame garage with a hose-drying tower, along the service drive (Swain Road) east of the non-commissioned officer quarters in 1910 (fig. 3.65). That same year, two frame buildings were erected at the east end of the Quartermaster area to house carpenter, paint, and blacksmith shops. In 1911, the adjoining ordnance storehouse, erected



Figure 3.66. The row of officer quarters at Fort Baker looking northeast showing bed along the periphery of the parade grounds (unplanted in this photo), and ornamental plantings in front of the buildings dating to the 1910s, photographed 1919. Also visible are the second generation of street lights. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 27994.021, Elanora Hoop Collection.021)

five years earlier, was lost to fire.[88] In 1913, a tank was installed on the ridge above the Quartermaster wharf to receive shipment of fuel oil, which was transported up through a pipe. During the same year, a group of three large steel water tanks were installed farther up the hillside (below present site of Vista Point). During the mid-1910s, the color scheme of the buildings was changed to a dark color for the siding, probably red that may have been soon changed to a bronze-green, presumably intended to make the building less conspicuous to ships at sea (see fig. 3.63).

The Quartermaster added numerous plantings to the landscape of the main post during this 1910s. These included a narrow bed of flowers and shrubs inside of the trees ringing the parade ground, and a small bed of flowers and shrubs in front of the officer quarters, divided by a fence (fig. 3.66). The barracks also received ornamental plantings, including shrubs and vines along the foundations of the frame barracks near the Quartermaster area (fig. 3.67). A white-painted wood and rail fence was erected around the main post, perhaps to protect the ornamental plantings from grazing cattle. In ca. 1915, rows of closely-spaced eucalyptus, pine, and cypress trees were planted along the road at the south side of the post (Center Road), creating a ceremonial approach but closing off the formerly open side of the parade ground. A line of eucalyptus trees was planted around the same time on the hillside above the barracks, along with additional eucalyptus trees farther up the hill, most likely intended to screen Battery Duncan.[89]

Figure 3.67. Soldiers on the steps of a Fort Baker building, probably in the Quartermaster area, showing foundation plantings added in the 1910s, photographed May 1918. Note cannonball ornaments on the steps. (Private Collection of Paul Judge)



While most of the changes in the Fort Baker landscape during the 1910s were due to beautification or construction of new facilities, two notable changes resulted from mining. In ca. 1910, red chert began to be quarried from a hillside northeast of the post hospital, probably to supply material for paving roads at the headlands. Much more noticeable was a large quarry that excavated the foot of Duncan Hill behind the barracks at the southeast corner of the main post (see fig. 3.59). Opened in 1913, this quarry was used to supply sandstone for construction of roads at the site of the 1915 Panama Pacific International Exposition in San Francisco. While there were other quarries in the headlands, none were quite so close to an area that the Army had spent significant effort in beautifying.[90]

FORT BARRY

In the summer of 1902, while construction of the Fort Baker post buildings was well underway and Batteries Mendell and Alexander were nearing completion, the Army requested the stationing of coast artillery troops at Fort Barry, still then referred to as Point Bonita. Up until this time, only staff from the Engineer Department and civilian employees lived at Fort Barry, along with the lighthouse keepers and their families. The Army was slow to send a permanent garrison to Fort Barry because of the large demand for post facilities elsewhere. In July 1903, a year after the initial request, twenty-four soldiers from Fort Baker arrived at Point Bonita, and because there were no available quarters, lived in the magazines of Batteries Mendell and Alexander.[91]

In the spring of 1904, the Quartermaster Department was planning the permanent post for Fort Barry, which it initially proposed northeast of the Life-Saving Station and Engineer Department quarters, facing out onto the Golden Gate. By the summer, the Quartermaster had instead chosen a more sheltered valley southeast of Rodeo Lagoon for the main post. Presumably due to the small size of this valley, the Quartermaster storehouses, workshops, and stables were proposed for a remote location to the southwest, near where the main post was originally proposed. [92]

In January 1905, the Quartermaster sent the building plans for Fort Barry out to bid. By this time, the road through the main post (present Simmonds Road), had probably been built. It was a continuation of the Baker-Barry road (Bunker Road), and replaced the old road to Sausalito as the main road to Point Bonita. The new road wound around the north side of a hill before entering the valley of the main post (see fig. 3.27). The road looped around the perimeter of the valley, wound around the ridge to the southwest, extended through the planned Quartermaster area (present Field Road), and ended at the lighthouse keepers' area. Within the main post, a road (Rosenstock Road) was laid out to provide access to the buildings that were up a steep slope above the main road.[93]

Departmental Rifle Range and Camp

While Fort Barry waited for construction of its permanent post, plans were underway for a known-distance firing range intended as a central training facility for the Army's Western Department, a place where soldiers would spend a week to a month doing various firing drills focused on basic small-arm marksmanship. The Army intended this as a replacement for an old firing range at the Presidio, which was abandoned around 1900 due to encroaching development.[94] Planning for the new rifle range and its associated camp began in early 1904, when an Army board examined possible sites between Point Bonita and Fort Baker for a number of ranges to accommodate small arms and light artillery practice. The board initially recommended acquisition of the Silva ranch north Rodeo Creek owned by Antoine Borel, but the War Department failed to receive the necessary appropriation. Consequently, the Army decided to proceed with building two smaller ranges within

the existing Fort Barry reservation. It selected a site in the longest of the three valleys south of Rodeo Valley where the Baker–Barry road (present Julian and Bunker roads) descended from Diablo Ridge (see fig. 3.27).[95] The camp, to contain barracks, officer quarters, tent grounds, and service buildings, was proposed for the adjoining valley to the west (later site of the balloon hangar).

In the spring of 1904, the Army laid out a rudimentary rifle range that allowed target practice to begin while planning for the permanent range continued. Post facilities for the rifle range camp, including a barracks, storehouse, and post exchange, were also built along the north side of the Baker–Barry road at the foot of the valley west of the range where tents would be set up. Civilian laborers hired to work at Fort Barry built their own housing in this area, near Rodeo Creek.[96] Work on the rifle range and camp was sufficiently advanced to allow target practice to begin on May 5, 1904 and continue through the summer.[97]

In October 1904, the Army announced that military prisoners from Alcatraz would be brought to the headlands to build the permanent rifle range. Housed in tents enclosed by a barbed-wire stockade, the prisoners began construction in November 1904 and finished the project by May 1905. The facility consisted of two parts: a six-hundred yard rifle range with a target trench at the southwest end and distance marks at 200, 300, 500, and 600-hundred-yard intervals, and a smaller three-hundred yard revolver range on its north side without distance marks or a target trench (fig. 3.68).[98] Construction required grading of the valley and excavation of the hill along the northeast side to create the necessary level ground, and piping of a stream that ran down the length of the valley. As part of the construction, a section of the Baker-Barry road that extended through the valley from its descent over Diablo Ridge (Julian Road) was moved because of its location in the line of fire. This new road (later Dubois and Bunker roads) was laid out to the east, turning west on the back of Diablo Ridge into Rodeo Valley, where it followed Rodeo Creek and wound around the back of the rifle range before meeting up with the old road (see fig. 3.27).

Training resumed at the rifle range in June 1905 following completion of construction. Soldiers went through many types of drills at the long rifle range, including slow and rapid firing from 200 to 600 yards aimed at bobbing targets that were manually raised from within the target trench. [99] Improvements were implemented in the fall of 1907, when 800 and 1000-yard firing lines were added to provide long-range targets for experts and sharpshooters. The Army had hoped to extend the range in a straight line to the northwest onto the adjoining Silva ranch, but owner Antoine Borel was unwilling to sell the property. Instead, the range was extended at an angle within Army property between the Baker-Barry road and Rodeo Creek, north of the camp (see fig. 3.68).[100] Additional improvements came in 1911 to the southeast end of the rifle range to prevent bullets from ricocheting in the direction of Battery Kirby, on the other side of Diablo Ridge. Two earthen embankments were built in back (south) of the target trench as backstops, and

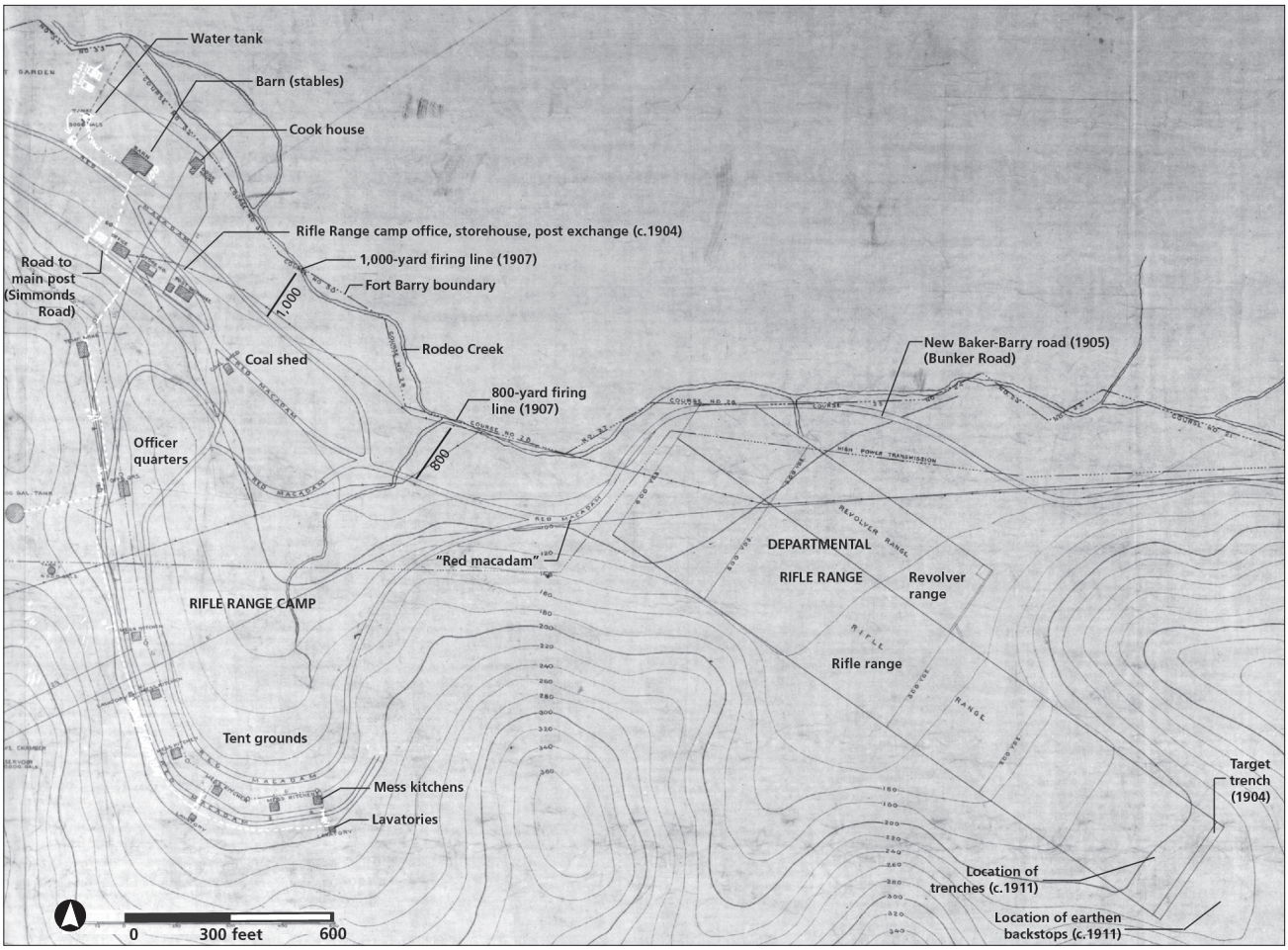


Figure 3.68. A 1908 map of Fort Barry showing initial development of the rifle range and camp. The map does not show the first Baker–Barry road that was replaced with construction of the rifle range, or the civilian employee quarters that were west of the post buildings. The white annotations are from an undetermined later date. (Detail, Office of the Constructing Quartermaster, "Fort Barry, California," February 1908, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 772292, annotated by SUNY ESF)

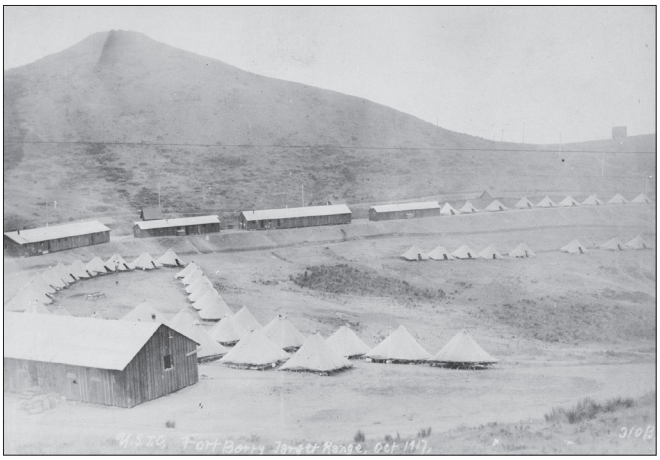


Figure 3.69. The rifle range camp established in 1904-05, from a later view looking west, 1917. The long wood buildings were officer quarters and mess halls added after the initial development. The tents were for enlisted men. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 36662.10)

three shallow trenches were added in the front. This work required extension of the stream culvert farther up the valley.[101]

The rifle range camp was expanded along with construction of the permanent range beginning in 1904, when the valley was graded and two loop roads laid out along its perimeter. By 1908, the camp included six mess kitchens between the two roads, and three lavatories above the outer road. Tent platforms were built along the inside of the lower road, and a residence for officers was erected at the northwest end of the camp. A row of eight long, frame sheds with plank siding and gable roofs, used as officer quarters and mess halls, was added to the camp by the 1910s (fig. 3.69). The camp at this time could accommodate multiple companies who visited the rifle range for training from Army bases across the Western states.[102]

Main Post

As work was nearing completion on the rifle range in spring 1905, the Quartermaster Department was at work on finalizing plans and preparing the site of Fort Barry's main post. As at Fort Baker, the plan followed the natural contours of the valley. Grading was needed to create level areas for the buildings, which at the upper end of the valley required a terrace with a steep bank rising from the main road (Simmonds Road). A drainage system was devised for the upper part of the post to capture runoff from the hillside in several inlets, where it was carried in pipes beneath the building terrace to concrete outlets below the lower road.[103]

Contracts for building construction were awarded at some point during the year and a half following the bid advertisement in January 1905. Most of the initial eleven buildings within the main post were completed in the spring of 1907, but were not occupied until February 1908. The post had the same general plan and building types as at Fort Baker, but was smaller with fewer and more widely spaced buildings (figs. 3.70, 3.71). The buildings at the upper end of the valley consisted of three duplex officer quarters, one commanding officer quarters, an administration building, and a post hospital. Farther down the main road loop

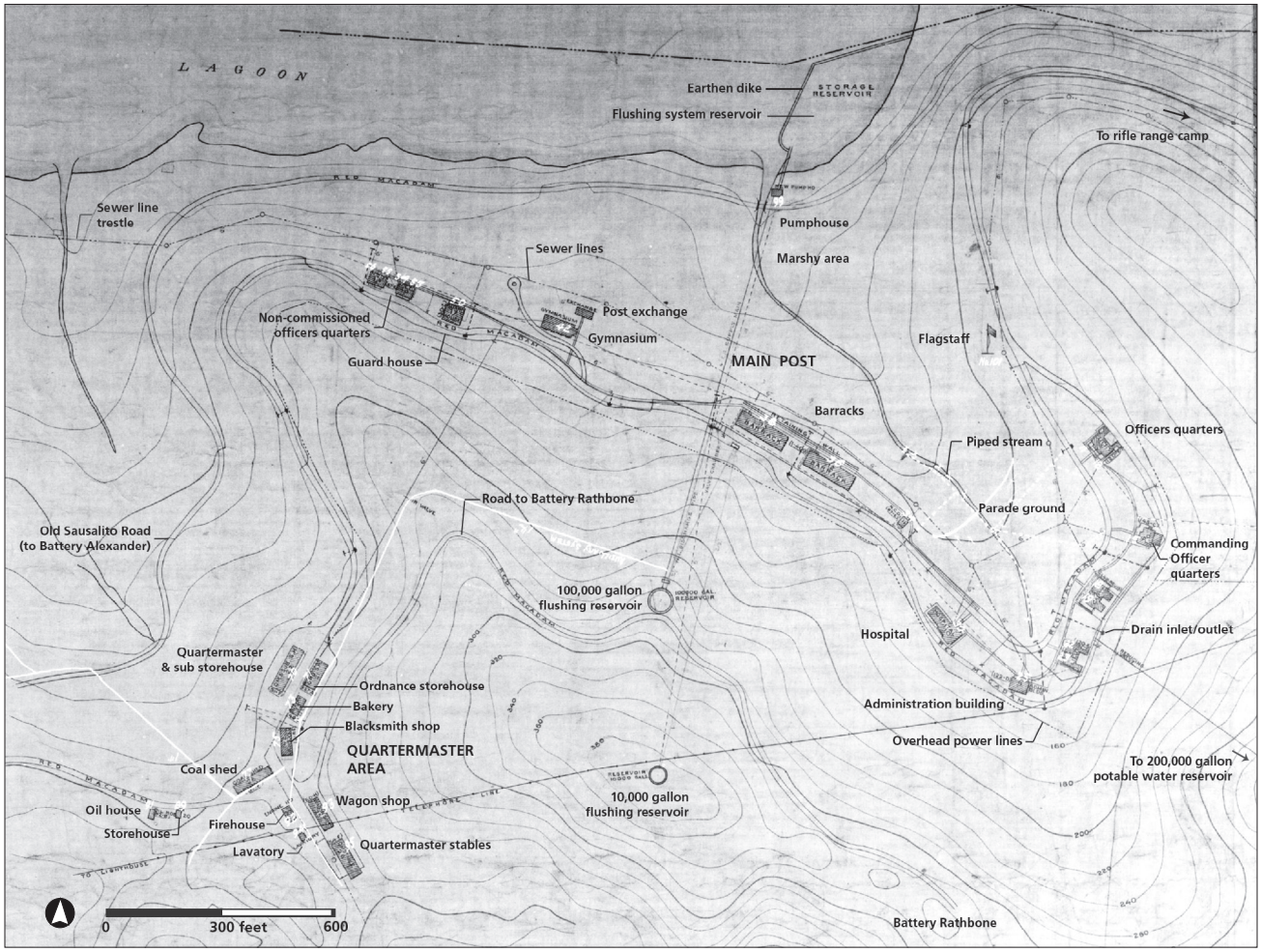


Figure 3.70. A 1908 map of Fort Barry showing initial development of the main post and Quartermaster area. The white annotations are from an undetermined date. (Detail, Office of the Constructing Quartermaster, "Fort Barry, California," February 1908, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 772292, annotated by SUNY ESF)

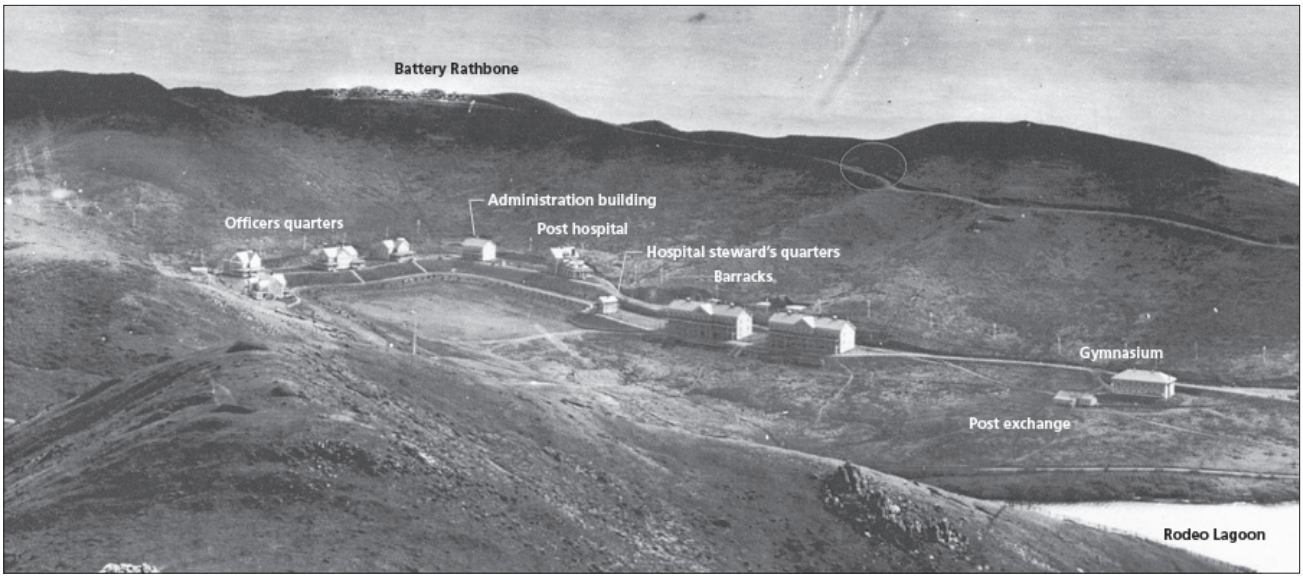


Figure 3.71. The new Fort Barry main post looking southeast, ca. 1908. Not visible are the guardhouse and two non-commissioned officer quarters (off right side of photograph). Note the very young tree plantings along the inner loop. (Golden Gate National Recreation Area, Park Archives and Records Center, annotated by SUNY ESF)

was a small building housing the hospital steward's quarters, and just beyond that were two large barracks. Still farther down the road, before the sharp bend around the hillside, were a guardhouse and two duplex houses for non-commissioned officers. As at Fort Baker, the lower end of the post facing Rodeo Lagoon was kept open, without buildings, allowing for views toward the Pacific Ocean.

The Fort Barry buildings used the same or similar Colonial Revival-style Quartermaster plans as the Fort Baker buildings, with frame construction, clapboard siding, slate roofs, two-over-two sash windows, and front porches with classical columns. The only major differences were the use of scored concrete for the foundations, a third story on the barracks, which were designed for 135 men, and a larger guardhouse, designed for a capacity of eighteen guards and twenty-four prisoners (fig. 3.72). All buildings were painted a light color with white trim and dark window sashes.[104] Following completion of these buildings, a small post exchange was built east of the guardhouse in 1908, followed by a gymnasium in 1909.[105]



Figure 3.72. The west end of the Fort Barry main post looking west showing the guardhouse built in 1907 (distant left), gymnasium (middle building) built in 1909, and post exchange (right) built in ca. 1908, photographed ca. 1910. Also visible are the power lines added in ca. 1908, and the temporary plank sidewalk. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 35256.0602)

As at Fort Baker, the landscape of the main post underwent a number of enhancements as part of the initial development (fig. 3.73). The roads were surfaced in red macadam, and concrete gutter curbs lined the main road (Simmonds Road) to capture the runoff from the adjoining slopes. Concrete walks linked the upper buildings and the barracks, and

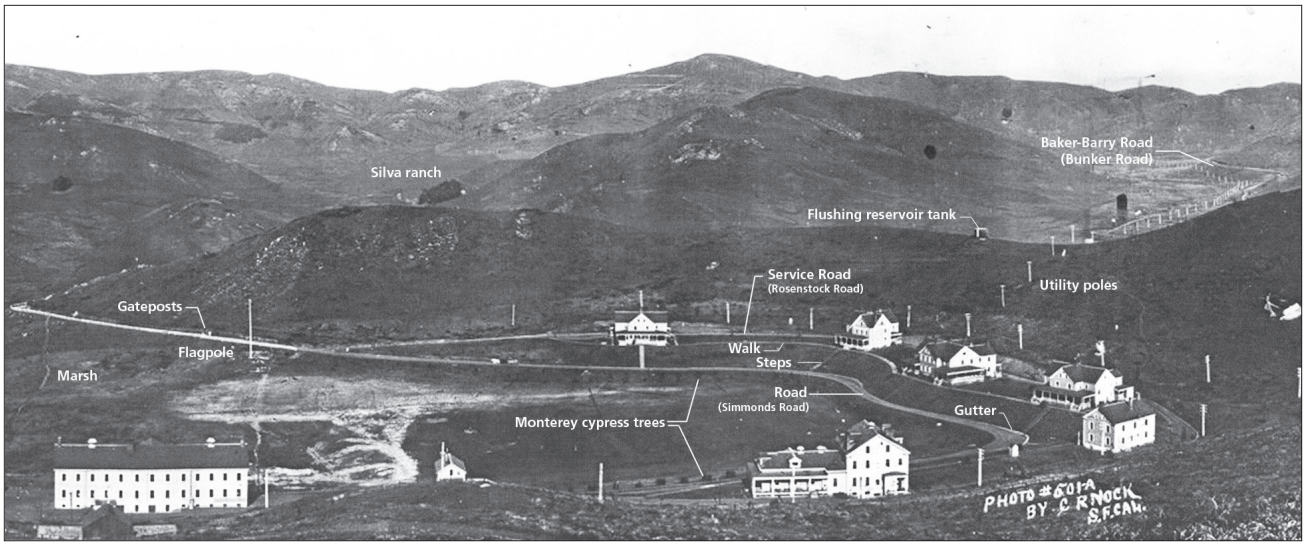


Figure 3.73. The Fort Barry main post looking northeast showing initial landscape enhancements, ca. 1910. Visible in the right distance is the Baker–Barry road (Bunker Road) and the power and telephone line from Fort Baker. (San Francisco Maritime National Historical Park, SAFR P84-092, annotated by SUNY ESF.)

continued west toward the guardhouse and the quarters for non-commissioned officers. This western segment was initially wood planks, but was rebuilt in concrete by ca. 1910. To provide access up the steep slope from the main road to the officer quarters, the Quartermaster built long flights of wooden stairs, rather than the concrete steps used at Fort Baker.[106]

The Quartermaster planted many trees in and around the main post as windbreaks, to stabilize slopes, and to beautify the barren landscape. These included Monterey cypress planted in ca. 1908 along the perimeter of the parade ground, inside of the main road (Simmonds Road), possibly with black acacia trees (see fig. 3.73).[107] As at Fort Baker, these were planted in an informal arrangement, rather than in a uniform row. Along the hillside to the rear of the officers' quarters, hundreds of blue gum eucalyptus trees were planted as a windbreak around the same time.

Final filling and grading of the parade ground, the open space in the middle of the post, was not completed until ca. 1909. The project required piping the upper part of the stream, but left the lower (north) end in its natural, marshy state. With completion of the parade ground, a 75-foot iron flagstaff supported by guy wires, the same design used at Fort Baker, was erected at the eastern entrance to the main post (fig. 3.74). Although the flagstaff was not in the center of the parade ground, it was still conspicuous given its location on a rise and the lack of surrounding trees or buildings.[108]

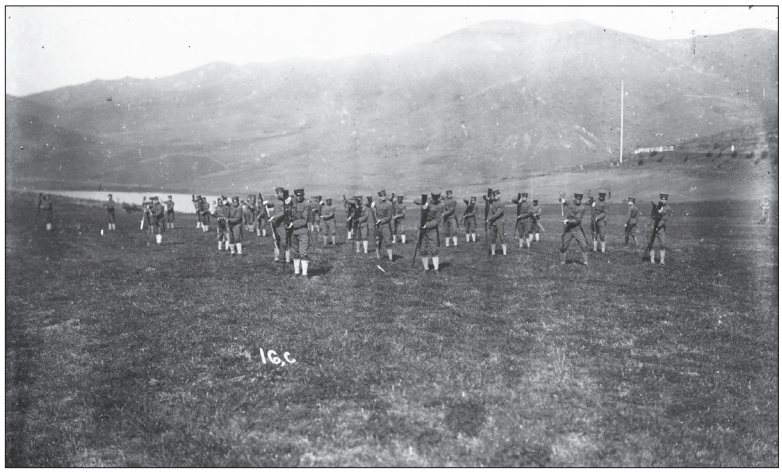


Figure 3.74. A troop drill on the completed Fort Barry parade ground, looking north with Rodeo Lagoon in the left distance, ca. 1910. At far right is visible the flagstaff erected in 1909 and trees planted in ca. 1908. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35256.0603)

In 1908, Fort Barry was electrified, with power lines carried on wood poles that

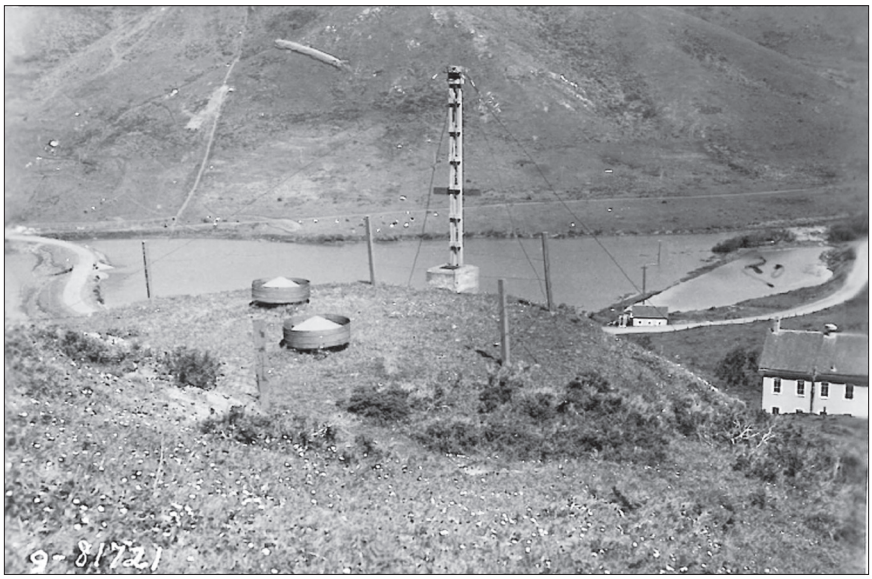


Figure 3.75. The underground flushing reservoir built in 1910 on the hillside above the Fort Barry barracks, looking north, 1939. In the distance are the open reservoir in Rodeo Lagoon and pumphouse that were part of the flushing water system. (Golden Gate National Recreation Area, Park Archives and Records Center, Fort Barry Building Book)

encircled the post, and continuing southwest toward the Quartermaster area. Water was initially supplied by the Engineer Department through its wells and pumps near the batteries. This soon proved insufficient, and a new system was developed in 1908 for the main post and rifle range. Potable water was piped from springs at the east end of Rodeo Valley and stored in a 200,000-gallon underground reservoir built in the ridge southeast of the officer quarters. Due to the limited volume of the springs, engineers developed a separate system for flushing and irrigation. This system used fresh water from Rodeo Creek that was collected in an earthen dike reservoir created within the southeast corner of Rodeo Lagoon (see fig. 3.70). Water flow into the reservoir, kept separate from the brackish water in the lagoon, was regulated by a gate at the upstream end. From the reservoir, water was carried in underground pipes through a pumphouse up to a 10,000 gallon above-ground concrete reservoir on top of a ridge south of the barracks (later site of Anti-Aircraft Battery #2). This was supplemented in 1910 with the addition of a 100,000 gallon, fourteen-foot-deep underground reservoir located halfway down the hillside (fig. 3.75). Another flushing reservoir was added around the same time on the ridge east of the officer quarters, probably to supply the rifle range camp.[109]

The sewer lines from the main post, completed by 1907, emptied into the Pacific Ocean at the south end of Rodeo Beach. While these pipes were underground through the main post, they surfaced east of the old road to Sausalito, along the steep hillsides south of Rodeo Lagoon. Here, the pipe was carried by a concrete trestle across a gully north of Battery Alexander (see fig. 3.70).[110]

Quartermaster Area

Fort Barry's Quartermaster buildings, most of which were completed by 1907, were clustered at the intersection of the road between the main post and Point Bonita (Field Road) and the road to Battery Rathbone (Conzelman Road). The location of the Quartermaster area was probably chosen due to its accessibility and availability of level land. The site's proximity to water access on Bonita Cove, where the lighthouse keepers once maintanied the North Landing, may have also been influential.[111] The Quartermaster did not, however, build its own wharf as it had at Fort Baker, but rather took over the Engineer wharf and tramway on Bonita Cove, below the lighthouse keepers' dwellings, following completion of

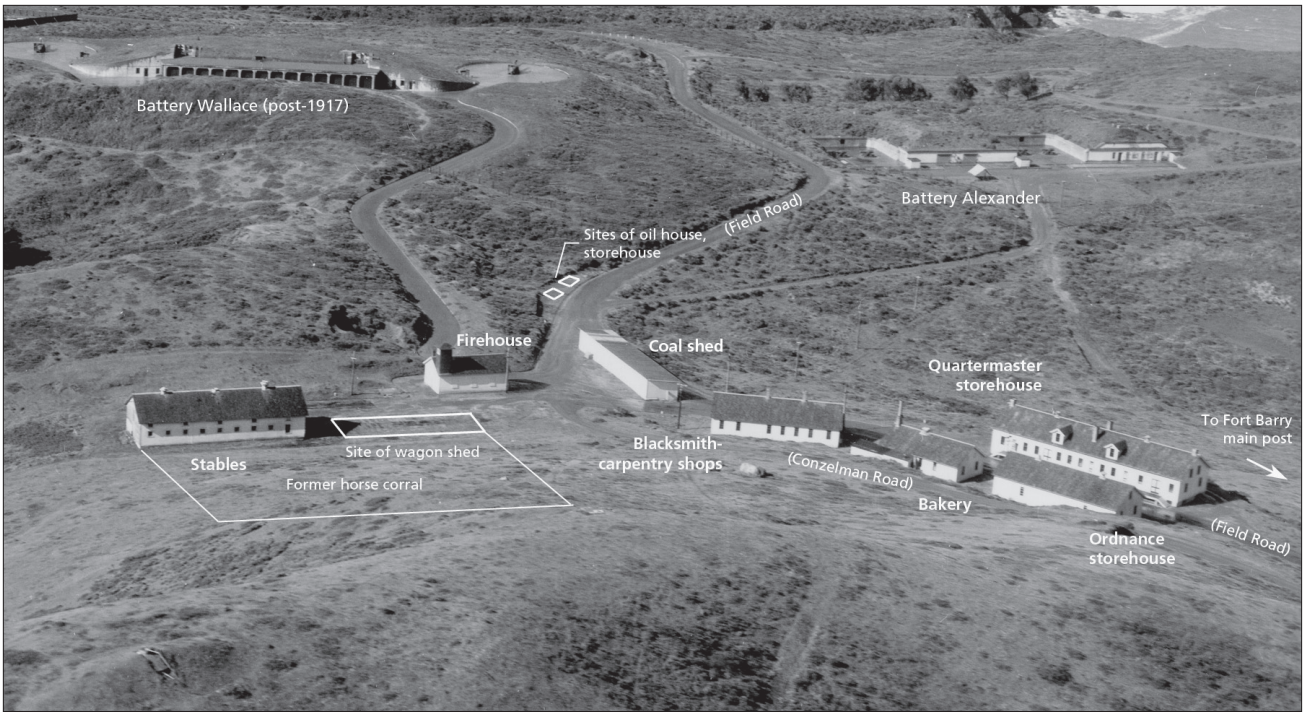


Figure 3.76. The Fort Barry Quartermaster area completed in 1907, looking west from a later photograph, 1938. By the date of this photograph, several buildings had been removed. (National Archives II, RG 499, E118, annotated by SUNY ESF)

the battery construction in 1905. The Quartermaster extended the wharf to make landings safer, and built a tide station building at the end in 1910 (see fig. 3.28). The tramway up the steep hillside from the wharf continued in use as well.[112]

As at Fort Baker, the Fort Barry Quartermaster buildings included several storehouses, a coal shed and oil shop, bakery, blacksmith shop, and a wagon shop and stables with a connected corral (fig. 3.76). The buildings followed standard plans similar to the Fort Baker Quartermaster buildings, using frame construction, slate gable roofs, clapboard siding, six-over-six windows, and brick pier foundations. Fort Barry's Quartermaster area also contained the post's firehouse, a two-bay garage with a hose-drying tower.

Later Changes

After completion of the primary buildings at the Fort Barry main post between 1907 and 1909, the Army made a number of improvements and additions to the landscape. These included construction of an ornamental entrance gate in ca. 1910 at the east entrance of the post, near the flagstaff (see fig. 3.73). These matched the gates at Fort Baker's Sausalito entrance, with a stack of shot and an electric globe light on the top. Around the same time, two handball courts were built on the hillside at the rear of the barracks, and a long bed of flowers and shrubs was added along the main road bordering the parade ground, much like the bed added to Fort Baker (fig. 3.77). A single-rail white-painted fence was erected along the hillside perimeter of the post, perhaps to keep roaming cattle

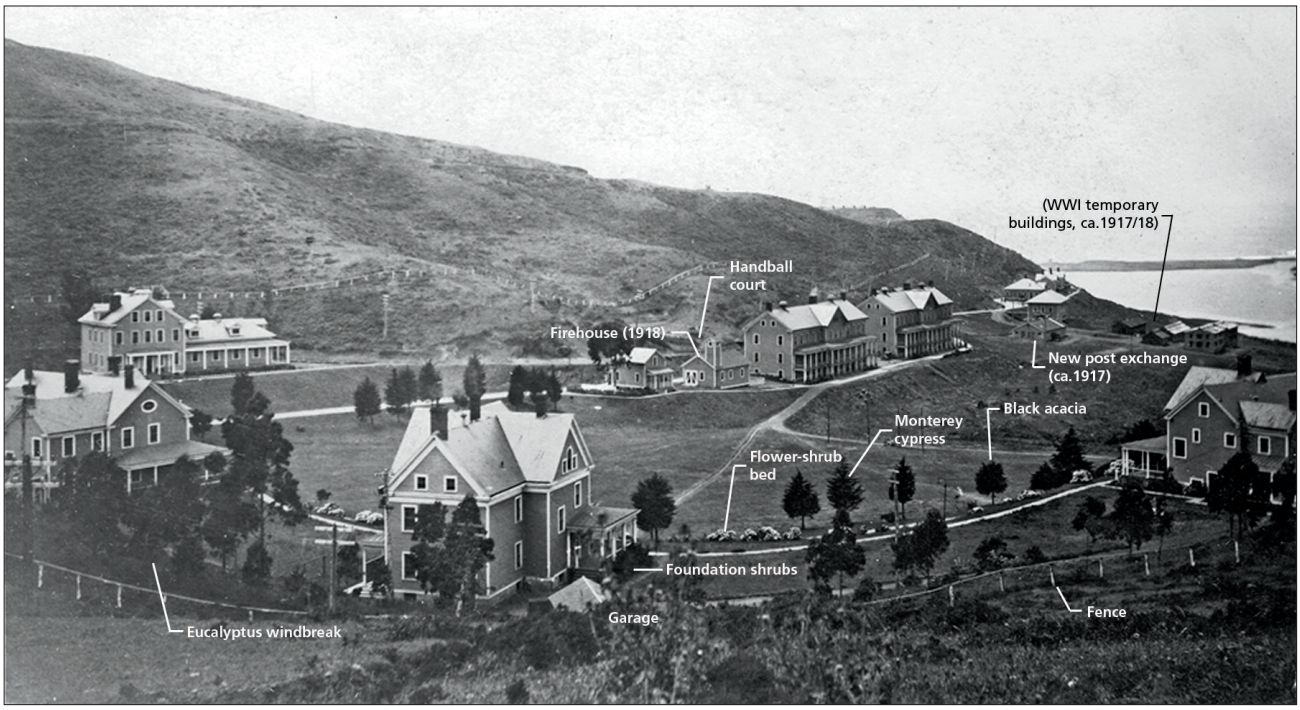


Figure 3.77. The Fort Barry main post looking west showing landscape changes since initial completion of the post in 1907, photographed ca. 1918. The firehouse and cluster of buildings at the west end of the post were built after U.S. entry into World War I. (Golden Gate National Recreation Area, Park Archives and Records Center, The Barbara E. Corff Collection, 36639 3058)

from damaging the ornamental plantings. As at Fort Baker, the color scheme on the buildings was changed in the 1910s to dark siding with light trim.[113]

On the eve of U.S. entry into World War I, a new post exchange was built near the gymnasium, the first of a cluster of buildings that would be developed at this end of the post during the war. Outside of the main post, several houses were built as officer quarters in ca. 1915. These were temporary frame houses located in remote areas, such as the hillside west of the Quartermaster area, in the valley to the east of the Quartermaster area, and along the road near the Life-Saving Station, southeast of the Engineer Department area.[114]

DIARY RANCHES

Throughout the Endicott–Taft period, dairy ranching remained a part of the headlands landscape. Within the military reservations, grazing continued, either by agreement with nearby dairy ranchers, or through herds maintained by the garrisons. The privately-owned land north of Forts Baker and Barry remained wide-open dairy ranches, except for Sausalito and the Tennessee Point Military Reservation. The major landowner during this period was still Antoine Borel, who had acquired the 1,630-acre Silva ranch north of Rodeo Valley in the 1880s. He added to his holdings in 1892 with purchase of the adjoining 540-acre ranch from J. B. Haggin, giving him ownership of all land bordering the north side of Forts Baker

and Barry outside Sausalito. By 1906, his property within the old Rancho Saucelito totaled 2,208 acres (fig. 3.78).[115] Borel, who served as Swiss Consul at San Francisco until 1913, had become a well-known philanthropist who supported numerous charitable and educational foundations. In 1913, he returned to Switzerland and assigned his banking firm, A. Borel & Co., with responsibility for managing Rancho Saucelito. It was during this time that the military finalized its purchase of the Tennessee Point Military Reservation. Antoine Borel died in March 1915, leaving the ranch property to his wife, Grace Borel.[116]

The early twentieth century was a time of increased competition for Marin County dairy farmers, as improvements in refrigeration and truck transportation, and use of drought-resistant alfalfa for feed allowed dairy products from distant areas to flood the San Francisco market. Marin dairy ranchers were also becoming subject to new food regulations that required improvements to ranch facilities.[117] Perhaps because of these issues, Louis Gioli sold his dairy business in 1904 to Antonio Bello and Joe Silva.[118] It was Silva's son, Manuel, who ran the adjoining ranch to the east, on land he also leased from Antoine Borel. The Silva family's decision to expand their dairy operation may have reflected the increasing competition of the times. They referred to the old Gioli ranch as "Little Ranch," presumably in reference to their larger ranch to the east.[119]

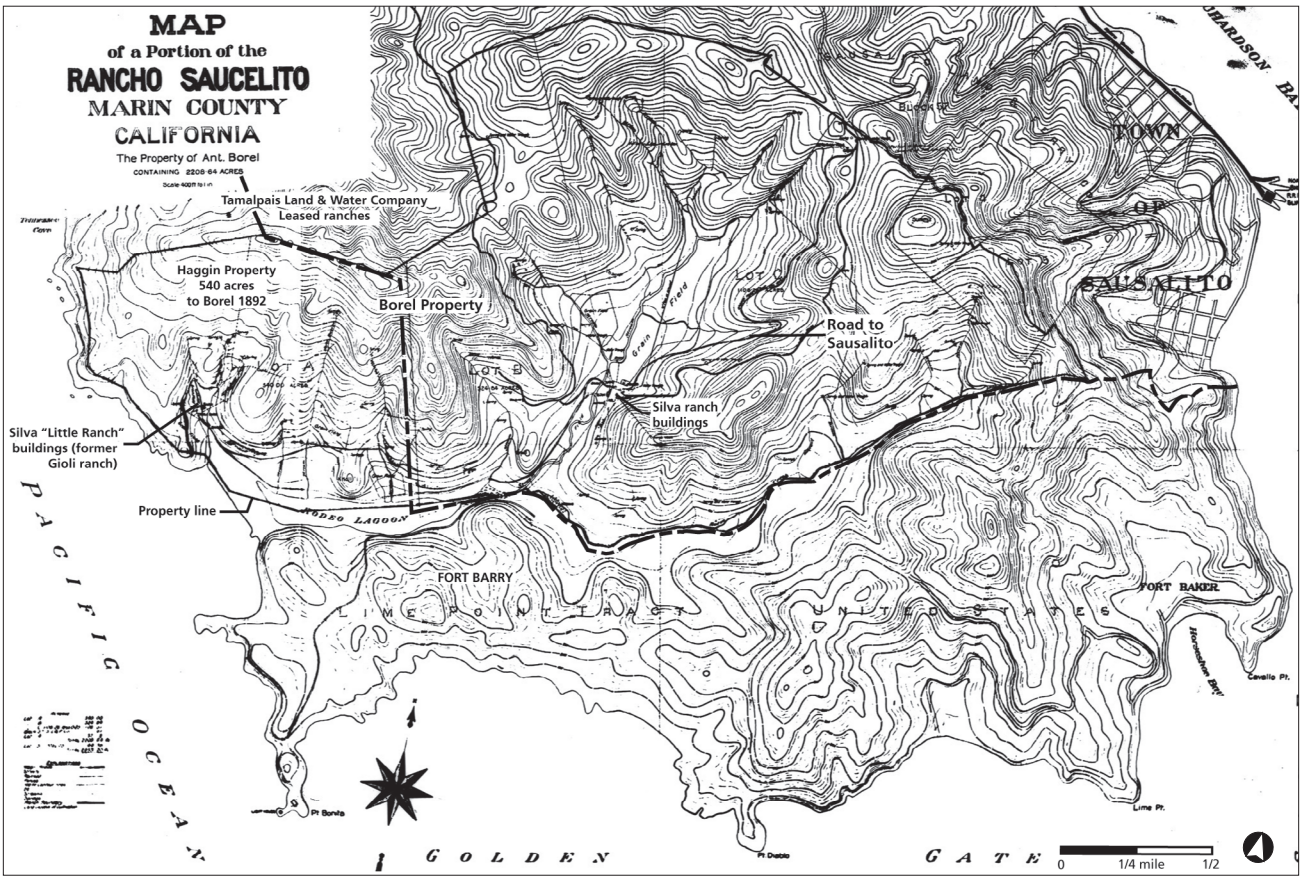


Figure 3.78. Map of Antoine Borel's land in 1906 showing location of the two tenant ranches on the property, adjoining Forts Baker and Barry, ca. 1900. The black dashed line indicates the later boundary of Forts Baker, Barry, and Cronkhite. (Sausalito Historical Society, map 75-510, annotated by SUNY ESF)



Figure 3.79. Rodeo Lagoon looking northwest with the Silva family's "Little Ranch" buildings, formerly the Gioli ranch, in the distance, 1913. The two buildings at the lower right are non-commissioned officer quarters at the Fort Barry main post. (Golden Gate National Recreation Area, Park Archives and Records Center)

Surrounded by the barren, windswept headlands, Little Ranch was the only settlement visible looking west from Fort Barry (fig. 3.79). Like most dairy ranchers in the area, the Silvas kept pigs and raised hay and grains in the valleys to supplement feed during the dry season, when the grasslands became dormant. By the 1910s, the Silva's Little Ranch featured a new hay barn built east of the old Gioli ranch house, plus the old barn, a small shed, and several fenced grain fields. The Silvas' larger ranch in the valley to the east (Gerbode Valley) included two barns, a creamery, hog pens, a house, and fenced grain fields (see fig. 3.49). The pastures of both ranches were separated from the military reservations by fences and gates.

North of the Borel property, across Wolf Ridge, were dairy ranches in Tennessee Valley that had been started in the mid-nineteenth century. The lower part of the valley, corresponding with the later limits of Fort Cronkhite, consisted of lots C, D, H, and I, which were created when the Tamalpais Land & Water Company subdivided its Rancho Sausalito property in 1892. Through the 1910s, the company kept ownership of the land and leased it to dairy ranchers.[120] These ranches were far removed from the military reservation during this period, with no roads crossing Wolf Ridge, although a minor ranch road (Miwok Trail) led to the Silva ranch. The primary access was by a road through Tennessee Valley (present Tennessee Valley Trail) that connected to the main road from Sausalito (present Route 1).[121]

LANDSCAPE SUMMARY, 1890–1917

In 1917 on the eve of the U.S. entry into World War I, the landscape of Forts Baker and Barry had undergone extensive changes since the beginning of the period in 1890, while the agricultural landscape of the future Fort Cronkhite remained little changed except for development of the Tennessee Point Military Reservation.

From the isolated navigational and military facilities at Point Bonita and near Lime Point, the Army had developed an extensive network of batteries, fire-control stations, roads, housing, storehouses, maintenance facilities, and utilities. The headlands landscape, long so remote and quiet, had developed into a bustling military facility on the eve of World War I, in the midst of which were three important navigational facilities. There were permanent residents and administrative offices at the main posts of Forts Baker and Barry, vehicles transporting supplies across gravel and red-macadam roads, troops being summoned by frequent bugle calls, ships unloading supplies and personnel, the crack of rifles at the practice range, and the occasional practice fire of a massive seacoast gun.

Despite the military development, the natural characteristics of the landscape—rugged coastline, high ridges, rocky outcrops, and rolling grasslands—remained dominant. With decreased grazing and fire suppression, coastal scrub had spread across areas that had earlier been grassland, and riparian vegetation along stream corridors had most likely spread as well. The entire district, as well as Sausalito, was still isolated and accessible only by boat from the nearby city of San Francisco. Military and construction supplies arrived mostly by ship via the wharfs at Bonita Cove and Horseshoe Cove. Just one public road entered the reservations, the road from Sausalito to Fort Baker (East Road). Land access to Fort Barry was the narrow, twisting road over Diablo Ridge (Julian Road and Dubois Road). The earlier road from Sausalito to Point Bonita remained a privately owned ranch road.

The Endicott seacoast gun batteries erected during this period consisted of the inner harbor defenses at Fort Baker, located at or near the post-Civil War batteries, and the outer harbor defenses at Fort Barry in two areas, one facing the Pacific and the other the Golden Gate. Despite their massive size, the batteries were designed to be inconspicuous when viewed from sea by fitting in with the natural character of the landscape. All had required extensive grading and excavation, with excavated material not used in construction typically dumped nearby.[122] The Army generally maintained the protective earth parapets that surrounded the seaward sides of the batteries in mown turf including Bermuda grasses, oats, alfalfa, and barley. Sandy ground, such as the area between batteries Mendell and Alexander and along roadsides, were planted with bunchgrass, lupine, and sagebrush to prevent sand from blowing into the gun pits and blocking roads. Steep parapets and other slopes were fortified with exotic iceplant, but due to its intense green and blankets of white or pink flowers, the succulent groundcover required screening with higher shrubs or trees to conceal it from view at sea, such as the row of eucalyptus trees in front of Battery Alexander. Other trees, primarily Monterey cypress and eucalyptus, were planted in the main posts and Coast Guard areas as ornamental specimens, windbreaks, and screening. Native tree cover at the time was limited largely to oak and willow along stream margins and the shoreline of San Francisco Bay.

The Endicott batteries had a number of associated features and defensive works. These included remote fire-control stations, which were inconspicuous low flat-roofed concrete buildings usually surrounded by protective earthen parapets. The newly developed communications and electrical systems that connected the batteries and secondary defensive works, built largely in underground trenches and ducts, carried ground disturbance far out into the landscape, as well as under water. The works were accessed by a network of earth or red macadam roads that generally followed the natural topography. Macadam was a type of road construction that used broken stone in successivley compacted layers, with a red color from the native red chert quarried at the headlands. Whether these roads had a tar binder on the top gravel layer during this period is not known. Where erosion was a concern, such as near earthen parapets of defensive works, the roads were lined by concrete curb gutters. Most of the defensive works were enclosed by fences intended primarily to keep out dairy cattle that grazed within the reservations. Most of the fences were wood post and wire, while others were painted wood planks.[123] Other built features scattered across the landscape included water tanks, concrete gate piers, wood railings along roads, and overhead utility lines on wood poles.

Unlike the defensive works, the post facilities—the barracks, officer quarters, gymnasiums, hospitals, service buildings, and wharfs—were conspicuous additions to the landscape, with their painted gabled buildings set amid ornamental grounds with specimen trees, shrubs, flowerbeds, flagpoles, and light standards. These developed areas were, however, concentrated within sheltered valleys that were generally inconspicuous from ships in the Pacific and Golden Gate. In contrast, the Lighthouse Board and Coast Guard maintained their facilities at Lime Point and Point Bonita with whitewashed exteriors to function as navigational day marks so that they could be easily seen by ships.

FORT BAKER LANDSCAPE (DRAWING 1.4)

Over the course of the Endicott–Taft period, the Fort Baker landscape was transformed from an isolated outpost with four obsolete batteries into a fully developed Army post with five modern Endicott batteries that defended the inner Golden Gate and San Francisco harbor. Despite its extensive infrastructure, Fort Baker's strategic role had declined by 1917 with the shift in defenses toward the outer harbor and Pacific approach to the Golden Gate.

At the Sausalito boundary, the Fort Baker entrance was marked by a small gatehouse and gate with ornamental concrete piers topped by stacked shot. From here, the road (East Road) wound along the heights above the San Francisco Bay, with its coastline shaded by native oak woods. This road continued west and south along Horseshoe Cove (Center Road), and then turned south (Moore Road) toward Lime Point, where another set of concrete gate posts marked the entrance into the main post area. The road to Lime Point Ridge, Gravelly Beach, and Fort Barry (Conzelman and Julian Roads) turned west just south of these gates in the

Engineer Department Area (Engineer Camp). Foot trails provided additional circulation throughout the reservation, primarily as shortcuts between roads and developed areas.

Defensive Works (Drawing 1.4)

Toward the south end of the Sausalito road, between Yellow Bluff and Horseshoe Cove, was the group of defensive works that protected the inner harbor. North of Yellow Bluff was a mine casemate at the water's edge that had been renovated into a terminal (cable hut) for the communications cable connecting Fort Baker with Fort McDowell on Angel Island. Above it along the Sausalito road was a frame garage originally built as a second mine casemate. Closer to Yellow Bluff was the obsolete Cavallo Battery, proposed for redesign during the Endicott period but largely unaltered since its completion in 1876. To its south was Battery Yates, a six-gun rapid-fire battery completed in 1905 to protect a minefield in the inner harbor. It was built on the site of the old Cavallo Battery outwork. On the tip of the point was a searchlight designed to illuminate the inner harbor minefield. On the hill above Cavallo Battery was Battery Duncan, a high-elevation battery with two eight-inch guns completed in 1899 to protect the inner harbor. Duncan's primary fire-control station was on the hill to the north of the battery. The Duncan hill had groves of young eucalyptus trees that the Army had planted in an apparent attempt to screen the battery and beautify the barren landscape.

The second cluster of defenses at Fort Baker was on Lime Point Ridge, dominated by Battery Spencer, the first Endicott coastal gun battery completed at the headlands in 1897. The old Ridge Battery, with its covered way and two sets of paired gun emplacements, was retained in the construction of Battery Spencer. Three associated fire-control stations, two of which were begun prior to the Taft era, descended the ridge between the battery and the tip of Lime Point; on the ridge north of the battery was a fire-control station that was never completed. At Lime Point, the Lighthouse Service maintained one of its two main navigational aids at the headlands. Next to the fog signal building was one of the Army's powerful sixty-inch searchlights, added in 1911 on top of a tall concrete base.

The third cluster of defenses at Fort Baker, completed between 1899 and 1910, faced the Golden Gate at Gravelly Beach (Kirby Cove) west of Lime Point Ridge. On the first ridge along the left side of the road leading down into the valley was Battery Orlando Wagner, a dual five-inch rapid-fire gun emplacement with a Taft-era fire-control station on the hill to the rear. Nearby were two portable searchlights housed in wood shelters added in ca. 1915. At the base of the valley was Battery Kirby, a major caliber emplacement with two twelve-inch guns built over the middle of the old Gravelly Beach Battery, leaving two of the old traverse magazines to either side. Kirby's primary fire-control station was located on the hillside above Battery Orlando Wagner. In a cut on the hillside east of the battery was a fire control station initially designated F3 and then B4 Spencer-Kirby. The

valley floor to the rear of Battery Kirby featured a raised terrace for encamping tents, and to the north was Fort Baker's post garden. On the west side of the valley was the battery's power plant and two water tanks, adjoining several small ranch buildings that housed a herd of cattle probably maintained by the troops. On the steep hillsides surrounding Battery Kirby were forest plantations of eucalyptus and Monterey cypress planted in ca. 1915 as windbreaks or to stabilize the steep slopes.

Main Post (Drawing 1.4a)

In the valley between Lime Point Ridge and Yellow Bluff was the Fort Baker main post, with its curving row of Colonial Revival-style buildings surrounding a broad parade ground that opened onto Horseshoe Cove. Between the parade ground and the water was a large open field, formerly a marsh, that sloped down to a sand beach. The hillsides surrounding three sides of the post were grassland, except for several water tanks and Battery Duncan, concealed in part by young eucalyptus. Two quarries, one for sandstone and the other for chert, were in the hillsides above the post to the east and north.

By 1917, the main post contained approximately thirty-seven buildings, most completed between 1902 and 1907. At the eastern entrance, where the road from Sausalito (East Road) entered the parade ground, was the guardhouse. Facing onto the parade ground were the barracks and post exchange/gymnasium on the east side, and the administration building and officers quarters, known as Officers Row, on the west side. The buildings were connected by concrete sidewalks, with concrete steps leading up to the officer quarters. At either end of the road (Center Road) was a cluster of one-story barracks built in ca. 1905, probably as temporary construction, and a brick pumphouse dating to 1902. On the south side of these barracks was a baseball field with wood stands.

The focus point of the parade ground was a 75-foot iron flagstaff with guy wires installed in 1905. The perimeter of the parade ground was lined by a row of informally spaced trees, including eucalyptus and pepper trees, and by a narrow bed of shrubs and flowers added in ca. 1910. Along the open south side of the parade ground were young roadside trees planted in ca. 1915. Most of the officer quarters and barracks were ornamented with flowerbeds and foundation shrubs. The west side of the post was lined by windbreaks of Monterey cypress and eucalyptus planted in ca. 1905, and along the northeast side, above the barracks, was a single row of young eucalyptus planted in ca. 1915.

The rear part of the post, extending back from the administration building, was developed with nine buildings that included five brick non-commissioned officer quarters duplexes built between 1904 and 1909, and the hospital steward's quarters dating to 1902. These building lined a road that terminated at the post hospital completed in 1902, with its main entrance facing east. On the hillside to the east was the hospital pavilion ward built in ca. 1908. On the west side of the complex

was a fence-enclosed tennis court built in ca. 1905. In the valley extending to the northwest was Fort Baker's 300-yard target range, a mown area with target butts and markers at the 200 and 300-yard lines.

Off the southwest side of the parade ground, near present Bunker Road, was another cluster of buildings. Except for a station house for the Engineer Department's Signal Corps erected in 1910 and temporary Engineers quarters, these were small unofficial houses built for civilian employees between 1899 and 1903 during initial development of the post. The houses were subsequently used by non-commissioned officers.

Quartermaster Area (Drawing 1.4a)

Off the southeast end of the parade ground along the road to Battery Yates was the Fort Baker Quartermaster area, a complex of nine one-story service buildings completed between 1902 and 1910. These were frame construction, except for the brick commissary storehouse. The other buildings served as a bakery, storehouses, carpenter and blacksmith shops, and a coal shed. A wagon shed and stables were at the east end of the complex and connected to corrals enclosed by white-painted plank fences. The ordnance storehouse, which burned in 1911, had not been rebuilt by 1917. A small building at the west end of the area, not far from the post guardhouse, was a police squad room added on the eve of World War I. An automobile garage, sited a distance south of the complex on the road to Battery Yates perhaps due to fear of fire, was built in ca. 1915. The Quartermaster wharf, completed in 1902, was remote from the Quartermaster area on the west side of Horseshoe Cove.

Engineer Department Area (Drawing 1.4)

In the valley south of the Quartermaster wharf was the group of frame buildings originally erected by the Engineer Department shortly after the Civil War during construction of the first batteries. The engineers had reoccupied these buildings for construction of the Endicott batteries in the 1890s. By 1917, the largest building, a dormitory, had been removed from this area, but six other buildings remained, along with a wharf and breakwater connecting the largest Needles rock to Lime Point. These buildings may have been maintained by the engineers in 1917, but were probably little used as most of their work overseeing construction at Fort Baker had been completed.

FORT BARRY LANDSCAPE (DRAWING 1.5)

During the Endicott–Taft period, the Fort Barry landscape changed from a largely undeveloped military reservation containing a cluster of navigational aids at Point Bonita, to a major military post with five Endicott gun batteries that served as the

northern front line of defense for San Francisco harbor. Aside from the Point Bonita lighthouse and fog signal station, Fort Barry also contained a training area for the Army's Western Department, and one of the Coast Guard's three Life-Saving Stations at the Golden Gate.

The primary road into Fort Barry in 1917 was the road over Diablo Ridge from Fort Baker, which wound down the ridge (Julian and Dubois Roads) and then followed the valley floor toward Rodeo Lagoon (Bunker Road). The first Baker–Barry Road (lower part of Julian Road) remained, but was abandoned as the primary road due to its location in the line of fire of the Departmental Rifle Range. At the upper end of the lagoon was the old road from Sausalito to Point Bonita that crossed the Silva ranch, which in 1917 was owned by Grace Borel, the widow of Antoine Borel. Where the road crossed the reservation boundary was a gate, but as a secondary access point, it did not have a gatehouse or entrance gates like the Sausalito boundary crossing at Fort Baker. Part of the right of way to the Army's recently acquired Tennessee Point Military Reservation followed this road. The main road through Fort Barry wound through the main post and Quartermaster area (Simmonds Road), then continued southwest to Point Bonita (Field Road). Other secondary roads branched off the main road to the batteries and rifle range camp.

Defensive Works (Drawing 1.5)

Fort Barry contained three primary clusters of defensive works. Along a ridge north of Point Bonita overlooking the Pacific was Fort Barry's most powerful defensive work, Battery Mendell, a twelve-inch dual gun emplacement aimed at the outer entrance to the Golden Gate. Its primary battery station was in a group of four Taft-era fire-control stations on Point Bonita Ridge to the south of the battery, at the site of the original 1855 lighthouse tower. A secondary station was at the Tennessee Point reservation. Near the rear of Battery Mendell was a mine casemate, an earth-covered concrete structure from which the submarine minefield in the Pacific North Channel was controlled. Another Taft-era addition in this area was searchlight #15 overlooking Bird Island, with its powerhouse to the rear.

On a ridge south of Rodeo Lagoon to the rear of Battery Mendell was a cluster of three batteries built between 1901 and 1905. The largest was Battery Alexander with eight twelve-inch mortars. Unlike the gun batteries, Alexander consisted of two deep pits without views to the ocean. A row of eucalyptus trees lined its western side, and iceplant, vines, and scrub covered its earth parapets. Alexander's four fire control stations added during the Taft era were located on Bonita Ridge, at the old Life-Saving Station boathouse A on Point Bonita, on the shore below Battery Rathbone on Bonita Cove, and at Tennessee Point. To the north of Battery Alexander was Battery Guthrie with four six-inch guns aimed due west to defend the north minefiled in the Pacific. Its primary fire-control station was built within the battery on a traverse. At the north end of the cluster was Battery O'Rorke, the

smallest battery in the headlands with four rapid-fire gun emplacements designed to protect the North Channel minefield and a possible landing site at Rodeo Beach.

The third cluster of defensive works at Fort Barry consisted of a single battery and a fire control station along the north side of Bonita Cove. In 1917, it consisted of Battery Rathbone, a four six-inch gun emplacement built in 1903–05 using the same plan as Battery Guthrie. Its guns aimed southeast across the Golden Gate. One of the fire control stations for Battery Alexander was at the base of the cliff below the battery.

Departmental Rifle Range (Drawing 1.5)

On the approach from Fort Baker through Rodeo Valley, the easternmost developed area was the Departmental Rifle Range, completed in 1905. The longer rifle range and its shorter adjoining pistol range were used by troops from throughout the Army's Western Department, generally for periods of up to one month. It was a level, six-hundred-yard-long mown field with distance marks at two- and three-hundred-yard intervals, a target trench at its eastern end, and a four-hundred yard extension along the north side of the Baker–Barry road (Bunker Road) for long-range positions, with berms at the 800 and 1,000 yard marks. Two earthen embankments at the back of the target trench prevented bullets from ricocheting over the ridge to Battery Kirby. A smaller three-hundred yard pistol range was north of the rifle range. The Baker–Barry road, which descended from Diablo Ridge, skirted the northwestern edge of the rifle range. In the next valley to the west was the camp where troops were stationed while training at the rifle range, developed between 1904 and 1910. Laid out in a semi-circle following the natural contours of the valley, the camp featured a row of frame buildings used as officer quarters, kitchens, and lavatories on the upper terrace, and an open field on the lower terrace used as tent grounds. Along the Baker–Barry Road at the north end of the camp were the post exchange and storehouses for the rifle range. To the northwest was a group of civilian employee houses and shops probably built during construction of the rifle range and Fort Barry's main post between 1904 and 1905.

Main Post (Drawing 1.5a)

By 1917, the main post of Fort Barry, located across a ridge from the rifle range camp in a larger valley that faced north toward Rodeo Lagoon, consisted of a curving row of sixteen widely spaced buildings, most of which were built between 1905 and 1907. The east approach from Fort Baker was marked by a pair of concrete entrance gates with stacked shot on top. Lining the uphill side of the main road (Simmonds Road) were four large Colonial Revival-style houses for officers, an administration building, hospital, small house for the hospital steward, and two three-story barracks. A good distance to the west of the barracks was the gymna-

sium and post exchange built in 1908 and 1909, and still farther, the post gatehouse and two duplex houses for non-commissioned officers completed in 1907. The buildings were linked by red-macadam roads lined by concrete gutter curbs. A service road (Rosenstock Road) branched off the main road at the upper part of the post to access to the rear of the officer quarters, administration building, and hospital. This road was necessary given the steep grade between the buildings and the main road.

The parade ground of Fort Barry was in the upper part of the valley, encircled by the main road (Simmonds Road). The lower part of the valley, beyond an unpaved road cutting across from the barracks, was rough land and marsh. The 75-foot flagstaff, the same as the one at Fort Baker, was not in the center of the parade ground, but near the eastern entrance to the post. Lining the perimeter of the parade ground were young Monterey cypress and black acacia trees planted in ca. 1908 in clusters rather than in a row. Along the street side of the trees was a bed of flowers and shrubs added in ca. 1910, similar to the one at Fort Baker. The buildings featured ornamental foundation plantings and were connected by a concrete sidewalk at the top of the slope that paralleled the main road, with painted wood stairs leading down from each building. Additional walks along the sides of the buildings connected to the service road (Rosenstock Road). On the hillsides behind the officer quarters, a windbreak of blue gum eucalyptus trees was becoming established. Behind it was a post and rail fence, separating the main post from the adjoining hillsides still used for grazing. Wood utility poles followed the general alignment of the fence, from a line along the Baker-Barry road.

Utility systems at the main post were built during construction of the rifle range and main post between 1904 and 1909. Potable water for the main post was supplied by springs near the Fort Baker boundary, while water for sanitary uses was pumped from a reservoir created at the east end of Rodeo Lagoon. Water was stored in a series of large underground concrete reservoirs and above-ground metal tanks on the ridges above the main post. A sewer line along the south side of the lagoon carried waste to the Pacific Ocean. Across a small valley near Battery O'Rorke, the line was carried on a concrete trestle.

Quartermaster Area (Drawing 1.5)

Fort Barry's Quartermaster area, located apart from the main post across a ridge on the way to Point Bonita, was a cluster of eleven buildings completed in 1907 at the intersection of the main road (Field Road) and road to Battery Rathbone (Conzelman Road). These included a bakery, storehouses, commissary, carpenter and blacksmith shops, stables, wagon house, a firehouse, and coal and oil sheds. As at Fort Baker, the area contained a fenced horse corral off the back of the stable and wagon shed, and its wharf, originally built by the engineers in 1901, was located a distance away on Bonita Cove, below the lighthouse keepers' dwellings.

A tramway, originally used to haul building materials for the batteries, moved shipments from the wharf up the steep bank.

Engineer Department Area (Drawing 1.5b)

Southeast of the Quartermaster area, within the limits of the unofficial Point Bonita Lighthouse Reservation, was the Engineer Department area. It consisted of a complex of eight one-story gabled frame buildings located close to the former boundary of the lighthouse reservation. Erected in ca. 1901 during the Army's construction of the Endicott batteries, these buildings may have been maintained by the engineers in 1917, but they probably did not occupy them, since most of their work overseeing construction at Fort Barry had been completed.[124] Other engineer facilities included the sand tramway that transported sand from pits in the gully north of Bird Island to the cement plant near Battery Mendell. The south end of the tramway, which brought rock from a quarry along Bonita Cove north to the concrete mixer, had been removed, but the rock bins near the lighthouse keepers' duplex remained. Most of the engineers' original water supply system, including a reservoir on North Bonita Hill (partially leveled in 1917) and a well, windmill, tank, and pumphouse along the sand gully north of Battery Mendel, had probably also been removed by 1917.

Station Point Bonita (Drawing 1.5b)

Southeast of the Engineer Department area near a cliff overlooking Bonita Cove was the Coast Guard Station Point Bonita, originally designated as the Point Bonita Life-Saving Station when it was established in 1899. The station was dominated by its towered Shingle-style main building, which was surrounded by three outbuildings, and fence-enclosed grounds with windbreaks of Monterey cypress. East of the main building was a shop and quarters added in 1910, and a garage built in ca. 1900. At the center of the lawn was a flagpole and a water tank, and at the upper side of the lawn, along a stone retaining wall, was a fire hose shed. The only Coast Guard buildings outside of the fenced grounds were a quarters built in ca. 1910 along the road toward Bonita Cove, and the boathouse built in ca. 1912 on Bonita Cove near the Quartermaster wharf. This boathouse, a 1912 replacement of two built in 1899 at Rodeo Beach and on Point Bonita, was a hipped-roof building with a boat launch railway. It was connected to the main station area by a narrow road along the cliff that extended through the former Engineer quarry.

Point Bonita Light Station (Drawing 1.5b)

The former forty-four acre Point Bonita lighthouse reservation had undergone extensive change between 1890 and 1917 resulting from construction of the Army defenses, Engineer Department area, and Station Point Bonita. As at Lime Point, the Army's primary jurisdiction to the property allowed it to build where it

wished, often immediately next to lighthouse buildings. The Point Bonita area had thus become a mixed collection of facilities belonging to the Army, Lighthouse Service, and Coast Guard.

The Point Bonita Light Station featured two areas, one containing the keepers' dwellings near Bonita Ridge north of the point, and the other containing the lighthouse, fog signal, and wharf at the southern tip of the point. At the north end of the keepers' area, close to the Engineer Department area and Station Point Bonita, was a schoolhouse in Boathouse B that had been moved from the Pacific coast north of Bird Island in 1912. South along the main road was the site of the keepers' barn that was removed by 1915, and two brick domed cisterns that supplied the fog signal. Below these were there three structures used to supply materials for construction of the batteries. The structures were most likely vacant, and their connecting railway had been removed.

Across the road to the north was the lighthouse keepers' area with two dwellings, the 1908 Craftsman-style assistant keepers' duplex that had replaced the ca. 1855 dwelling damaged it the 1906 earthquake, and to the west, the Gothic Revival head keeper's dwelling dating to ca. 1875. Between the two dwellings was a building erected in 1901 to house shops for the Army Engineers, and immediately south of the head keeper's dwelling was the Engineer office, also dating to 1901.

Both of the keepers' dwellings were enclosed by white-painted picket fences and contained gardens where the keepers raised vegetables including potatoes, cabbage, and cauliflower.[125] The rear yards of the assistant keeper's duplex contained two sheds, and to the north was a fence-enclosed corral and stable building erected in ca. 1910. Within the fenced grounds of the head keeper's dwelling were stone retaining walls and two sheds. Outside of the fence to the north, along the road to the Bonita Ridge fire-controls stations, was a garage built in ca. 1915, a small shed, a wooden water tank, and a masonry cistern. To the south was a fence-enclosed yard surrounded by a hedge of Monterey cypress planted in ca. 1910.

Despite the Army's development on and around Point Bonita, access to the lighthouse facilities on Point Bonita remained difficult, either by the narrow road and tunnel, or by the South Landing wharf along Bonita Cove. This wharf, with its inclined tramway used to transport goods up the steep cliff, served as the light station's primary point for shipment of fuel oil for the 1903 fog station, which was stored in a tank on the hill above the wharf, and piped down to the station's boilers. At the south end of the point was the third assistant keeper's dwelling, built in 1908 in the same Craftsman style as the assistant keepers' duplex on the mainland. It was perched on a narrow shelf where the old fog signal building once stood, enclosed by a picket fence and a whitewashed retaining wall. West of the house was a concrete walk lined by pipe railings that led across a narrow land bridge to the lighthouse. The navigational and strategic importance of this narrow spit of land was evident by the cluster of buildings that occupied the tip in 1917. Stepping down the cliff from the west side of the lighthouse and fog signal, with its flue and

chimney east of the lighthouse to avoid blocking the light, was the Army's sixty-inch searchlight #14 added in 1911, and below it, the double fire-control station for batteries Mendell and Alexander completed in 1917.

FORT CRONKHITE LANDSCAPE (DRAWING 1.6)

In 1917, the future Fort Cronkhite south of Wolf Ridge consisted of the Silva family's Little Ranch, formerly the Gioli ranch, and the 5.5-acre Tennessee Point Military Reservation acquired by the United States in 1914. North of Wolf Ridge in Tennessee Valley was Ranch I of the Tamalpais Land and Water Company, which was part of a larger tenant dairy operation on the adjoining Ranches H and D.[126] Most of the landscape, a quiet windswept expanse of open grassland, had no tree or shrub cover due in part to its use as pasture for dairy cows.

The Silvas' Little Ranch was on land owned by the Grace Borel, the widow of Antoine Borel. The ranch was run by Manuel Silva, the son of Joseph Silva who had died in 1913. It consisted of three fenced grain fields located near the ranch buildings in the valley north of Rodeo Beach, and another two fenced grain fields along the entrance road, north of Rodeo Lagoon. The Gioli or Silva families built a new frame hay barn north of the old one at some point between 1890 and 1913. West of the barns was the small ranch house with an open front porch.[127] Most of the road from the Silva ranch provided a right-of-way for the military to access its Tennessee Point reservation. Uphill was a parallel road that had been built since 1890, but it dead ended after crossing the Silva ranch boundary.

The Tennessee Point Military Reservation, acquired by the government from Antoine Borel in 1914, was an isolated 5.5-acre promontory west of the Little Ranch buildings and south of Tennessee Cove. Access was by a winding road that crossed the Borel property from Fort Barry over a thirty-foot right-of-way. The road passed through several of the Silvas' fenced grain fields and pastures, where the Army was required to maintain gates to prevent livestock from escaping or damaging crops. By 1917, the reservation consisted of two disappearing searchlights, which when fully lowered were level with the ground, out of sight from enemy ships. The associated powerhouse, a hipped-roof one-story building, was protected by the surrounding ravine and a high earth parapet that the Army built to close off the lower end. In the cliff below and to the south of searchlight #16 were two secondary fire control stations for batteries Alexander and Mendell. The reservation also contained its own water supply system, fed by a dammed stream at the southeast corner of the property. Water was collected in a tank, pumped through underground pipes to a second storage tank along the east boundary of the property, then gravity fed through underground pipes to the powerhouse.

By 1917, Ranch I north of Wolf Ridge remained undeveloped except for a large fenced field on the valley floor that continued northeast into ranches H and D. The base of the valley consisted of wetlands that bordered the beach on Tennes-

see Cove. There were no roads in Ranch I, although there were probably foot trails leading down to the beach and perhaps over the high ridges to the north and south.

NOTES, CHAPTER 3

1 Candace Clifford, *Historic Lighthouse Preservation Handbook* (Washington, D.C.: National Park Service, 1997), Part II, page 2.

2 Anna Coxe Toogood, *Historic Resource Study, A Civil History of Golden Gate National Recreation Area and Point Reyes National Seashore, California* (Denver: National Park Service, 1980), 275–276.

3 Toogood, 299–300; photograph of the Life-Saving Station, ca. 1908, showing evergreen trees in the background, Golden Gate National Recreation Area Park Archives and Records Center (hereafter, GOGA PARC), image 35290.12. These are assumed to be Monterey cypress based on existing vegetation. No photographs were found showing the details of the two boathouses.

4 Toogood, 299.

5 U. S. Army Engineer Department, Engineer Notebooks, Harbor Defenses of San Francisco, National Archives I, RG 77, Records of the Office of the Chief of Engineers, Entry 220, "Coast Defense Fortification File, 1898-1920" (hereafter, "Engineer notebook"), Journal 2, Fire Control, updated to ca. 1916.

6 Toogood, 301–302.

7 U. S. Coast Guard Historian's Office website, www.uscg.mil/history/ (accessed May 10, 2010). The Lighthouse Board (later Lighthouse Service) was not absorbed into the Coast Guard until 1939.

8 Kathleen Fitzgerald, Bright Eastman, and Gretchen Stromberg, "Cultural Landscape Inventory, Point Bonita Historic District" (Unpublished National Park Service report, 2005), 2b, 2–3. This 1903 boundary does not appear on later maps of Fort Barry.

9 Toogood, 229–230.

10 John Martini, e-mail to John Auwaerter, July 11, 2014, in reference to construction of the existing concrete surface with asphalt-covered utility trench in the middle along the lower part of the Lighthouse Trail.

11 Toogood, 227, 231; Cultural Landscape Inventory, 12.

12 Photograph of the keepers' duplex soon after completion, GOGA PARC, image 18498.003; Cultural Landscape Inventory, 12; Toogood, 232.

13 Norma Engel, *Three Beams of Light: Chronicles of a Lighthouse Keeper's Family* (San Diego: Tecolote Publications, 1986), 60.

14 Ralph Shanks, *Guardians of the Golden Gate: Lighthouses and Lifeboat Stations of San Francisco Bay,* ed. Lisa Woo Shanks (Petaluma, California: Costaño Books,1990), 152.

15 Shanks, 155; Engineer notebook, map 14 January 1915 updated to November 8, 1916.

16 Emanuel Raymond Lewis, *Seacoast Fortifications of the United States* (Annapolis: Naval Institute Press, seventh printing 1993), 77.

17 Erwin N. Thompson, *Historic Resource Study, Seacoast Fortifications San Francisco Harbor, Golden Gate National Recreation Area* (Denver: National Park Service, Denver Service Center, 1979) , 124–125, 131; Erwin N. Thompson, *Historic Resource Study, Forts Baker, Barry, Cronkhite of Golden Gate National Recreation Area California* (Denver: National Park Service, 1979), 32.

18 Thompson, *Seacoast Fortifications*, 134–135; *Forts Baker, Barry, Cronkhite*, 34; John Martini, comments on second draft report, March 2011.

19 Lewis, 78–79.

20 Lewis, 79, 83.

21 Gordon Chappell, Historic California Posts, "Forts Under the Sea: Submarine Mine Defense of San Francisco Bay," the California State Military Museum website, www.militarymuseum/org/Mines.html (accessed 22 April 2010). See also: http://californiamilitaryhistory.org/Mines.html.

22 Lewis, 89.

23 Thompson, *Seacoast Fortifications*, 141; Mark J. Berhow, "Historic California Posts, Harbor Defenses of San Francisco," The California State Military Museum website, http://www.militarymuseum.org/HDSF.html (accessed April 14, 2010).

24 "William F. Barry 1818-1879," obituary, *The Philadelphia Inquirer,* 19 July 1879, http://localhistory/morrisville/edu/sites/gar_post/barry-wf.html (accessed April 26, 2010).

25 John A. Martini, "Historic California Posts: History of the Coast Defenses of San Francisco and Significance of Battery Cavallo," The California State Military Museum website, www.militarymuseum.org/BtyCavallo2.html (accessed April 20, 2010).

26 Thompson, *Seacoast Fortifications,* 149.

27 Thompson, *Forts Baker, Barry, Cronkhite*, 31–33.

28 Thompson, *Seacoast Fortifications,* 149–152. Similar gateposts were erected in ca. 1910 at the entrance road to Battery Kirby and at the Sausalito entrance to Fort Baker, among other places.

29 John Martini, communication with John Auwaerter, August 12, 2011. This unfinished fire control station, which still exists, was the same design as G1 McDowell on Angel Island built in 1900. The date of construction and intended function of the Fort Baker station is not known.

30 Thompson, *Seacoast Fortifications,* 208, 216; U. S. Army, Engineer Department, "Reports of Completed Works—Seacoast Fortifications" National Archives II, RG 77, Entry 1007, boxes 144-156 (hereafter, "Reports of Completed Works"), Fort Baker, B-1 Spencer and F Baker, corrected to 1 March 1920.

31 Joe C. Freeman, Stephen A. Haller, David M. Hansen, John A. Martini, and Karen J. Weitze, "Seacoast Fortifications Preservation Manual" (Unpublished report, Golden Gate National Recreation Area and KEA Environmental, July 1999), 76.

32 Thompson, *Seacoast Fortifications*, 42, 209; Report of Completed Works, Fort Baker, B-1 Duncan, corrected to 1 November 1927.

33 Thompson, *Seacoast Fortifications,* 177–178, 208.

34 Seacoast Fortifications Preservation Manual, 78.

35 Thompson, *Forts Baker, Barry, Cronkhite*, 32–33, 209. The battery was usually referred to with the major's first name to distinguish it from Battery Arthur Wagner at Fort Winfield Scott, completed in 1906.

36 Reports of Completed Works, Fort Baker, B-1 Kirby, corrected to March 1, 1920.

37 Thompson, *Seacoast Fortifications,* 199, 209.

38 Thompson, *Seacoast Fortifications*, 150, 174. This was not unprecedented. The first (1887) mine casemate at Battery Weed in Fort Wadsworth, New York failed due to wet conditions from its seaside location.

39 Thompson, *Forts Baker, Barry, Cronkhite*, 91. The first Baker–Barry road is today part of Conzelman Road and Julian Road (Coastal Trail). The 1901 date of construction is based on the beginning of work on the Barry batteries that year. The road is not shown on the ca. 1900 map of Fort Baker, but is shown on a 1905 map of Fort Baker. The road existed prior to construction of the Rifle Range in 1904, when it was shifted to a new alignment.

40 Thompson, *Seacoast Fortifications,* 194; Office of the Light House Engineer, "Map of Point Boneta [sic] and Vicinity, Showing location of Structures etc., as they exist September 1902," GOGA PARC, collection, "Point Bonita—Historic."

41 Thompson, *Seacoast Fortifications*, 194; "Map of Point Boneta and Vicinity," 1902.

42 Thompson, *Seacoast Fortifications*, 194; "Map of Point Boneta and Vicinity," 1902.

43 Thompson, *Seacoast Fortifications*, 194.

44 Thompson, *Seacoast Fortifications*, 194; "Map of Point Boneta and Vicinity," 1902; The California State Military Museum website, http://www.militarymuseum.org/BtyAlexander.html (accessed April 27, 2010); Thompson, *Forts Baker, Barry, Cronkhite*, 97. The number of mortars was later reduced to two in each group.

45 Thompson, *Forts Baker, Barry, Cronkhite*, 97–98; The California State Military Museum website http://www.militarymuseum.org/BtySmithGuthrie.html (accessed April 27, 2010).

46 Thompson, *Forts Baker, Barry, Cronkhite*, 98; The California State Military Museum website http://www.militarymuseum.org/BtyRathboneMcIndoe.html (accessed April 27, 2010).

47 Lewis, *Seacoast Fortifications of the United States,* 89, 93.

48 Engineer notebook, Journal 2, Fire Control, updated to ca. 1916. This project organized the batteries into eleven fire commands, three of which were at the Marin Headlands. At Fort Baker, Batteries Spencer, Kirby, Wagner, and Duncan comprised the Tenth Fire Command. At Fort Barry, the Third Fire Command consisted of Battery Alexander; the Fourth, Mendell and Guthrie. There were also several commands for the submarine mines, with Batteries Rathbone and O'Rorke comprising the Second Mine Command.

49 Lewis, 93; Thompson, *Seacoast Fortifications*, 232–233.

50 Reports of Completed Works, Forts Baker and Barry.

51 Reports of Completed Works, Forts Baker and Barry.

52 Map of Forts Baker and Barry, 1912; Map of Fort Barry Communications Cable System, 1918, GOGA PARC, D211 F1.

53 Quoted in Seacoast Fortifications Preservation Manual, 80. The memo went on to direct transplanting of trees from areas surrounding the defensive works to fit the works into the natural environment.

54 Reports of Completed Works, Fort Baker; Engineer notebook, Journal 2, Fire Control, updated to ca. 1916. Journal 2 incorrectly identifies the BC stations as being built in 1900.

55 Thompson, *Seacoast Fortifications*, 239, 255; Map, Reports of Completed Works, Fort Baker, 14 January 1915 updated to 3 November 1916.

56 Reports of Completed Works, Fort Baker, "Cable Hut, Baker–McDowell Cable," updated to 1 March 1920; Thompson, *Seacoast Fortifications*, 228, 252.

57 These plantations may have also been a response to overgrazing on the hillsides, which most likely worsened erosion. The presence of grazing cattle is documented in "Who Owns the Cow," *Sausalito News*, vol. 28, no. 38, September 14, 1912 (article courtesy of John Martini).

58 Benton, 33; photograph of Battery Spencer, GOGA PARC, image 2605.002, 1915, and Battery Cavallo, GOGA PARC, image 3311.005, ca. 1914; Cathy Gilmore, Barbara Judy, et al, *Cultural Landscape Report for Fort Baker* (National Park Service, July 2005), 62–69. The eucalyptus trees on the Battery Duncan hill were planted before the guns were removed from the battery in 1918. The Army also planted eucalyptus in front of Battery Alexander around this same time.

59 Thompson, *Seacoast Fortifications*, 238; Reports of Completed Works, M1 Barry, updated to November 1927.

60 Engineer notebook, Journal 2, Fire Control, updated to ca. 1916; Thompson, *Forts Baker, Barry, Cronkhite*, 230.

61 Reports of Completed Works, Fort Barry, fire control.

62 Reports of Completed Works, Fort Barry, searchlights, electric plants; Thompson, *Forts Baker, Barry, Cronkhite*, 99.

63 Thompson, *Forts Baker, Barry, Cronkhite*, 98; Reports of Completed Works, Fort Barry, Mine Casemate, updated to September 28, 1942. The Barry mine casemate was most likely originally built to the same design as the flat-roof concrete mine casemate MC-II at Baker Beach, built in 1907, which was also upgraded in 1918 with a new concrete roof and 9 feet of sand fill. Matthew W. Kent, *Harbor Defenses of San Francisco: A Field Guide 1890 to 1950* (By the author, 2009, online Google excerpt), page 50.

64 Thompson, *Seacoast Fortifications*, 240–241. Thompson does not state whether the Rathbone hill was leveled, but existing contours suggest it was.

65 Thompson, *Seacoast Fortifications*, 196; Joe C. Freeman, Stephen A. Haller, David M. Hansen, John A. Martini, and Karen J. Weitze, "Seacoast Fortifications Preservation Manual" (Unpublished report prepared for Golden Gate National Recreation Area and KEA Environmental, July 1999), 77, 79; 1938 aerial photographs of Battery Alexander showing large trees along its west side. Ice plant, *Mesembryanthemum*, was planted on the interior slopes of Battery Livingston at Fort Miley in 1901, and was most likely planted around the sister mortar battery Alexander at the same time.

66 Thompson, *Seacoast Fortifications*, 257; "Fort Record Book for Fort Cronkhite" (Unpublished Army report, 1940, revised 1954), General History section, 3, GOGA PARC.

67 Reports of Completed Works, Searchlights, Electric Plans, Fort Cronkhite (Tennessee Point).

68 Reports of Completed Works, Fire Control structures, Fort Cronkhite (Tennessee Point).

69 Thompson, *Forts Baker, Barry, Cronkhite*, 41, 53, 82, 86.

70 Thompson, *Forts Baker, Barry, Cronkhite*, 38.

71 Thompson, *Forts Baker, Barry, Cronkhite*, 30–31; Cultural Landscape Report for Fort Baker, 56.

72 The 1912 map of Forts Baker and Barry (fig. 3.27) does not show the gatehouse.

73 Fort Baker Building Book (1939 updated to ca.1946), Buildings 61, 660, 664 (410), 665 (403), 676, GOGA PARC, GOGA 32426; Office of the Constructing Quartermaster, "Fort Baker, California," December 1909, GOGA PARC, D195 F1; John Martini, comments on second draft report, March 2011. Two of the Fort Baker houses had been removed by 1939, by which time they were used as unofficial non-commissioned officer quarters.

74 Thompson, *Forts Baker, Barry, Cronkhite*, 47; "Fort Baker, California" (map), December 1909; Cultural Landscape Report for Fort Baker (2005), 56.

75 Photograph of the administration building and commanding officer's quarters, 1903–04, GOGA PARC, 1766; Thompson, *Forts Baker, Barry, Cronkhite*, 54; Fort Baker Building Book.

76 Photograph of barracks along Center Road, album page 3, 1918, Paul Judge collection.

77 Thompson, *Forts Baker, Barry, Cronkhite*, 39–43; Fort Baker Building Book; "Fort Baker, California" (map), December 1909.

78 Thompson, *Forts Baker, Barry, Cronkhite*, 44–46.

79 Thompson, *Forts Baker, Barry, Cronkhite*, 48.

80 Plan of Fort Baker, ca. 1903, showing proposed tree plantings, transcription onto ca. 1950 map, Historian's files, Fort Mason, GOGA; Lisa M. Benton, *The Presidio: From Army Post to National Park* (Boston: Northeastern University Press, 1998), 33.

81 Thompson, *Forts Baker, Barry, Cronkhite*, 48.

82 Photograph of Fort Baker, 1919, GOGA PARC, image 27994.021 (misidentified as Fort Barry); "Fort Baker, California" (plan), December 1909.

83 "Fort Baker, California," December 1909; Thompson, *Forts Baker, Barry, Cronkhite*, 73.

84 The target range is shown on U. S. Army (William Duncan), "Reservation Map of Forts Baker and Barry Cal.," ca. 1912–13.

85 Thompson, *Forts Baker, Barry, Cronkhite*, 39–45; 1938 Harbor Defenses of San Francisco aerial photograph of Fort Baker, National Archives II [hereafter, NARA II], RG 499, E118.

86 Thompson, *Forts Baker, Barry, Cronkhite*, 40–41; "Fort Baker, California," December 1909.

87 John Martini, e-mail to John Auwaerter, 12 May 2010.

88 Thompson, *Forts Baker, Barry, Cronkhite*, 76; Engineer notebook, map for Fort Baker, 1915 updated to 1916; Fort Baker Building Book, buildings 643, 644, 645.

89 Photograph of Fort Baker main post officer duplexes, 1919, GOGA PARC, image 27994.021 (mistakenly identified as Fort Barry); Thompson, *Forts Baker, Barry, Cronkhite*, 54. The perimeter fence is visible a 1919 photograph in the Judge Collection; a similar fence was erected at the Fort Barry main post in ca. 1915.

90 Gilmore and Judy, "Cultural Landscape Report for Fort Baker," 19, citing Laizure Report XXII (July 1926), note 27, 323.

91 Thompson, *Forts Baker, Barry, Cronkhite*, 84.

92 Thompson, *Forts Baker, Barry, Cronkhite*, 83–84.

93 "Fort Barry, California," 1908.

94 "Target Range is Now Located," *San Francisco Call*, February 20, 1904, cited in Chris Rurik, "Preliminary Cultural Landscape Report, Departmental Rifle Range, Fort Barry, Marin Headlands" (Unpublished National Park Service report, 2010), 9.

95 "Reservation map of Forts Baker and Barry Cal.," 1912–13.

96 Engineer notebook, map, 14 January 1915 updated to 8 November 1916; Thompson, *Forts Baker, Barry, Cronkhite*, 90.

97 Rurik, 9.

98 The improvements may have included an "L"-shaped stable on the east side of the revolver range, as shown on "Map of Fort Barry and Dep't. Rifle Range, Cal.", February 1908, in Rurik, 9. The stable is not shown on a Constructing Quartermaster map of the rifle range also made in February 1908, GOGA PARC, image 772292.

99 Rurik, 11–12, based on the 1917 "Complete United States Infantry Guide for Officers and Noncommissioned Officers."

100 Rurik, 13–14. It is not known if the ground for the extended range was managed the same as the main part of the rifle range.

101 Thompson, *Forts Baker, Barry, Cronkhite*, 95–96; Office of the Constructing Quartermaster, "Fort Barry, California" (map), February 1908, GOGA PARC, map 772292.

102 Golden Gate National Recreation Area Cultural Resources and Museum Management Division, "Fort Barry Balloon Hangar and Motor Vehicle Sheds Abbreviated Historic Structures Report" (National Park Service unpublished report, ca. 2006), 17; Thompson, *Forts Baker, Barry, Cronkhite*, 93–95; "Fort Barry, California," February 1908.

103 "Fort Barry, California," 1908. An undated annotation on this map indicates that an additional part of the stream at the upper half of the post was piped after initial development.

104 Photographs of Fort Barry main post, ca. 1910, GOGA PARC, GOGA 1766.

105 "Fort Barry, California," 1908; Fort Barry Building Book (1939 updated to ca.1946), GOGA PARC, GOGA 32423.

106 Fort Barry Building Book, photographs of post hospital and officers quarters showing wooden stairs.

107 Photograph of Fort Barry, ca.1918, Barbara Corff collection, GOGA PARC. This photograph appears to show some smaller, rounded black acacia trees with the Monterey cypress.

108 "Fort Barry, California," 1908; ca. 1909, 1910 photographs of the Fort Barry main post.

109 Thompson, *Forts Baker, Barry, Cronkhite*, 87–88; "Reservation Map of Forts Baker and Barry Cal.," 1912–13.; Engineer notebook, map, 14 January 1915 updated to 8 November 1916.

110 "Fort Barry, California," 1908; John Martini, comments on second draft report, March 2011. A concrete trestle was demolished in 1990; it is not known if this was the original trestle.

111 This is the present site of the lower fisherman's lot access. No documentation was found on the reasons for the selection of the Quartermaster area site.

112 Thompson, *Forts Baker, Barry, Cronkhite*, 88.

113 Photograph of Fort Barry main post, ca. 1918, collection of Barbara Corff.

114 Engineer notebook, maps for Fort Barry, January 14, 1915 updated to November 8, 1916, GOGA PARC.

115 Darcie Luce, "An Incomplete Dairy Ranching History and Outline of Land use in the Marin Headlands," 1993, GOGA PARC, file 6468 F-1, 3.

116 Luce, 5; "Antoine Borel Dies," *New York Times*, 29 March 1915.

117 Toogood, 195–196.

118 "Gioli Ranch Changes its Proprietor," *Sausalito News*, September 17, 1904, vol. 20, no. 38, 3.

119 Luce, 5.

120 Luce, 1898 and 1910 maps. No documentation has been found on the tenant farmers who ranched Tennessee Valley during this period.

121 Steve Haller, GOGA Historian, communication with author, September 2010.

122 Seacoast Preservation Manual, 76.

123 Based on 1938 HDSF aerial photographs, assuming there was minimal change since 1917.

124 In 1917, the Army may have used the engineer buildings as officer quarters or barracks, along with other quarters outside of the main post. In ca. 1915, it had built a dwelling east of the Engineer Department area, and another two farther to the north, south of the Quartermaster Area. These three buildings are shown on the 1916 (noted simply as "dwelling") and 1920 Engineer notebook, plans of Fort Barry. No information was found on why these were built outside of the main post.

125 Engle, *Three Beams of Light*, 32–34. The exact location of the gardens is not known.

126 No documentation was found on the tenants of this dairy ranch during the 1890–1917 period.

127 Photograph of the ranch buildings and new barn during construction of Battery Townsley, ca. 1938. The new barn also appears in a 1913 photograph of Rodeo Lake looking west from Fort Barry (see fig. 1.108).

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Baker
1890–1917 Period Plan

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

in partnership with
Department of Landscape Architecture
Center for Cultural Landscape Preservation
SUNY College of Environmental
Science and Forestry, www.esf.edu/la/

SOURCES

1. NPS, Marin County GIS data
2. US Army, Fort Baker maps, ca.1900, 1905, 1909
3. US Army, Forts Baker and Barry map, 1912
4. US Army, Reports of completed works, 1893–1920
5. US Army, Fort Baker, HDSF engineer notebooks, 1911–1920
6. Aerial photograph of Forts Baker and Barry, 1920

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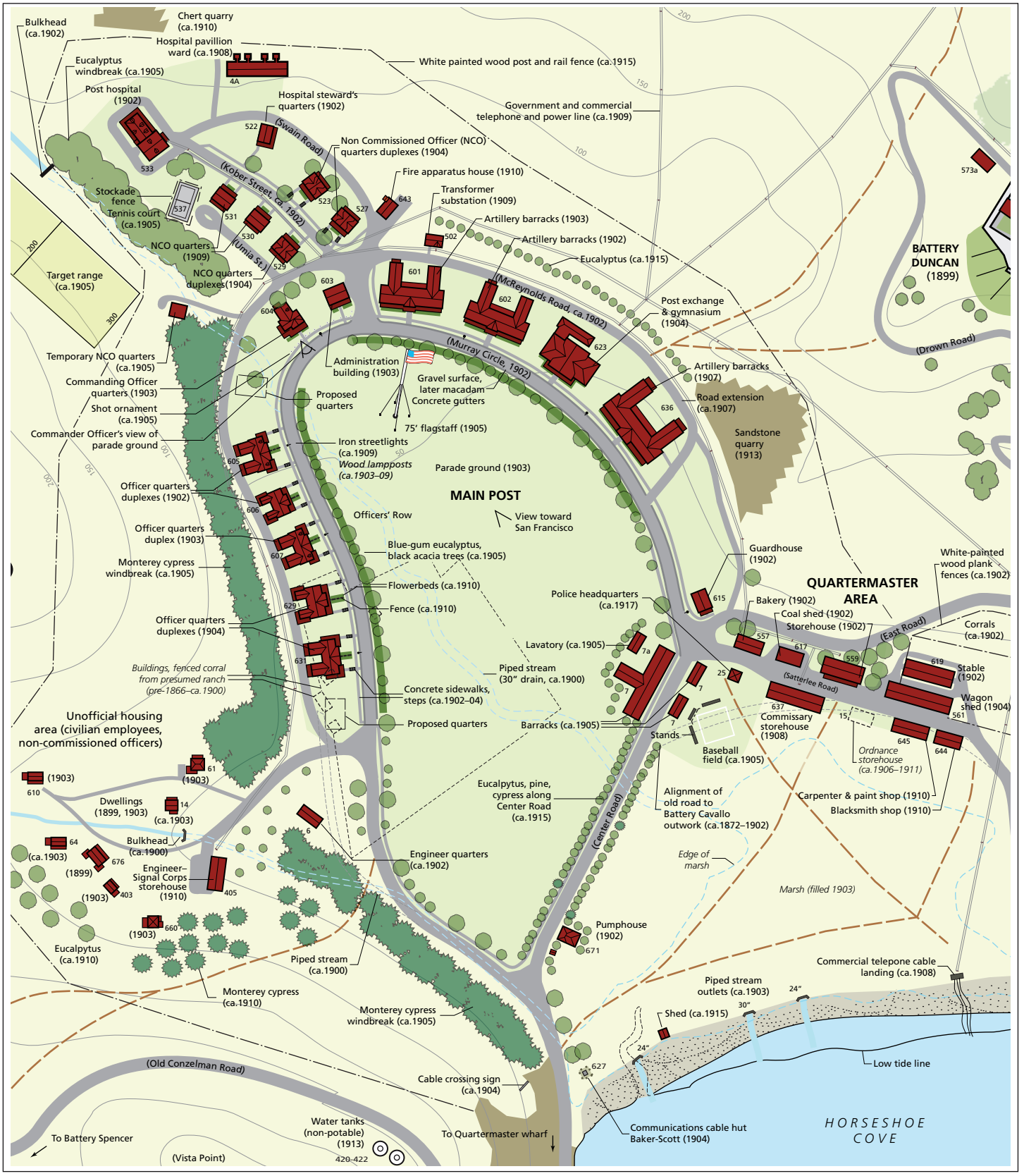
LEGEND

- Property, reservation boundary
- Building
- Structure, substructure
- Road
- Trail
- Post-Civil War-era battery
- Endicott-era battery
- Earth parapet of defensive work
- Water tank, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream, tapped spring or well
- Wetland
- Rock cliffs
- Edge of cut or quarry
- Beach
- 50′ contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1917.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Extent of tree/shrub cover not known due to lack of documentation.
5. Plan does not show overhead or underground utility lines, or all trails and small-scale features.
6. Current road and trail names in parentheses.
7. White mask indicates limits of Fort Baker study area.

Drawing 1.4



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NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1917.
3. Plan does not show all small-scale features.
4. See drawing 1.4 for sources and other notes.

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SUNY College of Environmental Science and Forestry

LEGEND

- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Lamppost
- Power line
- Lawn
- Grassland or bare earth
- Deciduous, conifer tree
- Planted bed
- Woods, shrub cover
- Stream
- Rock cliffs
- Beach
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Baker Main Post
1890–1917 Period Plan Detail

0' 100' 300'

Drawing 1.4a

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Barry
1890–1917 Period Plan

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Center for Cultural Landscape Preservation
SUNY College of Environmental
Science and Forestry, www.esf.edu/la/

SOURCES

1. NPS, Marin County GIS data
2. U. S. Army, Fort Barry maps, 1908, 1919 updated to 1927
3. U. S. Army, Forts Baker and Barry map, 1912
4. U. S. Army, Reports of completed works, 1905-1919
5. U. S. Army, Fort Barry, HDSF engineer notebook maps, 1915-20
6. Aerial photograph of Forts Baker and Barry, 1920

DRAWN BY

John Auwaerter, Laura Roberts, Illustrator CS5, 2011

LEGEND

- Property, reservation boundary
- Building
- Structure, substructure
- Road
- Trail
- Endicott-era battery
- Earth parapet of defensive work
- Water tank / cistern, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream, tapped spring or well
- Wetland
- Rock cliffs
- Edge of cut or quarry
- Beach
- 50′ contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1917.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Extent of scrub cover not known due to lack of documentation.
5. Plan does not show above- or below-ground utility lines, or all trails and small-scale features.
6. Current road and trail names in parentheses.
7. White mask indicates limits of Fort Barry study area.

Drawing 1.5

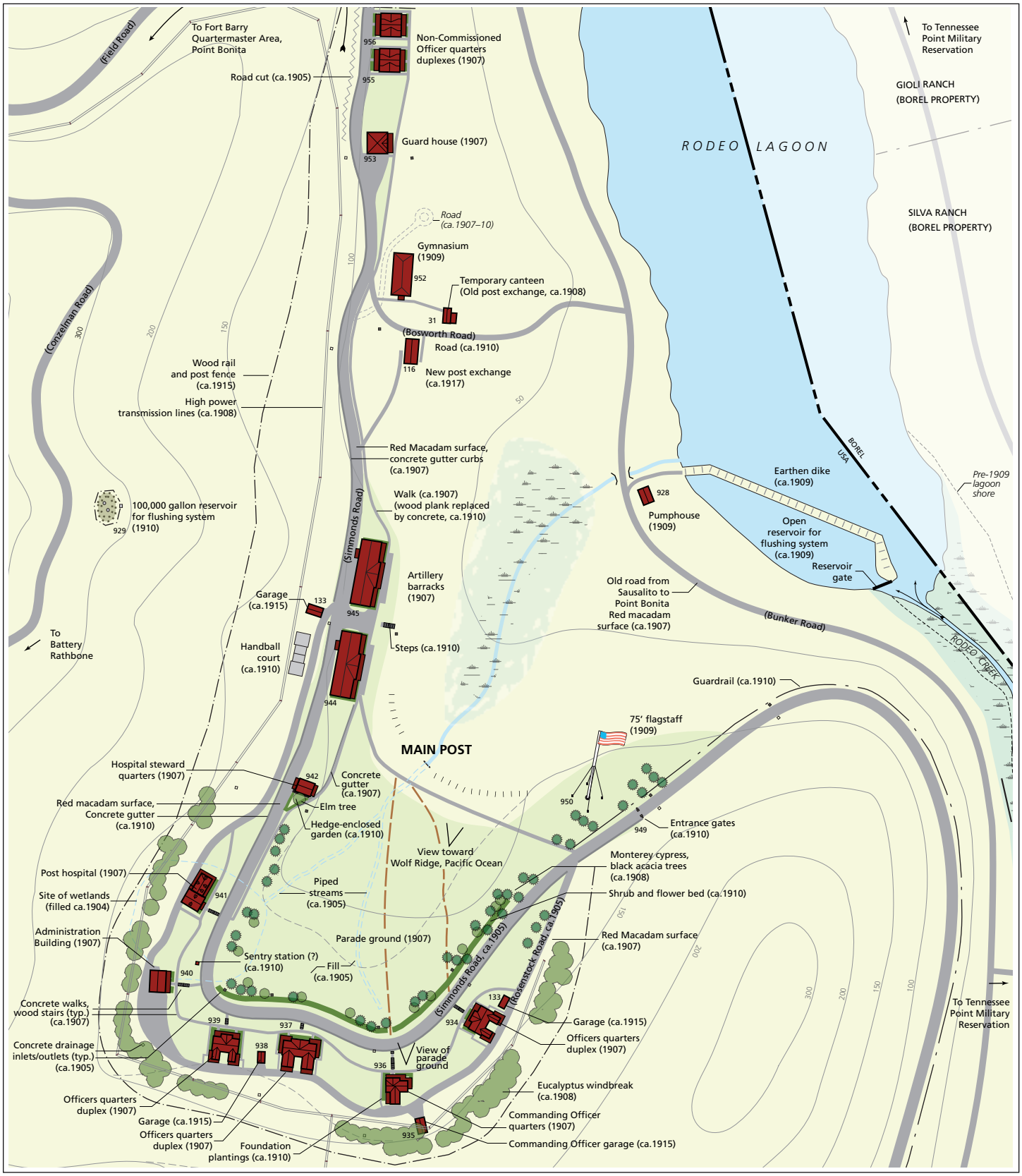
Period Symbols and Abbreviations

F Fire command station
BC Battery commander's station
B Battery fire-control station
M Mine command station
FC Fire Command
Mine casemate
Searchlight, 36″ or 60″ dia.
Submarine cable terminal
Switchboard room
Meteorological station

Numbers after station abbreviations indicate primary (1), secondary (2) and supplementary (3 and higher) stations.
Stations are shown by designation on engineer notebook map, 1915 revised 1916 (simplified from historic symbology).
3rd FC (Fire Command): Battery Alexander 4th FC: Batteries Mendell, Guthrie

Building Key: See Appendix A (Fort Barry)
Building numbers reflect latest Army designation (to ca.1970)

0′ 400′ 800′ 1,600′



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NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1917.
3. Plan does not show all small-scale features.
4. See drawing 1.5 for sources and other notes.

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LEGEND

- Property, reservation line
- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Drain inlet, outlet/box
- Power line
- Lawn
- Grassland or bare earth
- Deciduous, conifer tree
- Planted bed
- Woods, shrub cover
- Stream, wetland
- Cut, fill
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Barry Main Post
1890–1917 Period Plan Detail

0′ 100′ 300′

Drawing 1.5a



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NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1917.
3. Plan does not show all small-scale features.
4. See drawing 1.5 for sources and other notes.

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LEGEND

- Building
- Structure, substructure
- Road
- Trail, walk, stairs
- Fence
- Earth parapet of defensive work
- Lawn
- Grassland or bare earth
- Planted conifer tree
- Garden bed
- Stream
- Rock cliffs
- Beach
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Bonita Ridge Area
1890–1917 Period Plan Detail

0′ 100′ 300′

Drawing 1.5b

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Cronkhite
1890-1917 Period Plan

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Center for Cultural Landscape Preservation
SUNY College of Environmental
Science and Forestry, www.esf.edu/la/

SOURCES

1. NPS, Marin County GIS data
2. Tamalpais Land & Water Co., Map #3, 1892
3. USGS Tamalpais Quadrangle, 1897
4. Sanborn, Tourists' Map of Mt. Tamalpais, 1898
5. Map of Rancho Saucelito/Borel Property, 1906
6. Army Corps of Engineers, Fort Barry/Borel property,1925

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LEGEND

- Period property boundary
- Tenant ranch boundary
- Building
- Structure
- Road
- Fence
- Grassland, earth
- Woods, shrub cover (riparian, chaparral)
- Open water
- Stream, spring
- Wetland
- Rock cliffs
- Beach
- 50' contours

NOTES

1. Plan shows landscape in 1917.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date, e.g.(1910)
4. Extent of tree and shrub cover is not known due to lack of documentation.
5. Location of fences and roads in Gioli ranch not known.
6. White mask indicates limits of Fort Cronkhite study area.

Drawing 1.6



Period Symbols and Abbreviations

B2 Secondary battery fire-control station

Searchlight, 60" dia.

Stations are shown by designation on engineer notebook map, 1915 revised 1916.

4. World War I to World War II, 1917–1945

The years from World War I through World War II witnessed the continued adaptation of the headlands landscape to the changing strategy and technology of harbor defenses. The headlands were relatively quiet through the late 1930s, with the notable exception of the Golden Gate Bridge and its approach roads that were built across Fort Baker. At the time of the bridge's completion in 1937, the military was beginning a modernization program that led to the addition of Fort Cronkhite in 1937 on the ranches north of Fort Barry. The overall structure of the old reservations developed during the Endicott-Taft period remained largely intact, but was supplemented by an extensive array of new secondary defenses and post facilities. Armament continued to shift toward the outer harbor and Pacific Ocean, leaving Fort Baker largely as a support facility, except for its role in the harbor's submarine mine system. Navigational aids administered by the U.S. Coast Guard continued to serve the busy waters of the Golden Gate alongside Army fire-control stations and searchlights. The outbreak of World War II in December 1941 brought about the final build-up of harbor defenses in headlands with the addition of a major gun battery, anti-aircraft defenses, radar systems, searchlights, and numerous field defenses. Much of this infrastructure was camouflaged to fit in with the natural landscape, from view of both sea and air.

WORLD WAR I

While the outbreak of war in Europe in 1914 posed little direct threat to San Francisco harbor, it introduced advances in naval guns that greatly exceeded the range of the old Endicott-Taft harbor defenses. In response, the Army began planning another modernization program, while concluding construction on the last of the Taft-era improvements at the headlands: the searchlights and two fire-control stations at Tennessee Point built in 1915, and two fire-control stations below Bonita Ridge completed in early 1917.[1]

By the end of 1915, the War Department issued a comprehensive report calling for a national four-year modernization program, and Congress authorized funding for battery construction and land acquisition in July 1916 to prepare for possible U.S. entry into the war.[2] At San Francisco, the program included development of a new reservation on the Pacific Coast well south of the Golden Gate, dedicated in 1917 as Fort Funston (fig. 4.1).[3] At the headlands, the modernization program proposed construction of new mortar and long-range gun batteries at Fort Barry to begin in 1917, and development of a submarine mine depot at Fort Baker. District engi-



Figure 4.1 (above). Map of the San Francisco Harbor Defenses showing reservations of the period from World War I through World War II, including the addition of Forts Funston and Cronkhite. (SUNY ESF)

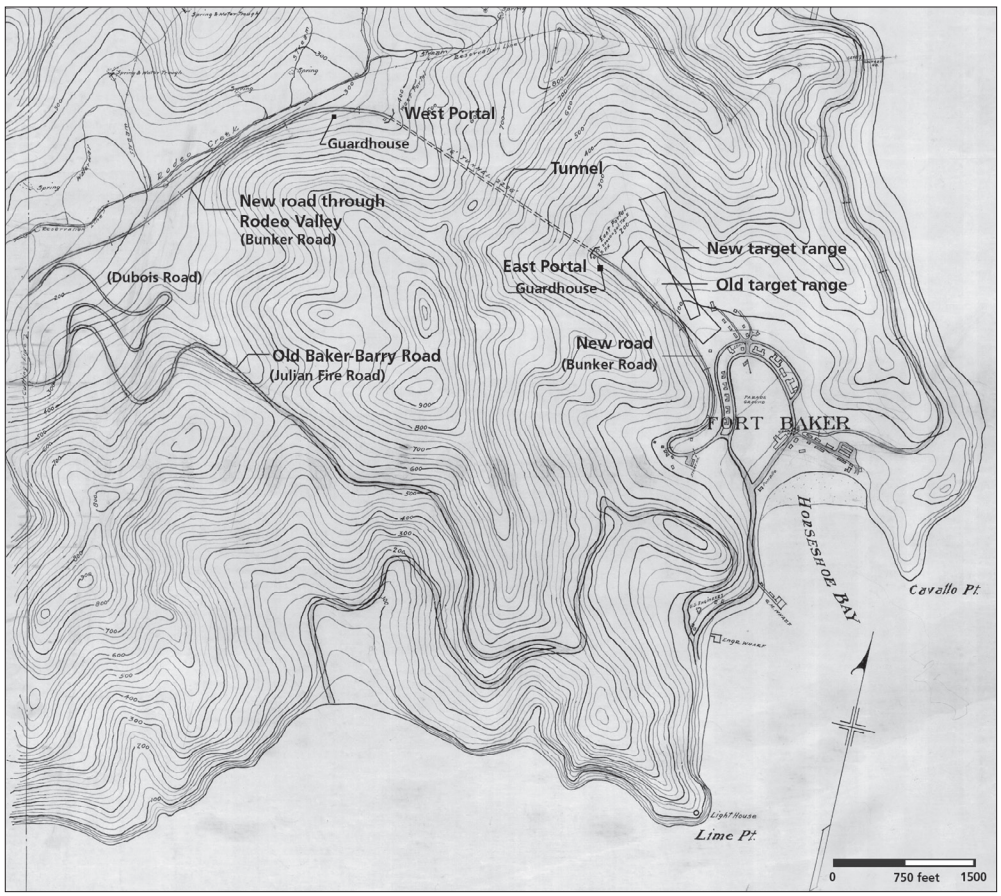


Figure 4.2. Map of Fort Baker showing the tunnel and roads to Fort Baker completed in 1918. (Constructing Quartermaster's Office, "Post Map of Fort Baker and Fort Barry," sheet 1, 1925, Golden Gate National Recreation Area, Park Archives and Records Center, D181 F1, annotated by SUNY ESF)



Figure 4.3 Buildings and structures at the East Portal, photographed 1939. Clockwise from upper left: Sentry station (1919), East Portal (1918, rebuilt ca. 1939), 200,000 gallon water tank (1919), and pumphouse (1919). The sentry station was demolished in ca. 1942 when a guardhouse was built across the road. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32426)

neers in San Francisco also prepared plans for an anti-aircraft gun battery at Fort Barry.[4]

To prepare for the modernization at Fort Barry and improve its precarious land connection with Fort Baker, the Army announced plans in 1916 for building a tunnel to replace the winding, steep road over Diablo Ridge (Julian-Dubois Road). The 2,000-foot-long tunnel and its connecting roadways were completed and turned over to the troops on September 21, 1918. The tunnel was located under a high ridge that provided the shortest connection between the Fort Baker main and Rodeo Valley, and featured poured concrete arched portals with wing walls (fig. 4.2, 4.3, 4.4). The new connecting road to the east (East Bunker Road) branched off the road to the old civilian employee area on the west side of the Fort Baker main post, and required cutting into the steep hillside. To make room for the new road, the Baker target range was shifted east and redesigned as a longer field. On the west side of the tunnel, the new road (West Bunker Road) was extended to where the old road (Dubois Road) entered Rodeo Valley east of the rifle range. The Army completed construction of concrete sentry buildings at both ends of the tunnel, known as the East Portal and West Portal, by 1919. At the same time, a pumphouse and 200,000 gallon wood water tank were built along the north side of the East Portal, together with another pump house 400 feet to the east. These new facilities supplemented an earlier pumphouse nearby that was built in 1909 as part of a spring-fed water system.[5]



Figure 4.4. The West Portal (1918) and sentry station (1919) on the south side of Bunker Road, photographed 1940. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32426)

By 1917, the Army had dropped its proposal for a second mortar battery at Fort Barry, but was beginning work on the long-range gun battery (later named Battery Wallace) located on a ridge south of Battery Alexander between the Quartermaster area and Engineer Department buildings (figure 4.5). In marked contrast to the Endicott batteries, plans called for two open, circular concrete gun platforms capable of full rotation, placed 420 feet apart, without protective earthen or concrete parapets. Access to the site was by a road from the Quartermaster Area. To build the battery, Army engineers reopened the sand quarry along the gully north of Battery Mendell and apparently used rock from North Bonita Hill, which was being leveled. The old sand tramway erected in 1901 still stood and may have been used for the new construction.[6]

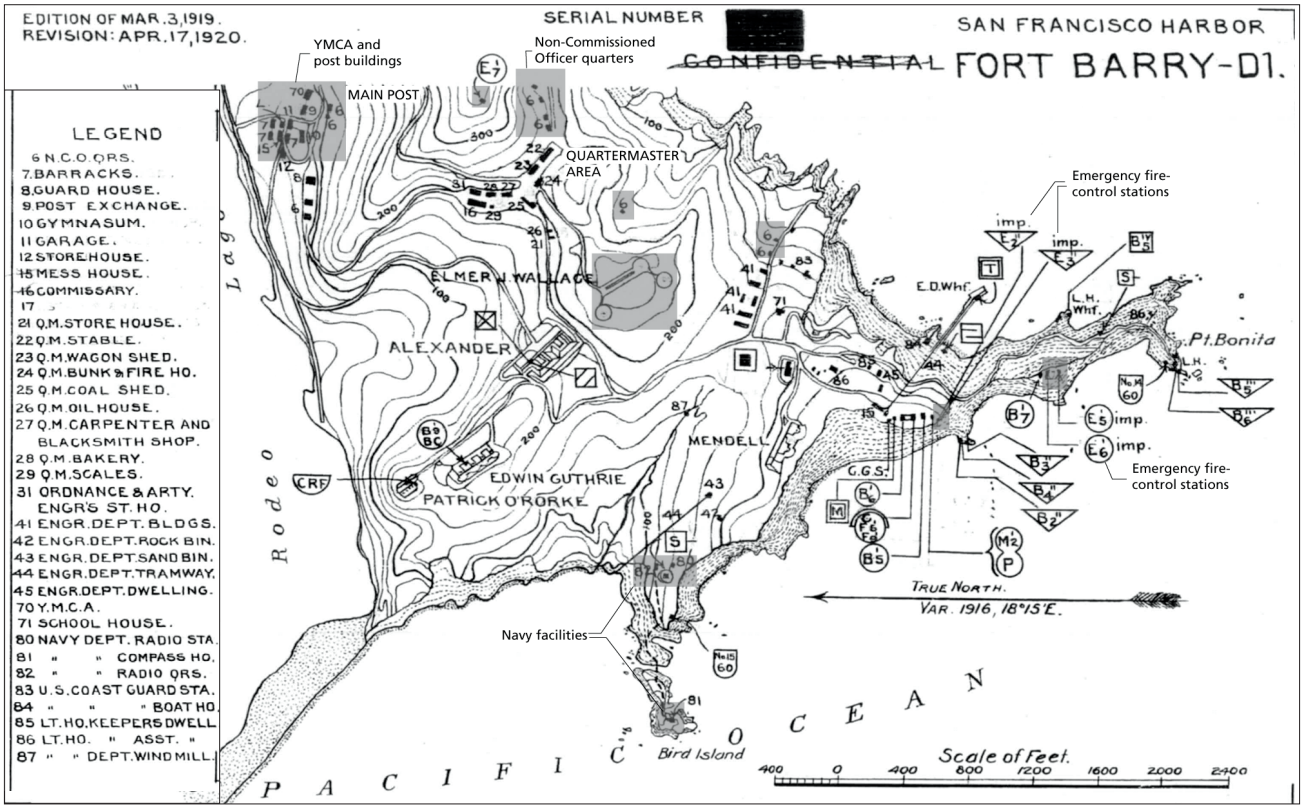
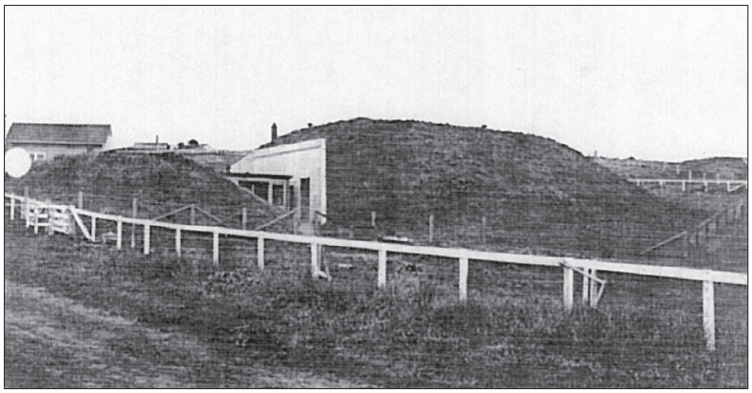


Figure 4.5. Map of Fort Barry annotated to show defensive works, post facilities, and Navy facilities added during the World War I era (labeled and shaded gray; note north is to the left). Battery Wallace was not completed until 1921. The "imp." designation at the fire-control stations stands for "improvised." Several of the Non-Commissioned Officer quarters (#6) were erected in ca. 1915, prior to U.S. entry into the war. (Army Engineer Notebooks, Fort Barry map, March 3, 1919 updated to April 17, 1920, annotated by SUNY ESF, National Archives I, RG 77, Entry 220)

Figure 4.6. The Fort Barry mine casemate built in 1908, looking northwest showing recently completed earth cover and concrete parapet wall, ca. 1919. Behind the parapet at left is the switchboard room. The gabled building in the background was the Engineer Department's cement storehouse. The rail fence kept grazing livestock off the earthworks. (U.S. Army, Reports of Completed Works—Seacoast Fortifications, Fort Barry, Mine Casemate, updated to September 28, 1942, National Archives II, RG 77, Entry 1007)



With U.S. entry into World War I in 1917, the Army accelerated its modernization program and added a number of secondary defensive works, but postponed plans for the Fort Baker mine depot and Fort Barry anti-aircraft battery. Construction of the gun platforms at Battery Wallace was finished in 1918, but the battery remained incomplete through the war without guns, fire-control stations, or magazines.[7] Other batteries received new supplemental fire-control stations. In 1917, troops built two temporary wooden fire-control stations, designated as "emergency" stations, at the south end of the Bonita Ridge cluster of stations at Fort Barry. These were secondary stations for Batteries Livingston and Springer located across the Golden Gate at Fort Miley. Around the same time, two additional emergency stations for Batteries Mendell and Alexander were built on the top of the hill midway on Point Bonita, above the lighthouse tunnel. Another three temporary frame emergency stations, for Batteries Mendell, Alexander, and Wallace, were built along the eastern or uphill property line of the Tennessee Point Military Reservation. War-time improvements there also included construction of a second

controller booth for Searchlights 16 and 17.[8] The mine casemate at Fort Barry was remodeled in 1918 with the addition of bomb-proof earth cover that was planted in iceplant to hold the steep slopes (fig. 4.6). The only visible structure was a new concrete parapet wall facing the switchboard room, and vent stacks that protruded above the earth cover.[9]

Aside from Army defensive works, the World War I years also saw the first Navy facilities built on the headlands. In ca. 1917, the Navy built a radio station neighboring the Army's searchlight #15 powerhouse north of Battery Mendell near Bird Island. The fence-enclosed station complex included a shingled one-story dwelling for the keepers and two smaller ancillary buildings (figs. 4.7, 4.8). A large shed was outside of the fenced area. The Navy maintained a separate compass house on Bird Island, accessed by a footbridge suspended across the rocky cliffs. It is not known where the radio antennae or other equipment were located.[10]

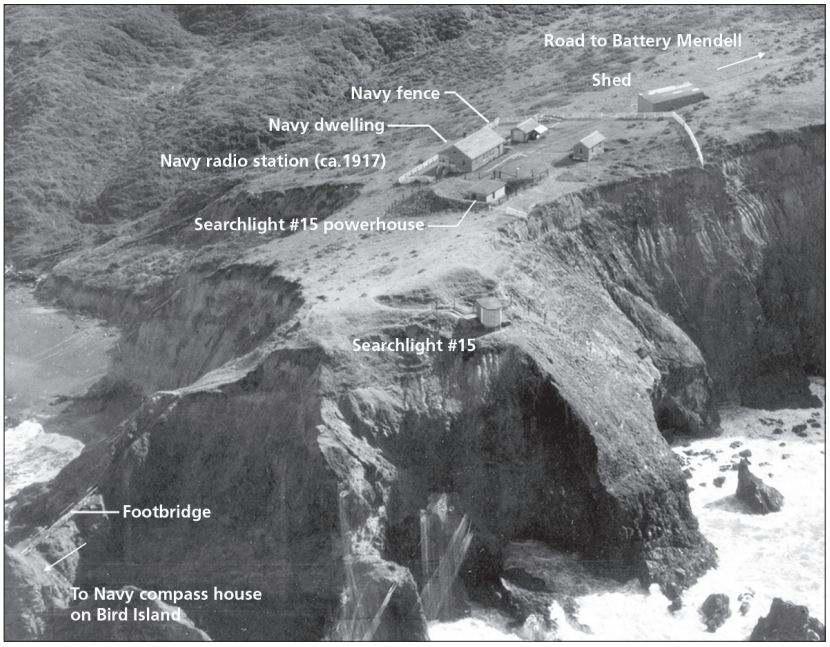


Figure 4.7. The fence-enclosed Navy radio station near Bird Island built in ca. 1917, looking east, 1938. The searchlight and its powerhouse were built by the Army in 1912. (Harbor Defenses of San Francisco aerial photograph annotated by SUNY ESF, National Archives II, RG 499, E118)

The Army built a number of temporary support buildings at Fort Barry in ca. 1917 around the time of U.S. entry into the war. Identified as 600 Series buildings, these included three barracks, a storehouse, a mess hall, and a new post exchange at the west end of the main post (fig. 4.9, see also fig. 3.77). Across the road from the post exchange, the hillside was cut back for the construction of two non-commissioned officer quarters. In 1918, the Army erected a firehouse with corrugated metal siding and



Figure 4.8 (bottom). The dwelling (#997) looking north, and one of the outbuildings (#998) looking west at the Navy radio station near Bird Island, photographed ca. 1939. The Navy transferred both buildings to the Coast Guard after World War I, and they were transferred to the Army in 1936. The dwelling served as non-commissioned officer quarters. (Fort Barry Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)

a hose-drying tower, which was built on a terrace retained by concrete walls, between the post hospital and the barracks (fig. 4.10). The war-time build-up also included one additional quarters building at the Engineer Department area and three at the Quartermaster area. These three were small houses along the north side of a road in back of the stables, two of which were for enlisted men, and one for civilian employees.[11]

In contrast to the increased development of defensive works at Fort Barry, the World War I years were a time of decline for the defenses at Fort Baker as the Army's strategic focus continued to shift west toward the outer harbor. Combined with the demand for armament overseas, this shift led to the disarming of Battery Orlando Wagner and Battery Duncan in 1917. Their guns were shipped for overseas duty in 1918. Battery Kirby had one of its guns removed in June 1918, but retained the other until 1933.[12] Despite this strategic decline, Fort

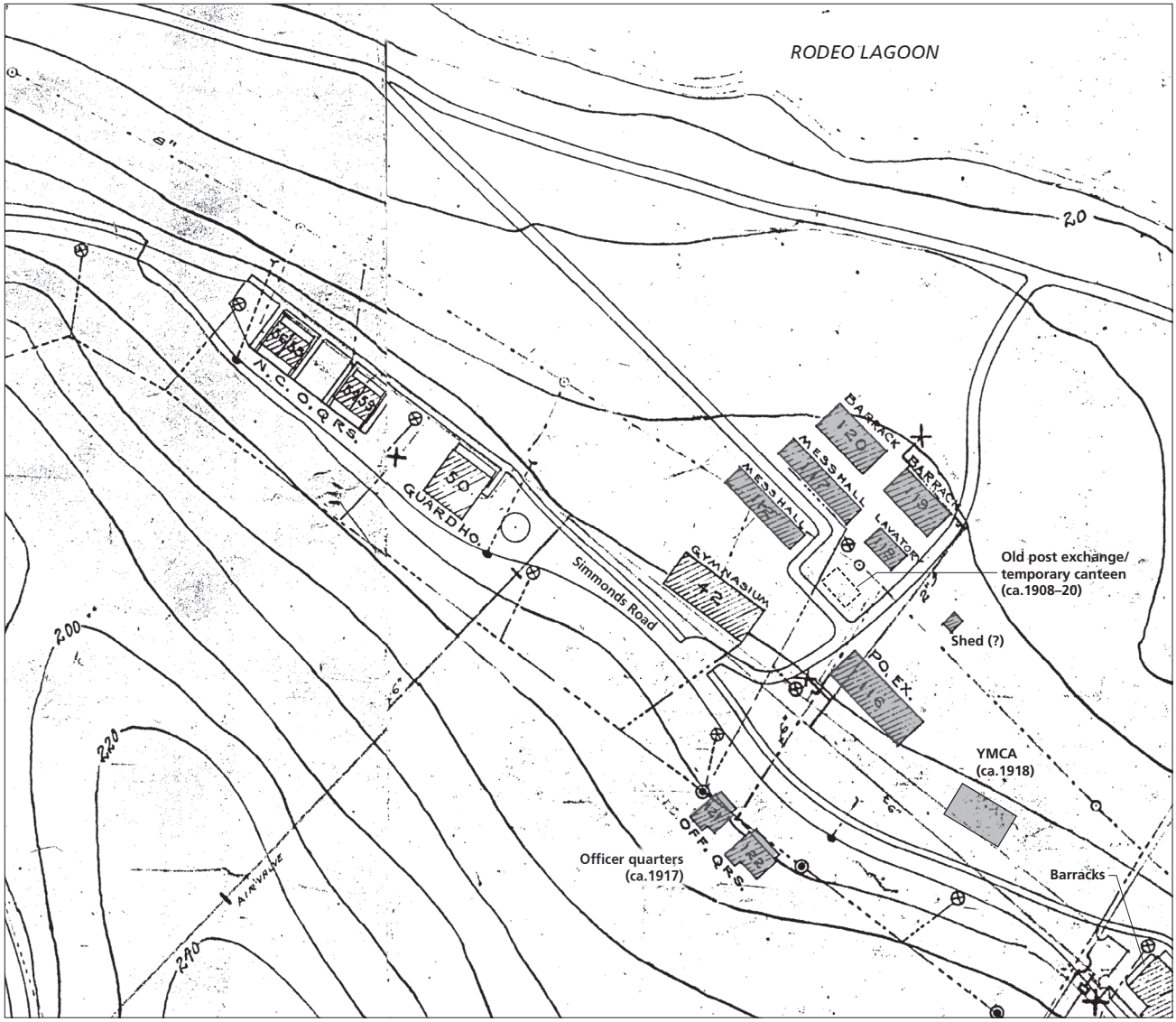


Figure 4.9. Plan of the west end of the Fort Barry main post showing World War I-era support buildings (shaded) added in ca. 1917, and the YMCA built in ca. 1918. (Detail, U.S. Army, "Fort Barry, California," 1919, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center)





Figure 4.10 (top). The firehouse at the Fort Barry main post erected in 1918, looking west, ca. 1939. (Fort Barry Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)

Figure 4.11 (bottom). The YMCA building at Fort Baker main post completed in 1918, looking southeast from the parade ground, ca. 1939. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32426)

Baker remained the primary support area at the headlands, and the Army continued to invest in its upkeep and improvement. In 1918, for example, a new storehouse was completed in the Quartermaster area at the site of the ordinance storehouse that had been destroyed by fire in 1911. Around the same time, a corral and small stable were added at the rear of the post hospital.[13]

Both Forts Baker and Barry received support during the war years from the Young Men's Christian Association (YMCA), which had been involved with the military since the Civil War. World War I was a time of unprecedented involvement by the YMCA both overseas and at home through services that addressed morale, welfare, recreation, and rest and relaxation.[14] As part of its domestic support, the YMCA built facilities of its own at both main posts of Forts Baker and Barry in 1918. The Fort Baker YMCA building was constructed on the vacant barracks site north of the guardhouse, facing west across the parade ground. It was a frame building on a concrete foundation measuring 50 by 80 feet, with projecting wings surrounding an open front porch (fig. 4.11). The Fort Barry YMCA was built around the same time at the western end of the main post near the World War I temporary buildings west of the barracks (see fig. 4.9). Aside from its location, little record of this building remains.[15]

INTERWAR YEARS

The years after World War I through the early 1930s were a quiet time at the headlands, aside from installation and completion of several defensive works at Fort Barry, and some improvements at the Fort Baker main post. In 1921, the Army disbanded Fort Barry's permanent garrison, leaving its main post empty for the next eighteen years, except for a few soldiers from Fort Scott on caretaker duty. The departmental rifle range, however, continued in use by companies from throughout the West. The Army placed Fort Baker on inactive status in 1922 and garrisoned it with a small caretaking detachment from Fort Winfield Scott for the next decade. In 1924, the Army reorganized the old Coast Defenses with a new



Figure 4.12. Crowds on Cavallo Battery watching the Pacific Fleet enter San Francisco Bay, looking east, September 1, 1919. (Private collection of Paul Judge)



Figure 4.13. Hikers on the road to Tennessee Point, looking south from the Silva Ranch across Rodeo Creek toward Bunker Road in Fort Barry, 1935. The cut in the hill is the road to the Barry main post (Simmonds Road). (Private collection of John Martini)

command, the Harbor Defenses of San Francisco, based at Fort Winfield Scott.[16]

During the interwar years, the public rediscovered the headlands following war-time security restrictions and with the proliferation of automobiles that made the once remote headlands easier to access. The entrance of the Navy's Pacific Fleet on September 1, 1919, for example, brought many hundreds of visitors to Fort Baker. The field south of the parade ground became a giant parking lot for these visitors, who climbed the nearby parapets of Cavallo Battery to view the ships (fig. 4.12). The headlands also were publicized as a favorite spot for outdoor recreation. A hiking map published in 1925 recommended the "Point Bonita Hike," which directed visitors to take the ferry to Sausalito, walk south along the road to Fort Baker (East Road) to enjoy the "beautiful panorama of the Bay," and then, following the Baker-Barry road (Bunker Road), continue west toward Point Bonita. The guide recommended Rodeo Beach as "an excellent lunching place."[17] Hikers could also take ranch roads and trails from Sausalito to Rodeo Beach, and access Fort Barry through the road to Tennessee Point Military Reservation within the Silva ranch (fig. 4.13).

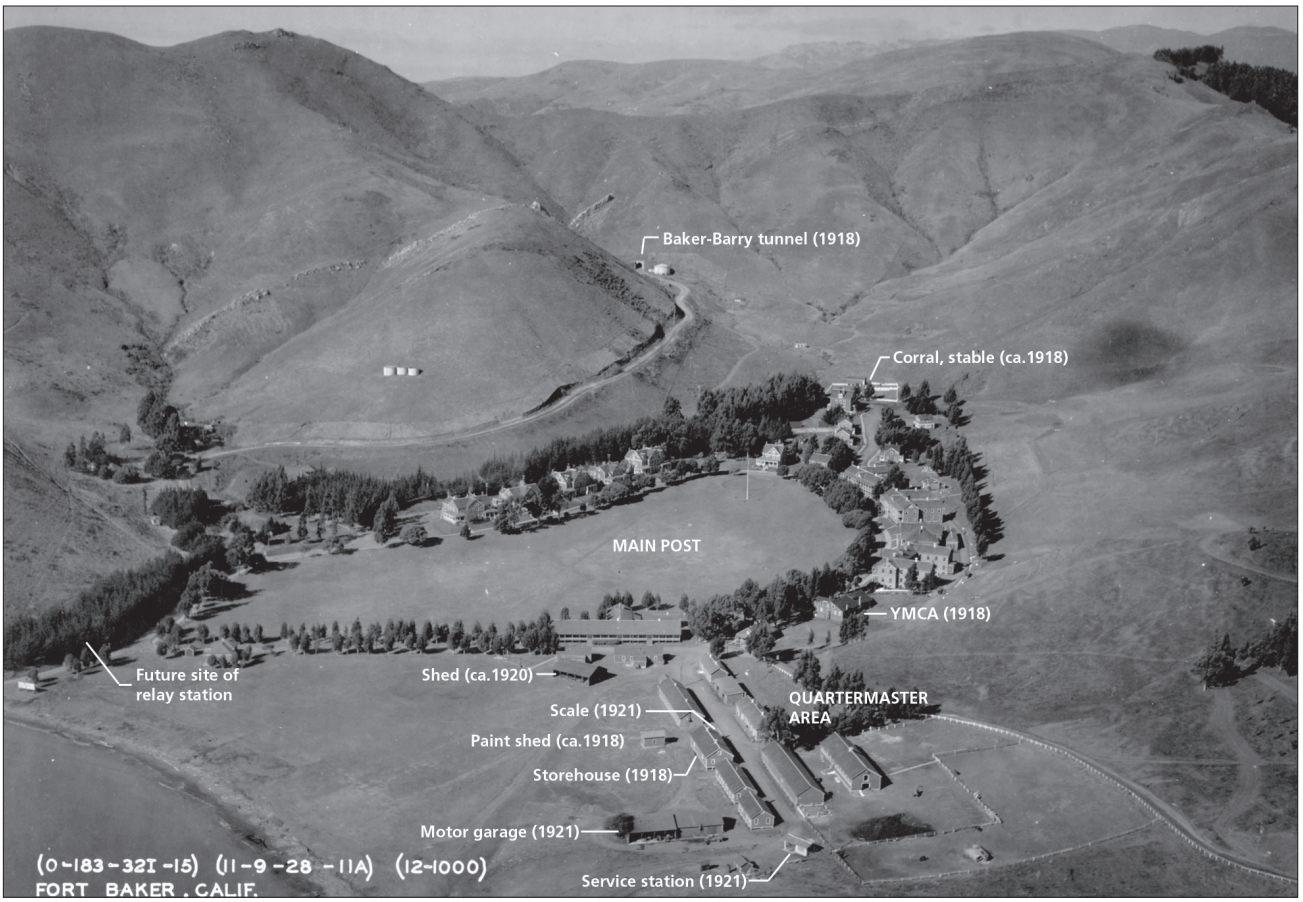


Figure 4.14. The Fort Baker main post and Quartermaster area showing features added at the close of World War I and following decade, looking northwest, February 1928. (Harbor Defenses of San Francisco photograph annotated by SUNY ESF, National Archives II, image B17183005)

POST FACILITIES THROUGH THE EARLY 1930S

After the end of World War I, the Army undertook a number of improvements at the main post of Fort Baker, perhaps making use of available labor from returning troops prior to being placed on inactive status in 1922. In 1920 a motor garage was built at the east end of the Quartermaster area, and around the same time, an open shed was built where the baseball field had been (fig. 4.14). The following year, a scale used to weigh trucks and wagons was added to the Quartermaster area between the new storehouse and the brick commissary storehouse, and a service station, much like commercial filling stations that were appearing along public highways, was built across from the motor garage. This one-story masonry building featured a covered drive-through portico sheltering the gas pumps, and an office area (fig. 4.15).[18]



Figure 4.15. The service (gas) station in the Fort Baker Quartermaster area erected in 1921, looking northeast with the Quartermaster corral and Duncan Hill in the background, ca. 1939. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32426)

After Fort Baker was placed on caretaker status, new construction largely ceased over the next decade, and several features disappeared, notably the target range, and flowerbeds around the parade ground and in front of the officer quarters. The only buildings added

were an ambulance garage near the hospital and a garage behind the hospital steward's quarters in ca. 1925, and a telephone or electrical relay station along Moore Road off the south end of the parade ground in ca. 1928. This building was designed in a Mission Revival style that the Army used at Fort Winfield Scott, and was located within the cypress windbreak that had grown up into a dense, dark grove (see fig. 4.14).[19] The other trees at the post had also matured by this time, creating a nearly continuous border around the parade ground.[20]

Because Fort Barry had been developed with a number of temporary buildings during World War I, it underwent greater change than Fort Baker in the decade after World War I. At the main post, all of the temporary Series 600 buildings, including the group of barracks and mess hall at the main post, along with the adjoining non-commissioned officer quarters and the YMCA, were removed by 1925. The remote non-commissioned officer quarters near the Quartermaster and Engineer Department areas were also demolished. Without its garrison, the features of the main post that reflected permanent residency were removed, including the handball court and the flowerbed around the parade ground. The clusters of Monterey cypress trees continued to ring the parade ground, with the eucalyptus windbreak on the hillside at the rear, and the buildings and lawns continued to be maintained (fig. 4.16).[21]



Figure 4.16. The empty Fort Barry main post during the quiet interwar years looking north, November 1928. The valley with the buildings and grove of trees in the background was part of the privately-owned Silva ranch north of Rodeo Valley. (Harbor Defenses of San Francisco photograph, National Archives II, image B17213008)

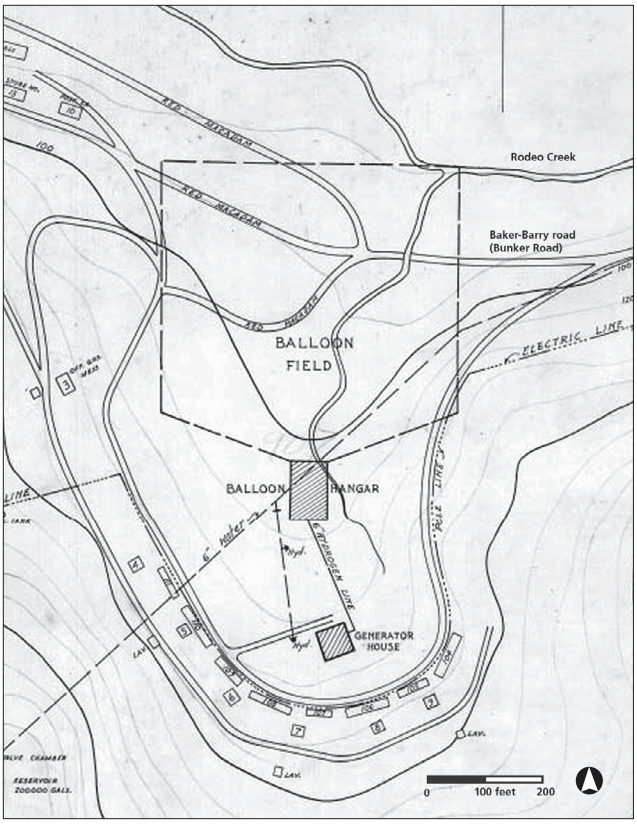


Figure 4.17. Plan of the balloon field, hangar, and generator house as completed in 1921. (Detail, U.S. Army, "Fort Barry-Cal. Showing Balloon Hangar Etc., approved July 27, 1921," Golden Gate National Recreation Area, Park Archives and Records Center, D 213 F1)



Figure 4.18 (right). The Fort Barry balloon hangar completed in 1921, view looking south, 1939. (Fort Barry Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)



Figure 4.19. The balloon hangar and generator building after removal of the adjoining Rifle Range camp buildings, looking west, 1938. (Harbor Defenses of San Francisco aerial photograph, National Archives II, RG 499, E118)

Although the Western Department continued to use the rifle range at Fort Barry, its camp buildings and tent grounds in the adjoining valley were abandoned soon after World War I in favor of more spacious accommodations available in the Fort Baker main post, which was easily accessible by the new tunnel. The old tent grounds instead became a facility for landing and storing observation balloons—hydrogen-filled blimps without rigid frames. In late 1920, the Army announced plans to accommodate the 24th Balloon Company that had arrived at Fort Baker for training the previous spring. At the time, the Coast Artillery was experimenting with balloons to coordinate fire control between batteries.[22] Site work for the balloon hangar began in July 1920 with clearing and grading of a five-hundred-foot-wide landing field, which extended from the camp's tent grounds across the Baker-Barry road and ending near the Army's boundary along Rodeo Creek (fig. 4.17). To create dry, level ground, the Army graded the valley floor and laid down a twelve-inch tile pipe to carry a small stream. The field was surfaced with red chert from a nearby quarry. The hangar, completed in May 1921, was a large steel-frame building with sheet-metal siding, sloping sides and roof, and a pair of tall rolling doors mounted on external steel bents (fig. 4.18). Two hundred feet to the rear was a one-story support building that housed equipment for generating hydrogen gas, connected to the hangar by a six-inch underground gas pipe.[23]

The hangar was used for its designed purpose for only a short time due to the strong winds at the headlands that made the balloons difficult to handle. In November 1921, the 24th Balloon Company relocated from Fort Baker to the Presidio, signaling the end of the Army experiment at the headlands.[24] In the initial development of the balloon hangar area, the Army retained the earlier rifle range camp roads and buildings along the adjoining sides of the valley. At some point after 1921, the buildings were removed, leaving just the concrete pads and road traces (fig. 4.19). [25]

NAVIGATIONAL AIDS

The interwar years saw some changes to the navigation aids at the headlands, but these were mostly small additions and improvements that did not change the overall appearance or operation of the lighthouse and life-saving stations, still characterized by their clusters of tidy white-painted buildings. The stations also faced no additional encroachment by Army defensive works during this time. In 1939, the Lighthouse Service (officially the Lighthouse Bureau), was absorbed into the Coast Guard, giving the new agency control over all navigational aids at the headlands.[26]



Figure 4.20. Map of the lighthouse keepers' area and Life-Saving Station as maintained through the 1930s. The third keeper's dwelling at the tip of Point Bonita was also maintained during this time. (Detail, U.S. Coast Guard, "Bonita Point Coast Guard and Lighthouse Station General Topographic and Location Map," 1940, annotated by SUNY ESF, Library of Congress, Historic American Building Survey no. CA-2795-A-8)

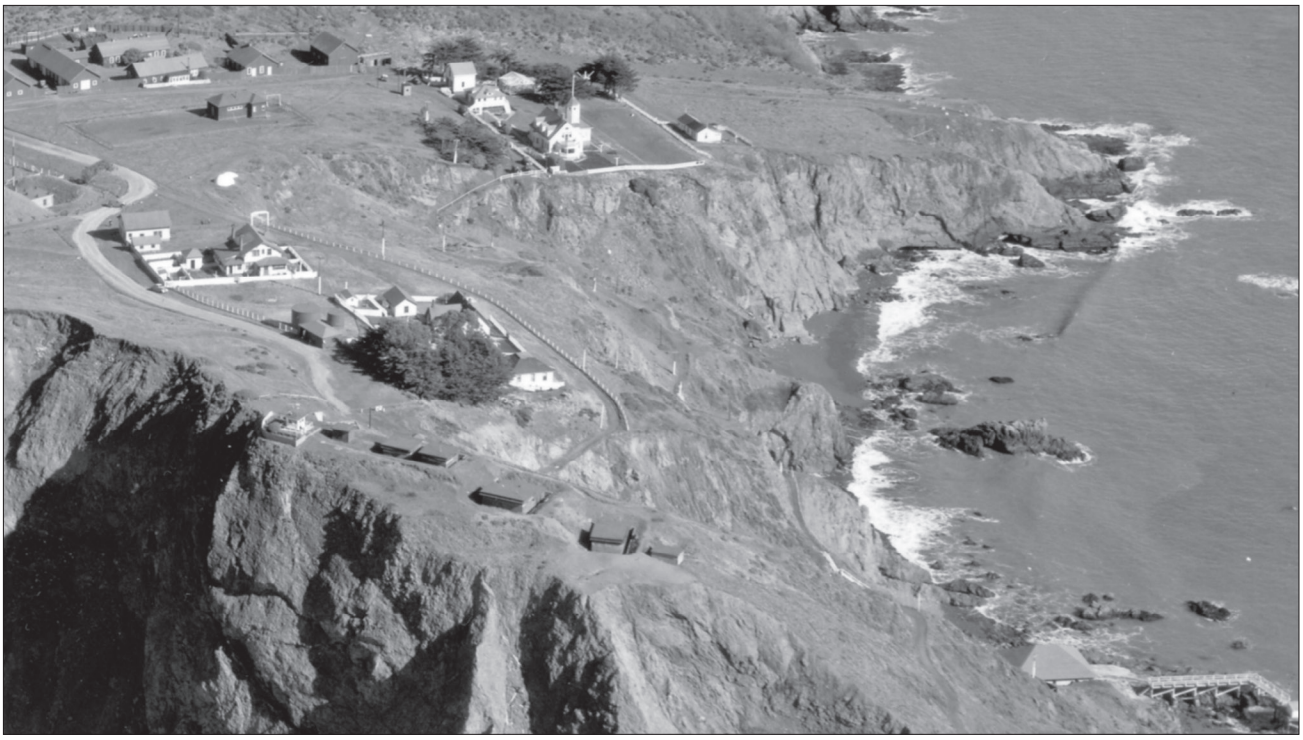


Figure 4.21. The Point Bonita lighthouse keepers' area and Life-Saving Station, looking east, January 1939. At upper left is the Engineer Department area and at lower right is the 1930 boathouse; the structures on Bonita Ridge in the foreground are Army fire-control stations. (Harbor Defenses of San Francisco aerial photograph, National Archives II, image B17207002)

The headlands received two new navigational aids during the post-war years. In 1922, the Army granted the Lighthouse Service a permit to erect a navigational light and fog siren on Point Diablo, housed on top of a small gabled frame shed and accessed by a steep set of stairs, eighty feet above the shoreline. The beacon consisted of an electric light with a twelve-inch electric siren maintained by the keepers of the Lime Point station. The second beacon, an electric light on a low tower without a shed, was erected at Yellow Bluff by the late 1930s. It was also maintained by the Lime Point keepers.[27]

Figure 4.22. The Coast Guard boathouse on Bonita Cove built in ca. 1930, looking north, ca. 1944. At left is the walk to the dock, and in the background is the landslide and long flight of steps that replaced the original access road. (Coast Guard Point Bonita Collection, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 13911)



At Point Bonita, the Coast Guard station, known prior to 1915 as the Life-Saving Station, was still dominated by its white Shingle-style main building. The well-manicured grounds included lawn, a fountain that replaced a water tank, concrete walks, a combination shop and quarters building, and a picket-fence enclosed perimeter (figures 4.20, 4.21). At some point between 1920 and 1938, a small dwelling was erected on the south side of the station grounds outside the fence, replacing an earlier dwelling erected in 1910. Another dwelling was erected in 1938 within the fenced grounds behind the garage.[28]

Following the war, the Coast Guard improved its facilities on Bonita Cove, where the rescue boats were housed. In 1920, it added electric lights, railings, and a new gravel surface to the hazardous cliff-side access road from the station. Around this time, the Coast Guard took over the old Quartermaster wharf, which the Army abandoned due to



Figure 4.23. Point Bonita lighthouse showing removal of the fog signal chimney after electrification in 1926, photographed ca. 1935. (Navy Department photograph, National Archives II image 80-G-71868-2, copy in Golden Gate National Recreation Area archives, GOGA 2316)

its difficult access (requiring a tram) and because automobile transport had replaced shipping for delivery of goods. It was probably not until the late 1920s and following a large landslide, that the Coast Guard rebuilt the wharf into a smaller and shorter dock. This landslide also destroyed the 1912 boathouse, tramway, and part of the road to the lighthouse on the top of the cliff. By 1930, the Coast Guard completed a new, three-bay hip-roof boathouse that connected to the remaining part of the access road by a long flight of steps, and to the dock by a boardwalk (fig. 4.22, see also fig. 4.20). Additional landslides in the gully behind the boathouse occurred in 1930 and 1931, but resulted in little damage to the new building.[29]

At Point Bonita Lighthouse, technological advances during the 1920s and 1930s led to abandonment or removal of several ancillary structures. The light and fog signal were electrified in 1926, which decreased the need for staffing and led to the removal of the water and oil tanks next to the keeper's house and the lighthouse, and removal of the fog-signal chimney along the access path (fig. 4.23). In 1938, the Coast Guard erected a tall steel radio beacon tower to the rear (east) of the lighthouse. At the lighthouse keeper's area, the dwellings were maintained with their ancillary buildings that included sheds and a garage, and their grounds were still enclosed by white picket fences. The engineer office to the west of the main keeper's dwelling, erected in 1901 when work began on the Endicott batteries, was converted to a residence. Despite increasing automation, the Coast Guard needed additional quarters, and took over the house at the Navy's radio station near Bird Island that had been erected in ca. 1917.[30]

DEFENSIVE WORKS

In the five years following the end of World War I, the Army continued to make improvements to its defensive works at the headlands. Aside from Batteries Duncan and Orlando Wagner at Fort Baker, all of the Endicott-era batteries retained armament. Battery Rathbone was improved with two new fire-control stations in 1919, with one erected 550 feet west of the battery and the other approximately 1,000 feet to the east. In 1922, the left flank of the battery was redesignated in honor of James F. McIndoe who was killed in France in 1918 and received the Distinguished Service Cross posthumously. The left flank of Rathbone-McIndoe's sister work, Battery Guthrie, was likewise redesignated in honor of another World War I casualty, Brigadier General Hamilton A. Smith.[31]

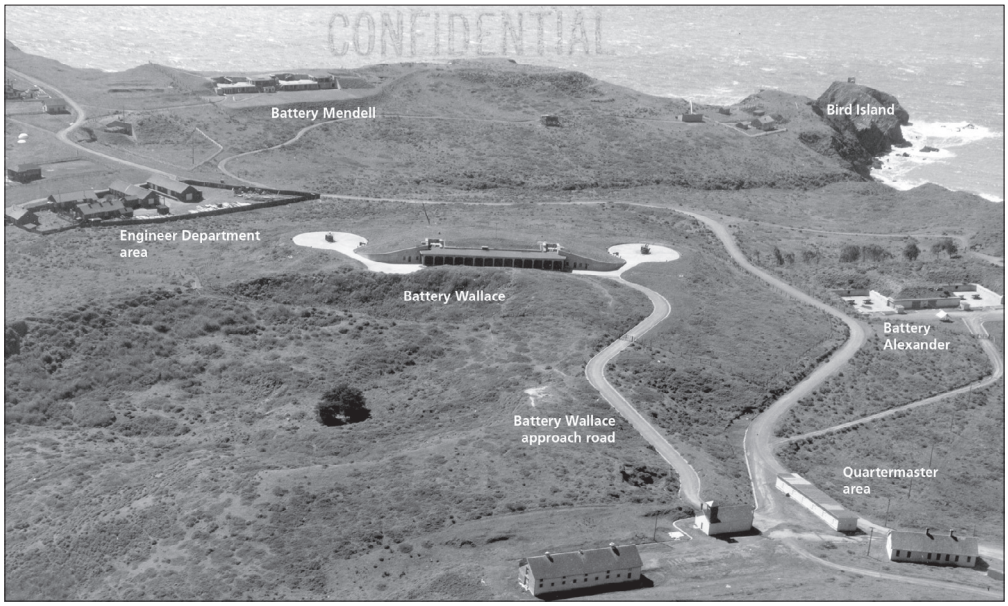


Figure 4.24. Panorama across the southern part of Fort Barry showing Battery Wallace's exposed gun platforms, earth cover, and approach road from the Quartermaster area, 1938. The gun platforms were completed during World War I, the magazines and service rooms in the middle were completed in 1921. (Harbor Defenses of San Francisco aerial photograph annotated by SUNY ESF, National Archives II, RG 499, E118)

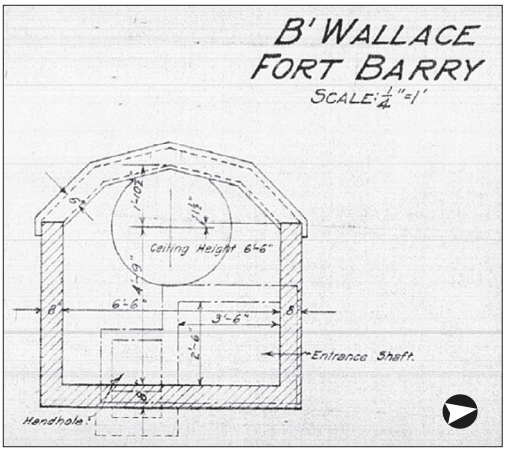


Figure 4.25. Plan of B1 Wallace completed in 1921 on Point Bonita Hill, one of three matching fire-control stations for Battery Wallace. (U.S. Army, Reports of Completed Works—Seacoast Fortifications, Fort Barry, B1 Wallace, 1921 updated to November 1, 1927, National Archives II, RG 77, Entry 1007)

In 1919, the new long-range gun battery begun in 1917 south of Battery Alexander was named in honor of Colonel Elmer J. Wallace, who died in France in 1918. Construction of the magazine and service rooms between the two gun emplacements was begun around the same time, and the completed battery was transferred to the troops in 1921. Battery Wallace marked a departure from the Endicott battery design through greater use of earth cover to protect the structure against bombardment from the air, and the wider spacing of the guns on open platforms (fig. 4.24). The battery was outfitted with three fire-control station completed in 1921. One, initially designed E1 Wallace was built on Rodeo Hill, above the Quartermaster area northeast of the battery. The second, a base-end station designated B1 Wallace, was built on the precarious highpoint of Point Bonita above the lighthouse trail tunnel, known as Point Bonita Hill, next to the two temporary emergency stations built during the war. A third station, E3 Wallace, along with a matching station E2 Mendell, was built along the eastern boundary of the Tennessee Point Military Reservation (Fort Cronkhite), in place of three ca. 1917 temporary stations that had collapsed. These 1921 stations were all concrete structures built into the ground, with angled front windows and shaft entrances through the roofs (fig. 4.25). The design represented the first time that

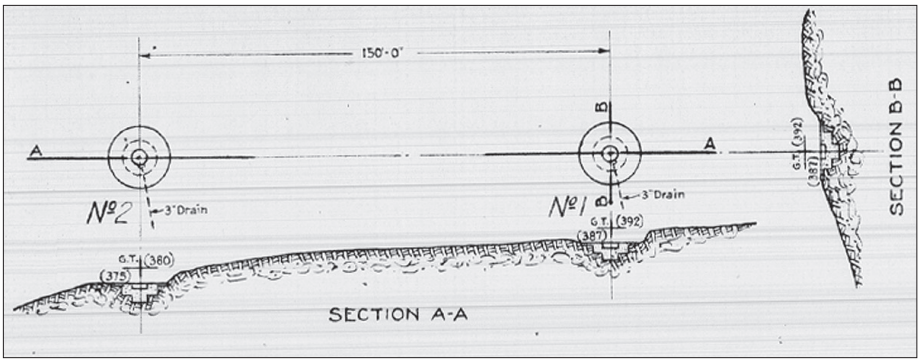


Figure 4.26. Plan and sections of the Fort Barry anti aircraft battery on Rodeo Hill built between 1920 and 1925. (U.S. Army, Reports of Completed Works—Seacoast Fortifications, Fort Barry, Anti Air-Craft Battery, updated to August 1, 1929, National Archives II, RG 77, Entry 1007)

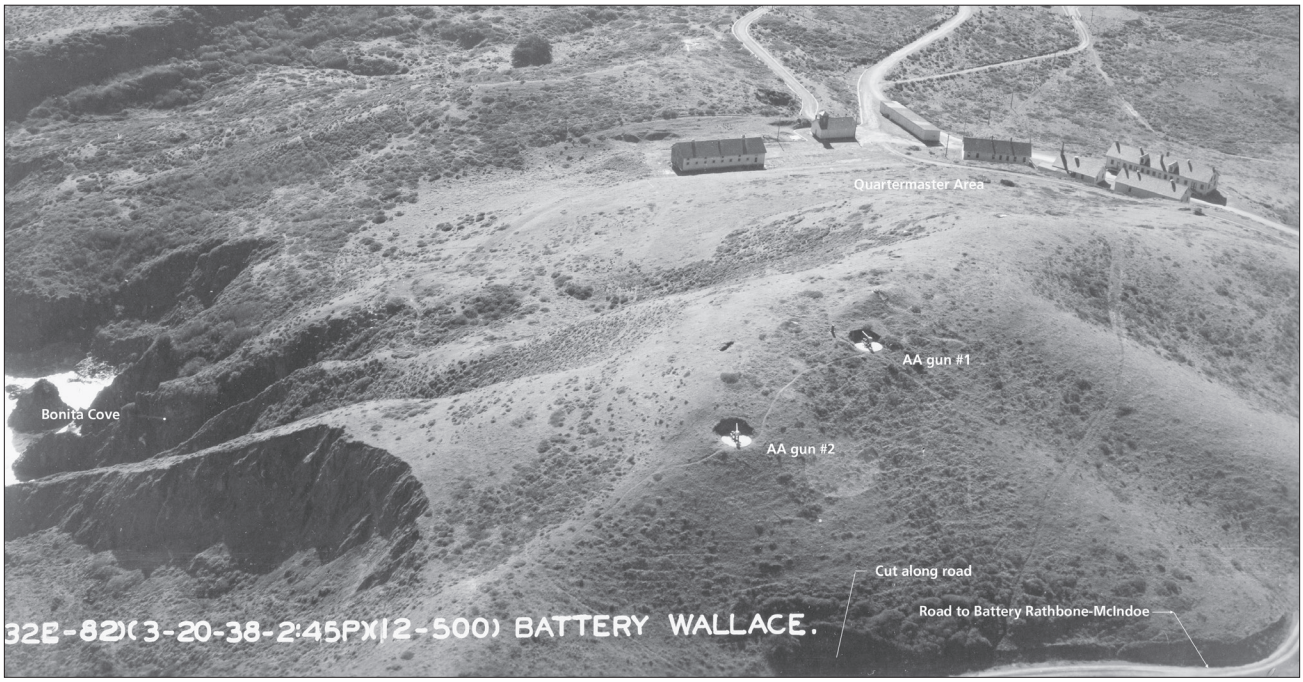


Figure 4.27. Fort Barry anti-aircraft battery on Rodeo Hill completed in 1925, view looking west, 1938. (Harbor Defenses of San Francisco aerial photograph annotated by SUNY ESF, National Archives II, RG 499, E118)

fire-control stations in the headlands were protected and concealed from both air and sea.[32]

Another notable change in defensive works during the immediate post-war years was the Army's installation of fixed and mobile antiaircraft armament in its harbor defenses. At San Francisco, Army engineers first developed plans and estimates for fixed antiaircraft guns in 1916, but not until 1918 were the first appropriations available. Construction began in 1920 on the project that included eight, three-inch guns on fixed mounts, with two each at forts Barry, Winfield Scott, Miley, and Funston. Unlike the major Endicott or newer twelve-inch gun batteries such as Wallace, these fixed anti-aircraft batteries were simple, dispersed works consisting of eighteen-foot diameter concrete gun platforms that allowed for 360-degree fire, and minor, remote structures such as magazines and shelters. The headlands battery, designated "Fort Barry Anti-Aircraft Battery," was located on barren and undeveloped Rodeo Hill, between the Quartermaster area and Battery Rathbone–McIndoe, above the fire-control station for Battery Wallace. The gun platforms, completed in 1920, were located five hundred feet apart and were set into the

grade, which provided some cover toward the southwest (figures 4.26, 4.27). East of the gun platforms, a cut was made into the hillside along the road, presumably to provide a level area where vehicles could be parked or supplies unloaded. The battery was completed in 1925 when the base rings for the guns were set.[33]

Throughout the interwar years, the Army maintained fences around a broad perimeter of the defensive works that most likely dated back to the original construction of the batteries. These were typically wood post and wire fences, such as the one that surrounded batteries Alexander and Wallace (fig. 4.28). At the road entrances were simple gates. Much of the grassland surrounding the batteries by this time was growing into low scrub due to lack of grazing and fire.[34]

In addition to land-based defenses, the immediate post-war years also saw Army engineers begin construction of a large mine depot for the headlands. Located at the Fort Baker waterfront at Horseshoe Cove, the project had been envisioned as early as 1904 as the counterpart to the mine depot at Fort Winfield Scott to service the minefields in the main channel and northern Pacific entry to the Golden Gate. By 1919, planning had advanced to the point where Army engineers were taking borings for the proposed structures, but the only construction undertaken was a concrete extension to the Quartermaster wharf for its planned conversion into a mine wharf. For an unknown reason, development of the mine depot ceased.[35] Perhaps in anticipation of continuing development of the mine depot, the timber bulkhead along the west side of Horseshoe Cove was replaced with a concrete bulkhead in 1932.[36]



Figure 4.28. Aerial photograph of batteries Alexander and Wallace looking southwest showing perimeter fencing and scrubby vegetation, 1938. The line of trees are eucalyptus that were most likely planted soon after the completion of Battery Alexander in 1905. In the background is the Engineer Department area and the Coast Guard station with their own types of fences. (Harbor Defenses of San Francisco aerial photograph, National Archives II, RG 499, E118)

THE GOLDEN GATE BRIDGE

During a period of austerity from the early 1920s through the mid-1930s, the Army undertook little new construction at the headlands, although it continued to plan for future improvement of its defensive works. Most of the changes during this time instead resulted from civilian projects, most notably construction of the Golden Gate Bridge, whose span from Fort Point to Lime Point would make it the longest suspension bridge in the world. Although hesitant about the project for strategic reasons, the Secretary of War issued a provisional permit for the bridge in 1924 to span two military reservations at the narrowest part of the Golden Gate: Fort Winfield Scott on the south at Fort Point, and Fort Baker on the north at Lime Point. Design and construction of the bridge and its approach highways was undertaken by the Golden Gate Bridge and Highway District, a public authority, together with the state Division of Highways. In 1930, after six years of design and planning, the War Department issued a permit for construction that required the bridge district to replace and make good any damages to Army facilities caused by construction. Construction of the bridge and its approach roads began on January 5, 1933, and on May 27, 1937, the bridge was opened to the public.[37]

The alignment of the bridge and its approach road through Fort Baker extended from Lime Point above and along the hillsides west of the main post to the ridge on the north side of the military reservation (fig. 4.29). The Army granted the bridge and highway district a permit for use of the area at Lime Point extending from the old Engineer Camp south to the Lime Point fog station and west to near Battery Spencer. For the highway, the Army granted a right-of-way of varying width from the landing of the bridge viaduct to Fort Baker's northern boundary.[38]

Construction occurred primarily in undeveloped areas of Fort Baker and had relatively little physical impact on Army facilities. The project required realignment of the road to Battery Spencer (Conzelman Road), widening of the road to Lime Point (Moore Road), and addition of an overpass at the Baker-Barry road (Bunker Road) (see fig. 4.29). It also required removal of the Engineer Department area that contained Fort Baker's earliest buildings to allow for construction of the bridge anchorage and approach viaduct. Here, the bridge district established its main construction area at the headlands, where it constructed a new bulkhead and a large construction pier to receive shipments of building materials and provide space for a concrete plant (fig. 4.30).[39] Some of the old engineer buildings remained during initial construction, but all were removed upon completion of the steel viaduct that spanned the valley.

North of the bridge viaduct, the approach roads across Fort Baker were built on extensive cut and fill along the still largely grass-covered hillsides (fig. 4.31). The main road, named the Waldo Approach after Waldo Point north of Sausalito, was part of US 101 established in 1926 as the main West Coast interstate highway from Oregon to the Mexican border. Completed in 1937, the Waldo Approach was a four-lane limited access highway that crossed the north end of Fort Baker



Figure 4.29. Aerial of Fort Baker showing addition of the Golden Gate Bridge and its approach roads, 1939. (Harbor Defenses of San Francisco aerial photograph, annotated by SUNY ESF, National Archives II, image B17181003)

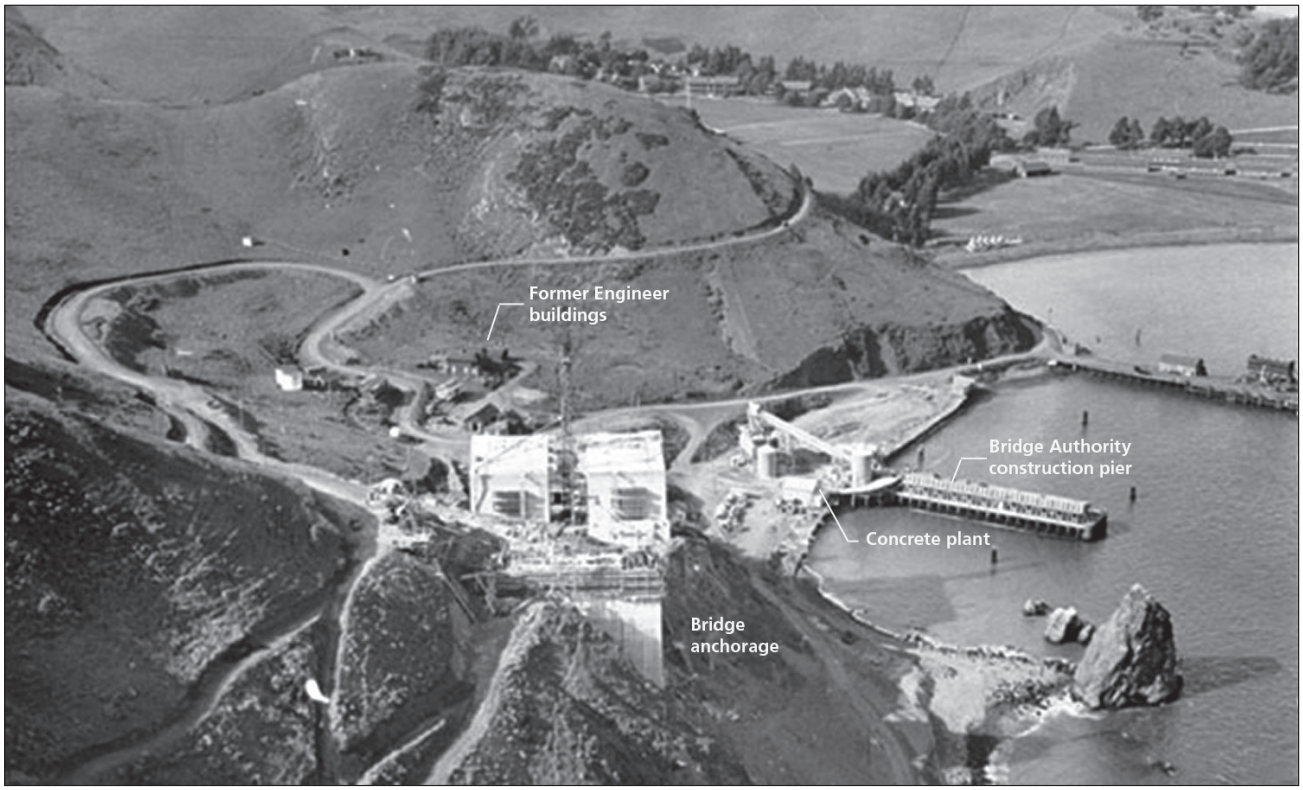
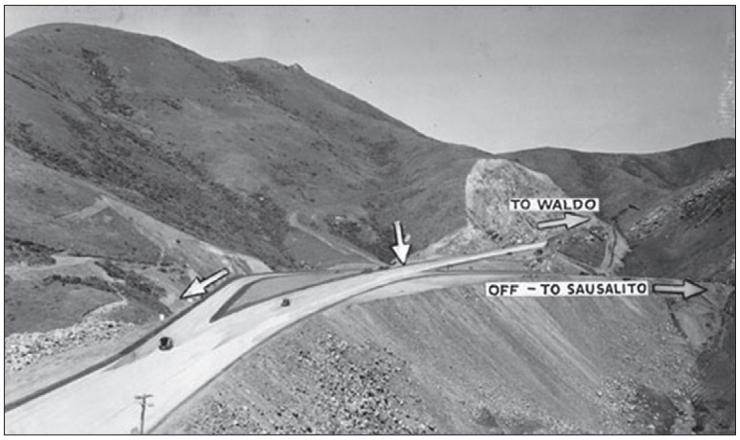
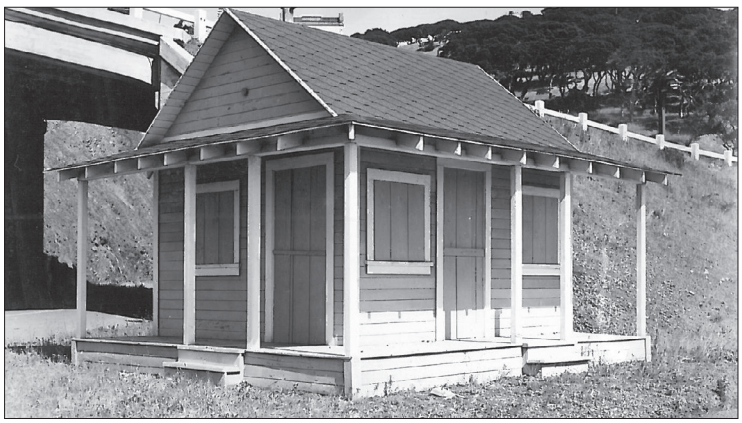


Figure 4.30 (top). The Golden Gate Bridge showing construction of the Marin anchorage, looking north toward the main post, April 6, 1934. In the valley beyond the anchorage is the former Engineer Department area with several remaining buildings, and the Bridge Authority's construction pier and concrete plant. (Photograph by Gabriel Moulin, copyright Moulin Studios, San Rafael, annotated by SUNY ESF)





through the single-bore Waldo Tunnel. To provide access to Sausalito and Fort Baker, the bridge project included construction of a two-lane access road along the hillsides north of the main post. Named the Sausalito Lateral (later Alexander Avenue) and completed in 1937, the road branched off the Waldo Approach north of the hill later known as Vista Point, and merged with the Army road between Fort Baker and Sausalito (East Road). The new road required a massive cut through the ridge that included Battery Duncan, and an overpass where it merged

Figure 4.31 (upper left). The newly built US 101 (Waldo Approach) and Sausalito exit showing extensive cut and fill across the hillsides above the Fort Baker main post, looking north, ca. 1938. (San Francisco History Center, San Francisco Public Library, photograph AAD-0746)

Figure 4.32 (lower left). The replacement Fort Baker gatehouse on East Road built in 1937, looking northwest with the Sausalito Lateral overpass in the background, ca. 1939. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32426)



Figure 4.33. The tunnel-Fort Barry exit on the Sausalito Lateral looking southeast toward Fort Baker, August 28, 1939. The existing convoy is transporting a gun tube for Battery Townsley at Fort Cronkhite. This interchange was rebuilt in ca. 1942 to accommodate a security gate and allow vehicles to more easily make the turn back to Fort Baker. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.2118)

with East Road. The entrance to Fort Baker from Sausalito was shifted south and the old gatehouse near the reservation border was removed. In keeping with its permit agreement, the bridge authority built a new gatehouse for the Army (fig. 4.32). The bay front along East Road north of the new gatehouse later became an unofficial Army recreation area, with walks, footbridges, and barbecue pits.[40]

The Sausalito Lateral also included an exit to Forts Baker and Barry at the overpass on the Baker-Barry road (Bunker Road), near the Baker-Barry tunnel (fig. 4.33, see also fig. 4.29). Upon completion of the approach roads, the adjoining land was seeded, but apparently not planted with trees or other ornamental plantings. Chain-link fences were erected along the sections of the highway right-of-way, and Art Deco-style light standards, the same as those on the Golden Gate Bridge, were installed along the Sausalito Lateral.[41]

FEDERAL WORK RELIEF IMPROVEMENTS

Construction of the Golden Gate Bridge and its approach roads was completed in part through the Works Progress (later Projects) Administration (WPA), the largest federal work-relief program of President Roosevelt's New Deal. The WPA, established in 1935 as a job-creation agency, undertook many relatively small projects at Forts Baker and Barry during the mid and late 1930s.

At Fort Baker, the WPA was involved in improvement of storm water drainage systems, repairs to buildings, construction of sidewalks, road improvements, and plantings around buildings, mostly from 1935 to 1937 (fig. 4.34). Major projects included construction of seven automobile garages along the service roads behind the officer quarters and non-commissioned officer quarters. These frame multi-bay garages, completed in 1935, featured paneled swinging overhead doors, wood siding, and shed roofs (fig. 4.35). Along the road to the post hospital (Kober Street) and service road behind the barracks (McReynolds Road), the WPA was also involved in construction of stone retaining walls and sidewalks, which were completed in 1937 as part of widening and straightening of the roads and



Figure 4.34. A WPA sign on the bakery at the Fort Baker Quartermaster area, looking northeast, ca. 1939. The sign most likely identified a WPA project for the road that included new pavement, concrete curbs, concrete steps, and foundation plantings. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32426)

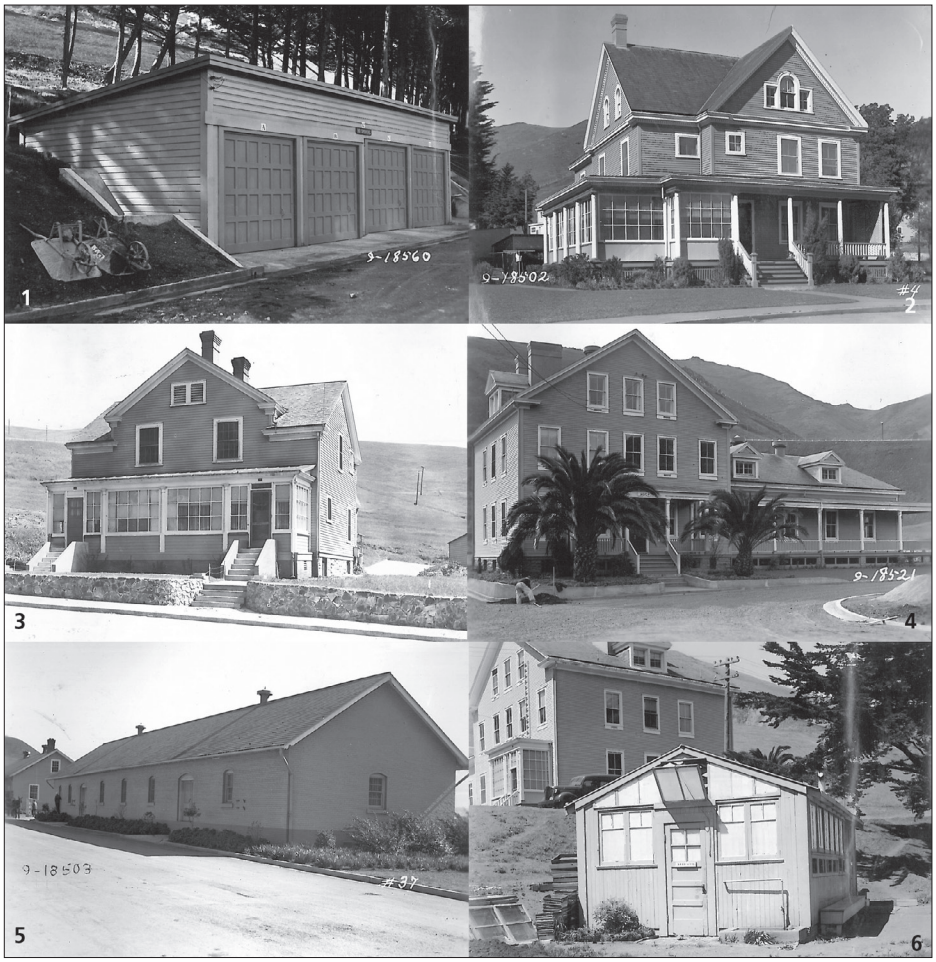


Figure 4.35. Improvements at the Fort Baker main post and Quartermaster area during the mid and late 1930s, photographed ca. 1939. Most of these projects were built through the WPA. 1. Officer garage (543) on McReynolds Road with Monterey cypress windbreak in back. 2. Commanding Officer quarters (604) showing young foundation plantings. 3. Non-Commissioned Officer quarters (523) with new curbs, sidewalk, retaining walls, and steps. 4. Post Hospital (533) with recently completed concrete road gutters. 5. Commissary storehouse (637) with new curbs and young plantings. 6. Greenhouse (688) built in 1939. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32426)



Figure 4.36. The Fort Baker main post showing removal of barracks and trees along Center Road (at right), looking northeast toward Battery Duncan, August 1938. The small building at lower left is one of the former civilian employee houses off East Bunker Road. At upper left is the large cut for the Sausalito Lateral. (Private collection of Paul Judge)

installation of curbs, gutters, and storm drains. Concrete refuse containers, to service mess halls, were built into the wall behind the barracks. Another stone wall was built around the tennis court near the post hospital, replacing an earlier fence. In 1939, a small wooden sash greenhouse was built between the tennis court and the post hospital.[42]

In the Quartermaster area, WPA work included improvement of the road (Satterlee Road) in ca. 1937 with concrete curbs that defined planting areas around the building foundations, which received a variety of new plants (see fig. 4.35). The officer quarters also received new foundation plantings and specimen trees around this time, supplementing plantings made over the previous three decades. Other work at Fort Baker included resurfacing and installation of guideposts along the road to Sausalito (East Road), and planting of eucalyptus trees along the section adjoining the Quartermaster area. The WPA also worked on improvement of the parade ground. This included demolition of the ca. 1905 frame barracks at the southeast side of the parade ground in ca. 1935, and removal of the trees along the road (Center Road) in 1938, which reopened views from the parade ground out toward San Francisco Bay (fig. 4.36).[43]



Figure 4.37. The main post of Fort Barry in 1939 around the time of its reactivation showing overall character and improvements made during the late 1930s. 1. Garage (938) with 1939 additions; 2. Garage (933) built in 1939; 3. Commanding Officer Quarters (936) with new parterre garden at right; 4. Officer Quarters Duplex (939) with new foundation plantings; 5. Post Hospital with young palm trees along parking area; 5. Non Commissioned Officer Quarters duplexes showing plantings and clothes lines; 7. Former hospital steward quarters (942) with garden; and barracks (944). (Fort Barry Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)

At the main post of Fort Barry, the WPA assisted with road and infrastructure projects similar to those at Fort Baker, but at a smaller scale. Most of these improvements were made in the mid to late 1930s while the post was in caretaker status, in preparation for return of units to the fort. Between 1936 and 1938, the officer quarters received interior and utility-system improvements, and the exteriors were painted (fig. 4.37). In ca. 1939, the service road behind the officer quarters (Rosenstock Road) was widened and straightened, which required construction of a stone retaining wall that extended from

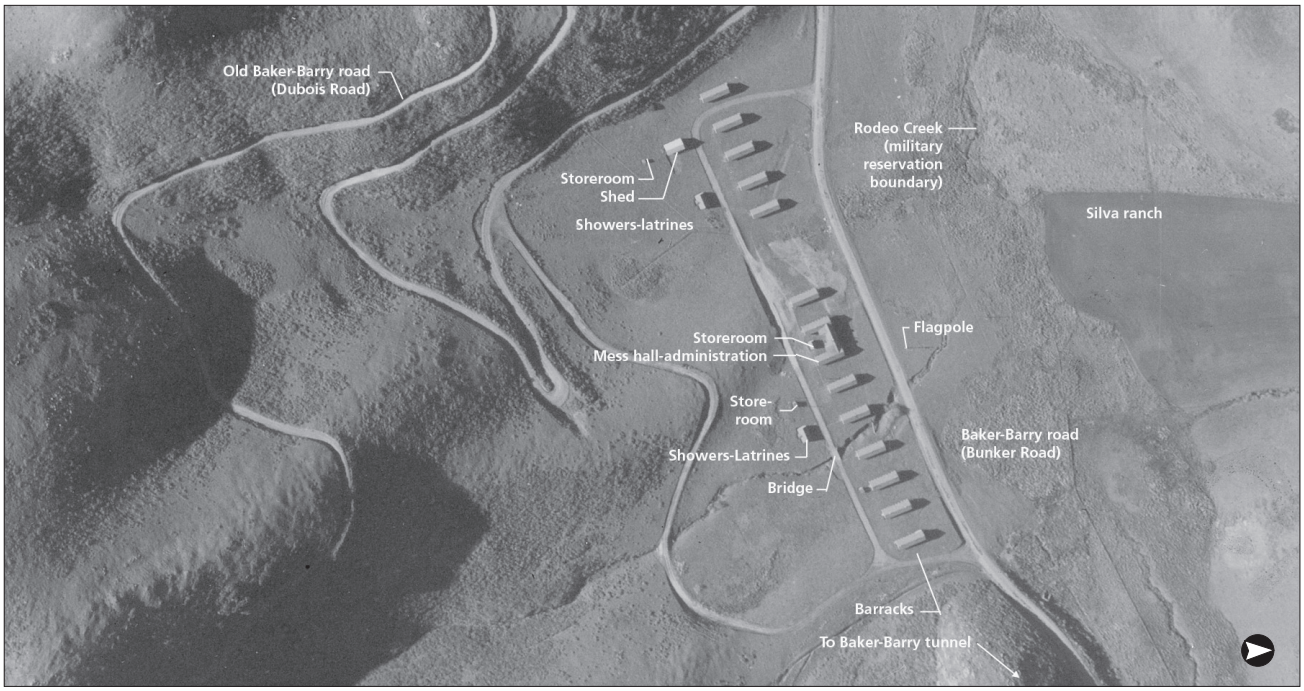


Figure 4.38. The CCC camp built in 1935 in Rodeo Valley west of the Baker–Barry Tunnel, 1938. By the time of this photograph, the Army was using the camp for temporary housing. (Harbor Defenses of San Francisco aerial photograph annotated by SUNY ESF based on Army plan " Civilian Conservation Corps Camp, Fort Barry, Calif," June 1936, National Archives II, RG 499, E118)



Figure 4.39. CCC buildings at Camp Spurr (present Capehart housing area) built in 1935, photographed, ca. 1939. 1. Storeroom-post exchange (815), with 1939 addition. 2. One of twelve matching barracks (800-805, 807-12) with Bunker Road in the background. 3. One of two shower-latrine buildings (813, 814), with 1939 addition. 4. Mess hall-administration building (806), with Bunker Road in the foreground. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)

the Administration Building to the entrance gates at the east end of the post. This five-foot-high wall featured local stone of varying colors, with a concrete gutter-curb at its base. Two small parking areas, defined by low stone walls with rustic stone coping, were built next to the quarters. The garage next to the eastern officer quarters was replaced with a new building completed on June 1, 1939, and the ca. 1915 garage between two officer quarters was expanded with bays to either side around the same time. Concrete refuse containers, to service the mess halls, were built behind the two barracks.

Other improvements completed by the summer of 1939 as officers returned to the main post included new foundation and other ornamental plantings, including exotic Canary Island date palms next to the post hospital and administration building. The returning officers were probably the ones who built two ornamental gardens on the open lawn areas to either side of the Commanding Officer quarters. One featured a circular walk surrounding a cluster of shrubs, and teh other was a flower garden parterre with grass walks.[44]

The improvements at the main posts may have been made in part with labor provided by another federal work-relief program, the Civilian Conservation Corps (CCC), which employed men for conservation and infrastructure work in rural areas, parks, national forests, and watersheds. The CCC was a full-time military-style organization that provided living quarters in camps set up by the Army. In 1935, the Army built a CCC camp in Rodeo Valley west of the Baker-Barry tunnel, in the last remaining large undeveloped side valley. Known as Camp Spurr, it was one of several CCC camps on the Marin Peninsula, including one at Mount Tamalpais State Park and another in the Marin Municipal Water District.[45] Camp Spurr, which straddled the boundary of Forts Baker and Barry, consisted of simple, unpainted wood-frame buildings with gable roofs arranged in rows parallel to the Baker-Barry road (Bunker Road) (figs. 4.38, 4.39). The camp included twelve barracks, a mess hall, two shower-latrine buildings, and several small sheds, plus a flagpole in a mown area on the north side of the Baker-Barry road. Gravel walks connected the buildings with the dirt camp road (Shiley Street) that paralleled the paved Baker-Barry road.[46]

Although some of the CCC's best known conservation work involved reforestation, there is no record they did this at the headlands.[47] The program's main project was providing labor for a WPA project, the improvement of the Baker-Barry tunnel begun in 1935 and largely completed in 1936. The project removed the old timber supports, widened the tunnel to twenty feet, reinforced it with concrete, and built a new headwall at the East Portal (see fig. 4.3).[48]

The CCC did not occupy Camp Spurr for long, because in October 1936 as work on the tunnel was nearing completion, it was turned over to the Army for use as temporary housing for use by the Ninth Corps Area headquartered at the Presidio, and was later used as housing for troops practicing at the nearby rifle range. The

Army renamed the camp the West Portal Area, after the nearby tunnel entrance, and in 1937, painted the rustic camp buildings gray with black window sash. [49]

ESTABLISHMENT OF FORT CRONKHITE

In response to the increased size of naval guns developed during World War I and the growing threat of aerial attack, the Army received approval in 1928 for development of two gun batteries along the Pacific coast on either side of the Golden Gate. These batteries, designed as the largest and most powerful seacoast defenses to date, were to contain sixteen-inch guns, each measuring sixty-seven-feet long, weighing 385,600 pounds, and able to fire a 2,100-pound projectile twenty-eight miles. Their huge fire power required additional and more widely dispersed fire-control stations, some up to nine miles away.[50] By the mid-1930s, Army engineers had finalized plans for the new batteries to contain two guns in separate emplacements. Improving on the design employed at Battery Wallace during World War I, each battery was engineered to withstand bombardment from both battleships and aerial bombs through a heavy cover of earth and concrete around casemated guns (fig. 4.40). In marked contrast to earlier batteries, this design concealed the guns from the air and, as at Battery Wallace, placed them far apart according to the protective dispersion principal. As with all earlier battieries, the new works were also carefully concealed within the surrounding natural landform and vegetation.[51]

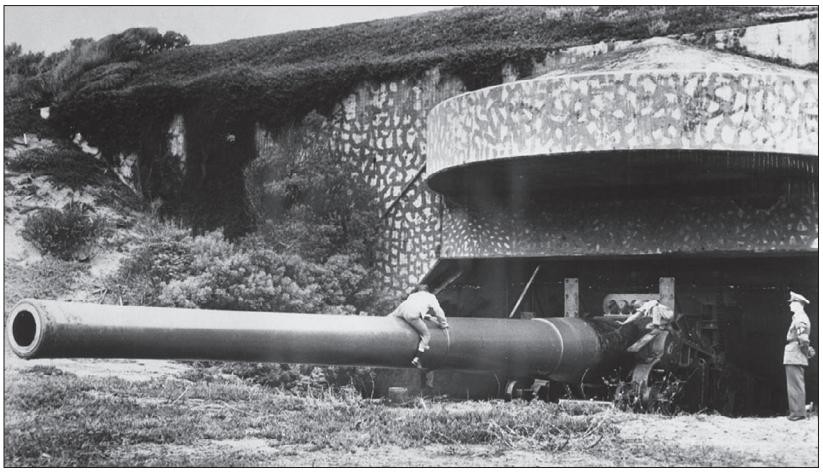


Figure 4.40. Battery Davis built at Fort Funston in 1936 showing earth and concrete cover, ca. 1948. Davis was a prototype for heavy caliber coastal guns that would be added to the headlands prior to World War II. The camouflage paint was added during World War II. (Golden Gate National Recreation Area, Park Archives and Records Center, Interpretation Negative Collection, GOGA 2316)

The locations selected for the sixteen-inch gun batteries were Fort Funston on the south side of the Golden Gate, and to the north, on privately owned land near the Tennessee Point Reservation (fig. 4.41). Appropriations in 1937, made as part of the larger Harbor Defense Plan, included funding for construction of the battery at Fort Funston, named Battery Davis, and for land acquisition to locate the second battery near Tennessee Point. Construction of Battery Davis began in October 1936 and was completed in February 1939. Although massive, the battery was inconspicuous within the surrounding dunes, woods, and grasslands through its earth cover and extensive concealment plantings that included native and exotic grasses, shrubs, and trees. Species included ice plant, lupine, barley, mustard, myrtle, sagebrush, acacia, pine, and eucalyptus. Battery Davis became the prototype for major coastal gun batteries built through World War II, which all followed a standardized design.[52]

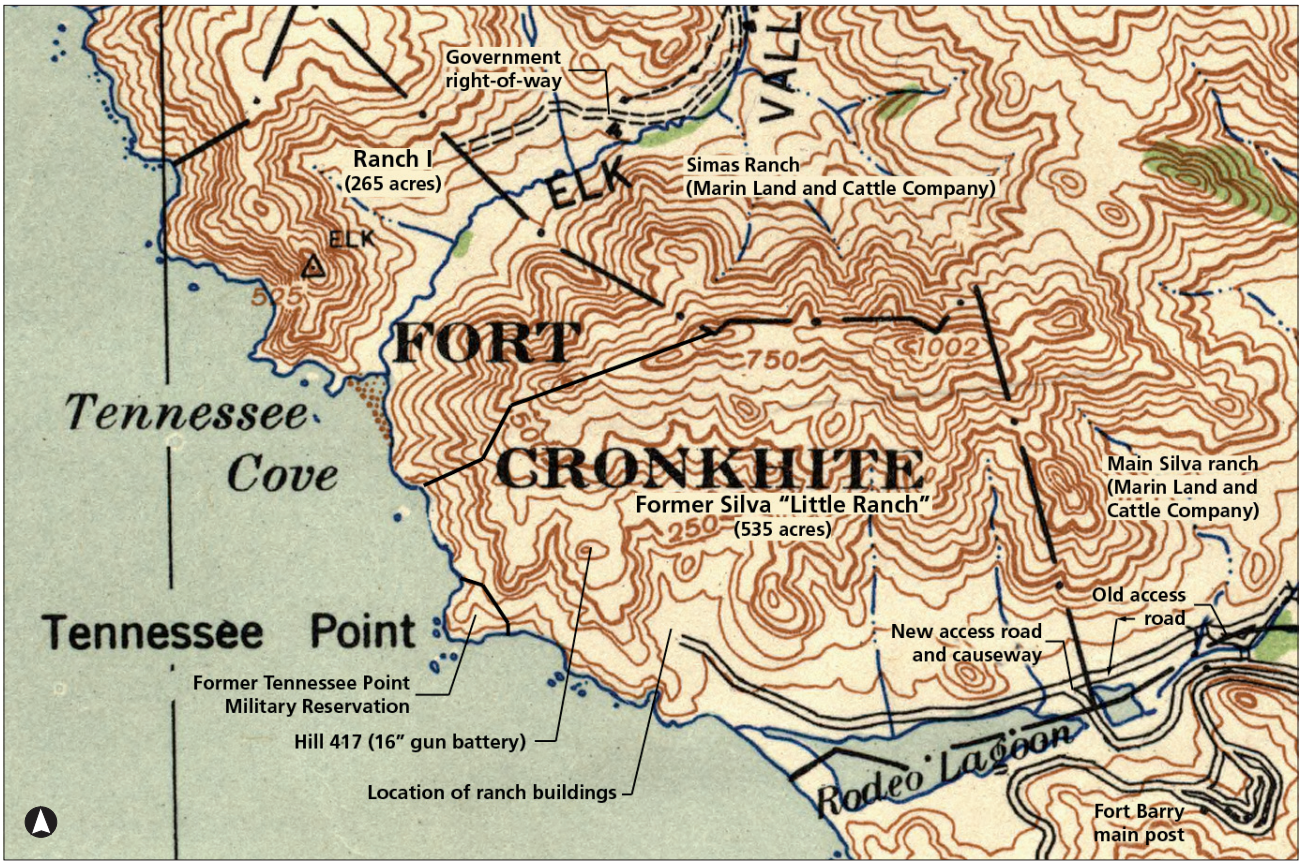


Figure 4.41. A topographic map surveyed in the late 1930s annotated to show the two parcels acquired by the Army in 1937 for Fort Cronkhite and the preexisting Tennessee Point Military Reservation. (U.S. Geological Survey, Mt. Tamalpais 15-minute quadrangle, 1941, annotated by SUNY ESF)

LAND ACQUISITION

To accommodate the north gun battery and its accessory defenses, the Army acquired 802.56 acres of privately owned ranchland adjoining the Tennessee Point Military Reservation. It acquired this land in June 1937 through condemnation following a declaration of taking filed in federal district court two months before.[53] In March 1938, the Army named the reservation in honor of recently deceased Major General Adelbert Cronkhite, a World War I commander. That same year, the 5.5-acre Tennessee Point reservation was absorbed into Fort Cronkhite.[54]



Figure 4.42. Dairy cattle grazing in the Silva Ranch, acquired by the Marin Land and Cattle Company in the 1930s, photographed 1935. The view is looking northwest from a point north of the Fort Barry main post near the present Miwok or Bobcat Trail. (Private collection of John Martini)

The Army acquired the Fort Cronkhite property from the Marin Land and Cattle Company, a private company that had consolidated ownership and operation of several dairy ranches in the headlands during the 1930s (fig. 4.42). The company was owned by several individuals, with Manuel Silva serving as the managing partner. The company was formed following the death of Silva's longtime partner Antonio Nunes Bello, to run the main Silva ranch in the valley northeast of

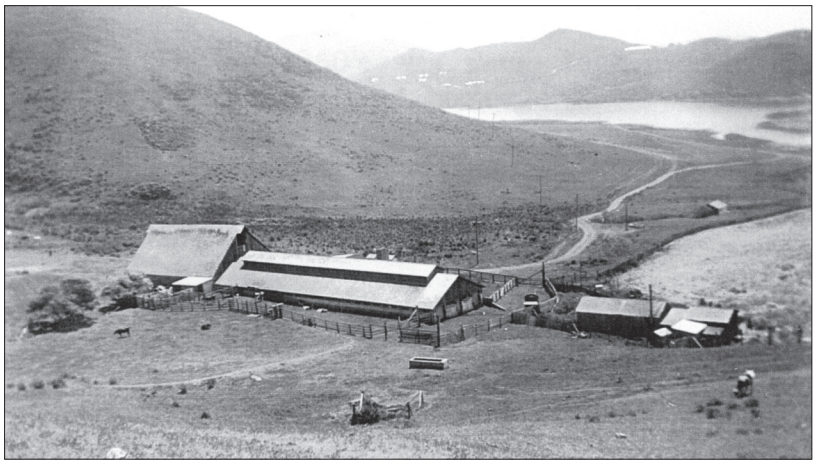


Figure 4.43. The Silva "Little Ranch" in the future Fort Cronkhite, looking south toward Rodeo Lagoon in the background, ca. 1937. The buildings are, from left to right, the old hay barn, milking (cattle) barn, and ranch house. In the foreground is a rectangular concrete cattle trough. Also visible is an electric line along the ranch road. (Personal collection of Stephen Haller)

Rodeo Lagoon (Gerbode Valley), the Little Ranch adjoining the Tennessee Point Military Reservation, and another ranch in Tennessee Valley previously owned by Manuel Simas and others (see fig. 4.41). The Silvas had acquired the main ranch and Little Ranch from the estate of Grace Borel, the widow of Antoine Borel, in 1924.[55]

Silva and Bello were probably responsible for making improvements to the buildings at the Little Ranch during the 1920s that included addition of a large cattle barn on the west end of the old gabled barn, a garage and concrete dairy building to its south, and concrete water troughs (fig. 4.43). During the 1920s, the small ranch house was occupied by tenant Manuel Ponte, and between 1928 and 1932, by the Machado family, who were the last known tenants.[56] The Ranch I property in Tennessee Valley had no buildings, probably only a fenced field at the upper part of the valley. The ranch buildings were upvalley on the Ranch H and Ranch C tracts.[57]

BATTERY TOWNSLEY

In August 1937, four months after it acquired Fort Cronkhite, the Army began construction of a new access road to the sixteen-inch gun battery, located on a hill near Tennessee Point with an elevation of 417 feet above the Pacific, a site initially identified as "Hill 417". As part of the project, the Army improved the Baker-Barry road (Bunker Road) from the tunnel by paving it and realigning it to run straight across the rifle range and around the Fort Barry main post. The old road to Tennessee Point from Fort Barry was abandoned because the east end remained on the privately-owned Silva ranch. The Army built a new access road to Fort Cronkhite that crossed Rodeo Lagoon on a causeway, just inside the Fort Cronkhite property line across from the Fort Barry main post (fig. 4.44). The causeway, which divided the lagoon into two sections, was an earthen embankment with a timber bridge across the outflow. Within Fort Cronkhite, the new road, named Battery Road, followed the old road to Tennessee Point for approximately 1,200 feet, and then branched north onto an alignment that skirted the east and north sides of the Little Ranch valley to Hill 417 (fig. 4.45). A branch road was built north from Hill 417 up to Wolf Ridge. The Army continued

Figure 4.44. The causeway across Rodeo Lagoon under construction, looking south from Fort Cronkhite to the Fort Barry main post, August 30, 1937. (Golden Gate National Recreation Area, Park Archives and Records Center, Army Corps of Engineers Photographs collection, GOGA 318017)



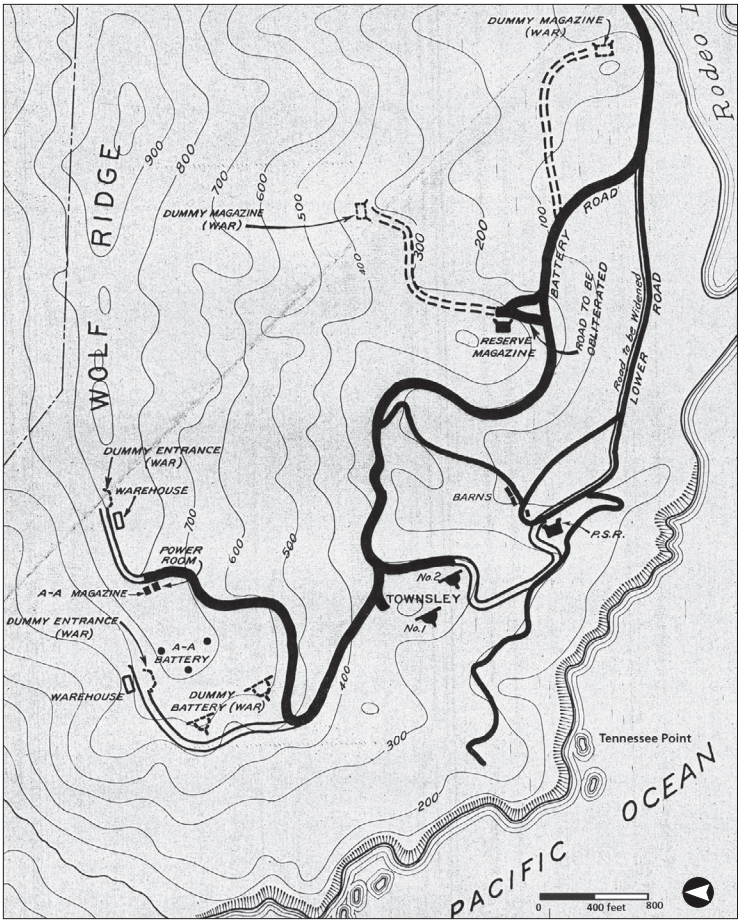


Figure 4.45. Map showing roads and defensive works under construction or proposed at Fort Cronkhite, August 1939. The features in black were existing, outlined were under construction, and dashed were proposed. "PSR" is the plotting, spotting, and radio room. "Barns" are the Little Ranch buildings. Most of the dummy features were not built. (Detail, U.S. Army, "Diagrammatic Map, Protective Concealment, Batteries Townsley & Davis," August 12, 1939, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, D218 F1)

to use red macadam for the roads, using a red chert most likely obtained from a quarry at the southeast corner of Fort Cronkhite near Rodeo Lagoon. The macadam was probably reinforced with an asphalt binder.[58]

Construction of the sixteen-inch gun battery, named in December 1937 in honor of World War I commander Major General Clarence P. Townsley, began in March 1938. The design, which was very similar to Battery Davis, included two widely-spaced casemates connected by underground structures containing magazines, storerooms, power room, and radiator room, with tunnels providing access between the casemates and the road (fig 4.46). The entire work was carefully concealed by earth, with no protruding structures, the entrances concealed in the back of the hill, and the casemates covered by fill. Because of the unstable nature of the chert rock, engineers decided to use a cut-and-cover technique rather than tunneling, requiring complete excavation of the hilltop. By January 1939, the two casemates were nearly finished and the fill had been placed over the connecting structures and casemates (fig. 4.47). Battery Townsley was completed by the summer of 1940, and on July 1st, the Army test fired it, representing the first firing of a modern American casemated gun (fig. 4.48).

Work on Townsley's two major remote support structures: the plotting, spotting and radio room (PSR) and the reserve magazine, began in 1938. The PSR was located along an extension of the old ranch road (Mitchell Road) downhill from the battery on the west side of the valley, opposite the Little Ranch buildings (fig. 4.49, see also fig. 4.45). As with the battery, this structure was concealed underground, with two concrete portals and vent stacks the only above-ground features. The reserve magazine, required due to Townsley's remote location, was built across the valley on the east side of a hill accessed from Battery Road. It was also an underground structure with a large concrete portal containing a bank of five doors, each providing access to individual magazine rooms, with three vent stacks protruding through the earth cover (fig. 4.50).[59]

Given its enormous range, Battery Townsley included six fire-control stations located over a large area stretching far from the battery. In design, these followed many of the same characteristics as the battery: underground concrete structures with protruding earth-covered openings camouflaged into the natural setting. Typical of these structures was the Battery Commander's Station, located on Wolf

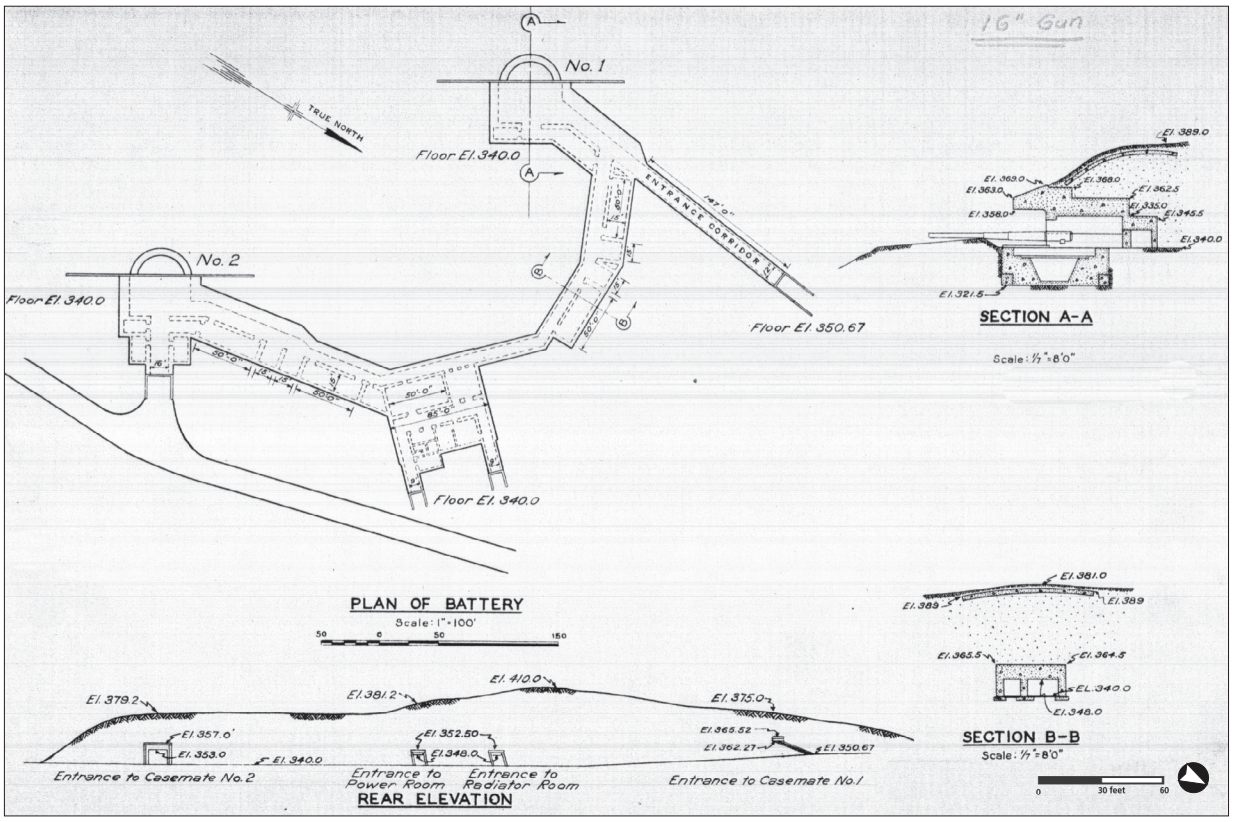


Figure 4.46. Plan and sections of Battery Townsley as completed in 1940. (U.S. Army, Reports of Completed Works--Seacoast Fortifications, Fort Cronkhite, Battery Townsley, updated to July 24, 1940, National Archives II, RG 77, Entry 1007)



Figure 4.47. Battery Townsley under construction on Hill 417, looking east across Fort Cronkhite showing the completed Battery Road (Bunker Road), January 1939. The buildings of the Silva Little Ranch are in the valley to the right of the battery; the road in the foreground near the coast is the old road to Tennessee Point. (Harbor Defenses of San Francisco photograph, National Archives II, image 28745)



Figure 4.48. Test firing of Battery Townsley (gun #2), looking south toward Bird Rock, July 1, 1940. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 2316)

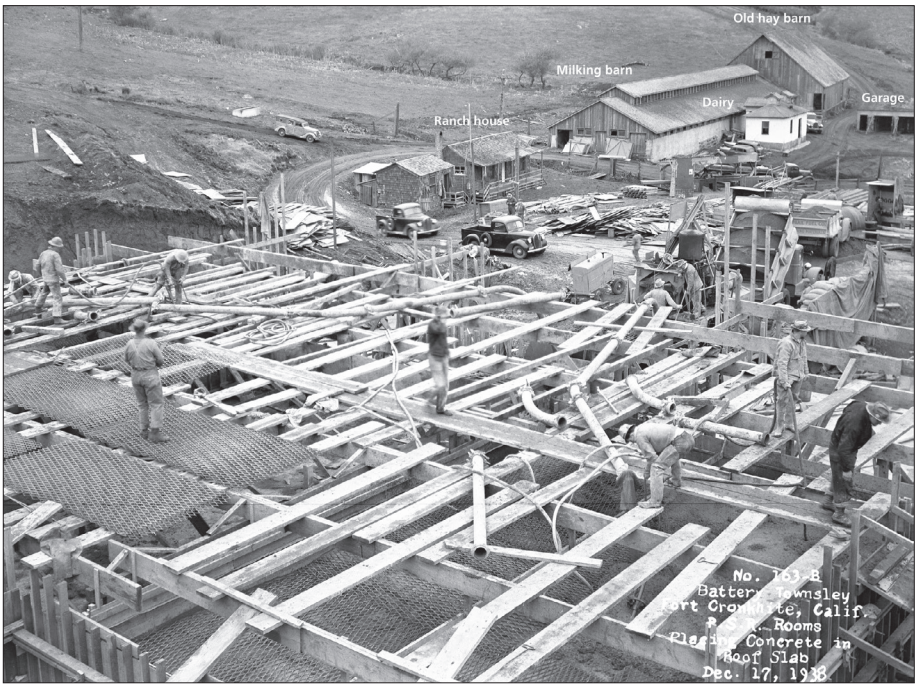


Figure 4.49. The plotting, spotting, and radio (PSR) room for Battery Townsley with the Silva Little Ranch buildings in the background, looking northeast, December 17, 1938. The old hay barn was removed during the war; the other buildings were retained, presumably as camouflage. (Golden Gate National Recreation Area, Park Archives and Records Center, Army Corps of Engineers Photographs collection, GOGA 18017)



Figure 4.50. The Townsley reserve magazine during construction, looking southwest, ca. 1939. The three vent stacks (located below the crane) are not yet visible. (Golden Gate National Recreation Area, Park Archives and Records Center, Army Corps of Engineers Photographs collection, GOGA 18017.198B)

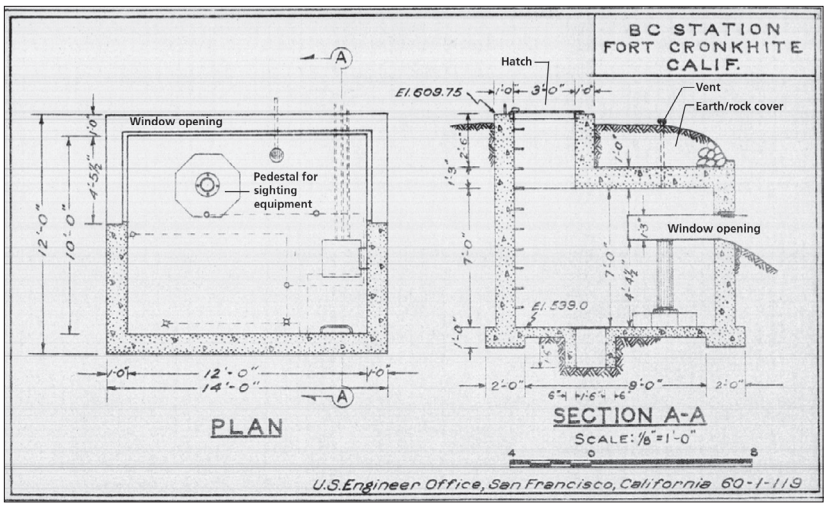


Figure 4.51. Plan and section of the Townsley Battery Commander Station completed in 1940, a design typical of Townsley's fire-control structures. (U.S. Army, Reports of Completed Works--Seacoast Fortifications, Fort Cronkhite, BC Townsley, updated to July 24, 1940, annotated by SUNY ESF, National Archives II, RG 77, Entry 1007)

Ridge 1,300 feet northwest of the battery. The structure featured a fourteen-foot-wide concrete structure with a narrow window opening that wrapped around the front and sides, a top hatch, and two feet of backfill over the roof (fig. 4.51). Only one other fire-control station (B1S1 Townsley) was located at Fort Cronkhite, on Wolf Ridge approximately three hundred feet north of the BC station. It was the same design as the battery commander station and was completed in November 1941. The other three Townsley stations were at Fort Funston and Fort Miley south of the Golden Gate, and to the north, at the Frank Valley Military Reservation and at the Hill 640 Military Reservation (White Gate Ranch), the later more than five miles north of Fort Cronkhite.[60]

Aside from the defensive structures and roads, the Army added a number of other features to the landscape as part of Battery Townsley. These included chain-link fencing topped with barbed-wire, and a portable steel-frame warehouse on the lower extension of the Wolf Ridge road that was completed by 1940 (see fig. 4.45). The fort's water system, drawn from springs along Wolf Ridge above the ranch valley, included a 10,000-gallon underground collecting reservoir at the upper floor of the valley that the Army rebuilt from a preexisting ranch reservoir. Water was pumped to a 50,000-gallon underground concrete storage reservoir on lower Wolf Ridge, approximately 1,100 feet north of the battery. The sewage system, serving latrines and showers in the battery and elsewhere, consisted of simple gravity outfall into the Pacific near Rodeo Lagoon.[61]

WORLD WAR II PRELUDE: THE 1937 PROJECT AND THE NATIONAL EMERGENCY

In 1937, the Army issued a secret document for a systematic modernization of the San Francisco harbor defenses based in part on the advances then underway at Battery Davis and Battery Townsley. Entitled "Annexes to Harbor Defense Project, Harbor Defenses of San Francisco," the document addressed the threat of long-range and aerial bombardment in the context of the looming threat of war in Europe and East Asia. The document was organized into chapters (annexes) defined by types of defenses, which included underwater defenses (mines), anti-aircraft defenses, fire-control installations, and seacoast guns. Although Battery Townsley was listed in the 1937 Project along with Battery Davis at Fort Funston, its development was already underway at the time the document was issued.

Initial funding for the 1937 Project was meager, and only some of the recommended improvements were completed prior to the outbreak of war in Europe in 1939 and President Roosevelt's declaration of the Limited National Emergency on September 8, 1939. These events accelerated implementation of the 1937 Project and spurred another modernization program begun in the fall of 1940, while also requiring extensive development of temporary post facilities to accommodate troop mobilization. By the time of U.S. entry into the war on December 7, 1941, completed improvements included four new housing areas, a mine depot at Fort Baker, new and expanded anti-aircraft batteries, and additional fire-control installations. One of four new sixteen-inch gun batteries, similar to Battery Townsley, was proposed for the headlands in the 1937 Project. In June 1941, the Army selected the crest of Diablo Ridge, on the boundary of Forts Baker and Barry, as the site of the new work named Battery Construction 129. At an elevation of nearly 850 feet above sea level, the site was the highest ever selected for a seacoast battery. Construction, however, would not begin until after U.S. entry into the war.[62]

MINES AND THE FORT BAKER MINE DEPOT

One of the first projects implemented from the 1937 Project was development of the long-delayed mine depot on Horseshoe Cove at Fort Baker, which was the counterpart to the mine depot at Fort Winfield Scott. Designed to service and maintain the Main Channel and North Channel minefields in the Pacific, the Baker mine depot consisted of facilities to store mines and cables, and load them onto boats known as mine planters. The 1937 project called for the North (Bonita) Channel in the Pacific to contain eight groups of nineteen mines each, controlled through the existing mine casemate near Battery Mendell and a mine fire-control station on Bonita Ridge dating to 1910. The project also led to construction of a cable manhole at Tennessee Cove in ca. 1940, the first military feature in the remote northern end of Fort Cronkhite. This structure was apparently accessed by boat, since there was no suitable road to the beach through the valley at the time.[63]

Development of the Fort Baker mine depot began in 1937 with construction of the mine wharf, an L-shaped structure that wrapped around the old Quartermaster wharf, which had been lengthened to serve the same purpose in 1921 (fig. 4.52). The new wharf, measuring 358 feet long and completed in February 1938, featured concrete piles, beams, and deck, with asphalt pavement and creosoted wood fenders (fig. 4.53).[64]

Construction of the other mine depot facilities on Horseshoe Cove was not completed until June 1941. These included a mine storehouse, which was a large reinforced concrete building along the southwest side of the Fort Baker parade ground. To its south along the shorefront was the cable tank building, a steel-frame building with corrugated transite (asbestos-on-cement) siding used to store the mine cables in saltwater, with a cable testing trough along its east side.

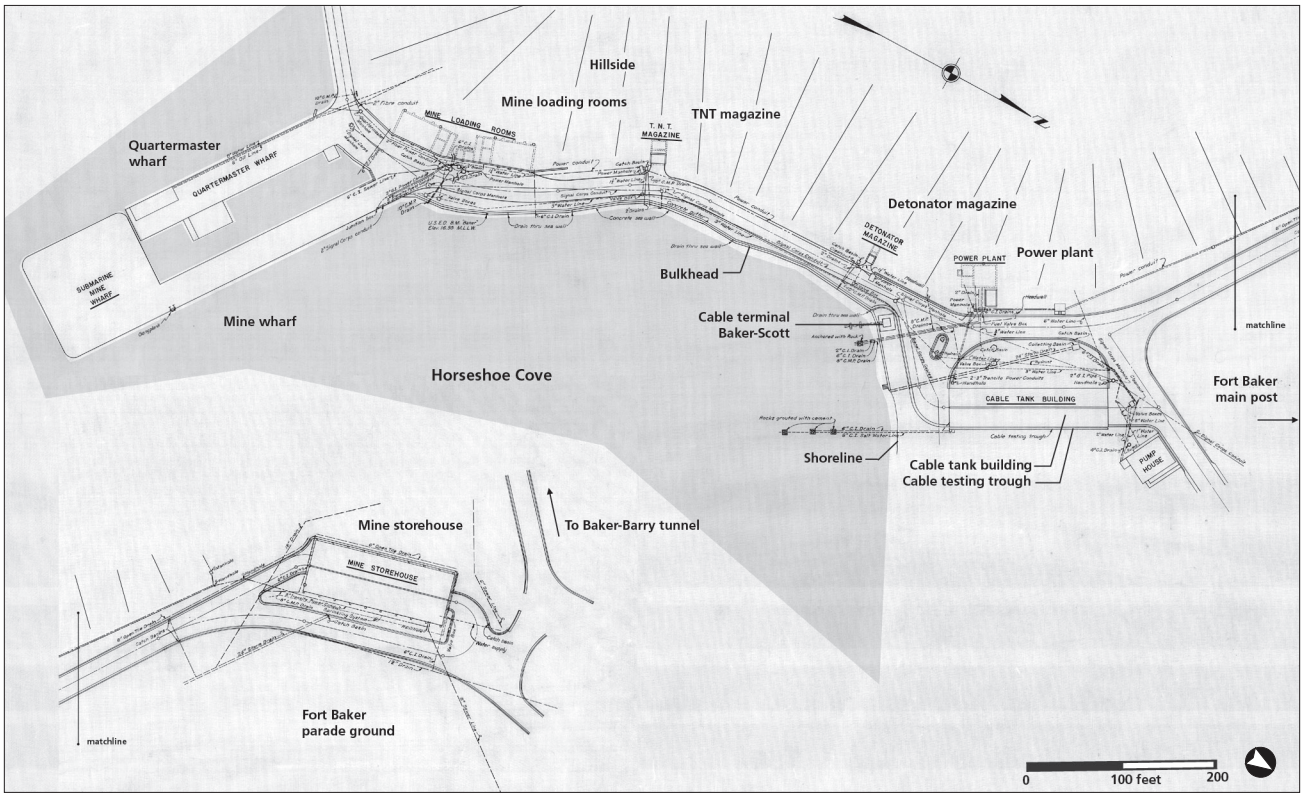


Figure 4.52. Plan of the Fort Baker mine depot as completed by 1941. Components of the mine depot are underlined. (U.S. Army, "Fort Baker, California Submarine Mine Facilities General Plan & Roadway, approved June 6, 1941, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, 19496, D195 F1)

Built into the base of the hillside along the west side of Horseshoe Cove were four underground concrete structures (see fig. 4.52). These featured concrete portals that opened onto the road (Moore Road), using a design similar to the recently completed Townsley plotting room (PSR) and reserve magazine at Fort Cronkhite. The largest contained the mine loading rooms; the other three were smaller structures containing a T.N.T. magazine, detonator magazine, and a power plant. Cables and mines from these buildings were initially planned for transport to the wharf on a three-foot gauge track. The wharf was built with tracks, but the system was apparently abandoned in favor of trucks by the time the mine buildings were constructed.[65]

Figure 4.53. The Fort Baker mine wharf completed in 1937, looking southeast, ca. 1939. The building is the storehouse on the old Quartermaster wharf, and the structure behind it is a coal bin. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)



ANTI-AIRCRAFT DEFENSES

In 1939, in accordance with the recommendations of the 1937 Project, the Army began construction of a new anti-aircraft (AA) battery on Wolf Ridge, designated AA Battery #1, and expanded the old anti-aircraft battery on Rodeo Hill, which was redesignated AA Battery #2. These were two of three fixed anti-aircraft batteries at San Francisco, with the third located at Fort Funston south of the Golden Gate (fig. 4.54).

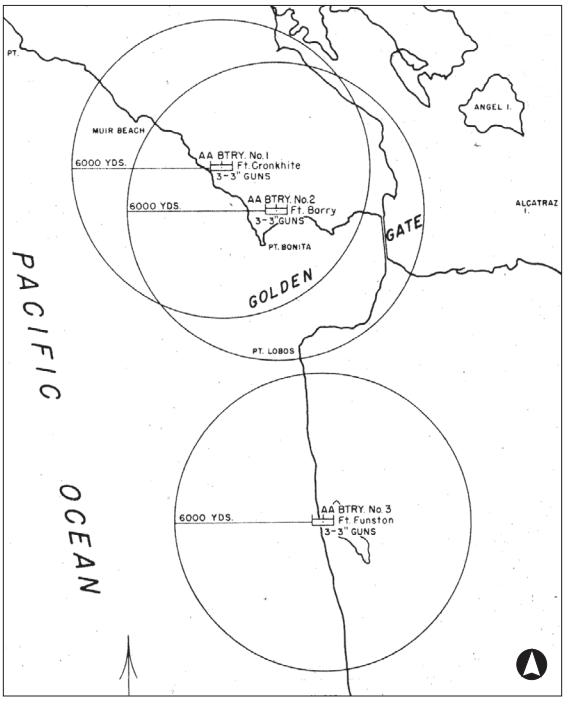


Figure 4.54. Locations and areas of fire for the three fixed anti-aircraft batteries at San Francisco completed in 1940. (Detail, Harbor Defenses of San Francisco, "Antiaircraft Batteries," November 15, 1945)

The three fixed three-inch anti-aircraft guns of AA Battery #1 were constructed on the western end of Wolf Ridge, due north of Battery Townsley and accessed by an extension of the road (Bunker Road) that wound up the ridge to the Townsley battery command station. The battery was similar to the older battery on Rodeo Hill with its dispersed elements, including eighteen-foot diameter concrete firing platforms without protective cover (fig. 4.55). AA Battery #1 featured cut-and-cover secondary structures, including a power-storeroom and magazine built into the hillside, with concrete portals similar to those at the Fort Baker mine depot and Battery Townsley (fig. 4.56). Known as a director's pit or a director's shelter, it was a subsurface concrete room that opened through a sliding metal roof that overlooked the guns from a rise to the east. Alongside it was a concrete base for a height-finder instrument.[66]

At AA Battery #2 on Rodeo Hill, the Army retained the two old firing platforms and added a third to the south (fig. 4.57). A director's pit and height-finder base, the same as those on Wolf Ridge, were constructed a short distance west of the guns.

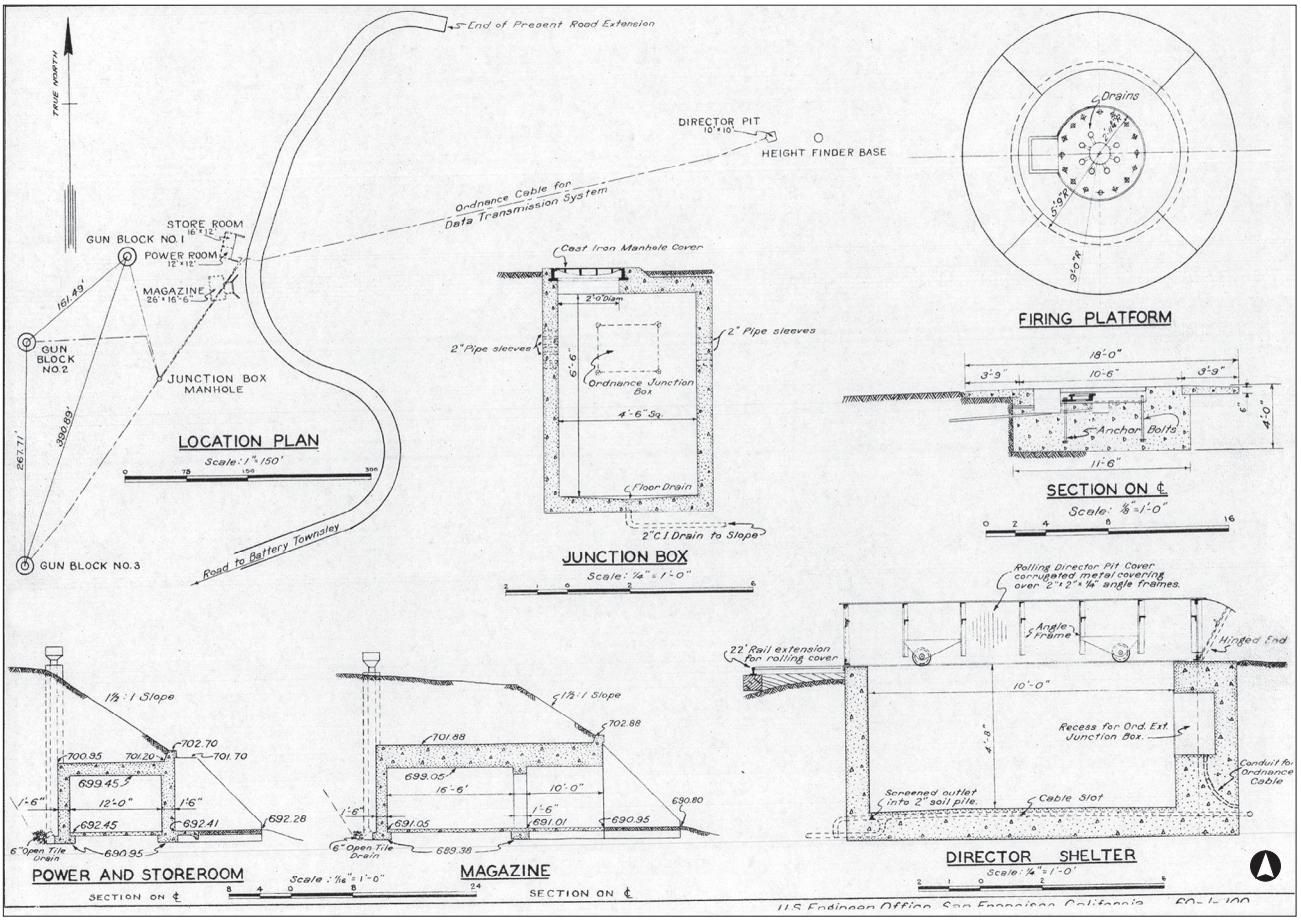


Figure 4.55. Plan of AA Battery #1 on Wolf Ridge with its component structures completed in 1940. (U.S. Army, Reports of Completed Works--Seacoast Fortifications, Fort Cronkhite Anti Aircraft Battery, updated to July 24, 1940, National Archives II, RG 77, Entry 1007)



Figure 4.56. The recently completed magazine and power-storeroom of AA Battery #1 on Wolf Ridge, looking west, ca. 1940. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.2134)

At the base of the hill along the road to Battery Rathbone-McIndoe(Conzelman Road), the Army built a cut-and-cover magazine and power-storeroom, similar to the ones on Wolf Ridge.[67] After August 1940, a cut was made into the north side of the hill along the road as a platform for mobile radar equipment for the antiaircraft battery. Farther east down the road, several additional cuts were made into the hill for small buildings to house troops assigned to the antiaircraft battery, including a day room with a fireplace.[68] Given the steep grade along the road, troops made several other cuts to provide level areas, probably for parking vehicles.

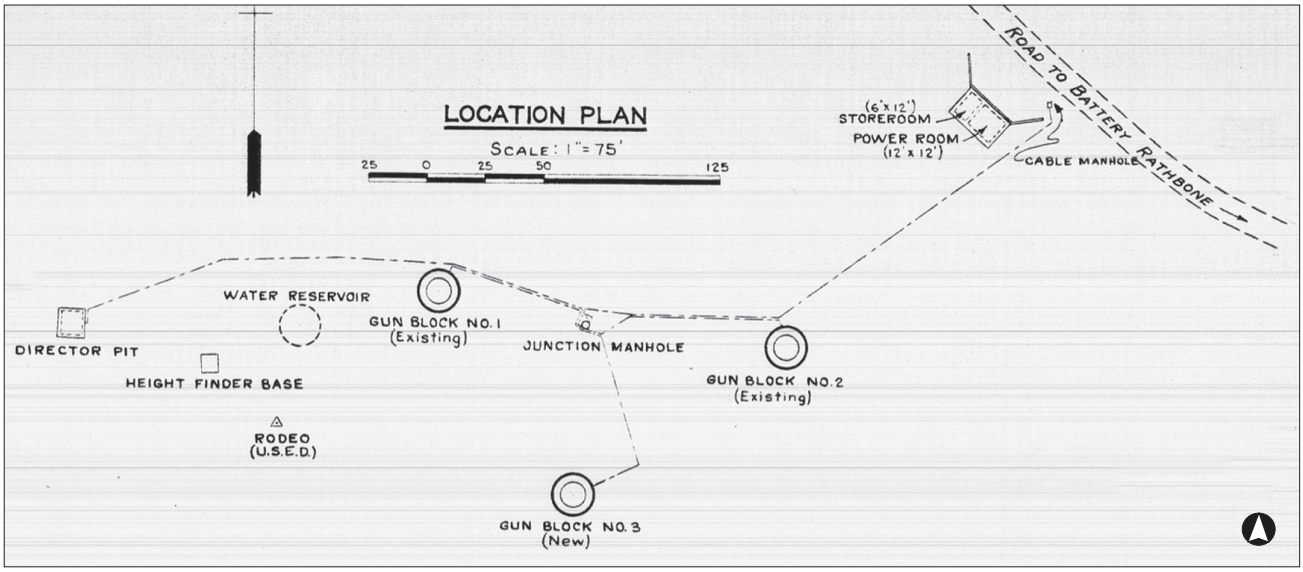


Figure 4.57. Plan of the expanded AA Battery #2 on Rodeo Hill, 1940. Several additional support structures were subsequently added in cuts along the road to Battery Rathbone (Conzelman Road). (U.S. Army, Reports of Completed Works--Seacoast Fortifications, Fort Cronkhite, Anti Aircraft Battery, updated to July 24, 1940, National Archives II, RG 77, Entry 1007)

FIRE-CONTROL INSTALLATIONS

The 1937 Project called for improvement of San Francisco harbor's fire control system to address the increased length of fire, continued problems with high fog, and need for better organization. The improvements included construction of a large number of new stations, including groupment stations (G) to coordinate fire within groups of defenses; battery command stations (BC), battery (base-end) and spotting stations (BS), and mine stations (M). Some stations were left with the singular B designation (base-end station). Numbers with the letter designations, such as B2S2, referred to the order of the station in the fire-command system. The improvement program also led to demolition of some obsolete stations, including the base-end and battery commander stations for Battery Duncan at Fort Baker removed in 1940.[69]

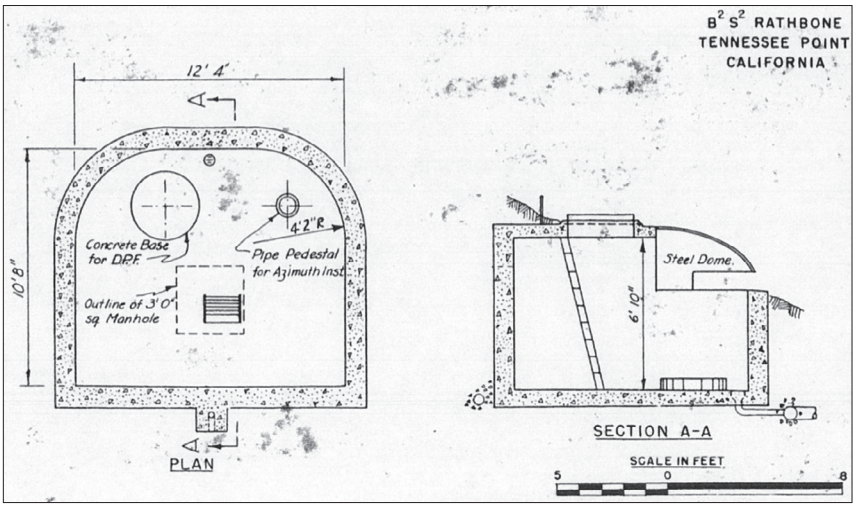


Figure 4.58. Plan and section of B2S2 Rathbone, one of the new so-called pill box type of fire-control stations introduced at Forts Barry and Cronkhite in 1941. (U.S. Army, Reports of Completed Works--Seacoast Fortifications, Fort Barry, B2S2 Chamberlain, corrected to November 14, 1941, National Archives II, RG 77, Entry 1007)

Most fire-control stations built through 1940 generally followed the same design as the fire-control stations built for Battery Townsley: a concrete box with a vision slit opening and earth camouflage cover (see fig. 4.51). In ca. 1941, the Army introduced a simpler pre-fabricated type, known as a pillbox. It was unique to the Harbor Defenses of San Francisco. B2S2 Rathbone, built in 1941 just north of the old Tennessee Point Reservation boundary at Fort Cronkhite, was the first of this type constructed at San Francisco. The design featured a steel dome at the front of a concrete box with a vision slit that closed by a steel shutter (fig. 4.58). As with previous stations, the pillbox type was built into the ground and camouflaged by rock cover. [70]

Fort Cronkhite received a number of other new fire control stations during this time. At Tennessee Point, B2S2 Guthrie was built in the cliff along the shoreline, apparently replacing B2 Alexander that was built in 1917. On the lower part of Wolf Ridge, a cluster of new stations was developed near the existing BC Townsley. These included G1 Cronkhite, a pillbox-type station completed in 1941 with a large underground telephone communications room and staircase rather than a hatch. Nearby were two of the earlier type stations, B1S1 Townsley and B4S4 Davis (Fort Funston). At Fort Barry, the new stations constructed prior to U.S. entry in the war included B1S1 Smith built into the cliff at the site of North Bonita Hill north of Battery Mendell in 1941. That same year, pillbox-type B2S2 Chamberlin, a secondary battery station for Battery Chamberlin at Fort Winfield Scott, was built on top of the cliff to the south.[71]

POST FACILITIES

Declaration of the Limited National Emergency on September 8, 1939 was followed by mobilization of troops to the headlands. As of February 1941, the Army needed to accommodate nearly 500,000 additional men across the country over 1939 levels, with 400,000 more expected to arrive by the following June. Fort Baker saw an increase in support personnel for operation of its station hospital, mine depot, and other facilities, but its only permanent garrison remained the coast artillery unit that had been assigned there since the post was reactivated in 1931. On October 17, 1939, the first permanent garrison returned to Fort Barry since its placement on caretaker status in 1921. At Fort Cronkhite, the first garrison arrived on June 20, 1941.[72]

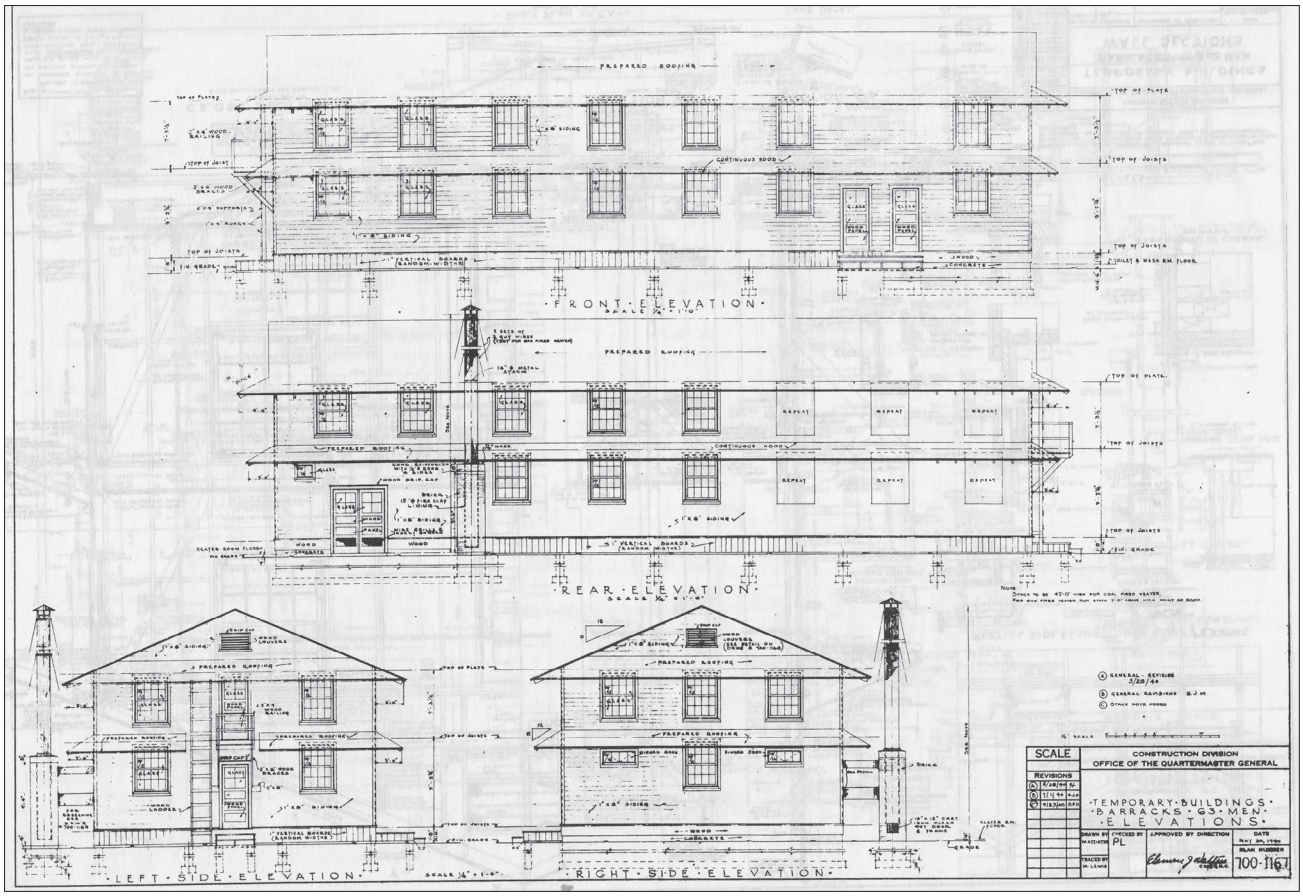


Figure 4.59. Elevations of a standard Series 700 barracks, showing character typical of temporary buildings erected during the World War II years. (Construction Division, Office of the Quartermaster General, "Temporary Buildings, Barracks, 63 Men Elevations, Plan 700-1167, National Archives II, RG 92)

The increases in troop levels led to construction of an extensive number of temporary post facilities at the headlands. Intended to last five to twenty years, these were classified as Series 700 buildings, and were a redesign of the World War I Series 600 series intended to make them more substantial and durable. The Quartermaster Corps began developing plans for the 700 Series in 1935 and produced blueprints for over three hundred types of wood-frame buildings from barracks and mess halls to chapels and recreation buildings. The typical Series 700 building was one or two stories with a low-pitched gable roof, double-hung multi-paned windows, concrete foundation piers, and clapboard, drop, or cement-asbestos shingle siding (fig. 4.59). Construction was launched in fall 1939 following declaration of the national emergency, and was greatly accelerated beginning in spring 1940 as the war in Europe intensified.[73]

FORT BAKER

Despite its lack of significant troop build-up during the pre-war national emergency, Fort Baker did receive substantial Series 700 development, notably along the open shorefront of Horseshoe Cove. This area was the site of a marsh that the Army filled in ca. 1903 during initial development of the main post, but it remained largely undeveloped. Here, the War Department approved construction

of a 229-bed hospital complex in May 1941 to supplement the main hospital at the Presidio. Constructed between July 1 and October 22, 1941 at a cost of $412,000, the densely developed complex consisted of twenty-five Series 700 buildings, most connected by covered walkways (fig. 4.60). Unlike the original post buildings or even many of the Series 700 buildings, these were all one story in height, which preserved much of the view of San Francisco from the main post. The hospital extended south of the parade ground to the Horseshoe Cove waterfront, surrounding two sides of the Quartermaster area and adjoining the mine depot's cable tank storage building. The entrance to the hospital faced north to the parade ground and featured an administration building accessed by a short circular drive. To its west was a dental clinic and to the rear were hospital wards, barracks, storehouses, a mess hall, a power plant, and miscellaneous other facilities such as animal wards and laboratories (fig. 4.61). Two hospital buildings constructed apart from the main complex were a large barracks and recreation building between the Quartermaster buildings and Cavallo Battery. A timber bulkhead was built along a portion of the waterfront, where two small hospital buildings were along the south side of Somerville Road. [74]

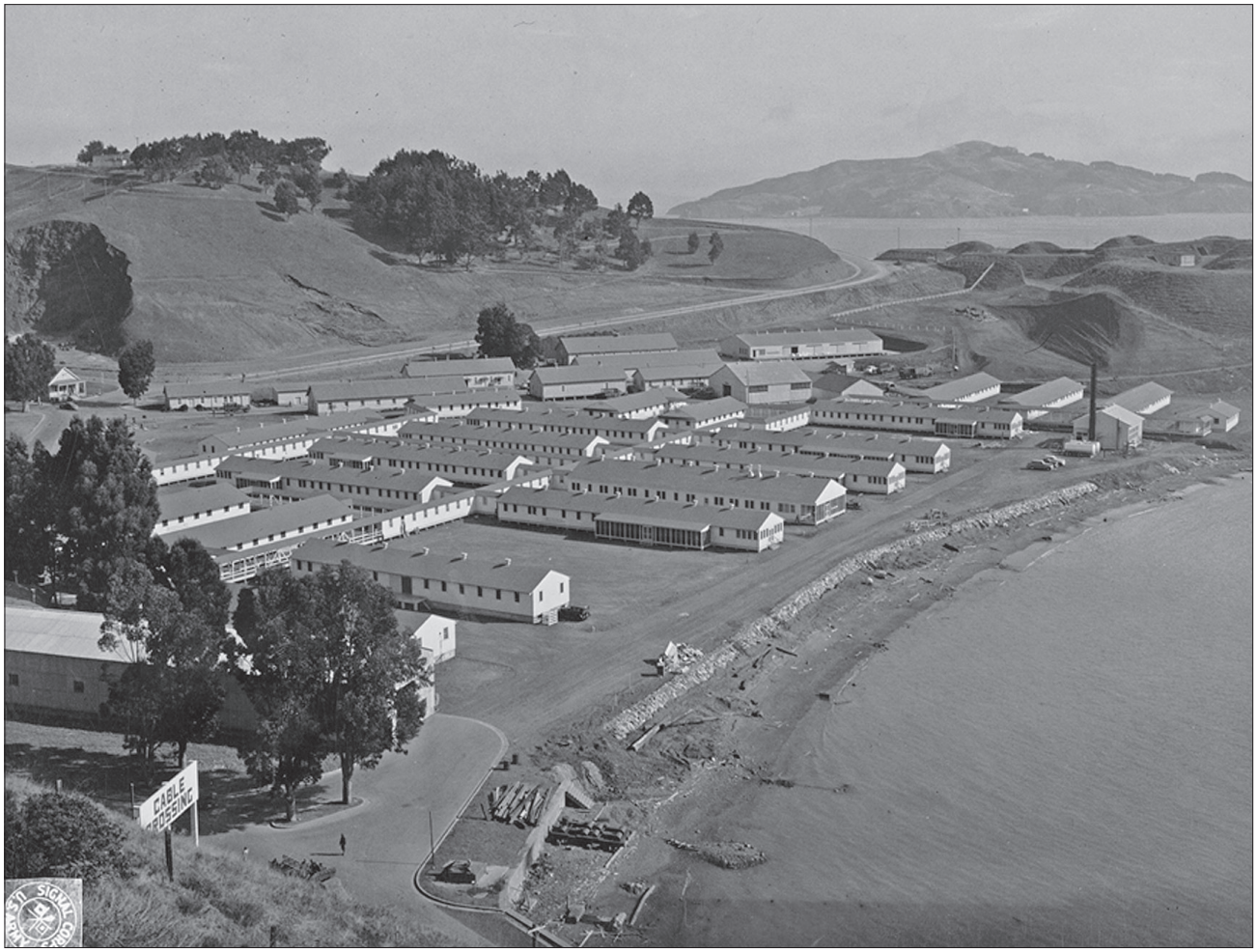


Figure 4.60. A U.S. Army Signal Corps photograph of the recently completed Station Hospital along Horseshoe Cove looking east from Old Conzelman Road, October 17, 1941. Visible above the beach is rip-rap used the stabilize the fill for the complex. In the background are the Quartermaster buildings, Battery Duncan, and Cavallo Battery. The excavated hill in the right background may have been the source for filling of the hospital site; it would soon be occupied by a recreation building. (Collection of John Martini)

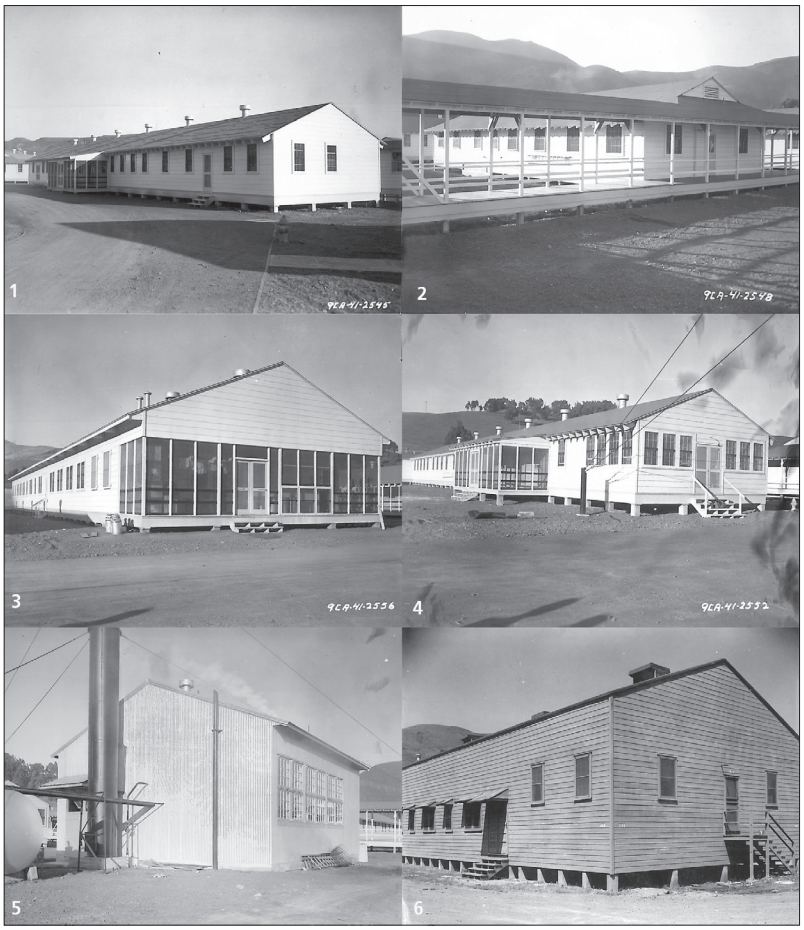


Figure 4.61. Buildings in the Station Hospital, photographed 1941. 1. Administration Building, with incomplete circular entrance drive in foreground. 2. Hospital quarters (barracks) with connecting breezeway. 3. Mess Hall, showing screened porch at south end. 4. Hospital Ward, with Battery Duncan in the background. 5. Power plant, with oil tanks and stack at left. 6. Recreation Building located near Battery Cavallo. (Fort Baker Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)

Outside of the Station Hospital, eight additional Series 700 buildings were completed in 1941 on the periphery of the main post (see fig. 4.61). These included a 300-person capacity chapel on the hillside above the barracks, set on a terrace supported by a stone retaining wall. At the north end of the main post near the old post hospital, a new road (Seitler Road) was laid out and three one-story duplexes were constructed along its west side as family housing. Along the east side of the post, behind the post-exchange and YMCA, four one and two-story barracks were erected, two of which were designated for bachelor officers. Concurrent with this new construction, the adjoining quarry was expanded to the north, most likely to supply stone for concrete or road paving. High on the hill above the post, a 400,000 gallon reservoir was built at the rear of Battery Duncan to service the new development.[75]

FORT BARRY

At Fort Barry, the national emergency mobilization between September 1939 and December 1941 led to a number of major developments at the reservation, including two new temporary housing areas (cantonments), expansion of the main post and West Portal area (former CCC Camp Spurr), and modifications to the rifle range. The larger of the two new housing areas was built along the road between Battery Alexander and the Engineer Department area, northeast of Battery Mendell. Plans for the complex, named the Mendell Area, were completed on October 31, 1940 and construction was completed on April 5, 1941 (fig. 4.62, 4.63). The project required extensive filling at the upper end of the gully to create level building sites. The complex featured thirteen one and two-story Series 700 buildings arranged in three rows parallel to the main road (Field Road). On the west side of the road, the complex included six two-story barracks for enlisted men, two one-story recreation and day room buildings, a one-story post exchange, and two one-story administration and storage buildings. On the east side of the road were two one-story 170-men mess halls. The buildings had asbestos-cement shingle siding and were accessed by wood steps that ascended the graded terraces (fig 4.64). Septic tanks were located in the sand gully to the north, near where the lighthouse keepers once pumped water.[76]

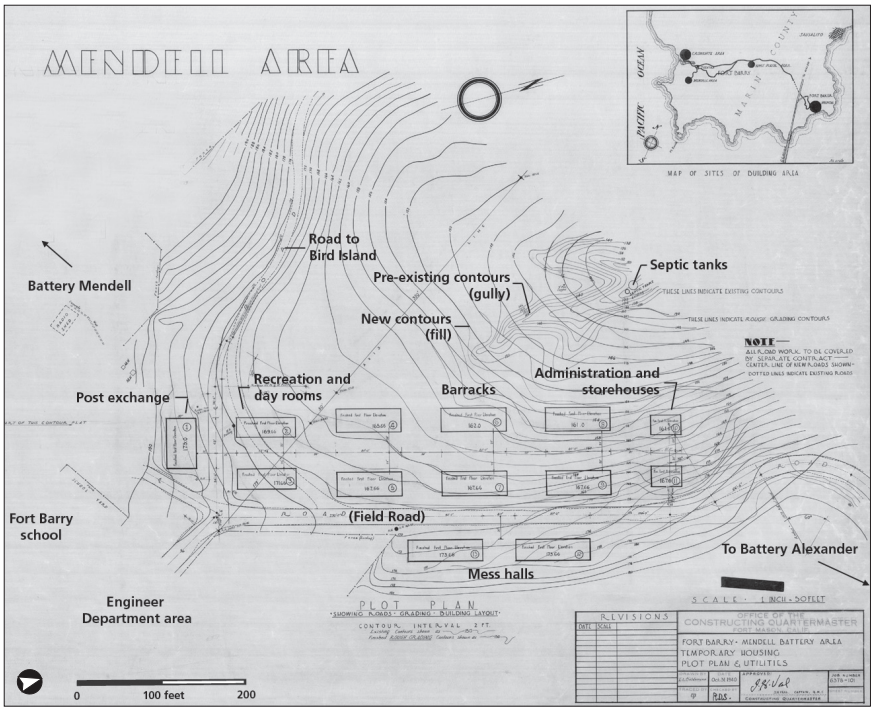




Figure 4.62 (top). A 1940 plan of the Mendell Area showing building sites and grading. ("Mendell Battery Area Temporary Housing Plot Plan & Utilities," October 31, 1940, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 551248, D215 F2)

Figure 4.63 (above): A mess hall (left) and two-story 63-man barracks in the Mendell Area, looking south along Field Road, 1941. (Fort Barry Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423.)

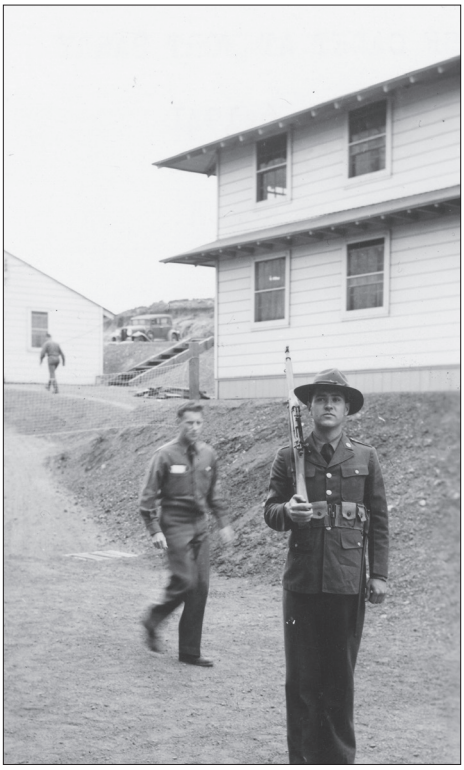


Figure 4.64 (right). The Mendell Area showing building terraces and wood steps, looking west, June 1941. The soldier with the rifle is USF cadet Cy Roach. (Golden Gate National Recreation Area, Park Archives and Records Center, Fort Barry ROTC camp photos, GOGA 22020)

The second new housing area was built in 1941 near the balloon hangar (former rifle range camp) between the Baker-Barry road and Rodeo Creek. This site earlier contained the collection of small buildings used as post facilities for the rifle range camp and employee civilian housing, along with the 800 and 1000-yard long-distance portion of the rifle range. The new complex, known as the Smith Housing Area but managed as part of the nearby Fort Barry main post, consisted of thirteen Series 700 buildings constructed along a curving spur off the Baker-Barry road (Bunker Road) (fig. 4.65). Completed in 1941, the Army intended teh area as family housing for enlisted men, and as housing for civilian employees. The year before the Smith housing was built, the Army converted the adjoining balloon hangar field into Fort Barry's motor pool—an area for centralized storage and servicing of automobiles. The redevelopment included construction of two large open automobile sheds and gas pumps in the balloon field, and guard house-dispatch office on the north side of the Baker-Barry road (fig. 4.66). The balloon hangar was converted into a garage and the former hydrogen generator house into a repair shop.[77]

Development of the Smith Housing Area required removal of the long-distance section of the rifle range on the north side of the Baker-Barry road (Bunker Road). At the time, the Army was making a number of changes and improvements to the rifle range, most

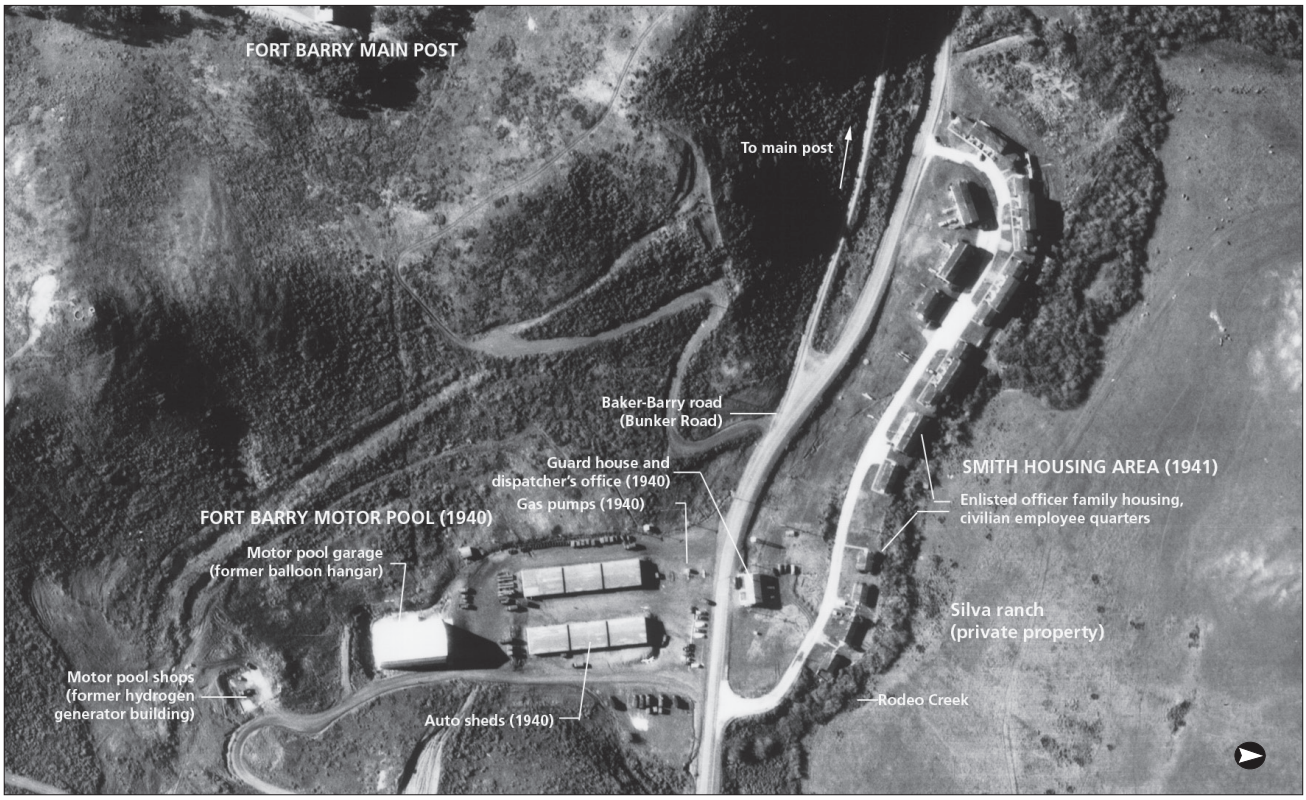


Figure 4.65. A post-war aerial showing the Smith housing area and Fort Barry motor pool built in 1940-41 at the site of the rifle range camp and civilian housing area, photographed 1951. The generator house had been demolished by the time of this photograph. (Aerial annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 3156)

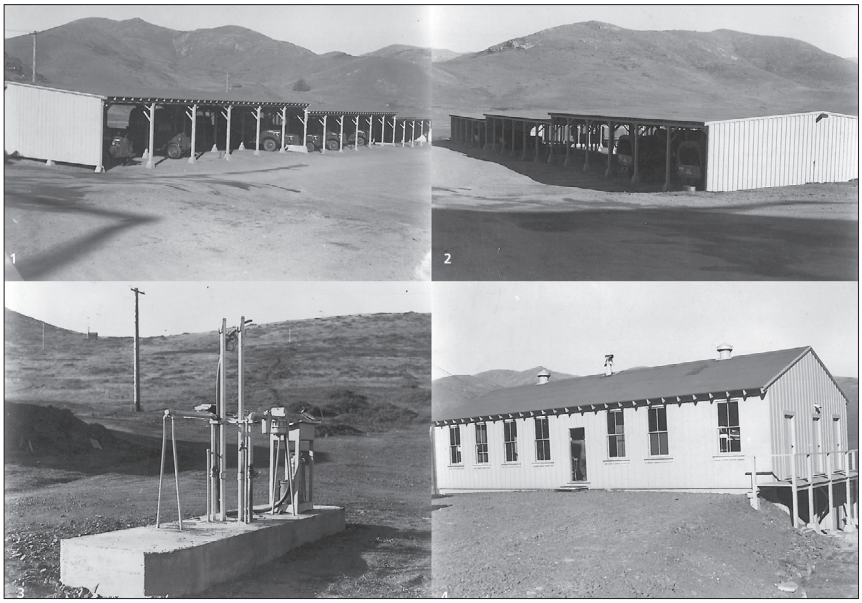


Figure 4.66. Development at the Fort Barry Motor Pool Area completed in fall 1940. 1, 2: 18-bay motor vehicle sheds. 3. One of three gasoline pump islands, each servicing a 5,000 gallon underground tank. 4. Guard house and dispatcher's office. (Fort Barry Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)

notably the abandonment of the pistol range, the smaller range along the east side of the rifle range, in ca. 1941. In place of this, a smaller pistol range was excavated into the hillside south of the rifle range. The old pistol range was utilized as the site of several new buildings and structures, including a target house on the south side of the old pistol target butts that was completed in July 1941 (fig. 4.67) That same year, an underground ready magazine structure was built on the north side of the butts, and a long frame building housing an indoor target range was built along the east side of the former pistol range. Six-foot-high turf-covered berms were added to the existing 200, 300, 500, and 600-yard distance marks on the rifle range, and a new distance mark and berm was added at the 100-yard line.[78]

To the west of the rifle range was the third cantonment built or enlarged at Fort Barry during the national emergency, the West Portal Area (former CCC Camp Spurr) along the boundary with Fort Baker (figs. 4.68, 4.69). The Army



Figure 4.67. The target house at the Departmental Rifle Range completed in July 1941 at the south end of the former pistol range, looking northeast, 1941. The lower concrete structure behind the target house is the pre-existing pistol range butts. An indoor target range was built later that year beyond the butts. (Fort Barry Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)

retained the CCC buildings erected in 1935, and in December 1939, expanded the shower-latrine buildings and constructed two new Series 700 mess hall-kitchen buildings on the south side of the former camp. A motor pool vehicle shed was added in 1940 on the north side of the Baker-Barry road.[79] In January 1941, a recreation building was erected in the center of the complex, and by April, as war preparations were accelerating, the Army completed eleven new Series 700 buildings, which brought the capacity of the area to 690 enlisted men and forty officers. The new buildings included a row of six four-family barracks along the south side of the area, and a barracks for bachelor officers built at an angle to the other buildings at the southeast corner of the site. Two store houses, a day room, and a new mess hall were built between the earlier buildings. The old CCC mess hall was used as an administration building. Gravel walks were built from the interior road (Smiley Street) to the new barracks, and new water lines were installed in the fall of 1941. The landscape was maintained as turf without ornamental plantings.[80]

At outset of the Limited National Emergency in the fall of 1939, the Fort Barry main post was undergoing road, site, and garage improvements, but otherwise retained much of its earlier character defined by the officer quarters, barracks, and hospital surrounding the parade ground, along the curving road marked by entrance gates and shaded by maturing cypress trees (fig. 4.70). As war preparations accelerated and units returned to Fort Barry in October 1939, a new cluster of temporary build-

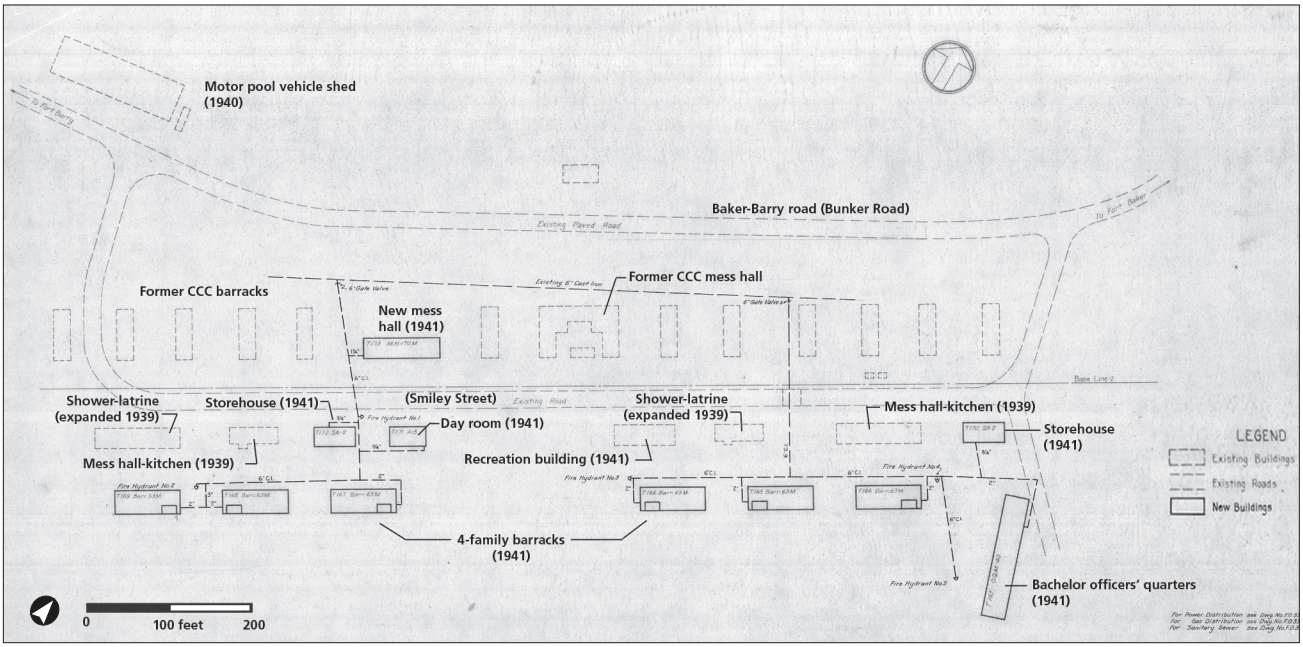


Figure 4.68. Map of the West Portal Area showing new Series 700 building completed by April 1941, and preexisting buildings dating to 1935 and 1939. The map was made early in 1941 and used to show water lines completed the following fall. (U.S. Army, "Completion Report, West Portal Area Water Distribution," October 17, 1941, Golden Gate National Recreation Area, Park Archives and Records Center, D215 F1, GOGA 20829, annotated by SUNY ESF)



Figure 4.69. The west half of the West Portal Area (former CCC camp) showing new construction completed 1939 and 1941, photographed ca. 1945. At the right of the photograph is the 'U'-shaped former CCC mess hall in the middle of the complex. (Edmund Glowacki Fort Barry Photo Collection, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 27993.013)



Figure 4.70. The east entrance to the Fort Barry main post, looking south, ca. 1940. The entranceway, similar to those on East Road and at the entrances to Battery Spencer and road to Battery Kirby, were erected in ca. 1910, around the same time that the Monterey cypress were been planted. (Captain C. D. Baylis, editor, *Historical and Pictorial Review of the Harbor Defenses of San Francisco,* 1941)

ings was developed at the west end of the post, in the same area as the World War I temporary buildings had stood north of the gymnasium (fig. 4.71). The extension of the Baker-Barry road (Bunker Road) to Fort Cronkhite in 1937 had made this a more favorable location for support buildings. One of the first to go up here, in ca. 1939, was a small tailor shop built next to the old post-exchange, north of the gymnasium. The shop was operated by the civilian Montpart family of San Rafael, who may have constructed the building themselves.[81]

Soon after the tailor shop was built, a new road (Bosworth Road) was constructed through the area to connect the main post road (Simmonds Road) with the Baker-Barry road to Fort Cronkhite (Bunker Road). The old post-exchange built in ca. 1908 was demolished, and the gymnasium was converted in part to serve as the new post exchange. By 1941, five temporary buildings had been erected in the area: a radar shop, a large motor vehicle shed similar to those near the balloon hangar, a motor vehicle dispatch office built immediate north of the tailor shop, and a chapel (see fig. 4.71). The radar shelter, located north of the gymnasium-post exchange, was



Figure 4.71. Additions to the Fort Barry main post and development of the Mendell Area and Fort Cronkhite cantonment during the national emergency, photographed May 1942. This aerial also illustrates some of the many field defenses set up immediately after Pearl Harbor. (Golden Gate National Recreation Area, Park Archives and Records Center, Map Collection, D187 F1, annotated by SUNY ESF)



Figure 4.72. The chapel at the Fort Barry main post nearing completion, looking northwest, 1941. (Golden Gate National Recreation Area, Park Archives and Records Center, Interpretive Negative Collection, GOGA 2316)

used to store radar equipment and was within a fenced area. The theater, located south of the gymnasium-post exchange, was a large one-story Series 700 frame building measuring 140 by 76 feet, with a capacity of 1,038 seats. The chapel, located near the Baker-Barry road, was intended to serve the new cantonment going up at Fort Cronkhite, and was the same Series 700 design as the one at Fort Baker, with a steeple and a capacity of 300 (fig. 4.72).[82]

FORT CRONKHITE

The most substantial development at the headlands during the national emergency of 1939–41 was the Fort Cronkhite cantonment, a wartime mobilization post sited on the north side of Rodeo Lagoon within view of the Fort Barry main post (see fig. 4.71). The hillside site for this large complex was graded into building terraces that paralleled the Lower Road (Mitchell Road) (fig. 4.73). Two streams were piped beneath the terraces to Rodeo Lagoon. An open ditch was planned along the entire uphill boundary of the cantonment to drain surface runoff around the cantonment. Culvert heads, ditch catch basins, and retaining walls were built with mortared local stone that was probably obtained from site grading and quarries

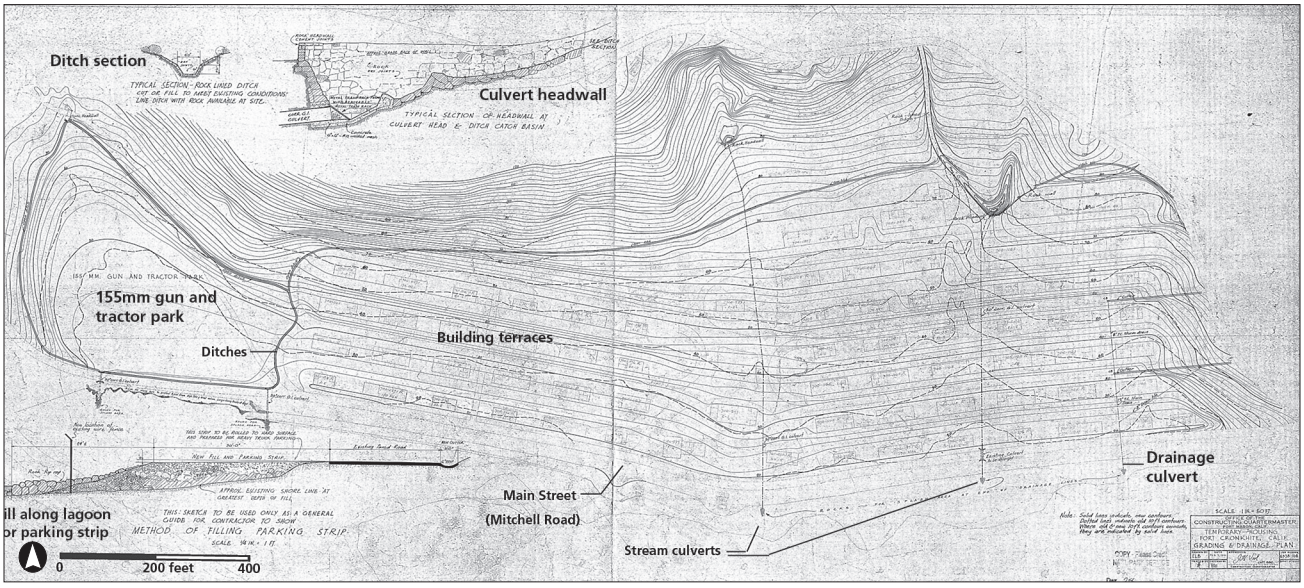


Figure 4.73. Grading and drainage plan of the Fort Cronkhite cantonment, February 7, 1941. The ditches were not built as shown. (U.S. Army, "Temporary Housing Fort Cronkhite, Calif., Grading & Drainage Plan," annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, D218, F1)

in the hill east of the cantonment. Fill was added along the north shore of Rodeo Lagoon to provide parking along the Lower Road.[83]

Construction of the cantonment buildings, designated for the 56th Coast Artillery and for troops from the 6th Coast Artillery stationed at Battery Townsley and Wolf Ridge, began in the spring of 1941 and was largely complete by that May. The complex, containing eighty-two Series 700 buildings, had a capacity of 2,202 enlisted men, eighty officers, and one officer's family. The cantonment was laid out in a three-part plan with a small central triangular area containing the administration building, fire station, and post-exchange, with a guardhouse and infirmary to the north. The two flanking areas, known as the east and west wings, contained parallel rows of barracks, mess halls, recreation buildings, and storehouse-administration buildings (fig. 4.74). The east wing was the larger complex with seven rows of buildings, compared to the four in the west wing. [84]

Streets were laid out along every second row of buildings and converged at the central area. All had concrete gutters along the uphill sides. The Army named the old ranch road East and West Main Street (present Mitchell Road), and the parallel streets within the cantonment were designated by numbers according to their location relative to Main Street in the east or west wings (West First Street, East Second Street, etc.).[85] The central area contained several parking areas along the roads, and a large graded area at the west end of the cantonment was designated for parking of the 56th Coast Artillery's World War I-era mobile 155-millimeter guns and trucks. The parade ground was a rectangular graded area along Battery Road (Bunker Road) above the east wing, across from the commanding officer's

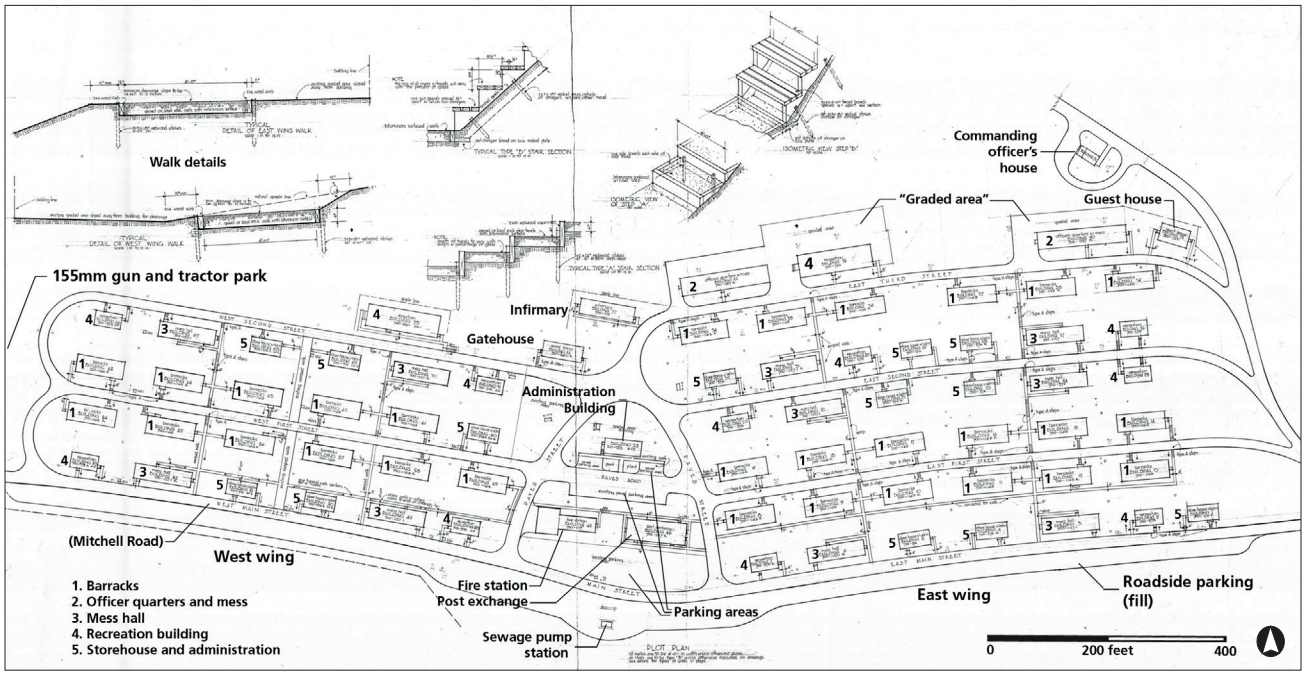


Figure 4.74. Plan of the Fort Cronkhite cantonment as completed by June 1941 showing streets and buildings. The plan also shows proposed parking, and paved walks and wooden steps between the buildings and streets, which may not have been built as shown. (U.S. Army, "Fort Cronkhite, Calif., Sidewalks for Temp. Housing, Plot Plan & Walk Details," June 23, 1941, Golden Gate National Recreation Area, Park Archives and Records Center, D218, F1, annotated by SUNY ESF,)

residence, that measured approximately 500 feet wide by 250 feet deep (see fig. 4.71). Its surface was maintained as earth rather than turf as found at the older posts. Water supply for the cantonment was provided through a new 400,000-gallon concrete reservoir on the top of the hill near the Townsley reserve magazine completed on August 11, 1941. A network of overhead utility lines on wood poles ran between and across the rows of buildings. [86]

By late spring of 1941, the eighty-two buildings in the cantonment were nearly complete (figs. 4.75, 4.76). They followed standard Series 700 plans, the same as those found in the Mendell Area, Smith Housing Area, and West Portal, but with variations in siding materials. The Cronkhite buildings featured reinforced concrete-pier foundations, gable roofs sheathed in composition paper, open eaves with rafter tails, wooden drop siding, and double-hung sash windows. The administration building in the central section was a two-story building with pent roofs over the front windows, and the adjoining fire station and post-exchange were a single story each. The mess halls, recreation buildings, and storeroom-administration buildings along Main Street and Second Street were one-story buildings, while the sixty-three-men barracks along First Street were two stories with a pent roof between the floors. East Third Street was lined by six two-story barracks and two, two-story officer quarters. On Battery Road facing the parade ground was a one-story single-family house for the commanding officer (fig. 4.77). The Cronkhite cantonment shared facilities with the Fort Barry main post, including the theater, motor pool, and chapel completed around the same time.[87]

Figure 4.75. The Fort Cronkhite cantonment with the East wing in the foreground, looking west, May 26, 1941. The walks and roads had not yet been completed. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 2316)



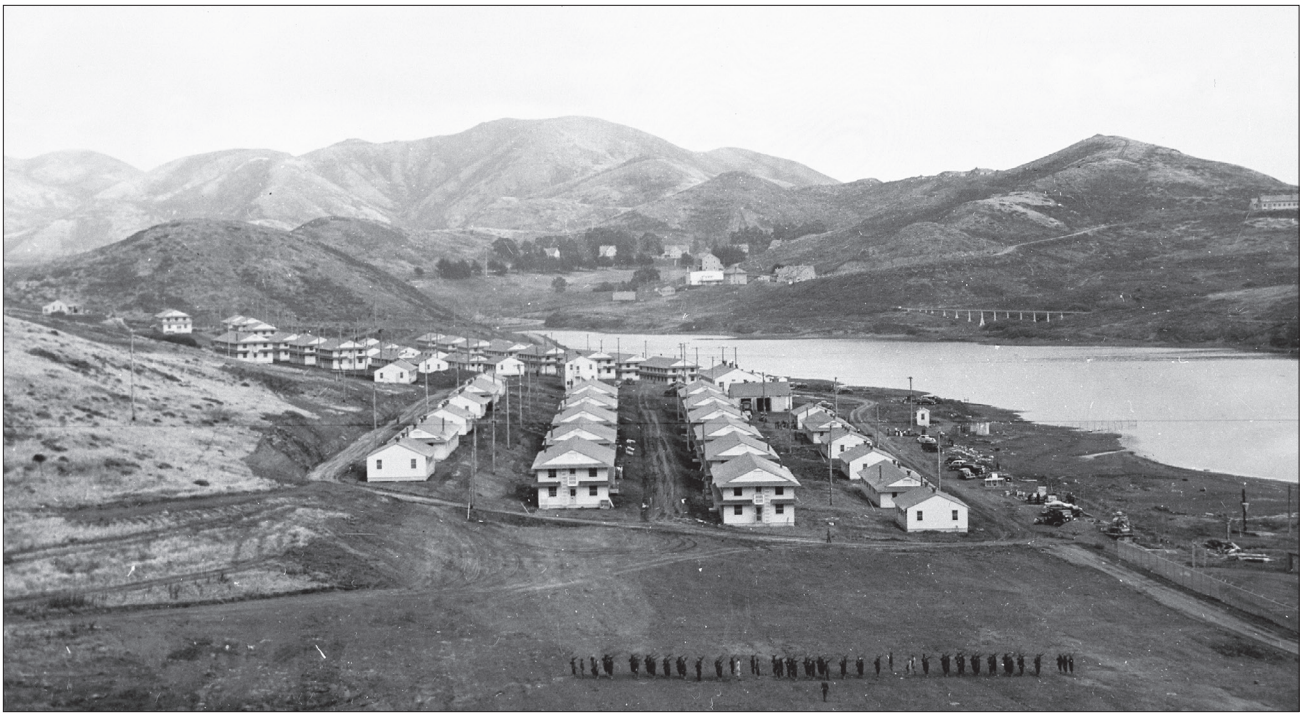


Figure 4.76. The Fort Cronkhite cantonment looking southeast, June 24, 1941. The walks and roads had not yet been completed. The open area in the foreground was designated for parking of 155 millimeter anti-aircraft guns and trucks, but at the time of the photograph was being used for drills. The Fort Barry main post is visible in the distance. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 35301.0983)

Figure 4.77 (below). The east wing of the Fort Cronkhite cantonment looking west showing the Commanding Officer's quarters and parade ground along Battery Road (Bunker Road) toward the right, ca. 1942. This photograph also shows completion of the cantonment roads with gutters. (Golden Gate National Recreation Area, Park Archives and Records Center, Carroll Lundeen Photo Collection, GOGA 2185.019)



On June 20, 1941, enlisted troops moved into the new barracks at Fort Cronkhite. Meanwhile, work was nearing completion on the site improvements, including paving of the roads with red macadam and constructing concrete gutters. Walks between the roads and buildings within the cantonment were initially gravel and macadam, and steps at the buildings were wood and those at the edges of the terraces had wood risers with gravel fill. A stone retaining wall was constructed along a steep slope on the upper side of the west wing (Kirkpatrick Street). The ground was stabilized with turf, but no trees or other ornamental plantings were made.[88]

PRACTICE MANEUVERS AND CAMOUFLAGE

During the summer and fall of 1941, military activity on the headlands continued to increase as U.S. entry into the war became imminent. Preparations included extensive practice maneuvers for the hundreds of new troops stationed at the headlands who staffed batteries, put mobile guns into position, set up mock battles, and built temporary field fortifications that included trenches, foxholes—small holes for individual soldiers—and larger pits for one or more soldiers with rock and scrub concealment (fig. 4.78).[89] These fortifications were sited to protect approaches to batteries, roads, and landing areas, and included encampments nearby (fig. 4.79). Many of the field fortifications were used as actual defenses following the U.S. entry into the war.

There were several areas within the headlands where practice maneuvers were concentrated. At the old site of North Bonita Hill north of Battery Mendell, troops built foxholes and trenches as part of a practice area for antiaircraft defense maneuvers.[90] Another cluster of trenches and barbed-wire entanglements were at the north approach to the fire-control stations on Bonita Ridge. At the Fort Cronkhite cantonment, troops practiced building small foxholes and tent sites on the hillside above the barracks, and set up positions for larger 155-mm guns (fig. 4.80). Between the Cronkhite barracks, soldiers built numerous trenches in various shapes resembling letters of the alphabet that were also intended as personnel shelters in case of aerial attack (see figs. 4.71, 4.77). Troops built still more foxholes, trenches, and tent sites in the Little Ranch valley, north of the old Silva ranch buildings. The landscape was crisscrossed by earthen tracks made by jeeps and other vehicles transporting supplies and troops.[91]

A large part of the preparedness effort went into developing camouflage primarily intended to address the threat of aerial bombardment, as opposed to earlier efforts taht addressed concealment from ships at sea. Army engineers had been developing such camouflage for a number of years, notably in the design of Battery Townsley and its associated structures that were concealed largely below ground. In December 1938, Army engineers outlined a program of "Protective Concealment" for Townsley and its sister work, Battery Davis. It called for a two-pronged approach to further camouflage

Figure 4.78 (top). Soldiers practicing maneuvers with a machine gun and rifles in a temporary field emplacement at Fort Cronkhite consisting of a hole with rock and scrub cover, 1941. The soldiers are not identified. (Golden Gate National Recreation Area, Park Archives and Records Center, Ralph Dotson Photographs, GOGA 32430.03)

Figure 4.79 (bottom). Soldiers Richardson, Jorek, and McGuire at a "chow time" break during maneuvers at Fort Cronkhite showing tents put up in the field, 1941. (Golden Gate National Recreation Area, Park Archives and Records Center, Ralph Dotson Photographs, GOGA 32430.06)







Figure 4.80. Soldiers at 155 MM gun emplacements on the hillside above the Fort Cronkhite cantonment, looking south toward Rodeo Beach, ca. 1941. These were most likely used for practice. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 35256.0517)

the works. The first was to fit the batteries into their surrounding natural landscape, and the second was to create so-called dummy features that would draw attention away from the real defenses or create an illusion of an everyday landscape such as a farm or group of summer cottages.[92] By August 1939, engineers had worked out preliminary plans to erect a two-gun dummy battery north of Battery Townsley, two dummy entrances to underground structures at ends of the roads on Wolf Ridge, and two dummy magazines north and east of the reserve magazine (see fig. 4.45). The road to the Townsley PSR room was planned for extension north to Battery Townsley. By forming a complete loop around Little Ranch Valley with Battery Road (Bunker Road), the road extension would conceal the location of the battery. The old ranch buildings, which remained during development of Battery Townsley, were retained to make the area look like a typical rural landscape. The only building removed by the Army was the old hay barn, which was demolished in ca. 1940.[93]

In October 1939 as work on Townsley was nearing completion, Army engineers issued a memorandum detailing how to camouflage the battery and other works at Fort Cronkhite, primarily from aerial view. The engineers called for grading and addition of topsoil, placing rocks to simulate natural outcroppings, and planting native vegetation. The District Engineer wrote,

> The purpose of the planting, transplanting, grading, replacement of topsoil, and placing of rocks program is to restore and stimulate natural growth in worked over construction areas, to render elements already constructed similar to existing ground forms in the vicinity, and to make the area appear to contain no unusual artificial features.[94]

Based on an Army technical manual issued in March 1941 entitled "Protective Concealment for Seacoast Fortifications," engineers issued a report in October 1941 that provided specific direction on camouflage for the unique conditions at all of the San Francisco harbor defenses through painting, netting, plantings, and dummy features. This work followed the same intent and many of the same practices recommended for Battery Townsley and other works at Fort Cronkhite two years earlier.

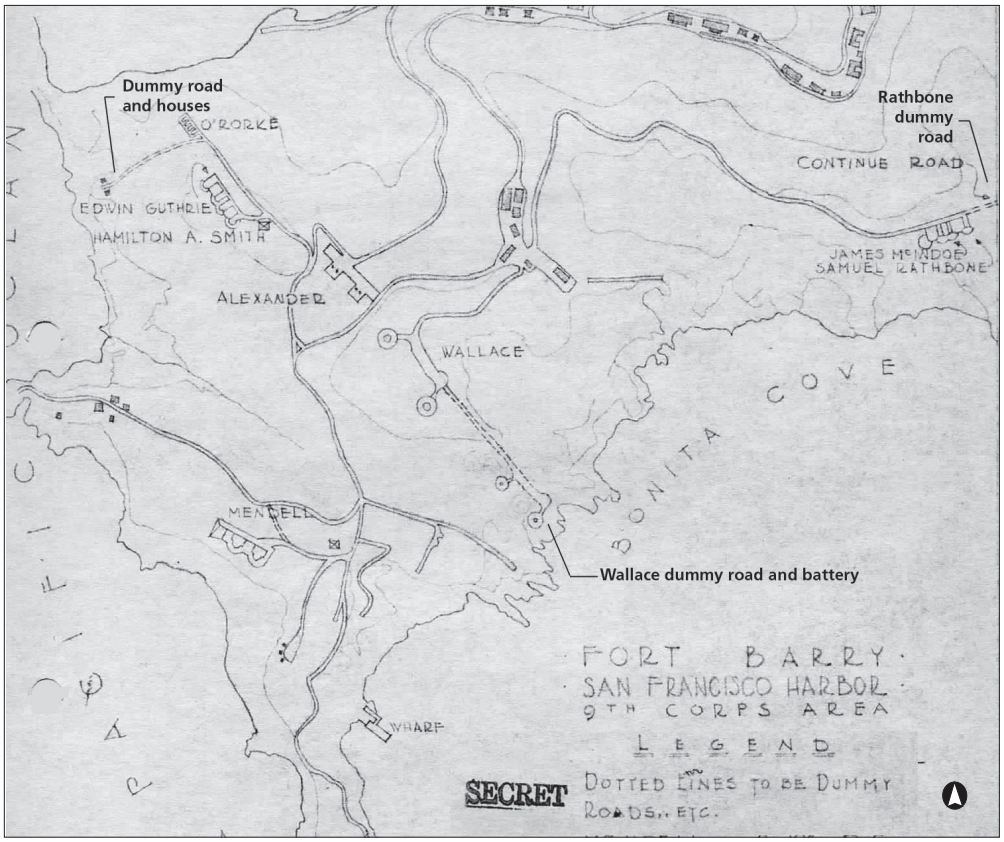


Figure 4.81. Map of proposed camouflage at Fort Barry, October 1941. While the proposals were not carried out as shown on the map, the road extensions at Wallace and Rathbone–McIndoe were built during World War II, although in different alignment. (U.S. Army Office of the Chief of Engineers, "Camouflage of Seacoast Defenses, Recommendations and Cost Estimates, Ninth Corps Area," October 1941, annotated by SUNY ESF, National Archives II, RG 77, entry 1007, box 136)

At Fort Baker, the document directed that the concrete of Battery Spencer be painted "to the tone of the surrounding area" and that the native growth "should be encouraged to grow in a wild and natural state as close to the battery as will not interfere with the operation of the guns."[95] Battery Yates was recommended for concealment by nets and painting the battery concrete with "blotches to give a mottled effect that blends with the surrounding terrain," and allowing growth of the natural vegetation.[96]

At Fort Barry, the report noted that concealment of the entire fort was difficult because of its conspicuous terrain and lack of trees. Although the report called for use of netting, painting, and camouflage over the batteries and roads, the bulk of the recommendations focused on erecting dummy features. At Battery Wallace, engineers called for extending the access road that dead-ended at the battery, and building a two-thirds size dummy battery at its terminus along the coast (fig. 4.81). Similar plans were devised for the fort's two other dead-end access roads. At Battery Rathbone–McIndoe, engineers called for extending the road a quarter mile to the east and constructing a dummy battery at its end. At Battery O'Rorke, a short road was proposed to run west of the battery and terminate at two dummy cottages over-



Figure 4.82. The camouflage net over gun #1 of Battery Townsley, looking south, ca. 1941. (Army photograph, National Archives II, RG 77, entry 1007, box 136)

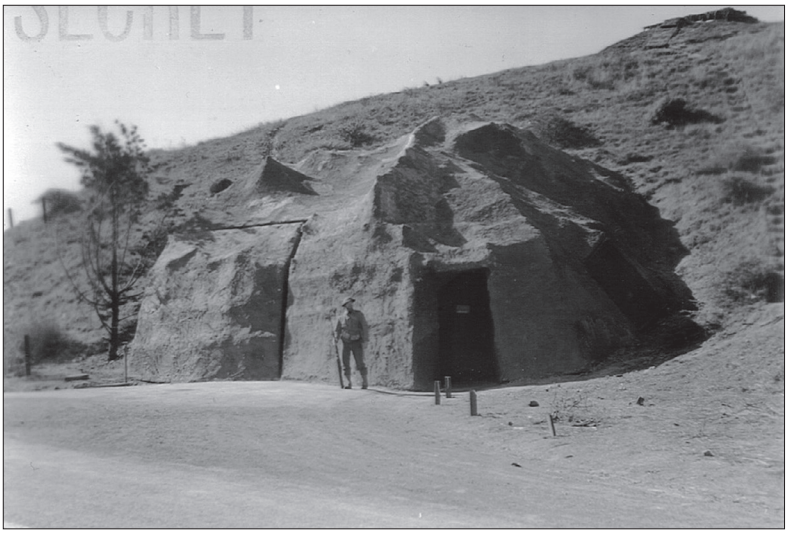


Figure 4.83. Artificial rock camouflage at entrance to Battery Townsley's casemate #2, looking southwest, ca. 1941. The tree at left was apparently part of the camouflage scene. The identity of the soldier is not known. (Army photograph, National Archives II, RG 77, entry 1007, box 136)

looking the coastline. At Fort Cronkhite, the only additional camouflage recommended in the report was the addition of nets at AA Battery #1.[97]

At Battery Townsley, the engineers found that "sufficient protective concealment was incorporated in the design of this battery to obviate the necessity of any additional work being done."[98] By this time, the work included placement of nets over the casemates, made of hemp rope with dyed strips of canvas, and construction of artificial rock over the entrance portals, a technique not cited in previous reports (figs. 4.82, 4.83). The rock, which contained movable sections to allow access into the battery, was made of a framework of wood and chicken wire covered with burlap plastered with casting plaster, cement, sawdust, or sisal, and then painted.[99] Together with the overall underground design, these camouflage elements made the massive battery largely invisible from the air (fig. 4.84).

Many of the recommendations in the October 1941 Army report, including battery painting, plantings, and netting, were implemented across the headlands. AA Battery #1 on Wolf Ridge also received artificial rock to create covered pas-

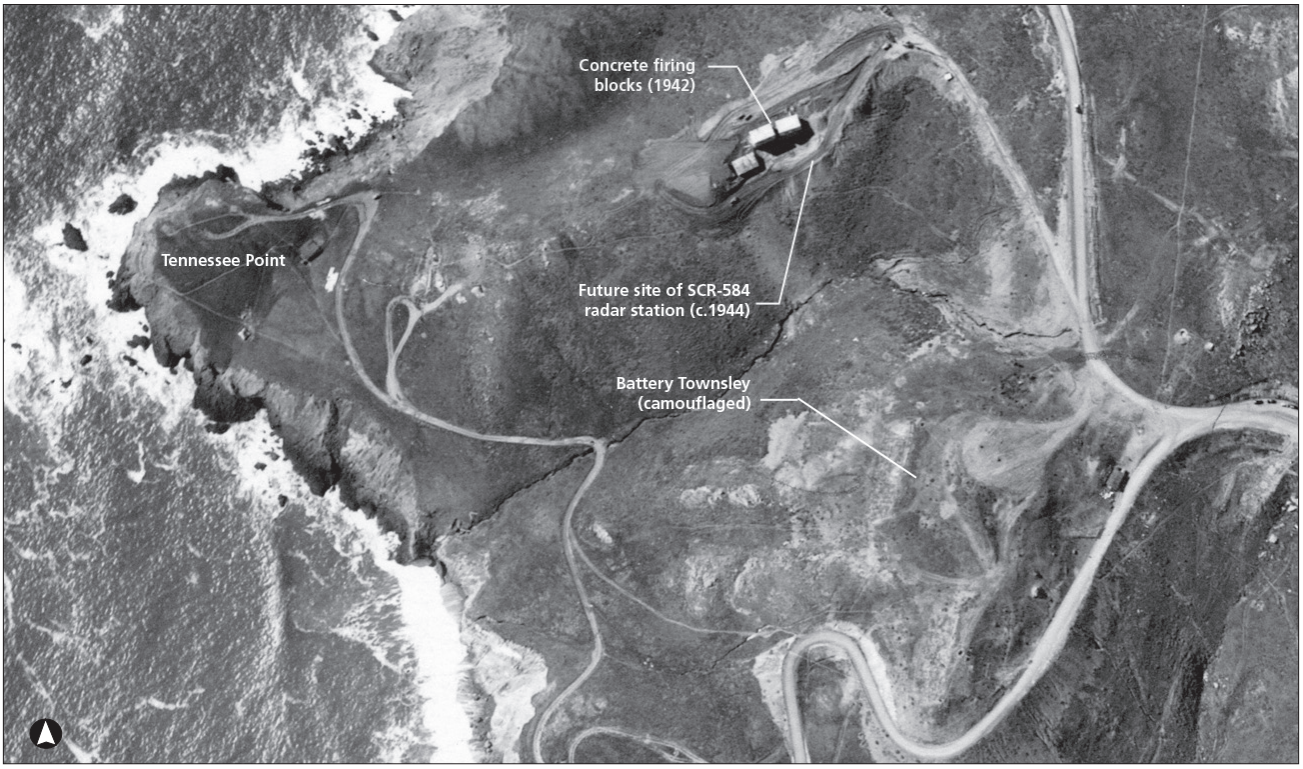


Figure 4.84. Aerial photograph of Battery Townsley showing effectiveness of camouflage, May 1942. The AA Battery #1 radar consisted of moveable trailers. (Aerial annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, Map Collection, D187, F1)



Figure 4.85. Movable camouflage net over gun #2 at AA Battery #2 on Rodeo Ridge in Fort Barry, view looking northeast, ca. 1941. Such netting was generally made of hemp rope with dyed strips of canvas. In the left background is the Fort Barry main post, and at the upper left, the West Portal Area. The long dark structure at the upper right is the dug-in mess hall in the hutment across from Battery Rathbone–McIndoe. (Army photograph, National Archives II, RG 77, entry 1007, box 136)

sageways between the guns and associated structures. To cover guns that could not be concealed by other methods, troops built moveable nets on wood frames, such as those installed at AA Battery #2 on Rodeo Hill at Fort Barry (fig. 4.85). Most of the major dummy construction projects, such as the dummy batteries, short road extensions, and cottages at Forts Cronkhite and Barry, were not constructed, most likely due to cost.[100]

ENTRY INTO WORLD WAR II

After nearly five years of accelerating preparation, the West Coast went on high alert for attack with the U.S. declaration of war following the sneak Japanese aerial bombardment of the Pearl Harbor naval station in the morning of December 7, 1941. San Francisco was the West Coast's most important military area in support of the Pacific war. Not only did the harbor contain a vital shipbuilding complex, it was also an Army Port of Embarkation and contained key Navy bases. To defend these installations, the Army invested tremendous resources into making the harbor's antiaircraft and antisubmarine defenses as strong as possible.[101]

By noon of December 7th, all harbor defense stations and installations at San Francisco were activated, charged with the mission of protecting harbor facilities and Navy ships. This included ensuring friendly shipping, denying access to enemy ships, and defending against an attack by land. The harbor bristled with troops constructing and operating antiaircraft and anti-beach landing defenses. U.S. entry into the war also gave great impetus for the Army to complete improvements to the coast defenses begun with the 1937 Project and continued in the modernization program of 1940.

FIELD AND ANTI-AIRCRAFT DEFENSES

Immediately after the aerial bombardment of Pearl Harbor, troops rushed into position a vast array of field defenses in the headlands, focusing initially on the beaches along the Pacific and Golden Gate that were seen as likely enemy landing sites, such as Tennessee Cove, Gravelly Beach, Rodeo Beach, and Horseshoe Cove. Here and elsewhere, troops dug trenches set up barbed-wire entanglements



Figure 4.86. Sargent Ed Larson in a barbed-wire entanglement near the bayside of Fort Baker, December 1941. (Golden Gate National Recreation Area, Park Archives and Records Center, Headlands Photograph Collection, GOGA 18494.003)

(fig. 4.86). Mobile artillery was moved into place, and hundreds of fighting positions—simple protective dugouts for soldiers with small arms—were built to serve as secondary defenses at potential enemy landing places, along access routes, and adjacent to gun emplacements. The fighting positions included foxholes, simple dugouts one or two soldiers measuring generally six to eight feet long and two feet deep; narrow trenches in various shapes reinforced with wood sides; or simple stacks of concrete-filled sandbags (fig. 4.87, see also fig. 4.71).[102]

In addition to fighting positions, troops built more substantial emplacements for portable antiaircraft machine guns across the headlands during the war years. While the fixed guns at AA Batteries #1 and #2 on Wolf Ridge and Rodeo Hill remained the core of the harbor's antiaircraft artillery, the smaller field defenses provided a wide range of cover against enemy aircraft, as well as targets on land and water. Many of these guns were emplaced in the days after Pearl Harbor, while others were installed later in the war. The Army issued manuals detailing the design and construction of emplacements for a variety of antiaircraft equipment, from guns and height finders, to portable power plants and searchlights. Most of these emplacements consisted of holes with the spoils used to construct all-around parapets reinforced with sandbags filled with concrete.[103]

Figure 4.87 (bottom). Soldier Carroll Lundeen at a sandbag-type foxhole at Fort Cronkhite, ca. 1942. In the background is the Fort Barry reservation. (Golden Gate National Recreation Area, Park Archives and Records Center, Carroll Lundeen Photograph Collection, GOGA 2185.012)



By 1945, the antiaircraft artillery field emplacements at the headlands consisted of two main types. Most of the smaller artillery consisted generally of .50 caliber Browning machine guns designed to protect against low-flying enemy aircraft and usually installed on tripods or single-pole mounts. Emplacements for these guns were typically eight-foot wide holes surrounded by an earth and concrete sandbag revetment (figs. 4.88, 4.89). Several were also built in more permanent poured-concrete hexagonal pits in a variety of sizes.[104] The second type of antiaircraft field artillery was the 40-millimeter automatic weapon that was field mounted or mobile, and brought in on a trailer that was towed into a sandbagged position. These emplacements were approximately fifteen feet across inside, and had an opening at the rear for truck access (fig. 4.90). More elaborate version had appendages for a director's pit. Each field emplacement usually had foxholes and slit trenches nearby where soldiers were bivouacked to support the person firing the gun. One soldier stood behind the gun at all times.[105]



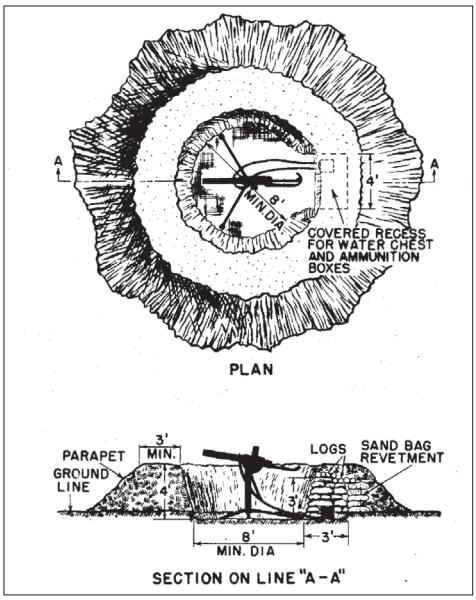


Figure 4.88 (left). An unidentified soldier with antiaircraft emplacement #17 on top of Battery Townsley PSR room showing a typical concrete sandbag-lined pit, ca. 1943. The weapon is a .30-caliber water cooled machine gun. (Golden Gate National Recreation Area, Park Archives and Records Center, Fort Cronkhite photo collection, GOGA 40015.014)

Figure 4.89 (right). Plan and section of a model emplacement for .50-caliber machine guns. (U.S. Army, "Antiaircraft Artillery Emplacements," Training Bulletin no. 69, 1943)

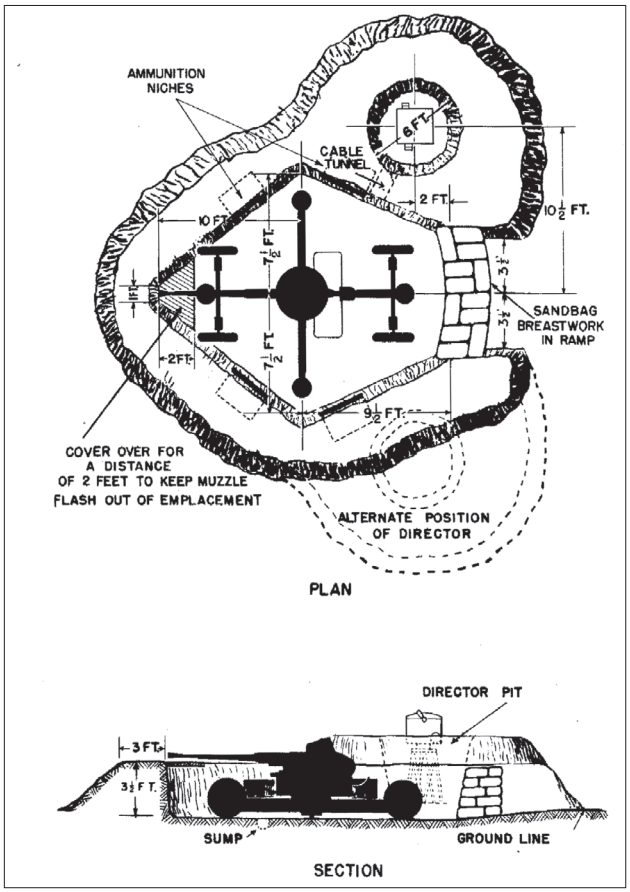


Figure 4.90. Plan and section of a model emplacement for a 40-millimeter automatic weapon on a wheeled carriage. (U.S. Army, "Antiaircraft Artillery Emplacements," Training Bulletin no. 69, 1943)

At the headlands, these antiaircraft guns were placed on top of underground reservoirs, on battery earthworks, on the hillsides above the main posts, and near cliff edges (fig. 4.91). Portable anti-aircraft searchlights were typically positioned nearby to illuminate targets. The .50-caliber guns were the most numerous type of antiaircraft emplacement, occupying many of the ridge tops and other vantage points throughout the headlands. As inventoried in 1945, guns #14 through #19 were emplaced at Fort Cronkhite (#13 was actually built on private property north of the Fort Cronkhite boundary), #20 through #32 were at Fort Barry, and #33 through #38 were at Fort Baker. The 40-millimeter antiaircraft automatic weapons were fewer and more widely spaced. At Fort Cronkhite, gun #1 was at the northeast corner of the reservation on Wolf Ridge, accessed by an extension of the road from AA Battery #1 along the spine of the ridge. Gun #2 was positioned on the hillside above the magazine and storeroom for AA Battery #1, #3 was near the reservoir above the Fort Cronkhite cantonment, and #4 was near the Townsley plotting room overlooking the Pacific. Fort Barry's 40-millimeter guns, #5 through #11, were located near Bird Island, on Point Bonita above the tunnel, on Battery Wallace, on the ridge between the main post and the former balloon hangar, and on the north end of Diablo Ridge. At Fort Baker, the

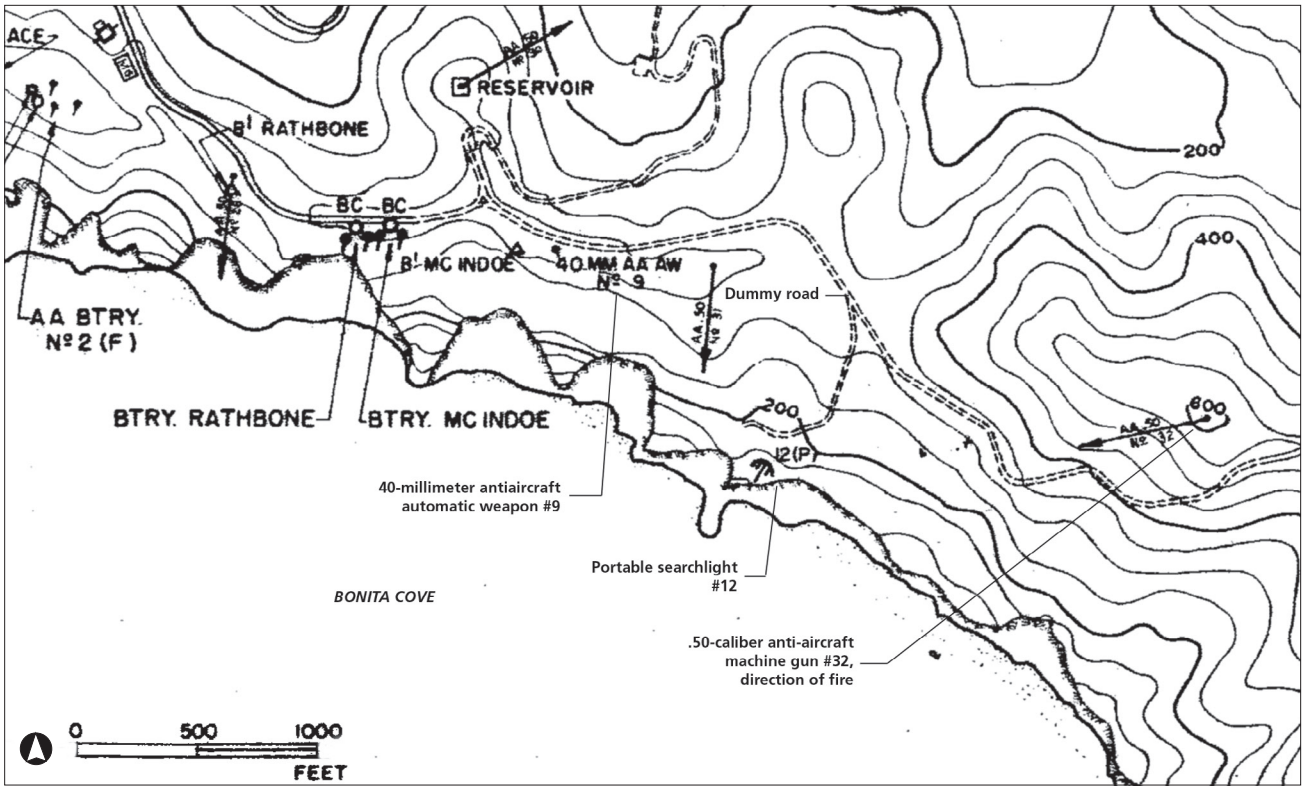


Figure 4.91. Detail of a map of Fort Barry illustrating location of antiaircraft field artillery and searchlights near Battery Rathbone–McIndoe by the end of the war. This placement reflected typical conditions along the shorefront areas of the headlands. (Detail, U.S. Army, "Military Reservation, Fort Barry, Location No. 9, Harbor Defenses of San Francisco," November 1945, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center)

40-millimeter guns included #12 on a ridge west of US 101, #13 below Battery Spencer overlooking the Golden Gate Bridge, and #14 north of Battery Duncan.[106]

The fixed antiaircraft batteries, designed for long-range targets, remained important parts of the wartime antiaircraft defenses throughout the war. AA Battery #1 on Wolf Ridge was enhanced with temporary ammunitions bunkers, one near each gun. Supplementing the nearby permanent magazines, these bunkers were underground corrugated metal (elephant iron) structures with a rounded shape similar to Quonset huts, and vent stacks protruding from the ground. AA Battery #2 on Fort Barry's Rodeo Hill may have received similar bunkers.[107]

COASTAL GUN BATTERIES

While enemy aircraft posed the greatest threat to San Francisco after Pearl Harbor, the Army continued to develop plans for expanding and modernizing its long-range coastal guns to defend against enemy ships, while also introducing a new type of small-gun battery designed against so-called motor torpedo boats, which were small and vast vessels designed to carry torpedoes into battle. Two major coastal battery projects were undertaken during the war: modernization of Battery Wallace, and construction of a new 16-inch gun battery on Diablo Ridge (Hawk Hill), as planned in the 1937 Project. Batteries Smith-Guthrie and Rath-

bone-McIndoe were modernized, but most of the work involved gas-proofing and other interior work.[108] The Army also relocated some rapid-fire guns from its old Endicott batteries to new locations. Two three-inch guns, originally from Battery Yates and used as training weapons at Battery Townsley in 1940, were moved in 1942 to the left flank of Battery Kirby, where they were mounted on octagonal concrete mounts as Battery Kirby Beach (also known as Kirby II).[109]

Reconstruction of Battery Wallace, whose open gun emplacements were as conspicuous as bull's-eyes from the air, was begun through a directive issued on January 27, 1942 for "Urgent War Department Construction." The project included building an earthwork and casemates similar to Battery Townsley, and expansion of the underground structure with tunnels, a new power room, and rear entrance portals (fig. 4.92). The concealing and protective earthwork was a low hill approximately six-hundred feet long, planted with grasses. In November 1943, Army engineers transferred the completed battery to the troops. As part of the reconstruction, a number of secondary defensive works and concealment measures were completed. The access road, which had terminated at the battery, was continued south and west to the Coast Guard station as a dummy road, but the dummy battery to the south, as proposed in October 1941, was not built. On the west-facing slope of Rodeo Hill to the east of the battery, a steel-dome (pillbox) type battery commander (BC) station was completed in 1943, near the battery station (B1S1) for Wallace that had been built as an emergency station in 1921. A dug-in concrete

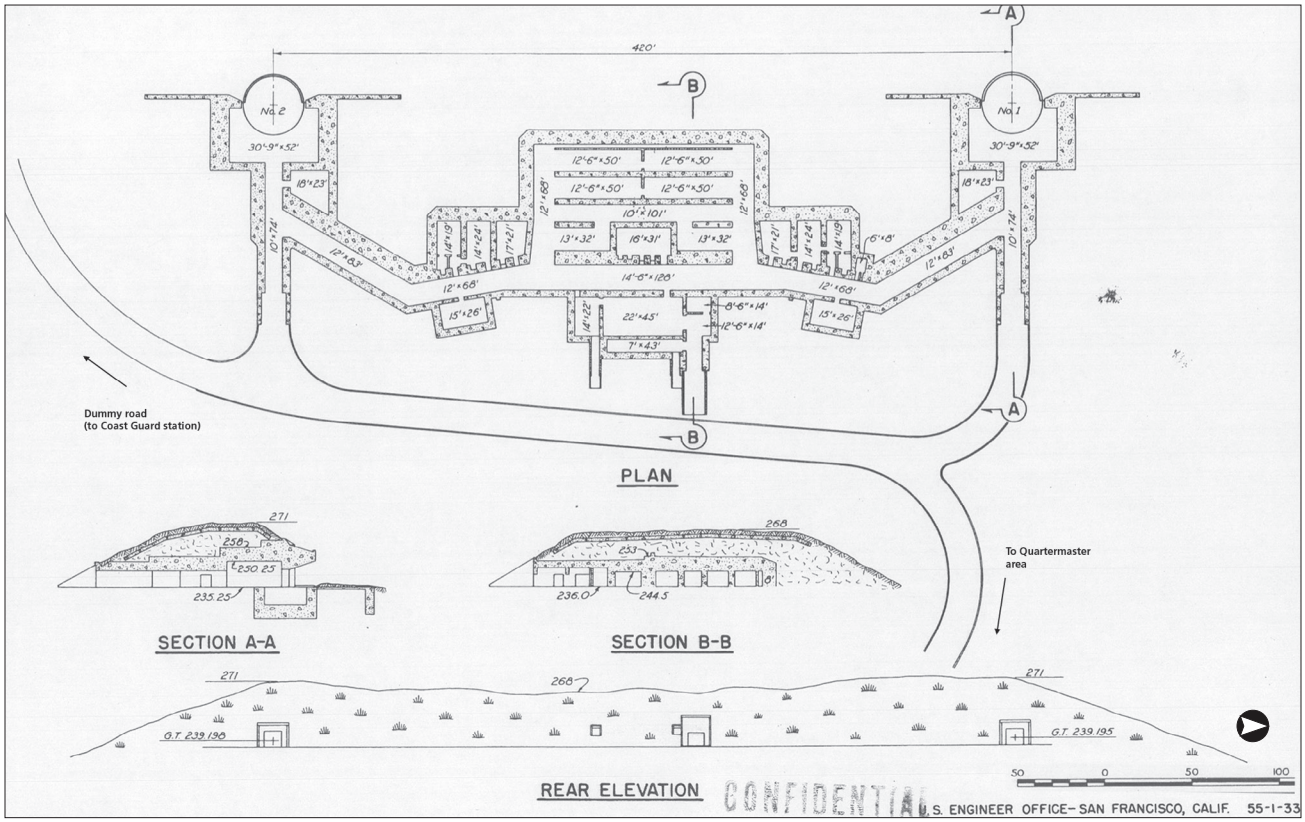


Figure 4.92. Plan and sections of Battery Wallace as reconstructed in 1942-1943. The reconstruction included the connecting casemates, tunnels, hill, portals, and dummy road. (U.S. Army, Reports of Completed Works--Seacoast Fortifications, Battery Wallace, corrected to October 1943, annotated by SUNY ESF, National Archives II, RG 77, Entry 1007)

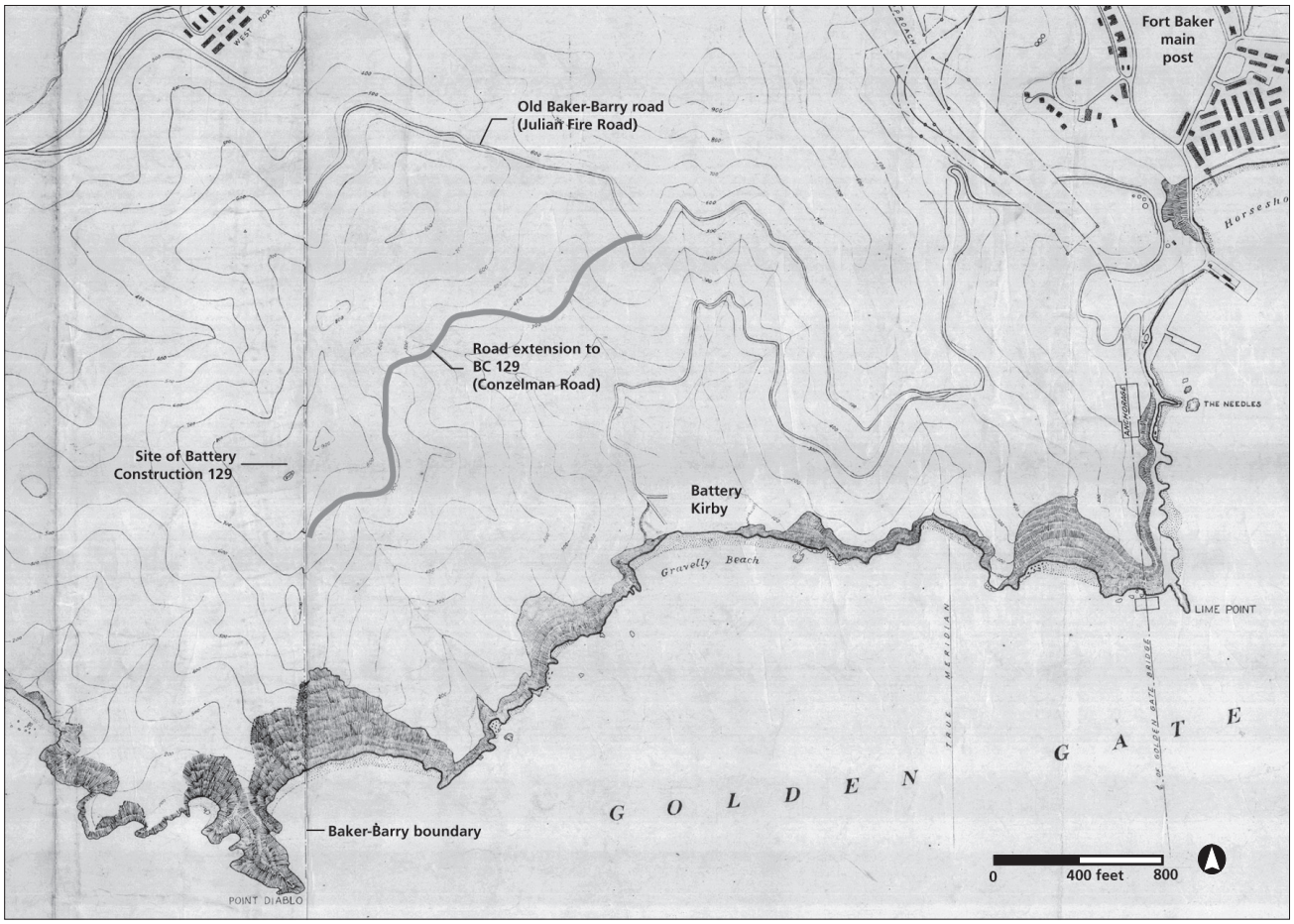


Figure 4.93. A 1942 map of Forts Baker and Barry showing the site of Battery Construction 129 on Diablo Ridge and the access road, later named Conzelman Road, begun in ca. 1942. (Detail, U.S. Army, Post Map, Forts Barry & Cronkhite, 1942, Golden Gate National Recreation Area, Park Archives and Records Center, D181 F1, GOGA 71511, annotated by SUNY ESF)

powerhouse with a ventilating shaft was completed between the two stations in 1944.[110]

Although approved for construction on Diablo Ridge in June 1941, construction of the new 16-inch seacoast gun battery did not begin until September 1942, ten months into the war. To access the site, the Army extended the old Baker-Barry road (later Conzelman Road) west and south around Diablo Ridge (fig. 4.93). As completed, the new battery, initially designated as Battery Construction 129, was similar to the design of Battery Townsley with two casemated gun emplacements that faced west and south toward the entrance of the Golden Gate, connected by tunnels to the access road (Conzelman Road). Linking the two emplacements were cut-and-cover structures, and on the crest of the hill was the battery commander station (figs. 4.94, 4.95). This BC station was depressed in the ground and had a curved front with earth and rock cover, a design necessary for concealment on the prominent, barren ridge top. Access to the station was by a road that wound up the hill. Other secondary structures built with the battery included a cut-and-cover plotting-spotting-radio (PSR) room along Conzelman Road east of the battery, and an underground reservoir on the ridge top.[111]

The design of Battery Construction 129 reflected the Army's most advanced aerial camouflage practices with its earth cover carefully mimicking the natural topography, portals and tunnel entrances built close into the hillside, and retaining walls

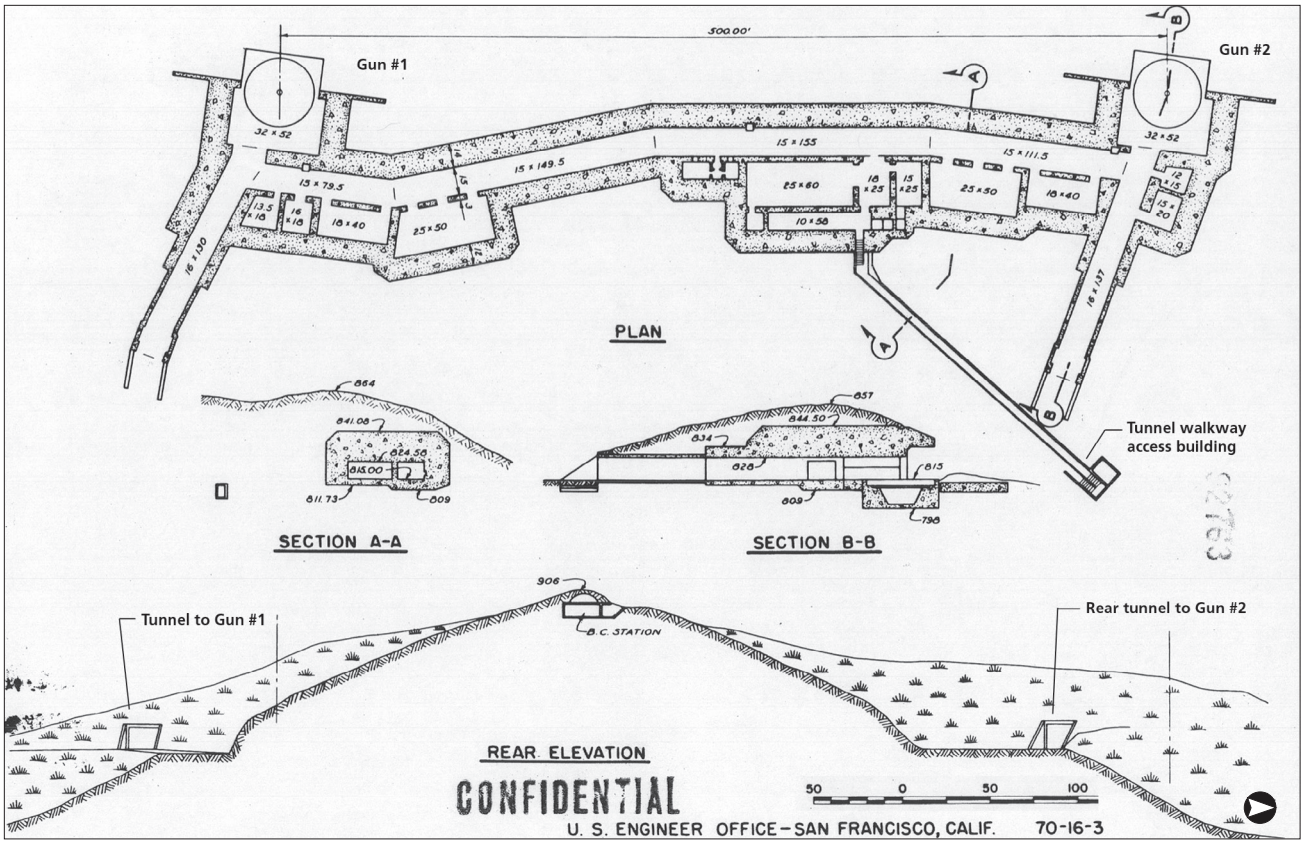


Figure 4.94. Plan and sections of Battery Construction 129 as completed by 1944. (U.S. Army, Reports of Completed Works--Seacoast Fortifications, Battery Construction 129, corrected to April 1944, annotated by SUNY ESF, National Archives II, RG 77, Entry 1007)

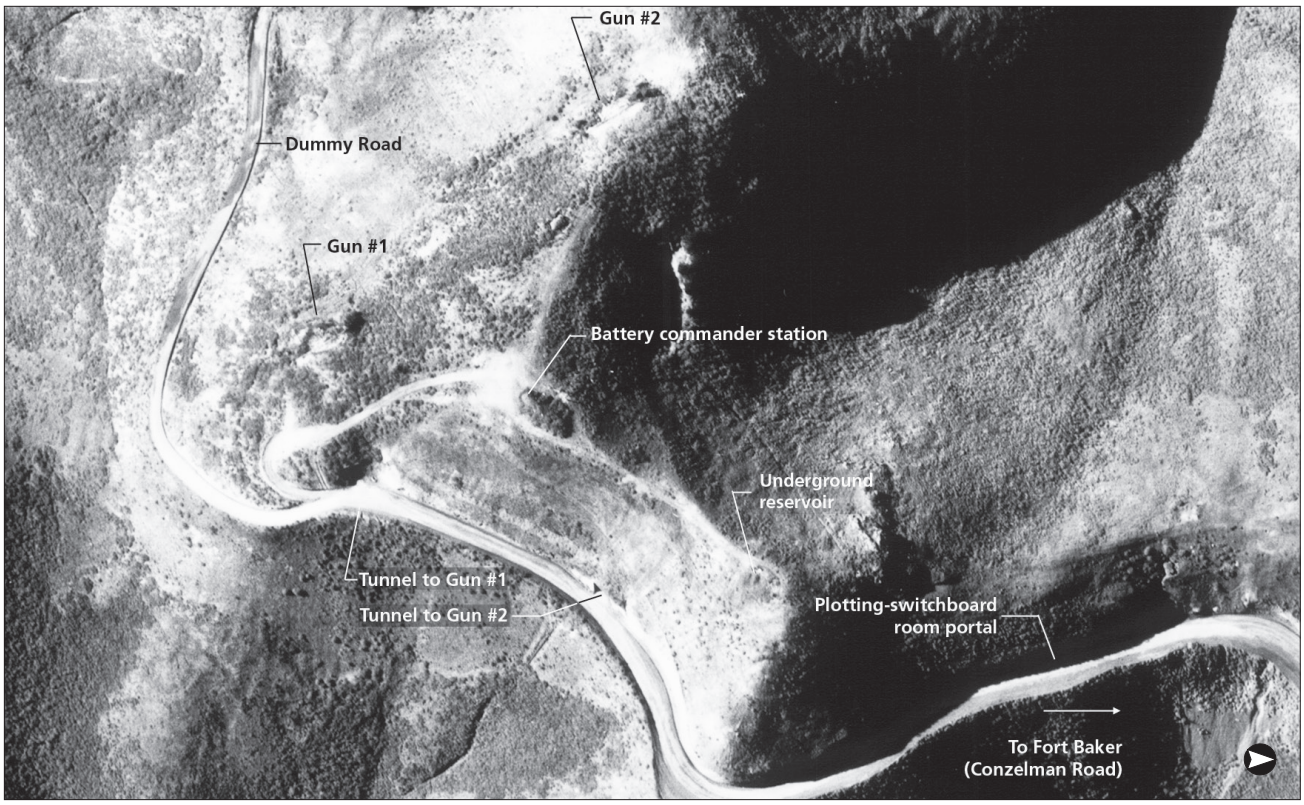


Figure 4.95. A later aerial of BC 129 showing its inconspicuous character and related structures, 1952. This aerial appears to show naturalistic plantings or reestablishment of native cover made as part of the battery's war-time camouflage. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 3156, annotated by SUNY ESF)

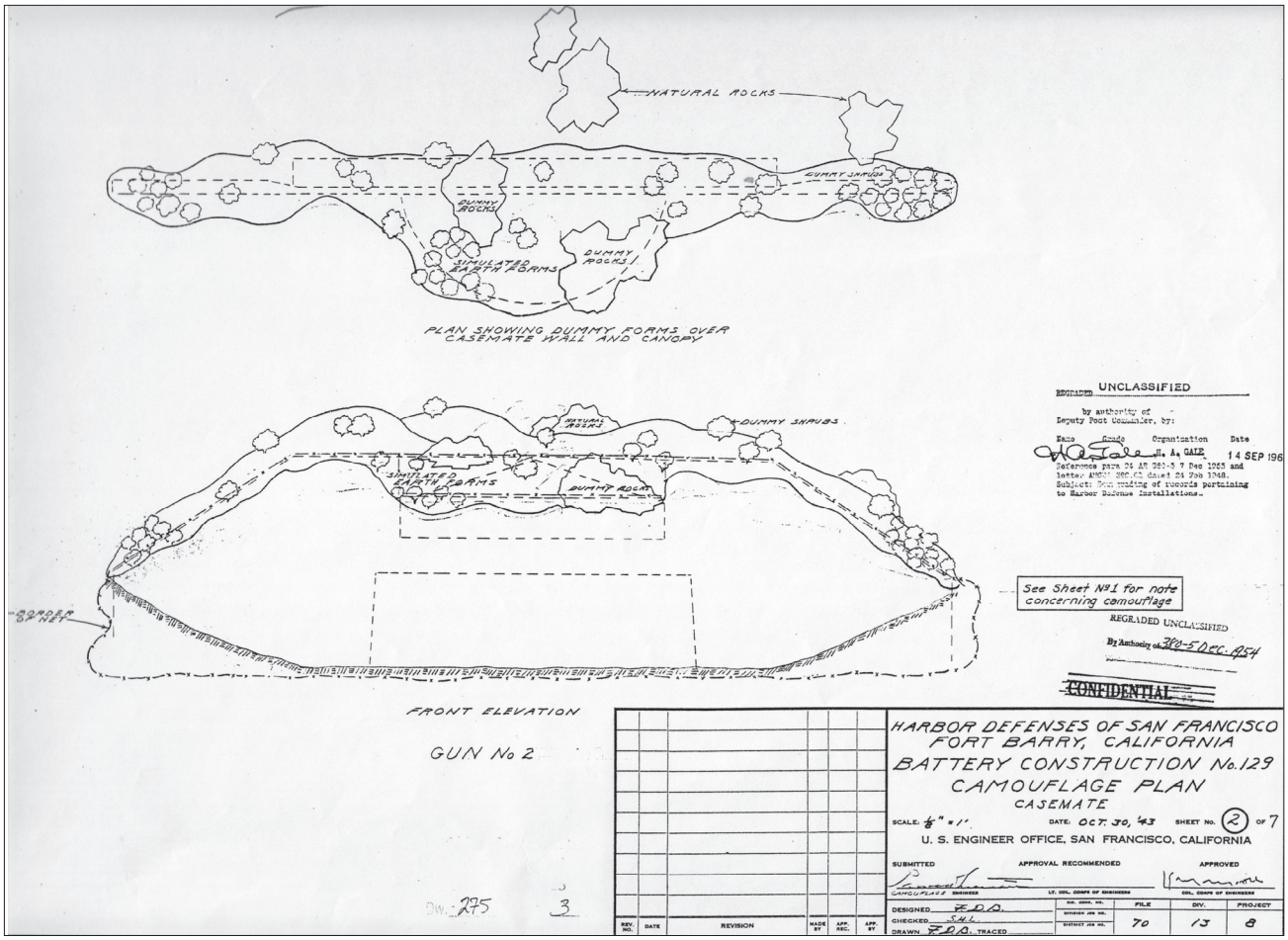


Figure 4.96. Camouflage plan and elevation for the north casemate (Gun No. 2) of BC 129 showing rock work and plantings, October 30, 1943. The "dummy shrubs" were presumably the plantings of Coyote bush. (Detail, "Battery Construction No. 129 Camouflage Plan Casemate," Sheet 2 of 7, Golden Gate National Recreation Area, Park Archives and Records Center, D275, F3)

constructed of native rock. For the casemates and other above-ground structures that required additional concealment, the Army finalized a set of camouflage plans in October 1943 that detailed placement and colors of natural and artificial rocks, camouflage nets, and plantings (fig. 4.96). Specified plantings across the twenty acres of BC 129 included cover of barley and rye grasses, and clumps of coyote brush, a plant native to California coastal sage scrub and chaparral, to simulate patterns in the natural landscape. An additional concealment measure was the extension of the access road (Conzelman Road) west to Batteries Rathbone-McIndoe as a dummy feature, similar to the road proposed in the October 1941 camouflage report for Fort Barry. This road was completed in ca. 1942.[112]

In November 1943, Battery Construction 129 was substantially complete and its gun tubes were delivered, waiting for installation. Despite this, the Chief of Engineers announced the curtailment of construction due to the lack of threat from Japanese warships. The camouflage plans completed the month before were most likely not implemented, although some of the plantings may have been undertaken to stabilize slopes. Work necessary to secure the battery was completed, and in February 1944, the Army classified it as suspended. Despite the great expense of

construction, Battery Construction 129 was never armed, and thus retained its temporary construction name.[113]

The other fixed armament installed at the headlands during World War II was a response to the rapidly changing threat that led to the abandonment of Battery Construction 129. By 1943, the Army had identified the major non-aerial threat was not from far-off warships, but rather from motor torpedo boats that threatened to disable the harbor's submarine mine defenses by cutting loose the anchored submarine mines.[114] Known as anti-motor torpedo boat batteries (AMTB), these were relatively minor works usually consisting of a pair of rapid-fire guns on fixed concrete mounts along the coastline with portable searchlights nearby. Army engineers developed these batteries in 1941, but they were not installed at San Francisco until 1943. The headlands received three of the harbor's ten AMTB batteries, two at Fort Baker, one at Fort Barry.[115]

The most powerful of these AMTB batteries defended the westward approach to the Golden Gate Bridge off the left flank of disarmed Battery Kirby and the recently completed paired guns of Battery Kirby Beach. The AMTB battery, named Battery Gravelly (not be confused with the adjoining post-Civil War Gravelly Beach Battery), consisted of two 90-millimeter guns on round concrete blocks completed in 1943 (fig. 4.97). In addition to two flanking portable searchlights on either side of the cove, Battery Gravelly included a battery command station at the

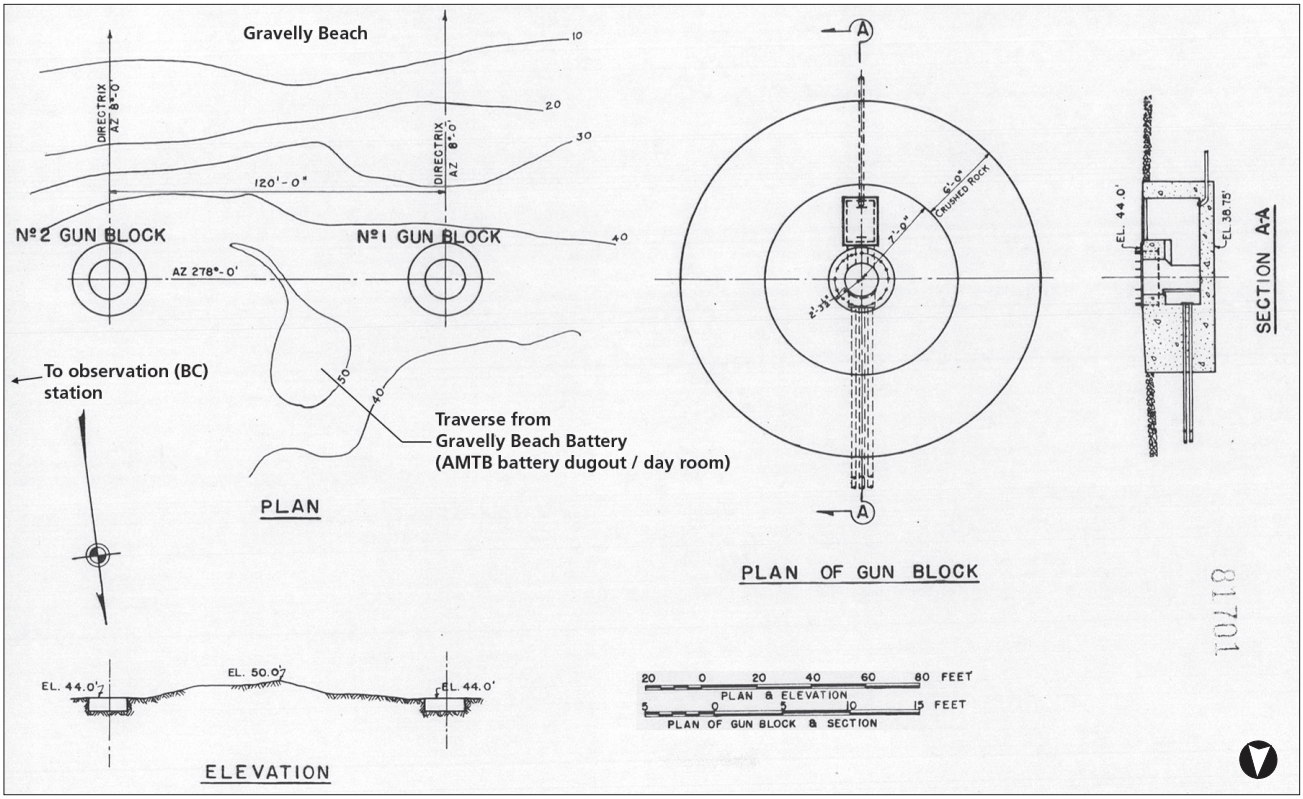


Figure 4.97. Plan of Battery Gravelly Beach showing location and design of AMTB gun emplacements. The Endicott-period Battery Kirby was to the right of no. 1 gun block. The plan does not show the battery command station between the two blocks. (U.S. Army, Reports of Completed Works—Seacoast Fortifications, 90 MM Battery, Fort Baker, corrected to November 1943, annotated by SUNY ESF, National Archives II, RG 77, Entry 1007)

nearby B4 Spencer (F3) fire-control station (which also was outfitted with searchlight #56P), and ammunition storage and a dug-out in the old traverses of Gravelly Beach Battery. The other two AMTB batteries consisted of smaller, portable guns (37-millimeter, later 40-millimeter guns) and searchlights without associated magazines or battery command stations. Battery Cavallo (not be confused with the post-Civil War Cavallo Battery) protected the approach to Horseshoe Cove. Its two guns were positioned alongside portable searchlights at either side of the cove, one at the end of the mine wharf and the other at the tip of Cavallo Point. Battery Bonita's two guns were located together on Bonita Cove near the Coast Guard station with searchlights on the left flank and across the cove near the Coast Guard boat house. [116]

Throughout the war, the Army maintained Battery Townsley as its primary major caliber weapon at the headlands, and fired its guns for practice and testing. One of these tests was developed to determine the penetration of projectiles and bombs on reinforced concrete. In January and February of 1942, the Townsley guns fired on three huge concrete blocks that were built on a ridge north of the battery shortly after U.S. entry into the war (see fig. 4.84). Unlike the battery itself, these were conspicuous in the landscape, and after the tests were complete, the blocks were pushed into a pit and buried.[117]

ACCESSORY DEFENSES

Wartime improvements at the headlands included expansion and reassignment of the fire control system for the batteries and submarine minefields. This led to construction of the first cluster of military facilities at Tennessee Valley in the remote northern end of Fort Cronkhite, which the Army referred to by its earlier name, Elk Valley. Prior to the war, the only feature here was a cable manhole near the beach, which Army engineers installed in ca. 1940 as part of the initial development of an expansion of the North Channel minefield (Mines I) in the waters off Tennessee Cove. In 1943, engineers began work on the other onshore facilities for this minefield, which were transferred to the troops in 1944. These were all inconspicuous structures with earth cover, including a powerhouse and fire-control station (M4 Mines I) on the ridge high above the north side of the beach, and a cable hut on the lower side of the opposite ridge (fig. 4.98). This hut housed the terminal of the cable connecting Elk Valley with another cable hut built in 1943 on Rodeo Beach at Fort Barry. To access the Elk Valley cluster by land, the Army extended a private ranch road (Tennessee Valley Trail) there in ca. 1943, terminating it at a turn-around next to the cable manhole. In 1944, the federal government completed acquisition of a forty-foot right-of-way along the private ranch road from the main public road (Route 1).[118]

Other fire control stations built during the war were located near preexisting clusters on Wolf Ridge, Tennessee Point and near Battery Mendell. At Wolf Ridge, a battery station for Battery Construction 129 was completed in 1943 south of the

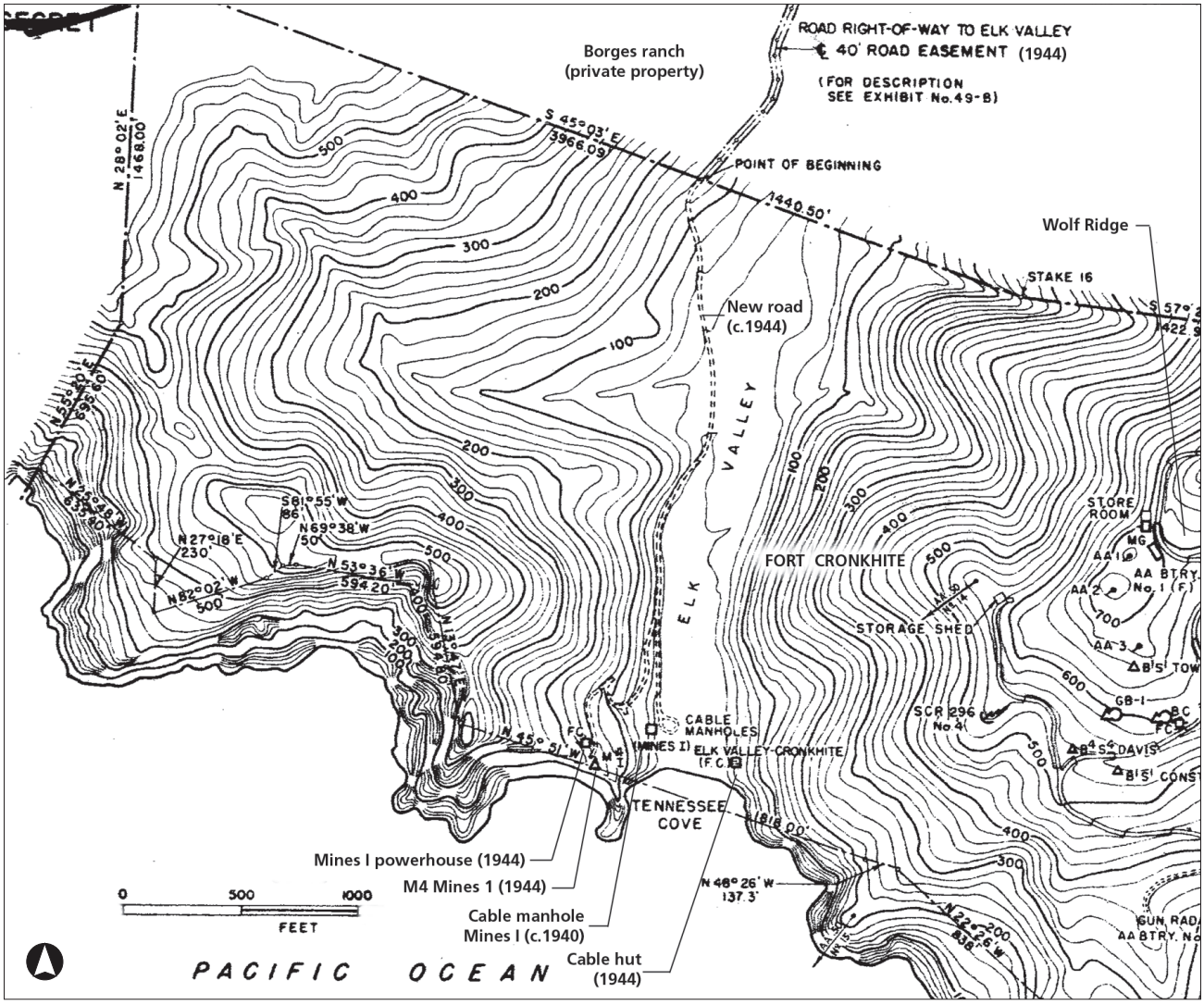


Figure 4.98. Map of the northern part of Fort Cronkhite (former Ranch I) showing secondary defenses developed in 1944 and acquisition of right-of-way through Tennessee (Elk) Valley. (Detail, U.S. Army, "Military Reservation, Fort Cronkhite, Location No. 8a, Harbor Defenses of San Francisco," November 1945, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center)

one for Battery Davis. It was the same dug-in design as the battery commander station for BC 129 with a round front and rock camouflage. Along the old east boundary of the former Tennessee Point military reservation, engineers remodeled two post-World War I stations in 1942: E3 Wallace became Mines I, and an adjoining station (original designation unknown) was redesignated as B3S3 for Battery Construction 243 at Fort Miley. North of Battery Mendell, a third fire-control station was built during the war, a steel-dome (pillbox) type station designated M4 Mines and completed in 1943. Army engineers also completed a new battery commander station at Battery Yates, and remodeled the old "crow's nest" observation positions atop Batteries Rathbone–McIndoe and Smith–Guthrie into battery commander stations. [119]

A major development in the Army's wartime fire control system was the addition of radar that allowed surveillance of surface craft in all types of weather, night or day. Three types of surface craft radar (SCR) stations were built during the war between 1942 and 1944: SCR 296, a gun-laying radar that determined range and direction of the target; SCR 682, a general surveillance radar; and SCR 584, a microwave radar used to detect distant airplanes and first put into operation by

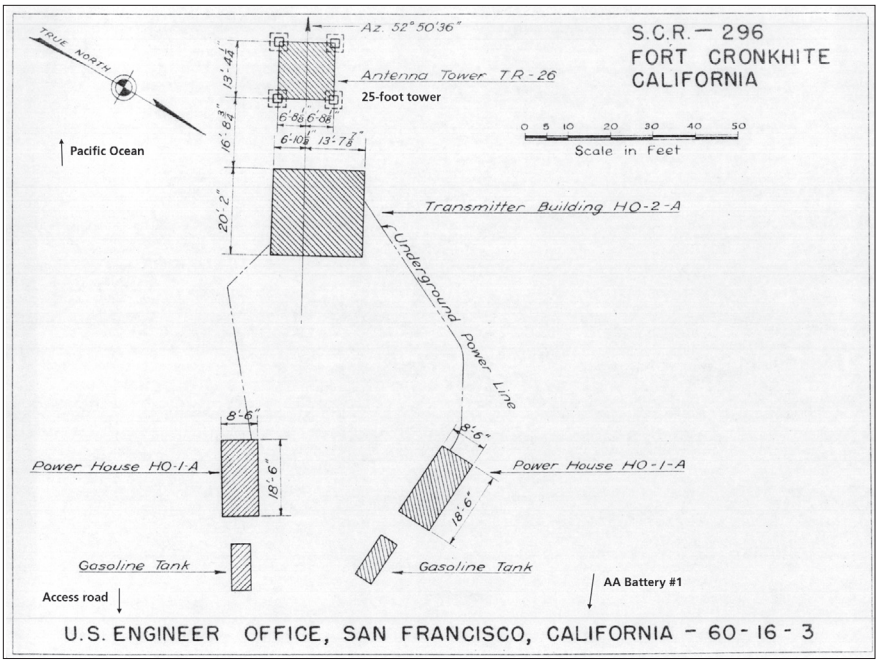


Figure 4.99. Plan of the SCR 296 radar station on lower Wolf Ridge begun in 1942 and completed in 1944. (U.S. Army, Reports of Completed Works--Seacoast Fortifications, Surface Craft Radar 296, Fort Cronkhite, corrected to February 1944, National Archives II, RG 77, Entry 1007, annotated by SUNY ESF)

the Army in 1943. SCR 682 and 296 consisted of a steel tower on concrete pylons, a transmitter building, and a power plant. SCR 584, however, was a mobile unit equipped with small dish antennae that were usually mounted on a trailer.[120]

In 1942, Army engineers began work on a SCR 296 station at the western end of Wolf Ridge, west of AA Battery #1. This facility included a twenty-five foot steel tower over a copper antenna house, and a transmitter building and two power houses built of corrugated iron (fig. 4.99). The radar station was used as part of the fire-control for Battery Guthrie. The second SCR 296 station at the headlands, completed in 1944, was built at the north end of the complex of fire-control stations on Point Bonita Ridge at Fort Barry. It was partly located on the site of the ca. 1901 engine house for the tramway that transported supplies up the ridge from the Engineer wharf on Bonita Cove. This SCR 296 facility contained the same features as the Wolf Ridge station, but with a taller, fifty-foot steel tower. The two-story concrete bunker erected to the south of the tower the year before was not part of the radar station, but rather Navy signal station #2, an element of their Harbor Entrance Command facilities. A companion tower was located at Fort Scott near the Golden Gate Bridge.[121]

The third radar station at the headlands, one of the harbor's two SCR 682 stations, was completed in 1944 on top of Wolf Ridge east of the AA Battery #1. It consisted of a twenty-five foot-tall tower, a wood transmitter house, and a galvanized iron-sheathed powerhouse on a concrete pad. The Army identified this and the other radar stations as being conspicuous from more than 1,000 yards, but only concealed the buildings with camouflage paint.[122]

The only SCR 584 system at the headlands was installed in ca. 1944. It was sited 500 feet north of Battery Townsley where the huge concrete test firing blocks had stood (see fig. 4.84). Designed to support AA Battery #1, SCR 584 consisted of one trailer positioned on a spur off the road to Wolf Ridge (Bunker Road).

SUBMARINE MINE FACILITIES

The detection of Japanese submarines off California in December 1941 made the operation of the harbor's submarine mine fields and the supporting landside components all the more urgent. From the recently completed Fort Baker mine

depot, submarine mines and cables were loaded onto vessels and transported out to the Pacific for planting in the North Channel minefield (Mines I) north of Point Bonita, and the Main Channel minefield (Mines II) to the south (fig. 4.100). The North Channel minefield continued to be controlled through the mine casemate at Fort Barry and fire-control stations on Point Bonita Ridge and the one added during the war at Tennessee Valley. The Main Channel minefield was controlled from a mine casemate at Fort Scott, with fire-control stations at Forts Barry and Cronkhite, as well as others to the south. The magazine at long-obsolete Battery Orlando Wagner was used for storing TNT used in the mines. The magazines at Batteries Mendell and Alexander were used for the same purpose following disarmament of these Endicott batteries in 1943.[123]

At the time of Pearl Harbor, the Fort Baker depot lacked adequate facilities to maintain and repair the flotilla of mine vessels, which consisted of seven small boats known as mine yawls, three mid-size mine distribution box boats, and three large mine planters.[124] In early 1941, engineers prepared plans for a boat basin with repair facilities on the west side of the cove north of the mine wharf, but only the railway was completed prior to Pearl Harbor. It was a 195-foot-long launch consisting of steel rails on wood piles (fig. 4.101). By October 1942, ten months into the war, work was completed on the entire project, creating a protected boat basin with a stone jetty (Moore Breakwater) north of the mine wharf, lined by small-craft piers for ten mine yawls. Part of the project included construction of a dispersion pier on San Francisco Bay north of Yellow Bluff to provide dockage and storm moorings for the large mine planter ships, which could not fit into the Horseshoe Cove facilities.[125]

Soon after the small boat basin was completed, engineers began planning for a larger boat basin in the east half of the cove, with a larger marine repair facility and additional boat slips. Construc-

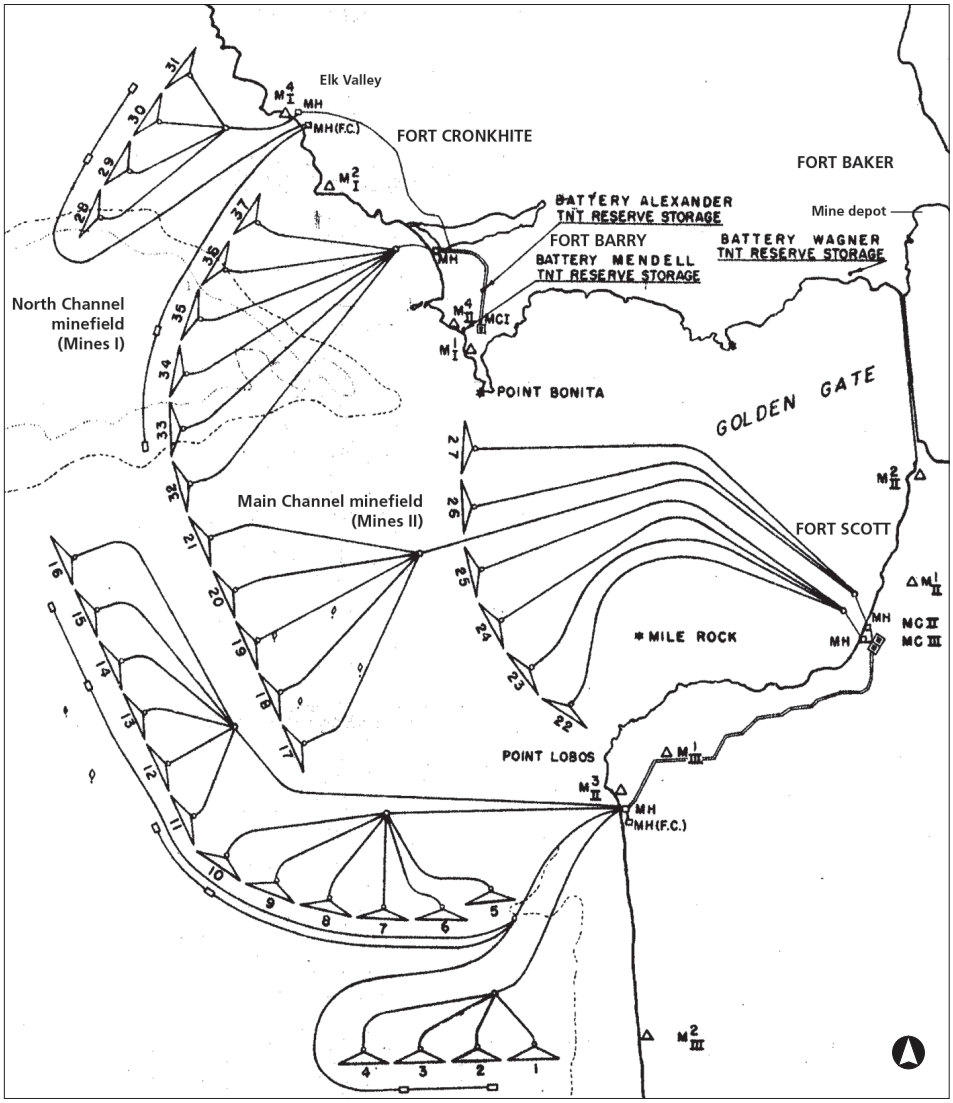


Figure 4.100. Plan of the minefields at San Francisco harbor as developed by 1943 showing relationship of the North and Main Channel minefields to landside components at Forts Baker, Barry, and Cronkhite. (Detail, U.S. Army, "Mine Facilities...West of Golden Gate Bridge, Harbor Defenses of San Francisco," November 1945, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center)

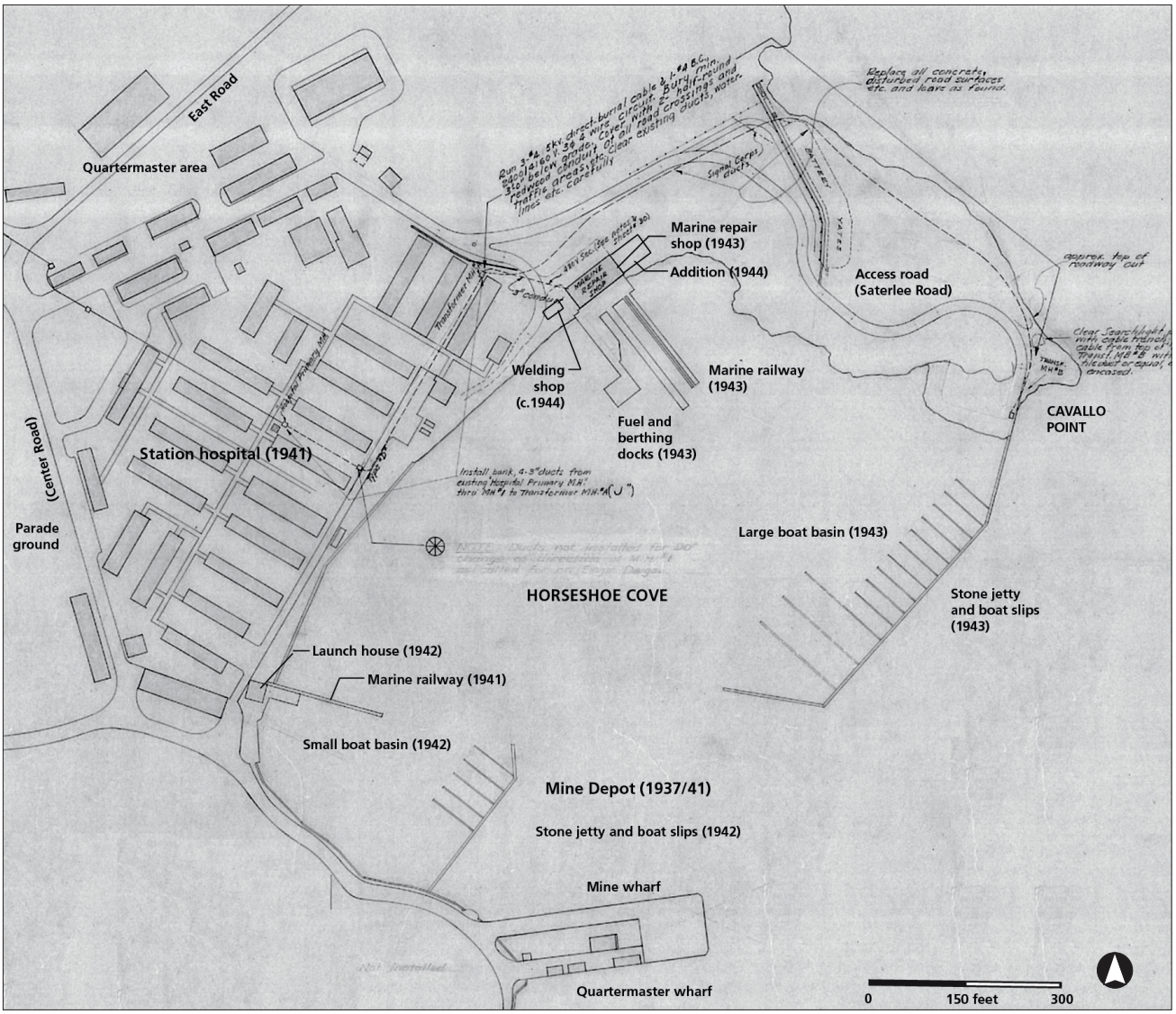


Figure 4.101. Plan of the mine depot and marine repair facilities at Horseshoe Cove as completed by January 1944. The plan does not show the stone jetties at the boat slips, or the cut-and-cover structures in the bank by the mine wharf. (U.S. Army, "Fort Baker, California, Breakwater & Marine Repair Shop, June 8, 1943 updated to January 1944, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 20103, annotated by SUNY ESF)

tion began in 1943 and was substantially complete by January 1944 (see fig. 4.101). The project included construction of a large stone jetty (Satterlee Breakwater) that together with the earlier jetty enclosed most of Horseshoe Cove. The jetty contained slips for six distribution boats and ten mine yawls, and was accessed by an extension of the road from the Quartermaster area (Satterlee Road) along the shoreline of the cove. The new boat basin also featured a second mine boat repair facility, located at the northeast corner of the cove with a two-story wood-frame marine shop building, wood-pile fuel and berthing docks, and two marine railways, one that could handle craft up to 100 tons, and the other for small craft up to 6 tons. In the summer of 1944, the repair shop was expanded by fifty feet on the east side, requiring excavation into the adjoining hillside and construction of a concrete retaining wall. Around the same time, a small frame building was relocated to the rear of the repair shop to house flammables, and a one-story welding shed of corrugated asbestos concrete siding was built along the shoreline to the west.[126]



Figure 4.102. The Fort Barry flagstaff in its new location, looking northeast toward the administration building, ca. 1944. At left is a row of Monterey pine probably planted at the time the flagstaff was moved in 1942. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 1766)

Figure 4.103. The former Engineer storehouse renovated as a recreation hall for the Mendell Area, looking north, ca. 1943. In the left background are the Mendell Area buildings. (Fort Barry Building Book, 1939 updated to ca. 1946, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 32423)



POST FACILITIES AND ROADS

At the time of the Pearl Harbor attack, the Army had completed most of the expansion in housing and other support buildings needed to accommodate the troop mobilization of the national emergency. During the subsequent war years, only a few new buildings and other improvements were undertaken at the main posts. At Fort Baker, these included a large storage building north of the Fort Baker Quartermaster area completed in 1942, and a garage and steel-frame shed along the south side of the Fort Baker parade ground built in 1943 for storing portable searchlights. In apparent response to the heightened threat of aerial attack, a siren on a wood tower was installed north of the guard house, a predecessor to several that would appear at the headlands during the Cold War. At the main post of Fort Barry, war-time changes in 1942 included construction of a garage next to the administration building, and relocation of the parade ground flagstaff to the area between the administration building and the post hospital (fig. 4.102). This served as a ceremonial assembly area and was lined by Monterey pine. At the Fort Barry chapel, a rustic stone wall was built in ca. 1943 around the front yard, where a pair of eucalyptus trees was planted. Several minor buildings and structures were also erected across the headlands during the war as part of improvements to water, sewage, and electrical systems.[127]

Some buildings were also demolished during the war years, most notably those in the former Engineer Department area at Fort Barry. Between 1942 and 1943, all of the former warehouses, sheds, bunk houses, mess hall, and stables were demolished, except for one warehouse, which was renovated into a recreation hall for the adjoining Mendell Area (fig. 4.103).[128]

One of the most notably changes at the headlands during the war years, aside from addition of defensive works, was the reconstruction of the Baker-Barry road (Bunker Road), road to Point Bonita (Field Road),and adjoining roads (fig. 4.104). Approved in June 1941, construction was completed in late 1942 or 1943. The project included repaving, realignment, and the addition of concrete retaining walls, culvert headwalls, and storm drains. Major changes included straightening through Rodeo Valley, construction of a connector through the west end of the Fort Barry main post (Field Road), a spur to Battery Alexander, and realignment of a sharp curve north of the Mendell Area. The straightening through Rodeo Valley included realignment across the 500-yard line of

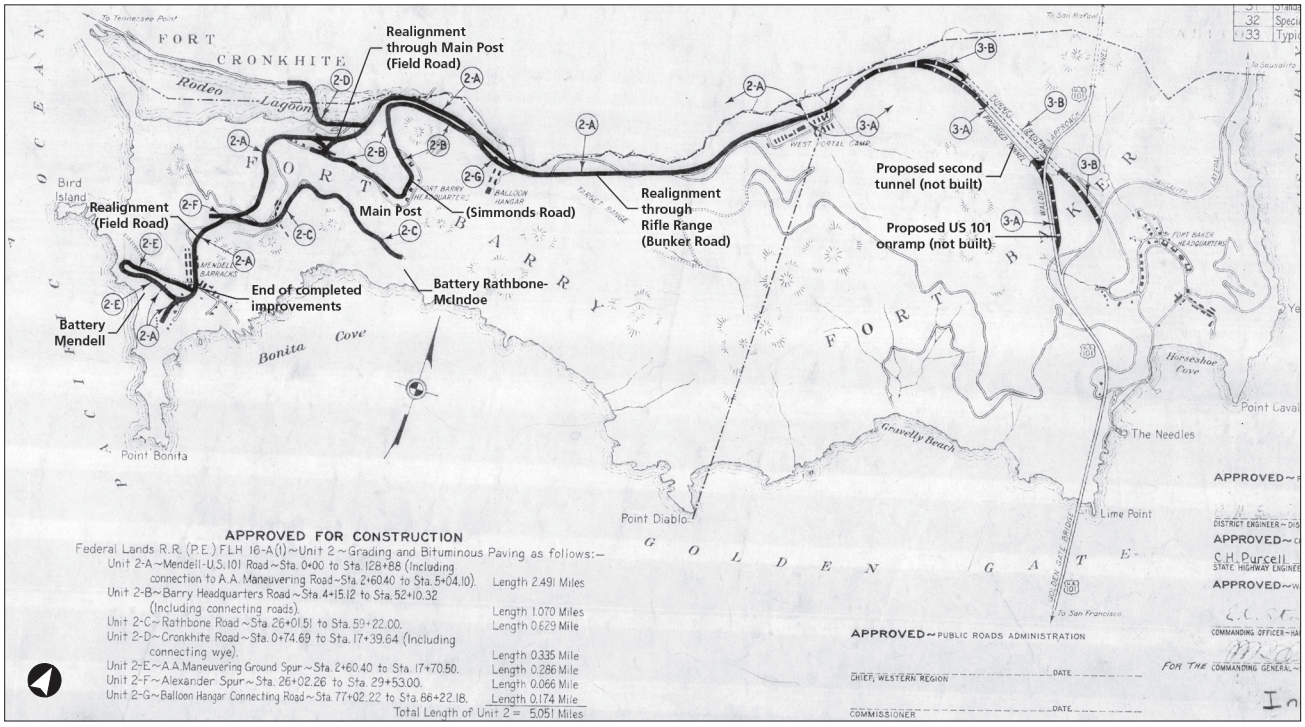
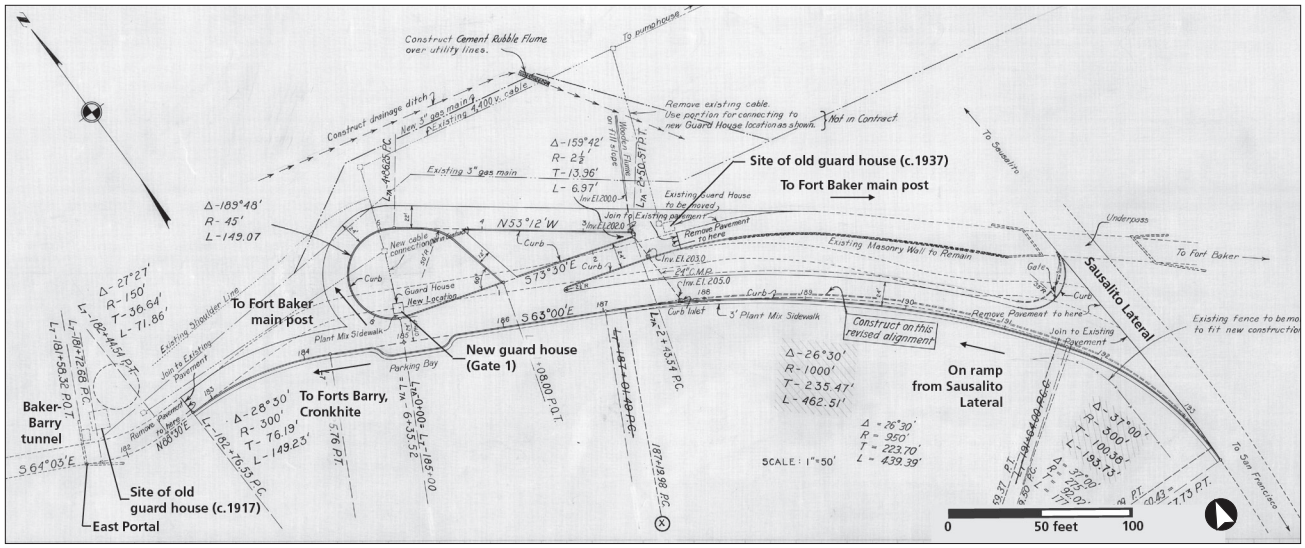


Figure 4.104. Plan of approved road improvements completed in ca. 1943; the proposed US 101 exit, second Baker–Barry tunnel, and loo spur at Battery Mendell were not built. (Federal Works Agency, "Plans for Proposed Improvement of Reservation Roads, Fort Baker & Fort Barry, Marin County, California," approved June 1941, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 20514 D186 F1, annotated by SUNY ESF)

Figure 4.105. Plan of the redesigned entrance off the Sausalito Lateral at the East Portal as completed in June 1942. (U.S. Army, "Fort Barry Access Road, Plan & Profile," revised to June 3, 1942, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, D208, F1)

the Departmental Rifle Range. Despite this, the Army continued to use the full length of the range, which required the Baker-Barry road to be closed during practice.[129]

Several components of the road project were never implemented, including a loop road to Batteries Mendell and the anti-aircraft maneuvering ground to its north, and a second tunnel and a new exit off US 101. The Army instead made limited improvements to the tunnel's East Portal entrance, designated as Gate 1, which were completed in June 1942. The new alignment allowed incoming traffic off the Sausalito Lateral headed to the tunnel or the Fort Baker main post to pass a single guardhouse, replacing the previous two at the tunnel entrance and road to Fort Baker (fig. 4.105).[130]



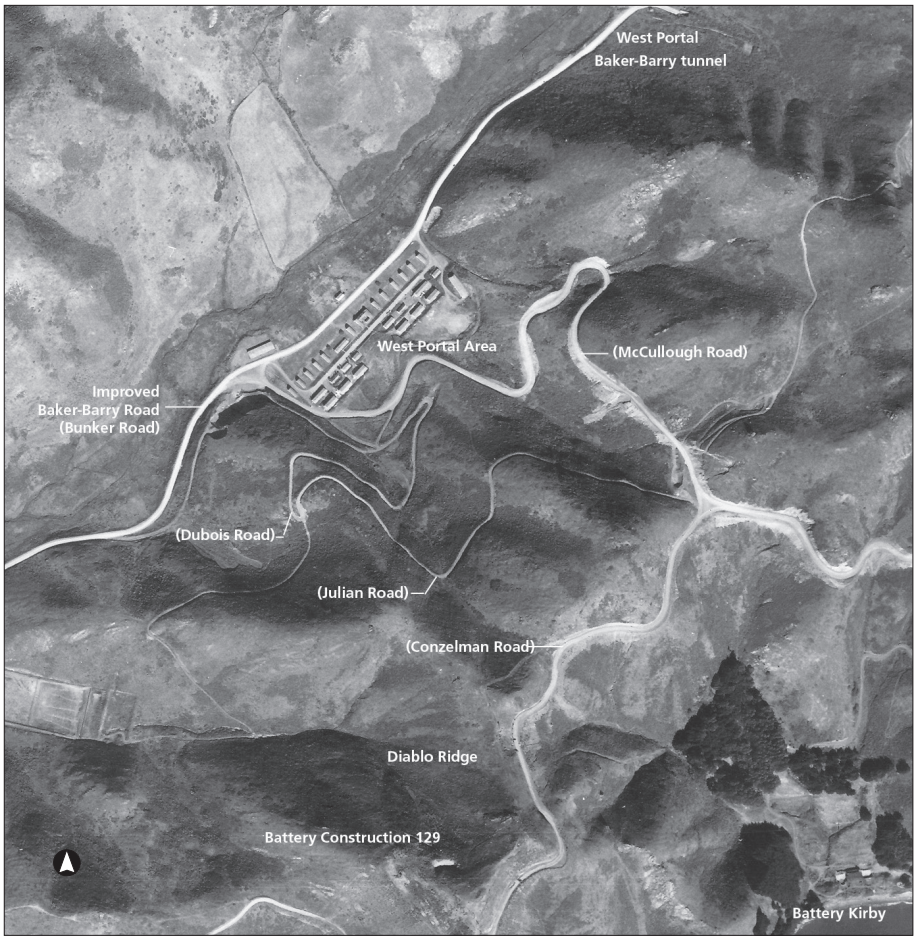


Figure 4.106. A 1946 aerial showing the new road (McCullough Road) between Battery Construction 129 and the West Portal Area. This photograph also shows the improved Baker–Barry road (Bunker Road). (Detail of aerial photograph annotated by SUNY ESF, private collection of John Martini)

Other new roads at the headlands built during the war years were the dummy roads connecting Battery Construction 129 with Battery Rathbone-McIndoe and continuing past Battery Wallace (Conzelman Road); the access road to the Elk Valley defenses (Tennessee Valley Trail), and access roads to various secondary defensive works, particularly on Wolf Ridge. A major new road built during the war was over Diablo Ridge to the West Portal Area, constructed in ca. 1942 during the building of Battery Construction 129 (fig. 4.106). This road (McCullough Road) improved the connection between the road to Battery Construction 129 (Conzelman Road) and the Baker-Barry road (Bunker Road). It wound down east of Diablo Ridge, bypassing the first and second alignments of the Baker-Barry road (Julian Fire Road and Dubois Road) to the west.[131]

FIELD QUARTERS AND TRAINING FACILITIES

During World War II, several new clusters of development appeared to support field operations and troop training. One type consisted of temporary field quarters known as hutments, which were set up near the batteries. In the aftermath of Pearl Harbor, troops initially set up tents in these areas to maintain round-the-clock readiness. These were usually set up on dugout platforms or on hillside terraces, such as in the valley to the rear of Battery Townsley and on the hillside east of Battery Kirby.[132] As troops settled into wartime conditions, many of the tents were replaced by the more permanent hutments. These were simple field-constructed frame structures that were built either fully or partly underground for camouflage and protection. Troops constructed three groups of hutments at the headlands by 1942: one at the rear of Batteries Smith-Guthrie and O'Rorke, the second at the rear of Battery Rathbone-McIndoe, and the third on Wolf Ridge near AA Battery #1. The hutment at Smith-Guthrie and O'Rorke consisted of an above-ground mess hall-latrine built by July 1942, and four long and narrow barracks and a bathhouse (fig. 4.107). These wood-frame buildings were built into the hillside, with exposed walls facing downhill. The hutment at Rathbone–McIndoe,

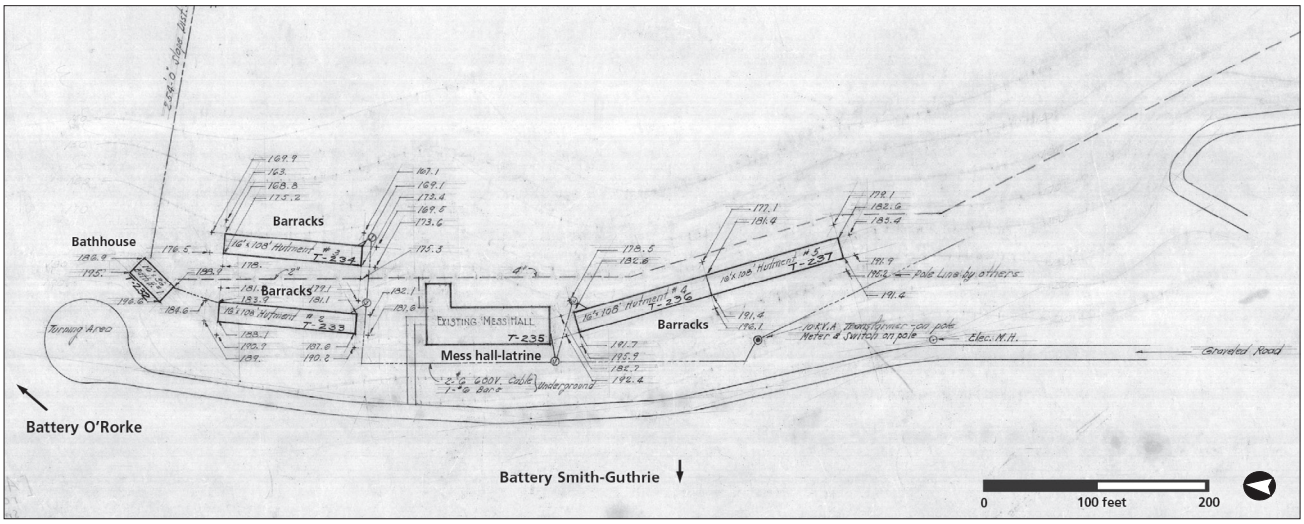


Figure 4.107. Plan of the hutment at the rear of batteries Smith–Guthrie and O'Rorke at Fort Barry, showing the above-ground mess hall-latrine built by July 1942 and four proposed barracks and a bath house. These proposed buildings were constructed partly underground. The access road was not built as shown. ("Harbor Defense Housing Plot Plan & Utilities Group (a-3), July 27, 1942, Golden Gate National Recreation Area, Park Archives and Records Center, D215 F3, annotated by SUNY ESF)

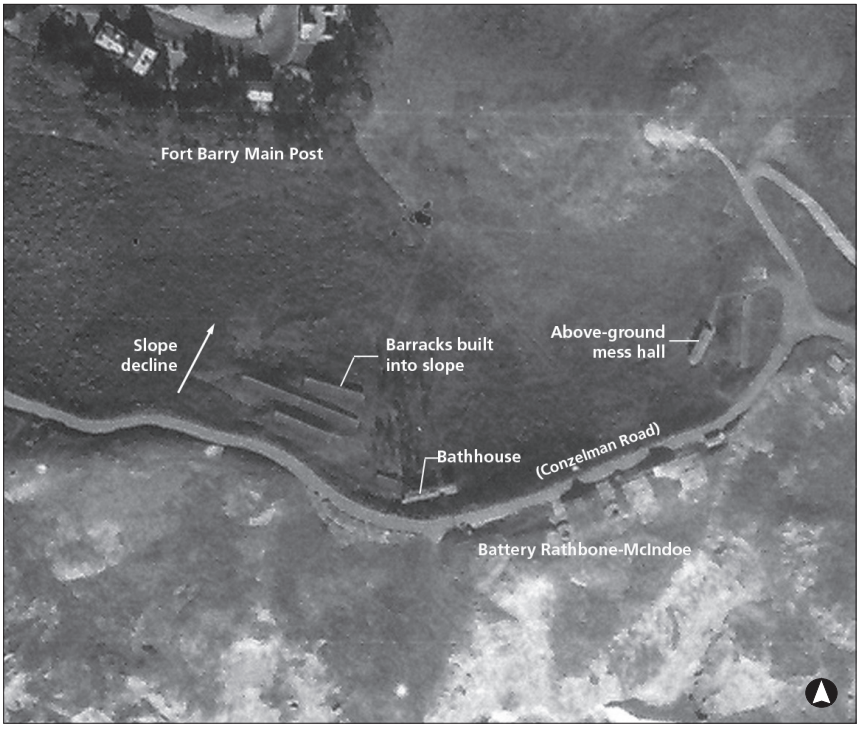


Figure 4.108. An aerial showing the hutment north of Battery Rathbone–McIndoe with building constructed into the slope, 1946. (Detail of aerial photograph annotated by SUNY ESF, private collection of John Martini)



Figure 4.109 (above right). An entrance portal to the underground hutment at AA Battery #1 on Wolf Ridge, photographed 1992. ("Fort Cronkhite, Antiaircraft Battery No. 1, Hutment Anteroom," Library of Congress, Historic American Engineering Record, CAL-134-1-E-1)

located on the north side of Conzelman Road, was a similar complex consisting of an above-ground mess hall and several wood frame and corrugated metal structures built into the slope, including four barracks and a bathhouse (fig. 4.108). Several other underground structures were added to the complex after 1942.[133]

Unlike the Fort Barry hutments, the one on Wolf Ridge at AA Battery #1 was built completely underground, most likely due to the elevated, exposed location. Only the entrance portals were visible, and these were most likely camouflaged (fig. 4.109).The complex included three wood-frame and sheet-metal structures, and one corrugated sheet-metal structure, similar to the ammunition bunkers at the nearby Anti-Aircraft Battery #1, protected with a concrete burster course between the roof and ground surface. Connecting tunnels branched from the buildings to the



Figure 4.110. California State Guard troops training amid the mock buildings at the Fort Cronkhite commando school in the Little Ranch valley, ca. 1944. The view appears to be looking northwest, with Battery Road (Bunker Road) in the background. (State of California, *History of the California State Guard*, 1946)

height-finder and director's pit. Two additional underground structures were to the west of the main complex.[134]

An additional complex of temporary buildings was erected by 1944 at the upper end of the Little Ranch valley at Fort Cronkhite, adjoining several other frame buildings constructed earlier in the war for an unknown purpose. The new buildings were part of a mock village, operated by the Commando Combat School that was the first in the Western Defense Command. Such mock villages, intended to train special-forces in hand-to-hand combat, came into widespread use during World War II. An installation of one or two divisions such as Fort Cronkhite was typically outfitted with one mock village training facility. In Army specifications developed in 1943, mock villages had to contain a minimum of fourteen buildings. Some had disappearing dummies and silhouette targets, and were to include a variety of landscape features, such as roads, fences, and walls for camouflage, along with booby traps and land mines, as well as "simulated personnel." Ammunition was typically restricted to simulators and blanks, although small-caliber weapons with a range of less than 4,000 yard were sometimes used.[135]

The mock village at Fort Cronkhite, known by soldiers as Hollywood Village after its movie-set appearance, featured single and multi-story wood buildings presumably designed to simulate urban conditions in the Asian front (fig. 4.110). Unlike mock buildings at other installations, the Fort Cronkhite examples were very simple wood-plank-sided buildings without architectural embellishment. The village was located where training would not conflict with other Army operations. By December 1944, the combat school had ceased operating, but personnel from the Coast Guard and California State Guard (organized in 1941) continued to use the mock village for training. [136]

WAR'S END AND DISARMAMENT

Japan's formal surrender on September 2, 1945 ended San Francisco harbor's role in the Pacific theater. Since American entry into the war four years earlier, the concept of harbor defenses had changed considerably. World War II had demonstrated the effectiveness of aerial warfare and amphibious invasion, thus rendering the fixed major caliber coastal guns largely ineffective.[137] Already at the start of the war, the Army disarmed fifteen Endicott batteries across San Francisco harbor, and by 1943, an additional thirteen were silenced. At the headlands, the batteries disarmed at this time included Spencer, Alexander, and Mendell. Battery Kirby Beach was disarmed in March 1944, and Battery Wallace, which had

just been casemated, was disarmed in October 1944, eight months after the Army suspended work on Battery Construction 129.[138] At the time of Japan's surrender, the remaining major defenses at the headlands were the coastal guns of Battery Townsley; the lighter, rapid-fire guns at batteries Yates, Rathbone-McIndoe, Smith-Guthrie, and O'Rorke used to defend the submarine minefields; the two anti-aircraft batteries; and the numerous anti-aircraft field emplacements. Although plans were still underway for the continued strategic use of many of the harbor defenses, they had become largely obsolete for defensive purposes.

LANDSCAPE SUMMARY, 1917–1945

The period between the U.S. entry into World War I in 1917 and the end of World War II in 1945 saw significant changes to the landscape of Forts Baker, Barry, and Cronkhite with the adaptation of seacoast defenses to more powerful naval guns and modern aircraft. Despite this, the landscape of Forts Baker and Barry retained much of their Endicott–Taft period character and organization. Fort Cronkhite underwent more extensive change as its landscape was transformed from largely undeveloped dairy ranches into a major military reservation with a large cantonment, gun batteries, and numerous secondary defenses. This period was also the beginning of the automobile age that witnessed the once remote headlands connected to San Francisco metropolitan area through the Golden Gate Bridge and US 101, as well as improvements to internal roads connecting each of the three military reservations.

Defensive works built during this period were generally on new sites and did not involve removal of earlier works, many of which became obsolete due to changing military technology and strategy. Despite this, these older works were left standing and often used for new purposes, such as storage. The new defensive works were designed for concealment from the air as well as the sea to address the primary threat from aerial bombardment. This was accomplished by the use of cut-and-cover construction that hid built works beneath the ground. These new works included three major seacoast batteries, two anti-aircraft batteries, and approximately twenty-two fire-control stations. Additional wartime camouflage measures added between 1941 and 1945, including use of native vegetation, nets, and fake rock covers, made the defenses, both old and new, largely invisible in the natural landscape when viewed from the air.

Across the headlands, the World War II period witnessed the addition of numerous temporary anti-aircraft defenses that were typically dugout pits lined with rocks or concrete-filled sandbags. Most of the ridges, formerly without any kind of development, had an anti-aircraft emplacement, some of which were not documented on military maps. Portable searchlights, designed to spot aircraft rather than ships, replaced most of the earlier fixed sixty-inch searchlights. When not in

use, the portable searchlights were stored at a steel-frame warehouse on the south side of the Fort Baker parade ground.

An expanding network of roads crossed the headlands to access the defensive works and post facilities. Completion of the Baker-Barry tunnel provided the first direct road connection between the two reservations. Primary roads were paved, while jeep roads that accessed remote anti-aircraft positions were often just dirt tracks. One road, extending west from Battery Construction 129 in Fort Barry, was intended as a dummy feature to draw attention away from defensive works when viewed from the air.

The many post facilities built during this period, including barracks, chapels, officer quarters, and administration buildings, and the station hospital at Fort Baker, were primarily painted wood-frame temporary construction built according to the Army's Series 700 plans. While the earlier Endicott-period Colonial Revival-style post buildings were maintained, most of the new construction was of a temporary type designed only to accommodate war-time troop increases.

The grasslands that once covered much of the headlands continued to transition to low, scrubby chaparral with reduction in grazing and elimination of wildfires. Grazing had continued in certain areas of the military reservations up until heightened security and military activity just prior to World War II. As late as 1939, the Army allowed cattle to graze on the grassy ridges of the headlands from neighboring ranches and a ranch maintained within Fort Baker near Gravelly Beach.[139] Still, much of the headlands remained in grasses or other low vegetation by 1945, with taller scrub and trees limited to margins along streams, the eucalyptus and Monterey cypress plantations at Gravelly Beach, and the ornamental and windbreak plantings at the main posts and Coast Guard quarters at Point Bonita. Exotic ornamental groundcover that had been introduced during the Endicott period, notably ice plant, spread from its original limits on steep banks.

FORT BAKER LANDSCAPE (DRAWING 1.7)

In 1945, Fort Baker retained the overall organization of the landscape that dated to the post-Civil War and Endicott–Taft periods, consisting of the main post, Quartermaster area, and groups of defenses along San Francisco Bay between Yellow Bluff and Cavallo Point, on Lime Point Ridge, and at Gravelly Beach. New clusters of development occurred through three major additions to the landscape: the Golden Gate Bridge along US 101 and the Sausalito Lateral, and the mine depot and station hospital on Horseshoe Cove. Along East Road to the south of the Sausalito boundary was an unofficial public recreation area that developed following relocation of the Army gatehouse to the south due to the Sausalito Lateral. This area featured walks, footbridges, and barbecue pits.

Circulation within Fort Baker changed markedly during the period. Not only did the tunnel, completed in 1919, provide direct access to Forts Barry and Cronkhite,

but the Golden Gate Bridge and its access roads provided direct highway connections to San Francisco and Sausalito. The bridge also led to a new entrance to Fort Baker off the Sausalito Lateral and cut off the old access to Fort Barry via Old Conzelman Road around Vista Point. As completed by 1937, the bridge's north tower and approach viaduct loomed over Lime Point, and US 101, known as the Waldo Approach, extended across formerly undeveloped hillsides above the main post. Despite its looming presence, construction of the bridge and highways resulted only in the loss of the post-Civil War era Engineer Department buildings, which were located in the valley beneath the bridge viaduct. A bridge authority pier and construction zone were developed where the old Engineer wharf had stood.

Defensive Works (Drawing 1.7)

At Fort Baker's defenses, changes during this period included disarming of all Endicott-period batteries except for Yates, which retained just two of its rapid-fire guns by 1945. The Army maintained the obsolete battery structures for storage along with their associated fire-control stations, except for the one near Battery Duncan that was demolished in 1940. The development of defenses at Gravelly Beach was typical of the shift to smaller armament by World War II, with the two-gun emplacements of Battery Kirby Beach and Battery Gravelly Beach adjoining the much more massive but disarmed Battery Kirby. Neither of these batteries had the earth and concrete structures typical of the Endicott period, but were surrounded by concrete sandbag revetments.[140] Fort Baker, like the rest of the headlands, also featured an array of temporary anti-aircraft fortifications installed during World War II. Those documented on military maps included 40-millimeter anti-aircraft guns below Battery Spencer and on the ridge behind Battery Duncan, and smaller 50-caliber machine guns at Cavallo Point, on a knoll at the approach to the Golden Gate Bridge (Vista Point), and on top of Batter Kirby.

Main Post and Quartermaster Area (Drawing 1.7a)

Throughout this period, the main post of Fort Baker retained its oval core of buildings surrounding an open parade ground, with windbreaks of Monterey pine and eucalyptus around the periphery and eucalyptus and acacia trees around the parade ground. Changes through the early 1930s included construction of a YMCA, a coral and stable behind the old post hospital, two garages, and a Mission Revival-style utility building. With the help of federal work-relief programs, the mid-1930s saw additional changes, including removal of the trees and frame barracks along Center Road, road and sidewalk improvements, construction of eight garages, addition of stone walls along Kober Street and McReynolds Roads, and new ornamental plantings around the officer quarters and barracks. In the Quartermaster area, major changes through the early 1930s included addition of a storehouse, scales, a service station, and a motor garage, plus road improvements

and new foundation plantings. The fenced horse corrals north of the stable building were removed during this time.

The most significant changes to the landscape during the period occurred after declaration of the national emergency in 1939 as the Army prepared for war. Horseshoe Cove went from a largely undeveloped beach to an engineered basin crowded by the mine depot, station hospital, and marine repair facility. The mine depot, begun in 1937 and completed by 1941, followed the inconspicuous character of most defense elements of the time with its cut-and-cover magazines built into the hillside near the wharf. The mine depot included addition of two large, utilitarian steel-frame buildings off the southwestern side of the parade ground for storing mines and mine cables. The visual impact of these buildings was small compared with the twenty-five one-story Series 700 temporary buildings for the Station Hospital, built in 1941 on the filled marsh between the cove and the parade ground. The natural shoreline was built up with fill and a timber bulkhead extended along the western part of the site. This dense complex abutted the Quartermaster area and closed off the former open south side of the parade ground. Despite this, the complex did not obscure the views of San Francisco from the upper part of the post due to the low one-story height of the buildings and the natural downward slope toward Horseshoe Cove. The hospital buildings were connected by covered breezeways, and the complex featured a circular entrance drive at the corner of Center Road and Satterlee Road. Shrubs and trees were planted at this entrance and around the buildings at some point during the war. Across Center Road, a garage and storehouse for searchlights were erected at the southwest corner of the parade ground. Other World War II-era Series 700 temporary buildings added to the main post included three enlisted family duplexes along a new road (Seitler Road), three barracks along McReynolds Road, and a chapel on the hillside above the original barracks. At the rear of the YMCA was a wood tower with a siren erected in 1942, reflecting the heightened threat of aerial attack at the busy post.

During World War II, the Fort Baker Quartermaster area and waterfront underwent few additional built changes, with the exception of a large storage building constructed along East Road in 1942, and development of a second marine repair facility at the northeast side of Horseshoe Cove in 1944. This corresponded with construction of the Satterlee Breakwater along the eastern entrance to the cove, and extension of Satterlee Road to Cavallo Point. This road, which also improved access to AMTB Battery Cavallo, required excavation of the west side of the point and filling of the formerly natural shoreline with rubble.

Coast Guard Facilities (Drawing 1.7)

The navigational aids at Fort Baker, consolidated under Coast Guard administration in 1938, were headquartered at the Lime Point fog signal station in the shadow of the Golden Gate Bridge. The rambling white-washed masonry build-

ing, with its one-story service buildings, was expanded with a third floor, possibly added when two ancillary navigational aids were built at Point Diablo and Yellow Bluff between ca. 1923 and 1935. Both of these aids were electric lights maintained by the keepers from Lime Point.

FORT BARRY LANDSCAPE (DRAWING 1.8)

During the period from World War I to World War II, the landscape of Fort Barry increased in complexity with the addition of numerous defensive works and developed areas. Despite this, the earlier organization of the Endicott-Taft period remained largely intact with the main post, rifle range, Point Bonita Coast Guard facilities, and line of defenses along the Pacific. New clusters of development occurred at the Balloon hangar area (Motor Pool Area), Smith and Mendell housing areas, the West Portal area, and at Battery Construction 129 and Battery Wallace. The Engineer Department area, dating to 1901, disappeared except for one building.

The primary road through Fort Barry, as improved by 1942, was the Baker-Barry road (Bunker Road and Field Road) that extended through Rodeo Valley, across the west end of the main post, through the Quartermaster area and Mendell housing area, and terminated at the cluster of secondary defenses on Point Bonita Ridge. Completion of the Baker-Barry tunnel in 1918 led to replacement of the old winding roads over Diablo Ridge (Julian and Dubois roads). It was not until ca. 1943 that access over the ridge was improved with construction of McCullough Road. Completion of Conzelman Road dates to the period, although it was not a primary thoroughfare, since the section west of Battery Construction 129 was built as a dummy road. In addition to these roads, Fort Barry contained a large number of small spurs to the defenses and housing areas.

Joining the Army and Coast Guard at Fort Barry was the Navy, which built a small cluster of facilities at Bird Island around World War I as part of its ship-to-shore radio communications. These included a dwelling and two sheds near the Army searchlight, and a compass house on Bird Island that was accessed by a footbridge. The Army also maintained a datum point on Bird Island, added in 1941. The Navy transferred these buildings to the Coast Guard, and the Army in turn took them over prior to World War II. The Navy also maintained a two-story concrete tower at Bonita Ridge, which it erected in 1943 as Signal Station No. 2.

Defensive Works (Drawings 1.8, 1.8b)

The two major defensive works added to Fort Barry during this period were Battery Wallace on the ridge south of Battery Alexander, begun in 1917 and casemated in 1943, and Battery Construction 129, completed in 1944 on Diablo Ridge at the Fort Baker boundary. Both works reflected the casemated, cut-and-fill design first used in the mid-1930s by Army engineers at Battery Davis at Fort Funston

and then at Battery Townsley at Fort Cronkhite. Although massive, these defensive works were largely invisible from the air due to their earth cover as well as supplementary wartime camouflage. The other new defensive work at Fort Barry was the post-World War I-era AA (Anti-Aircraft) Battery #2 on Rodeo Hill, an inconspicuous collection of dispersed gun mounts and support facilities. Like the rest of the headlands, Fort Barry also featured an array of temporary anti-aircraft fortifications installed during World War II. Those documented on military maps included .50-caliber machine gun emplacements and 40-millimeter guns scattered along the ridges above the rifle range and main post, near the batteries, and on Point Bonita.

By 1945, Fort Barry had a large number of fire-control stations, the largest cluster occupying the narrow heights of Point Bonita Ridge (site of the first lighthouse), where two emergency stations were added during World War I, along with two fog-level stations at the base of the cliff. An SCR 296 radar station and two-story Navy signal tower were added to the main cluster during World War II. On Point Bonita Hill above the lighthouse tunnel were three stations added between ca. 1918 and 1921. North of Battery Mendell, at the site of North Bonita Hill removed in 1919 were three World War II-era stations. On the west face of Rodeo Hill were two stations and a powerhouse built in 1921 and 1943, and to the east were two stations to either side of Battery Rathbone-McIndoe dating to 1919. The Taft-era searchlights at Bird Island, Point Bonita, and Bonita Cove that aided the fire-control system were supplemented by an array of portable searchlights used in anti-aircraft defenses during World War II.

Departmental Rifle Range & Motor Pool Area (Drawing 1.8)

The Departmental Rifle Range remained an important facility for the Army during this period, as evidenced by a number of upgrades. The original pistol range along the north side was abandoned for a smaller pistol range built into the hillside to the southwest. Six-foot-high berms were added to the set distance marks on the main range. At the southeastern end of the former pistol range were an indoor rifle range, ready magazine, and target house built in 1941-42, surrounding the concrete butts from the old pistol range. The range had lost its long-distance sections north of Bunker Road with development of the Smith Housing area, and it was bisected by the 1942 realignment of Bunker Road along the 500-yard line.

The camp for the rifle range was replaced during this period, first by facilities for balloons used as part of the Army's fire-control system. These included a large steel-frame hangar for a balloon, and a building at the rear where hydrogen used to fill the balloons was generated. The former tent grounds of the rifle range served as the landing field. Use of the area for balloons was short lived, and on the eve of World War II, the area was converted into Fort Barry's motor pool, which housed and serviced the reservation fleet of trucks and automobiles. The motor pool's three sets of gas pumps and two large auto sheds built in 1940 occupied the former field in front of the steel-frame balloon hangar, which was used as a garage.

The former hydrogen generator building at the rear of the hangar served as the repair shop.

Main Post & Quartermaster Area (Drawing 1.8a)

From the end of World War I to the early 1930s, the Army maintained the main post of Fort Barry with few changes, except for removal of ten World War I temporary buildings at the west end of the area in the 1920s, including the YMCA. As at Fort Baker, the mid and late 1930s saw a number of improvements with the influx of federal work-relief funding and labor. These included widening and straightening of Rosenstock Road behind the officer quarters, made possible by the construction of a rustic stone retaining wall. The project included two small parking areas lined by stone walls. A new garage was built and another was expanded, and the foundation plantings around the buildings were most likely renewed. As officers returned to the post in 1939, a flower garden was added on in the lawn south of the Commanding Officer quarters, and another garden with a circular walk appeared on the lawn to the north. During the national emergency between 1939 and 1941, six temporary buildings were added at the west end of the main post, including a large theater, motor vehicle shed, and chapel that also served the new cantonment at Fort Cronkhite. During the war, Field Road was extended across the western end of the post, and the Army moved the flagstaff off the parade ground to the north side of the administration building, where a row of Monterey pine trees framed the new assembly area.

The Fort Barry Quartermaster area lost a number of building during this period, and received just one new feature: scales used to weigh vehicles, similar to the one installed at Fort Baker. Losses included the line of four World War I-era quarters near the corral in ca. 1921. With replacement of horse-powered transportation, the Quartermaster removed the wagon shed and corral in ca. 1930, followed by the stable in ca. 1940. The oil house, a small storehouse, and the coal shed also disappeared during this period.

Cantonments and Hutments (Drawing 1.8)

Outside of the main post, the Army developed a number of new temporary housing areas during this period, most as part of the build-up prior to World War II using Series 700-type buildings. The first was Camp Spurr, a camp for the Civilian Conservation Corps completed in 1935 along Bunker Road west of the tunnel. The eighteen main buildings in this complex were simple one-story unpainted barracks, latrines, and storehouses, except for the two-story central administration building. Between 1939 and 1941, the Army expanded the complex to twelve barracks and renamed it the West Portal Area. Farther west down Rodeo Valley near the main post was the Smith Housing Area, a complex of thirteen buildings built in 1941 along a winding spur off Bunker Road adjacent to Rodeo Creek. This complex replaced earlier civilian housing and rifle

range camp support buildings, as well as the long-distance sections of the rifle range. West and south of the main post was Fort Barry's third housing complex built in 1940, the Mendell Area. It consisted of three rows of two and three-story buildings with connecting walkways. The recreation building was a converted warehouse in the former Engineer Department area to the south. The other eight buildings in this older complex were demolished in ca. 1943.

In addition to the cantonments, Fort Barry also contained two clusters of field quarters known as hutments, which were completed soon after Pearl Harbor to provide housing close to the batteries. Located at the rear of Battery Rathbone-McIndoe and Batteries Smith-Guthrie and O'Rorke, these were wood frame buildings that were built into the hillside. The hutment at Smith-Guthrie included an above-ground mess hall that, for camouflage purposes, was designed to look like a vernacular ranch building.

Point Bonita Coast Guard Facilities (Drawing 1.8b)

Despite continued encroachment by the Army, the Coast Guard continued to maintain its long-standing navigational aids at Point Bonita. These included the former Life-Saving Station, known in 1945 as Station Point Bonita, still dominated by the white-washed Shingle-style station building with its prominent tower. In the center of the manicured lawn was a flagpole and a fountain that replaced a water tank, and along the northeast side was a border of Monterey cypress trees. A narrow road led down to the Coast Guard boathouse on Bonita Cove, which was rebuilt in 1930 following destruction of the previous building in a landslide. Extending out from the boathouse was the Coast Guard dock, which was in part on the site of the earlier Engineer/Quartermaster wharf that was removed in ca. 1930. The tramway that originally transported goods up the steep hillside was probably removed following the landslide in ca. 1928.

On top of the cliff above the boathouse were the two dwellings for the lighthouse keepers, still surrounded by fenced grounds with gardens and outbuildings. The Army Engineer office next to the main keeper's dwelling had been converted to Coast Guard use. The keepers' children still attended the Fort Barry school during this period, located near the Life-Saving Station. The Coast Guard also maintained the Third Keeper's dwelling at the south end of Point Bonita. The only major change in this area was a Coast Guard steel radio tower behind the lighthouse, erected in 1938 west of where the fog signal chimney had stood.

FORT CRONKHITE LANDSCAPE (DRAWING 1.9)

The Army's acquisition of the ranchland extending north from Fort Barry to Tennessee Valley reflected its planned expansion of seacoast defenses along San Francisco's outer harbor, mirroring a similar expanse along the south side of the Golden Gate that had begun with the establishment of Fort Funston in 1917. Mili-

tary development at Fort Cronkhite, established in 1937 as an expansion of the small Tennessee Point Military Reservation, spread over most of the property during this period, leaving only the areas at the extreme northern and eastern parts untouched. The cluster of buildings at the Little Ranch, once belonging to the Gioli family and last part of the Marin Land and Cattle Company, was subsumed by military development, although all but one of the buildings remained standing as camouflage. Defensive works were concentrated on the ridge above Tennessee Point and on Wolf Ridge, with minor secondary works in Tennessee Valley, which the Army called by its previous name, Elk Valley. On former pastures and grain fields north of Rodeo Lagoon was the large cantonment for the new military reservation.

Most of the roads at Fort Cronkhite were built after the Army's acquisition of the property. Only the preexisting western part of the Army road to Tennessee Point and the entrance road to the ranch remained. The main road through the fort, initially called the Road to Hill 417 (Battery Townsley) and then Battery Road (today, Bunker Road), connected to Fort Barry by the causeway that the Army built across Rodeo Lagoon to avoid crossing into the adjoining privately-owned Silva ranch. From the causeway, the road wound around the east and north sides of the valley surrounding the Little Ranch to the site of Battery Townsley. An extension of the earlier road to Tennessee Point completed a circuit around the valley. The road's cut into the unstable slopes and lack of drainage structures led to early problems with landslides along the walls of the valley. The Army corrected these issues with grading and installation of tile drain pipes.[141]

A spur off the main road near Battery Townsley provided access to Wolf Ridge, but it was never extended to Tennessee Valley. To access this area by vehicle, troops had to drive from Sausalito to Route 1, and from there follow a private road (present Tennessee Valley Road and trail) over a government right-of-way through the Simas ranch, owned by the Marin Land and Cattle Company. There were foot trails connecting Wolf Ridge and Tennessee Valley, one of which zigzagged down the steep hillside from a spur off Bunker Road below the Wolf Ridge fire-control stations. The road up Wolf Ridge accessed a radar station, and dead-ended northwest of AA Battery #1. The extension of the road and a dummy warehouse at its end were intended to direct attention away from the defensive works.

Defensive Works (Drawing 1.9)

Battery Townsley, the only seacoast gun battery at Fort Cronkhite, was located uphill from Tennessee Point on what was initially called Hill 417, and served as the northern counterpart to Battery Davis at Fort Funston on the south side of the Golden Gate. The other major cut-and-cover defensive works at Fort Cronkhite were built as part of Battery Townsley, including the plotting-spotting-radio (PSR) room lower down the valley near the Little Ranch buildings, and a reserve maga-

zine on the opposite side of the valley above the cantonment. Water supply for the battery came from a spring-fed system in the ranch valley to the east. The system was supplied by three spring sumps that fed into a rebuilt collecting reservoir south of Bunker Road. Water was then pumped up to a new underground storage reservoir at an elevation 300 feet higher, near the fire-control stations.

The only other battery at Fort Cronkhite was AA Battery #1 located on a barren, exposed site at the west end of Wolf Ridge at an elevation of nearly 700 feet above sea level. Completed in 1940, the battery consisted of dispersed elements, similar to AA Battery #2 on Rodeo Hill at Fort Barry, including three concrete gun platforms for three-inch antiaircraft guns, cut-and-cover storeroom-powerhouse and magazine buildings on an east-facing slope, and two underground ammunitions bunkers added during the war. Approximately four hundred feet farther up the ridge, at an elevation of more than eight hundred feet, was the director's pit, a sunken concrete box with a moveable roof, and a concrete pit for a height-finder instrument.

Fort Cronkhite contained clusters of fire-control stations at Tennessee Point, Wolf Ridge below AA Battery #1, and in Elk Valley. The Tennessee Point cluster, first developed around World War I with two permanent stations along the edge of the point and three temporary frame stations along the inland boundary, was outfitted with two new fire-control stations in 1921, and a third in 1941 uphill of the former property line. Near the edge of the point were two portable searchlights that had replaced the pre-World War I sixty-inch retractable searchlights. The associated powerhouse remained, as did two searchlight controller booths dating to the World War I era. The Wolf Ridge cluster of fire-control stations, completed between 1940 and 1943, were cut-over-cover structures below AA Battery #1 that were concealed in the barren slopes with rock and earth. The cluster also included a powerhouse. At elevations of between 500 and 650 feet, these stations had expansive panoramic sight lines across the Pacific. The Elk Valley structures, built between ca. 1940 and 1944, included one fire-control station and a powerhouse built into the cliff over 100 feet above the beach, and two underground structures for mine cables on the valley floor and in the slope north of the beach. These features were accessed by a paved road that terminated in loop near cable manhole, and had a spur going up to the fire-control station.

The heights of Wolf Ridge made it an ideal location for the Army's first surface craft radar (SCR) systems. At the highest point on the ridge east of the AA Battery #1 director's pit was SCR-682 station #2 completed in 1944, a companion to SCR-682 station #1 at Point Reyes. Farther down Wolf Ridge, below the cluster of fire-control stations, was SCR-296 #4 built in ca. 1943. These stations consisted of twenty-five-foot-tall steel antenna towers, with frame and sheet-metal buildings containing power generators and transmitter equipment. North of Battery Townsley was the second type of radar system at the headlands, the SCR-584 that employed microwave radar for AA Battery #1. This station, installed by 1944,

consisted of temporary trailers with a radar dish on top. A third radar installation at Fort Cronkhite served antiaircraft searchlight #109, positioned on a hilltop east of the cantonment. This was probably a small and temporary radar installation.[142]

As at Forts Baker and Barry, the landscape of Fort Cronkhite in 1945 had a variety of temporary antiaircraft field fortifications erected during World War II. Those documented on military maps included three of the larger 40-millimeter antiaircraft guns, one at the west end of the Wolf Ridge road, one near AA Battery #1, and one north of Rodeo Beach near the Townsley plotting room. The smaller .50-caliber machine guns were located along the Pacific Coast south of Tennessee Valley, at Tennessee Point, on top of Battery Townsley, and overlooking Rodeo Beach; three on Wolf Ridge (one on private property north of the reservation boundary), and two north of Rodeo Lagoon.

Fort Cronkhite Cantonment (Drawing 1.9a)

Unlike the cantonments of the Smith, Mendell, and West Portal areas, the Fort Cronkhite cantonment, completed in 1941, had many of the same features found at the main posts of Forts Baker and Barry, including a central administration building, fire station, guardhouse, infirmary, officer quarters, commanding officer quarters, and parade ground. It shared the chapel and theater located at the Fort Barry main post. Fort Cronkhite did not, however, have a Quartermaster area, nor did it share the same circular layout and sheltered location as the main posts of Forts Baker and Barry.

The Fort Cronkhite cantonment was on terraced land above the northern shore of Rodeo Lagoon, with two streams piped beneath the development. The complex featured three parts: a central triangular area with the administration building, post exchange, and fire station, and the flanking east wing and west wing containing the barracks, mess halls, recreation buildings, and storehouses. The cantonment was laid out parallel to the shoreline of Rodeo Lagoon and the old road to Tennessee Point, renamed Main Street (present Mitchell Road). Interior roads ran parallel and had number names according to their location relative to Main Street and the central area. Three officer quarters buildings, similar to the barracks, lined the north side of the east wing, along with a small building designated as a guest house. The only buildings added after the initial construction in 1941 were seven small storage sheds, which Army personnel called spud bins, built next to each of the mess halls in ca. 1942, and a sewage pump station near the shore of Rodeo Lagoon.

The roads in the cantonment were paved in red macadam and featured concrete gutters along the uphill sides. Walks, initially gravel or asphalt, were later rebuilt in concrete, and connected to wood steps up the terraced slopes.[143] The ground was seeded with grass, but not planted with ornamental shrubs or trees except around the central administrative area, where Monterey cypress and pine were added around the perimeter. The Army may have also introduced iceplant to stabilize

steep slopes.[144] Power lines on wood poles crisscrossed the cantonment. A 50-foot tall wood flag pole, shorter than those at Forts Baker and Barry, was in front of the administration building. Much of the ground between the buildings in the east and west wings had been excavated for letter trenches intended as personnel shelters against strafing aircraft.[145] Soldiers dug a large number of practice field fortifications, including fox holes and trenches, into the hillsides above the cantonment.

Unlike the main posts of Forts Baker and Barry, Fort Cronkhite's parade ground was not at the center, but rather off Bunker Road at the northeast corner of the cantonment, across from the commanding officer's residence. A trench or ditch extended across the hillside above the parade ground, either to divert water or to provide security. A similar ditch extended across the hillside above the west wing of the cantonment. Another open graded area was at the west end of the cantonment, initially designated for parking 155 millimeter guns and tractors. This area may also have been used as a parade ground.

Other support facilities at Fort Cronkhite included a large above-ground concrete reservoir on top of a hill north of the cantonment, an incinerator to the east along Bunker Road, and a large frame warehouse north of the causeway to Fort Barry. At the northeastern end of the Little Ranch valley was a cluster of seven buildings erected in ca. 1942 for an unknown purpose. In 1945, these buildings were incorporated into a commando training course established the previous year that included a complex of wood building props used to simulate fighting conditions in built-up areas.

NOTES, CHAPTER 4

1 U.S. Army, Engineer Department, "Reports of Completed Works—Seacoast Fortifications," National Archives II, RG 77, Entry 1007, boxes 144-156 (hereafter, "Reports of Completed Works"), Forts Barry and Cronkhite (Tennessee Point Reservation); Emanuel Raymond Lewis, *Seacoast Fortifications of the United States: An Introductory History* (Annapolis, Maryland: Naval Institute Press, 1970, reprinted 1993), 100.

2 David Clary, *Fortress America: The Corps of Engineers, Hampton Roads, and United States Coastal Defense* (Charlottesville: University of Virginia Press, 1990), 154.

3 Gordon Chappell, "Historic California Posts, Fort Funston," California State Military Museum website, www.militarymuseum.org/FtFunston.html (accessed July 12, 2010). The Army had acquired the land in 1900 as Lake Merced Military Reservation, but did not develop it until World War I.

4 Erwin N. Thompson, *Historic Resource Study, Seacoast Fortifications San Francisco Harbor, Golden Gate National Recreation Area* (Denver: National Park Service, Denver Service Center, 1979), 262–267, 281, 282.

5 Erwin N. Thompson, *Historic Resource Study, Forts Baker, Barry, Cronkhite, Golden Gate National Recreation Area* (Denver: National Park Service, Denver Service Center, 1979), 54–55; Fort Baker Building Book, buildings P-674, GOGA 32426. The relocated target range is shown on a 1930 War Department map of Fort Baker (Drawing no. 19, Serial Print no. 8).

6 Thompson, *Seacoast Fortifications*, 267–268; U.S. Army, Engineer Department, Engineer Notebook, Harbor Defenses of San Francisco, National Archives I, RG 77, Records of the Office of the Chief of Engineers, Entry 220, "Coast Defense Fortification File, 1898-1920" (hereafter, "Engineer notebook"), map of Fort Barry, March 3, 1919 updated to April 17, 1920. This map shows the addition of sand and rock bins along the site of the old sand tramway, north of Battery Mendell.

7 Reports of Completed Works, Fort Barry, Battery Wallace, corrected to October 1921.

8 Thompson, *Seacoast Fortifications*, 275; War Department, "Fort Barry, San Francisco, California," 1916 updated to ca. 1920, Golden Gate National Recreation Area, Park Archives and Records Center (hereafter, GOGA PARC); Reports of Completed Works, Fort Barry, E2 Livingston, E2 Springer; Engineer notebook, map of Fort Barry, March 3, 1919 updated to April 17, 1920. No reports of completed works were found for the temporary fire-control stations on Point Bonita or Tennessee Point.

9 Reports of Completed Works, Fort Barry, Mine Casemate, updated to September 28, 1942.

10 Engineer notebook, maps for Fort Barry, January 14, 1915 updated to November 8, 1916, and March 3, 1919 updated to April 17, 1920, GOGA PARC; John Martini, comments on second draft report, March 2011.

11 U.S. Army, Constructing Quartermaster, "Fort Barry, California," July 1919, GOGA PARC; Engineer notebook, maps for Fort Barry, January 14, 1915 updated to November 8, 1916, and March 3, 1919 updated to April 17, 1920; Fort Barry Building Book, 1939 updated to ca. 1946. No photographs of the temporary officer quarters have been found.

12 Thompson, Seacoast Fortifications, 276–277; Steve Haller, Golden Gate National Recreation Area Historian, communication with John Auwaerter, September 2010. Battery Kirby's second gun was shipped to Corregidor, where it played an important role in the Allies' most successful coast-defense resistance to Japanese invasion. Kirby was officially decommissioned in 1934.

13 Fort Baker Building Book; Harbor Defenses of San Francisco (hereafter, HDSF) aerial photo of the Baker main post, 1925, National Archives II, College Park, Maryland (hereafter, NARA II).

14 Captain Ralph Blanchard, USN, Ret., *The History of the YMCA in World War I* (Doughboy Center / The Story of the American Expeditionary Forces website, http://www.worldwar1.com/dbc/ymca.htm), accessed February 13, 2011.

15 Fort Baker Building Book, building 620; Engineer notebook, maps for Fort Barry, March 3, 1919 updated to April 17, 1920. The Fort Barry YMCA was demolished in ca. 1925 prior to development of the building books.

16 Thompson, Forts Baker, Barry, Cronkhite, 58–59, 100; John Martini, comments on second draft report, March 2011; Brian B. Chin Artillery at the Golden Gate, the Harbor Defenses of San Francisco in World War II (Missoula, Montana: Pictorial Histories Publishing Company, 1994), 7.

17 Edward Denny and Company, "Hiking Map of Marin County," 1925, cited in "Historic Trail Assessment, Appendix C—Supplemental Trail Assessment" (Unpublished National Park Service Report, May 18, 2006), 1.

18 Fort Baker Building Book, 1929 updated to ca. 1946.

19 Fort Baker Building Book, 1939 updated ca. 1946; the Mission-style building, #409, does not appear on a 1925 map, U.S. Army, "Post Map of Fort Baker & Fort Barry," but is shown (although not labeled) on a 1930 map, U.S. Army, "Fort Baker, San Francisco Harbor, California."

20 HDSF aerial photos of the Baker main post, 1925, 1928, NARA II.

21 HDSF aerial photos of the Fort Barry main post, 1925, 1928, NARA II; Engineer notebook, maps for Fort Barry, March 3, 1919 updated to April 17, 1920 showing the temporary buildings, and HDSF aerial photo, 1938, showing the buildings gone; Fort Barry Building Book, 1939 updated to ca. 1946, record for building 997.

22 Jane Lehman, John Martini, et al., "Fort Barry Balloon Hangar and Motor Vehicle Sheds Abbreviated Historic Structures Report" (Unpublished report, Golden Gate National Recreation Area, ca. 2005), 9.

23 Lehman and Martini, 19.

24 Lehman and Martini, 19.

25 Lehman and Martini, 19; ca. 1938 aerial photograph of Fort Barry showing concrete building pads.

26 53 Stat. L., 1432; Toogood, 233.

27 Memo, Department of the Army to commander, 12th Coast Guard District, July 14, 1966 citing original Army permit of 1922, Army Records Collection, EMR Box 8, folder B3 F2, GOGA PARC, GOGA 35338; Ralph Shanks, *Guardians of the Golden Gate: Lighthouses and Lifeboat Stations of San Francisco Bay* (Petaluma, California: Costaño Books, 1990), 155; Lighthouse Friends.com, webpage for "Point Diablo, CA" (accessed April 9, 2010); 1938 aerial of Fort Baker showing the Yellow Bluff beacon, HDSF photo B17180002, NARA II.

28 Engineer notebook, maps for Fort Barry, March 3, 1919 updated to April 17, 1920, HDSF aerial photograph, 1938, RG 499 E118 017, NARA II; and aerial photograph of Point Bonita, January 1939, B17207002, NARA II.

29 Anna Coxe Toogood, *Historic Resource Study, A Civil History of Golden Gate National Recreation Area and Point Reyes National Seashore, California* (Denver: National Park Service, 1980), 304–06; U.S. Coast Guard, "Bonita Point Coast Guard and Lighthouse Station General Topographic and Location Map," 1940, Historic American Building Survey no. CA-2795-A-8.

30 HDSF aerial of Point Bonita, 1938, B17212007, NARA II; Toogood, 233; Fort Barry Building Book (ca.1939 updated to 1946), Building 997, GOGA 32423.

31 Thompson, *Seacoast Fortifications*, 210–11; Harbor Defense San Francisco, "Military Reservation, Fort Barry" (map), 15 November 1945; Reports of Completed Works, Fort Barry, Batteries Smith, Guthrie, Rathbone, McIndoe, updated to 1923. No report was found for the east fire-control station (B1 McIndoe); the date of construction is assumed to be the same as the western one (B1 Rathbone).

32 Reports of Completed Works, Fort Barry, E1 Wallace, B1 Wallace, 1921 updated to November 1, 1927; Thompson, *Seacoast Fortifications*, 268.

33 Reports of Completed Works, Fort Barry, Anti Air-Craft Battery, updated to August 1, 1929. The cuts for these two associated structures are visible in a 1938 HDSF aerial photograph, B17212007. No information was found on structures in these cuts.

34 HDSF photograph of Fort Barry, 1938. The presence of such scrub on both sides of the fences reflects the absence of grazing in this area of the headlands.

35 John Martini, "Fort Baker Marine Repair Facility Historic Structure Report, Part IA (Unpublished draft report, Golden Gate National Recreation Area, 2009), 24–26; the expanded wharf is shown as the "Quartermaster Wharf" on a 1925 map, "Post Map of Fort Baker & Fort Barry," March 1925, sheet 1, GOGA PARC, D181 F1.

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37 Thompson, *Seacoast Fortifications*, 289–90.

38 U.S. Army, Fort Baker General Site Map, 1971, annotated to show Golden Gate Bridge/US 101 permit areas and rights-of-way, GOGA PARC, map GOGA 34514.

39 The construction pier is labeled on U.S. Army Corps of Engineers, "Fort Baker…General Site Plan & Building Use Map," 1952, GOGA PARC, D209 F1.

40 Fort Baker Building Book, Building 672, 1939 updated to ca. 1946; John Martini, communication with John Auwaerter, August 2011.

41 Photographs of Sausalito Lateral, November 22, 1949, photograph AAD-0737, San Francisco Historical Photograph Collection, San Francisco Public Library; Photograph of Sausalito Lateral with light standards and chain-link fences, August 1938, Paul Judge Collection.

42 Thompson, *Forts Baker, Barry, Cronkhite*, 59–60, 100–101; Fort Baker CLR, 34-35; Fort Baker Building Book, 1939 updated to ca. 1946.

43 Thompson, *Forts Baker, Barry, Cronkhite*, 59–60, 100–101; Fort Baker CLR, 34-35; Fort Baker Building Book, 1939 updated to ca. 1946. The photographs in the Building Book show young shrubs and other plantings around the officer quarters and Quartermaster area buildings. These may have supplemented earlier plantings.

44 John Martini, e-mail to John Auwaerter, March 1, 2012; Fort Barry Building Book, 1939 updated to ca. 1946; Building Information Schedule (1971).

45 Thompson, *Forts Baker, Barry, Cronkhite*, 60; Tetra Tech, Inc., "Draft Records Research Report, Fort Barry Formerly Used Defense Site, #J09CA3107 (Unpublished report prepared for the U.S. Army Corps of Engineers, August 2007), 3–8; Chin, 29. Chin stats that the Army renamed the CCC Camp "Camp Spurr" when it expanded it in 1940, but a 1940 Army map ("Temporary Housing, Fort Barry," GOGA PARC, D215 F1) labels it the "West Portal Area," suggesting that Camp Spurr was a CCC name. No primary documentation was found on the use of the camp by the CCC, or on the original of the name Spurr.

46 U.S. Army, "Civilian Conservation Corps Camp, Fort Barry, Calif.," June 1936, GOGA PARC, D215 F1; U.S. Army, "Conversion of Barracks to Family Type Housing" (plan), May 14, 1946, GOGA PARC, D181 F1.

47 HDSF aerial photograph of Fort Barry, 1938, RG 499, E118, NARA II. This aerial photo does not show any tree plantings or associated ground disturbance around the CCC camp. By 1938, these trees would have been planted for up to three years, but if there were still tiny saplings, may not be visible in the aerial.

48 Ana B. Koval, "Historic American Engineering Record, Forts Baker-Barry Tunnel, HAER No. CA-139 (Unpublished National Park Service report, July 1993), 4.

49 Thompson, *Forts Baker, Barry, Cronkhite*, 60; John Martini, comments on second draft report, March 2011.

50 Mark A. Berhow, editor, *American Seacoast Defense: A Reference Guide* (McClean, Virginia: Coastal Defense Study Group Press, 2004), 61, 176.

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52 Thompson, *Seacoast Fortifications*, 302.

53 Tetra Tech, Inc., "Records Research Report, Former Fort Cronkhite" (Unpublished Formerly Used Defense Site/FUDS report no. J09CA3111, 2007), page 2-5; "Fort Cronkhite Land Recap, 22 March 1971" (unpublished Army ledger of land acquisition), GOGA PARC, collection 35338, box 9.

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57 Darcie Luce, "An Incomplete Dairy Ranching History and Outline of Land use in the Marin Headlands," (Unpublished report prepared for the National Park Service, 1993), GOGA PARC, file 6468 F-1; HDSF, "Government Leased Easement, Road Right-of-way to Elk Valley Area, Fort Cronkhite," November 16, 1945, HDSF 1945 Annexes; The Dean Witter Foundation website, http://www.deanwitterfoundation.org/ (accessed October 18, 2010). No primary documentation was found on Dean Witter's ownership of Ranch I.

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59 Thompson, *Forts Baker, Barry, Cronkhite*, 115–16, *Seacoast Fortifications*, 313; Reports of Completed Works, Fort Cronkhite, Battery Plan, Battery Townsley, corrected to July 24, 1940, and Reserve Magazine Plan, Battery Townsley, corrected to July 24, 1940.

60 Reports of Completed Works, Fort Cronkhite, B.C. Townsley, corrected to July 24, 1940 and B1S1 Townsley, corrected to November 14, 1941; Thompson, *Seacoast Fortifications*, 314–15.

61 Reports of Completed Works, Fort Cronkhite, Miscellaneous Structures, corrected to July 2, 1940.

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77 Thompson, *Forts Baker, Barry, Cronkhite*, 101; 1971 Building Information Schedule (1971); U.S. Army, "Fort Barry," May 30, 1942, GOGA PARC, map 75835, D211 F1; 1952 Forts Baker, Barry, Cronkhite & Mendell Area map. No plans or ground-level photos of the Smith Housing Area were found.

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80 Fort Baker Building Book, 1939 updated to ca. 1946; U.S. Army, "Completion Report, West Portal Area Water Distribution," October 17, 1941; Building Information Schedule (1971); Fort Record Book, Fort Barry, 5; 1946 aerial showing no trees.

81 Raymond, Mildred, Albert, and Helen Montpart to Commanding General, Fort Winfield Scott & Subposts, February 23, 1943, in Fort Barry Building Book, 1939 updated to ca. 1946. In this letter the Montparts relinquished to the War Department "any interest that they may have in the building known as the Fort Barry Tailor Shop…"

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85 "Fort Cronkhite, Calif., Sidewalks for Temp. Housing, Plot Plan & Walk Details."

86 Aerial photograph of Forts Barry and Cronkhite, May 1942; "Forts Baker, Barry, Cronkhite & Mendell Area Roads, Contours & Principal Buildings Base Map," 1952; Chin, 34; Record Books, Fort Barry and Fort Cronkhite.

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88 Aerial photograph of Forts Barry and Cronkhite, May 1942; aerial photograph of the headlands, 1946 showing trees around administration building; "Fort Cronkhite, Calif., Sidewalks for Temp. Housing, Plot Plan & Walk Details," 1943; Chin, 34.

89 Chin, 51; Captain C. D. Baylis, editor, *Historical and Pictorial Review of the Harbor Defenses of San Francisco* (Baton Rouge: The Army and Navy Publishing Company, 1941), 9, 123.

90 Daniel Kramer, "Preliminary Cultural Landscape Report for AA Position No. 81" (Unpublished report prepared for the National Park Service, 2009), 6.

91 John Martini, correspondence with John Auwaerter, 2010; Bookstein, 16–19, 26–27.

92 Memorandum, U.S. Army Chief of Engineers, to District Engineer, San Francisco, December 3, 1938, NARA II, RG 77, Entry 1007, box 136. The memorandum suggested planting trees that might be found at a farm or group of cottages, including eucalyptus, Monterey cypress, bay (laurel), scrub oak, Scotch broom, and chaparral, with lines of trees simulating windbreaks of formal plantings as for a summer home.

93 "Diagrammatic Map, Protective concealment, Batteries Townsley & Davis;" Photograph of Louis Cresci showing ranch buildings without the old barn, ca. 1941–45, GOGA PARC, image 40015.020.

94 Memorandum, U.S. Army District Engineer, San Francisco, to The Chief of Engineers, U.S. Army, "Protective Concealment—Forts Cronkhite and Funston," October 14, 1939, National Archives II, copy, GOGA PARC.

95 U.S. Army Office of the Chief of Engineers, "Camouflage of Seacoast Defenses, Recommendations and Cost Estimates, Ninth Corps Area" (Secret report, October 1941), 2, 21, NARA II, copy in GOGA PARC.

96 "Camouflage of Seacoast Defenses," 21.

97 "Camouflage of Seacoast Defenses," 13–14.

98 "Camouflage of Seacoast Defenses," 16. The additional work referred to by the engineers may have been the dummy battery, magazines, and entrances recommended in 1939.

99 Captions on photos of Battery Townsley camouflage, ca. 1943, NARA II, RG 77, Entry 1007, box 136.

100 Thompson, *Seacoast Fortifications*, 382.

101 Steve Haller communication with John Auwaerter, September 2010.

102 Aerial photographs of Forts Barry and Cronkhite, May 1942; U.S. Army, "Topography, Battery Kirby, Marin County, California," April 1943, GOGA PARC, D263 F2; John Martini, "Fort Scott Coastal Trail Cultural Resource Report" (Unpublished report, Golden Gate National Parks Conservancy, February 2009), 48.

103 U.S. Army, "Antiaircraft Artillery Emplacements" (Training Bulletin no. 69, November 1, 1943).

104 Such as existing gun pit along the cliff south of Battery Mendell.

105 "Antiaircraft Artillery Emplacements," 1–2; Thompson, *Seacoast Fortifications*, 407–08; Chin, 86; Inspection by authors of surviving sandbag pits on Wolf Ridge.

106 U.S. Army, "Military Reservation, Fort Barry, Location No. 9, Harbor Defenses of San Francisco," "Fort Cronkhite, Location No. 8," and "Fort Baker, Location No. 10," November 1945.

107 John Martini, communication with John Auwaerter, September 2010. Only two of the Elephant iron structures at Wolf Ridge have been confirmed.

108 Thompson, *Seacoast Fortifications*, 365.

109 Fort Record Book, Fort Baker, 29, 37. Two additional guns from Yates were sent to Fort Point in 1942. In 1943, the two Yates guns at Gravelly Beach were moved a third time, to Fort Point.

110 Reports of Completed Works, Fort Barry, Battery Wallace, corrected to October 1943, Power House/Rodeo Hill, Corrected to June 1944, and BC Wallace, corrected to November 9, 1942.

111 Thompson, *Seacoast Fortifications*, 366; Reports of Completed Works, Fort Barry, Battery Construction 129, corrected to April 1944.

112 U.S. Army, "Battery Construction No. 129 Camouflage Plan," October 30, 1943 GOGA PARC, D275 F3. While it is not known whether this plan was implemented as proposed, a 1952 aerial photograph shows little distinction between vegetation over the battery and surrounding areas.

113 Thompson, *Seacoast Fortifications*, 369.

114 Chin, 110; John Martini, communication with John Auwaerter, September 2010.

115 Thompson, *Seacoast Fortifications*, 369.

116 "Topography, Battery Kirby, Marin County, California," April 1943; Thompson, *Seacoast Fortifications*, 369–70, 390; Reports of Completed Works, Fort Baker, 90 MM Battery, corrected to November 1943.

117 John Martini, communication with John Auwaerter, September 2010, and comments on second draft report, March 2011.

118 U.S. Army, Harbor Defenses of San Francisco, "Mine Facilities, Location of Submarine Mine Groups Cables and Appurtenances West of Golden Gate Bridge," November 15, 1945; Reports of Completed Works, Fort Cronkhite, Cable Sub Hut corrected to October 1943, M4 I, corrected to April 1944 and Elk Valley Power House corrected to April 1944.

119 Reports of Completed Works, fire-control stations at Forts Baker, Barry, and Cronkhite; John Martini, comments on second draft report, March 2011.

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121 Report of Completed Works, Fort Cronkhite, SCR 296, corrected to February 1944; Fort Barry, SCR 296, corrected to February 1944 and Signal Station, Point Bonita, corrected to July 1943; aerial photograph of Fort Cronkhite, May 1942.

122 Reports of Completed Works, SCR 682 corrected to June 1944.

123 U.S. Army, "Mine Facilities…West of Golden Gate Bridge, Harbor Defenses of San Francisco," November 1945; John Martini, comments on second draft report, March 2011.

124 Thompson, *Seacoast Fortifications*, 403; Chin, 60, 72.

125 John Martini, "Fort Baker Marine Repair Facility Historic Structure Report, Part IA (Unpublished report prepared for the National Park Service, 2009), 32, 34, 36; "Military Reservation, Fort Baker," November 1945.

126 Martini, "Fort Baker Marine Repair Facility," 33–34.

127 Building Information Schedule (1971), building 513, 621, 691, 692, 987; Fort Barry Building Book, building 932, 1939 updated to 1942.

128 Fort Barry Building Book, "Recreation Hall," building 997, 1939 updated to ca. 1943; Building Information Schedule (1971), building 997.

129 Rurik, 17; Aerial photograph of Forts Barry and Cronkhite, May 1942, showing improvement of Bunker and Field Roads not yet begun; Aerial photograph of Forts Barry and Cronkhite, and west Fort Baker, 1946. This aerial clearly shows the improved Bunker and Field roads.

130 Federal Works Agency, "Plans for Proposed Improvement of Reservation Roads, Fort Baker & Fort Barry, Marin County, California," approved June 1941, GOGA PARC, map 20514, D186 F1; U.S. Army, "Fort Barry Access Road, Plan & Profile," revised to June 3, 1942, GOGA PARC D208 F1.

131 Carey Feierabend, "Historic Road Characterization Study Supplemental Work, Marin Headlands, Golden Gate National Recreation Area" (Unpublished report, April 2004), 29.

132 Chin, 71; Aerial photograph of Fort Cronkhite, May 1942; "Topography, Battery Kirby, Marin County, California," April 1943.

133 Chin, 141; unattributed 1946 aerial photograph of the headlands (courtesy John Martini).

134 L. Guidry, "Rough Site Diagram" (field sketch) of Lower Wolf Ridge and Battery Rathbone–McIndoe, July 1993, park historian's files, Fort Mason, GOGA.

135 Dan Archibald, Adam Smith, Sunny Adams, and Manroop Chawla, *Military Training Lands Historic Context: Training Villages, Mock Sites, and Large Scale Operation Areas* (Arlington, Virginia: Department of Defense Legacy Program, March 2010), 7; War Department, "Training Aids, 'Combat in Cities' Course," plan, ca. 1943, in Archibald, figure 1.

136 National Park Service, "World War II in the San Francisco Bay Area: A National Register of Historic Places Travel Itinerary," http://www.nps.gov/nr/travel/wwiibayarea/bak.HTM (accessed November 24, 2010); *History of the California State Guard*, cited in Bookstein, 20.

137 Lewis, 124.

138 Thompson, *Seacoast Fortifications*, 387; Fort Record Book, Fort Baker, 29, 31, 33, 37; Fort Record Book, Fort Barry, 42–43, 46.

139 Aerial photograph of Fort Baker showing cattle grazing above Battery Wagner, 1938, NARA II, REG 499, E118, image E188)006.tif; January 1939 aerial photographs of Fort Cronkhite showing grazing cows, NARA II, HDSF aerials, B17204-B17206.

140 John Martini, comments on second draft report, 2011.

141 Photograph of landslides along Battery Road, Army Corps of Engineer Photographs, December 1937, GOGA PARC, image 18017.

142 No information was found on this radar installation aside from its label on the map of Fort Cronkhite, HDSF, November 15, 1945.

143 Photographs of Fort Cronkhite in 1952 (Bill Fine Collection, GOGA PARC) show concrete walks; it is presumed these date to World War II, but may have been rebuilt during the immediate post-war years. The photos also show wood and gravel-fill steps up the terraces.

144 U.S.G.S. aerial photograph of Fort Cronkhite, October 28, 1946 (private collection of John Martini), showing trees around central area; Chin, 34.

145 John Martini, comments on second draft report, 2011.

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Baker
1917–1945 Period Plan

National Park Service
Olmsted Center for Landscape Preservation
www.nps.gov/oclp

in partnership with
Department of Landscape Architecture
Center for Cultural Landscape Preservation
SUNY College of Environmental
Science and Forestry, www.esf.edu/la/

SOURCES

1. NPS, Marin County GIS data
2. US Army, Fort Baker, HDSF engineer notebook map, revised to 1935
3. US Army, Post Map, Forts Baker & Barry, 1942
4. US Army, Breakwater & Marine Repair Shop map, 1943/44
5. US Army,, Reports of Completed Works, revised to 1944
6. US Army, Harbor Defense S.F. locations map, November 1945
7. Aerial photographs, 1939, May 1942, 1946

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John Auwaerter, Laura Roberts, Illustrator CS5, 2011

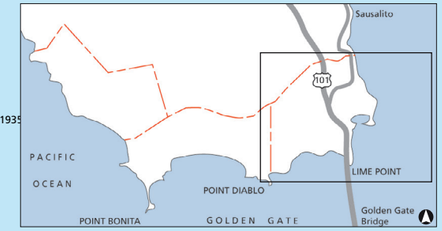
LEGEND

- Property, reservation boundary
- Building
- Structure, substructure
- Wall
- Road, trail
- Post-Civil War-era battery
- Endicott-era battery
- Gun emplacement (fixed, temporary)
- Earth parapet of defensive work
- Water tank, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream
- Wetland
- Rock cliffs
- Edge of cut or quarry
- Beach
- 50′ contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1945.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Plan does not show overhead or underground utility lines, or all trails, jeep roads, and antiaircraft gun emplacements.
5. Current road and trail names in parentheses.
6. White mask indicates limits of Fort Baker study area.

Drawing 1.7



Period Symbols and Abbreviations

F	Fort command station		Submarine cable terminal
G	Group command station		Switchboard room
BC	Battery commander's station	AA	Anti-Aircraft
B	Battery station	AW	Automatic weapon
CRF	Coincidence range finder sta.	AMTB	Anti-motor torpedo boat
PSR	Plotting, spotting, radio	40 MM	40 millimeter AA gun
M	Meteorological station	.50	.50 caliber AA gun
	Taft-era searchlight, diameter	HDSF	Harbor Defenses of San Francsico
	WWII-era searchlight		

Numbers after station abbreviations indicate primary (1), secondary (2) and supplementary (3 and higher) stations.
Stations are shown by designations on 1942 map of Fort Baker; Engineer notebook map revised to 1936, and HDSF locations map, November 1945
* = Designation or caliber of gun emplacement not known

Building Key: See Appendix A (Fort Baker)
Building numbers reflect latest Army/NPS designation

0′ 400′ 800′ 1,600′



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John Auwaerter, Laura Roberts
Illustrator CS 5, 2011

NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1945.
3. Plan does not show all small-scale features.
4. See drawing 1.7 for sources and other notes.

LEGEND

- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Lamppost
- Power line
- Lawn
- Grassland or bare earth
- Deciduous, conifer, palm tree
- Shrub, planted bed
- Woods, shrub cover
- Stream
- Rock cliffs
- Beach
- *Feature removed during period*

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Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Baker Main Post
1917–1945 Period Plan Detail

0′ 100′ 300′

Drawing 1.7a

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Barry
1917–1945 Period Plan

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Science and Forestry, www.esf.edu/la/

SOURCES

1. NPS, Marin County GIS data
2. US Army, Reports of Completed Works, revised to 1944
3. US Army, Fort Barry, HDSF engineer notebook maps, rev. to 1935
4. US Army, Fort Barry, 1942; SCR 296, 1943; HDSF, November 1945
5. US Coast Guard, Bonita Point General Topographic Map, 1940
6. Aerial photographs, 1939, May 1942, 1946

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LEGEND

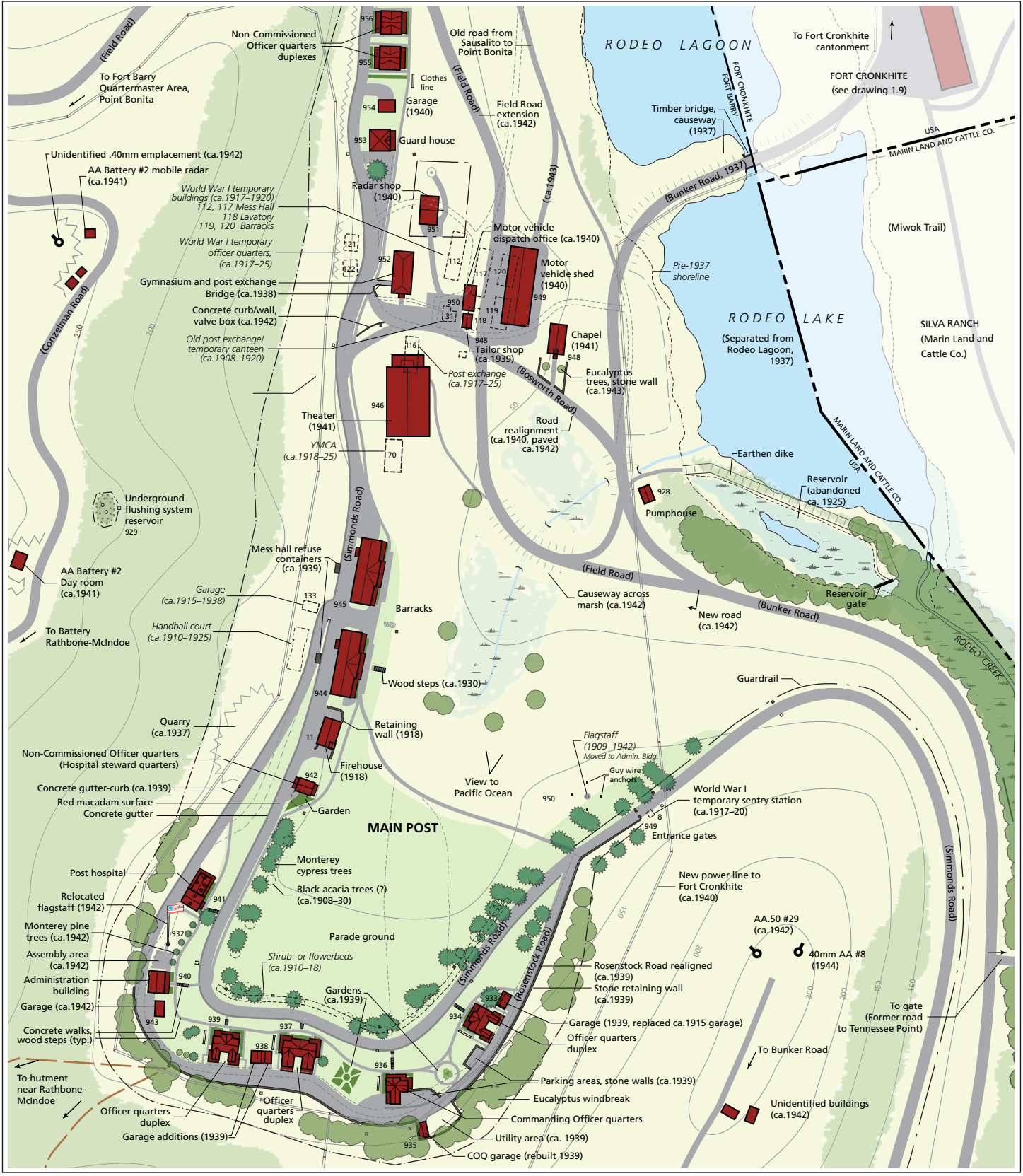
- Property, reservation boundary
- Building
- Structure, substructure
- Wall
- Road, trail
- Endicott-era battery
- WWII-era casemated battery
- Earth parapet of defensive work
- WWII-era defensive positions (foxholes, trenches)
- Gun emplacement (fixed, temporary), machine gun pit
- Water tank / cistern, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream
- Wetland
- Rock cliffs
- Edge of cut or quarry
- Beach
- 50′ contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1945.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Plan does not show above- or below-ground utility lines, or all trails, minor jeep roads, field defenses, and antiaircraft gun emplacements.
5. Current road and trail names in parentheses.
6. White mask indicates limits of Fort Barry study area.

Drawing 1.8





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Illustrator CS 5, 2011

NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1945.
3. Plan does not show all small-scale features.
4. See drawing 1.8 for sources and other notes.

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LEGEND

- Property, reservation line
- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Drain inlet, outlet
- Power line
- Lawn
- Grassland or bare earth
- Deciduous, conifer, palm tree
- Shrub, planted bed
- Woods, shrub cover
- Stream, wetland
- Cut, fill
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Barry Main Post
1917–1945 Period Plan Detail

0′ 100′ 300′

Drawing 1.8a



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NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1945.
3. Plan does not show all small-scale features.
4. See drawing 1.8 for sources and other notes.

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LEGEND

- Building
- Structure, substructure
- Road
- Trail, walk, stairs
- Fence
- Earth parapet of defensive work
- Trench (dugout), foxhole
- Lawn
- Grassland or bare earth
- Planted conifer tree
- Garden bed
- Rock cliffs
- Beach
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Bonita Ridge Area
1917–1945 Period Plan Detail

0′ 100′ 300′

Drawing 1.8b

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Cronkhite
1917–1945 Period Plan

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SUNY College of Environmental
Science and Forestry, www.esf.edu/la/

SOURCES

1. NPS, Marin County GIS data
2. Army Corps of Engineers, Fort Barry/Borel property,1925
3. US Army, Fort Cronkhite topography maps, 1937, 1940, 1944
4. US Army, Fort Cronkhite cantonment plan, 1941
5. Aerial photographs, May 1942, 1946
6. US Army, Reports of Completed Works, revised to 1944
7. US Army, HDSF locations map, November 1945

DRAWN BY

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LEGEND

- Property, reservation boundary
- Building
- Structure, substructure
- Road, trail
- WWII-era casemated battery
- WWII-era defensive positions (foxholes, trenches)
- Gun emplacement (fixed, temporary), machine gun pit
- Earth parapet of defensive work
- Water tank, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream, spring
- Wetland
- Rock cliffs
- Edge of cut or quarry
- Beach
- 50' contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1945.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Plan does not show above- or below-ground utility lines, or all trails, minor jeep roads, field defenses, and antiaircraft gun emplacements.
5. White mask indicates limits of Fort Cronkhite study area.

Drawing 1.9

Period Symbols and Abbreviations

BC	Battery commander's station		Meteorological station	AA	Anti-Aircraft
B, BS	Base end / Spotting station		Taft-era searchlight, diameter	AW	Automatic weapon
E	Emergency battery station		WWII-era searchlight	AMTB	Anti-motor torpedo boat
MC	Mine command station		Submarine cable terminal	40 MM	40 millimeter AA gun
M	Mine station		Switchboard room	.50	.50 caliber AA gun
HDSF	Harbor Defenses of San Francisco		Radar station	SCR	Surface craft radar

Numbers after station abbreviations indicate primary (1), secondary (2) and supplementary (3 and higher) stations.
Stations are shown by designations on 1940 map of Fort Cronkhite; Engineer notebook map revised to 1936, and HDSF locations map, Nov. 1945.
* = Designation or caliber of gun emplacement not known.

Building Key: See Appendix A (Fort Cronkhite)
Building numbers reflect latest Army/NPS designation

0' 400' 800' 1600'



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Illustrator CS 5, 2011

NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1945.
3. Plan does not show all small-scale features.
4. See drawing 1.9 for sources and other notes.

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LEGEND

- Reservation line
- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Power line
- WWII defensive position
- Lawn
- Grassland or bare earth
- Conifer tree
- Woods, shrub cover
- Stream
- Cut, fill
- Beach
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Cronkhite Cantonment 1917–1945 Period Plan Detail

0′ 100′ 300′

Drawing 1.9a

5. Cold War Adaptation, 1945–1972

The quarter century after World War II was a period of great transition in the headlands as the Army replaced its harbor defenses with long-range ballistic missile defenses that required only small areas of land. Nike missile radar, launch, and administrative areas were added at Forts Barry and Cronkhite, while many of the harbor defenses throughout the headlands were abandoned or used for storage. Instead of camouflaging these works in the natural environment, the Army instead allowed conspicuous Monterey pine and cypress trees to be planted on their parapets. By the mid-1950s, the Army began to transfer its surplus property in all three reservations to other federal agencies and to the state of California as public parkland. Meanwhile, the Coast Guard was reducing its physical infrastructure as automation made many of the old support buildings unnecessary. By the time the Army was considering final decommissioning of the three headlands reservations in the early 1970s, the landscape of Forts Baker, Barry, and Cronkhite was no longer the highly calibrated harbor defense stronghold of World War II, but instead primarily a military training and administrative facility with one active Nike missile site.

Aside from shifts in physical character, use, and ownership during this period, the landscape took on a more commemorative association during the Cold War era when the Army named roads and several other features at the headlands in memory of deceased Coast Artillery veterans who served in World War II, many who died as Japanese prisoners of war. The thirty-three roads were all formerly unnamed, except for those in the Fort Cronkhite cantonment that had numerical designations. As issued in a General Order, these memorials included, for example, the road paralleling the Golden Gate that was named in honor of Lieutenant Colonel Clair M. Conzelman, and the road between Fort Baker and Sausalito and the associated gatehouses that were named in honor of Major Joe C. East. Both men were captured upon the fall of Corregidor (Philippines) and died on a Japanese prisoners of war ship in January 1945. The Baker-Barry road was named in honor of Colonel Paul D. Bunker, who served in the first siege of Corregidor and died as a Japanese prisoner of war in Taiwan in March 1943. Kober Street at the Fort Baker main post was named in honor of Technician Third Grade George B. Kober, who was killed in action in March 1945 in the American capture of the Remagen Bridge on the Rhine River. The main road to Point Bonita from the Fort Barry main post was named in honor of Lieutenant Colonel Girvelle L. Field, who was captured upon the fall of Bataan (Philippines) and died as a prisoner of war at Osaka, Japan in February 1943. (Complete listing of memorial roads in Appendix B.) [1]

POST-WAR PLANS FOR THE HARBOR DEFENSES

Within two months of Japan's surrender in September 1945, troops no longer were stationed at any of San Francisco's seacoast batteries, and much of the headlands settled into a lull as the Army considered the postwar fate of its vast land holdings. Many facilities had become obsolete, such as the array of defensive works designed for the threat from water and close-range aircraft, as well as extensive support facilities that had been constructed to accommodate the war's troop surge (fig. 5.1).[2]

Two of the main issues facing Army planners were the shift from war to peacetime, and more importantly, the advent of amphibious invasion, aerial bombardment, and ballistic nuclear weapons that had doomed conventional harbor defenses based on fixed artillery surrounding major ports. Despite these changes, the Army continued after the war with its plan begun two years earlier entitled "Supplement to the Harbor Defenses of San Francisco." This was an update to the 1937 "Annexes to the Harbor Defense Project" (as well as earlier planning going back to 1933) that retained most of the defensive works that were operational during the war. Finalized in November 1945, the plan called for retention and in some cases, rearmament, of major caliber and rapid-fire seacoast batteries including Townsley,



Figure 5.1. Forts Barry and Cronkhite looking north following the war-time build-up, ca. 1945. The lower building complex is the Mendell Area, the upper is the Fort Cronkhite cantonment. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.0975)

Wallace, Rathbone-McIndoe, Smith-Guthrie, and O'Rorke; retention of AMTB (anti-motor torpedo boat) batteries at Gravelly Beach, Yates, Cavallo, and Bonita; anti-aircraft batteries at Wolf Ridge and Rodeo Hill; fourteen 40-mm and twenty-eight .50-caliber anti-aircraft field emplacements; fire-control stations and radar; portable searchlights; and the submarine mine system, including the mine casemate at Fort Barry, mine depot at Fort Baker, and fire-control stations at Tennessee (Elk) Valley and Bonita Ridge.[3]

As part of the Supplement to the Harbor Defense project, the Army formalized organization of the defensive elements, which was an effort presumably intended to simplify management of the extensive number of works that had developed over the prior decades. The plan organized the reservations into twelve clusters of defensive works, along with the main posts of Forts Baker and Barry, and the Fort Cronkhite Cantonment (fig. 5.2, see pages 262-263). The defensive clusters included:

Fort Cronkhite

Elk Valley: Mine fire-control station, two cable manholes, and power Plant (North Channel minefield)

Wolf Ridge: Five fire-control stations and two radar stations (AA Battery #1 (not on map, but in plan)

Tennessee Point: Four fire-control stations, two searchlights, and power plant

Townsley Hill: Battery Townsley, PSR room, central reserve magazine

North Rodeo Lagoon: Anti-aircraft field defenses (near Fort Cronkhite Cantonment)

Fort Barry

South Rodeo Lagoon: Batteries O'Rorke, Smith–Guthrie, three fire-control stations, PSR room (FSB), Barry meteorological station, and other minor structures

Point Bonita Ridge: Eight fire-control stations, radar station, two power plants, and cable manhole

Rodeo Ridge: Batteries Wallace and Rathbone–McIndoe, Battery Bonita, six fire-control stations, two searchlights, and power plant (AA Battery #2 not on map, but in plan)

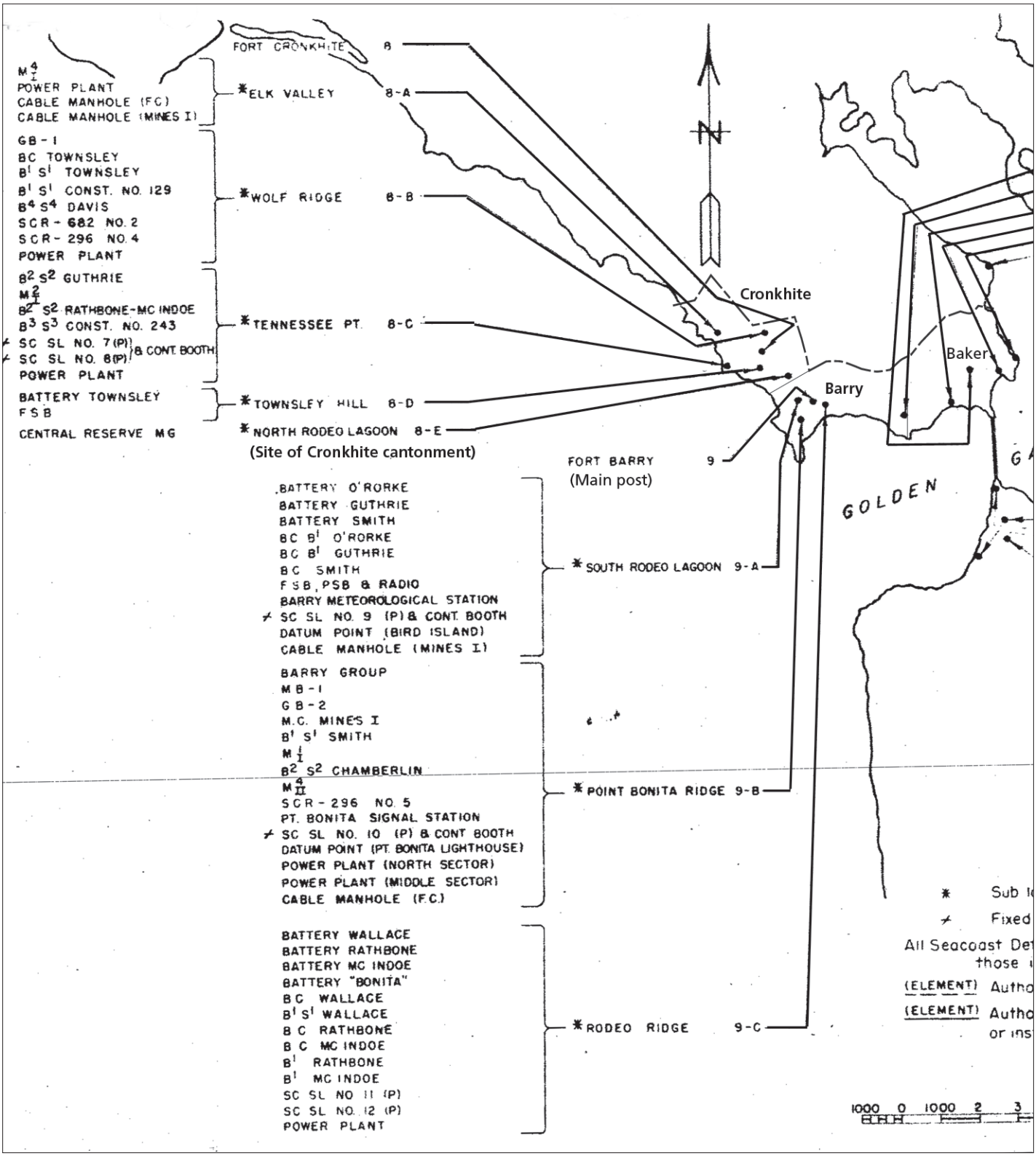
Fort Baker

Diablo Ridge: Battery Construction 129, fire-control station, and PSR room (FSB)

Gravelly Beach: Battery Gravelly (AMTB), fire-control station, searchlight

Horseshoe Bay: Battery Cavallo (AMTB), Battery Yates, fire-control station, mine depot, two searchlights, and two cable huts

Yellow Bluff: Mine depot dispersion pier and cable hut


FORT CRONKHITE 8
M4 I
POWER PLANT
CABLE MANHOLE (F.C.)
CABLE MANHOLE (MINES I)
*ELK VALLEY 8-A
GB-1
BC TOWNSLEY
B1 S1 TOWNSLEY
B1 S1 CONST. NO. 129
B4 S4 DAVIS
SCR-682 NO. 2
SCR-296 NO. 4
POWER PLANT
*WOLF RIDGE 8-B
B2 S2 GUTHRIE
M2 I
B2 S2 RATHBONE-MC INDOE
B3 S3 CONST. NO. 243
SC SL NO. 7(P) & CONT. BOOTH
SC SL NO. 8(P)
POWER PLANT
*TENNESSEE PT. 8-C
BATTERY TOWNSLEY
FSB
*TOWNSLEY HILL 8-D
CENTRAL RESERVE MG
*NORTH RODEO LAGOON 8-E
(Site of Cronkhite cantonment)
Cronkhite
Baker
Barry
FORT BARRY 9
(Main post)
GOLDEN
BATTERY O'RORKE
BATTERY GUTHRIE
BATTERY SMITH
BC B1 O'RORKE
BC B1 GUTHRIE
BC SMITH
FSB, PSB & RADIO
BARRY METEOROLOGICAL STATION
SC SL NO. 9 (P) & CONT. BOOTH
DATUM POINT (BIRD ISLAND)
CABLE MANHOLE (MINES I)
*SOUTH RODEO LAGOON 9-A
BARRY GROUP
MB-1
GB-2
M.C. MINES I
B1 S1 SMITH
M I
B2 S2 CHAMBERLIN
M4 II
SCR-296 NO. 5
PT. BONITA SIGNAL STATION
SC SL NO. 10 (P) & CONT. BOOTH
DATUM POINT (PT. BONITA LIGHTHOUSE)
POWER PLANT (NORTH SECTOR)
POWER PLANT (MIDDLE SECTOR)
CABLE MANHOLE (F.C.)
*POINT BONITA RIDGE 9-B
BATTERY WALLACE
BATTERY RATHBONE
BATTERY MC INDOE
BATTERY "BONITA"
BC WALLACE
B1 S1 WALLACE
B C RATHBONE
B C MC INDOE
B1 RATHBONE
B1 MC INDOE
SC SL NO 11 (P)
SC SL NO. 12 (P)
POWER PLANT
*RODEO RIDGE 9-C
1000 0 1000 2 3

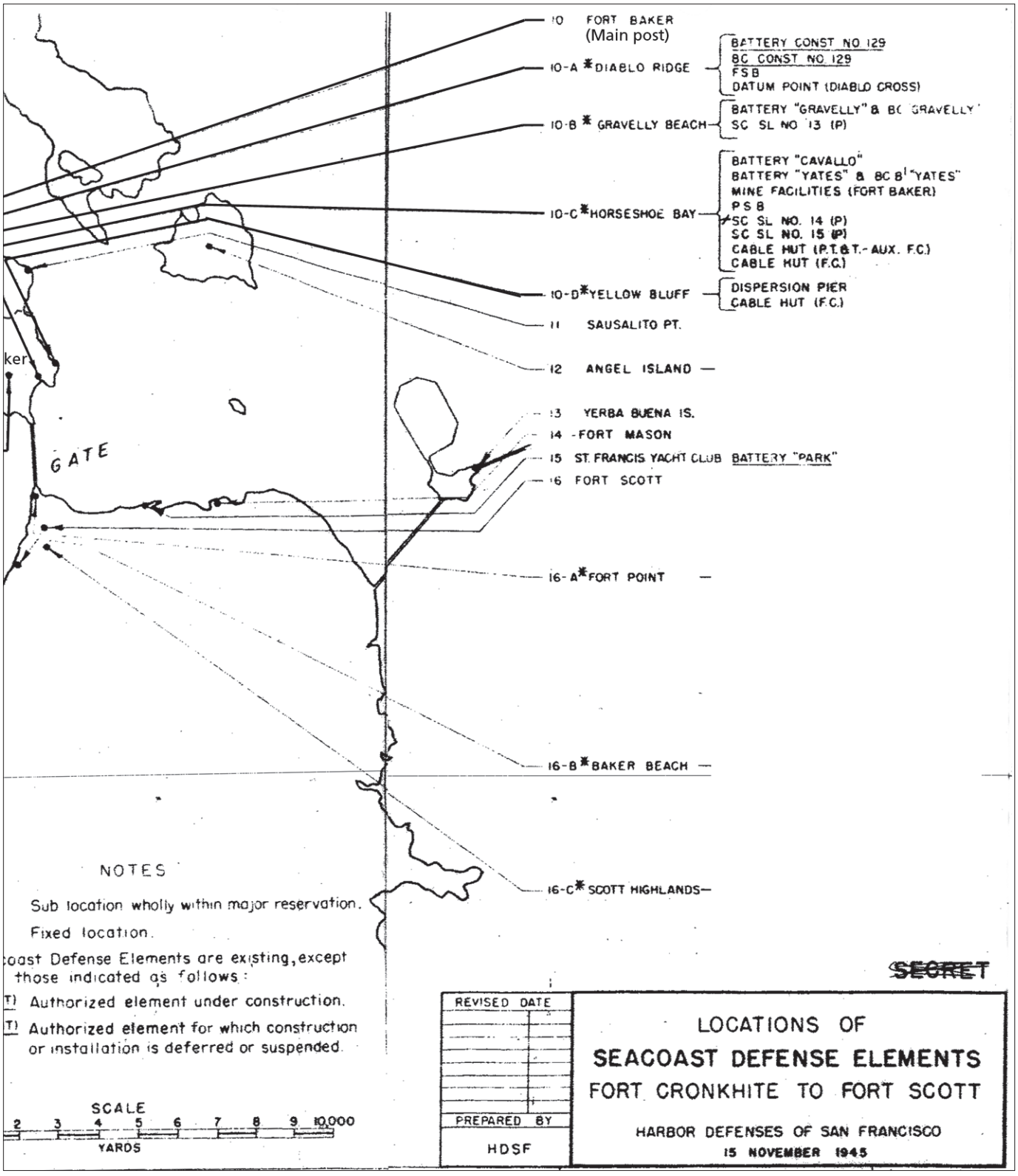


Figure 5.2. Plan of seacoast (harbor) defenses in the headlands showing organization into eleven geographic clusters, November 1945. This plan shows the Army's organization of the defensive elements that had been used during World War II. The adjoining clusters on Angle Island, Fort Mason, and the Presidio have been omitted for clarity. ("Location of Seacoast Defense Elements," in "Supplement to the Harbor Defenses of San Francisco," November 1945, exhibit 2-A, Golden Gate National Recreation Area, Park Archives and Records Center, Special Collections from original in National Archives II, RG 77, annotated by SUNY ESF)

No longer listed were the abandoned fire-control stations at Point Bonita, and batteries Kirby, Orlando Wagner, Spencer, and Duncan that had been decommissioned well before World War II. The plan did not list minor defenses, such as anti-aircraft field artillery.[4]

Despite its extensive detail (the report was 381 pages long), the Army never followed through on the Supplement to the Harbor Defense Project, but instead began to decommission, abandon, or designate new uses for the old works. In 1946, guns were removed from Anti-Aircraft Battery #2 and Battery O'Rorke, and the following year, all seacoast guns were declared surplus, except Battery Townsley and the rapid-fire batteries at Smith-Guthrie, Rathbone-McIndoe, and Yates. The following spring of 1948, the Army abandoned its largest guns at Battery Townsley, which had been fired for the first time just eight years earlier. That same year, all anti-aircraft field artillery and searchlights were removed from active status, although most had been in storage since the war's end.[5] Finally, the rapid-fire gun batteries were made obsolete through transfer in 1949 of the submarine minefields and their land-side components from the Army to the Navy. This led to scrapping of the last seacoast guns at San Francisco.[6]

During the post-war years, Forts Baker, Barry, and Cronkhite were under the command and support of the Sixth U.S. Army, headquartered at the Presidio beginning in 1946 and responsible for all ground installations in eight Western states. The three headlands reservations served as sub-posts of the Presidio and were administered as a single military installation.[7] Reflecting the changing defensive role of the headlands, the last of the Coast Artillery troops left the Fort Barry post in 1946, and the reservation was placed on inactive status, as was Fort Cronkite in 1948. Fort Baker remained the only active post, occupied by troops responsible for the submarine minefields, along with other Army personnel charged with training and testing. The Station Hospital became a medical laboratory associated with Letterman General Hospital at the Presidio. With transfer of the submarine minefields to the Navy in 1949, the last Coast Artillery troops left the headlands. Without coastal defenses, the Army disbanded the Coast Artillery in 1950.[8] However, troops responsible for maintaining anti-aircraft artillery soon returned to the headlands under an Army air defense program reactivated during the Korean War. These Cold War garrisons would remain for the next two decades under the administration of what became known by 1957 as the Army Air Defense Command (ARADCOM).[9]

In addition to ARADCOM garrisons, the U.S. Army Reserve, headquartered at the Presidio, used the headlands reservations for training, and the Departmental Rifle Range still served troops from throughout the West. The Navy, which had a presence at the headlands dating back to World War I primarily for radio communications, assumed a larger presence following its acquisition of the submarine mine defenses from the Army in 1949. Land-side mine elements, including the

Fort Baker mine depot, Fort Barry mine casemate, and the mine huts at Tennessee Valley at Fort Cronkhite, came under Navy control. The Navy also leased Battery Construction 129 from the Army for storing the mines and for other uses.[10] The Navy continued to maintain the mine facilities for a decade following the transfer from the Army. However, after their removal to storage following World War II, the minefields were never set out again, although they were occasionally used for training and testing.[11]

POST-WAR CHANGES IN LANDSCAPE MANAGEMENT

While deactivation of the harbor defenses and transfer of facilities to the Navy were major operational changes in the immediate post-war years, the effect on the character of the headlands landscape was subtle. Despite their obsolescence, most of the major batteries and their secondary defense elements were maintained as storage and practice facilities. Most field emplacements were simply abandoned, while some were removed or filled, such as the maze of foxholes and letter trenches at the Fort Cronkhite cantonment, the barbed-wire entanglements at Rodeo Beach and Kirby Beach, and the line of foxholes in the sandy soils along the front of Battery Smith-Guthrie.[12] Where mobile artillery was simply positioned without any emplacement, such as at Battery Bonita south of the Point Bonita Coast Guard station, there was little trace once the guns were removed, except for access roads.

While the old harbor defense structures remained largely intact, their abandonment for active defense did lead in many cases to changes in the character of the surrounding landscape as World War II grew more distant. The Army's program of camouflage, followed since the post-Civil War period to blend the defensive works into the natural environment of chaparral and grass, was no longer necessary given that the threat from ships and low-altitude planes had largely disappeared. In many areas, this simply led to continued growth of the native vegetation, and in around some defensive works, lack of mowing on parapets and along access routes. The introduction of family housing in former enlisted men's barracks, and the leasing of buildings to partner organizations such as the Boy Scouts of America, may have influenced changes in landscape management through changes in aesthetic preferences. These changes included addition of picket fences around barracks in the Fort Cronkhite cantonment, and planting of evergreen trees on the defunct batteries and other areas.

The planting of these trees, primarily Monterey cypress and Monterey pine, was most likely undertaken by the Boy Scouts beginning soon after World War II and continuing through the 1960s. With the decreased military use of the headlands following the war, the Army allowed the scouts—probably a troop in the Marin Council, formed in 1923—to use or lease buildings at the headlands, including building 1077, the former service club at the Fort Cronkhite cantonment. The Boy Scouts undoubtedly used the headlands as their outdoor classroom and service area. Perhaps they did the tree plantings as conservation projects intended to

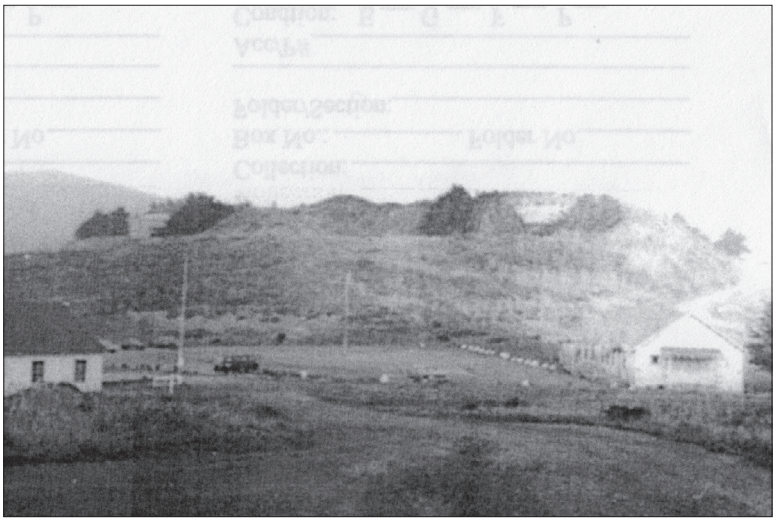


Figure 5.3. Monterey cypress trees planted to either side of the casemates of Battery Wallace following World War II, looking northeast from the Mendell housing area (present Point Bonita YMCA site), ca. 1960. The trees at this time were about ten to fifteen years old. The tree plantings on the rear parapet are just visible at the right side of the battery hill. (Golden Gate National Recreation Area, Park Archives and Records Center, E. R. Lewis Collection, GOGA 18514.021)

beautify the landscape and address erosion in steep gullies and earthen battery parapets. The Army issued permits to the Boy Scouts specifically for these tree plantings.[13]

One of the early tree planting projects took place at Battery Wallace, where Monterey cypress were planted to either side of the two casemates and across the rear parapet, spanning the two tunnel portals (fig. 5.3). Monterey pine and cypress were also planted through the 1950s on Battery Townsley, the Battery Townsley PSR room, AA Battery #1 on Wolf Ridge, the Fort Cronkhite reserve magazine, Battery Construction 129, and on the valley floor behind Battery Kirby. Monterey pines were planted on the Battery Alexander parade. The Boy Scouts may have also planted some Monterey cypress in the Fort Cronkhite cantonment, including a few around their space in Building 1077. The tree planting efforts may also have included eucalyptus on the sites of the hutments near Battery Rathbone-McIndoe and Smith-Guthrie. In the 1960s, the Boy Scouts planted trees in a gully near Alexander Avenue, north of the Fort Baker main post.[14]

The photographer Ansel Adams (1902–1984), who grew up near the Presidio, lamented about the Boy Scouts' planting of these non-native trees in the open grasslands and chaparral of the headlands:

> I cannot think of a more tasteless undertaking than to plant trees in a naturally treeless area, and to impose an interpretation of natural beauty on a great landscape that is charged with beauty and wonder, and the excellence of eternity.[15]

KOREAN WAR DEFENSES

Conventional artillery in the headlands experienced a brief but limited revival during the Korea War (1950–1953), a conflict between communist North Korea supported by China, and republican South Korea supported by the United Nations. Korea became a proxy war between the Soviet Union and United States, and marked the beginning of the Cold War between the two superpowers. Prior to the war, the Army had less than 600,000 troops; by 1953, this number had increased to 1.5 million. San Francisco and Seattle became the main Western ports for troop transport and supply shipment to the front. Anti-aircraft installations were revived and redesigned to address the perceived threat from across the Pacific.[16] Because of the development of larger and more powerful radar-guided guns, the Army built new installations, or rebuilt existing antiaircraft installations, to accommodate guns up to 120 millimeter in caliber that had been developed during World

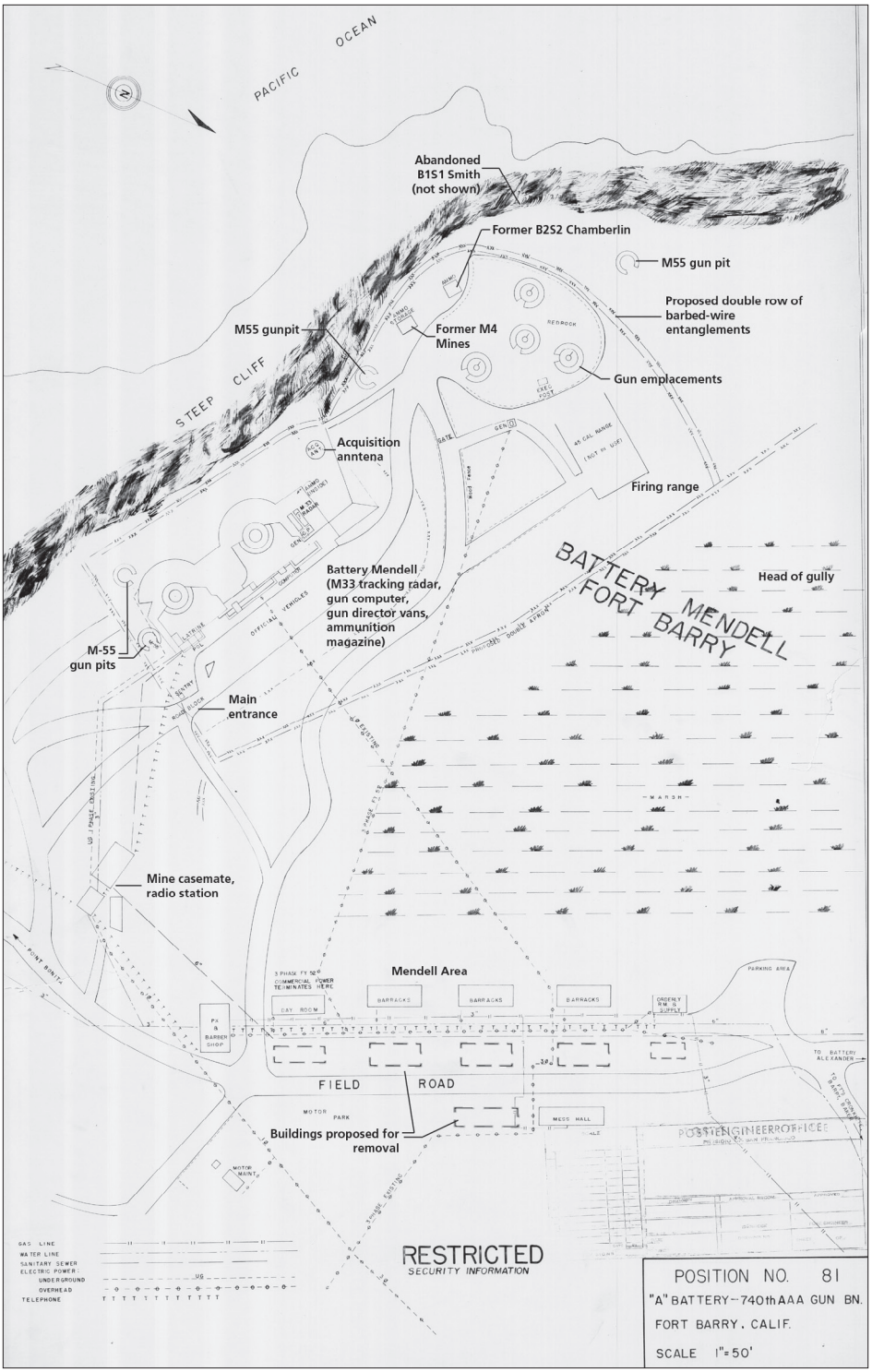


Figure 5.4. Plan of the Position No. 81 complex that incorporated Battery Mendell and the Mendell Housing Area, 1953. The building demolitions were not undertaken as shown. It is not known whether the double apron perimeter was built as shown. (U.S. Army, Post Engineer, "Position No. 81," 1953, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, D276 F2)

War II.[17] The new, semi-permanent gun batteries were begun around 1951 and typically consisted of four radar-directed guns, two radars, gun director and computer vans, ammunition magazines, repair and maintenance areas, and a cantonment.[18]

Two of the new antiaircraft batteries were built at the headlands, one at Fort Barry, and the other at Fort Cronkhite. The Fort Barry installation, officially San Francisco Defense Area Site 81 or usually referred to as AAA (Anti-Aircraft Artillery) Position No. 81, was on the former World War II anti-aircraft maneuvering grounds north of Battery Mendell, near Bird Island (fig. 5.4). Built in ca. 1951 and activated in 1952, the installation featured four emplacements of mobile M1A1 90-millimeter guns, which could hit aircraft at altitudes up to 30,000 feet. Each gun emplacement consisted of a circular earthen parapet with access openings, covered in iceplant for erosion control (fig. 5.5). Four smaller gun pits for M-55 artillery, which were quad-mounted .50-caliber machine guns for close-in defense against attacking aircraft, were planned around the perimeter of the site. According to the 1953 plan, only one was armed. The nearby pillbox-type fire-control stations (B2S2 Chamberlin, M4 Mines II) served as ready ammunition magazines, while Battery Mendell housed the command post and contained additional ammunition storage space. The M-33 tracking radar and gun director vans were set up on top of the battery along with an acquisition antenna, and the gun computer was installed inside the battery. Entrance into the Position No. 81 complex, which was enclosed





Figure 5.5 (top). Inside one of the four M1A1 90-millimeter gun emplacements at Position No. 81 several years after construction, looking south, February 20, 1956. Pictured are Army and Red Cross officials. The mounds directly behind them and in the right distance are iceplant-covered earthen parapets, and the white buildings in the distance are in the Mendell Area. On the hill in the far distance is Battery Wallace with Monterey pine growing around the casemate. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 22018.015)

Figure 5.6 (bottom). Two of the three 120-millimeter anti-aircraft guns at Position No. 10 on Wolf Ridge looking west, ca. 1952. The white square at the front of the emplacement in the foreground is an underground shelter accessed from the pit. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 40107)

by a double apron of barbed wire, was by a gate and sentry near Battery Mendell. Support facilities, including barracks, day rooms, orderly rooms, a motor pool, and a barbershop were housed in the nearby Mendell Area built in 1940. Plans initially called for removing half of the buildings, but all remained standing.[19]

The Fort Cronkhite installation, AAA Position No. 10, was built in ca. 1951 at the site of AA Battery #1 on Wolf Ridge developed a decade earlier. Unlike Position No. 81 at Fort Barry, this battery was designed for three larger 120-millimeter guns, and featured more substantial polygonal-shaped gun pit emplacements lined by concrete sandbag revetments (fig. 5.6). Other concrete sandbags, reused from World War II-era field emplacements, lined the approaches to the guns. Tunnels were built from each gun pit to the three underground ammunition bunkers of Elephant-iron construction that were originally built as part of AA Battery #1. The gun platforms, dug-in magazine, and powerhouse from the old battery were also retained. The battalion responsible for Position No. 10 was housed in the east wing of the Fort Cronkhite cantonment.[20]

NIKE MISSILE DEFENSES

The 90 and 120 millimeter guns at Forts Barry and Cronkhite remained in place into the mid-1950s, when they were phased out for a new defense system designed to combat even higher altitude aircraft that were capable of dropping nuclear bombs, the most feared weapon of the Cold War. The new system, named Project Nike (after the Greek goddess of victory), featured radar guided surface-to-air missiles.

The missiles of the first generation, named Nike Ajax and emplaced beginning in 1953, could reach targets roughly twenty-five miles away at an altitude of 69,000 feet, while the second generation, Nike Hercules introduced 1958, could reach eighty-seven miles at altitudes of up to 150,000 feet. The missiles were designed to carry nuclear as well as high explosive warheads. By the late 1950s, the Army had developed nearly two hundred Nike batteries across the country, primarily near major cities and military installations.[21]

The Nike system was organized into three components: a missile control (radar) area, a missile launch area, and an administrative area. The control area featured a series of radar antennae that tracked the target and missile (fig. 5.7). The Ajax system used three radar units: A target tracking radar (TTR), a low-power acquisition radar (ACQR, later known as LOPAR), and a missile tracking radar (MTR). The Hercules system added a target ranging radar (TRR) and high-power acquisition radar (HIPAR), which was capable of detecting targets at longer ranges. Some sites received a less powerful version of HIPAR known as alternate battery acquisition radar (ABAR). By ca. 1961, the radar antennae were typically protected by conspicuous white fabric geodesic dome covers.[22]

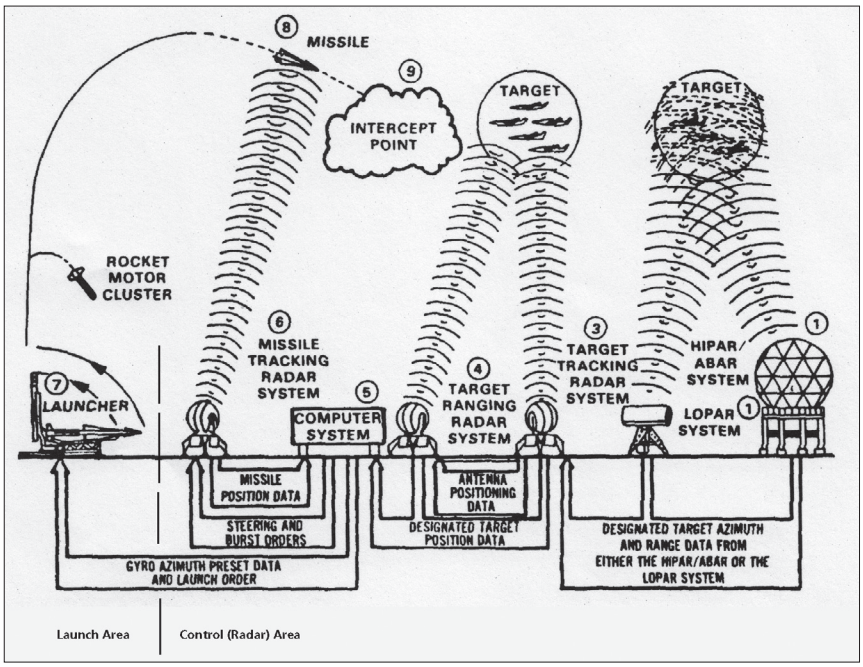


Figure 5.7. Army diagram of a typical Nike launch and control system as developed through the Hercules missile program. The large HIPAR/LOPAR (acronym for High and Low Power Acquisition Radar) radar domes date to the improved Hercules program of the early 1960s. The diagram does not show the underground magazine for the missile, or various support buildings and site features. (U.S. Army, *Air Defense Artillery Reference Handbook*, FM 44-1-2, 1984, annotated by SUNY ESF)

The Army located the first Nike defenses in temporary launch areas, consisting of mobile launch structures set in earthen revetments. The permanent launch sites featured a battery of grouped missiles housed in large underground magazines, with elevators for lifting the missile to its firing position above ground. Both the launch and control areas featured a variety of support buildings, along with pads for parking mobile equipment. The Nike administration areas, as completed by the 1960s, featured standardized flat-roofed cinderblock buildings containing barracks, mess halls, and offices for the personnel that staffed the installations twenty-four hours a day. Most of the buildings were initially painted light green, with dark green trim added by the early 1970s.[23]

In comparison to the old harbor defenses, the Nike sites shared much in common with the air defenses of World War II and the Korean War, with their uncasemated weapons, use of mobile equipment, and dispersed elements. The Nike sites, however, contained a greater number of secondary defense elements necessary to address more complex radar systems and increased security. Support buildings were more numerous and were simple concrete block and sheet

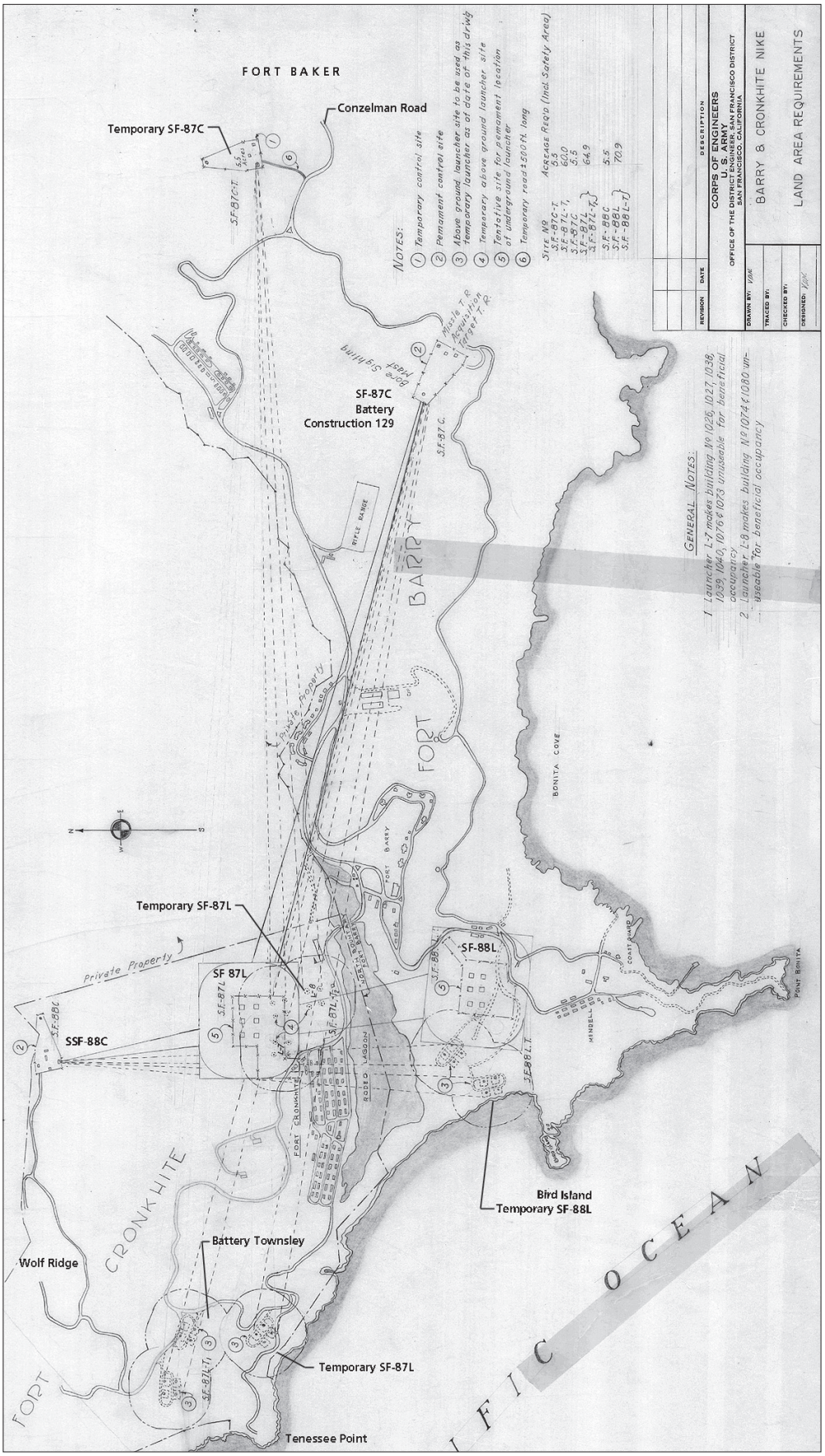


Figure 5.8. Initial plan of proposed temporary and permanent launch and control sites for Nike missile sites SF-87 and SF-88, January 1954. (U.S. Army Corps of Engineers, "Barry & Cronkhite Nike Land Area Requirements," January 20, 1954, Golden Gate National Recreation Area, Park Archives and Records Center, D181 F1, annotated by SUNY ESF)

metal, rather than the substantial built-in magazines and powerhouses of the World War II period. Most notably, the Nike sites were spread out over large areas. Together, the control, launch, and administration components were initially conceived to require 119 acres, but this size was later reduced to a standard forty acres.[24]

The Bay Area received twelve permanent Nike installations, including four in the East Bay, three south of the Golden Gate, and four to the north, including two at the headlands. An early-warning radar station was located at the Mill Valley Air Force Station on Mount Tamalpais. The two headlands installations were designated SF-87 assigned to Fort Cronkhite, and SF-88 assigned to Fort Barry (SF standing for San Francisco). Despite the assignments, the Nike sites overlapped the reservation boundaries. Similar to the old harbor defenses, the administration (analogous to the post) and launch (battery) areas were located in close proximity within the same military reservation, while the control area (fire control station) was in a remote location. The control area, however, had to be in view of the launch area and generally be no more than a mile distant. Fort Barry contained the administration and launch areas for SF-88, and the radar area for SF-87 on top of Battery Construction 129 (Hawk Hill). Fort Cronkhite contained the administration and launch areas for SF-87, and the control area for SF-88 on Wolf Ridge. [25]

Site planning for the Nike installations began in 1953, and by January 1954, the Army had produced a plan showing proposed temporary and permanent launch and control sites (fig. 5.8).[26] Nike support facilities were initially housed in existing buildings at Forts Barry and Cronkhite. These included the balloon hangar, which was adapted into an armament shop where missiles were assembled, tested, and stored. Several of the batteries, including Wallace, Alexander, and Townsley, were used for storage, while the Fort Barry Quartermaster buildings served as ready rooms and storage space for the SF-88 launch site. The Mendell Area and east wing of the Fort Cronkhite cantonment, which had been serving the AAA battalions for Positions No. 10 and 81, became the administration areas with offices, barracks, and mess halls.[27]

To distinguish the three components of each Nike installation, the Army used the designations C (control), L (launch), and A (administration). For example, the control area for SF-87 was identified as SF-87C.

SF-87 LAUNCH AND CONTROL SITES

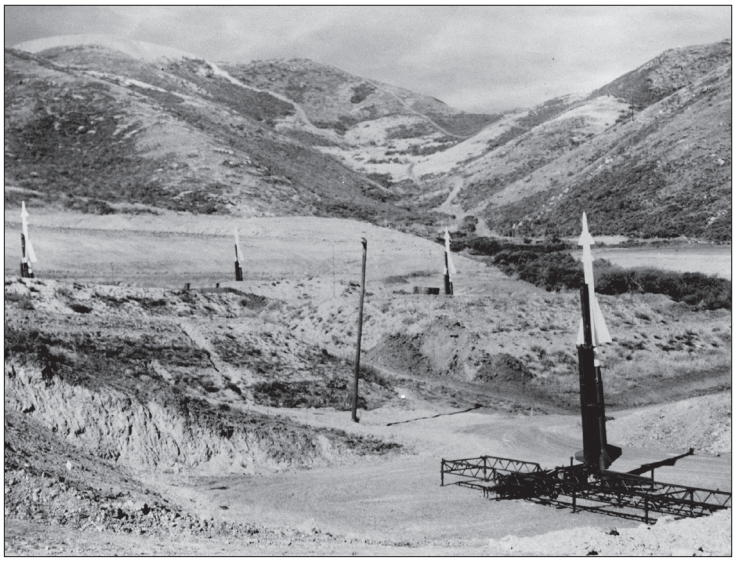
Construction of SF-87 at Fort Cronkhite began in early 1954 at the temporary launch site east of the parade ground, designated as SF-87L T2, the temporary launch site near Battery Townsley, SF-87L T1, and the control site on Slacker Hill, part of the ridge north of Battery Spencer and west of US 101 at the site of a World War II anti-aircraft emplacement. The temporary launch site near the



Figure 5.9. Aerial photograph of the Fort Cronkhite cantonment showing completion of the first (north) set of four temporary launch sites for SF-87L to the east of the parade ground, 1954. Buildings in the east wing of the cantonment (pictured) served as the SF-88 administrative area. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 3156 section 30, annotated by SUNY ESF)

parade ground, completed by mid-1954, consisted of two groups of four field-emplaced Ajax missiles in square excavated revetments and accessed by dirt roads off Bunker Road (figs. 5.9, 5.10). The north set of four was completed first, followed by another set of four to the south. The Fort Cronkhite parade ground served as the staging area and access point to the launch sites. SF-87C T was accessed by Slacker Road off McCullough Road, and occupied five acres at the top of the hill (see fig. 5.8). The temporary radar vans and a concrete footing, probably for a collimation mast (device used to calibrate optical instruments), were installed at the site.[28]

Figure 5.10. The temporary SF-87 Nike Ajax missiles in the temporary launch sites, looking southeast with Rodeo Valley in the background, ca. 1954. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 17985.08)



The location of the permanent launch site was the area shown on the January 1954 plan, above the former Fort Cronkhite parade ground and northwest of the temporary launch site (see fig. 5.9). Construction began in mid-1954, as the temporary missiles were being emplaced, with grading of the hillside to create level ground. Ac-

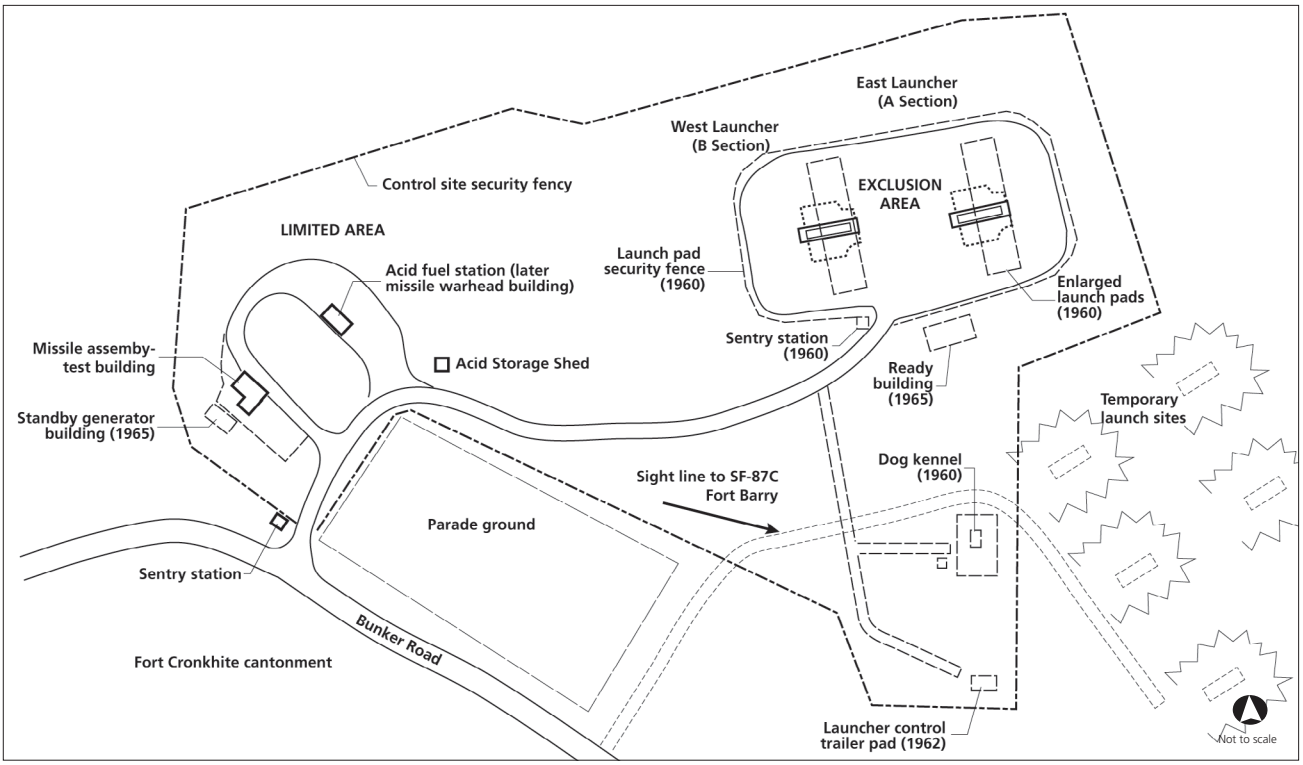


Figure 5.11. Plan of SF-87L at Fort Cronkhite as developed during the Ajax period through 1959, with later major changes during the Hercules period shown by date and dashed line. (SUNY ESF based on Fort Cronkhite 1970 master plan, 1971 Building Information Schedule, and period photographs)

cess to the site was by a gravel road that branched off Bunker Road along the west side of the parade ground (figs. 5.11, 5.12). Plans had initially called for six launchers, but this was reduced to two. Located at the northeast part of the site known as the Exclusion Area, these were large underground storage rooms with rectangular steel elevator doors that lifted the missile to the launch pad that was surfaced in gravel with concrete blast pads. A deep drainage ditch surrounded the area to divert water coming down the hillside. Presumably due to the topography and the Army's desire to retain the Fort Cronkhite parade ground, the so-called Limited Area containing the launch support buildings—a concrete-block missile assembly-test building and a wood-frame acid storage shed—were located approximately four hundred feet to the southwest, near the entrance to the site off Bunker Road. A single chain-link security fence was erected around the perimeter of the entire SF-87L site, which was completed in 1955.

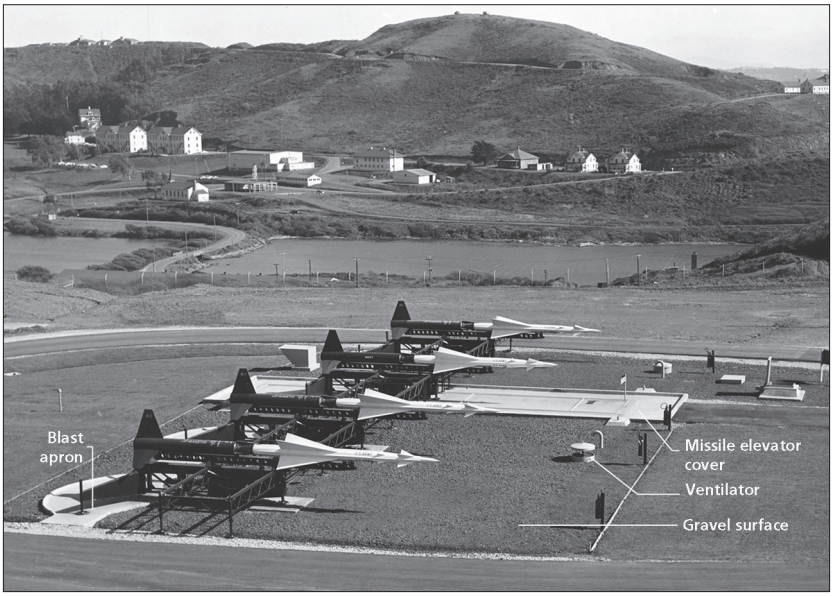


Figure 5.12. The permanent east launcher at SF-87 soon after completion, looking south with the Fort Barry main post in the background, March 26, 1956. (Golden Gate National Recreation Area, Park Archives and Records Center, Army Defense Installations collection, GOGA 22018, annotated by SUNY ESF)

Subsequent additions and alternations during the Ajax period through 1960 included paving of the roads, and construction of a temporary ready room





Figure 5.13 (top). The acid fuel storage building (later warhead building) at SF-87L, Fort Cronkhite, looking northwest with planted Monterey pine and cypress on the adjoining berm, ca. 1959. On top of the hill in the distance is the Fort Cronkhite reservoir. (Golden Gate National Recreation Area, Park Archives and Records Center, Fort Cronkhite photograph collection, GOGA 40036.003)

Figure 5.14 (bottom). The SF-87L sentry station, looking southwest showing ornamental concrete sandbags, entrance sign, and perimeter security fence, ca. 1960. (Golden Gate National Recreation Area, Park Archives and Records Center, Fort Cronkhite photograph collection, GOGA 40036.012)

near the Exclusion Area, an acid fuel station in the Limited Area, and a sentry station at the Bunker Road entrance (fig. 5.13, 5.14). As was typical of most Nike-era buildings, these were utilitarian cinderblock construction with flat roofs. A large signboard was erected at the entrance to SF-87L, set on a raised platform with an ornamental brick wall in front. Air defense personnel tried to beautify the barren landscape by planting Monterey pine and cypress in the Limited Area, installing a white-painted picket fence around the temporary ready building, and lining the roads with white-painted concrete sand bags reused from the World War II field emplacements. These concrete "stones," either whole or crushed, were also used to outline a giant "B" along the south side of the access road to the Exclusion Area, denoting the "B" Battery, 2nd Missile Battalion of the 9th Air Defense Artillery Regiment that staffed the site.[29]

The permanent control site for SF-87 was sited at the top of Battery Construction 129, which was the highest point along the Golden Gate and became known as Hill 87. The control facility, completed in 1954, was built around the existing battery commander's station for BC 129, which served as a ready room. To accommodate the required radar antennae, monitoring devices, and computer guidance for the missiles, the site required substantial grading and construction of retaining walls to create the required level ground on top of the narrow ridgetop above the battery (fig. 5.15, 5.16). In 1954, the Army completed concrete pads for the three radars, aligned in a row along the south edge of the site. The east and west radars, the TTR and MTR, each consisted of a raised steel-frame platform with the radar antenna housed in a circular fabric enclosure, while the middle acquisition radar (LOPAR) consisted of a rotating dark-painted parabolic metal casing on a tripod (fig. 5.17). The power and communications cables from these radar antennae were carried through ground-level cables strung along low metal posts. These cables connected to the generator building and three vans containing the control equipment, positioned to the rear of the LOPR in front of a connecting corridor building (fig. 5.18). These features formed the operational core of SF-87C, together with a columnation (bore sight)

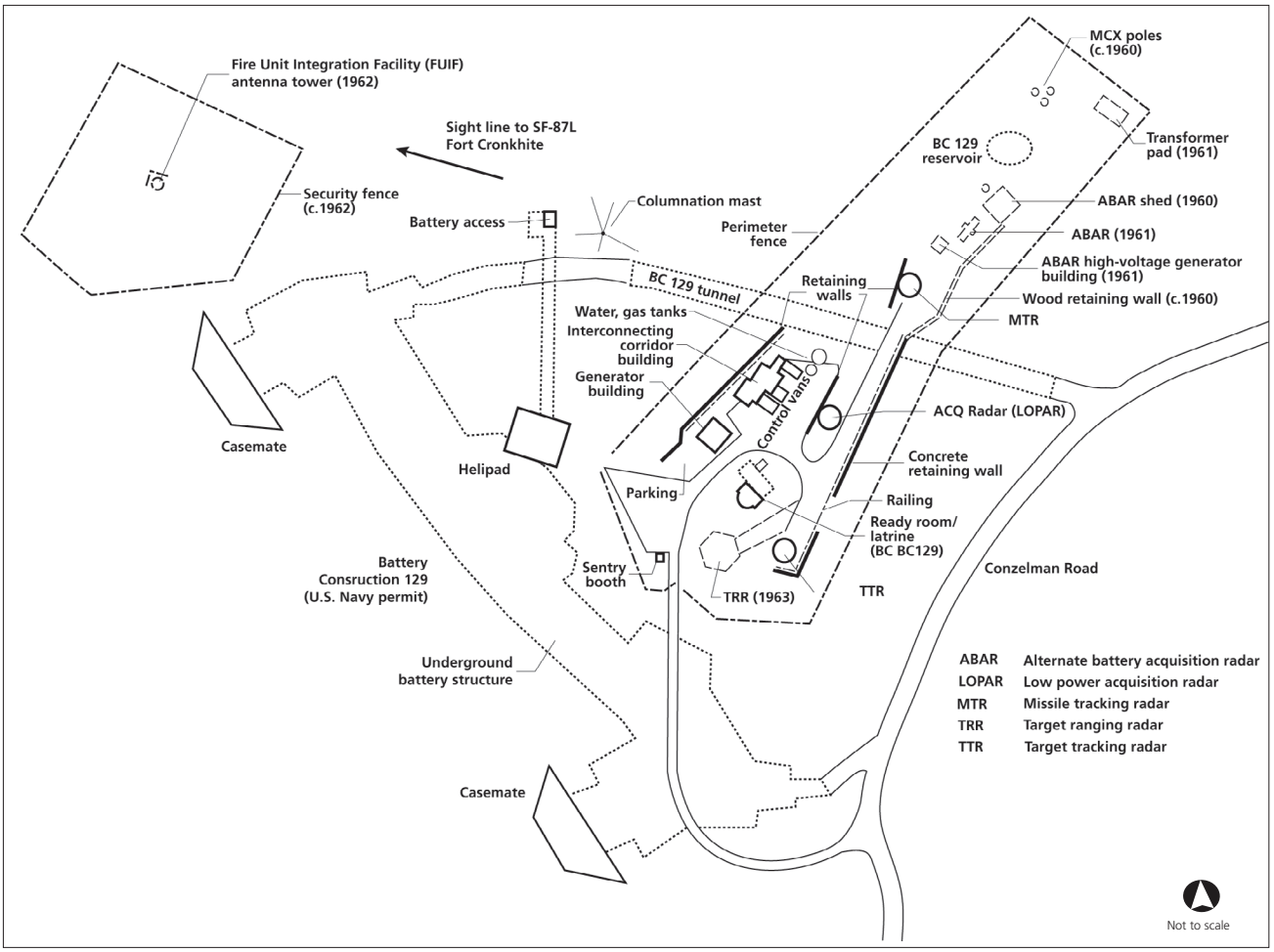


Figure 5.15. Plan of the SF-87C on Hill 87, the top of Battery Construction 129, during the Ajax period through 1959, with later major changes during the Hercules period shown by date and dashed line. (SUNY ESF based on Building Information Schedule, 1971, Fort Barry Master Plan, 1970, and period photographs)



Figure 5.16. SF-87C on top of Battery Construction 129, looking northeast, 1959. This photograph shows the development of the initial permanent control site with its three uncovered radar units, support buildings, and retaining walls. At far left is a helipad. (Golden Gate National Recreation Area, Park Archives and Records Center, SF Defense Sites Photographic Collection, GOGA 2427)



Figure 5.17. The acquisition radar (LOPAR, left) and MTR at SF-87C (right), looking northeast showing the asphalt access road, painted pipe railings, and control vans at left, ca. 1962. (Personal Collection of Paul Petosky)



Figure 5.18. The control vans and interconnecting corridor building at SF-87C looking northwest, ca. 1961. At right is a wood water tank and a steel tank containing compressed gas. In the foreground is iceplant that the Army planted as groundcover on steep slopes. (U.S. Army Signal Corps photograph, National Archives II, image SC588594)

mast along the access road between the two north tunnels of Battery Construction 129.

Other features at the site during the initial Ajax period included pipe railings along the tops of retaining walls that were painted yellow ochre (see fig. 5.17). The ready room where soldiers would spend their breaks and free time was in the World War II-era battery commander station for Battery Construction 129 in the middle of the site (see fig. 5.15). A TV antenna was on the roof, and outside the building were a picnic table and brick barbecue.[30] A rough-graded area at the northwest corner of the site served as a helipad, and in 1959, a sentry station was built at the entrance to the site, inside a chain-link and barbed wire security fence (fig. 5.19). At the northeast end of the site was the manhole to the underground reservoir for Battery Construction 129. Steep slopes, such as the embankment around the acquisition radar, were planted in iceplant (see fig. 5.18). Young Monterey cypress and pine were growing below the northwest side of the site, in the valley between the two Battery Construction 129 tunnels, to either side of the old casemates, and along the entrance road (fig. 5.20). These may have been planted during the development of SF-87C to stabilize the slopes.[31]

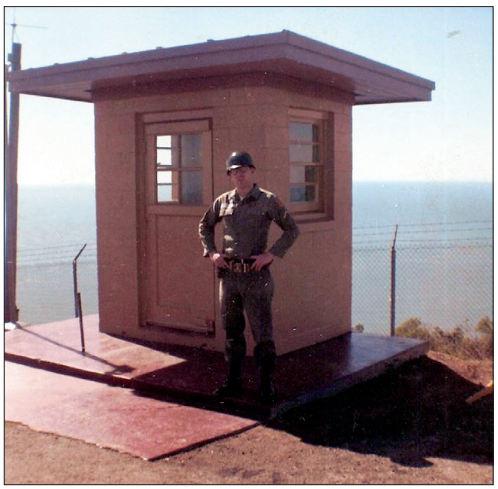




Figure 5.19 (left). Private Paul Petosky of the 51st Air Defense Artillery at the SF-87C sentry station built in 1959, view looking southwest with the perimeter security fence in the background, ca. 1962. This image provides a sense of the high elevation of the site. (Private Collection of Paul Petosky)

Figure 5.20 (right). The entrance gates to SF-87C, looking southwest showing young Monterey pine and cypress on the slopes in the middle and right background, ca. 1962. The soldier is James Mamph. (Private Collection of Paul Petosky)

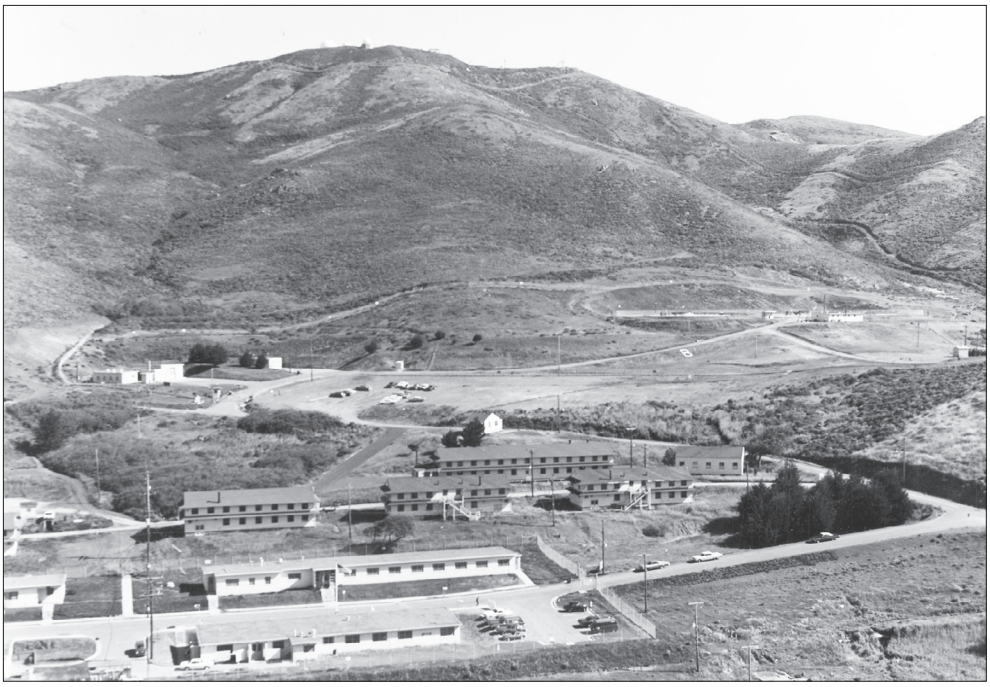
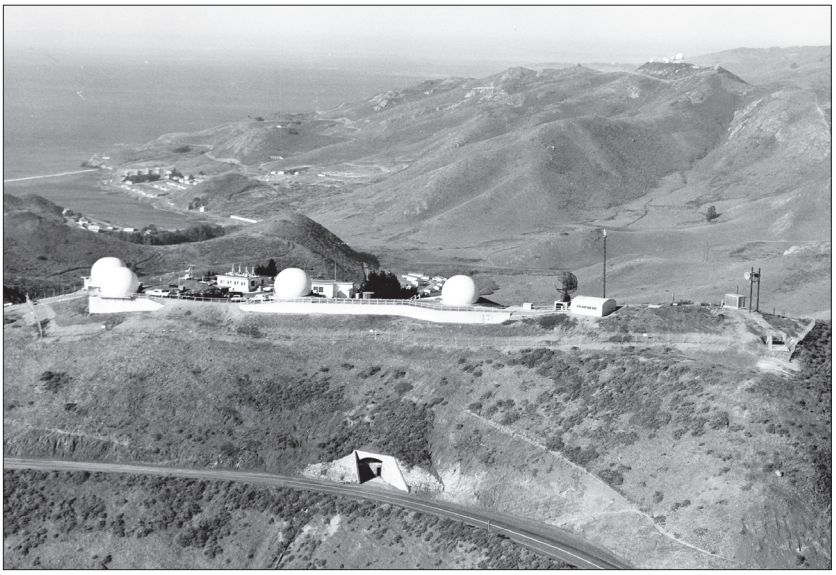


Figure 5.21 (bottom). Overview of SF-87L looking west with the launcher area at right and the support buildings at left, ca. 1968. In the foreground are the new buildings for the SF-87 administrative area in the East Wing of the Fort Cronkhite cantonment completed in 1966. (Golden Gate National Recreation Area, Park Archives and Records Center, SF Defense Sites Photographic Collection, GOGA 17985.015)

The transition to Nike Hercules beginning in 1960, a year following similar upgrades at SF-88, led to a number of changes to both the launch and control areas of SF-87 to accommodate the larger and longer-range Hercules missiles and their ability to carry nuclear warheads, which required enhanced security. At the launch site, the major Hercules improvements were completed in 1960, including enlargement and reconfiguration of the launch pads, installation of a security fence and sentry station around the Exclusion Area, and addition of a kennel for sentry dogs to the south, along a new access road (fig. 5.21, see also fig. 5.11). The acid fuel station, built in 1959, was adapted into a warhead building where the Hercules nuclear missiles were assembled. Other buildings added in the following several years included a pad south of the kennel for a launcher control trailer in 1962, a standby generator building near the missile assembly building in 1965, and a ready building at the entrance to the Exclusion Area the same year.

Figure 5.22. SF-87C showing TRR (far left) and ABAR radar (uncovered, far right) added during the Hercules period, looking northwest, 1967. The three original radar units (TTR, LOPAR, and MTR) line the wall in between. The protective white geodesic dome covers were installed in ca. 1961. In this distance is SF-87L at Fort Cronkhite. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 18516.005)



At the control site, the Army added an ABAR (alternative battery acquisition radar) at the eastern part of the site in 1961, along with an associated high-voltage generator building and a large sheet-metal ABAR support shed with an arched roof (fig. 5.22, see also 5.15). To extend the graded terrace to the ABAR site, a temporary wood plank retaining wall was built east from the original concrete wall until a permanent concrete wall was completed several years later. A concrete walk led to the antenna and ABAR shed. A major visual change to the control site during the Hercules period was the addition of large white geodesic dome covers on the three original radar antennae in ca.

1961 (the ABAR was not covered). Two years later, the Army installed a TRR on a raised steel platform with a geodesic dome cover, the fifth radar at SF-87C, at the west end of the site near the TTR. Near the Battery Construction 129 casemate at the northwest side of Hill 87, the Army added an electromagnetic wave antenna (BSM) in 1962, with its base shielded by two concrete walls for protection against stray bullets from the rifle range to the northwest.[32]

SF-88 LAUNCH AND CONTROL SITES

The Army began construction of SF-88 at Fort Barry, which paralleled the development of SF-87, in early 1954 at the two temporary launch sites: Group 1 in front of Battery Smith–Guthrie and Group 2 behind Battery O'Rorke (see fig. 5.8). Also begun at the same time was the SF-88 control site on Wolf Ridge at the highest point in the military reservation, referred to as Hill 88. In February 1954, the Army Corps of Engineer completed a topographic survey of the site, showing the existing "redrock" (red macadam) road along the ridgetop and a concrete slab remaining from a World War II-era 40 mm anti-aircraft emplacement.[33]

By October 1954, the Group 1 temporary launch site consisted of a row of four missile launchers lining a pre-existing road parallel to the front of Battery Smith-Guthrie. Group 2 to the rear of Battery O'Rorke consisted of two launchers accessed from an extension of a road along the south shore of Rodeo Lagoon. Probably due to the sandy soils, these emplacements did not have excavated revetments, but rather simple earthen mound traverses between each. Group 1 also contained a square revetment at the north end of the row.[34]

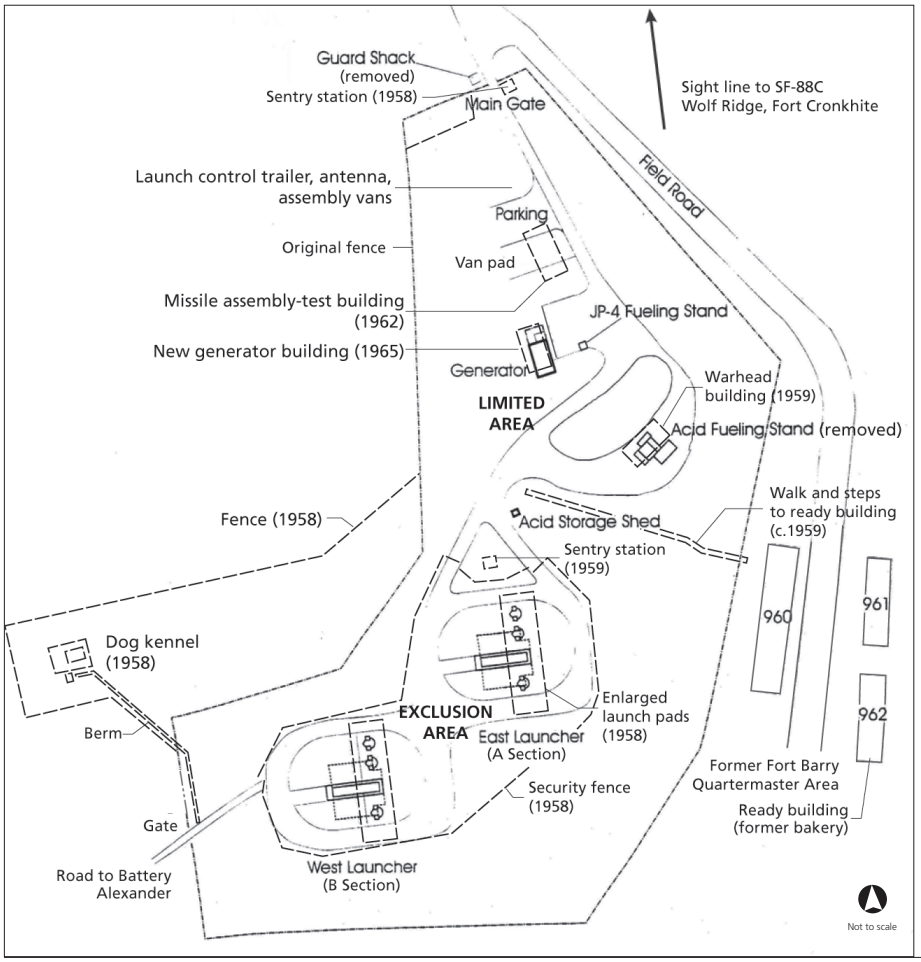


Figure 5.23. Plan of the SF-88L at Fort Barry as developed during the Ajax period through 1958, with later major changes during the Hercules period shown by date and dashed line. (John Martini and Steven Haller, "What We Have, We Shall Defend," 1998, figure 1, annotated by SUNY ESF)

Construction of the permanent launchers, at the site indicated on the January 1954 plan, began in the summer of 1954 as the temporary launchers were being emplaced. The site was at the head of a shallow, wet valley between Battery Alexander and the Fort Barry Quartermaster area that drained north into Rodeo Lagoon (fig. 4.34, see also fig. 5.8). The only prior development



Figure 5.24. The initial Ajax East Launcher of SF-88L looking east with the Fort Barry Quartermaster buildings (960-962) in the background, ca. 1955. (Golden Gate National Recreation Area, Park Archives and Records Center, Nike/ Ajax Personnel Collection, GOGA 2637)

in the valley was wells dug during the initial development of Fort Barry, and a sewer-line trestle. While engineers had initially proposed six launchers, the site was eventually built with just two. Due to the steepness of the natural topography, the site required extensive grading to create level, dry ground, resulting in cutting and filling that changed the elevation by up to eighteen feet. To divert runoff around the site, a network of swales, culverts, and drainpipes was built along the upper periphery of the site, and iceplant was proposed as stabilizing groundcover. Work continued with construction of the two underground missile magazines in the Exclusion Area, and a generator building, acid storage shed, and acid fueling stand in the Limited Area (fig. 5.23). As at SF-87L, the site consisted primarily of grass, gravel roads, a chain-link perimeter fence, and a gravel blast surface at the launch area (fig. 5.24). Crews also added picket fencing and painted concrete sandbags along the roads, but did not plant trees. Changes during the Ajax period through 1958 included construction of a three-hundred-foot-long berm between the site and Battery Alexander to divert runoff, and redesign of the radar van pads and other minor features. A large ready room building was proposed for the site in 1957, but nearby Building 962, the former Fort Barry Quartermaster bakery, was remodeled for that purpose instead. A connecting walk and steps was built from the Limited Area in 1959.[35]

The SF-88 control area on Wolf Ridge at Fort Cronkhite was initially set up in 1954 along with the temporary launchers in 1954. It was accessed by an extension of the preexisting red macadam road, which ended at a graded terrace where three

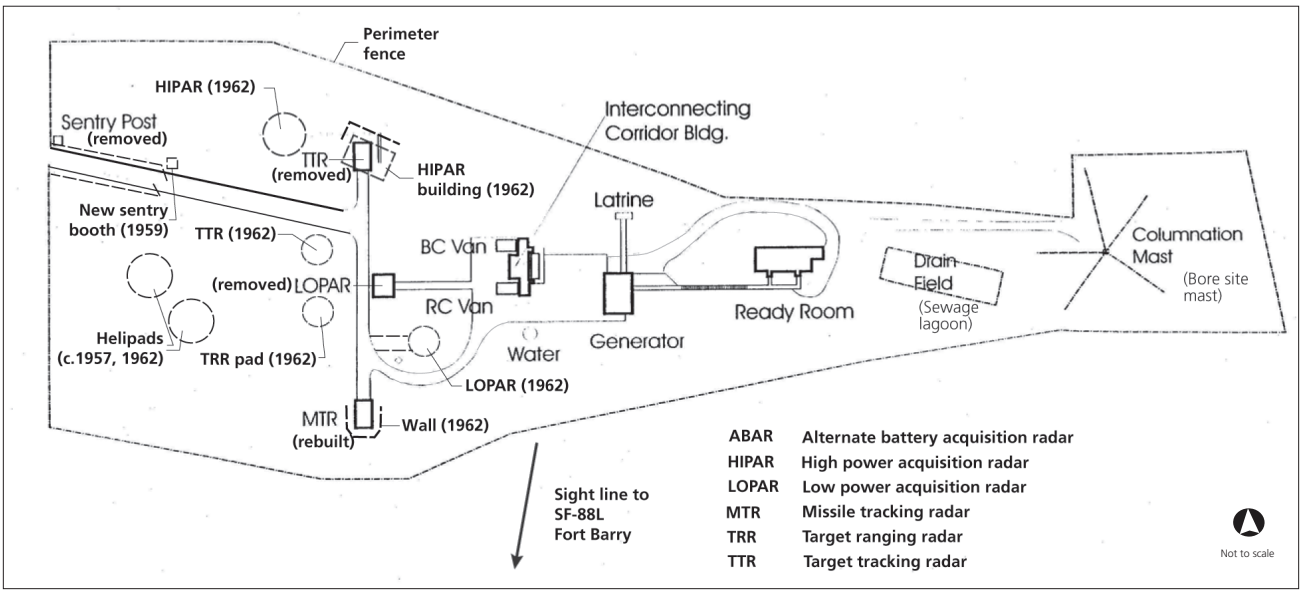


Figure 5.25. Plan of the initial development of SF-88C on Wolf Ridge at Fort Cronkhite as completed by June 1956, and major later additions during the Nike Hercules period shown by dashed lines and date. (John Martini and Steven Haller, "What We Have, We Shall Defend," 1998, annotated by SUNY ESF)



Figure 5.26. The SF-88 control site on Wolf Ridge looking west showing initial development during the Nike Ajax period with three radar units and support buildings, 1959. The radar units were not covered during this time. (Golden Gate National Recreation Area, Park Archives and Records Center, Nike/Ajax Personnel Collection, GOGA 18442)

radar units were set up in a north-south line, along with a battery control van, radar control van, and spare parts van (figs. 5.25, 5.26).[36] A concrete block ready room, the first permanent building at the remote site, was completed in 1955 on the lower terrace at the east end of the area. To the east were sewage tanks. By 1957, the concrete-block interconnecting building for the control vans, and a concrete-block generator building had been completed to the east of the radar units, along with a helipad.[37]

Hercules improvements to the SF-88 launch site were begun in mid-1958, a year before upgrades at SF-87, and were completed in 1959. It was the first Nike site in the Bay Area to be armed with nuclear Hercules missiles. As at SF-87, improvements included enlargement of the launch pads, fencing of the Exclusion Area, addition of a sentry booth, and construction of a dog kennel located in an extension of the Limited Area northeast of the launchers (fig. 5.27, see also fig. 5.23.) Subsequent changes in the Limited Area included replacement of the acid fueling stand with a cinderblock warhead building that had two doors in either end to accommodate servicing of the large Hercules missiles. A missile assembly and test building, a non-standard prefabricated Butler building, was built in 1962 where the earlier van pads were located near the main entrance. In 1965, the sheet-metal generator building was replaced with a permanent cinderblock building for the same purpose. The gravel surface in the Exclusion Area was gradually paved over in asphalt, and in 1964, was outfitted with personnel staircases with weatherproof enclosures that provided access to the below-ground missile magazines. Previously, personnel had to use ladders.[38]

Figure 5.27. Aerial view of SF-88 launch site looking north showing changes during the Hercules program, photographed October 1964. The dog kennel is the development to the left of the launchers.(Golden Gate National Recreation Area, Park Archives and Records Center, Western U.S. Nike Sites photograph collection, 81-C-13 GOGA 2316)



The SF-88 control site underwent extensive alterations to its radar units during the Hercules pe-



Figure 5.28. SF-88 control site on Wolf Ridge looking east showing changes during the Hercules program, photographed January 1967. The HIPAR building is behind the large HIPAR dome at left. (Golden Gate National Recreation Area, Park Archives and Records Center, Western U.S. Nike Sites photograph collection, GOGA 18516.001)

riod, although these did not occur until 1962, several years after the new missiles were introduced to the launch site. Unlike SF-87, the Wolf Ridge control station received a HIPAR. To make way for the antenna and support building, the three existing radars were relocated and, as at SF-87C, outfitted with geodesic dome covers (fig. 5.28, see also fig. 5.25). The MTR was shifted south, requiring construction of a retaining wall to accommodate the sloping ridge. A TRR was added, near the TTR radar, both of which were on raised pedestals. The HIPAR antenna was installed at the north end of the radar group, and its cinderblock support building containing the operating equipment was built at the site of the old TTR. The HIPAR was the largest of the radar, containing a thirty-foot diameter dome that sat on a twenty-foot-tall tower. To handle the increased power load, an addition was put on the generator building.[39]

POST FACILITIES

Changing military uses after World War II led to renovation, abandonment, demolition, and new construction in post facilities at the headlands. These changes occurred as Forts Baker, Barry, and Cronkhite were adapted to more limited anti-aircraft defenses, and in response to a post-war housing crisis and federal programs supporting construction of housing for military families.

Across the headlands, the end of World War II led to the demise of most of the temporary wartime field quarters. The hutments near Battery Rathbone-McIndoe and Battery Smith-Guthrie were partially demolished, while the hutment associated with Anti-Aircraft Battery #1 on remote Wolf Ridge was simply abandoned. The World War II-era Series 700 temporary buildings at all three reservations, including the Fort Cronkhite cantonment, Mendell Area, Smith Housing Area, West Portal Area, and main posts of Forts Baker and Barry, were retained despite their originally intended use. From 1946 until the early 1950s, the Fort Baker main post and some of the cantonments served primarily as residential areas for staff assigned to the Presidio, many of whom had families. Some of the spartan Series 700 barracks were pressed into service as family housing for returning veterans, and updated as individual apartments with separate kitchens and bathrooms. Plans were approved in May 1946 for conversions at the Cronkhite and West Portal cantonments.[40]

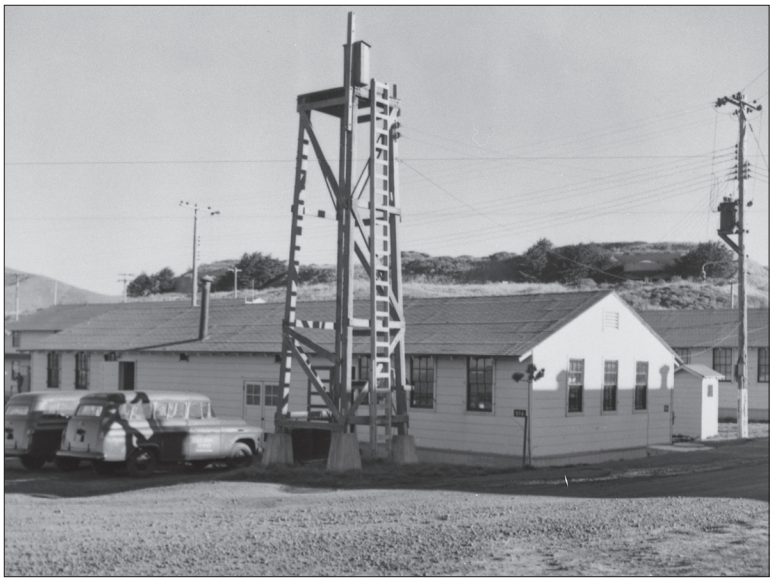


Figure 5.29. Air-raid siren tower at the Mendell Area built in ca. 1950, looking east with Battery Wallace in the background, 1961. The adjoining Series 700 building is a former recreation and day room. At the time of the photograph, the buildings were the administrative area for Nike SF-88. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 37163)

With troops returning by the early 1950s to staff new anti-aircraft defenses, many of the buildings that had been vacant since the end of World War II were returned to use, such as those in the Mendell Area that served as the cantonment for AAA Position 81, and the east wing of the Cronkhite cantonment that was the cantonment for AAA Position 10. The surge in personnel spurred to the Army to renovate and update buildings during the early and mid-1950s. Most noticeable was the repainting of all Army buildings at the headlands, except for Nike facilities, with a simple all-white scheme, or white with black window sash, and replacement of gray roof slate on the first generation buildings and tar-paper on the Series 700 buildings with red asphalt shingles. With the lack of threat from sea or close-range aerial attack, the need to make the buildings inconspicuous had disappeared. These changes provided a unified appearance to the various support building types and styles throughout the San Francisco harbor reservations.[41]

Within the cantonments, one of the first tangible signs of the Cold War and the persistent threat of aerial attack was the addition of air-raid siren towers at the Cronkhite, Mendell, Smith, and West Portal cantonments. Built in 1950, these were wood-frame towers on raised concrete footings, approximately thirty feet tall, with wooden ladders extending to a platform and siren box (fig. 5.29). A similar tower had been erected at the Fort Baker main post in 1942.[42]

CAPEHART HOUSING PROGRAM

The largest non-defense construction projects at the headlands occurred in the late 1950s in response to federal legislation passed to address severe housing shortages and perceived inadequate conditions at the preexisting military housing, primarily Series 700 barracks. The Wherry Act, passed in 1948 and named after Indiana Senator Kenneth Wherry, followed the immediate post-war plans that converted barracks to family housing. The Wherry Act allowed private companies to build, own, and operate rental housing on or adjacent to military installations using loans from the Federal Housing Agency. While none was built at the headlands, five hundred Wherry housing units were completed in 1953 at the Presidio, designed by architect Angus McSweeney (1901–1971), who would become best known for his later work on the new St. Mary's Cathedral in San Francisco.[43]

Despite the addition of Wherry housing, Army bases across the country were still facing housing shortages by the mid-1950s due in part to the increased troop levels required to staff the new Nike missile sites. In 1955, Congress passed the Capehart

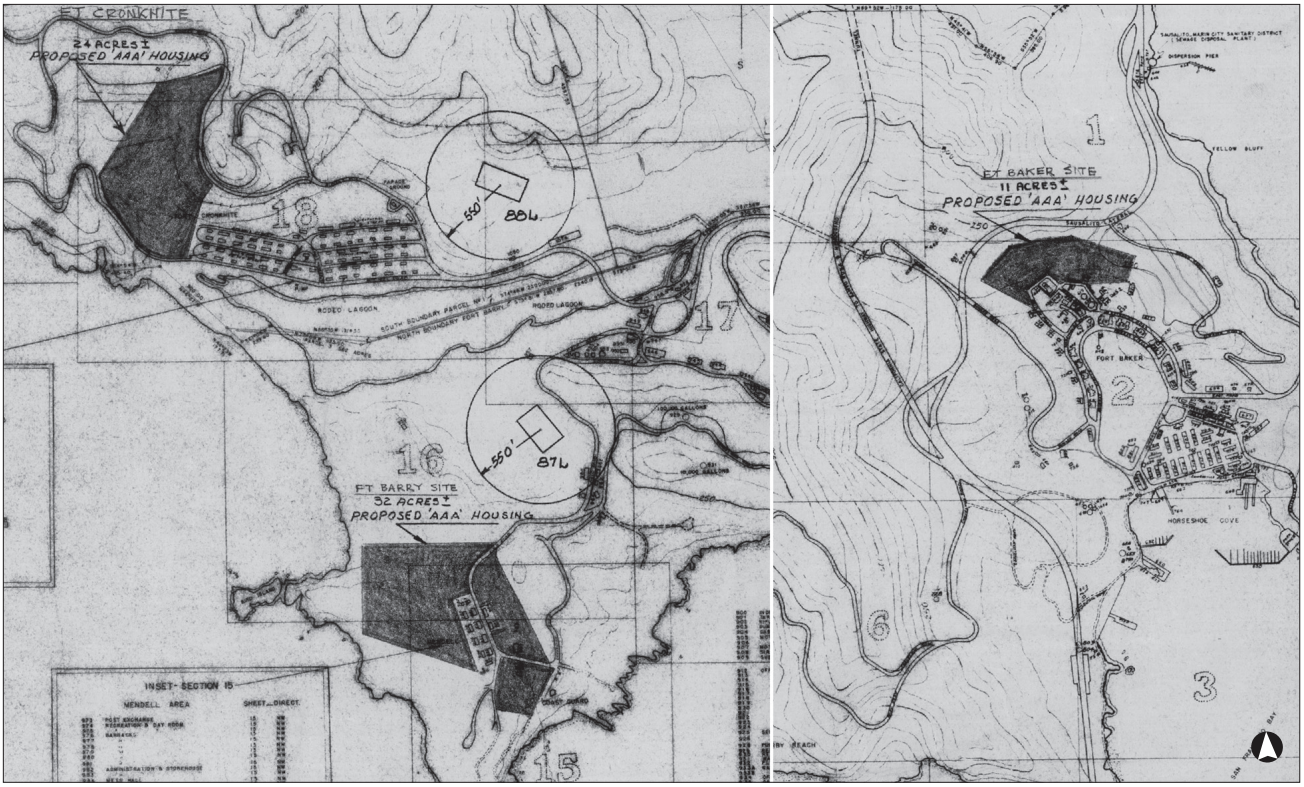


Figure 5.30. Detail of the initial location plan for the proposed Capehart housing complexes (shaded areas) at Forts Barry and Cronkhite (left) and Fort Baker (right), May 1957. The West Portal Area (not shown on plan) was developed in place of the Barry and Cronkhite sites. (Detail, Installation Planning Board, Presidio of San Francisco, "Plans for Future Development, Vicinity Plan, 114-Unit Title VII {Capehart} Housing, Forts Baker & Barry {Including Ft Cronkhite}," May 13, 1957, Golden Gate National Recreation Area, Park Archives and Records Center, D187 F2)

Housing Act sponsored by Indiana Senator Home Capehart. Like the Wherry Act, it used private contractors to build housing units for the military. Unlike the earlier program, the Capehart act required private developers to transfer the housing units to military control upon completion. As approved by the Army, Capehart houses were developed based on suburban models of single-family and duplex housing on spacious lots. When the Capehart program ended in 1964, nearly 250,000 housing units had been built across the country, including those completed under the Wherry program.[44]

At the headlands, the Army contracted with a private firm, Baker-Barry, Inc., to build and manage the Capehart housing under a fifty-five year lease that was terminated in the 1960s.[45] According to initial site plans completed in May 1957, Capehart housing areas were proposed at each of the three headlands reservations to house anti-aircraft battalions and their families. The three sites were eleven hillside acres above the Fort Baker main post, thirty-two acres surrounding the Mendell Area, and twenty-four acres in the Little Ranch valley northwest of the Fort Cronkhite cantonment (fig. 5.30). The Army Corps of Engineers retained architect Angus McSweeney to design the Capehart houses at San Francisco, working under the direction of Colonel John S. Harnett, District Engineer. McSweeney developed a standard plan for a single-level ranch-style house with a built-up low-pitched gable roof, stucco siding, and sliding aluminum-frame windows (fig. 5.31).

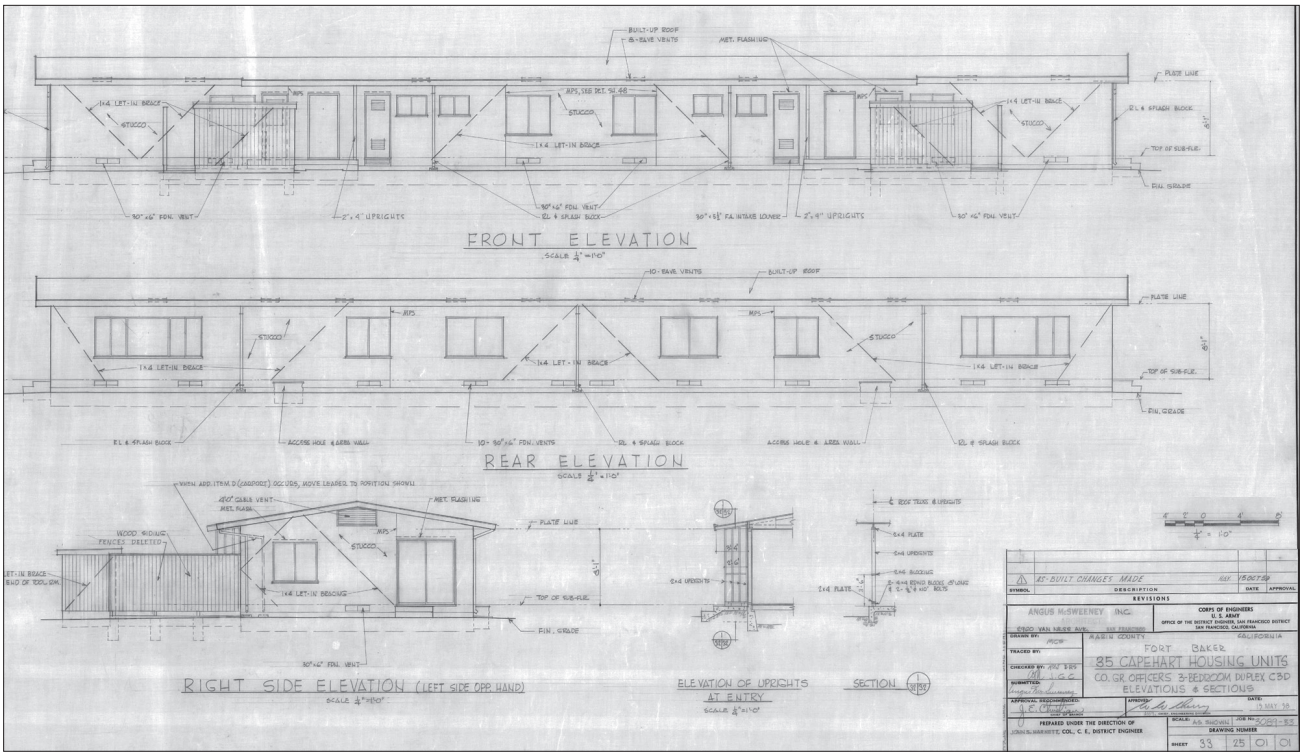


Figure 5.31. A typical Capehart house design for San Francisco by architect Angus McSweeney, 1959. This particular plan shows details of Capehart houses at Fort Baker, which were the same as those built at Fort Barry. (Detail, Angus McSweeney, Inc., "Fort Baker 35 Capehart Housing Units," May 15, 1958. Golden Gate National Recreation Area, Park Archives and Records Center, D 198, F4)

Planting plans for the complexes were initially designed by the landscape architects Osmundson & Staley of Berkeley. Theodore Osmundson (1921–2009) had worked for noted Bay Area landscape architects Garret Eckbo and Tommy Church prior to forming his partnership with Staley around the time of the Capehart commission. He was later president of the American Society of Landscape Architects from 1967 to 1979, and became renowned for his design of roof gardens.[46] The firm's plans, completed in 1958, called for a plant palette with some trees familiar to the headlands, including Monterey pine and cypress, acacia, Oriental plane tree, Norway maple, red ironbark, and coast redwood, along with lawn and iceplant groundcover. The Army did not implement these plans during initial construction of the houses, but subsequently drew up its own plans that used the same plant palette.[47]

NIKE ADMINISTRATION AREAS

After completion of the Capehart housing, the Army's last major building campaign for non-defensive works at the headlands was administrative buildings for SF-87 and SF-88, which replaced World War II-era Series 700 buildings at the Fort Cronkhite cantonment and the Mendell Area at Fort Barry. Completed in the mid-1960s, the new buildings, which included mess halls, barracks, and office buildings, used standardized plans not unlike the horizontal massing and ranch style of the Capehart housing. Plans called for simple, single-story concrete-block buildings with very low-pitched built-up roofs, flat-roof cantilevered entrance porches, and small double-hung windows with horizontal muntins (fig. 5.32). The standardized

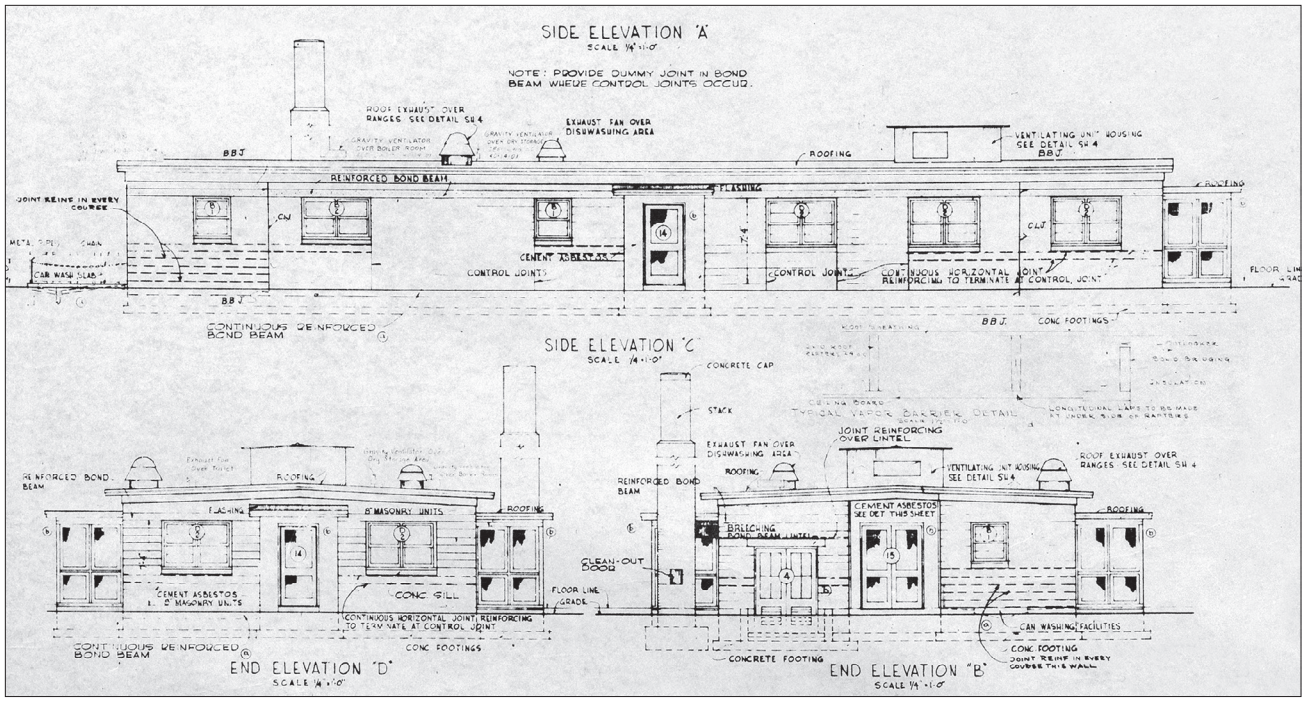


Figure 5.32. A 1954 plan of a Nike concrete-block mess hall at site SL-40 in Hecker, Illinois showing standard design that was used, with some modifications, by the Army more than a decade later at forts Barry and Cronkhite. (Detail, Spector & Montgomery Architects-Engineers, and Department of the Army Office of the Chief of Engineers, "Special AAA Mess Hall Elevations & Sections," December 10, 1954 with revisions to February 1, 1956, Library of Congress, Historic American Engineering Record, IL-117-G)

plan was designed during the initial development of the Nike sites in the 1950s by the firm of Spector & Montgomery Architects-Engineers of Falls Church, Virginia under contract to the Army.[48] Several years after completion of the buildings, the Army commissioned landscape architect Prentiss French, ASLA (1894–1989), to design planting plans for the Nike administrative areas. French, who had worked for the Olmsted Brothers in Boston between 1921 and 1924, completed numerous projects for the Army in California, Alaska, and other western states beginning in the late 1950s.[49]

FORT BAKER

During the Cold War period, the Army maintained the Fort Baker main post as the primary administrative area on the headlands, used for a variety of functions under the command of the Sixth Army headquartered at the Presidio. Fort Baker was home to the Army Medical Laboratory (a branch of Letterman General Hospital at the Presidio), which occupied part of the Station Hospital along Horseshoe Cove after its decommissioning in 1947; a regional Air Defense Command Headquarters, a Reserve and Training Center, a recruiting command, and a Corps of Engineers Port Construction outfit. Army-operated transportation vessels and rescue craft remained at the marine repair facility and Satterlee Breakwater in Horseshoe Cove.[50]

For the most part, the Army made use of existing facilities at the headlands. The only major new development occurred in response to the Capehart housing



Figure 5.33. Aerial photograph of Fort Baker showing post-war conditions and site of future improvements, 1951. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 3156, details of Sections 18 and 19, annotated by SUNY ESF)



Figure 5.34. The Fort Baker main post and former station hospital showing widened US 101 and the Vista Point overlook completed in 1964, looking north, 1972. Old Conzelman Road is halfway down the hill below Vista Point. (California Coastal Records Project, 1972 image 7216033, copyright Kenneth and Gabrielle Adelman)

program. The road system was also maintained, with some major improvements including the reconstruction of East Road in 1945, soon after the war's end. The project straightened the road's numerous curves, which required cutting back hillsides, and widened the surface to twenty-eight feet. The abandoned curves in subsequent years were used as informal pull-offs where visitors could stop to take in the scenic views across the bay (fig. 5.33).[51]

Another major road improvement was the widening of US 101, the Redwood Highway. Undertaken by the state within its right-of-way across the Fort Baker reservation, the project as completed by 1954 resulted in a number of changes to the landscape, including further filling and cutting back of the hillsides, construction of a second bore for the Waldo Tunnel, and a one-hundred-foot extension of the Baker-Barry tunnel that was completed in 1954. This involved construction of a new concrete portal and removal of the adjoining wooden tank and pumphouse dating to 1919. As part of the expansion project, the Army granted the California Department of Transportation a right-of-way in 1953 to the hill above the Mine Depot on the east side of the bridge landing. Here, the state leveled the hilltop for a public overlook named Vista Point, resulting in the lowering of the hill by about fifty feet (fig. 5.34). The state built an on-ramp and parking lot in 1962 and a restroom building along the east side of the lot, overlooking the Fort Baker main post, in 1964. Old Conzelman Road, a secondary service road for the Army, remained lower down the hillside, along with the group of four steel water tanks dating from the 1910s.[52]

Main Post

After World War II, the Army maintained most of the temporary Series 700 buildings, including the barracks, officer quarters, and chapel around the perimeter of the post. Renovations corresponding to the beginning of the Korean War in ca. 1950 included removal of the original full-width front porches on the three barracks and old post hospital, and addition of small one-story entry porches on the two frame barracks (fig. 5.35). Along Murray Circle, the cast-iron streetlights were replaced with concrete standards topped by acorn-shaped luminaires around the same time (fig. 5.36). Through the 1960s, the Army maintained flowering plants along the



Figure 5.35. The Fort Baker main post showing barracks without original full-width porches, looking northeast,1963. In the background are the Capehart houses built in 1959. (Private Collection of Paul Judge)





Figure 5.36 (top). Officer's Row showing new streetlights added in ca. 1950 and curbside plantings, looking north along Murray Circle, 1962. (Private Collection of Paul Judge)

Figure 5.37 (bottom). Aged eucalyptus and acacia trees on the perimeter of the parade ground, looking north along Murray Circle with the old YMCA at right, 1963. (Private Collection of Paul Judge)

curb of Murray Circle in front of Officer's Row. Some of the original eucalyptus and acacia trees remained around the perimeter of the parade ground, although some of the eucalyptus were declining or had been severely pruned (fig. 5.37). Several changes occurred along the south side of the parade ground, bordering Center Road. Here, a softball field was laid out in 1950, and in the 1960s, an asphalt parking lot and bus shelter was built along the length of Center Road, presumably to accommodate employees who commuted to Fort Baker.[53]

Within the main post of Fort Baker, the construction of Capehart housing was the most extensive building project of this period. After the initial site location was proposed in 1957, the Army Installation Planning Board authorized construction of thirty-five units of family housing across the hillsides north and east of the parade ground (fig. 5.38). The board also recommended building another two Capehart complexes at Fort Baker, including nineteen officer units on Battery Cavallo, and thirty-five units for non-commissioned officers (NCO) on top of the Battery Duncan hill and at the site of the civilian housing area off Bunker Road. A group of six MAC (Military Construction, Army) residential units was proposed at the south end of Battery Cavallo to be built directly by the Army.[54] These additional housing units were never built.

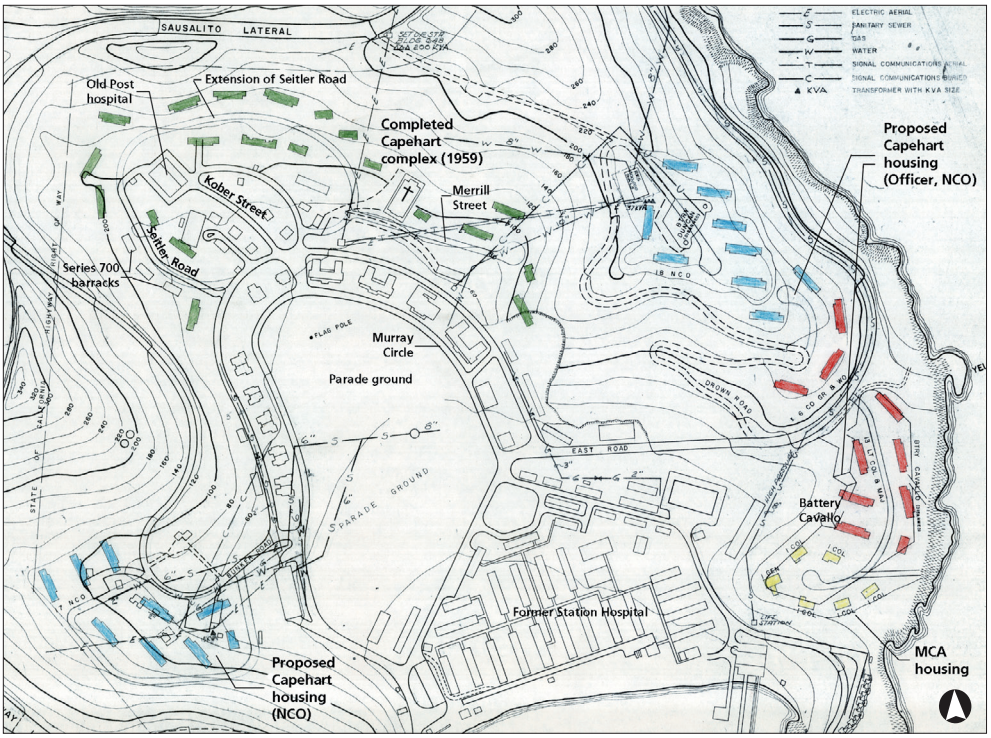


Figure 5.38. A 1958 plan of Fort Baker showing approved Capehart housing complex (green) and proposed complexes that were not realized (red and blue). (Detail, U.S. Army, "Plan for Future Development, Site Location Plan, Proposed 54 Unit Title VIII {Capehart} Housing Project," June 20, 1958, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 75749, D198 F1, annotated by SUNY ESF)

Construction drawings of the approved Capehart units at Fort Baker, designed by Angus McSweeney, were finalized by May 1958 along with those for the complex at the West Portal Area on the Baker-Barry boundary. As completed by October 1959, the Baker Capeharts created a new ring of development above the original post buildings (fig. 5.39). Fifteen single-family and duplex ranch houses were erected along an extension of Seitler Road that was originally constructed in 1941 to access three Series 700 barracks. Another five Capehart houses were built east of the chapel along a new cul-de-sac road that terminated in the old quarry, initially called A Street and later renamed Merrill Road. The houses were widely spaced and aligned at irregular angles to the road, with short driveways. Construction required removal of some of the eucalyptus trees in the windbreak west of the old post hospital. New plantings were initially limited to lawn and iceplant groundcover. Planting of 158 trees, using the palette designed by Osmundson & Staley but set out in different locations, was postponed and not approved until March 1961 (fig. 5.40).[55]



Figure 5.39. The Fort Baker Capehart housing completed in 1959, looking south with the Quartermaster area and Station Hospital in the distance, ca. 1960. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.0902)

Quartermaster Area and Station Hospital

The Army maintained the Station Hospital complex of connected single-story buildings, which served as medical labs and Army offices, throughout this period of the Cold War (see fig. 5.39). Aside from painting the buildings white and installing red asphalt roof shingles, the primary outward changes to the complex were the growth of Monterey pine and other trees between the buildings, and extension of Somerville Road by

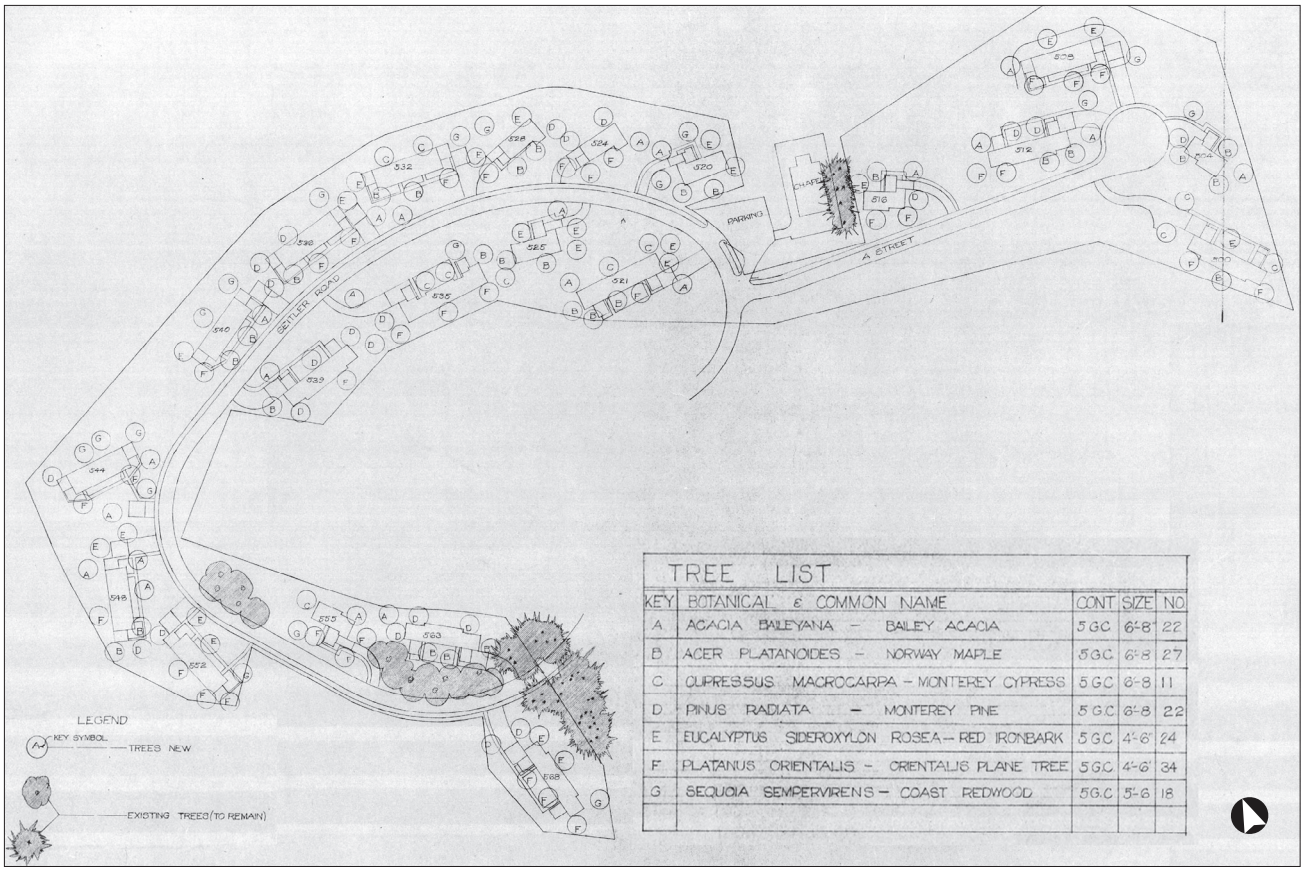
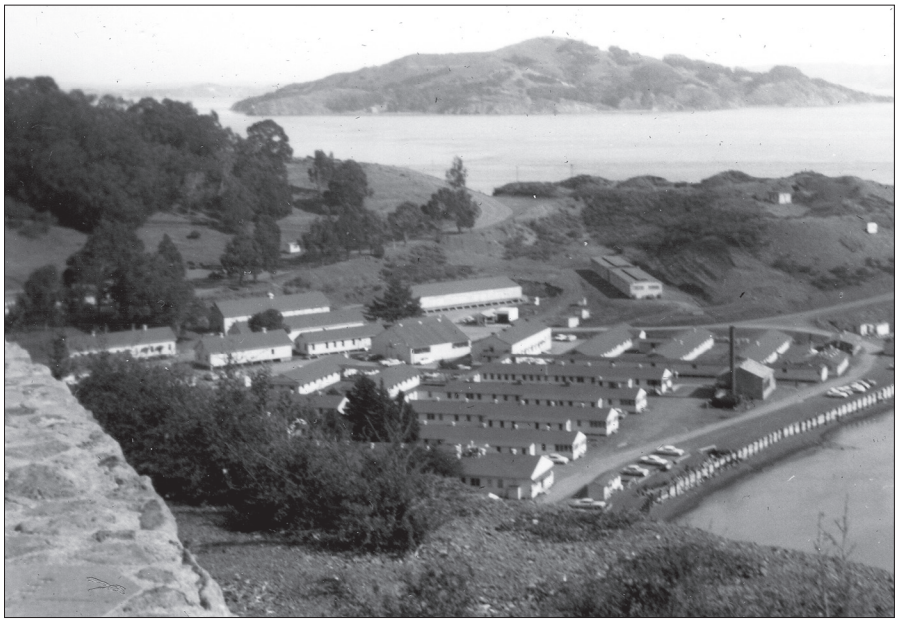


Figure 5.40. Approved planting plan for the Fort Baker Capehart housing complex, March 1961. The plant palette was the same as that designed by Osmundson & Staley in 1958 for the Fort Barry complex. It is not know if the plan was executed as shown. (Detail, U.S. Army, "Fort Baker...Capehart Housing Landscape Plan Tree Plantings," March 1, 1961, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 19644, D198 F2)

Figure 5.41. The Station Hospital at Fort Baker with the Quartermaster Area at the left rear, looking northeast from the Vista Point overlook, 1965. The long building in the middle background near Battery Cavallo was a recreation building for the Station Hospital. In the distance is Angel Island. (Private Collection of Paul Judge)



the power plant to connect with the marine repair facility (fig. 5.41). By the late 1950s, the timber seawall erected in ca. 1941 was extended along the entire shoreline of the hospital.[56] The administration building, facing the circular drive along Center Road, was converted to the headquarters for the 51st Battalion, and the circular island in front became a display of the battalion's armament. By 1965, this display included a 155-mm gun from the Korean War, and a Nike missile, which were set in the middle of the island surrounded by lawn and the perimeter privet hedge that dated to the original development of the Station Hospital in 1941 (fig. 5.42).

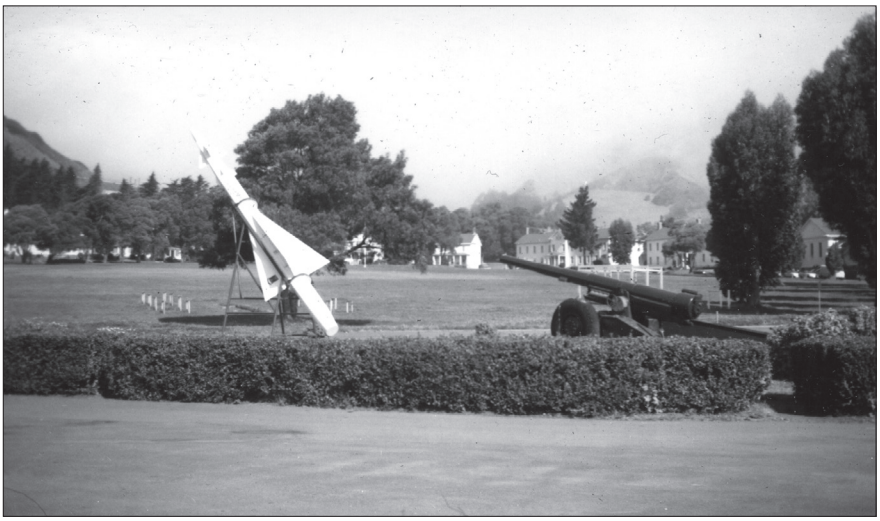


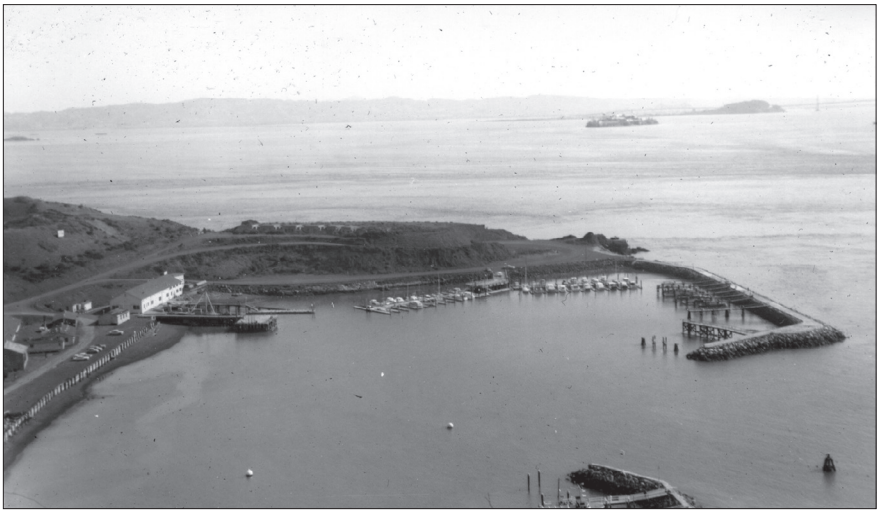
Figure 5.42. Armament display in the landscaped island in front of the old Station Hospital administration building along Center Road, looking north with the parade ground in the background, 1965. The administration building served as the headquarters of the 51st Battalion during this period. (Private collection of Paul Judge)

The adjoining Quartermaster Area, known during this period as the Post Engineer Area, was maintained as the service area for Fort Baker. The Army made several additions during the 1950s and 1960s, including a paint storage building and enclosing fenced yard along East Road next to the Series 700 storage building, and to its east, two oil tanks and a gas station. Another service station was erected in 1961 at the east end of the Quartermaster Area, next to its 1921 predecessor. Several buildings were removed by the latter 1960s, including the coal shed and Quartermaster stable, which were both erected in 1902, and two paint sheds and the scales dating to the 1920s.[57]

Horseshoe Cove Waterfront

Along the Horseshoe Cove waterfront outside of the Station Hospital, a major change in use occurred with the termination of the Navy's lease of the Mine Depot for submarine defenses in the late 1950s. The primary Mine Depot facilities remained and were returned to Army use, including the mine dock, dug-in structures, and buildings near the Station Hospital and parade ground. Changes included removal of the small buildings on the mine dock and the slips for the mine craft along the Satterlee Breakwater, which were rebuilt for use by small craft. The related marine repair facilities also fell out of use, leading to loss of the marine railway at the smaller 1941 repair facility, and construction of a 24-foot-wide concrete boat load ramp to its east in 1958.[58] In ca. 1960, the Presidio Yacht Club, a private organization for service members, converted the large repair facility for its own recreational use (fig. 5.43). Immediately to the east, Pacific Telephone and Telegraph maintained a concrete-block cable terminal building it constructed in 1950, near where a cable terminal had existed since ca. 1912. A billboard was maintained on the hillside above the terminal to notify mariners that there was a submarine cable crossing.[59]

Figure 5.43. The east side of Horseshoe Cove looking east from Vista Point, 1965. At left is the 1944 marine repair facility which had been occupied by the Presidio Yacht Club since ca. 1961. The club installed the finger piers visible to the left of the Satterlee Breakwater. (Private collection of Paul Judge)



The only other new construction along the waterfront during this time was a pier that the Army erected in ca. 1954 on the east shore near the Satterlee Breakwater. This

served a ferry that shuttled military personnel to a Nike missile launch site on Angel Island. An access road (Lower Satterlee Road or Marina Road) was laid out along the water's edge at the same time. After the ferry service was terminated, the Presidio Yacht Club installed two sets of finger piers off the ferry pier in ca. 1961 to accommodate its members' small craft. [60]

FORT BARRY

The Cold War period at Fort Barry witnessed significant changes in use of the reservation's post facilities due to the loss of permanent Coast Artillery garrisons following World War II, accommodation of anti-aircraft battalions beginning in the early 1950s, and expanded U.S. Army Reserve and ANACDUTRA (Annual Active Duty for Training) functions in the late 1950s and 1960s. The main post, West Portal Area, Smith Housing Area, and Mendell Area remained the primary developed areas at Fort Barry outside of Point Bonita , while the old Quartermaster Area, once an eleven-building complex, was reduced to three building that supported a new adjoining Nike missile launch site.

Main Post

With the increase in personnel resulting from the Korean War and Nike missile installations in the 1950s, the Fort Barry main post returned to active use. Most of the buildings retained their purpose as barracks and officer housing, while the two non-commissioned officer duplexes were used as enlisted family residences, and the old post hospital was converted to the headquarters of the 30th Antiaircraft Artillery Group (fig. 5.44). The circle or Monterey cypress along Simmonds Road matured into large, spreading trees, while the windbreak of eucalyptus on the hillside at the rear of the main post spread up the hillside. The pair of eucalyptus trees in front of the chapel grew well above the height of the building by the mid-1950s (fig. 5.45).



Figure 5.44. The old Fort Barry post hospital, looking west showing use as a headquarters building, removal of the original porches, and installation of plantings and fences, photograph February 1956. Pictured at the head of the line is General Earle E. Partridge. (Golden Gate National Recreation Area, Park Archives and Records Center, Army Defense Installation Collection, GOGA 22018)

The Army retained all of the post buildings, including the temporary Series 700 buildings at the west end of the post, through the 1950s. There was no new building construction within the main post except for three utility buildings and structures near the old pump house along Bunker Road (fig. 5.46). More numerous were alterations to the buildings and landscape, similar to what occurred at Fort Baker. These included removal of the open full-width porches on the two barracks, post hospital, and old administration building in ca. 1955,



Figure 5.45. The 1941 Fort Barry chapel, looking west from Bosworth Road, February 1956. At left is the ca. 1939 motor vehicle shed that was removed by 1970. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.0959)

and replacement with small porches over the entrances. Shrubs, including hydrangea and privet, were planted along the building foundations where the porches had stood, and the plantings were lined by short white picket fences that also appeared at the Nike facilities (see fig. 5.41). Two Canary Island date palm trees were planted in front of the old administration building. Recreational features also appeared in the landscape during the late 1950s and 1960s, including a multi-use court similar to ones at the Mendell Area and Cronkhite cantonment in the middle of the parade ground, and a dock on Rodeo Lake probably used for fishing and boating. It was probably around the same time that an access road and parking area were built in front of the barracks.[61]

By 1960, several buildings and features had been removed, including the flagstaff west of the old administration building that had been erected in 1942. The surrounding assembly area, lined by a row of Monterey pine planted in ca. 1942, was

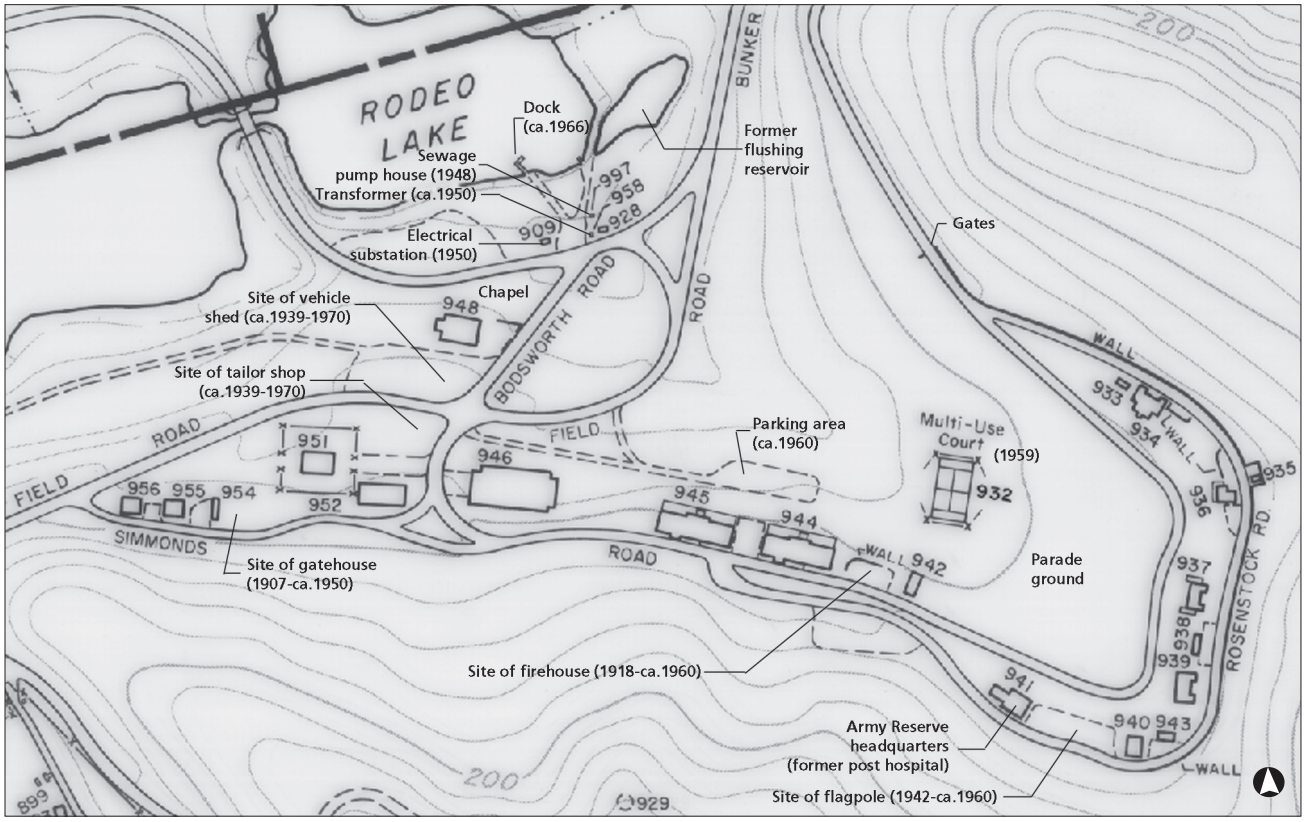


Figure 5.46. A 1970 map of the Fort Barry main post showing additions and losses since World War II. (U.S. Army, "Fort Barry...Master Plan... General Site Map," July 1970, Golden Gate National Recreation Area, Park Archives and Records Center, D191 F1 GOGA 07654, annotated by SUNY ESF)

used for parking. To the west, the Army demolished the 1918 firehouse between the barracks and former hospital steward quarters, but left the building terrace with its supporting concrete walls. Another building lost around this time was the guardhouse at the west end of the post, which dated to the original development of the post. By the end of the 1960s, the Army began to remove several of the nearby temporary Series 700 buildings, including the tailor shop and the large motor vehicle shed across Field Road. The theater was used by the Army Reserve as a training space, but the chapel sat vacant by the early 1970s.[62]

Fort Barry Capehart Housing Area

As at Fort Baker, one of the most significant Cold War changes to Fort Barry's support facilities resulted from development of a Capehart housing complex in the late 1950s. Instead of the original site near Battery Mendell, the Army instead chose the West Portal Area as the site of the second Capehart complex at the headlands. Since the end of the war, this housing area had seen six of its barracks renovated as family housing, and all of the original CCC camp buildings constructed in 1936 were removed (fig. 5.47). The surrounding area remained largely undeveloped, with scenic views of the ranchlands across Rodeo Valley to the north. A less scenic change was expansion of the quarry at the foot of the hill

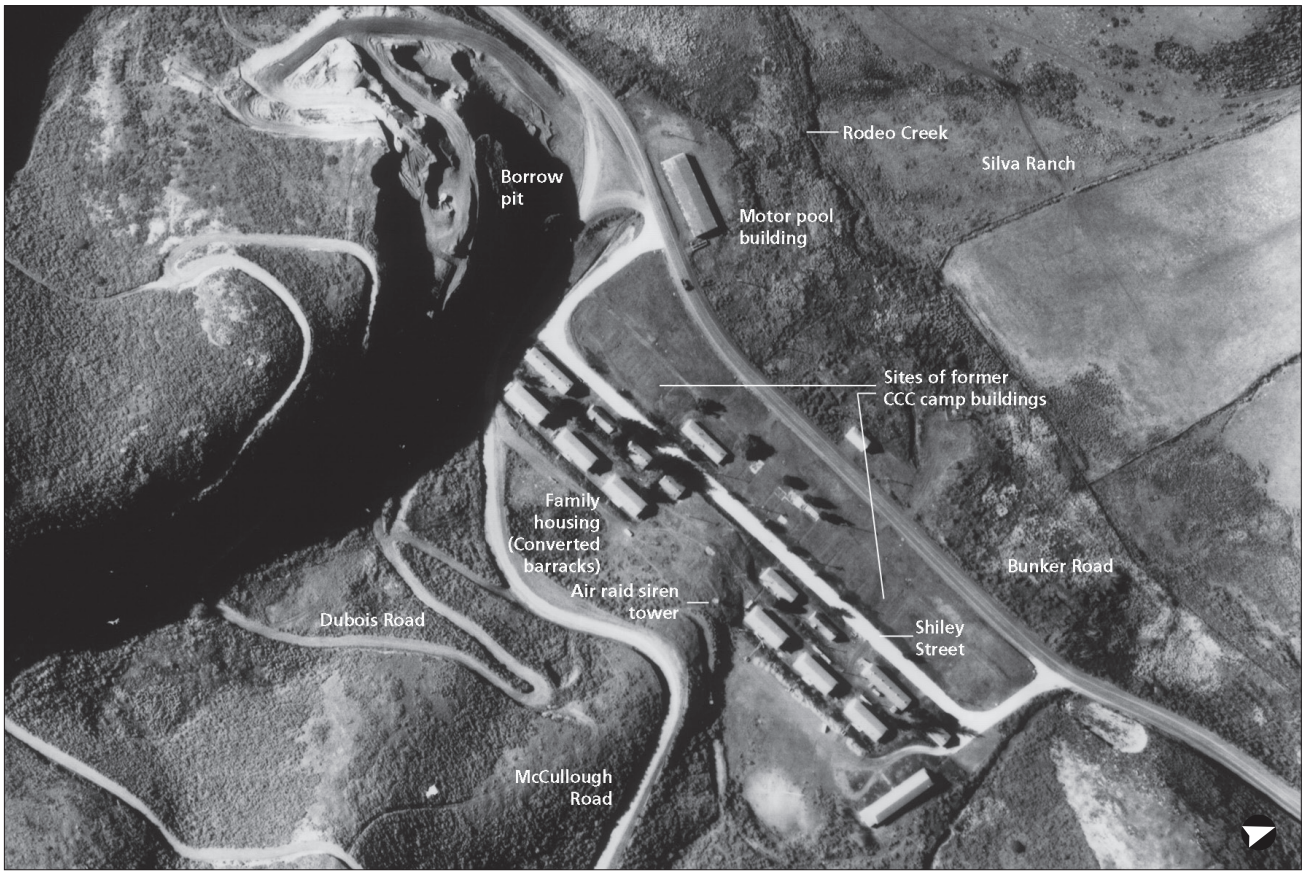


Figure 5.47. Aerial view of the family housing in the West Portal Area showing post-war removal of CCC camp buildings, 1954. To the north is the large borrow pit begun after World War II. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 3156, section 24, annotated by SUNY ESF)

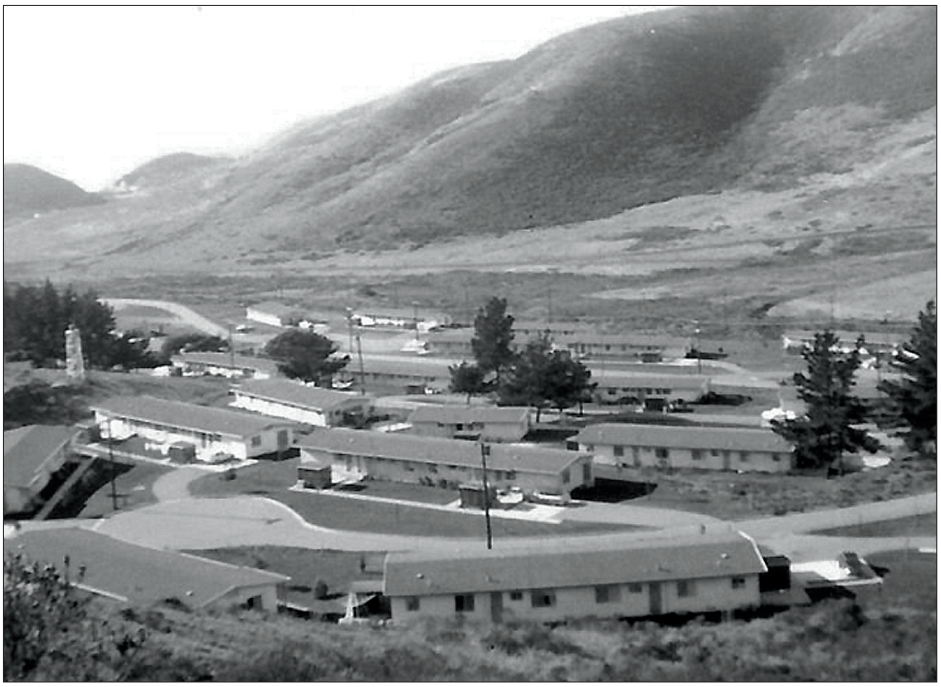


Figure 5.48. The Fort Barry Capehart housing area looking northwest from McCullough Road showing ranch-style houses and cul-de-sac roads, ca. 1962. The large specimen evergreens and white air-raid siren tower at left are remnants of the earlier West Portal Area development. (Private collection of Paul Petosky)

across McCullough Road that had been started during World War II. Its expansion by 1954 led to loss of a portion of Dubois Road, which was the second alignment of the original Baker-Barry road. A short spur road, Quarry Road, was built off Bunker Road. By 1955, a narrow, deep borrow pit in the center of the quarry had been dug, apparently for supplying construction materials related to the Nike sites.[63]

Work on the replacement housing designed by architect Angus McSweeney began in the summer of 1958 with demolition of the remaining West Portal buildings. The new development consisted of thirty-five buildings that were primarily duplexes, for a total of sixty-three units. As at Fort Baker, the Fort Barry complex featured ranch-style one-story houses arranged informally and accessed by short drives (figs. 5.48). The development straddled Bunker Road, with houses along the pre-existing Shiley Street, and on three new cul-de-sac roads initially named B Street, C Street, and D Street. The Army renamed these after completion of the complex in honor of Coast Artillery veterans from Fort Barry who had served in the Spanish-American War and World War I: Colonel Thomas B. Lamoreaux, Colonel W. H. Menges, and Colonel Sam F. Bottoms (see Appendix B).

The Capehart development retained a number of trees along Shiley Street, primarily Monterey pine that had been planted between 1939 and 1941 when the Army added buildings to the former CCC camp.[64] The development also retained the pre-existing air raid siren tower erected in 1950. As at the Fort Baker Capehart area, plantings completed during construction of the buildings were limited to lawn and iceplant groundcover. In 1961, two years after completion of the buildings, the Army drew up an extensive planting plan that called for adding 355 trees, using the Osmundson & Staley palette of Bailey acacia, Norway maple, Monterey cypress and pine, red ironbark, Oriental plane tree, and coast redwood (fig. 5.49). Ornamental foundation plantings, including jade and oleander, were made soon after.[65]

SF-87 Administrative Area

In 1964, five years after construction of the Capehart housing and a decade after initial development of the Nike missile sites, the Army began construction on new

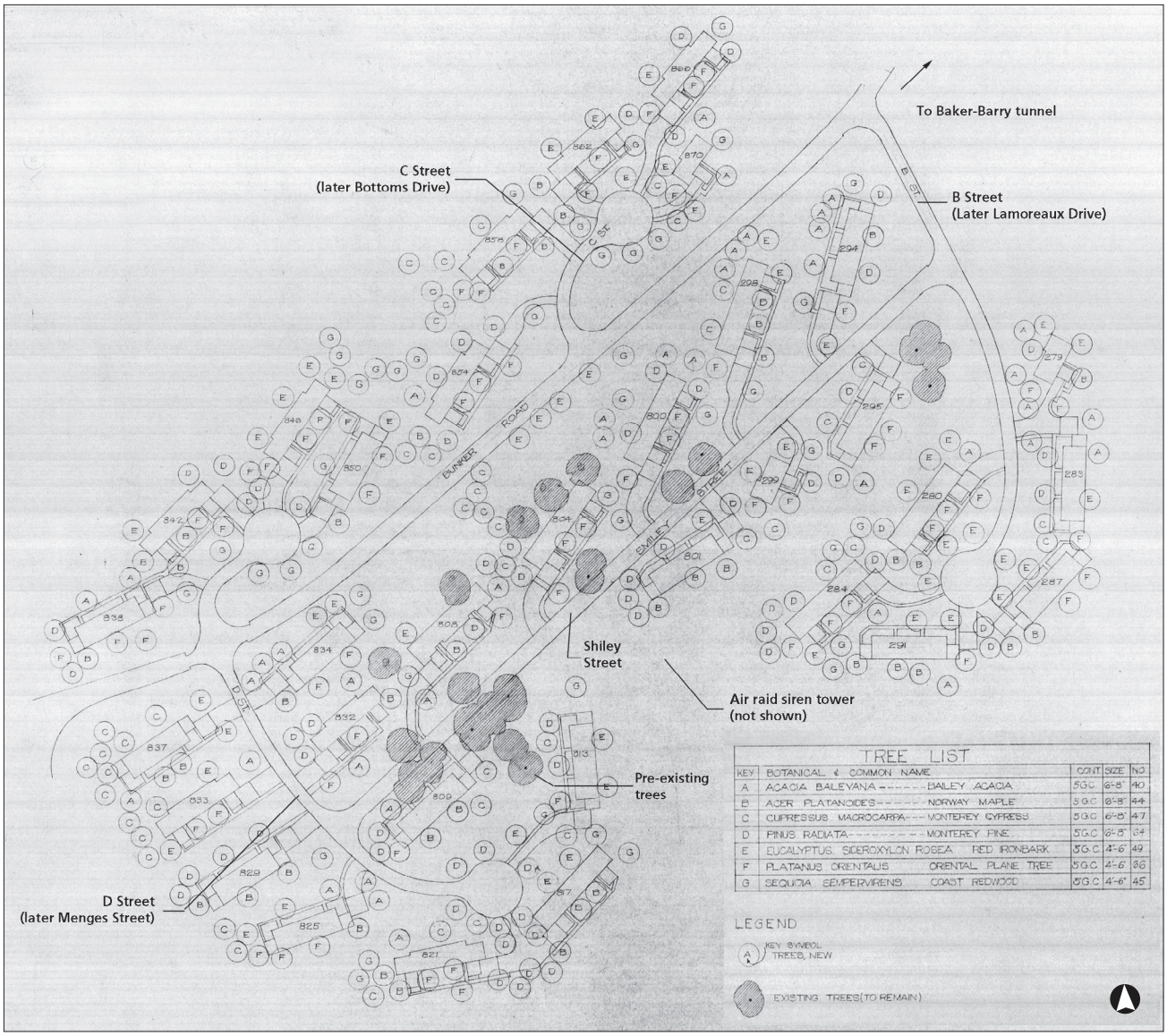
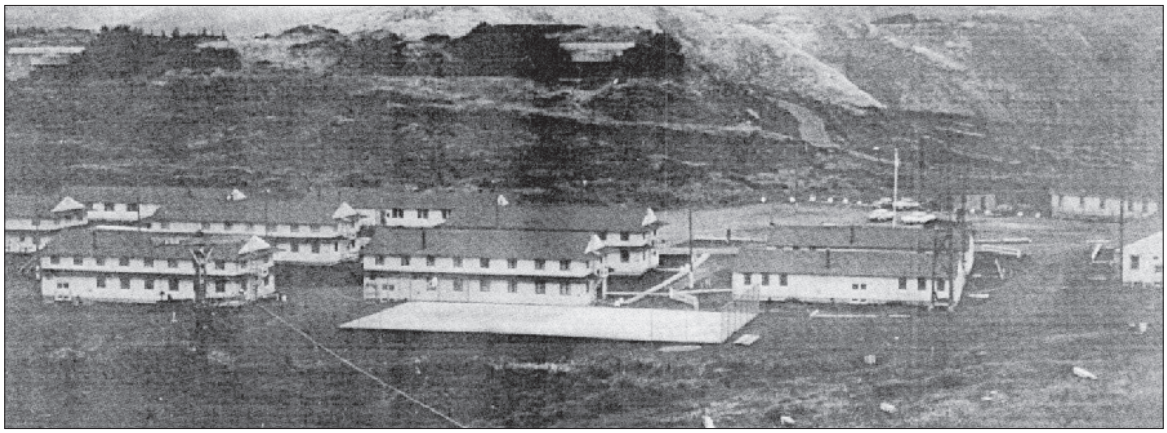


Figure 5.49. Approved planting plan of the Fort Barry Capehart housing at the former West Portal Area showing arrangement of existing houses and drives, and proposed plantings, March 1961. The houses and drives were completed in 1959. ("Fort Baker & Barry Capehart Housing Landscape Plan Tree Plantings, March 1, 1961, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 19680, annotated by SUNY ESF)

administrative complexes for SF-87 and SF-88 to provide modernized housing and office space. Since ca. 1954, the SF-88 site had occupied the World War II-era Series 700 buildings of the Mendell Housing Area (fig. 5.50). The complex had undergone few substantial exterior improvements since the war aside from addition of fabric entrance canopies and foundation plantings at the administration building, a parking lot at the southeast end of the complex along Field Road, and a tennis (multi-use) court along the west side of the complex built in 1961.[66] Work on the new administrative area began in ca. 1964 with demolition of all of the Series 700 buildings except for the recreation building on the east side of Field Road, formerly one of the bunkhouses in the old Engineer Department area built in 1901. The Army also retained the tennis court added in 1961.



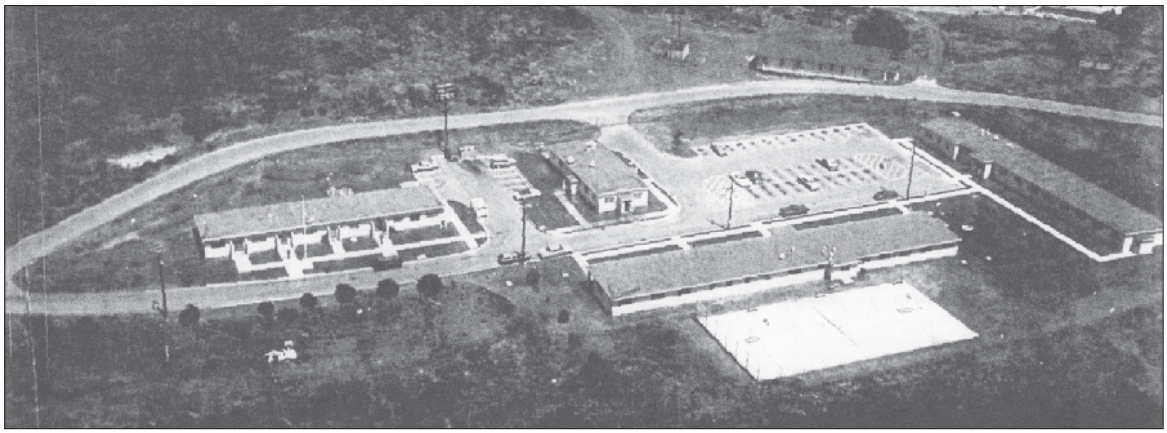


Figure 5.50 (top). The administrative area for SF-88, formerly the Mendell Housing Area, looking east with Battery Wallace in the background, August 1962. (Photograph by Robert Baker, Golden Gate National Recreation Area, Park Archives and Records Center, Nike Site 88L Photo Collection, GOGA 18487)

Figure 5.51 (bottom). The new administrative area for SF-88 completed in ca. 1965, looking east, June 1968. The 1961 tennis course at the lower right is the only feature remaining from the Mendell Area. Field Road (main through-road) was realigned around the new complex. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 1766)

The new complex consisted of four, one-story concrete-block buildings designed according to standard Nike plans by Earl and Wright Consulting Engineers of San Francisco, under contract with the Army Corps of Engineers.[67] The site required leveling of the old building terraces and realignment of Field Road, which was moved east from its former straight alignment to curve around the complex. The new buildings, which included two barracks, a mess hall, and an administration building, were arranged at right angles along the old interior road of the Mendell Housing Area, which terminated at the south end in front of one of the barracks (fig. 5.51). The buildings, painted light green with dark green trim, were accessed by concrete sidewalks and two parking lots. Some street trees were planted as part of the initial development, but a full planting plan, most likely by landscape architect Prentiss French, was not implemented during this period.[68]

Rifle Range

Aside from the Nike administrative area and Capehart complex, changes to Fort Barry's non-defense infrastructure following World War II was limited to estab-

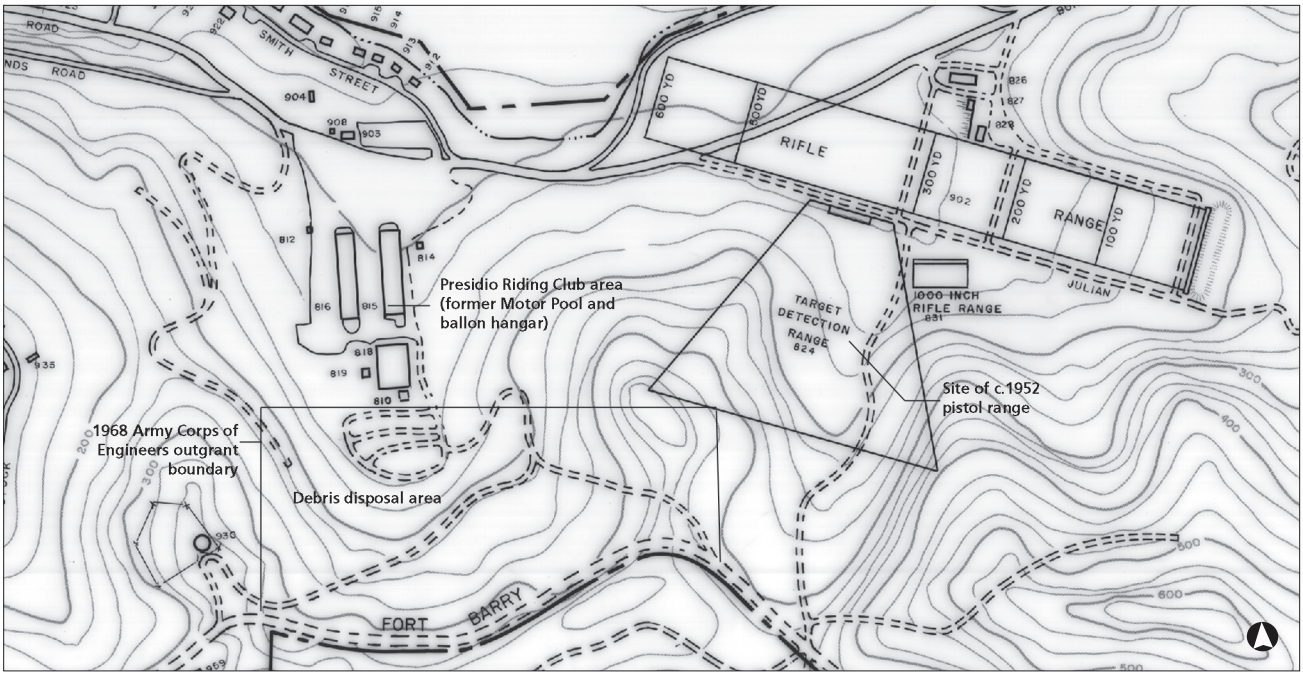


Figure 5.52. A 1966 map of Fort Barry showing target detection range established in ca. 1965 and 1,000-inch rifle range built on the site of the ca. 1941 pistol range around the same time. The plan also shows the debris disposal area that was begun in ca. 1960 and incorporated into a larger outgrant to the Army Corps of Engineers in 1968. The Army granted use of the Motor Pool area (balloon hangar field) to the Presidio Riding Club in 1966. (U.S. Army, "Fort Barry...Master Plan...General Site Map," May 1, 1966, Golden Gate National Recreation Area, Park Archives and Records Center, D190 F2 GOGA 71708, annotated by SUNY ESF)

lishment in ca. 1952 of a new pistol range south of the Departmental Rifle Range. This was a small range in a minor side valley. In 1965, the Army replaced it with a much larger, "Target Detection Range" that extended over a trapezoidal-shaped area to the south and west (fig. 5.52). This target range involved little modification of the landscape, and was maintained for just a few years. Around the same time, the ca. 1941 pistol range adjoining the south side of the main rifle range was redesigned into a 1,000-inch rifle range on the same site. This type of range, for training in basic marksmanship, was used when space was limited and typically included miniature targets to simulate a known distance range. It used the hillside to the south as a target butt.[69]

FORT CRONKHITE

Intended as temporary construction, the Fort Cronkhite cantonment faced potential removal following World War II, but due to the post-war housing shortage, the Army retained the entire complex.[70] Although Fort Cronkhite lost its permanent garrison in 1948, the Army subsequently made also use of the cantonment for the Army Reserve, ANACDUTRA (Annual Active Duty for Training), and antiaircraft battalions beginning in the early 1950s. [71]

By 1950, the cantonment had changed little since its construction ten years earlier, with the exception of the conversion of barracks to family housing, and growth of Monterey pine and cypress around the central administrative area (fig. 5.53). The war-time trenches between the buildings had been filled in, but several in

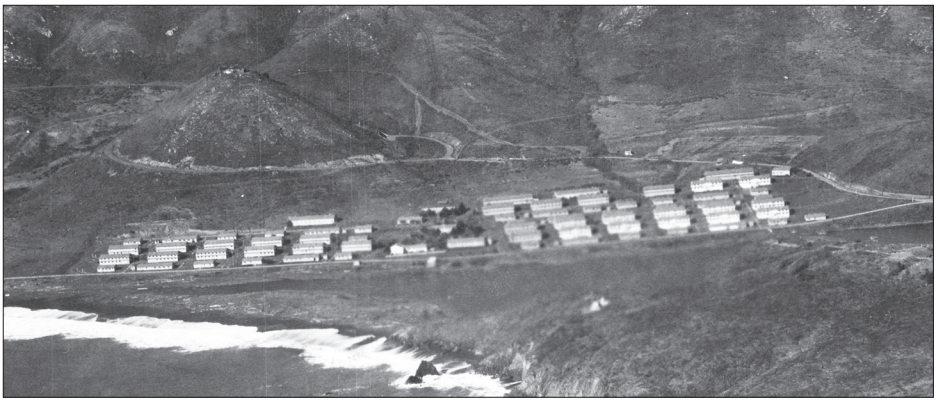


Figure 5.53. The Fort Cronkhite cantonment looking north, 1950. (Golden Gate National Recreation Area, Park Archives and Records Center, Col. Werner E. Michel Photographs, GOGA 3390.003)



Figure 5.54. The Fort Cronkhite parade ground being used by anti-aircraft artillery units during the Korean War, looking southeast with the rifle range in the distance, 1953. Bunker Road is at left. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 34888)

Figure 5.55. The Fort Cronkhite administration building during the Korean War, looking northwest, ca. 1953. (Private collection of Stanley "Jack" Brown)



the slope above the west wing remained. With establishment of Position No. 10 on Wolf Ridge in ca. 1951 at the onset of the Korean War, Fort Cronkhite was designated as the administrative area, and the cantonment took on some of its former wartime activity, including use of the parade ground for staging artillery (fig. 5.54). Around the cantonment buildings, troops added some domestic touches, such as picket fences around the grounds in front of the administration building, similar to what appeared at the old post hospital at Fort Barry (fig. 5.55). Probably anticipating that many of the buildings would soon be removed, the Army made few exterior improvements during the Korean War, as evidenced by peeling paint and the original temporary tar-paper roofing material that was wearing thin (fig. 5.56).

Establishment of the Nike program in 1954 led to designation of the east wing as the administrative area for SF-87. Administrative offices were set up in the two-story former officer quarters building (1042) on the north side of Kirkpatrick Street, adjoining the former Service Club (1041) that became the administrative offices for the Army Reserve. To the south, SF-87 used the one- and two-story buildings along Edison and Stennis Streets as mess halls, storage buildings, and barracks. The Nike program spurred the Army to invest in some improvements in the cantonment. In keeping with the new scheme established throughout San Francisco, the Army painted all of the buildings white with black window



Figure 5.56. The west wing of the Fort Cronkhite cantonment during the Korean War, looking east along Edison Street, taken by Bill Fine, 718th AAA Battalion, 1952. (Golden Gate National Recreation Area, Park Archives and Records Center, Bill Fine Collection)

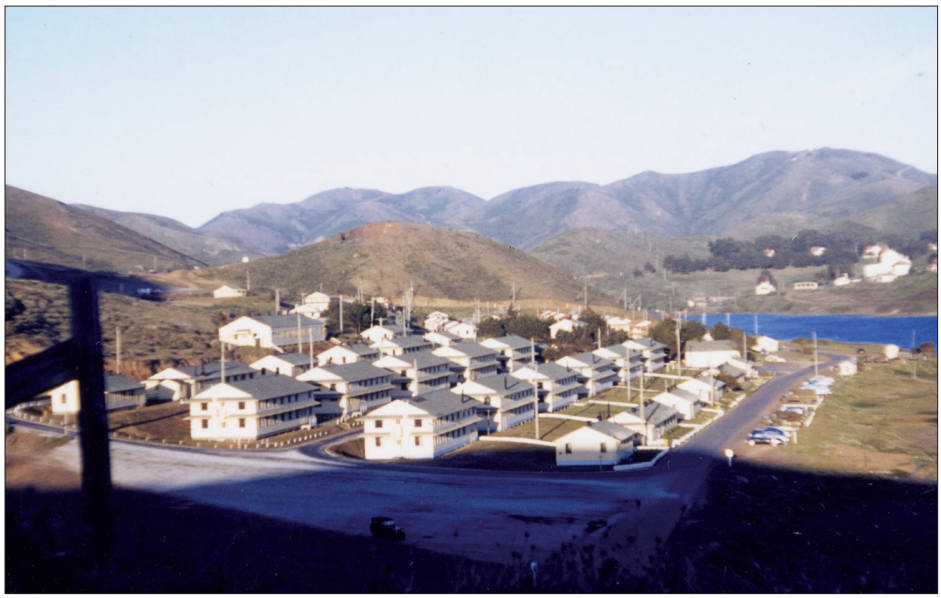


Figure 5.57. The Fort Cronkhite cantonment looking east showing improvements made at the onset of the Nike missile program, April 1955. The white posts along the roads were presumably bollards to keep vehicles off the grass, while the white fences apparently defined grounds of family housing. (Photograph by Evan S. Williams, Golden Gate National Recreation Area, Park Archives and Records Center, Fort Cronkhite Building 1059 Collection, GOGA 27995)



Figure 5.58. Barracks for SF-87 at building 1034 in the east wing, looking west along Kirkpatrick Street, ca. 1960. The foundation shrubs and antiaircraft "B" battalion sign are Cold War-period additions, while the utility poles, road, and Monterey pine and cypress trees in the background date to World War II. (Golden Gate National Recreation Area, Park Archives and Records Center, Fort Cronkhite Photo Collection, GOGA 40036.009)





Figure 5.59 (top). The west end of the Fort Cronkhite cantonment showing visitation to Rodeo Beach, 1962. The paved parking lot is on the site of the World War II-era 155-mm gun and tractor park. (Private collection of Paul Petosky)

Figure 5.60 (bottom). Demolition underway on Series 700 buildings in the east wing of the Fort Cronkhite cantonment in preparation for the new SF-87 administrative area, looking north, ca. 1964. At the upper right above the parade ground is SF-87L. (Golden Gate National Recreation Area, Park Archives and Records Center, PAM Prints Collection, GOGA 1766)

sash, and added foundation plantings around some (figs. 5.57, 5.58). Additional Monterey cypress trees were planted at the east end of the cantonment and scattered along some of the roads. Troops also added white-painted concrete sandbags recycled from antiaircraft field emplacements as ornamental borders along some of the roads and parking areas, just like at the SF-87 launch area. One of the few new built features added during this time was a multi-use court constructed in 1959 on the hillside above Kirkpatrick Street, similar to those installed at the Fort Barry main post and SF-88 administration area (Mendell Area).[72]

Rodeo Beach at Fort Cronkhite was a popular recreational area during this period, with Mitchell Road often lined by cars. Most likely to accommodate these beach goers, the Army built a paved parking area on the site of the World War II-era 155-mm gun and tractor park in ca. 1960 (fig. 5.59).[73]

After ten years of occupying Series 700 buildings, the Army began planning for construction of a new SF-87 administrative complex at Fort Cronkhite along with the matching complex at Fort Barry's SF-88. By January 1964, Earl and Wright Consulting Engineers of San Francisco, under contract with the Army Corps of Engineers, had finalized plans for four one-story concrete-block buildings, following a standard Nike design for administration buildings. Similar to the Mendell Area, plans called for replacing a dense complex with a roomier four-building complex. In 1964, the Army proceeded with demolishing twenty-five Series 700 buildings in the east wing of the cantonment along Edison and Stennis streets (fig. 5.60). Both streets were removed, and the building terraces were leveled to create a single terrace for the new complex. Construction included a new alignment of Stennis Street (Edison Street was abandoned), with the four new buildings aligned in parallel rows to either side, including two barracks, a mess hall, and an administration building (figs. 5.61, 5.62). In contrast with the rest of the cantonment, they were painted light green with dark green trim. Stennis

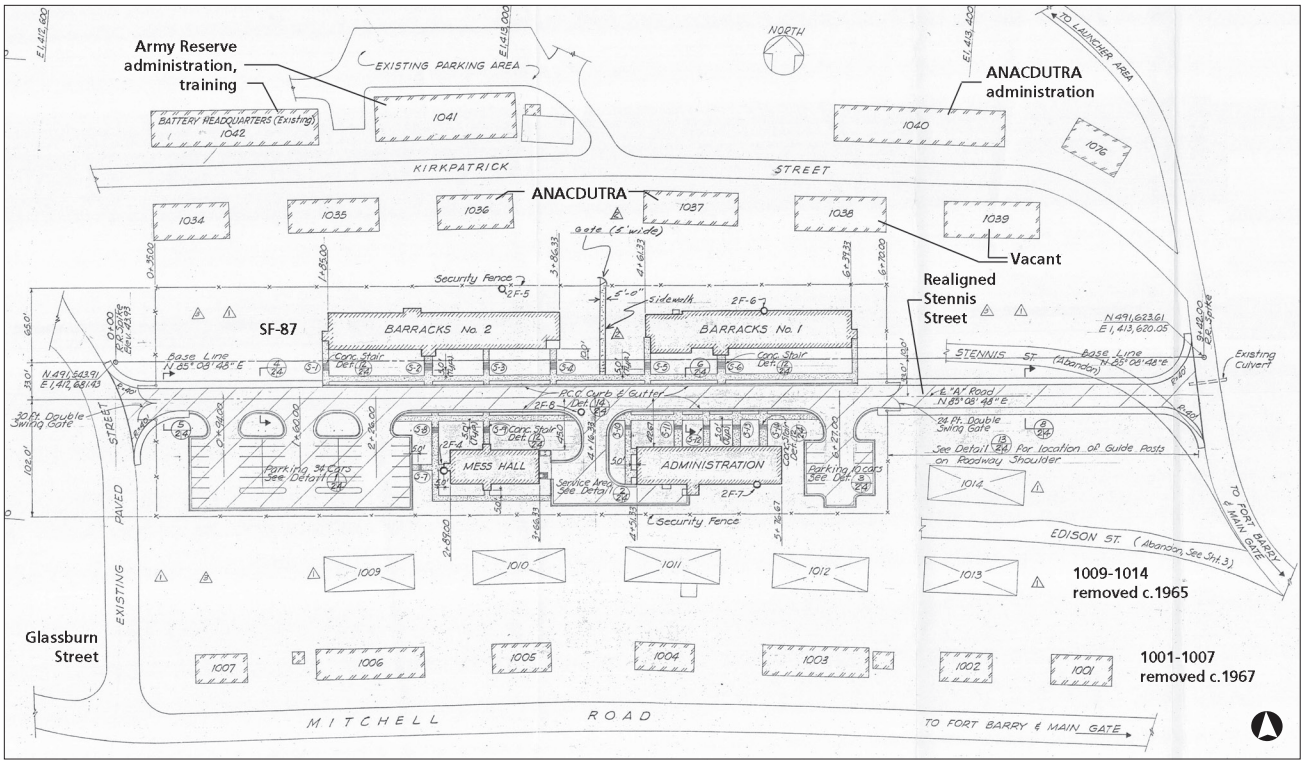


Figure 5.61. Plan of the new SF-87 administration complex as completed in 1965, with remaining Series 700 buildings. (U.S. Army plan, ca. 1965, Golden Gate National Recreation Area, Park Archives and Records Center, Nike Collection, GOGA 35344, annotated by SUNY ESF)



Figure 5.62. The Fort Cronkhite cantonment showing the recently completed Nike SF-87 administration area and remaining Series 700 buildings in the East Wing, looking east, ca. 1966. Note Series 700 buildings remaining along Mitchell Road. At lower right is the new sewer line trestle across Rodeo Lagoon. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35301.0982)



Figure 5.63. Panorama of the Fort Cronkhite cantonment showing removal of remaining Series 700 buildings along Mitchell Road in the east wing, looking northeast, 1972. Proposed plantings around the SF-87 administrative area had not been implemented by this time. (California Coastal Records Project, 1972 image 7216006, copyright Kenneth and Gabrielle Adelman)

Street was lined by reinforced concrete curbs and gutters and lined by concrete sidewalks, with two small parking lots off the south side. A chain-link security fence was erected around the perimeter, with gates at either end of Stennis Street and a pedestrian gate along the north side. By November 1965, the complex was substantially complete.[74]

Part of the new development included upgrades to the cantonment's sewer system. As completed by 1966, the system featured an enlarged below-ground septic tank on the south side of Mitchell Road that had a visible cover flush with the ground. To carry overflow from the tank across Rodeo Beach to the ocean, a sewer line on a trestle was built across the adjoining narrow neck of Rodeo Lagoon (see fig. 5.62).

The Army had initially called for retaining the remaining Series 700 buildings in the east wing along Kirkpatrick Street to the north and Mitchell Road to the south. The buildings along Kirkpatrick Street were used by the Army Reserve and ANACDUTRA, but those along Mitchell Road were left vacant. By January 1967, the Army was calling for the demolition of these buildings, and they were removed shortly thereafter (fig. 5.63). This change made the new Nike buildings clearly visible from Mitchell Road. No buildings were demolished along Kirkpatrick Street.[75]

At the same time that the Nike building plans were completed in January 1964, the Army Corps of Engineers developed a planting plan for the new administrative area. Plans were for primarily non-native plantings that included bishop pine, blackwood acacia, camphor tree, and saw leaf zelkova along Stennis Street and around the buildings, and numerous foundation shrubs including Australian tee, Mexican orange, India hawthorn, excallonia, cocculus, juniper, and mirror plant. Ground cover included large areas of ice plant and English ivy.[76] This plan was not implemented. In March 1970, the Army completed a new planting plan under contract with landscape architect Prentiss French that featured a similar scheme as

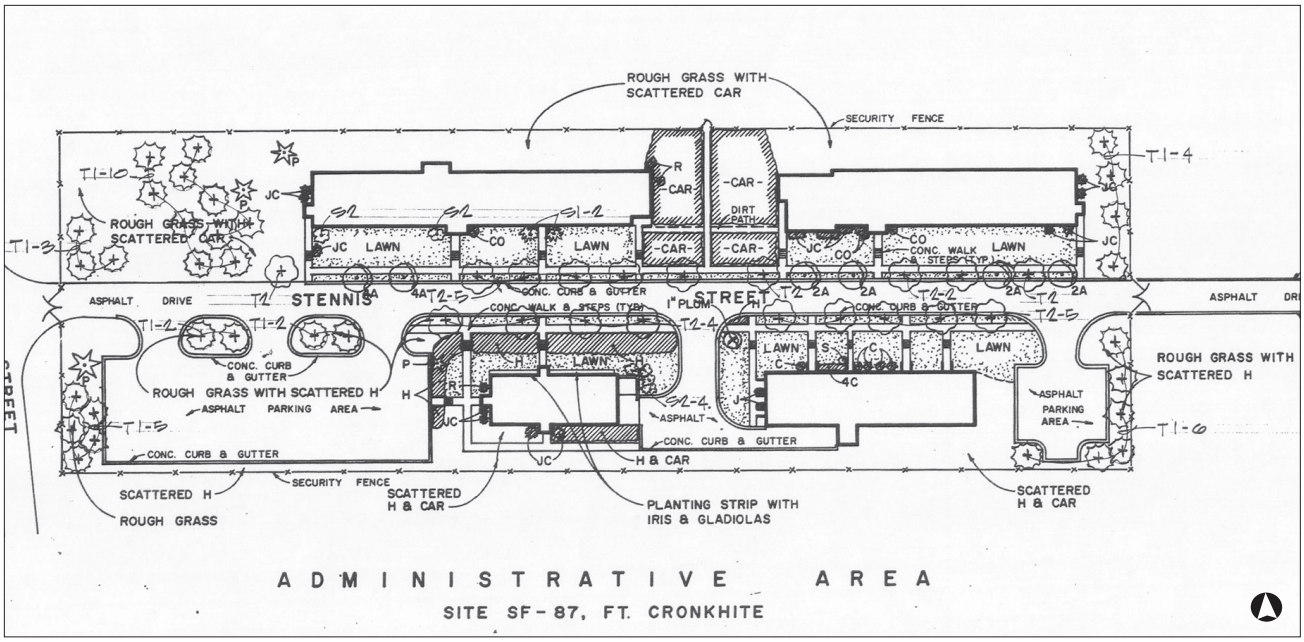


Figure 5.64. Planting plan for Nike SF-87 administration area by landscape architect Prentiss French, March 1970. The key for the plantings is not known. This plan was not implemented by 1972. Note use of unpaved areas between and behind the buildings for parking. (Prentiss French and U.S. Army Corps of Engineers, "Air Defense Missile Site SF-87…Master Plan, Future Development Plans, Planting Plan," March 1970, GOGA D246, F2)

the 1964 plan, but with lawn and herbaceous plantings including iris and gladiolus (fig. 5.64). This plan was also not implemented at the time. By 1972, the administrative area landscape remained primarily rough lawn, with the preexisting groves of Monterey pine and cypress to the east near Bunker Road, and several specimen Monterey pine to the north (see fig. 5.63).[77]

CHANGES AT POINT BONITA

The persistent problem of landslides continued to plague the Coast Guard's Point Bonita light station in the years following World War II. While earlier these problems had resulted in minor changes, such as realignment of roads or construction of retaining walls, the collapse of a section of the land bridge to the lighthouse in the early 1950s led to a major addition to the landscape. The problems with this unstable landform were evident shortly after World War II, when the Coast Guard erected two wood-frame towers to carry an electrical or communications cable above the crumbling rock (fig. 5.65). The collapse in ca. 1953 created an approximately twenty-foot-long chasm in the land bridge that the Coast Guard spanned with a temporary wood bridge connected to the preexisting concrete walk. As a permanent solution, the Coast Guard built a prominent two-hundred-foot-long



Figure 5.65. Point Bonita showing the crumbling land bridge to the lighthouse with towers that had been erected after the war to carry utility cables, looking east, ca. 1953. In the background is the Third Keeper's dwelling dating to 1908. (Golden Gate National Recreation Area, Fort Point/Point Bonita Collection, GOGA 16512.023)



Figure 5.66. Point Bonita showing the suspension bridge to the lighthouse seven years after completion, looking east, 1961. The radio tower was added in 1938, and the addition to the front of the lighthouse tower was built in ca. 1950. The Third Keeper's dwelling, which stood to the right of the right bridge tower, had been removed in ca. 1954 around the time of the bridge's construction. (Golden Gate National Recreation Area, Interpretive Negative Collection, N6.05, GOGA 2316)

suspension bridge that was a larger version of the earlier utility bridge. Completed in ca. 1954, the pedestrian bridge consisted of two white-painted braced frame towers with a cable-suspended wood deck (fig. 5.66). [78]

During the quarter century after World War II, the Coast Guard experienced its own share of changes brought on by improved technology in automation and communications that reduced the need for permanent staff and the facilities that housed them. At Point Bonita, the Coast Guard closed Station Point Bonita, the former Life-Saving Station, in 1947. Around the same time, the Coast Guard removed the lighthouse wharf and storehouse on Bonita Cove dating to ca. 1871, along with the original Life-Saving Service boathouse built in 1899 that the Army had converted into a fire-control station. The 1930 Coast Guard boathouse to the north was also removed in ca. 1955, leaving just a part of the dock originally built by the Army in ca. 1901.[79] The Third Keeper's dwelling at the tip of Point Bonita was gone by 1961 and had probably been removed during construction of the suspension bridge in ca. 1954.

On the mainland part of its Point Bonita station, the Coast Guard retained the two lighthouse keepers' dwellings for a while longer (fig. 5.67). These houses were occupied into the late 1950s by the last of the Lighthouse Service veterans. After this time, they were occupied by Coast Guard employees who continued to maintain the still manually-operated beacon and fog signal, and provide tours to the increasing number of visitors. The volume of tourists became so great that in the early 1960s, the Coast Guard closed the station to the public.[80] It was around this time that the agency proceeded with plans to construct new dwellings for its staff at the former Life-Saving Station to replace the two old lighthouse keepers' dwellings. By May 1961, the Coast Guard had finalized plans for the construction of two new houses and expansion of an existing quarters dating to 1938 (fig. 5.68). In preparation for construction, the combination shop and quarters building built in ca. 1910 between the main station building and garage was demolished, and the grade was raised with construction of a stone retaining wall along the south side of the site. The new build-

Figure 5.67. The 1908 Assistant Keepers duplex, looking west, 1960. The house and the adjoining keeper's dwelling were demolished shortly after this photograph was taken. (Golden Gate National Recreation Area, Fort Point/Point Bonita Collection, GOGA 16512.024)



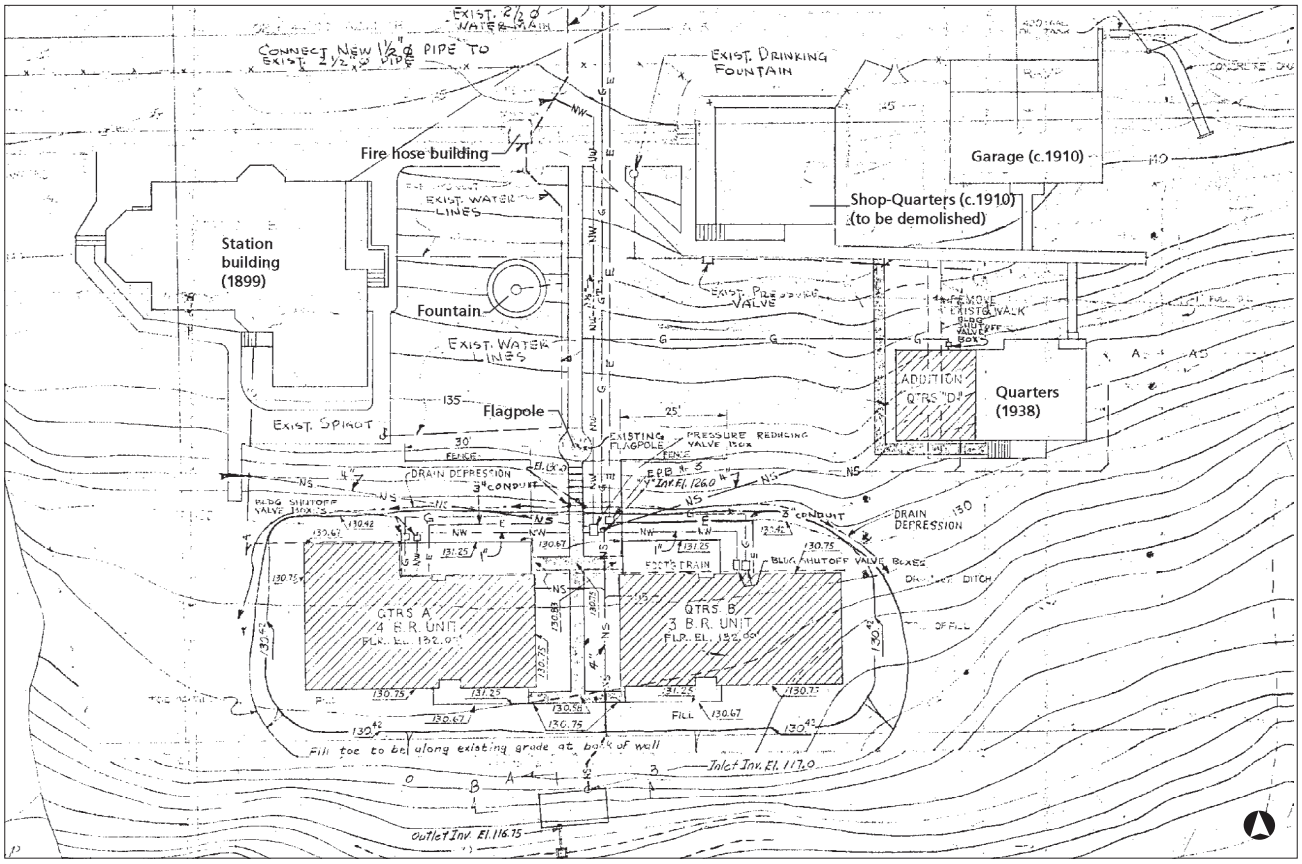
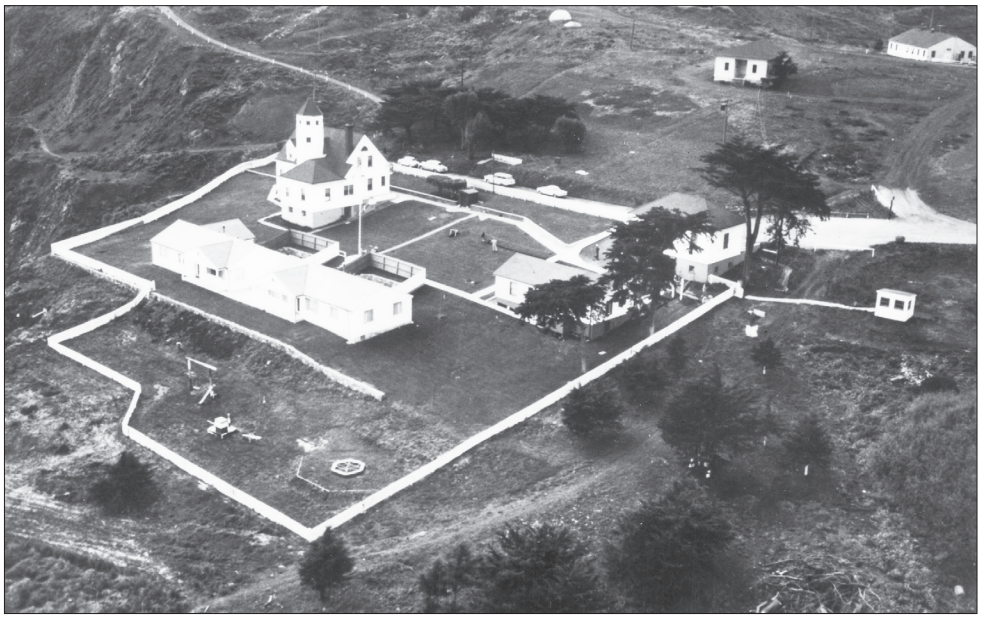


Figure 5.68. Site plan of the former Life-Saving Station showing two new houses and addition to an existing quarters, 1961. (U.S. Coast Guard, "Family Quarters 3 & 4 Bedroom Site Plan," May 25, 1961, Golden Gate National Recreation Area, Park Archives and Records Center, War Room Drawings, Point Bonita Coast Guard Collection, annotated by SUNY ESF)

Figure 5.69. The former Point Bonita Life-Saving Station showing two new ranch-style houses, expanded quarters (to the right), and play area, looking northwest, ca. 1961. The buildings at right include the old station garage and a small paint shed. The main station building was demolished by 1962. (Golden Gate National Recreation Area, Park Archives and Records Center, Point Bonita Lighthouse Negatives Collection, GOGA 16512)



ings were a pair of matching ranch-style houses that faced south (fig. 5.69). Small fenced-in yards were created at the rear of each house, and a play area was laid out to the south, below the stone wall. The entire station site was enclosed by a white picket fence. The project retained the station's flagpole, fountain-bird bath, and concrete walks.[81]

By December 1962, a year following completion of the new family quarters, the Coast Guard had demolished the two lighthouse keepers' dwellings and the surrounding outbuildings, leaving an unimproved parking area in their place. The former Army Engineer office near the older keeper's house was also demolished. Only a masonry cistern

and retaining walls at the back of the older keeper's dwelling remained. Since its administrative offices were located at the Fort Point Station near the Presidio, the Coast Guard presumably had little need for the Point Bonita station building, and demolished it at the same time as the two lighthouse keepers' dwellings. These demolitions left just four pre-World War II Coast Guard buildings at Point Bonita aside from the lighthouse and fog-signal station: the garage, fire-hose building, paint shed, and expanded 1938 quarters, all within the former Life-Saving Station (see figs. 5.68, 5.69).

By the mid-1960s, the Coast Guard reopened Point Bonita to tourists, and built a parking lot for them on the site of the Assistant Keeper's duplex. To bypass this public access, the Coast Guard built a new road in 1966 from the staff houses at the old Life-Saving Station to a point below the visitor parking area. This road also provided Coast Guard staff with more direct access to the point.[82]

DEMILITARIZATION AND PROPERTY DISPOSITION

The changes at Point Bonita corresponded with the Army's downsizing of Forts Baker, Barry, and Cronkhite as the traditional harbor defenses were replaced by Nike missiles that required much smaller parcels of land. Beginning in the 1950s, this shift led the Army to transfer large tracts of its headlands property to other federal agencies and the State of California, and also to issue outgrants and special uses for land it retained.[83] From a high of approximately 2,704 acres in 1945, the Army gave up nearly a third of its property, leaving approximately 1,711 acres in the combined Baker-Barry-Cronkhite reservation in 1972. By this time, Point Bonita, Lime Point, Diablo Point, Yellow Bluff, the Golden Gate frontage from Kirby Cove to Bonita Cove, all of Tennessee Valley, the western part of Wolf Ridge, and the northern part of Fort Baker were no longer part of the military reservations. Despite these losses, all of the land remained in public ownership, with 2,028 acres still federally owned. This represented a significant achievement given intense development pressures in the Bay Area during the post-World War II period.

TRANSFERS TO THE NAVY AND COAST GUARD

The Army's transfer of its submarine defenses to the Navy in 1949 led to its first reduction of property in the headlands. While the Navy initially just maintained the mine defense elements in Tennessee (Elk) Valley under a lease or outgrant, the Army presumably concluded by the mid-1950s that it was not interested in owning this tract. In 1956, it finalized transfer of 192.19 acres of Fort Cronkhite north of Wolf Ridge to the Navy, which managed the tract as part of its Naval Harbor Defense Unit (fig. 5.70).[84] The Army did not make a similar transfer of property that the Navy used at the Fort Baker mine depot, Fort Barry mine casemate, and Battery Construction 129 due to their location within the heart of the Army reserva-

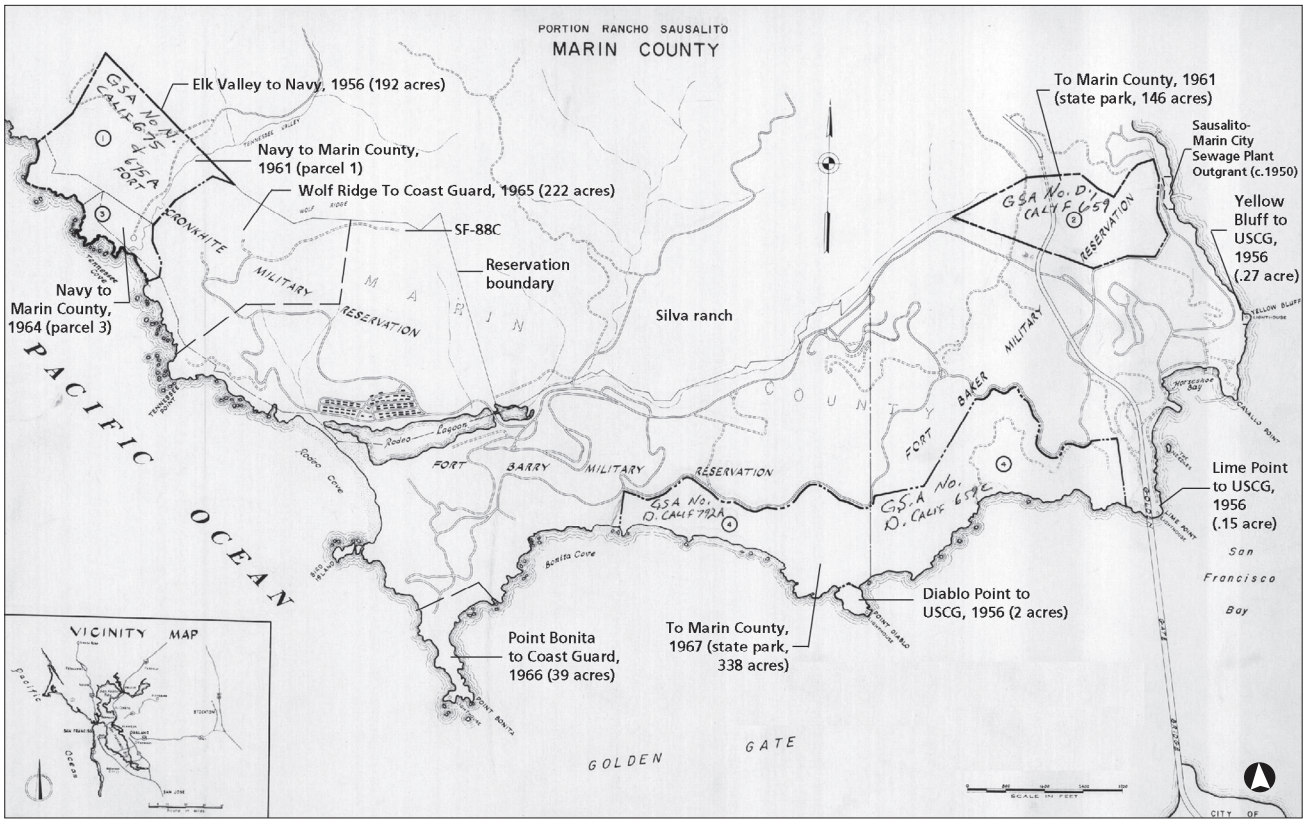


Figure 5.70. An annotated map of the headlands showing Army property transfers and major outgrants to 1968. (California Department of Parks and Recreation, "Marin Headlands State Park Ownership Map," May 1968, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA D181 F2)



Figure 5.71. The Lime Point light station looking northwest shortly after the Army transferred the property to the Coast Guard, ca. 1960. The Coast Guard demolished all buildings except the one-story fog signal building (at left) and searchlight base by 1966. (Golden Gate National Recreation Area, Park Archives and Records Center, Interpretation negative Collection, N4.03, GOGA 2316)

tions. Upon the Navy's termination of San Francisco's submarine mine defenses in ca. 1962, jurisdiction of the mine depot and Fort Barry mine casemate reverted to the Army, but the Navy retained its lease of Battery Construction 129. It also had secured a lease for the site of an electronics tower on Point Bonita Ridge by the early 1960s.[85]

In 1956, the same year that it gave the Navy its Tennessee Valley property, the Army conveyed three small tracts with navigational aids to the Coast Guard, including a quarter acre at Yellow Bluff, 0.15 acre at Lime Point, and two acres at Point Diablo (see fig. 5.70). The Yellow Bluff and Point Diablo tracts included only small, automated lights, but the Lime Point tract contained the rambling fog signal station that dated back to 1883. At the time the Army transferred the property to the Coast Guard, the complex included the original one-story fog signal station and three-story keepers' dwelling, with several small buildings to the north that had been added later (fig. 5.71). The Army had removed its search light shelter after World War II, leaving just the concrete base. In June 1960, four years after acquiring the property, the freighter India Bear crashed into the fog signal building. Although the damage was not extensive, the crash may have given the Coast

Guard added impetus to automate the light station, which it completed a year later in July 1961. Without a need for the keepers' dwelling, the Coast Guard demolished it and the outbuildings on the point shortly thereafter, around the same time it took down the Life-Saving-Station building and keepers' dwellings at Point Bonita. By 1966, only the shuttered fog signal building and searchlight base remained.[86]

It was probably at the time of the 1956 property transfers that the Coast Guard also requested ownership of Point Bonita, the largest of its installations on the headlands. The Army was initially reluctant to transfer Point Bonita because, unlike the other properties, it contained a number of Army buildings and structures, a communications cable to Fort Scott, and the leased Navy electronics tower on Point Bonita ridge. By December 1962, the Coast Guard had requested a 41.5-acre tract, and four years later, the Army finally agreed to transfer a slightly smaller thirty-nine acre tract that included all of Point Bonita, Point Bonita Ridge with its abandoned Army fire-control stations, and the former Life-Saving Station with the new family quarters (see fig. 5.70). The conveyance included a fifteen-foot Army easement along the communications cable that ran underground from near the Nike SF-88 administrative area to the cable hut near the site of the Coast Guard boathouse on Bonita Cove.[87]

For its expanding post-war ship-to-shore communications system, the Coast Guard requested a far larger piece of surplus Army land the year prior to the Point Bonita transfer, apparently to secure a high-elevation site to replace its existing antenna at the Point Bonita lighthouse. At the time, the Army had either abandoned or shuttered most of its secondary harbor defense elements at Wolf Ridge. In 1963, the Army granted the Coast Guard use of 219 acres, comprising the western part of Wolf Ridge south of the Navy's Tennessee Valley tract, for its Primary Radio Receiver Station, subject to Army rights-of-way along the roads. The Coast Guard located its new radio station, intended to replace or operate in conjunction with its existing primary radio station at San Bruno south of San Francisco, within the fenced site of Position No. 10 and AA Battery #1 (see fig. 5.70). The Coast Guard radio equipment was housed within the AA Battery #1 ammunition magazine, store room, and powerplant. In 1965, the Army finalized transfer of the 222-acre Wolf Ridge parcel to the Coast Guard, subject to an easement along Bunker Road for access the Nike SF-88 control area.[88]

Leases, Outgrants, and Special Uses

In addition to outright property transfers, the Army issued a number of leases, outgrants, and special uses for land and facilities beginning in the 1950s, following other leases that it had signed prior to the war, such as the right-of-way permit for the Golden Gate Bridge and US 101–Sausalito Lateral across the Fort Baker reservation.

Although dairy ranching in the headlands north of the military reservations disappeared in the decades after World War II, there were still a few farmers around in the 1950s. In November 1952, the Army issued a formal five-year lease—probably a continuation of a prior informal use—to Manuel V. Martin for 182 acres of grazing land at Tennessee Valley in Fort Cronkhite. Dairy ranchers Martin and partner Manuel V. Bettencourt had acquired the adjoining lots C and D in Tennessee Valley from the Lewis and Simas families in 1946. The Navy continued the terms of the Army lease upon its acquisition of the Cronkhite property in 1956. In October 1957 upon the expiration of the lease to Martin, the Navy issued a lease to Dean Witter, founder of the brokerage firm by the same name, for use of the same 182 acres. Witter also acquired 1,200 adjoining acres including the old Lewis and Simas (Martin/Bettencourt) ranches in Tennessee Valley, which together with the leased Navy land, he used as a private hunting preserve. Soon after he secured the Navy license, Witter dammed the Tennessee Creek to create a stock pond named Tennessee Lagoon. This was one of a dozen stock ponds that Witter created across his Marin hunting preserve, which he maintained until his death in 1969. [89]

At Fort Baker, the Army issued an outgrant to the Sausalito-Marin City Sanitary District in ca. 1950 of approximately five acres along San Francisco Bay at the site of the Mine Depot dispersion pier off East Road (fig. 5.72). The sanitary district needed the land to build a sewage treatment plant to service the growing suburban communities in Marin County, which jumped from a population of 85,619 in 1950 to 206,038 in 1970. Construction of the sewage plant and a system of pump stations and lines, which also served Fort Baker, was underway in 1952 and completed shortly thereafter.[90]

In the late 1960s, the Army made several larger outgrants at the headlands to reduce the amount of land it managed and to formalize prior uses by others. These included an outgrant to the Navy issued in ca. 1968 for a tract of approximately fifty acres surrounding Battery Construction 129 (excluding SF-87C) that the Navy had occupied since ca. 1949, and an outgrant issued in 1968 to the Army Corps of Engineers for a dump covering about 100 acres south of the old balloon hangar (see fig. 5.72). The Army Corps planned to use this area, where a dump had existed since ca. 1960, to dispose of debris from sites across the San Francisco Bay Area. Around the same time, the Army defined the Capehart housing complexes at Fort Baker and Fort Barry as outgrants issued to the private developers that constructed the complexes in 1959. The last outgrant that the Army established was in 1970, when it leased five acres at Tennessee Point together with Battery Townsley to the URS Corporation, a military contractor that was working with Army Explosive Ordinance Disposal Units to remove unexploded ordinance from military sites in the Bay Area. Tennessee Point served as the ammunition destruction area, while Battery Townsley served as offices and contained a “shock tube” and other testing equipment that were used to determine how various materials and structures responded to nuclear blasts.[91]

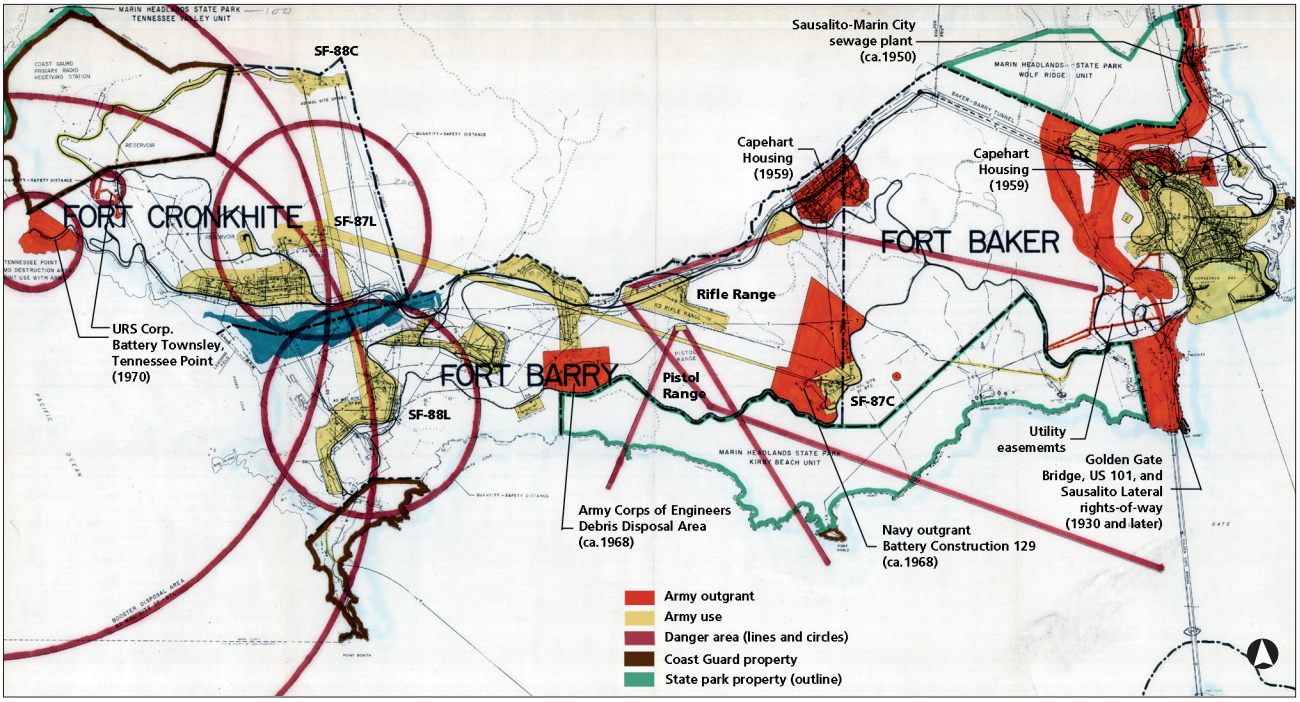


Figure 5.72. Map of the headlands showing Army outgrants, land conveyed to the Coast Guard and state, and small areas actively used by the Army, 1970. All land shown in white within the reservation boundary was not used by the Army, with the exception of roads. The Capehart housing outgrants were returned to Army control soon after this map was made. (U.S. Army, Presidio of San Francisco...Master Plan...Subinstallations Map, Real Property Utilization," April 24, 1970, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 71518, D181 F2, annotated by SUNY ESF)

In the 1960s, the Army began to grant use of vacant and underutilized facilities to organizations related to the military, without lease or transfer of ownership. These special uses began in ca. 1960 when the Army granted the Presidio Yacht Club permission to use the facilities in Horseshoe Cove at Fort Baker, first at the former Marine Repair Facility shop building, and then expanding in 1961 to the Angel Island ferry dock.[92] At Fort Barry, the Army granted the Presidio Riding Stables use of the Motor Pool Area in 1966. The club converted the Series 700 vehicle sheds to horse stalls and tack rooms. The former balloon hangar at the time was still used by the Army for its motor pool.[93]

The disposal of military land at the headlands was not unanimously supported in the Army. One general, for example, suggested in 1965 that a national cemetery be established at the headlands "as one possible way to show more intensive utilization as justification for retention."[94] By this time, however, the momentum was behind continued demilitarization and conversion of the headlands to public parklands.

Marin Headlands State Park

The years after World War II witnessed increasing concern over the future of the headlands as the Army's need for its vast tracts decreased and as suburban development pressures mounted. Across the state, suburban sprawl and demand for recreation and open space led the California state parks system, officially the

California Division of Beaches and Parks, to expand during the 1950s. By 1959, the state park system covered 615,000 acres. In Marin County, expansion of state parks had long been an objective of the Mount Tamalpais Park Movement, whose leaders had pressed for establishment of the peninsula's first public park, Muir Woods National Monument, in 1908, followed by Mount Tamalpais State Park in 1928. Development pressures after World War II, spurred in large part by the region's established highway connections to San Francisco via the Golden Gate Bridge and US 101, heightened interest in preserving the large undeveloped tracts along the western part of the Marin Headlands, including remaining dairy ranches and the military reservations. In 1950, the state began to expand its park holdings on the Marin Peninsula with additions to Mount Tamalpais State Park, acquisition of Stinson Beach on the Pacific, and establishment of Samuel P. Taylor State Park north of Mount Tamalpais.[95] A decade after this, the state began acquiring its first tracts within Forts Baker, Barry, and Cronkhite to create Marin Headlands State Park, which was initially also referred to as Golden Gate State Park. The state's reasons for establishing this park were to address a "definite need" for outdoor recreational areas for the Bay Area in the context of rapid statewide urbanization, and to make use of the scenic and historic headlands for recreational development.[96] As noted in a 1965 description of the headlands, the state was also interested in the scenic value and military history of the headlands, which it described as:

> . . .a rugged wild area of coastal bluffs and rolling hills. It is an unspoiled area of outstanding scenic value. It has outstanding historic value in the old coast artillery emplacements and underground storage and communication installations. These are skillfully placed and have aged to the point where they do not intrude onto the natural scene.[97]

The state acquired its first part of Marin Headlands State Park in 1961, a 161-acre tract in the Tennessee Valley part of Fort Cronkhite that the Navy had declared surplus to its harbor defense purposes and where Dean Witter held a permit for use as part of his hunting preserve. This property was the upland part of the 192-acre tract the Army had conveyed to the Navy in 1956 (see fig. 5.70). It and all subsequent state park tracts were placed under ownership of Marin County, but were administered by the state parks system. The deed included the stipulation that should a national emergency arise, the federal government had the right to repossess the property. The Navy retained thirty acres at the mouth of Tennessee Valley where it still maintained submarine mine elements as part of its Harbor Defense Unit. With the decommissioning of the submarine mine defenses in ca. 1962, the Navy conveyed its remaining thirty-acre parcel in Tennessee Valley to the state park in 1964.[98]

In 1961, the state acquired its third tract in the headlands, 146 acres of uplands at the northern side of Fort Baker surrounding the US 101 Waldo Tunnel, in an area known as Wolfback Ridge. This parcel, which abutted residential development in

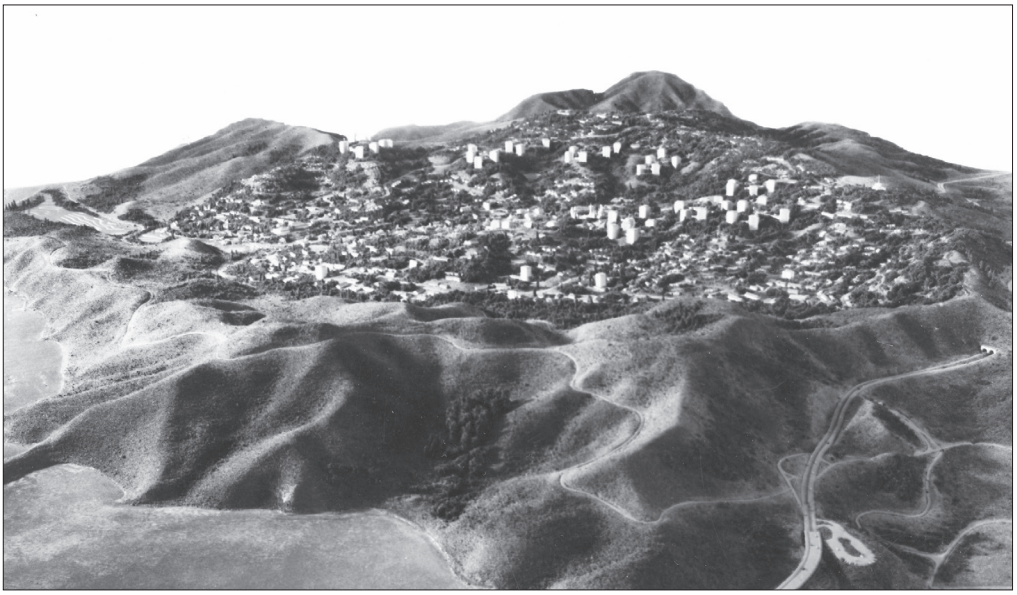


Figure 5.73. Photograph of a model of the Marincello development approved in 1965, view looking northwest from above the Golden Gate Bridge. The military reservations are shown as remaining open space. (Golden Gate National Recreation Area, Park Archives and Records Center, Interpretive Print Collection, box 9, folder 6, GOGA 2316)

Sausalito, became the state park's Wolf Ridge Unit (a presumed misnomer for Wolfback Ridge).[99]

As these initial park acquisitions were underway, a Pittsburgh developer, Thomas Frouge, announced plans in November 1964 for a massive new town development, named Marincello, on the Silva ranch and additional land to the north into upper Tennessee Valley covering 2,000 acres. Frouge had acquired the land and developed plans with support from the Gulf Oil Corporation, which was involved in the development of another new town at Reston, Virginia outside Washington, DC. The model of the proposed development showed a mixed-use small city of 30,000 residents extending north from Rodeo Valley and east from Fort Cronkhite (fig. 5.73). Marin County approved Frouge's plan in 1965 and some initial development of roads and gates was begun, but work stopped due to growing public opposition and financial difficulties. In 1967, a group of residents formed HEADLANDS, INC, to fight Marincello and assist with the expansion of Marin Headlands State Park. [100]

The Marincello proposal may have been an impetus for the state senate's passage of a resolution in 1964 that required the Division of Beaches and Parks to undertake an expansion study for Marin Headlands State Park. Completed in 1965, this study determined that all lands within Forts Baker, Barry, and Cronkhite "can be used, and are needed for park purposes…The basic assumption in our planning for the area has been eventual acquisition of all military lands on the Marin Headlands…"[101] The report included a recommendation that the state immediately acquire a large 338-acre tract along the Golden Gate from Battery Spencer to near Battery Rathbone-McIndoe that the Army declared surplus in 1965 (see fig. 5.72). The state completed acquisition of the property in 1967 and named it the Kirby Beach Unit of Marin Headlands State Park, replacing the Army's long-time name of Gravelly Beach. [102] Much of this tract was undeveloped, except around batteries Spencer, Wagner, and Kirby. The Army had recently maintained radio antennae at Spencer and used the area around Kirby for training, and removed several ancillary buildings by 1961, including two behind Battery Kirby and a fire control station for Battery Spencer.[103]

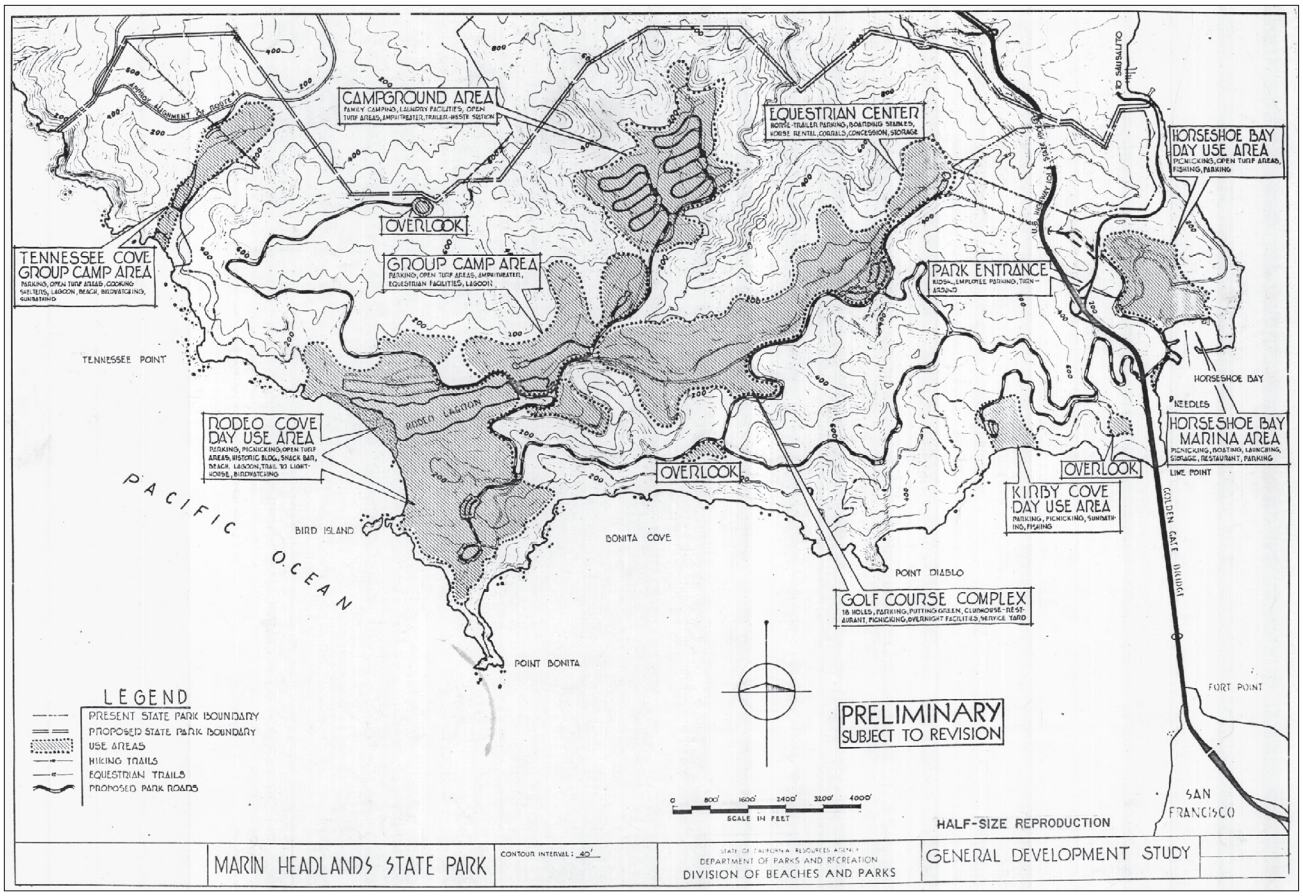


Figure 5.74. Proposed development of Marin Headlands State Park, 1968. By this date, the state was anticipating demise of the Marincello development on the Silva ranch. (Division of Beaches and Parks, "Marin Headlands State Park General Development Study," Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 35174)

The year after acquisition of the Kirby Beach Unit, the state parks department completed a general development study for the entire headlands (fig. 5.74). Now presuming the failure of the Marincello development, the study added the Silva ranch into the proposed park. The study called for the park's main entrance at Fort Baker, an entrance at Tennessee Cove from a rerouted Route 1, day use areas at Horseshoe Cove, Kirby Cove, and Rodeo Cove, a marina in Horseshoe Cove, a group camp area at Tennessee Cove, and a golf course complex in Rodeo Valley, plus several scenic overlooks. The state's plan for a day-use area at Kirby Cove was a revision of an earlier proposal to develop a much larger recreational facility there with shaded lawns, ninety picnic sites, and parking for 150 cars.[104]

The state made several minor improvements to the Kirby Beach Unit during the late 1960s and early 1970s, with public access along a right-of-way on the Army-owned Conzelman Road. A bike bridge built in ca. 1970 allowed pedestrians and bikes to access the state park from the Golden Gate Bridge. A planned public overlook at Battery Spencer had not been opened by 1972, but several informal scenic pull-offs along Conzelman Road existed by this time.[105] In 1968, the state issued a detailed development plan for Kirby Cove showing retention of Battery Kirby and proposed addition of four group picnic areas on the valley floor behind the battery, a twenty-car parking lot, parking for two busses, a 50,000-gallon wood

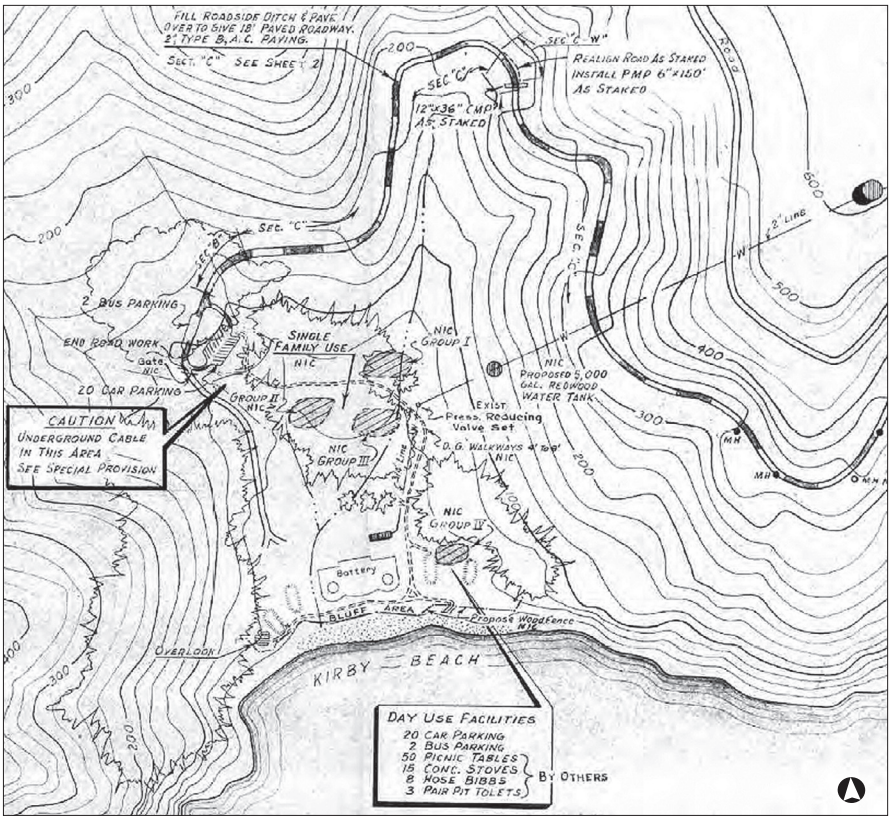


Figure 5.75. California state park development plan for Kirby Cove, October 1968. Most of these improvements were built by May 1969. (Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 33317)

water tank, two pit toilets, a trail along the bluff, and an overlook (fig. 5.75). By 1969, the state had completed most of these improvements, along with a trail to the beach at the east end of Battery Kirby.[106] Much of the valley floor to the rear of the battery remained without tree cover (fig. 5.76).[107]

The state made no known improvements by the early 1970s at the Tennessee Valley Unit or Wolf Ridge Unit. The park's development study had recommended retention of Dean Witter's stock pond (Tennessee Lagoon) and the addition of parking, cooking shelters, and beach facilities for the group camp area, but these had not been built, presumably due to lack of an adequate public access



Figure 5.76. Kirby Cove looking north across the Golden Gate showing the character of the landscape during ownership by California state parks, 1972. At the upper left is SC-87C, which had its distinctive white radar domes removed following its deactivation in June 1971. Young Monterey pine and cypress trees are just visible along the entry road. (California Coastal Records Project, 1972 image 7216029, copyright Kenneth and Gabrielle Adelman)

road.The development study proposed no improvements at the Wolf Ridge Unit at Fort Baker, which served as an open space buffer with the adjoining residential areas of Sausalito.[108]

LANDSCAPE SUMMARY, 1945–1972

By the early 1970s, the Army was shutting down the last of its active defenses on the Marin Headlands. In June 1971, SF-87 was disarmed and deactivated, leaving SF-88 as the sole active defensive work prior to the establishment of Golden Gate National Recreation Area in 1972.[109] Over the twenty-seven years since the end of World War II, the landscape of Forts Baker, Barry, and Cronkhite had undergone few major built changes outside of the Capehart complexes and Nike facilities, despite the very substantial shifts in land ownership, administration, and use. The feeling of the landscape, however, had changed considerably. Compared with the end of the World War II, the headlands in 1972 evoked decline and abandonment outside of the primary developed areas, especially around the old harbor defenses. While some were maintained as storage and for training purposes, most of the batteries and fire-control stations stood vacant. There were also deteriorating remnants from the wartime field emplacements and hutments, such as those on Wolf Ridge. Even the relative new Nike control site on top of Battery Construction 129 was a shell, with its control vans and radar domes removed.[110] Portable wartime defense elements, such as searchlights and the guns of AMTB Battery Bonita on Bonita Cove, left little trace of their existence by 1972, except perhaps compacted ground and traces of access roads.

A noticeable change across the headlands landscape during this period was the institution of a white paint scheme and red roofing on all non-defensive buildings, which contrasted with the pre-World War II muted color schemes intended to reduce visibility from enemy ships at sea. Most of the roads across the headlands were resurfaced in black asphalt during this period, covering earlier gravel, oiled earth, or red macadam pavement. Further change came with conversion of portions of the headlands to public park use. While new features were limited primarily to the Kirby Cove day-use area where a parking area, water tank, and picnic tables were introduced, the state park did not maintain the old Army infrastructure. Vandalism, such as graffiti on Battery Orlando Wagner, began to appear.

Another conspicuous change throughout the headlands was the loss of most of the grasslands to chaparral and other scrub, except on the highest ridges. While the loss of grasslands had begun well before World War II, it accelerated during the Cold War years in the absence of grazing, except in Tennessee Valley where dairy ranching continued through the 1970s. Some grasslands and other formerly open land also become covered in exotic species, primarily Monterey pine, Monterey cypress, eucalyptus, and iceplant that spread from their intro-

duced locations at Kirby Cove, Battery Duncan hill, the Baker and Barry main posts, and around the defensive works. The Monterey pine and cypress probably planted by the Boy Scouts as beautification or conservation efforts after World War II were becoming mature by the early 1970s. These trees altered the once open landscape north of the Fort Baker main post, on the floor of Kirby Cove, and around the obsolete casemates and parapets of Battery Wallace, Battery Townsley, the Townsley PSR room, and Battery Construction 129 (SF-87C), among other places. Despite these changes in vegetation, however, overall the headlands remained an open landscape in 1972, characterized by panoramic views.

Small-scale features throughout the headlands also changed in response to shifts in ownership and use. Losses included the distinctive masonry and shot entrance gates at Roth (Kirby) Road, and on Moore Road near the Mine Depot, leaving only the gates at Battery Spencer and at the Fort Barry main post.[111] Fences, mainly chain-link, were introduced or realigned along the rights-of-way of the US 101 and Sausalito Lateral, around the obsolete batteries, and along the Golden Gate bridge permit area at Lime Point. The Nike missile sites were protected by chain-link and barbed wire security fences with manned gates, and contained a variety of other small-scale features including antenna, mast poles, and control vans. The Capehart housing areas at Forts Baker and Barry most likely featured an assortment of outdoor patio furniture, garbage cans, mailboxes, and other features typical of suburban residential landscapes.

FORT BAKER (DRAWING 1.10)

In 1972, most of the Army's uses at Fort Baker were concentrated east of US 101 in an area referred to as East Fort Baker. A large part of the reservation to the north and west of the main post was leased or out of Army ownership. Since 1956, the Coast Guard assumed ownership of Yellow Bluff and the tip of Lime Point, while the Golden Gate Bridge Authority continued operating under its permit covering the east side of Lime Point Ridge. The state maintained its rights-of-way through the reservation along US 101 and the Sausalito Lateral that were expanded in the early 1950s. Since 1967, Marin County owned the stretch of coastline from Battery Spencer to the reservation's boundary with Fort Barry and beyond as part of the Kirby Beach Unit of Marin Headlands State Park. At the northern part of Fort Baker, Marin County also owned the highlands that formed the state park's undeveloped Wolf Ridge Unit, while the Sausalito-Marin City Sewage District's outgrant of approximately five acres was along the bay front off East Road. The Capehart housing area outgrant in the main post had been reincorporated into Army holdings by 1972.[112]

Despite these changes, the landscape retained the overall organization that had developed through World War II, with development concentrated at the main post and Horseshoe Cove waterfront, and at the five obsolete coastal defense

batteries. The only substantial areas of new development at Fort Baker since 1945 were the municipal sewage plant off East Road, the Capehart Housing complex, which expanded the developed area of the main post into the adjoining hillsides, and Vista Point, built by the State of California within the US 101 right-of-way. The development of Vista Point removed the top of a prominent small hill above the main post, but otherwise had no direct impact on Fort Baker. It provided tourists a place to view the panorama of San Francisco and the Golden Gate Bridge, and look down over the Fort Baker main post and boats in Horsehoe Cove.

Major changes to circulation at Fort Baker during this period included the Army's straightening of East Road in ca. 1945, and shifting of the east gate and gatehouse south of the sewage plant in ca. 1950. The gatehouse was removed in ca. 1970. The state's widening of the US 101 included a one-hundred foot extension of the Baker-Barry Tunnel at the East Portal between 1950 and 1954, which required removal of the 1919 tank and pumphouse, which was replaced with a new pumphouse in 1950. The project also redesigned the entrance and exit ramps to the Sausalito Lateral, which served as the primary access to Forts Baker, Barry, and Cronkhite. Vista Point was developed by the state with access ramps and parking lots, but did not require removal of the original alignment of Conzelman Road (Vista Point Road) on the hillside below.

Fort Baker's defensive works, most of which had been disarmed prior to 1945, remained in 1972, as well as many of the ancillary buildings and structures. Some were maintained as storage space, while others stood vacant. Scrub began to grow on the grassy parapets of Cavallo Battery. Batteries Spencer, Kirby, and Orlando Wagner became accessible to the public with their incorporation into Marin Headlands State Park in 1967, although Battery Spencer had probably not yet been opened as a public overlook.

Most of the secondary defensive works, primarily Endicott fire-control stations, were vacant or used for other purposes. B1 Spencer and B3 Spencer were under the jurisdiction of the Golden Gate Bridge Authority, and were most likely abandoned. Removals included the latrine building at Battery Yates, a latrine building and combination tool room-guard room behind Battery Kirby, and B4 Spencer near Battery Kirby.

Main Post (Drawing 1.10a)

Despite development of the Capehart housing, the main post of Fort Baker retained much of its World War II-era character. Changes from the Capehart development were limited to the rear of the main post, and although elevated above the parade ground, the low-slung character of the buildings and gray roof color made the large development less conspicuous. Yet with their suburban one-story ranch-style design and informal placement, the twenty-one single and duplex houses, designed by San Francisco architect Angus McSweeney,

contrasted with the formality of the earlier post architecture. The development included extension of Seitler Road and construction of a new cul-de-sac road, Merrill Street, along with driveways leading to each house. The roads were paved in asphalt and edged by concrete gutter curbs. Although sidewalks were proposed on the site plans, none were constructed, probably due to the idea that residents would be driving, not walking, to the houses. Each unit featured a small fenced-in utility area and most had a small frame shed to store trash containers. The Capehart development was planted with a variety of specimen trees, including Bailey acacia, Norway maple, Monterey cypress and pine, red ironbark, Oriental plane tree, and coast redwood, based on a preliminary landscape plan by Osmundson & Staley of Berkeley.

Aside from changes in paint and roof color, the old post buildings were retained largely intact, except for the three original barracks and post hospital, where the two-story front porches were removed. The Army planted shrubs in the footprint of the porches, and continued to maintain the earlier foundation plantings around the officer quarters. All of the World War II-era Series 700 temporary buildings were retained, but several earlier buildings were demolished, including the greenhouse near the old post hospital, the firehouse, and one of the three garages on Swain Road. Along Murray Circle, there were concrete lampposts added in ca. 1950, and sidewalks extended to the curb where planting strips had once been. The parade ground was ringed by aged and declining eucalyptus and acacia trees planted in the original development of the post, and in the center was a flagpole that replaced the original, which had been supported by guy wires. At the south side of the parade ground along Center Road, there was a softball field added in ca. 1950, and to the east, a large parking lot and bus shelter added in the 1960s, presumably to accommodate commuters working at the 6th Army Medical Lab in the old Station Hospital.[113]

Off Bunker Road at the west entrance to the post, the Army had demolished three of the four remaining small houses along Gibson Road originally built as civilian residences. The remaining house served as an enlisted family residence. Within this area were young groves of Canary Island pine and cryptomeria, adjoining earlier eucalyptus and Monterey cypress.

Quartermaster Area and Station Hospital (Drawings 1.10, 1.10a)

Although there were significant changes in use, the Army maintained the Quartermaster Area, Station Hospital, and adjoining facilities on the Horseshoe Cove waterfront. All of the Series 700 buildings in the hospital complex remained, except for a utility building along Somerville Road. The former hospital administration building was occupied by the 51st Battalion headquarters, which maintained a display of a 155-mm gun and Nike missile in the circular entrance island that was still ringed by its original privet hedge. Between the hospital buildings

were a number mature Monterey pine and other trees that were planted during or soon after World War II.

The Quartermaster Area, known as the Post Engineer Area during this period, retained most of its buildings, except for the coal shed and stable that were removed in ca. 1970, and two small sheds and the scales. A new service station was added next to the 1921 version at the east end of the area, and a paint storage building, gas station, and two fuel tanks were added along East Road east of the large Series 700 storage building.

The Horseshoe Cove waterfront by 1972 was a much quieter place than it had been in 1945, with the vacant facilities of the Mine Depot and two marine maintenance areas that no longer served their original purpose. The larger of these facilities at the east side of the cove was the home of the Presidio Yacht Club, which also used the boat slips along the Satterlee Breakwater and former Nike ferry pier. Next to the club's building was a small concrete building erected in 1950 as a submarine cable terminal for Pacific Telephone & Telegraph. A large billboard on the adjoining hillside notified mariners of the cable crossing.

Coast Guard Facilities (Drawing 1.10)

By 1972, the Coast Guard at Fort Baker was no longer operating under permits from the Army, but rather had direct jurisdiction over its facilities at Diablo Point, Lime Point, and Yellow Bluff. Despite this, the Coast Guard had less of a presence at Fort Baker than it did in 1945 due to loss of staff at Lime Point, where only the fog signal building remained. The Army also no longer maintained a searchlight at the point. The land access remained Moore Road, which extended through the Golden Gate Bridge permit area. Due to the eroding cliff, timber trestles had been added to Moore Road just north of Lime Point.

FORT BARRY (DRAWING 1.11)

The Fort Barry military reservation had lost a substantial part of its land area by 1972 following the Army's abandonment of the old harbor defenses. Since 1967, the coastline along the Golden Gate east of Battery Rathbone-McIndoe had been part of the Marin Headlands State Park Kirby Beach Unit, and the Coast Guard had title since 1966 to thirty-nine acres at Point Bonita that it and its predecessor agencies had long occupied. The Army Corps of Engineers had an outgrant issued in 1968 to approximately ten acres south of the balloon hangar for use as a dump, while the Navy leased Battery Construction 129 and a large area around it, but excluding SF-87C. The Army had granted this lease at some point after the Navy acquired the submarine mine defenses in 1949. The Capehart Housing complex at the Fort Baker boundary was initially an outgrant, but had been reincorporated into Fort Barry by 1972. The former balloon hangar field and World War II motor pool was occupied by the Presidio Riding Stables (present Presidio Riding Club) under an Army permit.

Circulation across the Fort Barry landscape was little changed from 1945, except for resurfacing in black asphalt and removal or abandonment of a number of secondary roads. These included the access road to Battery Alexander from the main post that was removed for construction of the SF-88 launch site; the lower part of Dubois Road that was removed for expansion of the borrow pit near the Capehart housing; and part of the road to the searchlights and Navy station near Bird Island that was removed for construction of AAA Position No. 81. Most secondary roads at Fort Barry remained unpaved in 1972, including the western part of Conzelman Road, the roads to Batteries Smith-Guthrie and O'Rorke, and Julian Road, which was the original Baker-Barry Road across Diablo Ridge.[114]

Defensive Works (Drawing 1.11)

Fort Barry's coastal defense batteries remained standing in 1972, either for storage or for training, while most of the secondary works, such as the fire-control stations on Point Bonita Ridge and radio station at the mine casemate, were abandoned and deteriorating. AA Battery #2 on Rodeo Hill had probably not been maintained since World War II. The SF-87 control site on Battery Construction 129 had been shut down by 1972, and its portable equipment and radar antennae removed. Young Monterey pine and cypress were growing around the Battery Construction 129 casemates and in the valley between the tunnels, dating to the probable beautification efforts undertaken by the Boy Scouts in the years after World War II.

The SF-88 launch site, completed in 1955 in the valley between Battery Alexander and the Quartermaster Area, was the only active defensive work at the headlands in 1972. It contained two areas: the Exclusion Area containing two launch pads and underground missile storage shelters, and the adjoining Limited Area containing the support buildings. The entire complex was enclosed by a chain-link security fence, with a sentry station at the main entrance, and a secondary sentry station at the entrance to the Exclusion Area. Fenced kennels off the Exclusion Area sheltered guard dogs. In stark contrast to the earlier harbor defenses, the buildings in the Limited Area were relatively small, light-green painted concrete and sheet metal buildings. As its ready room, the site used the nearby old Fort Barry Quartermaster storehouse on Field Road, which was accessed by a walk and flight of steps from the Limited Area. Camouflage and concealment were not a primary concern for this site given the long-range nature of its targets. Except for battalion names and insignia outlined in gravel and rocks in the Limited Area, the landscape of SF-87L had no ornament and no plantings. A hand-painted welcome sign with the unit designations was at the entrance to site on Field Road.[115]

The temporary launch sites for Nike SF-88 were in two locations west of the permanent facility. One set was in the valley behind Battery O'Rorke, and the other was in front Battery Smith-Guthrie. Built in 1954 and maintained only

for one year, these consisted of earthen parapets that sheltered movable missile launchers. By 1972, the sites had become overgrown and were barely visible in the landscape.

The only other defensive work added during this period was Position No. 81 near Battery Mendell, built on the site of a World War II-era anti-aircraft maneuvering site. Although abandoned in 1955, the gun emplacements remained with their circular earthen parapets covered in ice plant, along with three adjoining converted fire-control stations. The Army had removed the security fence around the complex, together with the sentry station at Battery Mendell and a 45-caliber practice range, by 1972.

Rifle Range and Motor Pool Area (Drawing 1.11)

The Army continued to use the Departmental Rifle Range as a training facility throughout this period, but it was supplemented by two new shooting facilities to its south—a pistol range and a target detection range added or rebuilt in the 1960s. At the head of the original pistol range was the indoor rifle range, ready magazine, and target storage building.

The former Motor Pool area in the valley to the west, originally the camp for the rifle range, had been adapted for use by the Presidio Stables, which used the vehicle sheds as stalls and tack rooms, and maintained two fenced horse corrals and a riding trail in the surrounding area. The 1921 balloon hangar was still used by the Army Reserve for its motor pool, after having served as a service shop for Nike missiles. To the south, roads snaked through the head of the valley that served as an Army dump, which was enclosed by a fence.

Main Post (Drawing 1.11a)

In 1972, the Fort Barry main post functioned largely as support space for the Army Reserve and as officer and enlisted family housing. Unlike the Fort Baker main post where there was significant new Capehart development, the landscape had changed little since the end of World War II, with the exception of continued growth of the Monterey cypress and eucalyptus trees and removal of several buildings. The Fort Barry buildings had been updated in the 1950s with the new white and red-roof color scheme, and removal of the front porches on the two barracks, post hospital, and administration building. New foundation plantings were added, including two Canary Island palm trees in front of the former administration building. The gardens to either side of the former Commanding Officer quarters had disappeared, along with the flagstaff and assembly area next to the administration building, and one of the piers of the entrance gate.

By 1972, two of the first generation buildings were gone—the firehouse and guard house, and three of the World War II-era Series 700 buildings—the motor vehicle shed, tailor shop, and an adjoining building. Features added during the period

included a multi-use court in the center parade ground dating to 1959, an access road and parking area in front of the barracks built in ca. 1962, and three small utility buildings on the north side of Bunker Road near the pump house built between 1948 and 1950. A recreational dock, built in ca. 1950, was on the nearby shore of Rodeo Lake. The old reservoir and earthen dike had largely disappeared due to siltation and growth of vegetation.

Capehart Housing Area, SF-87A, and Smith Housing Area (Drawings 1.11, 1.11b)

Two of the three cantonments at Fort Barry—the West Portal and Mendell areas—were replaced during this period, while the Smith Housing Area remained in use as enlisted family housing. The Fort Barry Capehart Housing Area was an enlargement of the old West Portal Area, occupying both sides of Bunker Road. The eighteen former CCC buildings had been torn down by 1954, and the seventeen Series 700 barracks and mess halls were removed in 1958 with site preparation for the Capehart development. The main interior street, Shiley Street, was retained from the old complex, and terminated at either end by two streets built in 1959, Menges Street and Lamoraux Drive. Across Bunker Road was a third street dating from the 1959 development, Bottoms Drive. In keeping with the suburban character of the housing complex, each of these new streets ended in cul-de-sacs. As at Fort Baker, the thirty-three one-story ranch-style Capehart houses, designed by of San Francisco architect Angus McSweeney, were set an informal angles to the streets, and were accessed by short driveways. There were no sidewalks in the complex. A number of mature Monterey pine remained from the old West Portal complex, along with an air-raid siren tower erected in 1950. There were a large number of young trees and foundation shrubs that had been planted during this 1960s, including Monterey pine and cypress, Norway maple, sycamore, jade, and oleander. On the hillside west of the housing was a large borrow bit that obliterated part of Dubois Road, which was the second road linking Forts Baker and Barry.

The SF-88 administration area, completed in 1965, left little trace of the old Mendell Area built in 1940, except for the multi-use (tennis) court added in 1961, and the recreation building across Field Road, which was a renovated former Engineer Department building constructed in 1901. Even Field Road had been realigned around the new complex. These one-story flat-roofed concrete-block buildings followed a standardized Army design that was adapted for the Fort Barry site, and like the other Nike buildings, were painted light green. The complex included a flagpole and two parking areas, and was enclosed by a chain-link fence.

Point Bonita Light Station Reservation (Drawings 1.11, 1.11b)

The Coast Guard's thirty-nine-acre property at Point Bonita, acquired from the Army in 1966, incorporated the active lighthouse, three staff residences, and abandoned Army facilities on Bonita Ridge, Point Bonita Hill, and at the tip of Point Bonita. The Coast Guard maintained two communications towers on Bo-

nita Ridge next to the old fire-control stations: a tall VTS tower erected in 1962, and a smaller Shoran radio tower built in 1957.

During this period, the Coast Guard had demolished all of the buildings and structures in the lighthouse keeper's area, including the ca. 1875 and 1908 dwellings, leaving just a masonry cistern, retaining walls, and a grove of Monterey cypress that was planted as a hedge early in the twentieth century. The Fort Barry school had been demolished around 1950 prior to transfer of the property to the Coast Guard. On Bonita Cove were the remnants of a dock and boat launch, and the foundation of the boathouse built in 1930. At the former Life-Saving Station, the Coast Guard had demolished the 1899 station building, the shop and quarters building and several other small buildings and features. In 1972, there were five buildings: two new ranch-style staff residences erected in 1961, Quarters D, garage, and two small sheds, all enclosed by a white picket fence.

On Point Bonita, the Coast Guard maintained the trail to the lighthouse, including the tunnel dating from 1876. Before the tunnel's north portal were two small utility buildings the Coast Guard erected in ca. 1965. Outside the south portal were the remnants of the old lighthouse wharf dating to 1871 that was removed in ca. 1966 along with an adjoining storehouse and the former Boathouse A that the Army had converted to B4 Alexander. Farther down the point was the former Army searchlight powerhouse, which the Coast Guard used for storage. On the trail, the old railway used to haul supplies from the wharf to the lighthouse still remained, and terminated at the concrete walls and foundation remnants of the Third Keeper's dwelling that was demolished in ca. 1955. At the western tip of Point Bonita was the operating lighthouse, fog signal building, and abandoned Army fire-control station for batteries Alexander and Mendell. This complex was accessed by one of Fort Barry's most distinctive structures, the pedestrian suspension bridge completed in 1954 to replace the eroding land bridge.

FORT CRONKHITE (DRAWING 1.12)

In 1972, the Army occupied roughly a third of the land at Fort Cronkhite that it had in World War II. Tennessee Valley had been out of Army ownership for over fifteen years, and had been part of the Marin Headlands State Park since 1961. The Coast Guard owned most of Wolf Ridge, where it maintained a primary radio receiver station at the site of World War II-era Antiaircraft Battery#1. A right-of-way along Bunker Road allowed the Army access to SF-88 control site through the Coast Guard's property. Battery Townsley and Tennessee Point were leased to the URS Corporation as part of a joint project with the Army to dispose of unexploded ordinance.

The primary developed area at Fort Cronkhite remained the cantonment along Rodeo Lagoon, along with the SF-87 launch site and SF-88 control area on Wolf Ridge added during this period. Most of the ranch buildings that belonged to the

Silva family's Little Ranch and had served as dummy buildings during World War II were gone by 1972. The garage and ranch house had been demolished soon after the end of the war, followed by the large milk barn in ca. 1955. Its slab foundation remained, along with the concrete walls of the neighboring dairy building. Also remaining were a small concrete cattle trough and cistern. Farther up the valley, nothing was left from the buildings erected during World War II that served as a commando training school in the late 1940s. A nearby pumphouse was the only building in the area.

Much of the landscape along Wolf Ridge and the Pacific coastline was characterized by dispersed abandoned or vacant defensive works that were inconspicuous in the rugged landscape of rocky outcrops, windswept grasslands, and chaparral. At Tennessee Valley, there were no new features since 1945, with the exception of Tennessee Lagoon, the creek impoundment that Dean Witter had created as a stock pond for his hunting preserve in ca. 1957, and a road (Coastal Fire Road) up the northern ridge that was also built for Witter.

Bunker Road, from its beginning at Fort Barry to the SF-88 control site on Wolf Ridge, continued to serve as the spine of circulation at Fort Cronkhite. The Army had extended the road a short distance in 1954 to access the SF-88 control site on Wolf Ridge. The only new roads built during this period were unpaved access roads to the temporary Nike launch sites and the paved entrance road into the SF-87 launch site, which branched off Bunker Road along the west side of the parade ground. Most of the temporary jeep roads created during World War II on Wolf Ridge and near the cantonment were abandoned and disappeared in the grass and scrub.

Defensive Works (Drawings 1.12, 1.12a)

Fort Cronkhite's only major harbor defense work, Battery Townsley, had been disarmed for over two decades by 1972, but was being used by the URS Corporation for shock tube testing within the structure in connection with its ammunition disposal work at nearby Tennessee Point. The more recent concrete sandbag-lined gun pits of Position No. 10 on Wolf Ridge were abandoned, but remained intact along with their underground bunkers. The reservation's numerous fire-control stations on Wolf Ridge, Tennessee Point, and Tennessee Valley were abandoned, except for a former powerhouse that served as a telephone switchboard room, and the AA Battery #1 storeroom, magazine, and powerhouse that the Coast Guard was using as part of its radio receiver station.

The Nike SF-87 launch site near the cantonment and the SF-88 control area on Wolf Ridge were Fort Cronkhite's only new defensive works of this period, aside from the three 120-mm gun concrete-sandbag keyhole emplacements added in ca. 1951 in the conversion of AA Battery #1 to AAA Position No. 10, which was abandoned in ca. 1954. The SF-87 launch site, completed in 1955, occupied the barren and terraced hillside above the Fort Cronkhite parade ground. To the south and east were

eight square excavated parapets that remained from the temporary launch area built in 1954 and maintained for about one year. These parapets, largely overgrown by 1972, had sheltered movable missile launchers.

As at SF-88 in Fort Barry, the SF-87 launch site featured two areas: the Exclusion Area containing two launch pads and underground missile storage shelters, and the Limited Area containing the support buildings. Due to its more expansive location and hillside topography, these two areas were a distance apart. The entire complex was enclosed by a chain-link security fence, with a sentry station at the main entrance off the west side of the parade ground, and a secondary sentry station at the entrance to the Exclusion Area. Fenced kennels south of the Exclusion Area sheltered guard dogs. Unlike SF-87, the SF-88 launch site had its own ready room, a concrete building located just outside the Exclusion Area. The buildings in the Limited Area were small, light-green painted concrete and sheet metal buildings, grouped around a large berm. In contrast to the more sheltered SF-87 launch site, the Army planted Monterey pine around the north and west sides of the Limited Area, and on the berm. The only other ornamental features were white-painted sandbags lining the entrance road, and forming a giant "B" for the B Battery on the hillside below the road to the Exclusion Area. A hand-painted welcome sign with the unit designations was at the entrance to site off Bunker Road.[116]

As part of the still active SF-88 launch site at Fort Barry, the SF-88 control site on Wolf Ridge remained operational, with its five white geodesic radar domes still dominating Fort Cronkhite's northern horizon. The site, completed in 1954 and upgraded in 1962, was a barren, windswept hilltop at the end of Bunker Road, known as Hill 88, with panoramic views in all directions. The complex was enclosed by a chain-link security fence, with a sentry station at the entrance. The light-green buildings were built of concrete and sheet metal, and were arranged informally according to the topography. To accommodate the slopes, several of the buildings and structures were supported by concrete retaining walls. At the lower west end of the site, accessed by a long flight of steps, were the ready room and sewage pools.

Fort Cronkhite Cantonment (Drawing 1.12a)

In 1972, the Fort Cronkhite cantonment was approximately half of the formerly symmetrical complex that existed during World War II. The central area retained its original three buildings, and the west wing retained its four rows of one and two-story former barracks, mess halls, and recreation buildings. The east wing had a different character because of it redevelopment in 1965 as the administrative area for Nike site SF-87, which removed twenty-six Series 700 buildings from the middle of the complex. All of the barracks, officer quarters, and other Series 700 buildings remained along Kirkpatrick Street, but those along Mitchell Road had been removed in ca. 1967 a few years after completion of the Nike development.

The Nike administrative area was built on an enlarged terrace along a realigned Stennis Street and was enclosed by a perimeter security fence. In appearance and function, the site was distinct from the old cantonment. The one-story flat-roofed concrete-block buildings followed a standardized Army design that was adapted for the Fort Cronkhite site. Although a landscape planting plan had been completed in 1970, it had not been implemented by 1972, by which time SF-87 had been deactivated. Several shrubs were in front of the Nike buildings, and maturing groves of Monterey cypress, planted in the 1950s, bordered Bunker Road to the south.

Outside of the Nike development, the Fort Cronkhite cantonment remained intact from World War II, aside from filling of the letter trenches between the buildings, repaving of the red macadam roads in black asphalt, extension of the stone wall along Kirkpatrick Street, and change in paint and roof color to white and red. Ornamental picket fences added during the Korean War had been removed with rehabilitation of the cantonment during the 1950s, during which time the flagpole in front of the administration building was also removed.[117] Above the west wing of the cantonment remained traces of the many practice defenses, jeep roads, and a trench or drainage ditch. The Fort Cronkhite parade ground remained intact, despite the development of the surrounding Nike SF-87 launch site.

The more widespread use of automobiles during this period, and use of Rodeo Beach by visitors, led to the addition of several parking areas at Fort Cronkhite, including one on the former 155-mm gun and tractor park at the west end of the cantonment, and others along the south side of Mitchell Road, above the west wing, and in the Nike administration area.

NOTES, CHAPTER 5

1 U.S. Army, "Forts Baker, Barry, Cronkhite & Mendell Area Roads, Contours & Principal Buildings Base Map" (Post Engineer Office, Presidio of San Francisco, September 25, 1952), Golden Gate National Recreation Area Park Archives and Records Center (hereafter, GOGA PARC), D181, F1.

2 Erwin N. Thompson, *Historic Resource Study, Seacoast Fortifications San Francisco Harbor, Golden Gate National Recreation Area* (Denver: National Park Service, Denver Service Center, 1979), 409.

3 Thompson, *Seacoast Fortifications*, 387-408.

4 U.S. Army Harbor Defenses of San Francisco, "Supplement to the Harbor Defenses of San Francisco" (Unpublished Army report, November 1945), exhibit 2-A, National Archives II, RG 77, copy in GOGA PARC, Special Collections.

5 Tetra Tech, Inc., "Draft Records Research Report, Fort Cronkhite Formerly Used Defense Site J09CA3111" (Unpublished report prepared for the U.S. Army Corps of Engineers, August 2007), 3-5; Erwin N. Thompson, *Historic Resource Study, Forts Baker, Barry, Cronkhite, Golden Gate National Recreation Area* (Denver: National Park Service, Denver Service Center, 1979), 105. The 40 millimeter anti-aircraft guns were stored at the Fort Barry balloon hangar and Battery Construction 129.

6 Emanuel Raymond Lewis, *Seacoast Fortifications of the United States: An Introductory History* (Annapolis, Maryland: Naval Institute Press, 1970, reprinted 1993), 124, 126; Thompson, *Seacoast Fortifications*, 409-410.

7 Erwin Thompson, "The Presidio of San Francisco: A History from 1846 to 1995" (Unpublished National Park Service historic resource study, ca. 1995), 7; U.S. Army, Building Information Schedule (1971).

8 Lewis, 124; Erwin N. Thompson, *Historic Resource Study, Forts Baker, Barry, Cronkhite, Golden Gate National Recreation Area* (Denver: National Park Service, Denver Service Center, 1979), 69, 105.

9 Stephen Moeller, "Vigilant and Invincible," cited in John A. Martini and Stephen A. Haller, "What We Have We Shall Defend: An Interim History and Preservation Plan for Nike Site SF-88L, Fort Barry, California"(Unpublished National Park Service report, 1998), 7.

10 U.S. Army, "Master Plan Building Information Schedule, Forts Baker, Barry & Cronkhite" (Unpublished Army report/table, April 1, 1971), GOGA PARC.

11 John A. Martini, "Fort Baker Mine Repair Facility Historic Structure Report, Part IA (Unpublished National Park Service report, ca. 2009), 4, 37; John Martini, comments on second draft report, March 2011.

12 A 1954 aerial of Fort Cronkhite cantonments (GOGA 3156 section 30) shows remnants of the letter trenches still visible in the east wing, apparently just bumps in the mown grass. This same aerial shows little trace of the foxholes in front of Smith–Guthrie.

13 "East Fort Baker List of Outgrant Register (Transferred to GGNRA on 10 March 1986)," entry "Boy Scouts of America, Letter Permit to plant trees, September 1965," GOGA archives, courtesy of John Martini; Building Information Schedule (1971), entry for Building 1077. No documentation was found on when or where the Boy Scouts first planted trees in the headlands, or when they started using Building 1077. Additional research is needed to fully document the post-World War II tree planting and the association with the Boy Scouts.

14 Large Monterey cypress trees at Battery Wallace, February 20, 1956 photograph, GOGA 22018-015; Aerial photographs of the headlands showing growth of evergreen trees on battery parapets, 1946, 1951, 1954, 1964, 1972; U.S. Army, "Fort Cronkhite General Tree Cover Map" (identifying Monterey cypress on Battery Townsley, at the Townsley reserve magazine, and in the cantonment), May 1, 1971, GOGA 2372; Recollection of GOGA employee (unidentified), about Sgt. Al Angelo leading a Boy Scout tree-planting program in the 1960s that included conifers near Alexander Avenue, e-mail, John Martini to John Auwaerter, January 26, 2012.

15 Quoted in Ted Williams, "Don't Worry, Plant a Tree," *Audubon,* May 1991, cited in Pete Holloran, "The Presidio Forest, Historical Essay," http://foundsf.org/index.php?title=The_Presidio_Forest (accessed June 20, 2014). The source does not provide the date of Ansel Adams' quote.

16 Thompson, "The Presidio of San Francisco," 12.

17 Joe C. Freeman, Stephen A. Haller, David M. Hansen, John A. Martini, and Karen J. Weitze, "Seacoast Fortifications Preservation Manual" (Unpublished report, National Park Service and KEA Environment, July 1999), 10, 40.

18 Martini and Haller, 67.

19 U.S. Army, "Position No. 81 A Battery—740th AAA Gun Bn., Fort Barry, Calif." (plan), 1953, GOGA PARC, D276 F2; 1954 photograph, GOGA 22018-015; Martini and Haller, 67; John Martini, e-mail to John Auwaerter, November 30, 2010. The "81" designation was derived from 100-degree compass circle bearings.

20 L. Guidry map of Lower Wolf Ridge, July 1993, Coast Defense Study Group; Martini and Haller, 7; Martini to Auwaerter, November 3, 2010. The "10" designation was most likely based on the original AA gun site numbering system developed during the Korean War, not by the later compass bearing designation used for Position No. 81. A photograph by Harold Thies dating to 1951-52 shows an additional gun emplacement on Wolf Ridge with free-standing concrete sandbag walls surrounding a four-rifle machine gun, a M-55 quad .50 machine gun that was emplaced at AAA Position #10, also the former location of AA #1.

21 "Seacoast Fortifications Preservation Manual," 41, 90; Martini and Haller, 17.

22 John Martini, e-mail to John Auwaerter citing berhowma@comcast.net, December 3, 2010; Martini and Haller, 92; photograph of SC-87C showing ABAR installed in 1961 and MTR apparently being outfitted for a cover.

23 Martini and Haller, 92.

24 "Seacoast Fortifications Preservation Manual," 41.

25 "Seacoast Fortifications Preservation Manual," 41.

26 "Seacoast Fortifications Preservation Manual," 90; Martini and Haller, 72.

27 Martini and Haller, 70-72, 74.

28 Martini and Haller, 70; U. S. Army Corps of Engineers, "Barry & Cronkhite Nike Land Area Requirements," January 20, 1954, GOGA PARC, D181 F1; inspection by authors of existing remnants on Slacker Hill, 2009.

29 Building Information Schedule (1971); photographs GOGA 40036.02, 40036.003. The initial development of SF-87L is also surmised in part from the development of SF-88L at Fort Barry documented in Martini and Haller, "What We Have We Shall Defend."

30 Photograph of the ready room looking northwest, ca. 1962. Private collection of Paul Petosky.

31 Building Information Schedule (1971); aerial photograph of SF-87C looking northeast, October 2, 1959, GOGA 2427; Paul Petosky, photograph looking northwest from SF-87C showing young Monterey cypress on the slopes below the site, ca. 1962. These trees appear to be less than ten years old, suggesting they began to grow during the initial development of SF-87C. It is not known whether they were planted or self-seeded.

32 Building Information Schedule (1971); John Martini, e-mail to John Auwaerter, December 2, 2010; photograph of SC-87C, ca. 1961, GOGA 588954.

33 U.S. Army Corps of Engineers, "Fort Cronkhite Topography, Vicinity of Wolf Ridge," February 20, 1954, GOGA PARC, D218 F1.

34 Martini and Haller, 70; current aerial photograph showing square revetment at north end of Group 1.

35 Martini and Haller, 73-75.

36 Photograph of SF-87C showing the three radar units and graded area, 1959, GOGA 18442.

37 U.S. Army, "General Site Map...Fort Cronkhite," July 1970, GOGA PARC, D191 F1; Building Information Schedule (1971); 1959 photograph, GOGA 2637.

38 Martini and Haller, 78-80; Building Information Schedule (1971); John Martini, comments on second draft report, March 2011.

39 Martini and Haller, 78-79; Building Information Schedule (1971).

40 U.S. Army, Harbor Defenses of San Francisco, "Conversion of Barracks to Family Type Housing," May 14, 1946, GOGA PARC D181 F1; Kristin L. Baron and John A. Martini *Fort Baker Through the Years: The Post, the Park, the Lodge* (Bodega Bay, California: Hole in the Head Press, 2011), 72.

41 Photographs of the Baker main post showing white paint scheme and asphalt shingle roofs, 1962, Paul Judge Collection; Photograph of the Barry post hospital showing white color scheme and asphalt single roof, 1956, GOGA 22018; Fort Cronkhite cantonment showing tar paper roofs, 1952, Bill Fine Collection, GOGA PARC.

42 Building Information Schedule (1971), buildings 819, 1081; photo of Mendell tower, GOGA 40033.

43 Thompson, "The Presidio of San Francisco," chapter XXI, page 7; Cathedrals of California, http://www.cathedralsofcalifornia.com/?tag=angus-mcsweeney (accessed December 7, 2010); Pacific Coast Architecture Database, s.V. Angus M. McSweeney, https://digital.lib.washington.edu/architect/architects/3726/ (accessed December 7, 2010).

44 Advisory Council on Historic Preservation, "Historic Context for Capehart Wherry Housing," updated May 26, 2010, http://www.achp.gov/army-capehartwherry.html (accessed December 7, 2010).

45 Tetra Tech, Inc., "Draft Records Research Report, Fort Barry Formerly Used Defense Site," 2-5.

46 William A. Mann, *Landscape Architecture: An Illustrated History in Timelines, Site Plans, and Biography* (New York: John Wiley and Sons, 1993), 359-360. Theodore Osmundson received his BS in Landscape Architecture from the Iowa State University at Ames in 1943.

47 Osmundson & Staley and Angus McSweeney, Inc., "Fort Barry 63 Capehart Housing Units Landscape Plan," May 15, 1958, GOGA PARC D212 F1. It is not known whether Osmundson & Staley worked with McSweeney on the site plans. The park archives copy of the Osmundson plan for the Fort Barry complex is heavily edited and does not clearly show the arrangement of trees. The list of trees is crossed out and marked deleted. No Osmundson plan for the Fort Baker complex was located.

48 Spector & Montgomery, plan of Mess Hall at Nike Missile Base SL-40 (Monroe County, Illinois), December 10, 1954, Historic American Engineering Record IL-117-G, Library of Congress American Memory Collection.

49 "Records of Helen D. and Prentiss French, 1932-1978," Biographical Notes, 3, University of California, Berkeley, Environmental Design Archives, Online Archive of California, http://www.oac.cdlib.org/data/13030/vf/tf8489n9vf/files/tf8489n9vf.pdf (accessed December 10, 2010). Prentiss French received his Master's in Landscape Architecture from Harvard in 1921.

50 Martini, "Fort Baker Marine Repair Facility Historic Structure Report, Part IA, 37-38.

51 U.S. Army, "Fort Baker Master Plan…General Road Map" (December 22, 1952), GOGA D201 F2; Barbara Judy, et al, "Cultural Landscape Report for Fort Baker" (Unpublished National Park Service report, July 2005), 37.

52 "Cultural Landscape Report for Fort Baker," 37-38; U.S. Army Installation Planning Board, Presidio of San Francisco, "Master Plan, Site Location Plan, Proposed 54 Unit Title VIII (Capehart) Housing Project," June 20, 1958, GOGA D198 F1. This plan shows removal of the bridge construction pier near the Mine Depot.

53 Building Information Schedule (1971); "Cultural Landscape Report for Fort Baker," 39.

54 "Master Plan, Site Location Plan, Proposed 54 Unit Title VIII (Capehart) Housing Project," June 20, 1958, GOGA PARC D198 F1. The proposed MCA housing was not part of the Capehart program, but rather built directly by the Army.

55 Angus McSweeney, Inc., "Fort Baker 35 Capehart Housing Units…Elevations & Sections," May 15, 1958 with annotation of as-built changes made, October 15, 1959, GOGA PARC D198 F4; U.S. Army, Post Engineer Office, "Fort Baker…Capehart Housing Landscape Plan Tree Plantings," March 1, 1961, GOGA PARC D198 F2.

56 Photograph of the Fort Baker main post looking north showing timber bulkhead under construction along the eastern part of the hospital shoreline, ca. 1955-1959 (photograph courtesy of John Martini).

57 Building Information Schedule (1971); U.S. Army, "Fort Barry...Master Plan...General Site Map," May 1, 1966, GOGA PARC D190 F2, and Ibid., July 1970, GOGA PARC D191 F1.

58 National Park Service, "Cultural Landscape Inventory, Fort Baker" (Unpublished report, 2004), 24. The 1971 Building Information Schedule has the incorrect date of 1930 for the boat load ramp (634).

59 U.S. Army, "Reservation Map of Forts Baker and Barry Cal.," 1912, GOGA D181 F1. This map shows two cable landings in the area, one a commercial cable, the other a government cable.

60 Martini, "Fort Baker Marine Repair Facility Historic Structure Report, Part IA, 38-39.

61 Building Information Schedule (1971); Fort Barry master plans, 1966, 1970.

62 Building Information Schedule (1971); Fort Barry master plans, 1966, 1970.

63 Aerial photograph, 1951, GOGA 3156; Aerial photograph, 1954, GOGA 3156, Section 24.

64 No trees are visible in a 1938 aerial photograph of the CCC camp, but are visible in a 1946 aerial.

65 U.S. Army Post Engineer Office, "Fort Baker & Barry…Capehart Housing Landscape Plan Tree Plantings," March 1, 1961, GOGA PARC D216 F3; inspection of existing conditions by author. Trees were planted in the Capehart complex, but it is not known if the 1961 plan was executed as shown.

66 Photograph of SF-88A administration building with entrance canopies and foundation plantings, August 1962, GOGA 18487; Photograph of SF-88A showing parking lot, 1961, GOGA 40033; Building Information Schedule (1971), Building 998 (multi-use court).

67 Based on plans for SF-87A at Fort Cronkhite by Earl and Wright, Inc., 27 January 1964, GOGA PARC, D247 F1.

68 Photograph of S-88A, June 1968, GOGA 1766; California Coastal Records Project, image 7216010, 1972. This image does not show the additional plantings that exist today. No planting plan for SF-88A was found, but is presumed based on one prepared for SF-87A in 1970, GOGA PARC D246 F2.

69 Dan Archibald, Adam Smith, Sunny Adams, and Manroop Chawla, *Military Training Lands Historic Context: Small Arms Ranges* (Arlington, Virginia: Department of Defense Legacy Program, March 2010), 86. It is not known if the Fort Barry 1,000-inch range featured miniature targets.

70 "Conversion of Barracks to Family Type Housing," May 14, 1946; photograph of Fort Cronkhite showing fences in east wing, April 1955, GOGA 2401.

71 Building Information Schedule (1971), buildings 1033-1071, 1971.

72 Building Information Schedule (1971), building 1078.

73 Paul Petosky photograph of Rodeo Beach area, 1962.

74 U.S. Army Corps of Engineer, "SF-87 Fort Cronkhite…Battery Facilities Landscape Plan," January 27, 1964, with as-built revisions to November 30, 1965, GOGA PARC D218 F1.

75 U.S. Army, "Fort Cronkhite…Maintenance & Repair (Troop Facilities) Site Plan (Utilities), January 6, 1967, GOGA PARC D218 F1. This plan shows the row of Series 700 buildings along Mitchell Road scheduled for demolition.

76 "SF-87 Fort Cronkhite…Battery Facilities Landscape Plan," January 27, 1964.

77 Prentiss French and U.S. Army Corps of Engineers, "Air Defense Missile Site SF-87…Master Plan, Future Development Plans, Planting Plan," March 1970, GOGA D246, F2; Photograph of Fort Cronkhite, Coastal California Record Project, image 721606, 1972. This image does not show the 1970 Prentiss French plantings.

78 Photograph of collapsed land bridge and temporary wood bridge, ca. 1953, GOGA 18498.017; photograph of bridge under construction, GOGA 2316, ca. 1954; "Point Bonita Historic District Cultural Landscape Inventory" (Unpublished National Park Service report, 2005), Part 2B, page 5.

79 U.S. Coast Guard, "Station Point Bonita, California, Coast Guard Station #311," www.uscg.mil/history/stations/POINTBONITA.pdf (accessed October 25, 2010); Ralph Shanks, *Guardians of the Golden Gate* (Petaluma, California: Costaño Books, 1990), 92. The Coast Guard boathouse, and lighthouse wharf and storehouse are visible in a 1954 aerial of Fort Barry, GOGA 3156, section 30.

80 Shanks, 92.

81 U.S. Coast Guard, "Family Quarters 3 & 4 Bedroom Site Plan," May 25, 1961, GOGA PARC War Room Drawings, Point Bonita Coast Guard Collection; ca. 1961 photograph of former Life-Saving Station, GOGA 18498.016.

82 U.S. Coast Guard, "Point Bonita Light Station Plot Plan Topography-Boundaries," December 18, 1962, GOGA PARC War Room Drawings, Point Bonita-Coast Guard; California Coastal Records Project, image 7216011, 1972.

83 An outgrant is a general term for an agreement that allows an entity to make use of government property through permit, license, easement, or rental.

84 Table, "Fort Cronkhite Land Recap, 22 March 1971," GOGA PARC; U.S. Army, "Forts Baker, Barry, Cronkhite & Mendell Area Roads, Contours & Principal Buildings Base Map," updated to September 25, 1952, GOGA D181 F1. This plan shows the north boundary of Fort Cronkhite along Wolf Ridge, indicating transfer of the northern part of the reservation to the Navy.

85 Building Information Schedule (1971); John Martini, "Fort Scott Coastal Trail Cultural Resource Report" (Unpublished report prepared for the National Park Service, February 2009), 56; U.S. Coast Guard, "Point Bonita Light Station Plot Plan Topography-Boundaries," December 18, 1962, GOGA PARC War Room Drawings, Pt. Bonita-Coast Guard.

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88 John Martini, comments on second draft report, March 2011 regarding remnants of Coast Guard radio equipment; Fort Cronkhite Draft Records Research Report, 2-4; U.S. Army, "Fort Cronkhite…Master Plan…General Site Map," March 1, 1964, GOGA PARC, D190 F2; Memorandum, Commandant to Commander 12 Coast Guard District, August 30, 1965, Army Records Collection, EMR box 8, folder B8 F6, GOGA 35338; Fort Cronkhite land records, GOGA PARC; U.S. Army, "Fort Cronkhite…Master Plan…General Site Map, U.S. Coast Guard Primary Radio Receiver Station," December 1, 1965, GOGA PARC D218 F1. This map does not show any new permanent Coast Guard buildings or structures at the receiver station.

89 Fort Cronkhite Draft Records Research Report, 2-4; Darcie Luce, "An Incomplete Dairy Ranching History and Outline of Land Use in the Marin Headlands" (Unpublished report prepared for the National Park Service, 1993), 6, GOGA PARC, file 6468 F-1; Wikipedia, s.V., "Dean Witter Reynolds;" National Park Service, Golden Gate National Recreation Area Land Status Map, Segment 2, May 2002.

90 "About Us," Sausalito-Marin City Sanitary District website, www.sausalitomarincitysanitarydistrict.com (accessed October 22, 2009); U.S. Census, "Population of Counties by Decennial Census, 1900 to 1990," http://www.census.gov/population/cencounts/ca190090.txt (accessed December 22, 2010); U.S. Army, "Fort Baker Master Plan…General Road Map," 1952, GOGA PARC D201 F2.

91 "Master Plan…Subinstallations Map, Real Property Utilization" April 24, 1970, GOGA PARC D181 F2; Tetra Tech, Inc., "Draft Records Research Report, Fort Barry Formerly Used Defense Site J09CA3107" (Unpublished report prepared for the U.S. Army Corps of Engineers, August 2007), 5-64; U.S. Army, "Fort Barry…Master Plan, General Site Map," May 1, 1966, GOGA PARC, D190 F2, 71708; U.S. Army, "Fort Cronkhite…Master Plan…General Site Map, Army EOD Units-URS Corp," July 1970, GOGA PARC, D 218 F1, 72392; John Martini, comments on second draft report, March 2011.

92 Martini, "Fort Baker Marine Repair Facility Historic Structure Report, Part IA," 41.

93 "Fort Barry Balloon Hangar and Motor Vehicles Sheds Abbreviated Historic Structures Report" (Unpublished National Park Service report, ca. 2005), 12; Building Information Schedule (1971), buildings 900, 901.

94 Memorandum for the Record, Office of the Post Engineer, Presidio of San Francisco, "Subject: Utilization of Forts Baker, Barry and Cronkhite for National Cemetery," October 18, 1965, Army Records Collection EMR Box 11, GOGA 35338.

95 California State Parks, "A State Park System is Born," www.parks.ca.gov (accessed December 14, 2010); National Park Service, Stinson Beach park brochure, November 2005.

96 California State Senate Resolution No. 48, April 20, 1964, in "Marin Headlands State Park Expansion Study" (Unpublished report, May 1965), front matter, GOGA PARC GGNRA Pubs. Collection.

97 Marin Headlands State Park Expansion Study, 1.

98 Fort Cronkhite Draft Records Research Report, 2-4; U.S. Army, "Forts Baker, Barry & Cronkhite…Master Plan," 1972, GOGA PARC, D181 F2 37060; California State Department of Parks and Recreation, "Marin Headlands State Park Ownership Map," 1968, GOGA PARC D181 F2, 71522. The Fort Cronkhite FUDS report states that the Army conveyed the 161-acre tract to the state, indicating the property reverted from Navy to Army jurisdiction. It is not known whether the state maintained Dean Witter's license. Witter died in 1969.

99 "Marin Headlands State Park Ownership Map," 1968; John Martini, comments on second draft report, March 2011.

100 Hal K. Rothman, "The Park that Makes its own Weather: An Administrative History of Golden Gate National Recreation Area" (Unpublished National Park Service report, revised 2002), 20-21; National Park Service, collection description, Katharine S. Frankforter Papers & HEADLANDS, INC. Records, GOGA PARC, collection GOGA 27066.

101 Fred L. Jones, Director, Department of Parks and Recreation, to Honorable Jesse M. Unruh, Speaker of the Assembly, May 10, 1965, in Marin Headlands State Park Expansion Study, front matter.

102 “Marin Headlands State Park Ownership Map,” 1968; Marin Headlands State Park Expansion Study, 4. The Army declared 577 acres in ca. 1965; the Coast Guard requested 257 acres of this on Wolf Ridge, and the state requested the remainder along the Golden Gate.

103 John Martini, “Preliminary Cultural Landscape Report, Kirby Cove, Marin Headlands” (Unpublished report prepared for the National Park Service, September 2010), 28.

104 Martini, “Preliminary Cultural Landscape Report, Kirby Cove,” 26-27.

105 Building Information Schedule (1971); California Coastal Records Project, 1972 photograph of Lime Point Ridge, image 7216031. Battery Spencer does not appear in this photo to have any improvements for public access, such as a fence along the drop-off in front of the gun platforms, and there are no cars parked along Conzelman Road.

106 Martini, “Preliminary Cultural Landscape Report, Kirby Cove,” 26-28.

107 A 1954 aerial photograph, GOGA PARC 3156, Section 21, shows the valley floor covered in shrubby growth and possibly some volunteer conifers; California Coastal Record photograph, 1972, image 7216029, shows no trees on the valley floor.

108 No improvements at Tennessee Valley are visible in a 1972 USGS aerial photograph and 1972 California Coastal Records Project photograph except for Tennessee Lagoon created in ca. 1957.

109 Draft Records Research Report, Fort Cronkhite, page 3-9.

110 1972 California Coastal Records Project photograph.

111 Fort Baker CLR, 85.

112 U.S. Army, “Fort Baker...Master Plan...General Site Map,” 1972, D194 F2.

113 John Martini, comments on second draft report, March 2011.

114 U.S. Army, Fort Barry master plan, 1970. This map indicates unpaved roads by dashed lines.

115 John Martini, comments on second draft report, March 2011.

116 John Martini, comments on second draft report, March 2011.

117 The fences and flagstaff are visible in a ca. 1953 photo (collection of Stanley Brown), but not in an aerial taken in 1964 (GOGA 72390).

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Marin County, California

Fort Baker
1945–1972 Period Plan

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SUNY College of Environmental
Science and Forestry, www.esf.edu/la/

SOURCES

1. NPS, Marin County GIS data
2. US Army, HDSF locations map, November 1945
3. US Army, Fort Baker general site plans, 1952, 1966, 1972
4. Aerial photographs, 1946, 1951, 1954, 1972

DRAWN BY

John Auwaerter, Laura Roberts, Illustrator CS5, 2011

LEGEND

- Property, reservation boundary
- Building
- Structure, substructure
- Wall
- Road
- Trail
- Post-Civil War-era battery
- Endicott-era battery
- Temporary gun emplacement
- Earth parapet of defensive work
- Water tank, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream
- Wetland
- Rock cliffs
- Edge of cut or quarry
- Beach
- 50′ contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1972.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Plan does not show overhead or underground utility lines, or all trails, jeep roads, and antiaircraft gun emplacements..
5. White mask indicates limits of Fort Baker study area.

Drawing 1.10

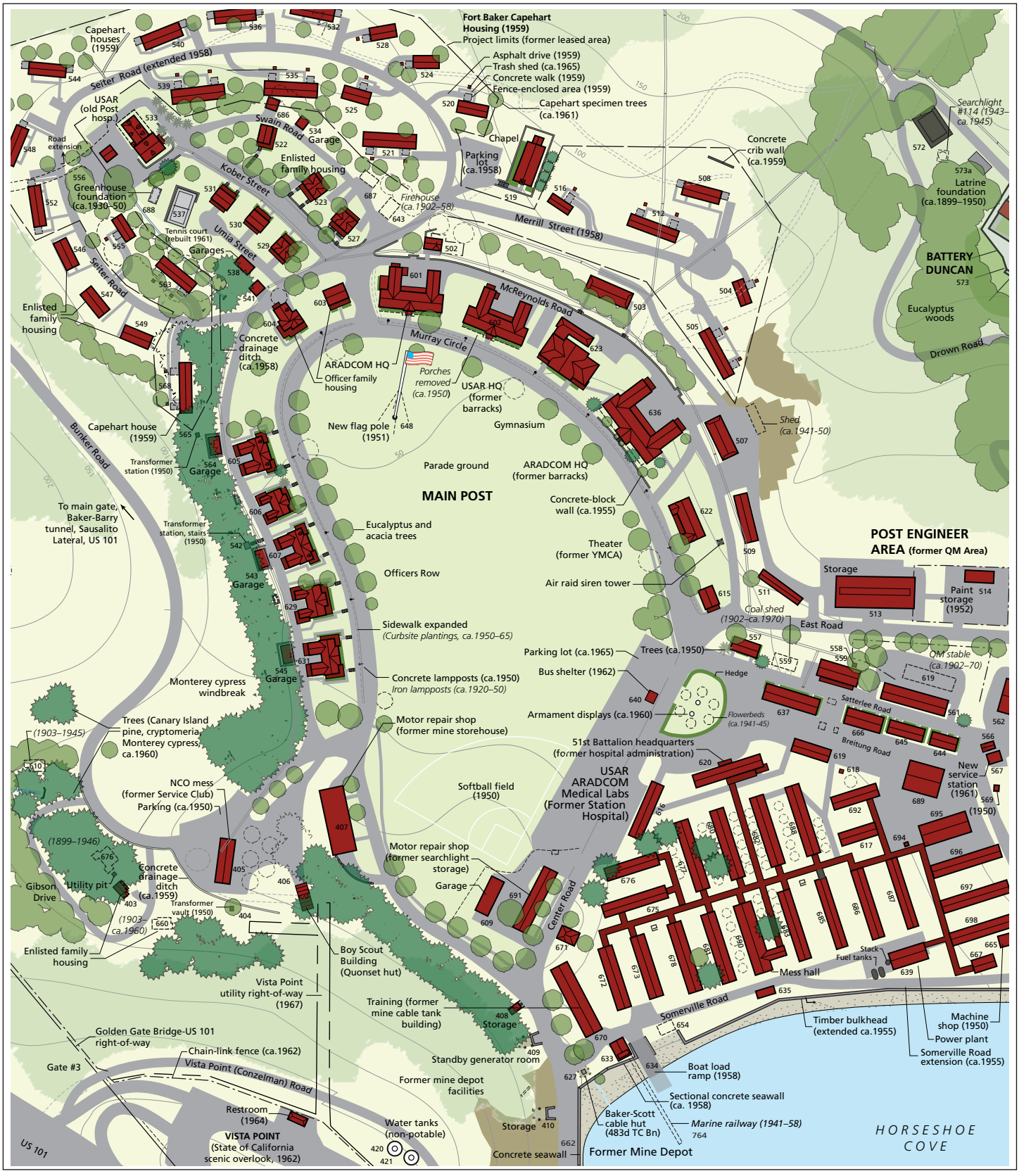
Period Abbreviations

F	Fort command station	AW	Automatic weapon
G	Group command station	AMTB	Anti-motor torpedo boat
BC	Battery commander's station	40 MM	40 millimeter AA gun
B	Battery station	.50	.50 caliber AA gun
CRF	Coincidence range finder sta.	TC Bn	Transportation command battalion
PSR	Plotting, spotting, radio	USAR	US Army Reserve
HQ	Headquarters	ARADCOM	US Army Air Defense Command
NCO	Non-commissioned officer	PT&T	Pacific Telephone & Telegraph
Xfmr	Transformer		
AA	Anti-aircraft		

Numbers after station abbreviations indicate primary (1), secondary (2) and supplementary (3 and higher) stations. All harbor defenses disarmed in 1972.

Building Key: See Appendix A (Fort Baker)
Building numbers reflect latest Army/NPS designation

0′ 400′ 800′ 1,600′



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Illustrator CS 5, 2011

NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1972.
3. Plan does not show all small-scale features.
4. See drawing 1.10 for sources and other notes.

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LEGEND

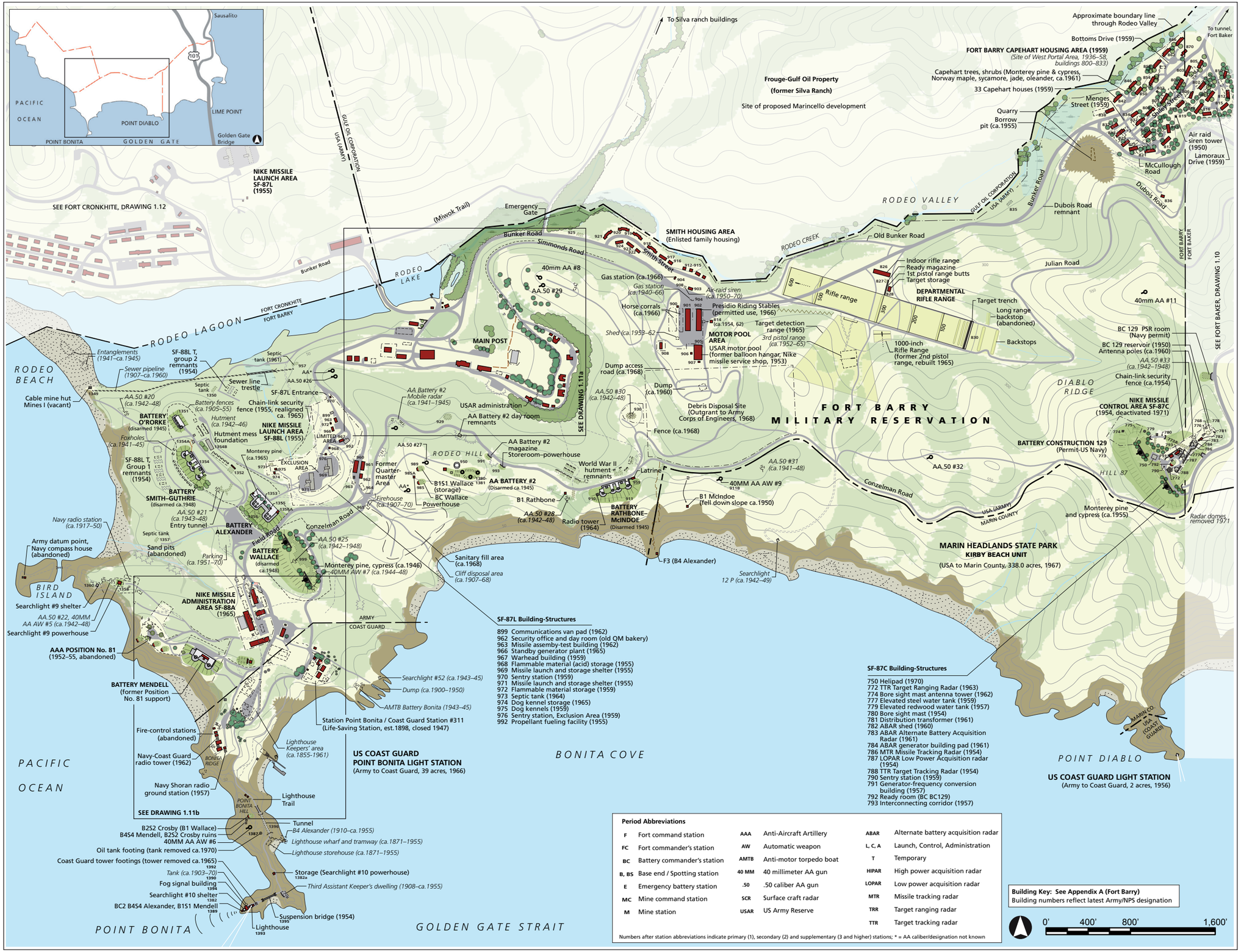
- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Lamppost
- Power line
- Lawn
- Grassland or bare earth
- Deciduous, conifer, palm tree
- Shrub, planted bed
- Woods, shrub cover
- Stream
- Rock cliffs
- Beach
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Baker Main Post
1945–1972 Period Plan Detail

0′ 100′ 300′

Drawing 1.10a



Cultural Landscape Report Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Marin County, California

Fort Barry 1945–1972 Period Plan

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SOURCES

1. NPS, Marin County GIS data
2. US Army, HDSF locations map, November 1945
3. US Army, Fort Barry General Site Map, 1966, 1970
4. US Coast Guard, Point Bonita Light Station Plot Plan, 1966
5. Aerial photographs, 1946, 1951, 1954, 1962, 1972

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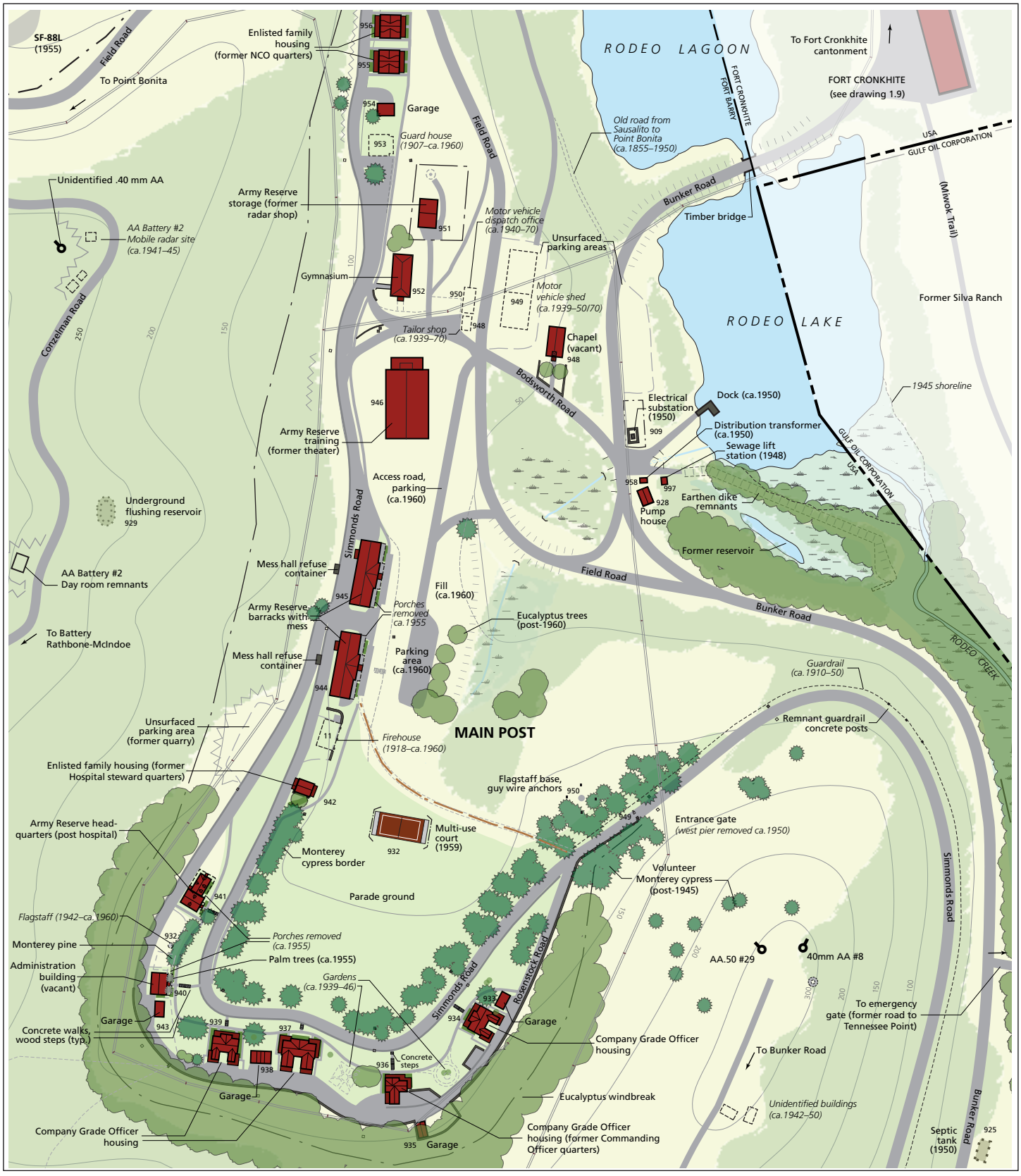
LEGEND

- Property, reservation boundary
- Building
- Structure, substructure
- Wall
- Road, trail
- Endicott-era battery
- WWII-era casemated battery
- Earth parapet of defensive work
- WWII-era defensive positions (foxholes, trenches)
- Temporary gun emplacement, machine gun pit
- Water tank / cistern, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream, spring or well
- Wetland
- Rock cliffs
- Edge of cut or quarry
- Beach
- 50' contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1972.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Plan does not show above- or below-ground utility lines, or all trails, minor jeep roads, field defenses, and antiaircraft gun emplacements.
5. White mask indicates limits of Fort Barry study area.

Drawing 1.11



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Illustrator CS 5, 2011

NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1972.
3. Plan does not show all small-scale features.
4. See drawing 1.11 for sources and other notes.

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LEGEND

- Property, reservation line
- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Drain inlet, outlet
- Power line
- Lawn
- Grassland or bare earth
- Deciduous, conifer, palm tree
- Shrub, planted bed
- Woods, shrub cover
- Stream, wetland
- Cut, fill
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Barry Main Post
1945–1972 Period Plan Detail

0′ 100′ 300′

Drawing 1.11a



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Illustrator CS 5, 2011

NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1972.
3. Plan does not show all small-scale features.
4. See drawing 1.11 for sources and other notes.

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LEGEND

- Building
- Structure, substructure
- Road
- Trail, walk, stairs
- Fence
- Earth parapet of defensive work
- Lawn
- Grassland or bare earth
- Conifer tree
- Stream
- Rock cliffs
- Beach
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Bonita Ridge Area
1945–1972 Period Plan Detail

0′ 100′ 300′

Drawing 1.11b

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Cronkhite
1945–1972 Period Plan

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SOURCES

1. NPS, Marin County GIS data
2. US Army, HDSF locations map, November 1945
3. US Army, Fort Cronkhite general site plans, 1966, 1970
4. NPS, GGNRA land status map, 2002
5. Aerial photographs, 1946, 1954, 1962, 1972

DRAWN BY

John Auwaerter, Laura Roberts, Illustrator CS5, 2011

LEGEND

- Property, jurisdiction boundary
- Building
- Structure, substructure
- Wall, concrete or asphalt slab
- Road, trail
- WWII-era casemated battery
- WWII-era defensive positions (foxholes, trenches)
- Temporary gun emplacement, machine gun pit
- Earth parapet of defensive work
- Water tank, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream
- Wetland
- Rock cliffs, edge of cut or quarry
- Beach
- 50' contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 1972.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Plan does not show above- or below-ground utility lines, or all trails, minor jeep roads, field defenses, and antiaircraft gun emplacements.
5. White mask indicates limits of Fort Cronkhite study area.

Drawing 1.12

SF-88C Building-Structure Key

1162 Sewage lagoon (1959)
1163 Sewage lagoon (1959)
1169 Helipad (1961)
1173 Water tanks (1959)
1178 Helipad (1961)
1179 Sentry station (1959)
1180 HIPAR building (1962); original site of TTR (1954)
1181 Concrete pad (1959)
1182 Concrete pad (1957); original site of LOPAR
1183 Interconnecting corridor with BC and RC Van pads (1957)
1184 Day Room (Olympic Golf Club) (1961)
1185 Standby generator building (1957)
1186 Ready room (1955)
1187 HIPAR High Power Acquisition Radar (1962)
1190 FUIF Fire Unit Integration Facilty pad (1961)
1193 Bore site mast (1962)
1194 TRR Target Ranging Radar (1962)
1195 LOPAR Low Power Acquisition Radar (1962)
1196 MTR Missile Tracking Radar (1954, rebuilt 1962)
1197 TTR Target Tracking Radar (1962)

Period Abbreviations

F	Fort command station	AA	Anti-Aircraft	L, C, A	Launch, Control, Administration
FC	Fort commander's station	AAA	Anti-Aircraft Artillery	T	Temporary
BC	Battery commander's station	AW	Automatic weapon	HIPAR	High power acquisition radar
B, BS	Base end / Spotting station	AMTB	Anti-motor torpedo boat	LOPAR	Low power acquisition radar
E	Emergency battery station	40 MM	40 millimeter AA gun	MTR	Missile tracking radar
MC	Mine command station	.50	.50 caliber AA gun	TRR	Target ranging radar
M	Mine station	SCR	Surface craft radar	TTR	Target tracking radar
PSR	Plotting, Spotting, Radio				

Numbers after station abbreviations indicate primary (1), secondary (2) and supplementary (3 and higher) stations.
* = Designation or caliber of gun emplacement not known

Building Key: See Appendix A (Fort Cronkhite)
Building numbers reflect latest Army/NPS designation

SEE FORT BARRY, DRAWING 1.11
SEE DRAWING 1.12b



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Illustrator CS 5, 2011

NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 1972.
3. Plan does not show all small-scale features.
4. See drawing 1.12 for sources and other notes.

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LEGEND

- Reservation line
- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Power line
- WWII defensive position
- Lawn
- Grassland or bare earth
- Conifer tree
- Woods, shrub cover
- Stream
- Cut, fill
- Beach
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Cronkhite Cantonment 1945–1972 Period Plan Detail

0′ 100′ 300′

Drawing 1.12a

6. Transition to a National Park, 1972–Present

After more than a century at the headlands and three decades of dwindling use, the U.S. Army transferred its jurisdiction over most of Forts Baker, Barry, and Cronkhite to the National Park Service following the establishment of Golden Gate National Recreation Area in 1972. The establishment of the new national park marked the beginning of a transition to public parkland that would continue for decades. This process influenced the boundaries of the park's management units at the headlands. The first lands to be transferred to Golden Gate National Recreation Area west of US 101 became the Marin Headlands unit of the park. This unit was later expanded to include former dairy ranches north of the military reservations. The area east of US 101, transferred more than two decades later, became the Fort Baker unit of the park.

While the park designation preserved federal presence at the Golden Gate, the shift from military to civilian jurisdiction marked the continuing change in use and public accessibility that had begun with establishment of Marin Headlands State Park a decade earlier. Although the national park was a new entity, it represented the culmination of informal recreational use at the headlands that traced back to the late nineteenth century and the beginnings of suburban growth at Sausalito and Mill Valley.

ESTABLISHMENT OF GOLDEN GATE NATIONAL RECREATION AREA

Signed into law by President Nixon on October 27, 1972, Golden Gate National Recreation Area and Gateway National Recreation Area in New York City were the first such urban parks in the National Park System.[1] The San Francisco recreation area was realized through public support and political connections in response to development pressures, military downsizing, and plans to expand the National Park System. There had been little federal involvement in Bay Area conservation following the declaration of Muir Woods National Monument in 1908 until establishment of Point Reyes National Seashore in 1962 and Fort Point National Historic Site in 1970. These expanding federal initiatives spurred long-standing interest in protection of the military's extensive open space and scenic lands along the Golden Gate. Facing potential development epitomized by the Marincello new town and other projects proposed for Alcatraz and Fort Miley, local residents created People for a Golden Gate National Recreation Area. This grassroots organization led by Edgar Washburn and Amy Meyer pushed for desig-

nation of former military lands and other property as public parks. They worked with the powerful Congressman Phillip Burton to achieve park designation at the federal level.[2]

Unlike a national park or national historic site, designation of national recreation areas, as defined in a 1963 Executive Branch policy, was intended to primarily address the need for outdoor recreation near urban areas, on lands with above-ordinary "natural endowment" and with scenic and historic elements of "lesser significance."[3] In keeping with the broader mission of the National Park Service, the enabling legislation for Golden Gate National Recreation Area called for balancing conservation and historic preservation with outdoor recreation:

> In order to preserve for public use and enjoyment certain areas of Marin and San Francisco Counties, California, possessing outstanding natural, historic, scenic, and recreational values, and in order to provide for the maintenance of needed recreational open space necessary to urban environment and planning, the Golden Gate National Recreation Area. . .is hereby established. In the management of the recreation area, the Secretary of the Interior. . .shall utilize the resources in a manner which will provide for recreation and educational opportunities consistent with sound principles of land use planning and management. In carrying out the provisions of this subchapter, the Secretary shall preserve the recreation area, as far as possible, in its natural setting, and protect it from development and uses which would destroy the scenic beauty and natural character of the area.[4]

The initial park boundary encompassed over 34,000 acres of surplus military lands, state land, and private property in San Francisco and Marin counties, along the Golden Gate and twenty-two miles of Pacific Coast north to Point Reyes National Seashore.[5] The Golden Gate shoreline of San Francisco and the Marin Headlands became the signature landscape for the park (fig. 6.1). However, not all of this landscape was actually within the park. At the headlands, approximately half of the military reservations as they existed in 1945 were within the designated park boundary, encompassing the Army's remaining property at Fort Barry and Fort Cronkhite, and the part of Fort Baker west of US 101, amounting to 1,160.48 acres (fig. 6.2).[6] Lands previously transferred to the Coast Guard and State of California (Marin County) were not transferred to National Park Service jurisdiction, nor was the eastern part of Fort Baker including the main post. This remained under Army ownership, although the park was granted access to Horseshoe Cove. The 1972 park legislation included provisions for the Army to continue use of certain areas within the park boundaries, and

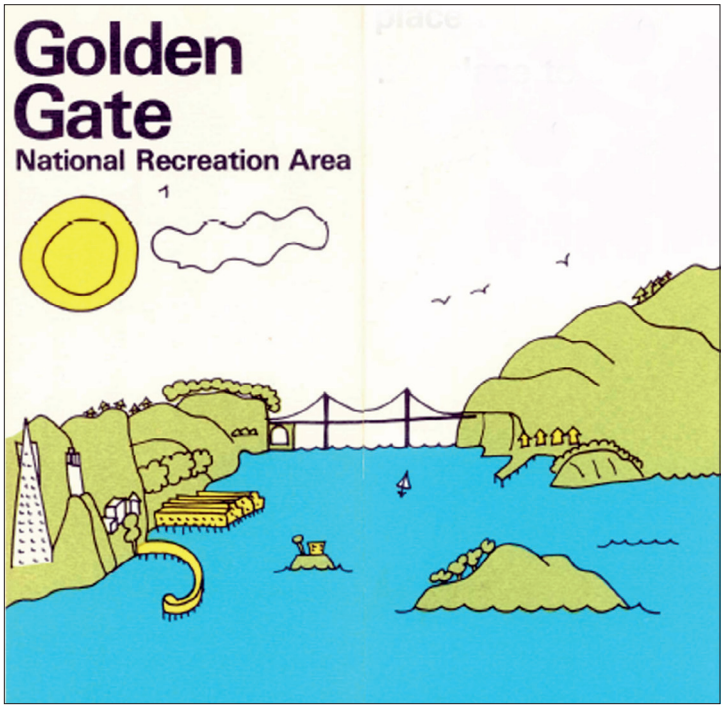


Figure 6.1. Cover of an early park brochure for Golden Gate National Recreation Area, ca. 1974. The drawing is looking west through the Golden Gate with the Marin Headlands and Fort Baker at right. (National Park Service, E-History Library)

allowed for future transfer of federal Army and Coast Guard property not included within the park boundaries:

> Fort Cronkhite, Fort Barry, and the westerly one-half of Fort Baker… are hereby transferred to the jurisdiction of the Secretary for purposes of this subchapter, subject to continued use and occupancy by the Secretary of the Army of those lands needed for existing air defense missions, reserve activities and family housing, until he determines that such requirements no longer exist.
>
> The Coast Guard Radio Receiver Station [227 acres on Wolf Ridge at Fort Cronkhite], shall remain under the jurisdiction of the Secretary of the Department in which the Coast Guard is operating. When this station is determined to be excess to the needs of the Coast Guard, it shall be transferred to the jurisdiction of the Secretary [of the Interior]...
>
> The easterly one-half of Fort Baker…shall remain under the jurisdiction of the Department of the Army. When this property is determined by the Department of Defense to be excess to its needs, it shall be transferred to the jurisdiction of the Secretary [of the Interior]...The Secretary of the Army shall grant to the Secretary reasonable public access through such property to Horseshoe Bay, together with the right to construct and maintain such public service facilities as are necessary...
>
> Point Bonita, Point Diablo…and Lime Point shall remain under the jurisdiction of the Secretary of the Department in which the Coast Guard is operating. When

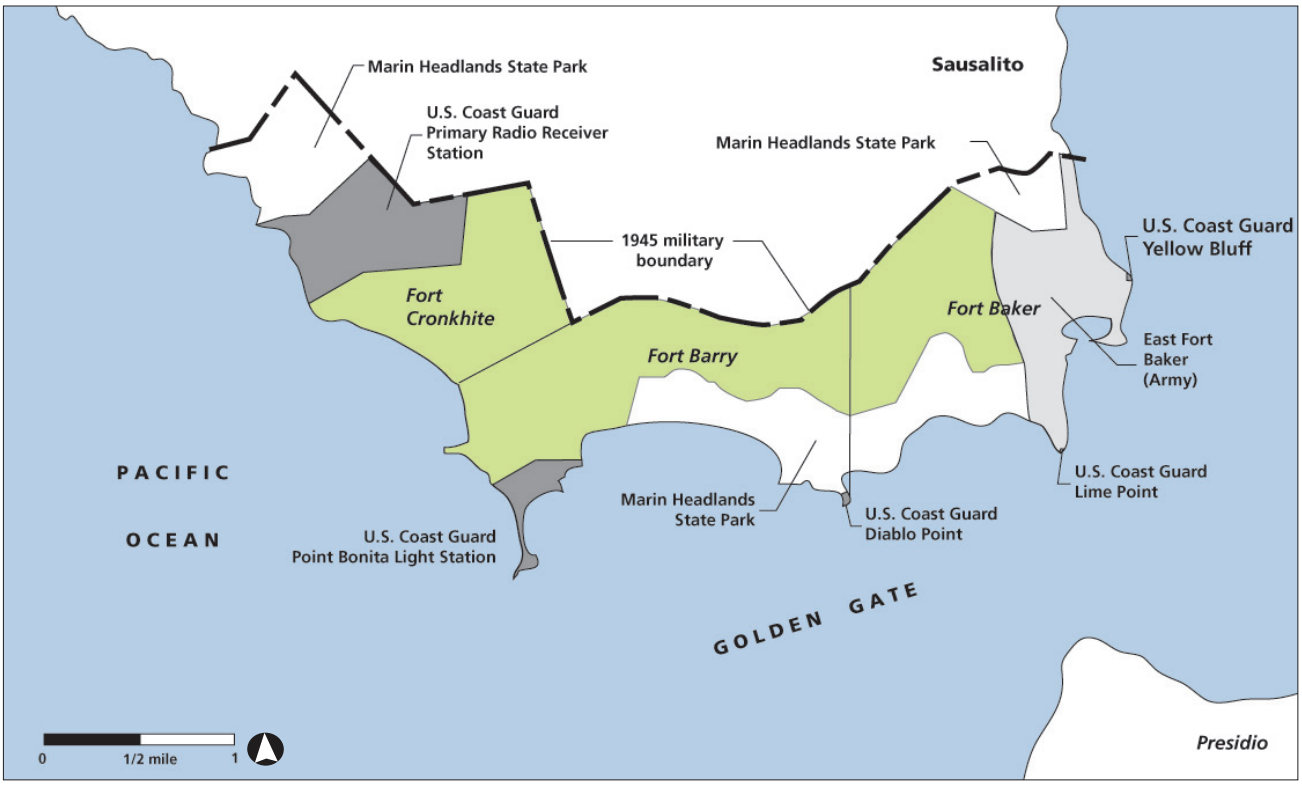


Figure 6.2. Map showing portions of Forts Baker, Barry, and Cronkhite in green transferred to Golden Gate National Recreation Area in 1972. Dark gray areas are Coast Guard property, light gray is Army property, white is state property. The map does not show land ownership outside of the headlands reservations. (SUNY ESF)

> this property is determined to be excess to the needs of the Coast Guard, it shall be transferred to the jurisdiction of the Secretary [of the Interior]…[7]

Recognizing the benefit of a continuous national park on the headlands, the park legislation also included provisions for the park boundaries to be expanded upon donation of adjoining lands by the state of California or its political subdivisions. These lands included the three units of Marin Headlands State Park owned by Marin County.[8]

TRANSITION TO PARK OWNERSHIP AND USE

While the establishment of Golden Gate National Recreation Area gave the National Park Service immediate jurisdiction over Army land in west Fort Baker, Fort Barry, and Fort Cronkhite, the Army and Coast Guard retained use and occupancy there for a number of years. The rest of the military reservations remained a patchwork of ownership and jurisdiction for decades following creation of the park. The State of California retained the Marin Headlands State Park lands into the late 1970s, and the Sixth Army remained at Fort Baker into the early 2000s. The Coast Guard continued to own Point Bonita, although it granted use to the National Park Service.

As the park service was assuming management over the former Army lands at the Marin Headlands unit in the early 1970s, it was also expanding the park boundaries to include adjoining ranchland. In ca. 1974, the park service acquired the 1,268-acre Dean Witter hunting preserve, which included Tennessee Valley east and north of Fort Cronkhite. Around the same time, the park acquired the adjoining 2,113-acre site of the failed Marincello development north and east of the military reservations, which the Nature Conservancy had purchased from the Gulf Oil Corporation in December 1972. The Nature Conservancy initially named this parcel, comprised of the old Silva ranch, the Martha Alexander Gerbode Preserve in honor of the recently deceased woman who played a significant role in blocking the Marincello development. After incorporation into the Marin Headlands unit, the park changed the name of the property, but kept the honorific association by designating the valley northeast of Rodeo Lagoon, where the Silva ranch buildings had stood, as Gerbode Valley.[9]

ARMY DEPARTURE FROM THE MARIN HEADLANDS UNIT

In July 1972, the Army prepared a map of Forts Baker, Barry, and Cronkhite that identified areas it wished to continue using under permit to the National Park Service. These areas included Battery Townsley and Tennessee Point for its ammunition destruction program, along with the Fort Cronkhite cantonment, the Nike sites (including the still active SF-88), and the part of Fort Barry extending from the main post to the Fort Baker boundary, including the rifle range and Capehart

housing. The Army identified the remainder of its land as "open recreational areas" where the park service would assume management.[10] By July 1974 after decommissioning of Nike site SF-88, the Army had reduced its areas of permitted use (fig. 6.3, see pages 354-355). These included Tennessee Point, the Fort Cronkhite cantonment and nearby warehouse, the housing at the Fort Barry main post, the Smith Housing Area, the administrative area for SF-88A, Battery Rathbone–McIndoe where a radio antenna was maintained, the former Fort Barry Motor Pool (balloon hangar) area used by the Presidio Riding Stables, and the Fort Barry Capehart area. The Army also retained rights to the sewer and water utilities needed to service the housing areas. At the rifle range, the Army had a permit for intermittent use, including the field of fire extending to Conzelman Road. Under its permit, the Army had to post sentries along Bunker Road and Conzelman Road to keep the public out of the danger fan of the firing range.[11]

The final closing of SF-88 on August 2, 1974 began the Army's final withdrawal from the Marin Headlands unit of Golden Gate National Recreation Area.[12] On September 10, 1974, Fort Barry and Fort Cronkhite were discontinued as U.S. Army installations, confirmed by General Order 25 dated December 16, 1975 (West Fort Baker was not an official installation).[13] Final Army withdrawal from the Marin Headlands, however, took nearly two decades to complete, although most uses were discontinued by 1976. On August 16, 1974, the Army released Nike SF-88 control and launch areas to the park, but retained use of the SF-88 administrative area until 1976.[14] In July 1974, the Army was getting ready to release the Smith Housing Area to the park, followed soon by the Fort Barry main post and Fort Cronkhite cantonment.[15] Use of Battery Rathbone-McIndoe as a radio transmission site most likely ceased prior to the official deactivation of the military reservations in December 1975. Around the same time, the Army ceased use of the rifle range for reserve training. One of the last military activities in the Marin Headlands unit was the ammunition disposal area at Tennessee Point. This facility was used into the early 1990s by the Presidio's Explosive Ordnance Team, and only stopped with base closure of the Presidio. The Army also continued use of the Fort Barry Capehart area for military housing into the mid-1990s.[16]

ACQUISITION OF MARIN HEADLANDS STATE PARK

Soon after the creation of Golden Gate National Recreation Area in October 1972, the National Park Service began to press the state to donate its three units of the Marin Headlands State Park to the national recreation area, as allowed under the federal enabling legislation. As development pressures at the headlands eased with creation of the national recreation area and acquisition of the Marincello site, the advocacy group, HEADLANDS, INC. ceased pushing for expansion of Marin Headlands State Park and disbanded by 1975. The state also ceased acquiring lands for its headlands park, but remained reluctant to donate the property to the federal government.[17]

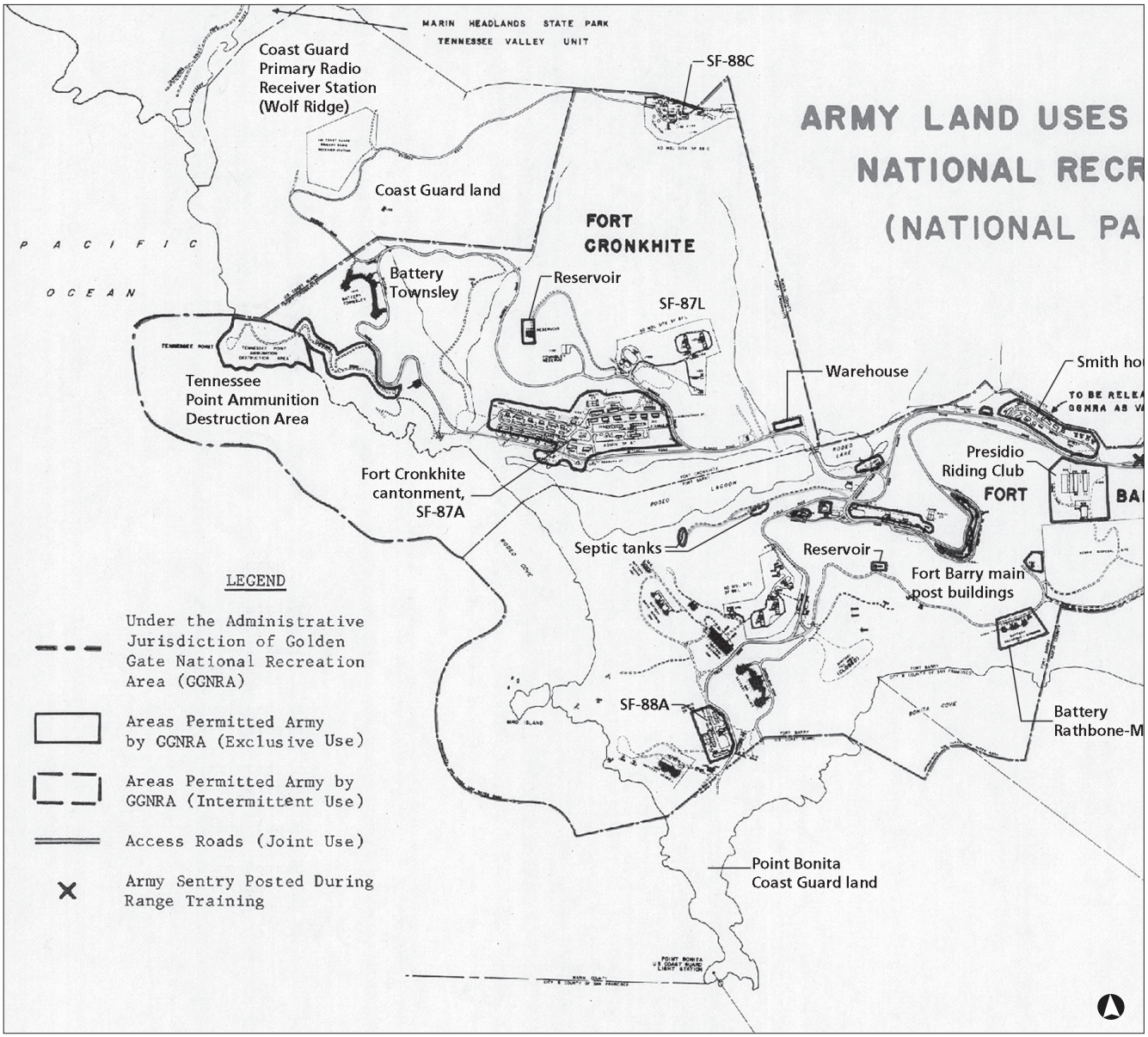
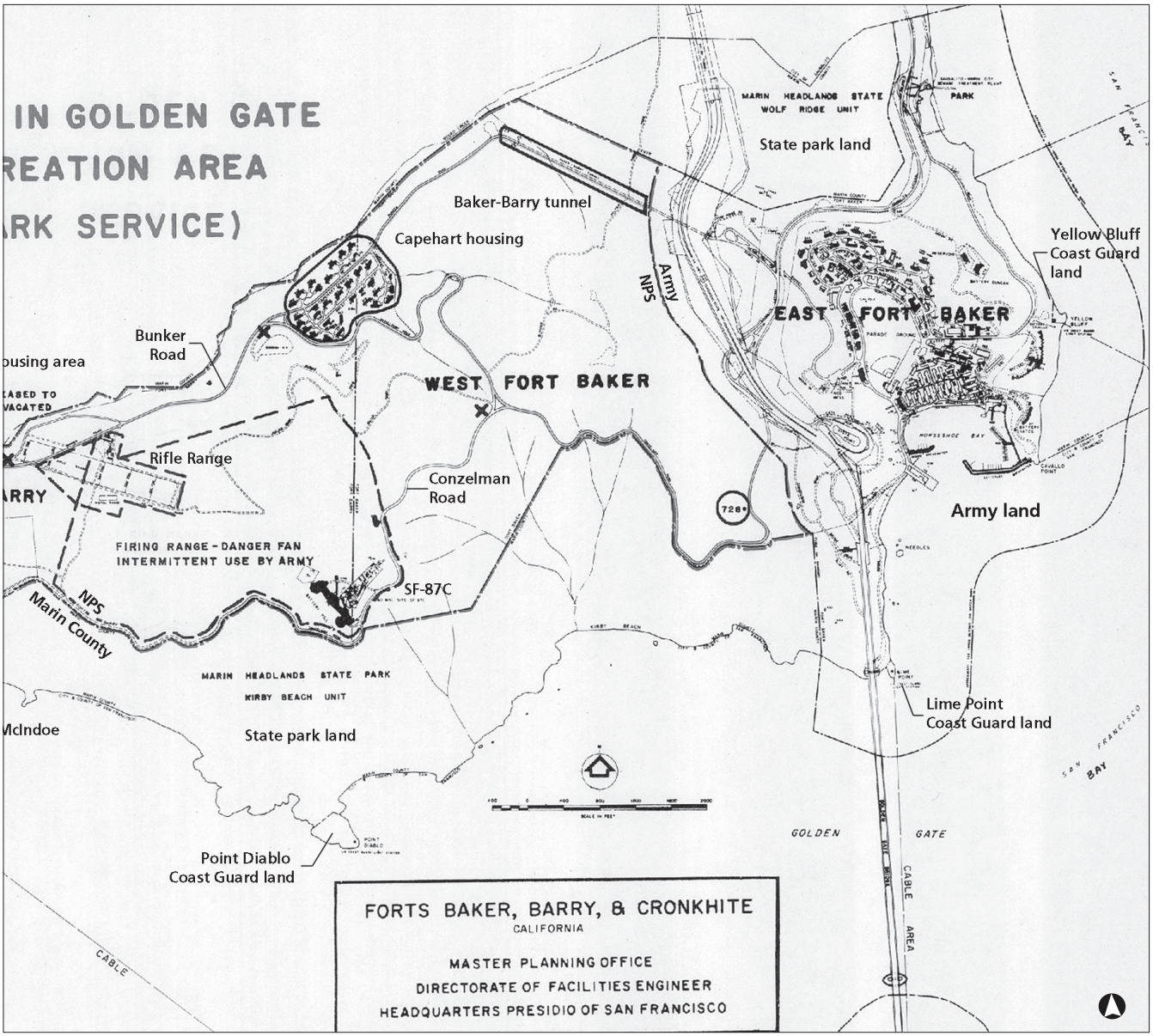


Figure 6.3. Army map of lands it occupied at the Marin Headlands under permit by Golden Gate National Recreation Area in July 1972. (U.S. Army, "Army Land Uses in Golden Gate National Recreation Area," July 19, 1978, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, 37060, D181 F2)

After years of negotiations, the state and National Park Service reached a compromise in 1976 that called for the state to retain Mount Tamalpais State Park—its premier park in the region—and donate smaller parks that were surrounded by the national recreation area, including Marin Headlands State Park, and farther up the coast, Stinson Beach and Muir Beach. The state also transferred its San Francisco Maritime State Historic Park and China Beach State Park in San Francisco to the National Park Service. Although the state ultimately donated the properties, the transfer was held up for several years due to state fiscal constraints resulting from property tax caps and income tax cuts. Federal passage of the National Parks and Recreation Act of 1978 formalized the 1976 agreement to transfer the state park lands. On September 29, 1978, the three units of Marin Headlands State Park encompassing 724 acres were deeded to the federal government as part of Golden



Gate National Recreation Area. By this time, the state had made only minimal improvements, which included the campgrounds at Kirby Beach and a public overlook at Battery Spencer that involved closing off the traverses at Ridge Battery. Most of the state parkland remained much as the military had left it in 1972, although tree cover had become more extensive on Battery Construction 129 (figs. 6.4, 6.5). [18]

COAST GUARD PROPERTY

In the decade following the establishment of Golden Gate National Recreation Area, the Coast Guard's need for property at the headlands decreased as it continued to automate navigational aids, a process that had earlier led to loss of the staffed Lime Point station in the early 1960s. In the 1970s, the Coast Guard was automating its shore radio stations, which allowed it to close a number of stations, including its 222-acre primary radio receiver station property on Wolf Ridge that





Figure 6.4 (top). The western part of the former Kirby Beach Unit of Marin Headlands State Park one year after its incorporation into Golden Gate National Recreation Area, looking north, 1979. At right is Point Diablo and to the left is Black Sands Beach. The trees at the top of the ridge are Monterey pine and cypress at the control site of SF-87 (Hawk Hill), which the Army had previously transferred to the park. (California Coastal Records Project, image 7926067, copyright Kenneth and Gabrielle Adelman)

Figure 6.5 (bottom). The former Tennessee Valley Unit of Marin Headlands State Park one year after its incorporation into Golden Gate National Recreation Area, looking east, 1979. The highlands at right are Wolf Ridge, which the Coast Guard transferred to the National Park Service in ca. 1974. (California Coastal Records Project, 1979 image 7926309, copyright Kenneth and Gabrielle Adelman)

was set up in the 1960s. In ca. 1978, around the time that the state donated the adjoining Tennessee Valley section of Fort Cronkhite, the Coast Guard transferred jurisdiction of the property to the park. This was followed by transfer of the quarter-acre parcel at Yellow Bluff and the tenth-acre parcel at Lime Point, where the Coast Guard continued to maintain a fog signal. At Yellow Bluff, the Coast Guard erected a new navigational beacon through a permit with the park (fig. 6.6). At Point Diablo, which was inaccessible to the public, the Coast Guard retained ownership of the two-acre parcel with its frame shed and electric beacon dating to 1922.[19]

At Point Bonita, automation of the lighthouse in 1980 signaled the end of Coast Guard presence at the scenic promontory, and in 1982, the agency issued a use permit to the National Park Service. Under this permit, the Coast Guard retained jurisdiction over the thirty-nine-acre property and use of the fog signal building, automated light beacon within the historic lighthouse, and Vessel Traffic Service (VTS) tower on Bonita Ridge with rights of access, but granted the park use of all other parts of the property, including the lighthouse. In return, the park service was responsible for law enforcement and maintenance. The park subsequently opened Point Bonita for public tours and used the family quarters at the former Life-Saving Station as housing for park staff.[20]

INCORPORATION OF EAST FORT BAKER

A decade after establishment of Golden Gate National Recreation Area, the Army began to transfer its property at East Fort Baker to the National Park Service. In 1985, the Army conveyed two parcels totaling 12.5 acres of land and water along the western side of Horseshoe Cove (fig. 6.7). This area, identified as parcels 02-101 and 02-102, included the mine wharf, vacant mine storage rooms, submarine cable tank building, and part of the site of the Station Hospital that the Army had demolished by 1983. This property, through which the park had rights of access under the 1972 park legislation, accommodated development of a new Coast Guard station approved several years later under a permit with the National Park Service, and allowed the park to maintain the mine wharf as a public fishing pier.[21]



Figure 6.6. The Fort Baker shoreline showing the contemporary Coast Guard beacon at Yellow Bluff, looking south with downtown San Francisco in the distance, 2009. This area was transferred to the park prior to 2002. (SUNY ESF)

In 1986, the Army transferred a much larger tract of 257.7 acres surrounding the main post, extending from Lime Point to Alexander Avenue and the Sausalito boundary, excluding the main post and east side of Horseshoe Cove (see fig. 6.7, parcel 02-197). With acquisition of this property, the National Park Service became owner of the permit area for the Golden Gate Bridge, the state right-of-way for US 101 and Alexander Avenue, the east portal of the Baker-Barry tunnel, the outgrant for the Sausalito-Marin City Sewage Treatment Plant, Battery Duncan, and the former Quartermaster Area (Post Engineer) buildings.

Passage of the Base Realignment and Closure Act (BRAC) in December 1989 recommended closure of the Presidio and its sub-posts, including Fort Baker. For the next decade, the Army planned for transfer of its remaining land to the National Park Service. In the mid-1990s, the Army announced that the Sixth Army would be inactivated, and by September 1994, all lands at the Presidio had been transferred to the park service. The following year, the Army announced the closure of

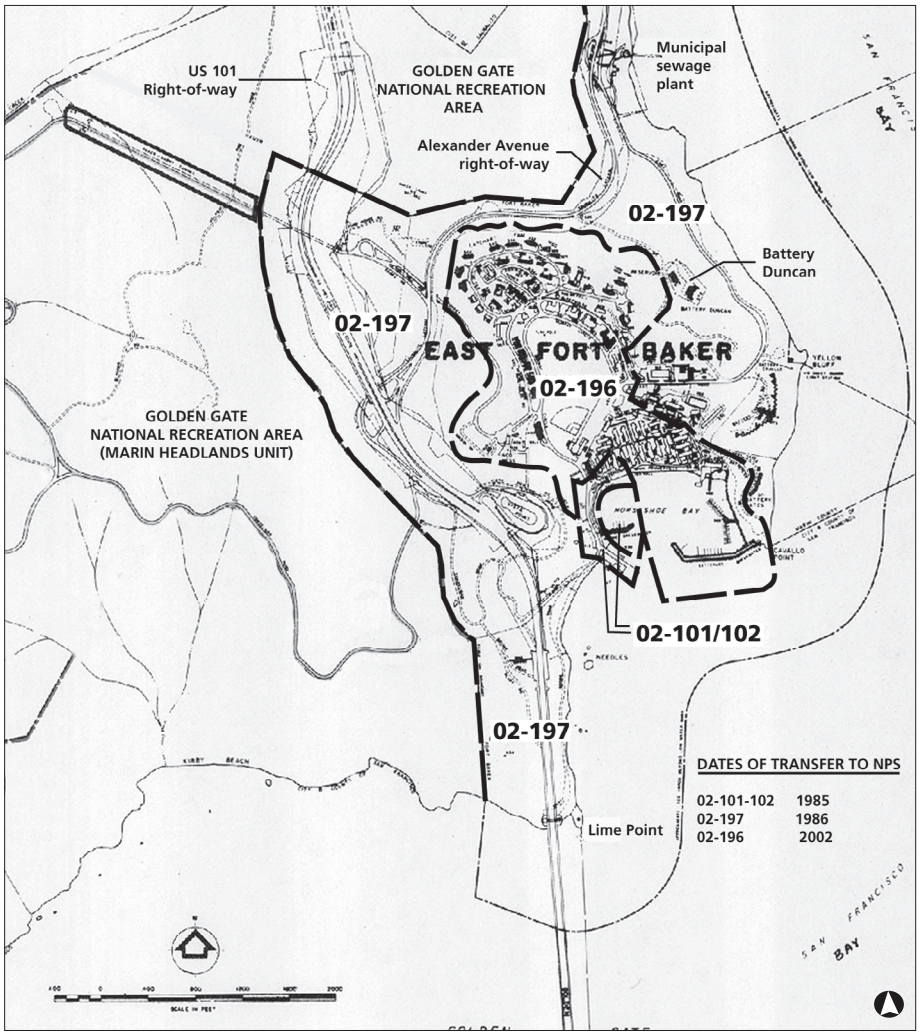


Figure 6.7. A 1972 Army land use map (detail of figure 6.2) updated to show transfer of property to the National Park Service at East Fort Baker between 1985 and 2002. (U.S. Army, "Army Land Uses in Golden Gate National Recreation Area," July 19, 1978, annotated by SUNY ESF, Golden Gate National Recreation Area, Park Archives and Records Center, 37060, D181 F2)

Fort Baker and transfer of its remaining 71.38 acres to the park (see fig. 6.7, parcel 02-196). In the following years, the Army ceased its last operations at Fort Baker and the Fort Barry Capehart housing, and by 2002, completed transfer of ownership to the National Park Service. After 136 years, the Army no longer owned land at the Marin Headlands.[22]

PARK MANAGEMENT

With transfer of Army lands at Forts Barry and Cronkhite in 1974, the National Park Service began adapting the military landscape to public recreational uses. Overall, initial management focused on providing public access, installing basic recreational infrastructure such as picnic and camping areas, a visitor center, and restrooms, and managing the vast array of buildings and structures. Some buildings and structures considered unsuitable for park uses or determined to lack historic significance were demolished or simply abandoned. These determinations were based on a number of cultural resource reports and other documentation on Forts Baker, Barry, and Cronkhite, including a 1965 study by military historian Raymond Emanuel Lewis commissioned by California state parks, a National Register district listing in 1973, and two park service historic resource studies dealing with military and civilian themes, completed in 1979 and 1980.

This documentation informed cultural resource management in the park's first General Management Plan completed in 1980. In the plan, most of the headlands were designated as either a "Natural Landscape Management Zone," where natural resources would be left as undisturbed as possible, or as an "Adaptive Use Zone," where historic buildings, structures, and sites would be adapted for recreational use while maintaining and enhancing historic integrity. The plan called for two main areas of park development at the headlands: Rodeo Valley, encompassing Rodeo Beach, the Fort Cronkhite cantonment, Fort Barry main post, balloon hangar area, and rifle range; and the Fort Baker main post and Horseshoe Cove waterfront, part of which remained in Army ownership at the time (figs. 6.8, 6.9). [23]

The General Management Plan identified all of the harbor defense works, most of the Fort Cronkhite cantonment, main posts of Fort Barry and Fort Baker, the balloon hangar, and the SF-87 and SF-88 sites as historic resources. As was typical of the times, preservation planning focused on buildings and structures, with the cultural landscape receiving less attention as reflected in a proposal to plant trees on the rifle range as part of its conversion into a special event space. No areas at the headlands were recommended for management as museum sites.[24]

Because there were far more buildings than it needed, the park issued permits and entered into a number of partnerships with organizations that shared a similar mission. The park allowed several pre-existing permitted uses to continue, including grazing in Tennessee Valley, which persisted into the 1980s when park

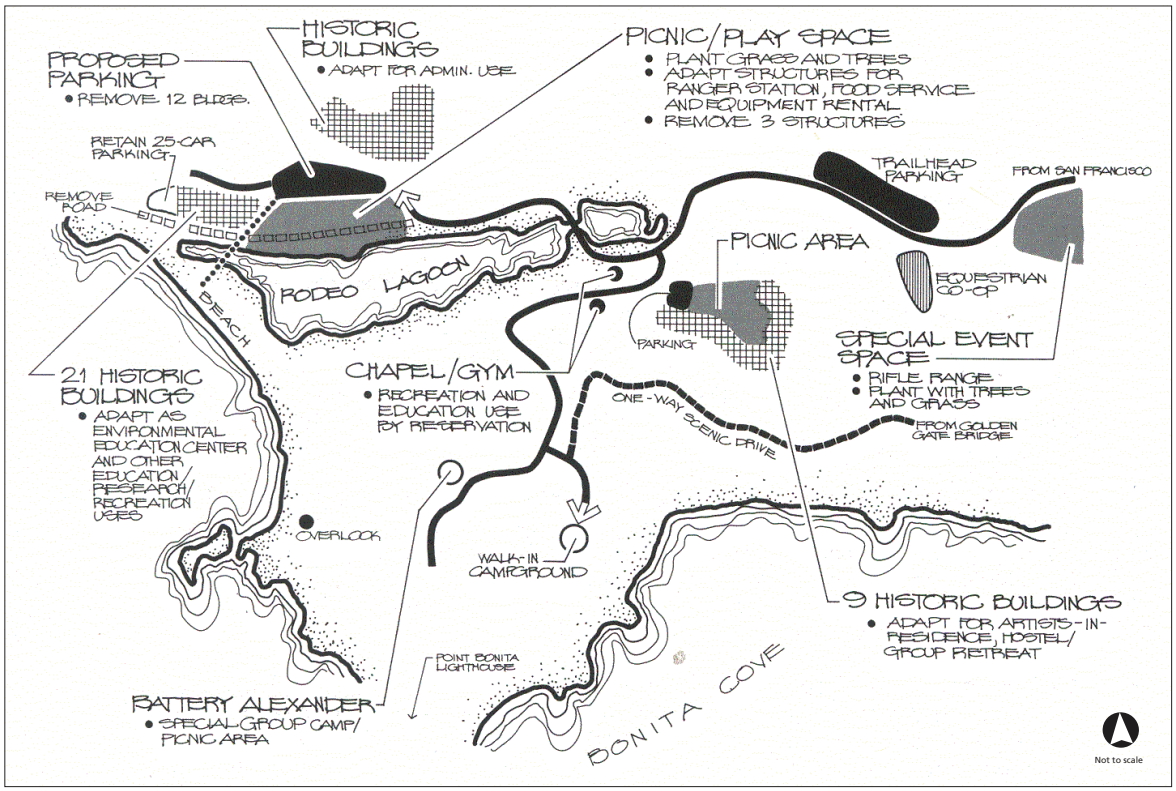


Figure 6.8. Plan for the Rodeo Valley area of Forts Cronkhite and Barry in the 1980 (National Park Service, "General Management Plan for Golden Gate National Recreation Area," 1980)

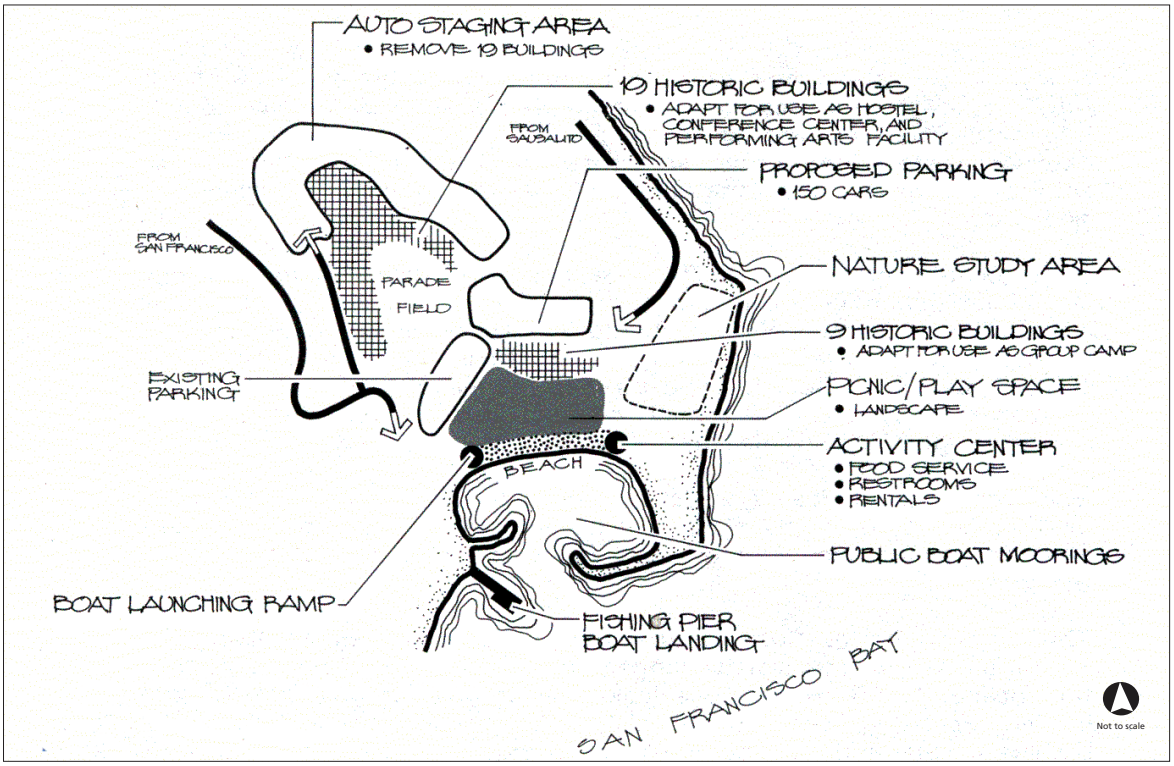


Figure 6.9. Plan for Fort Baker in the 1980 General Management Plan for Golden Gate National Recreation Area. The plan was based on the future transfer of lands then under Army jurisdiction at the main post and Horseshoe Bay waterfront. (National Park Service, "General Management Plan for Golden Gate National Recreation Area," 1980)

naturalists determined the livestock was damaging the ecosystem.[25] The park also continued a permit with the Presidio Riding Stables, later incorporated as the Presidio Riding Club, for use of the former Fort Barry motor pool (balloon hangar area). The first new partnership organization was the Marine Mammal Center, founded at the Fort Cronkhite cantonment and SF-87 launch site in 1975 to rescue and rehabilitate marine animals and provide conservation education. Two years later, the Nike SF-87 administration buildings at Fort Cronkhite became home of the Headlands Institute (now NatureBridge Golden Gate), a branch of Yosemite National Institutes founded to provide outdoor youth education in science and nature. That same year, the YMCA of San Francisco established its Point Bonita Outdoor and Conference Center at the SF-88 administration area at Fort Barry. In 1978, the Fort Barry main post became home to the Marin Headlands Hostel, part of the Golden Gate Council of Hostelling International, which occupied the former hospital and administration building. Four years later, the hostel received a new neighbor, the Headlands Center for the Arts, an artists' residence, education, and performance institute founded in 1982 based on recommendations in the General Management Plan for use of the remaining Fort Barry buildings.[26]

Recognizing the vast stewardship challenges in Golden Gate National Recreation Area, park advocates established a support organization in 1981, the Golden Gate National Parks Association (today, Golden Gate National Parks Conservancy) based on the mission to preserve the park, enhance visitor experience, and "build a community dedicated to conserving the parks for the future."[27] As part of this mission, the Conservancy assisted the park with capital improvements, educational programs, planning, environmental stewardship, and promotion. At the Marin Headlands, the Conservancy established two new facilities: the Golden Gate Raptor Observatory, founded in 1985 at the former SF-87 control site on Battery Construction 129, which became known as Hawk Hill; and the Marin Headlands Nursery, a native plants nursery at the Fort Cronkhite cantonment established in 1997.[28]

With acquisition of land in Fort Baker beginning in 1985, the park entered into additional partnerships and permitted uses, beginning with the Coast Guard for development of a new station on the Horseshoe Cove waterfront, followed by the Bay Area Discovery Museum, a children's museum founded in Corte Madera in 1987 that opened in the former Quartermaster buildings in 1991.[29] With the pending transfer of the Fort Baker main post and east side of Horseshoe Cove, the park began work in 1995 on the Fort Baker Plan to direct adaptive reuse of the military reservation. With input from the public, local municipalities, and non-profit organizations, the plan, completed in 2000, called for the main post to be rehabilitated for use as a conference and retreat center. The plan also called for continuing permits for Fort Baker's three pre-existing tenants, the Bay Area Discovery Museum, the Presidio Yacht Club reorganized in 1995 as the Travis Sailing Center, and the Coast Guard Station Golden Gate.[30]

ADAPTATION OF THE LANDSCAPE FOR PARK USE

The management goals established by the 1980 General Management Plan and 2000 Fort Baker Plan allowed the park flexibility in adapting the former military landscape to public park uses. While these plans stressed retention of historic resources, some changes were made to address natural resource management, recreation, maintenance and funding, and partner organization needs. Built changes throughout the park included replacement of military signs with park signs, removal of security and boundary fences, addition of trail and road signs, and conversion of former military roads to hiking trails (fig. 6.10). Several new trail segments were laid out to complete the headlands' segment of the Coastal Trail, an official state trail begun in the 1970s.[31] While the park abandoned some roads, it maintained most of the main roads on their military alignment and with black asphalt pavement that the Army had used in its later years over the original red chert gravel and red macadam. For public safety, ease of driving, maintenance, and visitor experience, the park added guardrails, pavement markings, paved shoulders, and parallel road parking along certain roads, and replaced deteriorated culverts, drainage channels, and other associated road structures.[32]





Figure 6.10 (top). The Coastal Trail on Wolfback Ridge Road, a former Army road at West Fort Baker, looking south, 2009. The trail sign is a recent addition. (SUNY ESF)

Figure 6.11 (bottom). B1S1 Townsley on Wolf Ridge, an example of a World War II-era fire-control station that remained largely intact through the decades of park ownership and public access, photographed 2009. (SUNY ESF)

While the historic significance of the harbor defense works at the headlands was unquestioned, the park did not have the resources to maintain all of them. Most of the major gun batteries enjoyed some level of protection and even restoration, notably Battery Spencer and Battery Townsley, but most of the secondary works such as anti-aircraft batteries and fire-control stations remained in an abandoned state. Many suffered from vandalism, primarily graffiti, while others collapsed from deterioration or succumbed to landslides. Several in remote and inaccessible locations, such as Wolf Ridge, remained intact, even retaining their original rock camouflage (fig. 6.11).

Landslides were one conspicuous natural change that occurred during the park service period. Beginning in ca. 1980, the western foot of Wolf Ridge began to slide into the Pacific, taking Bunker Road and two fire-control stations with it. Smaller landslides began or expanded farther up Wolf Ridge and near the Fort Cronkhite cantonment, at Kirby Cove, and above the Coast Guard boathouse site on Bonita Cove. Other site-wide natural changes included the continued loss of grasslands to chaparral and scrub due to the absence of grazing and burning. Ro-

deo Lake, the portion of Rodeo Lagoon east of the 1937 Bunker Road causeway, largely disappeared along with the adjoining reservoir due to sedimentation. The Monterey pine and cypress that the Boy Scouts most likely planted after World War II spread, concealing once strategic lines of fire. The old Monterey cypress and eucalyptus plantations at Kirby Cove spread along the valley walls. These trees also began to appear elsewhere in once open grassland and scrub throughout the headlands, such as around the balloon hangar, the SF-88 launch site, AAA Position No. 10 on Wolf Ridge, along Bonita Cove, and on Bonita Ridge. By the 1990s and 2000s, however, the park began to address restoration of native and historic ecosystems that had become degraded by military and park development. This work included removal of the non-native Monterey pine and cypress, and protection of habitat for endangered species, such as the Mission Blue Butterfly.

Across the headlands, federal transportation funds provided for major upgrades to roads, overlooks, parking areas, and trailheads that were implemented between 20010 and 2013. Road work, focused on Conzelman Road, Field Road, and Bunker Road, included resurfacing in black asphalt, widening and realignment in certain areas, addition of accessible bus stops and sidewalks, and the addition of concrete curbs, guardrails, and new drainage structures. Overlooks, trailheads and secondary roads were surfaced in red chert gravel, and prefabricated comfort stations were installed at various trailheads. Two new parking areas were constructed, one on the Fort Cronkhite parade ground, which had been used as a ground maintenance yard, and the other at the site of the Smith Housing Area along Bunker Road in Fort Barry.

MARIN HEADLANDS UNIT

Adaptation of the headlands landscape to public and partner use began in 1974 at the Marin Headlands unit, the first part of the national recreation area opened to the public that included portions of West Fort Baker, Fort Barry, and Fort Cronkhite. Over the following decades, the park retained the developed areas and major features of the military landscape, with exception of the SF-87 launch area that was redeveloped for the Marine Mammal Center, and the complex of fourteen buildings in the World War II-era Smith Housing Area at Fort Barry that the park demolished in the late 1970s for an unrealized four-hundred car trailhead parking lot. Only the asphalt street and driveways were left (fig. 6.12). The park also removed many small, unused buildings that were determined to have no significance, such as four pre-World War II garages at the Fort Barry main post, and Cold War-era utility sheds around the balloon hangar. [33]



Figure 6.12. Smith Street at the site of the Smith Housing Area demolished in the late 1970s, looking west, 2009. The vegetation in the background lines Rodeo Creek. (SUNY ESF)



Figure 6.13. Park ranger Yuri Feddeshoff leading a youth tour at Fort Cronkhite, looking east, ca. 1979. (Richard Frear photograph, Golden Gate National Recreation Area, Park Archives and Records Center, GOGA 18326.023)

The Fort Cronkhite cantonment served as the initial focus of park operations and visitor facilities, where visitors came to enjoy the beach, hike, or take part in ranger-led tours (fig. 6.13). Park maintenance operations moved into the Nike SF-87L Limited Area (former missile assembly area) above the cantonment, while the adjoining parade ground was converted to a maintenance storage area.[34] During the summer of 1974, a visitor center was opened in Building 1050 within the west wing of the cantonment. This was a former storehouse along Mitchell Road selected for its proximity to Rodeo Beach. Public parking was accommodated along the shoulder of Mitchell Road and in the expanded paved parking lot at the west end of the cantonment, where temporary restrooms were added (fig. 6.14).[35] The wetlands to the west were filled by ca. 1980 for overflow parking in what became known as the Surfer Lot. The park set up offices in the west wing and central area cantonment buildings, and a museum was established in building 1049 to interpret an Army mess hall, and another was created in building 1059 to interpret life in a barracks. For an unknown reason, the Army demolished four of the one-story Series 700 buildings in the west wing along Mitchell Road to either side of the visitor center between 1972 and 1974 just prior to the park taking over.[36] Another five Series 700 barracks and officer quarters were removed from East Kirkpatrick Street, north of SF-87A, in ca. 1980.[37]



Figure 6.14. The Fort Cronkhite cantonment showing changes during the early years of the park, looking northeast, 1979. (Photograph annotated by SUNY ESF, California Coastal Records Project, 1979 image 7926046, copyright Kenneth and Gabrielle Adelman)

Other early park development elsewhere at the Marin Headlands included construction of a small campground in the valley to the rear of Battery Wallace in 1976. At the time, the only other campground at the headlands was at Kirby Beach, which in 1976 was still part of Marin Headlands State Park. The park service site, named Bicentennial Campground, was set amid older Monterey pine and cypress surrounding the site of a World War I-era officer quarters that had been removed prior to World War II. An adjoining picnic area was established along Conzelman Road in the shade of Monterey pine adjoining Battery Wallace. To the west along the Pacific coast, the park created a public overlook near Bird Rock, at the remnants of the Korean War-era AAA Position 81 north of Battery Mendell. Completed in ca. 1975, this overlook consisted of unpaved drives encircling earthen parapets of the gun emplacements (fig. 6.15). In Rodeo Valley, the park maintained the rifle range as a mown area used occasionally for large-scale special events, such as the two-day Whole Earth Jamboree in 1978. Prior to this event, the park had demolished the indoor rifle range and pistol range backstop, and had abandoned the target trench at the far end of the range. Plans for planting trees on the rifle range as specified in the 1980 General Management Plan were not implemented.[38]

The arrival of partner organizations at Fort Cronkhite in the mid-1970s led to several notable changes in the landscape. At the Exclusion Area of the SF-87 launch site, the Marine Mammal Center began constructing outdoor pens, pools, and support buildings in ca. 1975 to accommodate its marine mammal rehabilitation program, eventually concealing much of the old launch pads. A new entrance



Figure 6.15. The Bird Island Overlook, formerly Position No. 81, with its drive-encircled gun emplacements, view west, 1979. This site was once North Bonita Hill, which the Army removed between 1912 and 1919 to increase the line of sight for Battery Mendell. (Photograph annotated by SUNY ESF, California Coastal Records Project, 1979 image 7926050, copyright Kenneth and Gabrielle Adelman)



Figure 6.16. The Headlands Institute (NatureBridge) campus, formerly SF-87 administration area, looking northeast, 2007. This image shows the pedestrian zone built on the middle section of Stennis Street in ca. 1985. (SUNY ESF)

road was laid out from Bunker Road through the Fort Cronkhite parade ground to provide access separate from the adjoining park maintenance area (see fig. 6.14). At the SF-87 administrative area in the former east wing of the cantonment, the arrival of the Headlands Institute in 1977 led to a change in building color from green to white, and removal of the chain-link perimeter security fence. In ca. 1985, the institute redesigned the landscape between the Nike buildings by replacing the middle section of Stennis Street with a pedestrian zone that featured new plantings, walks, and benches (fig. 6.16). A portion of the western SF-87 parking lot was removed to create a sunken amphitheater. Nearby building terraces along Kirkpatrick Street, which were remnants of five Series 700 buildings removed in ca. 1980, served as outdoor classroom space.[39]

The third component of SF-87, the control site on top of Battery Construction 129, became a popular overlook for its panoramic views across San Francisco from the highest point along the Golden Gate (fig. 6.17). The park also opened the battery tunnels and casemates to allow visitors to see the enormous defensive work and its panoramic views west toward the Pacific. Few improvements were made to the area for visitor use aside from a trail with steps between the north casemate and the overlook at the top of the hill, addition of benches, and installation of safety railings in the gun pits and along top of the casemates. The Army had removed the radar units and vans following deactivation of SF-87 in 1971. All remaining buildings and structures were taken down soon after, except for retaining walls, railings, radar pads, and the World War II-era ready room originally built for Battery Construction 129. With the establishment of the Golden Gate Raptor Observatory in 1985, the SF-87 control site became known as Hawk Hill, where observatory staff and volunteers tracked annual fall migration over the Marin Headlands. The park made few improvements for the observatory, but by this time, the landscape had changed considerably due to growth of Monterey pine on the west and north slopes of the hill that were probably planted by Boy Scouts in the 1950s (fig. 6.18). By the 1980s, these trees had created a wooded enclosure over nearly six acres, and blocked once important visual connections to the SF-87 launch site at Fort Cronkhite. In 2011, the trees were removed to improve habitat for declining bird populations and

Figure 6.17. Panoramic view looking southeast from Hawk Hill (former SF-87C), a popular park overlook and part of the Golden Gate Raptor Observatory, photographed 2007. (SUNY ESF)





Figure 6.18. The base of a LOPAR radar pad at the former SF-87 control site (Hawk Hill) looking northwest showing growth of Monterey pine blocking the view to the SF-87 launch site at Fort Cronkhite, photographed 2007. The trees were removed in 2011. (SUNY ESF)

the endangered Mission blue butterfly, and to preserve the historic Battery Construction 129 structures. Native coastal prairie vegetation was planted in the cleared areas in February 2012.[40]

In contrast to the SF-87 sites, military personnel proposed that SF-88, which had been deactivated three years after SF-87, be preserved as a historic site. According to a February 25, 1974 Army memorandum, "The following NIKE site will be inactivated but retained as a memorial to Army Air Defense—Nike Hercules: Nike SF-88—Ft. Barry/Cronkhite."[41] The park service agreed with the Army's intent to preserve SF-88 for posterity upon transfer of the property in 1974, but only the launch site component.[42] The park service declined the offer of equipment at the Wolf Ridge control site, which was deemed too remote to interpret as a historic site. After the Army removed the radar units and other equipment, the park used the Wolf Ridge site for short period in 1976–77 as youth campsite called "Sky Camp."[43] After this time, the site was largely abandoned, and it became inaccessible to vehicles following the landslide on the western part of Wolf Ridge that took out the access road in the late 1980s. Over the years, the SF-88C buildings and structures deteriorated and were vandalized.

The park did not intend to preserve the SF-88 administration area at Fort Barry, which in 1974 was just over a decade old, most likely due to perceived lack of significance and its usefulness for other purposes. In 1977, three years after the Army transferred the property to the National Park Service, the SF-88 administrative area received a new tenant, the YMCA of San Francisco, which retained the overall character of the site including the military's green color scheme on the buildings. Changes included addition of trees, a cafeteria wing, organic garden, and an amphitheater with a fire pit.[44]

At the SF-88 launch site, the park service initially mothballed the facility, rather than restore and open it to the public. For fifteen years after the transfer in 1974, the site sat vacant and grew increasingly neglected due to lack of staff, funding, and appreciation, although volunteers gave occasional tours. In 1989, Supervisory Interpreter John Martini began to organize volunteers to start the long work of restoring the site and opening it to the public, coinciding with growing interest in the Cold War following the fall of the Berlin Wall.[45] The group of mostly Nike veterans organized into the "Fort Barry Nike Missile Site SF-88 Volunteers," led by Colonel Milton F. "Bud" Halsey. They returned the site to its condition prior to deactivation in 1974, complete with military vehicles and inert missiles that were collected from across the country (fig. 6.19). Unlike most other Nike launch sites around the country, SF-88L retained its buildings and structures, roads, fences, missile elevators and utility systems in operable condition, and its original missile



Figure 6.19. SF-88L opened to the public as a historic site in the 1990s, looking northesat, 2009. The radar antennae and vans at the rear of the building on the right were not at the launch site historically. (SUNY ESF)

storage racks and launchers were still in place. For interpretive purposes, radar units and vans representative of those at the SF-88 control site on Wolf Ridge were displayed at the site. By the 2000s, SF-88L was considered the most completely restored Nike Missile launch site in the United States. [46]

When the National Park Service incorporated the three units of Marin Headlands State Park into the recreation area in 1978, the agency made few changes to the parcels. At Kirby Cove, the park service established four sets of tent campgrounds where the state had group picnic areas to the rear of Battery Kirby. It maintained a separate day-use area at the end of the road to the west of the battery and on the battery parapet. Battery Kirby served as a protective backdrop for the campgrounds, as an overlook, and, where massive guns once pointed, as a place to picnic (fig. 6.20). Monterey pine planted on the valley floor in the 1970s created a shady environment for the campgrounds. While open to hikers, the park made vehicle access by permit only, controlled by a gate on Conzelman Road. At the former Tennessee Valley Unit, the National Park Service maintained the area as a natural zone that was accessible to hikers via Tennessee Valley Road. The old mine defense elements were left as ruins. Rodeo Lagoon, the former stock pond created in ca. 1957 by Dean Witter, gradually filled with sediment, reducing the open area of water to approximately half of what existed in 1972. At the former Wolfback Ridge Unit at Fort Baker, the park service continued to manage the landscape as undeveloped open space bordering Sausalito.

Figure 6.20. Kirby Cove campgrounds and day use area showing picnic tables on the parapet of Battery Kirby, looking north, 2009. The concrete at right is part of the gun emplacement. (SUNY ESF)



In recent years, the park and its partners have completed a number of projects in the Marin Headlands landscape. These include the Golden Gate National Parks Conservancy's Headlands Nursery, a native plant nursery established in ca. 2000 at the Fort Cronkhite cantonment on and around the site of a World War II-era recreation building. Beginning in 2005, the Conservancy, park, and volunteer groups began work on Battery Townsley to preserve the structure and open it for public tours. While most of the work occurred on the interior, improvements in the surrounding landscape included removal of Monterey pine trees planted on the parapets after World War II.[47] The most extensive of recent changes was the Marine Mammal Center's construction of a large three-building headquarters complex at the SF-87 launch site housing a research hospital and educational center (fig. 6.21). Begun in 2005 and completed in 2009, the $32 million



Figure 6.21. The new hospital and educational center of the Marine Mammal Center, completed in 2009 at the SF-87 launch site, looking north, 2009. (SUNY ESF.)

complex consolidated the center's office, visitor center, educational space, and veterinary facilities that had been dispersed among several buildings at the cantonment and SF-88 launch site. The project also included a visitor parking lot and new pens and pools.[48]

FORT BAKER UNIT (EAST FORT BAKER)

Between 1972 and 2002, the Army removed a large number of buildings from the main post of Fort Baker, primarily the World War II-era temporary Series 700 type. An exception was the former YMCA at the southeast side of the parade ground that was demolished in 1972. By 1976, the Army had determined that most of the Station Hospital buildings, many of which were vacant, had "deteriorated beyond economic use" and warranted removal (fig. 6.22).[49] The Army demolished the north half of the complex in ca. 1978, leaving an open area with scattered mature trees, the entrance drive loop off Center Road, and the rows of buildings along the waterfront (fig. 6.23). Within five years, the remainder of the Station Hospital was gone, except for the trees on the site and the timber bulkhead along the shoreline. All of the adjoining Quartermaster area buildings, the Mine Depot cable tank building, and marine maintenance buildings used by the Presidio Yacht Club remained.[50]

Aside from building demolitions, the Army made few alterations or improvements to the landscape of the Fort Baker main post. A small stone monument commemorating the Army's bicentennial was placed on the parade ground in front of the barracks in 1975, accompanied by a Douglas-fir tree added a year or two later. Over time, many of the aged acacia and eucalyptus trees along the parade ground were removed and not replaced, while shrubs along the fronts of the buildings became overgrown (fig. 6.24). In 1999, most of these shrubs were removed to allow for foundation repairs. Over the next decade, the Army did not replace the shrubs or make other improvements while it awaited the transfer of the property to the park.[51]

Figure 6.22. The former Station Hospital administration building built in 1941, looking south from Center Road, 1976. This was one of thirteen in the complex demolished in ca. 1978. (Golden Gate National Recreation Area, Park Archives and Records Center, Army Real Estate Collection, GOGA 35338)



Other changes at the Fort Baker main post during the 1980s and 1990s occurred on National Park Service property surrounding the main post. These included construction of the U.S. Coast Guard Station Golden Gate, opened in 1990 on the western side of Horseshoe Cove. This was a replacement of Station Fort Point at the Presidio, which had become inadequate for the Coast Guard's search and rescue missions. Construction of



Figure 6.23. The remaining buildings of the Station Hospital following demolitions undertaken in ca. 1978, looking east from Vista Point, 1980. In the left background are the Quartermaster Area buildings. (Private Collection of Paul Judge)



Figure 6.24. The Fort Baker main post looking north toward the old administration building and artillery barracks showing loss of trees around the parade ground and overgrown shrubs around the buildings, photographed 1980. (Private Collection of Paul Judge)



Figure 6.25 (bottom). The Coast Guard station building (yellow building in center) at Fort Baker built in 1988, looking north from the public fishing area on the mine dock with the parade ground in the background, photographed 2009. Left of the station building is the former mine cable tank building. (SUNY ESF)

the new facility at Fort Baker, on land that the Army transferred to the National Park Service in 1985, was begun in 1988. It consisted of a two-story station building on part of the old Station Hospital site, designed by Winzler & Kell of San Francisco under contract with the Coast Guard Design and Construction Center in Seattle (fig. 6.25). The two-story building faced Horseshoe Cove, set back along a narrow lawn with parking lots to the side and rear accessed off Center Road. The grounds, which abutted the 1902 pumphouse and 1920 mine cable tank building, were enclosed by white metal picket fences. The park's permit allowed the Coast Guard to renovate the former Moore breakwater into mooring space for its boats, using floating docks.[52]

In 1991, the Bay Area Discovery Museum opened in the former Quartermaster Area, on land the Army had transferred to the park in 1986. In a rehabilitation project that earned a federal preservation award, the museum converted the seven remaining Quartermaster buildings into museum and office space. The project included construction of a new building, Discovery Hall, on the site of a Quartermaster stable that the Army had removed prior to 1972 (fig. 6.26). Satterlee Road, the road through the middle of the complex, was removed to create a pedestrian zone. In 2001, the museum embarked on a $19 million expansion and renovation campaign that included



Figure 6.26. The Bay Area Discovery Museum showing features added since the museum's opening at the site in 1991, and military features that preceded them, 2009. (U.S. Department of Agriculture Farm Survey Agency aerial photograph, 2009, annotated by SUNY ESF)

construction of a new museum entrance and theater building on the site of the Quartermaster coal shed removed prior to 1972. Off the northeast corner of the complex, the museum completed a 2.5-acre outdoor exhibition, Lookout Cove, in 2004 on the site of Quartermaster corrals and a 1941 warehouse that the Army had removed in ca. 1980. The campaign also redesigned the circulation at the museum complex. As completed by 2008, this work included removal of Breitung Road and the ca. 1940 corrugated metal garage along the south side of the complex to make room for a loop entrance drive and new parking lot needed due make up for loss of the lot on the main post parade ground. A new alignment of Breitung Road was built to connect Center Road with Lower Satterlee Road. At the entrance drive, new walks and white-painted plank fences guided visitors toward the new entrance building.[53]

While the museum was working on its renovation campaign, the adjoining main post was undergoing an even more extensive rehabilitation to convert it into a retreat and conference center, as called for in the Fort Baker Plan approved in 2000. Work on the project, undertaken by a private developer, Fort Baker Retreat Group, LLC, began in 2006 and was completed in 2008. The renovated post was named "CavalloPoint: The Lodge at the Golden Gate," and also served as home of The Institute at the Golden Gate, an environmental organization established by the Golden Gate National Parks Conservancy.

Overall, the CavalloPoint lodge project was designed to enhance the pre-World War II character of the building exteriors and grounds through rehabilitation of twenty-eight pre-1941 buildings, including the former officer quarters, administration building, barracks, gymnasium, post exchange, hospital, and chapel, into lodge accommodations, a restaurant, lounges, meeting space, offices, and other facilities. The brick barracks and post hospital were retained for park use and were not rehabilitated. The Capehart houses dating to 1959 were determined to be non-historic and were demolished as part of the project in 2006. Small parking



Figure 6.27. The Fort Baker main post following its rehabilitation as the CavalloPoint Lodge showing features removed and added, ca. 2009. (U.S. Geological Survey aerial, ca. 2009, annotated by SUNY ESF)





Figure 6.28 (top). The Fort Baker main post following its rehabilitation as the CavalloPoint lodge, looking northaast, 2009. The new lodge buildings are on the hillside behind the historic buildings. (SUNY ESF)

Figure 6.29 (bottom). The Fort Baker parade grounds showing character of new plantings and circulation in the CavalloPoint project, looking west, 2009. The tall trees in the background are part of the Monterey cypress windbreak planted in ca. 1905. The two-story porch on the former barracks building at right, removed after World War II, was reconstructed as part of the CavalloPoint project. (SUNY ESF)

lots for the lodge were constructed on the footprint of nine Capehart building sites along Seitler Road (fig. 6.27). Thirteen new lodge buildings were completed in 2008 on or near the remaining Capehart sites along the eastern end of Seitler Road and Merrill Street, surrounding the World War II-era chapel. These new buildings were designed in a contemporary style that was intended to be distinct from the historic buildings and visually recede into the natural setting of the hillside (fig. 6.28).[54]

By 2007, the building rehabilitation was nearing completion and work began on the landscape. The lodge developers replaced concrete steps, repaired sidewalks and curbs, repaved streets, and planted low-maintenance turf grass and foundation plantings (fig. 6.29). Mature specimen trees were retained where possible, including the aged windbreak of Monterey cypress that towered over the officer quarters. The National Park Service was responsible for rehabilitation of the parade ground to its pre-World War II character. The project included removal of a 1943 searchlight storage building and ca. 1963 parking lot along Center Street, removal of remaining trees except for the young fir tree at the Army bicentennial monument, installation of low-maintenance turf grass and irrigation, and planting of eucalyptus trees to reestablish the row around the parade ground.[55]

LANDSCAPE SUMMARY, 1972–PRESENT

Between 1972 and the early twenty-first century (ca. 2015), the headlands landscape within Forts Baker, Barry, and Cronkhite was conserved through federal, state, and local efforts that resulted in one of the most significant conservation achievements in the Bay Area—the establishment of Golden Gate National Recreation Area. Once threatened by large-scale development, the headlands and the adjoining ranchlands to the north were conserved as public parkland, with few major changes visible from afar except for the spread of introduced trees into former grasslands and chaparral. These changes began to reverse by the turn of

the century with park removals and impact of pitch canker disease on Monterey pine. Major new construction was limited to the Fort Baker main post and SF-87 launch site at Fort Cronkhite. Building demolitions, in particular Capehart and World War II-era Series 700 buildings, had a more pronounced impact on landscape character during the period, but only in discrete areas. More pervasive but less conspicuous changes across the district during this period resulted from road upgrades with new pavement, intersections, curbs, and parking areas; replacement of Army signs with park and traffic signs; removal of boundary fences and gates; and addition of park furnishings including picnic tables, benches, barbecues, and garbage cans at areas such as overlooks, picnic areas, and camp grounds. A number of Army roads were converted to trails, some of which were designated as part of state and regional systems, including the Coastal Trail designated in ca. 1980 from the Golden Gate Bridge through Fort Cronkhite, and the San Francisco Bay Trail designated in ca. 1996 through Fort Baker. Deterioration and vandalism of once highly-maintained built works, which began before 1972, continued during this period. The commemorative meaning behind military names for places and features such as roads was also lost in large part. Perhaps the most poignant change was in the feeling of the landscape that resulted from the departure of the military. Uniformed officers, troops in training, the sound of rifle fire, passage of military vehicles, and the secured atmosphere evident from gates and chain-link fences along the reservation boundaries disappeared from the landscape in its transition to public use.

FORT BAKER (DRAWING 1.13)

During the four decades after creation of Golden Gate National Recreation Area, Fort Baker was transformed not only through departure of the military—it was the last area vacated by the Army—but also through large-scale redevelopment projects. Since 1972, the former military reservation had become home to several park partner organizations and concessions, notably the Coast Guard, Bay Area Discovery Museum, CavalloPoint lodge, and the Institute at the Golden Gate. The pre-existing Travis Sailing Center (Presidio Yacht Club) and Sausalito–Marin City sewage plant continued their permitted uses that existed prior to 1972, and the Coast Guard transferred its property at Yellow Bluff and at Lime Point to the park, but maintained its navigational aids under permit. Trails along the bay to Cavallo Point and a fishing area on the Mine Dock were the main public recreational areas at the former East Fort Baker, while much of the former reservation west of US 101 in the Marin Headlands unit provided mostly unrestricted public access. The park maintained overlooks at Battery Spencer, Hawk Hill, and along Conzelman Road, along with trails, harbor defense remnants, and Kirby Cove picnic areas and campgrounds that were the primary outdoor recreational attractions.

Major changes across the Fort Baker reservation since 1972 included spread of non-native eucalyptus, Monterey pine, and Monterey cypress woods; removal of

Army security gates and fences; and conversion of former jeep roads and secondary roads to hiking trails, such as Julian Road (Coastal Trail) and Wolfback Ridge Road (SCA Trail). At the former main gate off Alexander Avenue near the Baker-Barry tunnel, the intersection with Bunker Road was realigned and a public parking area and bus stop was built adjacent to the East Portal. Commuter parking was accommodated in the Dillingham Lot built in ca. 1990 along Old Conzelman Road off U.S. 101. As part of the district-wide road upgrades built between 2010 and 2011, the Central Federal Lands Highway Division redesigned public parking along Conzelman Road at Hawk Hill (Battery Construction 129), and upgraded Conzelman Road to improve safety and traffic flow through widening, resurfacing, new drainage structures, addition of steel guardrails, and redesign of the scenic overlooks. The upgrades included addition of stone rip-rap along road shoulders, cutting back of red-rock cliffs, and redesign of the 'Y'-intersection of Conzelman Road and McCullough Road as a rotary.

Defensive Works (Drawing 1.13)

The defensive works at Fort Baker, abandoned since World War II, remained largely intact, although the condition and setting changed due to public use, vandalism, and growth of vegetation that blocked once strategic sight lights. These changes included addition of a trail on top of the Battery Ridge parapet at Battery Spencer and filling of the Battery Ridge traverse magazines to accommodate a public trail to the overlook. At Battery Duncan, continued growth of the eucalyptus woods enveloped the work, although the park cleared a swath in front of the battery to create a vista of San Francisco Bay. Monterey pines grew up in front of Battery Orlando Wagner, and extensive graffiti covered its concrete walls. Erosion at Kirby Beach undermined one of the two concrete gun plugs from the World War II-era Battery Gravelly Beach, but Battery Kirby remained intact and accessible as part of the adjoining day-use area. The park also undertook some restoration work Fort Baker's defensive works, including repair of Battery Spencer's concrete structures, and removal of trees and brush that had covered the earthen parapets of Battery Cavallo.

Main Post (Drawing 1.13a)

The Fort Baker main post—long visible to the public from the Golden Gate Bridge and the Vista Point overlook—became a mix of public and quasi-public areas through implementation of the Fort Baker plan between 2006 and 2008. Building demolitions, the park's rehabilitation of the parade ground, and the private CavalloPoint lodge project returned the main post to a largely pre-World War II character, with a new ring of development around its periphery.

Changes to the spatial character of the post resulted from removal of the YMCA and World War II barracks to its rear, which opened the southeast side of the parade ground, and removal of the Station Hospital complex, which opened the

space to the south. Within the parade ground, the park removed a World War II-era garage and searchlight storage building at the southwest corner, along with a Cold War-era parking lot, bush shelter, and softball field. The construction of thirteen new buildings for CavalloPoint lodge maintained half of the Capehart building density on the hillsides above the main post. Changes to secondary spaces since 1972 included loss of the last remnants of the civilian housing area off Bunker Road, addition of small patios and parking spaces between the barracks as part of the CavalloPoint lodge project, and construction of two connected spa buildings between Seiter Road and Murray Circle

Rehabilitation work undertaken as part of the CavalloPoint lodget project included reconstruction of the two-story porches removed in the 1950s from the two frame artillery barracks, and renovation of all post buildings in the white and red-roof color scheme also dating to the 1950s. A part of this project, the National Park Service did not rehabilitate the post hospital and brick barracks, which were the two primary building it retained at the main post along with the mine storehouse off the southwest side of the parade ground.

The park, which rehabilitated the parade ground in conjunction with the CavalloPoint lodge project, removed the few original specimen eucalyptus and acacia trees around the periphery and added new plantings of eucalyptus and drought-resistant turf. The park also planted eucalyptus trees on both sides of Center Road, returning a feature that had been removed in the late 1930s. Around the lodge buildings, the CavalloPoint project planted native, drought-resistant, and low-maintenance turf and foundation plantings. Some of the specimen trees in the Capehart housing area, including palms, camphor, and eucalyptus, were retained.[56] The windbreaks of Monterey pine, cypress, and eucalyptus along the west side of the main post continued to mature during this period, towering over the officer quarters along the parade ground. Most of the eucalyptus windbreak uphill of the eastern half of McReynolds Road disappeared.

Other changes to the main post, most resulting from the CavalloPoint lodge project, included replacement of the ca. 1950 concrete lampposts along Murray Circle with black metal standards; removal of Umia Street and construction of a parking lot in its place; replacement of the ca. 1905 tennis court with lawn; creation of eight small parking lots on the sites of Capehart houses; and redesign of the access to the 1941 chapel, which was renamed Mission Blue Chapel.

Quartermaster Area and Station Hospital (Drawings 1.13, 1.13a)

The area of Fort Baker south of Center Road including the Horseshoe Cove waterfront, was transformed during this period through demolition of the 1941 Station Hospital complex, development of the Coast Guard Station Golden Gate, and adaptive reuse of the Quartermaster area as the Bay Area Discovery Museum. The timber seawall and fill at the hospital site were retained, but most of the remaining trees were removed to reestablish the open field that existed prior to 1941. In

contrast, the southwest corner of the site featured new development for the Coast Guard station with its two-story building surrounded by parking lots, lawn, and white metal picket fences that did not relate to earlier development on the site. To the west were the only remaining historic buildings in the area, the 1903 pump-house and 1941 cable tank building.

The Quartermaster area retained its historic configuration in its conversion as the Bay Area Discovery Museum in the 1990s, with new museum buildings erected on prior building sites using similar massing and materials. Removal of several ancillary buildings to the west, addition of the museum's Lookout Cove exhibit on former horse corrals, conversion of Satterlee Road into a pedestrian zone, and addition of fences, gates, a large parking lot, and new entrance drive changed the setting and circulation within the complex. The park also began to remove related buildings along East Road erected during World War II and the Cold War, including a gas station and paint storage building.

Along the Horseshoe Cover waterfront, the rip-rap added in ca. 1975 in front of the timber seawall of the Station Hospital site remained as plans were made for restoring the natural beach.[57] On the west side of the cove, the Coast Guard adopted the Moore Breakwater as dockage for its boats, and the park maintained the Mine Wharf as a public fishing pier, minus the adjoining timber Quartermaster wharf that had been removed by the Army in ca. 1980. On the east side of the cove, the Travis Sailing Club continued to occupy the 1944 marine maintenance facility along with the boat slips at the former Angel Island ferry dock and Satterlee Breakwater.

FORT BARRY (DRAWING 1.14)

During this period, the National Park Service opened most of Fort Barry to public access along the reservation's many trails and scenic roads. Like Fort Baker, however, its primary developed areas—the main post, SF-88 administrative area, and balloon hangar area—were restricted to public access due to use by park partners that included NatureBridge (Headlands Institute), Marin Headlands Hostel, YMCA, and Presidio Riding Club. Certain park-operated areas were also restricted to limited open hours and access by tour only, including Point Bonita and the restored SF-88 launch area, while the Capehart housing and former Coast Guard Life-Saving Station remained private areas through their continued use as staff housing. Although the Coast Guard still owned thirty-nine acres at Point Bonita and two acres at Point Diablo (2015), the agency no longer had a staff presence. It was responsible for three automated navigational aids at Fort Barry: the light in the Point Bonita Lighthouse, the beacon at Point Diablo, and a Vessel Traffic Service tower on Bonita Ridge.

Since 1972, the Fort Barry landscape underwent two major changes in its organization and spatial character: loss of the Smith Housing Area, which the park

demolished in ca. 1978, and growth of woods that created greater enclosure, especially at Battery Wallace, Battery Smith–Guthrie, the main post, Bonita Ridge, and the Capehart area, although the park began to remove some of this growth, notably woods of Monterey pine at Battery Construction 129 on Hawk Hill. Establishment of the Bicentennial Campground and picnic area east of Battery Wallace introduced a new use area, but with little alteration of the pre-existing groves of Monterey pine and cypress. Native riparian shrubs and trees formed a nearly continuous band of woods along Rodeo Creek and covered the old reservoir in Rodeo Lake. The area of open water in the lake decreased about two-thirds due to siltation resulting from restricted flow through the Bunker Road causeway.

Circulation across Fort Barry changed through construction of new trails, notably a segment of the Coastal Trail south of the main post, the Upper Fisherman's Trail leading to Black Sands Beach along Bonita Cove, and a new trail to Battery Construction 129. Some of the old secondary Army roads were converted to trails, such as Julian Road between Forts Baker and Barry, which became part of the Coastal Trail. The most conspicuous changes to circulation at Fort Barry during this period resulted from the addition of visitor parking lots, overlooks, and roadside parking, notably at the Bird Island Overlook north of Battery Mendell, near the Rifle Range, and at the Fort Barry Chapel, which became the Marin Headlands Visitor Center in 1992.

Defensive Works (Drawing 1.14)

All of the defensive works at Fort Barry that stood in 1972 remained, including the main batteries, secondary fire-control stations, and Nike installations, but in varying states of preservation. The park maintained batteries Rathbone-McIndoe, Alexander, Smith-Guthrie, O'Rorke, and Mendell for exterior public access, with the gun platforms serving as scenic overlooks or picnic areas. The secondary defense elements, which the Army had largely abandoned by 1972, continued to deteriorate from exposure and vandalism. The fire-control stations on Bonita Ridge and the radio station at the mine casemate stood as graffiti-covered shells, while the earth cover around those at the Bird Island Overlook eroded from trampling. Several fire-control stations, such as BC Wallace on Rodeo Hill, remained largely intact and in fair condition, with vestiges of their interior equipment. The Nike SF-87 control site at Hawk Hill consisted only of foundation remnants and retaining walls following removal of the buildings in ca. 1972, except for the ready room that was built as part of Battery Construction 129. In contrast, the restored SF-88 launch site remained intact due to the efforts of park staff and volunteers who opened the area to the public as a historic site.

Rifle Range and Motor Pool Area (Drawing 1.14)

Although the park initially planned to convert the Departmental Rifle Range into an outdoor events area, it continued to mow it and the adjoining pistol range, which retained the landscape's open character. A number of changes occurred around the time the Army ceased using the area in ca. 1975, when the 1941 indoor rifle range and ready magazine buildings at the old pistol range were demolished, leaving only the target storage building. At the south end of the rifle range, the park abandoned the target trench, leaving the timber elements to rot, and ceased mowing the embankment to the rear. At the west end of the rifle range, the park added a trailhead parking area in front of the 600 yard berm that was replaced with a larger parking area at the site of the Smith Housing Area in 2012.

At the Motor Pool area (former balloon hangar field and rifle range camp), the park continued to lease the property to the Presidio Riding Club, which added new corrals to either side of the former motor vehicle sheds. The club also made use of the balloon hangar as an indoor riding rink. The guard house and gas station were removed, and a small utility building was added along Bunker Road. To the south, the park abandoned the Army dump, which regrew in a mix of native and exotic trees and scrub, and removed the surrounding fence. The road through the dump became a spur of the Coastal Trail.

Main Post (Drawing 1.14a)

The main post of Fort Barry, under park administration since 1974 and occupied by the Headlands Center for the Arts and Marin Headlands Hostel, did not undergo the extensive changes that occurred at Fort Baker. Despite this, its character changed through growth of vegetation, decreased maintenance, changes in circulation, and some loss of buildings. Notable changes in built features since 1972 at the upper part of the post included removal of all of the four garages built between ca. 1915 and 1942, and addition of utility sheds near the former hospital steward's quarters and post administration building. A section of the concrete sidewalk and steps in front of the administration building was removed and all of the other steps from Simmonds Road were replaced. The original entrance into the post from the east was removed with conversion of Simmonds Road into one-way westbound traffic.

More conspicuous change in the landscape resulted from infrequent mowing of the lawn along the steep slope above Simmonds Road, overgrowth of shrubs and foundation plantings, and establishment of a community garden south of the Commanding Officer Quarters in the approximate location of the more formal garden dating to ca. 1939. The hostel established a picnic area at the post hospital, and additional unsurfaced parking was created along Rosenstock Road, including on the former World War II assembly area next to the administration building. The Monterey cypress planted soon after the construction of the buildings had

grown into large specimens, with long, spreading branches that shaded Simmonds Road and also blocked views of the parade ground. The park continued to mow the parade ground, and cleared some of the uphill spread of the eucalyptus windbreak and northward spread of the Monterey cypress. The park also removed the perimeter security fence around the post.

The area of the main post that experienced the most change after 1972 was the lower or western part. The 1941 theater was lost to fire and the 1941 radar shop, 1940 garage next to the Non-Commissioned Officer quarters, 1909 pump house and 1950 sewage lift station along Bunker Road were demolished. The renovation of the chapel into the Marin Headlands Visitor Center included addition of a parking lot and ramped entrance walk, and abandonment of a section of Bosworth Road in front of the chapel. The park replanted this area with native scrub vegetation.[58] As part of the district-wide road improvements completed in 2011, the Central Federal Lands Highway Division redesigned the adjoining 'Y' intersection of Field Road and Bunker Road into a 'T' intersection, and added curbing, accessible bus stops, and paved shoulders along Field Road through the lower main post.

Capehart Area, Smith Housing Area, and SF-88A (Drawing 1.14, 1.14b)

The Fort Barry Capehart Area, one of the last parts of the Marin Headlands unit occupied by the Army, changed little during this period aside from growth of planted and volunteer trees that created a partly enclosed and shady character to the area. Residents added outdoor furnishings, plants, and other personal touches in the areas surrounding the buildings, and some units received replacement windows. The only major built change was the demolition of one of the Capehart quarters along Shiley Street, and realignment of the intersection of McCullough Road and Bunker Road. A short distance west on Bunker Road, the entire Smith Housing Area was removed during this period, except for Smith Street and some access drives to the buildings. Most of these remnants were later removed in part with construction of a trailhead parking area on the site in 2011.

The SF-88 administration area, formerly the Mendell Area, witnessed relatively few built changes in its new use as the Point Bonita YMCA, but its overall character became more informal in its shift from military to recreation and education uses. Trees were planted around the buildings, and the YMCA built an amphitheater. The perimeter security fence was removed to allow the complex access to the natural area to west, or replaced with more rustic wood fences. Across Field Road, the ca. 1915 Engineer storehouse and recreation building used as part of the Mendell Area was demolished, along with a 1950 electrical station. The surrounding area grew up into a grove of Monterey cypress.

Point Bonita Light Station Reservation (Drawings 1.14, 1.14b)

After the major demolitions of the 1960s, the Point Bonita area saw relatively few changes after 1972. The only significant built changes were construction of the new Coast Guard Vessel Traffic Service tower on Bonita Ridge, with a transmitter building and reconstructed concrete retaining wall along the access road below. The Coast Guard removed the old VTS tower and Navy Shoran tower, but their concrete footings remained. The adjoining abandoned fire-control stations, M1 and Mine Groupment, lost all or part of their roofs and were vandalized with graffiti, while the two other fire-control stations that had been converted to support facilities for the Coast Guard's old VTS tower were abandoned. Remnants of the Coast Guard boathouse and dock on Bonita Cove continued to disappear. Along the lighthouse trail, a new bridge was built north of the tunnel where erosion had impacted the old roadbed, and railings were added along the trail south of the tunnel. Two small Coast Guard buildings were removed north of the tunnel, and the remnants of two frame fire-control stations on Point Bonita Hill disappeared. The suspension bridge to the lighthouse deteriorated and was posted with a weight limit before the park rebuilt it in-kind in 2012.

Road changes included extension of Conzelman Road to Field Road near the SF-88 administration area in ca. 1975 to bypass the Coast Guard quarters (former Life-Saving Station). More recently, the road to Battery Mendell and at the Bird Island Overlook was rehabilitated with a red-chert surface that restored the original ca. 1905 surface, and a large curbed turn-around with a comfort station was built in 2011-2012 at the terminus of Field Road, on and adjoining the site of the Lighthouse keepers duplex demolished in ca. 1961, as part of the district-wide federal highways-funded road improvements.

Monterey cypress continued to spread across the landscape of Point Bonita, particularly around the site of the ca. 1875 keeper's dwelling and the Life-Saving Station. Here and on the point, agave, alyssum, cabbage, calla lily, German ivy, narcissus, periwinkle, and red-hot poker, most likely originating from the lighthouse keepers' gardens, became naturalized in small patches. Myoporum trees remained in the once highly maintained Life-Saving Station landscape.[59]

FORT CRONKHITE (DRAWING 1.15)

The lands that were part of Fort Cronkhite in World War II, including the Marin Headlands State Park Tennessee Valley Unit and the Coast Guard Primary Radio Receiver Station, were reunited during this period under park service ownership. The historic limits of Fort Cronkhite, however, became less distinct as the park removed boundary fences with the incorporation of the adjoining former ranchlands into the Marin Headlands unit of Golden Gate National Recreation Area. The last of the Silva Little Ranch buildings were removed, and the site became hidden by heavy vegetation.

Unlike Forts Baker and Barry, most of Fort Cronkhite outside of the cantonment was managed as a natural landscape zone, with little new recreational development. The landscape was opened to public recreational use, which included hiking along trails near the coastline, Wolf Ridge, and in Tennessee Valley; surfing and sunset watching along Rodeo Beach; and tours of Battery Townsley. Restricted areas were confined to portions of the cantonment and the SF-87 launch site, which were adapted to multiple uses by the park and its partners, including park maintenance, park offices and interpretive spaces, the Headlands Institute (NatureBridge), and the Marine Mammal Center.

As at Fort Barry, changes in circulation throughout Fort Cronkhite included conversion of former Army roads to hiking trails, such as part of Bunker Road on Wolf Ridge and the road to Tennessee Point. A major change in circulation was caused by a landslide on the western foot of Wolf Ridge, which destroyed a large section of Bunker Road and made Wolf Ridge, including AA Battery #1 and SF-88C, inaccessible except by foot along a new alignment of the Coastal Trail that the park laid out beginning near Battery Townsley. Parking became more visible with redesign and expansion of the lot at the west end of the cantonment, expansion of roadside parking along Mitchell Road, and addition of the Surfer Lot near Rodeo Beach and new parking for the Marine Mammal Center. The park removed the Surfer Lot in 2012 and restored the site to natural wetlands.

Throughout Fort Cronkhite, grassland and other open space continued to convert to scrub and tree cover, but much of Wolf Ridge maintained its historic barren character. While Monterey pine and cypress grew and spread around the defensive works and cantonment, the park removed much of this growth during this period, notably from Battery Townsley and AA Battery #1. At the site of the Silva Little Ranch, ornamental plantings from the ranch gardens naturalized in the low area east of Mitchell Road, including calla lilies, firecracker lilies, mustard, meadow-mint, and evening primrose.[60]

Defensive Works (Drawing 1.15)

The major change in Fort Cronkhite's defensive works during this period included abandonment of the SF-88 control site, conversion of the SF-87 launch site to the Marine Mammal Center, and restoration of Battery Townsley that allowed the structure to be opened for guided tours. A number of secondary defense structures were lost or dislocated from their original sites, including B1S1 BC 129 and B4S4 Davis that were causalities of the Wolf Ridge landslide; and fire-control stations and searchlight structures on the lower part of Tennessee Point due in part to use of the area by the URS Corporation for ammunition destruction. Despite the losses, Fort Cronkhite retained a number of largely intact secondary defensive works concentrated on Wolf Ridge and Tennessee Valley, some with their original rock and vegetation camouflage. Remnants of the hutment above AA Battery #1 on Wolf Ridge remained, preserved largely due to the remote and arid site,

although some of the underground timber and corrugated metal structures collapsed.

Alteration of the SF-87 launch site resulted from its adaptive reuse by the Marine Mammal Center that required covering of the underground missile magazines. Enlargement of the center in 2009 added large buildings and parking areas to the launch area, with the ready room and dog kennel area as the only remaining visible Nike facilities. The Limited Area of the SF-87 launch site retained more of its character in its reuse as park maintenance facilities, with major changes limited to a new building and removal of a section of road connecting it to the Exclusion Area. The SF-88 control site on Wolf Ridge was vandalized, but retained its radar pads and buildings, unlike the SF-87 control site on Hawk Hill, which retained just one of its buildings. The park also took down some of the structures due to advanced deterioration.

Fort Cronkhite Cantonment (Drawing 1.15a)

Removal of six Series 700 buildings along Kirkpatrick Street in the east wing and four along Mitchell Road in the west wing further changed the density and extent of the Fort Cronkhite cantonment that had begun with redevelopment for the SF-87 administration area in the 1960s. The addition of a native plants nursery along Kirkpatrick Street in ca. 2000, with a greenhouse, shade house, and other support buildings, introduced a new facility to the landscape, with growing structures and two new buildings where the officers' club and parking lot once stood. At the west end of the cantonment, the park enlarged the parking area and constructed a restroom building. The Fort Cronkhite parade ground was heavily altered through its conversion into park maintenance yard, divided by fences and used to store debris and vehicles, and by a new entrance drive to the Marine Mammal Center that cut through its center. More recently, the maintenance yard was replaced by a new visitor parking lot as part of the district-wide road upgrades completed in 2012.

Within the cantonment, the conversion of the SF-87 administration area into the Headlands Institute (NatureBridge) campus gave the former military landscape a more informal character. Although the institute retained the four Nike buildings, it replaced Stennis Street with a pedestrian area that included walks, plantings, benches, and an amphitheater. Other campus improvements included removal of the perimeter chain-link fence and addition of trails that linked to Rodeo Lagoon and outdoor classroom space along Kirkpatrick Street where barracks once stood. The buildings were changed in color from their original pale green to white.

Changes elsewhere in the cantonment were limited to removal of the air-raid siren tower, reconstruction of the sewer-line trestle across Rodeo Lagoon as a pedestrian bridge, removal of three small utility buildings along the south side of Mitchell Road, rebuilding of timber steps and concrete walks in the west wing, and loss of specimen Monterey pine and cypress in the central administration area. Monterey pine and acacia trees spread along the uphill side of Kirkpatrick Street and toward

the Battery Townsley reserve magazine. In 1997, volunteers erected a flagpole near the intersection of Mitchell Road and Haggerty Street as a prop for a living history program, leaving the original flagpole footing in front of the administration building empty.[61]

EPILOGUE

In its more-than forty years at the headlands, the National Park Service has maintained the landscape through a period of marked change in use. Today, the agency has jurisdiction over nearly all of the historic limits of Forts Baker, Barry, and Cronkhite, although the Sausalito–Marin City sewage plant, Golden Gate Bridge landing, and US 101/Alexander Avenue rights-of-way are managed by others through permits and outgrants. The two areas not presently under the jurisdiction of the park service—the Coast Guard's Point Bonita and Point Diablo light stations—are planned for transfer in the near future, bringing to a close the park's decades-long process of land acquisition at the Marin Headlands.



Figure 6.30. Panorama across the Marin Headlands looking southeast from Wolf Ridge toward Diablo Ridge, with the city of San Francisco in the distance, 2009. The rectangular area in the middle is the Departmental Rifle Range. (SUNY ESF)

Today, the National Park Service continues its challenging mandate to conserve the natural and historic resources of the headlands while ensuring that they be accessible for public use. As with nearly all cultural landscapes, the headlands will change over time in response to both cultural and natural forces. However, understanding of the landscape's history will provide the park and its partners the information needed to preserve the essential historic character of the Marin Headlands, defined by natural systems and patterns of spatial organization, land use, circulation, vegetation, buildings, and structures. The second volume of this Cultural Landscape Report will identify how individual features contribute to the landscape's historic character, identify issues that are impacting the ability of the landscape to convey its historic significance, and provide recommendations for how the park and its partners can change the landscape to better reveal its history and preserve its unique sense of place.

Since the American takeover of California in 1846, the Marin Headlands have been a protected landscape—a place that defended an economically and strategically significant port, and more recently, a place of respite and prospect with scenic panoramas at nearly every turn (fig. 6.30). While today's recreational, educational, and conservation uses represent a marked departure from the prior

ranching, military, and navigational uses, the headlands remain as important as they ever were to the San Francisco Bay Area and the nation at large. Although seemingly natural from a distance, Forts Baker, Barry, and Cronkhite comprise a significant cultural landscape that reflects great events in our nation's history, advances in military engineering and aids to navigation, and the rise of the West Coast's most important port, while its landforms and ecosystems reflect important cultural and natural values extending back to the time of the Coast Miwok people. Through careful stewardship, this cultural landscape will continue to convey its many stories for generations to come, for public use and enjoyment.

NOTES, CHAPTER 6

1 Public Law 92-589 (Golden Gate), 92-592 (Gateway) were both signed into law on October 27, 1972. Gateway was designated from a similar collection of military property and former city park lands at the entrance to the New York City harbor.

2 Hal K. Rothman, "The Park that Makes its own Weather: An Administrative History of Golden Gate National Recreation Area" (Unpublished National Park Service report, revised 2002), 12, 17, 27.

3 "Policy on the Establishment and Administration of Recreation Areas," in Larry Dilsaver, ed., *America's National Park System: The Critical Documents*, Chapter 5: Questions of Resource Management, 1957–1963, preamble, http://www.cr.nps.gov/history/online_books/anps/anps_5g.htm (accessed January 8, 2011).

4 U.S. Code, Title 16, Chapter 1, Subchapter LXXXVI, Section 460bb, "Establishment of Golden Gate National Recreation Area."

5 Fort Point and Muir Woods were included within the boundaries of Golden Gate National Recreation Area, but retained their distinct park designations. Point Reyes was incorporated into Golden Gate for administrative purposes, but also retained its own designation.

6 National Park Service, Land Status map, parcel 02-119, Golden Gate National Recreation Area, Segment 02, May 2002.

7 Title 16, Chapter 1, Subchapter LXXXXVI, Section 460bb-2, "Acquisition Policy," sections b, c, and g; "Point Bonita Historic District Cultural Landscape Inventory" (Unpublished National Park Service report, 2005), Part 2B, page 7. As early as 1962, the Coast Guard had agreed to transfer its future surplus property at the headlands, including Point Bonita, to the National Park Service. At the time, the law called for the surplus land to be administered as part of the recently established Point Reyes National Seashore. The Golden Gate legislation also allowed the Coast Guard to maintain navigational aids once it transferred its property to the park, subject to NPS approval.

8 Title 16, Chapter 1, Subchapter LXXXXVI, Section 460bb-2, "Acquisition Policy," section n.

9 Rothman, 22, 41, 57; Huey Johnson, Western Regional Director of the Nature Conservancy, interview by Ann Lage, November 20, 1989, in "Martha Alexander Gerbode (1909–1971), Environmentalist, Philanthropist, and Volunteer in the San Francisco Bay Area and Hawaii: Oral History Transcript, 1995," University of California, Berkeley, http://www.archive.org/stream/gerbodemartha00alexrich/gerbodemartha00alexrich_djvu.txt (accessed March 16, 2011); GOGA Land Status map, segment 02-162.

10 U.S. Army, "Forts Baker, Barry & Cronkhite, "Areas Under-Utilized for Military Purposes," July 24, 1972, Golden Gate National Recreation Area Park Archives and Records Center (hereafter, GOGA PARC), map 37060, D181 F2.

11 U.S. Army, "Army Land Uses in Golden Gate National Recreation Area," July 19, 1974, GOGA PARC, map 72312, D211 F2; Chris Rurik, "Preliminary Cultural Landscape Report, Departmental Rifle Range, Fort Barry, Marin Headlands" (Unpublished National Park Service report, 2010), 19.

12 John A. Martini and Stephen A. Haller, "What We Have We Shall Defend: An Interim History and Preservation Plan for Nike Site SF-88L, Fort Barry, California" (Unpublished National Park Service report, 1998), 81.

13 Tetra Tech, Inc., "Draft Records Research Report, Fort Cronkhite Formerly Used Defense Site J09CA3111" [FUDS] (Unpublished report prepared for the U.S. Army Corps of Engineers, August 2007), 3-10; Tetra Tech, Inc., "Draft Records Research Report, Fort Barry Formerly Used Defense Site J09CA3107" (Unpublished report prepared for the U.S. Army Corps of Engineers, August 2007), 11.

14 Martini and Haller, 59.

15 "Army Land Uses in Golden Gate National Recreation Area," July 19, 1974; Roth, 194.

16 Rurik, 21; John Martini, comments on second draft cultural landscape report, March 2011; Park map showing "Military Housing" at Fort Barry Capehart area, Golden Gate National Recreation park brochure, 1995.

17 National Park Service, collection description, Katharine S. Frankforter Papers & HEADLANDS, INC. Records, GOGA PARC, GOGA 27066; Roth, 39.

18 Rothman, 39, 44, 55-56; "Draft Records Research Report, Fort Barry Formerly Used Defense Site," 2-6.

19 National Park Service, Land Status map, May 2002, parcels 02-114, 02-115, 02-116. According to this map, NPS acquired a 5.5-acre tract at Tennessee Point from the Coast Guard (parcel 02-152). However, no record was found of when or why the Coast Guard acquired this property. The map, "Army Land Uses in Golden Gate National Recreation Area," July 19, 1974 (GOGA PARC D211 F2), does not indicate the parcel being owned by the Coast Guard.

20 U. S. Coast Guard, "Permit for Use of Real Property by other Federal Agencies," 82-RP-011P, July 21, 1982.

21 National Park Service, Land Status map, May 2002, parcels 02-101, 02-102; Cathy Gilbert, Barbara Judy, et al, "Cultural Landscape Report for Fort Baker" (Unpublished National Park Service report, July 2005), 38-39.

22 Land Status map, May 2002, parcel 02-196; "Cultural Landscape Report for Fort Baker," 39.

23 National Park Service, "General Management Plan, Golden Gate-Point Reyes" (Unpublished National Park Service report, 1980) [hereafter, 1980 GMP], 137 .

24 1980 GMP, 144–48; Roth, 172, 180.

25 Rothman, 151.

26 "Hostelling International-Golden Gate Council 50th Anniversary," http://norcalhostels.org/50years/#history (accessed January 12, 2011); YMCA of San Francisco, Point Bonita Outdoor and Conference Center, "Who We Are," http://www.ymcasf.org/ptbonita/who_we_are (accessed January 14, 2011); Headlands Institute, "About Us," http://www.naturebridge.org/headlands/about-us (accessed January 12, 2011); Headlands Center for the Arts, "Mission + History," http://www.headlands.org/article.asp?key=3 (accessed January 12, 2011).

27 Golden Gate National Parks Conservancy, "Our Work," http://www.parksconservancy.org/our-work/ (accessed January 12, 2011).

28 Golden Gate National Parks Conservancy, "Our Work," "About Us," and "Marin Headlands Nursery," http://www.parksconservancy.org/ (accessed January 12, 2011).

29 Bay Area Discovery Museum, "Museum History," www.baykidsmuseum.org/about/press/museum-history/ (accessed December 23, 2010).

30 National Park Service, "Fort Baker Plan," http://www.nps.gov/goga/parkmgmt/fort-baker-plan.htm (accessed January 14, 2011); John A. Martini, "Fort Baker Marine Repair Facility Historic Structure Report, Part IA" (Unpublished National Park Service report, 2009), 47.

31 "California Coastal Trail.info, http://www.californiacoastaltrail.info/cms/pages/trail/complete_trail.html (accessed January 12, 2011).

32 Carey Feierabend, "Historic Road Characterization Study, Supplemental Work" (Unpublished report prepared for the National Park Service, April 2004), 4, 6, 7.

33 1980 GMP, 53; John Martini, e-mail to John Auwaerter, January 14, 2011. The Army had renovated these buildings just prior to the transfer in 1974 under the impression they would be used for ranger housing.

34 U.S. Geological Survey, 1987 aerial photograph.

35 Rothman, 194–95.

36 The demolished buildings were 1051, 1052, 1053, and 1048. These are visible on a 1972 photograph, but not on a 1979 photograph, California Coastal Records Project images 7216006, 7926046.

37 1972, 1979 aerial photographs, California Coastal Records Project.

38 Rurik, 21-22.

39 The Headlands Institute landscape changes were built between 1979 and 1986 as evidenced in California Coastal Records photographs from those years (7926046, 198650009)

40 Golden Gate National Parks Conservancy, Park Improvements page, "Hawk Hill," http://www.parksconservancy.org/park-improvements/current-projects/marin/hawk-hill.html (accessed September 25, 2012). Visitor improvements, including enhanced trails, benches, and signs, are planned for the Hawk Hill observatory area at SF-87C; as of June 2016, this work has not yet begun.

41 Quoted in Martini and Haller, 58; FUDS Fort Cronkhite report, 3-1.

42 John Martini, e-mail to John Auwaerter, July 28, 2011. Rothman incorrectly states that the park service declined the Army's proposal in 1974 to make SF-88 into a memorial.

43 John Martini, comments on second draft report, March 2011.

44 Existing conditions inspection by authors, 2009.

45 Rothman, 179; John Martini, e-mail to John Auwaerter, July 28, 2011.

46 John Martini, e-mail to John Auwaerter, March 14, 2011; Martini and Haller, 83; National Park Service, "Col. Milton F. 'Bud' Halsey, A Sparkplug for Success," http://www.nps.gov/partnerships/halsey.htm (accessed July 28, 2011).

47 National Park Service, "Battery Townsley Preservation," http://www.nps.gov/goga/historyculture/battery-townsley-preservation.htm (accessed January 19, 2011); site visit by author, 2009.

48 The Marine Mammal Center, "Fact Sheet: A World Class Marine Mammal Research Hospital and Educational Center," http://www.marinemammalcenter.org/about-us/media-center/fact-sheet.html (accessed January 19, 2011).

49 Army Real Estate inventory, GOGA PARC box 8/17, IS01-07, Voucher F16, FY 1978, Building 620.

50 1987 aerial photograph; "Cultural Landscape Report for Fort Baker," 25.

51 "Cultural Landscape Report for Fort Baker," 39.

52 Winzler & Kell, "New State Facilities, U.S. Coast Guard Station, East Fort Baker,"May 19, 1988, GOGA PARC, D197 F4; Cultural Landscape Report for Fort Baker, 39; U.S. Coast Guard, Station Golden Gate, Station History, http://www.uscg.mil/d11/stagoldengate/history.asp (accessed January 18, 2011).

53 Google Earth aerial photographs, 1987, 1993, 2005, 2008, 2009; Bay Area Discover Museum website, "Tour the Museum," http://www.baykidsmuseum.org/tour-the-museum/ (accessed January 19, 2011).

54 National Park Service, "Porch Reconstruction," http://www.nps.gov/goga/historyculture/porch-reconstruction.htm (accessed January 19, 2011); National Park Service, "Fort Baker Plan," http://www.nps.gov/goga/parkmgmt/fort-baker-plan.htm (accessed January 19, 2011); Google Earth aerial photographs, 2005, 2007.

55 Google Earth aerial photographs, 2007, 2008; National Park Service, "Parade Ground Restoration at Fort Baker," http://www.nps.gov/goga/historyculture/parade-ground-restoration.htm (accessed January 19, 2011).

56 "Fort Baker Cultural Landscape Report," 64-66; existing conditions inspection by author, 2009.

57 As of 2014, plans for restoration of the Horseshoe Cove by the Golden Gate National Parks Conservancy have not been finalized.

58 John Martini, comments on second draft report, March 2011.

59 "Point Bonita Historic District Cultural Landscape Inventory," Part 3A, page 12.

60 Emily Bookstein, "Preliminary Cultural Landscape Report, Rodeo Beach Wetlands and Parking Lot" (Unpublished report prepared for the National Park Service, 2009), 44.

61 John Martini, communication to author, April 2014.

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Baker
1972–Present Period Plan

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SUNY College of Environmental
Science and Forestry, www.esf.edu/la/

SOURCES

1. NPS, Marin County GIS data
2. NPS, Land status map, 2002
3. US Army, Fort Baker general site plans, 1972
4. Coastal California Records Project photographs, 1972
5. Aerial photographs, 1972, 1987, 2009

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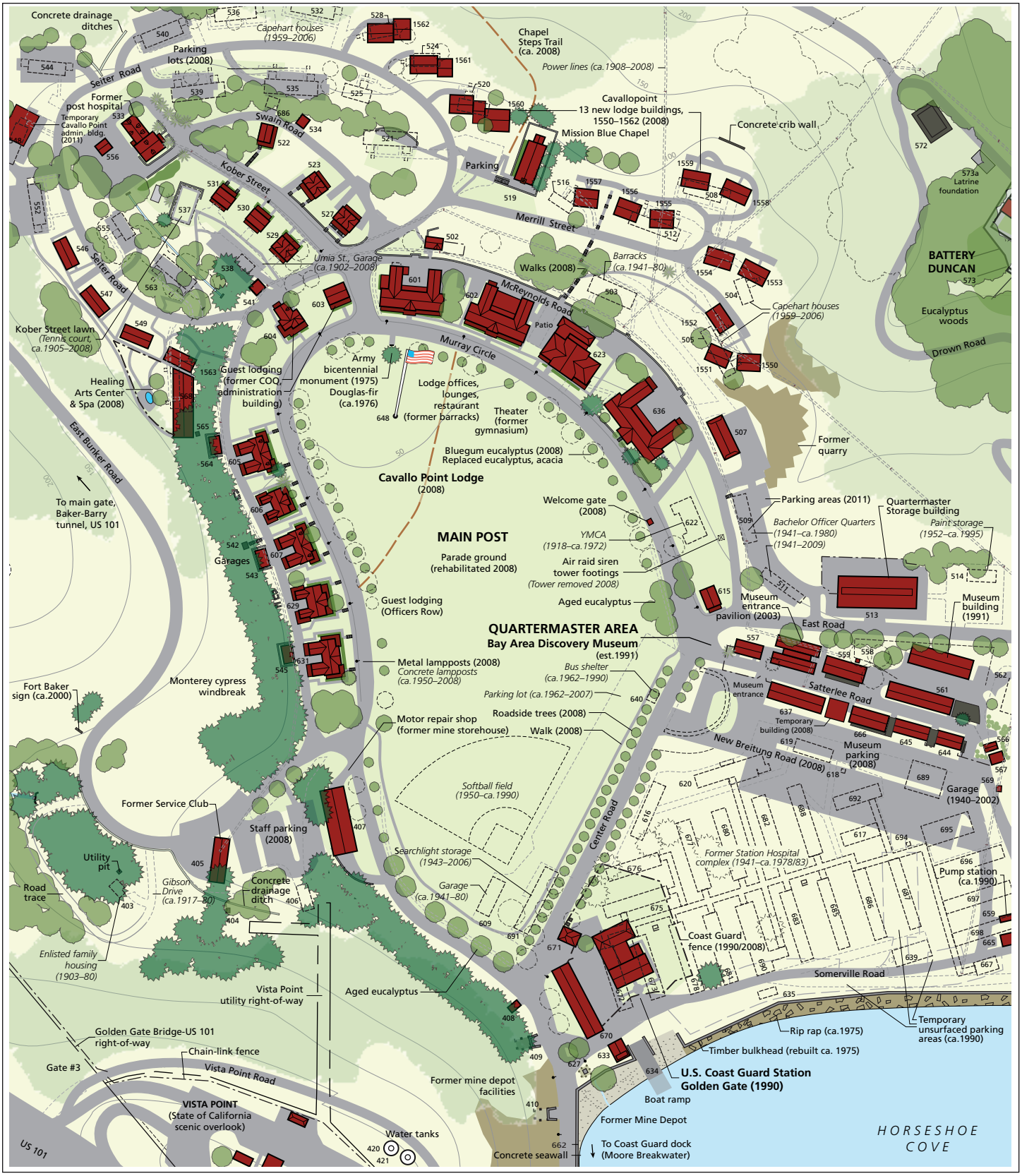
LEGEND

- Property boundary
- Building
- Structure, substructure
- Wall
- Road, trail
- Campground
- Post-Civil War-era battery
- Endicott-era battery
- Temporary gun emplacement
- Earth parapet of defensive work
- Water tank, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream
- Wetland
- Rock cliffs
- Edge of cut or quarry
- Beach
- 50' contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 2014.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Plan does not show overhead or underground utility lines, or all trails, jeep roads, and antiaircraft gun emplacements..
5. White mask indicates limits of Fort Baker study area.

Drawing 1.13



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NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 2014.
3. Plan does not show all small-scale features.
4. See drawing 1.13 for sources and other notes.

LEGEND

- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Lamppost
- Power line
- Lawn
- Grassland or bare earth
- Deciduous, conifer, palm tree
- Shrub, planted bed
- Woods, shrub cover
- Stream
- Rock cliffs
- Beach
- *Feature removed during period*

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Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Baker Main Post
1972–Present Period Plan Detail

0′ 100′ 300′

Drawing 1.13a

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Barry
1972–Present Period Plan

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SOURCES

1. NPS, Marin County GIS data
2. US Army, Fort Barry General Site Map, 1970
3. Coastal California Records Project photographs, 1972–2010
4. Aerial photographs, 1972, 1987, 2009

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LEGEND

- Jurisdiction boundary
- Building
- Structure, substructure
- Wall
- Road, trail
- Endicott-era battery
- WWII-era casemated battery
- Temporary gun emplacement, machine gun pit
- Earth parapet of defensive work
- Water tank / cistern, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream
- Wetland
- Rock cliffs
- Edge of cut or quarry
- Beach
- 50’ contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 2014.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Plan does not show above- or below-ground utility lines, or all trails, minor jeep roads, field defenses, and antiaircraft gun emplacements.
5. White mask indicates limits of Fort Barry study area.

Drawing 1.14

Period Abbreviations

F	Fort command station	AA	Anti-Aircraft
FC	Fort commander’s station	AW	Automatic weapon
BC	Battery commander’s station	AMTB	Anti-motor torpedo boat
B, BS	Base end / Spotting station	40 MM	40 millimeter AA gun
E	Emergency battery station	.50	.50 caliber AA gun
MC	Mine command station	SCR	Surface craft radar
M	Mine station	GGNPC	Golden Gate National Parks Conservancy

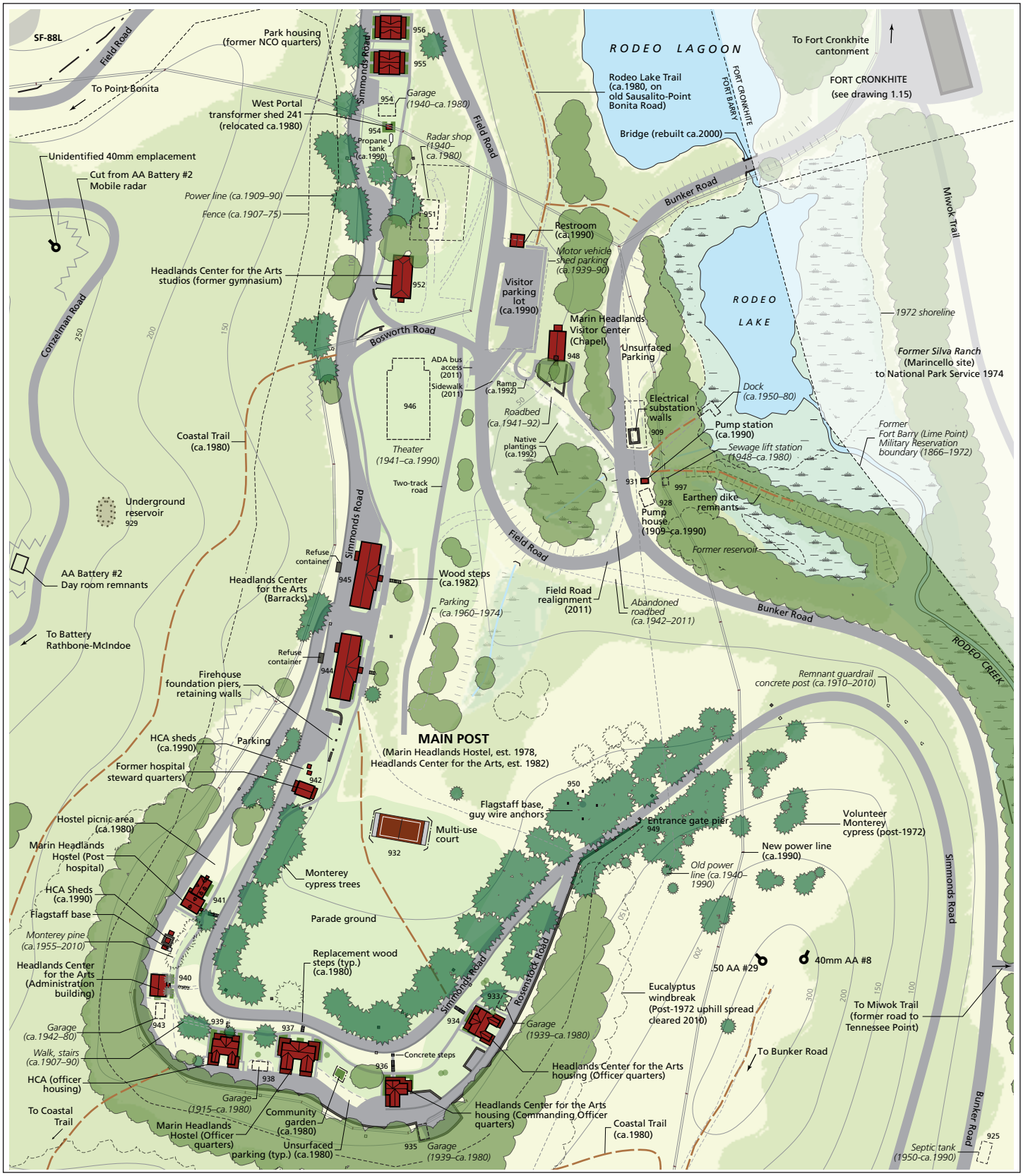
Numbers after station abbreviations indicate primary (1), secondary (2) and supplementary (3 and higher) stations.

All defensive works vacant or abandoned, except where noted.

* = AA caliber/designation not known

Building Key: See Appendix A (Fort Barry)

0’ 400’ 800’ 1,600’



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NOTES
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2. Plan shows landscape in 2014.
3. Plan does not show all small-scale features.
4. See drawing 1.14 for sources and other notes.

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LEGEND

- Property, reservation line
- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Drain inlet, outlet
- Power line
- Lawn
- Grassland or bare earth
- Deciduous, conifer, palm tree
- Shrub, planted bed
- Woods, shrub cover
- Stream, wetland
- Cut, fill
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Barry Main Post
1972–Present Period Plan Detail

0′ 100′ 300′

Drawing 1.14a



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NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 2014.
3. Plan does not show all small-scale features.
4. See drawing 1.14 for sources and other notes.

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LEGEND
- Building
- Structure, substructure
- Road
- Trail, walk, stairs
- Fence
- Earth parapet of defensive work
- Lawn
- Grassland or bare earth
- Conifer, tree
- Stream
- Rock cliffs
- Beach
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Bonita Ridge Area
1972–Present Period Plan Detail

0′ 100′ 300′

Drawing 1.14b

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite

Golden Gate National Recreation Area
Sausalito, California

Fort Cronkhite
1972–Present Period Plan

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SOURCES

1. NPS, Marin County GIS data
2. NPS, GGNRA Land Status Map, 2002
3. US Army, Fort Cronkhite general site plan, 1970
4. Coastal California Records Project photographs, 1972
5. Aerial photographs, 1972, 1987, 2009

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LEGEND

- Property, jurisdiction boundary
- Building
- Structure, substructure
- Wall, concrete or asphalt slab
- Road, trail
- WWII-era casemated battery
- WWII-era defensive positions (foxholes, trenches)
- Temporary gun emplacement, machine gun pit
- Earth parapet of defensive work
- Water tank, reservoir
- Fence
- Grassland, lawn, or earth
- Woods, shrub cover (riparian, chaparral)
- Trees (deciduous, coniferous)
- Open water
- Stream
- Wetland
- Rock cliffs, edge of cut or quarry
- Landslide
- Beach
- 50′ contours
- *Feature removed during period*

NOTES

1. Plan shows landscape in 2014.
2. All features shown at approximate location and scale.
3. Features added during period indicated by date of completion.
4. Plan does not show above- or below-ground utility lines, or all trails, minor jeep roads, field defenses, and antiaircraft gun emplacements.
5. White mask indicates limits of Fort Cronkhite study area.

Drawing 1.15

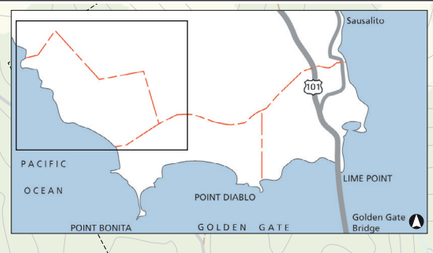
Period Abbreviations

F	Fort command station	AAA	Anti-Aircraft Artillery	L, C, A	Launch, Control, Administration
FC	Fort commander's station	AW	Automatic weapon		
BC	Battery commander's station	AMTB	Anti-motor torpedo boat		
B, BS	Base end / Spotting station	40 MM	40 millimeter AA gun		
E	Emergency battery station	.50	.50 caliber AA gun		
MC	Mine command station	PSR	Plotting-spotting-radio room		
M	Mine station	SCR	Surface craft radar		

Numbers after station abbreviations indicate primary (1), secondary (2) and supplementary (3 and higher) stations.

All defensive works vacant or abandoned, except where noted.

Building Key: See Appendix A (Fort Cronkhite)





DRAWN BY
John Auwaerter, Laura Roberts
Illustrator CS 5, 2014

NOTES
1. All features are shown in approximate scale and location.
2. Plan shows landscape in 2014.
3. Plan does not show all small-scale features.
4. See drawing 1.15 for sources and other notes.

National Park Service
Olmsted Center for Landscape Preservation
in partnership with Department of Landscape Architecture
Center for Cultural Landscape Preservation
SUNY College of Environmental Science and Forestry

LEGEND

- Reservation line
- Building
- Structure, substructure
- Road, parking area
- Trail, walk, stairs
- Wall, fence
- Power line, Propane tank (post-72)
- WWII defensive position
- Lawn, Grassland or bare earth
- Shrub, planted bed
- Deciduous, conifer tree
- Woods, shrub cover
- Stream
- Cut, fill
- Beach
- *Feature removed during period*

Cultural Landscape Report
Forts Baker, Barry, and Cronkhite
Golden Gate National Recreation Area

Fort Cronkhite Cantonment
1972–Present Period Plan Detail

0′ 100′ 300′

Drawing 1.15a

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Appendix A: Building-Structure Inventories

FORT BAKER BUILDING-STRUCTURE KEY

Notes: Numbers reflect latest Army or NPS designation. Repeats indicate reuse of number after removal of building. Missing numbers indicate redesignation or loss of building-structure. Buildings not numbered on plans not listed in table. LCS = NPS List of Classified Structures database (for existing buildings-structures).

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
4A		Hospital Pavillion Ward (gone)	ca.1908-1930	Main Post
6		Engineer Quarters	ca.1902-1920	Main Post
7		Barracks (3, gone)	ca.1905-1935	Main Post
7a		Barracks Lavatory	ca.1905-1935	Main post
8		Sausalito Gatehouse (gone)	ca.1906	East Road
8-T		Shed	ca.1922-50	Quartermaster Area
9-T		Paint House (gone)	ca.1922-50	Quartermaster Area
14		Civilian Employee-NCO Qtrs. (gone)	1903-ca.1918	Civ. Employee Area
15		Ordnance Storehouse (gone)	ca.1906-1911	Quartermaster Area
18		Engineer camp buildings (gone)	1869-1933	Engineer Dept. Area
22		Temporary Barracks (gone)	pre-1925	
25		Police Squad Room (gone)	ca.1917-1930	Quartermaster Area
32		Unidentified building, Saterleee Rd (gone)	ca.1915-1940	
61		Civilian Employee-NCO Qtrs. (gone)	1903-ca.1942	Civ. Employee Area
64		Civilian Employee-NCO Qtrs. (gone)		Civ. Employee Area
268	10119	Baker – Barry Tunnel	1918	Wolfback Ridge
271		Transformer shed (gone)	1941-ca.1980	West Portal
272	10120	Sentry Station	1919	West Portal
274		PG & E Station (gone)	ca.1960-1980	West Portal
400		East Portal Sentry Station (gone)	1937, 1942, ca.1950	East Portal
401	58059	Bunker Road Retaining Wall and Riprap	1937	nr. East Portal
403		Civilian Employee-NCO Qtrs. (gone)	1903-1980	Civ. Employee Area
404	58101	Transformer vault	1950	Main Post
405	58201	Carpenter Shop -Engineer & Signal Corps Storehouse -Recreation Room -Service Club -NCO Club	1910	Main Post
406		Boy Scout Building (Quonset Hut)	ca.1940-80	Main Post
407	55354	Mine Storage Building -Ordnance Shop	1941	Mine Depot
408	58067	Mission-style Storage Building	ca.1928	Main Post
409	55355	Power Plant	1941	Mine Depot
410	58068	Mine Depot Detonator Magazine	1920	Mine Depot
411	55356	Mine Depot TNT Storage Magazine	1920	Mine Depot
412	55357	Mine Loading Room	1932	Mine Depot
413	370217	Mine Loading Room	1945	Mine Depot
414	58054	Oil Tank	1913	Mine Depot
415	55358	Mine Dock (Fishing Pier)	1938	Mine Depot
416	370203	Quartermaster Wharf (gone)	1903/21-ca.1980	Mine Depot
416	37023	Mine Dock Dolphin - South	ca.1938	Mine Depot
417	370207	Mine Dock Dolphin - North	ca.1938	Mine Depot
418	370221	Fort Baker Water Pump House	1932	Engineer Dept. Area
420		Water Tank (gone)	ca.1900-ca.1980	Vista Point
421	58051	Water Tank	1913	Vista Point

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
422	58052	Water Tank	1913	Vista Point
423	58053	Water Tank	1913	Vista Point
427	370228	B3 Spencer	1910	Lime Point
433	55359	F1 Baker (F1G1 Baker)	1903	Lime Point Ridge
434	55360	B1S1 Spencer (B1 Spencer)	1900	Lime Point Ridge
500-552, 568		Fort Baker Capehart Quarters (gone)	1959-2006	Main Post
502	58215	Transformer Substation	1909	Main Post
503		Barracks	ca.1941-1980	Main Post
506		Sewage Shredder	ca.1952	East Road
507		Barracks	1941	Main Post
508	58127	Mine Cable Casemate (Baker-McDowell)	1895, 1903	On SF Bay
509		Bachelor Officer Quarters (gone)	1941-ca.1980	Main Post
509	58128	Cable Casemate Seawall (Baker-McDowell)	1895	On SF Bay
511		Bachelor Officer Quarters (gone)	1941-2009	Main post
514		Paint Storage Building (gone)	1952-ca.1995	Quartermaster Area
515		Gas Station (gone)	1960-ca.1990	Quartermaster Area
518		Building, East Rd/Alexander Ave (gone)	ca.1950-70	East Road
519	58214	Post Chapel	1941	Main Post
520	58120	Kober Street Retaining Walls	1937	Main Post
521	58119	McReynolds Road Retaining Wall	1937	Main Post
522	58217	Hospital Steward's Quarters	1902	Main Post
523	58220	NCO Quarters (Duplex)	1904	Main Post
526	58046	Electrical Transformer Building	ca.1937	Alexander Avenue
527	58221	NCO Quarters (Duplex)	1904	Main Post
529	58222	NCO Quarters (Duplex)	1904	Main Post
530	58218	NCO Quarters (Duplex)	1909	Main Post
531	58219	NCO Quarters (Duplex)	1909	Main Post
533	58208	Post Hospital	1902	Main Post
534	397329	Garage (Swain Rd)	1935	Main Post
537		Tennis Court (gone; now lawn)	ca.1905-2008	Main Post
537A	58121	Tennis Court Retaining Wall	ca.1937	Main Post
538		Garage (Umia St., gone)	1935-ca.2008	Main Post
541	217431	Garage	1935	Main Post
542		Transformer Station	1950	Main Post
543	58225	Garage	1935	Main Post
545	58226	Garage	1935	Main Post
546	58071	NCO Family Housing	1941	Main Post
547	58072	NCO Family Housing	1941	Main Post
549	58073	NCO Family Housing	1941	Main Post
556	58122	Post Hospital Ambulance Garage	1925	Main Post
557	56278	Bakery	1902	Quartermaster Area
559	56289	Coal Shed (gone)	1902-ca.1970	Quartermaster Area
561	56282	Wagon Shed	1904	Quartermaster Area
562		Warehouse (gone)	1941-ca.1980	Quartermaster Area
564	58224	Garage	1935	Main Post

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
565		Transformer station	1950	Main Post
566	58200	Exchange Service Station	1921	Quartermaster Area
567		New Service Station	1961	Quartermaster Area
570		Station Hospital Recreation Building (gone)	1941-ca.1990	nr. Quartermaster Area
571	55361	Battery George Yates	1905	Battery Yates
572	58084	Water Reservoir	1941	Duncan Hill
573	55362	Battery Duncan	1899	Battery Duncan
573A	58085	Battery Duncan Latrine foundation	ca.1899	Duncan Hill
573B	370236	Anti-Aircraft Gun Emplacement Duncan	ca.1942	Duncan Hill
575	55363	Battery Cavallo	1876	Battery Cavallo
575A	58047	Battery Cavallo Entrance Gate (remnant)	1875	Battery Cavallo
575B	58048	Rangefinder Station (CFR Yates)	1919	Battery Cavallo
575C	370246	Anti Aircraft Gun Emplacement	ca.1942	Battery Cavallo
576		Pumphouse (gone)	1919	East Portal
576B	370231	Fort Baker Sausalito Overpass at East Road (state ROW)	1936	East Road
577	58056	Pumphouse	1919	nr. East Portal
578	58057	Pumphouse	1909	nr. East Portal
601	58209	Artillery Barracks	1903	Main Post
602	58210	Artillery Barracks	1902	Main Post
603	58211	Administration Building	1903	Main Post
604	58202	Commanding Officer's Quarters	1903	Main Post
605	58203	Officers Quarters Duplex	1902	Main Post
606	58204	Officers Quarters Duplex	1902	Main Post
607	58205	Officers Quarters Duplex	1902	Main Post
609		Garage (gone)	ca.1941-1980	Main Post
610		Civilian Employee-NCO Qtrs. (gone)	1903-1945	Civ. Employee Area
615	56283	Guard House	1902	Main Post
619		Quartermaster Stable (gone)	ca.1902-1970	Quartermaster Area
616-620, 635, 639, 667, 670-688, 692, 694, 696b-698		Station Hospital Buildings	1940-1978/83	Main Post
622		YMCA, Officers Club & Theater	1918-ca.1972	Main Post
623	58212	Post Exchange & Gymnasium	1904	Main Post
626		Coal Bunker on Quartermaster Wharf (gone)	ca.1903-1950	Mine Depot
627	58069	Communications Cable Hut (Baker-Scott)	1904	Horseshoe Cove
628		Dispersion Pier (gone) (Mine Planter)	ca.1941-1952	SF Bay
629	58206	Officers Quarters Duplex	1904	Main Post
630	58079	Satterlee Breakwater	1943	Horseshoe Cove
631	58207	Officers Quarters Duplex	1904	Main Post
632	58080	Moore Breakwater	1942	Mine Depot
633		Marine Maintenance Shop	1942	Horseshoe Cove
633		Quartermaster Wharf Storehouse (gone)	ca.1903-1970	Mine Depot

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
634		Boat Load Ramp Marine Repair Facility	1952	Horseshoe Cove
634		Mine Boathouse (gone)	1930	Mine Depot
635		Quartermaster Wharf Waiting Room (gone)	1904-ca.1950	Mine Depot
636	58213	Artillery Barracks	1907	Main Post
637	56291	Commissary Storehouse	1908	Quartermaster Area
640		Bus Shelter (gone)	ca.1962-1990	Main Post
643		Firehouse (gone)	ca.1902-58	Main Post
644	56279	Blacksmith Shop	1910	Quartermaster Area
645	56280	Carpenter/Paint Shop	1910	Quartermaster Area
646		Sewage Life Station (gone)	1956-ca.1990	Travis Sailing Center
648		Parade Ground Flagpole (new)	1951	Main Post
649		Scale (gone)	ca.1921-1950	Quartermaster Area
654		Marine Repair Shop (gone)	ca.1941-1970	Horseshoe Cove
657		Marin Repair Facility dock/derrick	1942	Travis Sailing Center
660		Civilian Employee-NCO Qtrs. (gone)	1903-c.1960	Civ. Employee Area
662		Shed	ca.1935	Engineer Dept. Area
662	58081	Mine Depot Concrete Seawall	1932, 1940	Horseshoe Cove
664	58077	Flammable Storage Building	1918, 1937	Travis Sailing Center
665		Machine Shop	1950	Travis Sailing Center
666	56281	Ordnance Storehouse	1918	Quartermaster Area
668		Marine Repair Boat Launch Rails	1942	Travis Sailing Center
668		Water tank, East Portal (gone)	ca.1917-1950	East Portal
670	55364	Mine Cable Tank Building	1941	Mine Depot
671	56295	Pump House	1902	Main Post
672		New Sentry House, East Road (gone)	1937-ca.1970	Sausalito line
673		Sentry House, East Portal (gone)	1919-ca.1937	East Portal
676		Civilian Employee-NCO Qtrs. (gone)	1899-1946	Civ. Employee Area
679	58074	Marine Repair Shop Building	1941	Travis Sailing Center
686		Garage, Swain Rd (gone)	ca.1925-1980	Main Post
687		Garage, Swain Road (gone)	1935-ca.1960	Main Post
688		Greenhouse (foundation slab remnant)	1939-ca.1950	Main Post
689		Quartermaster Garage (gone)	1940-2002	Quartermaster Area
691		Searchlight Storage Building (gone)	1943-2006	Main Post
699	58075	Welding Shop	1944	Travis Sailing Center
700	55365	Battery Kirby	1900	Kirby Cove
701	55366	Battery Gravelly Beach	1873	Kirby Cove
702A	58040	AMTB Gun Plug (Battery Gravelley Beach)	1943	Kirby Cove
702B	58041	AMTB Gun Plug (Battery Kirby Beach)	1943	Kirby Cove
702C	58042	AMTB Gun Plug (Battery Kirby Beach)	1943	Kirby Cove
703	55367	Battery Orlando Wagner	1901	Battery Orlando Wagner
704	55368	Ridge Battery	1871	Battery Spencer
704A	58066	Powerhouse (comfort station)	1898	Battery Spencer
705	55369	Battery Spencer	1893	Battery Spencer
705A	58060	Guard Room-Plotting Room-Office-Storeroom	1897	Battery Spencer

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
705B	58061	Equipment Bldg.	1897	Battery Spencer
705C	58062	Latrine	1910	Battery Spencer
705D	58063	Spencer-Wagner Switchboard Room	1897	Battery Spencer
705E	58064	Powerhouse Radiator Room	1897	Battery Spencer
705F	58065	Battery Spencer Entry Gate	ca.1910	Battery Spencer
706	55370	B1 Kirby	1900	Kirby Cove
707	55371	B1 Wagner	1910	Kirby Cove
708A	370242	East Road Masonry Drainage Features	ca.1945	Multiple (not on plan)
711C	370214	Needles breakwater (remnant)	ca.1868	Lime Point
728	58055	Ridge Water Tank	1941	Lime Point Ridge
764		Mine Depot Boat Basin Launchway Pier (gone)	1941	Mine Depot
770	10121	Battery 129 Radio/Switchboard Rooms (PSR Room)	1943	Hawk Hill
776		BC 129 Reservoir	1944	Hawk Hill
801, 805, 807, 810-816, 818, 866, 870		Fort Barry Capehart Quarters	1959	Capehart Housing Area
810	370244	Army Bicentennial Monument	1975	Main Post
820A	370249	40MM AA AW No. 14 - Upper (AA .50 #38)	ca.1943	Duncan Hill
820B	370249	40MM AA AW No. 14 - Lower	ca.1943	Duncan Hill
830	370254	AA Searchlight 108 remnant	1942	Duncan Hill
880	392351	Parade Ground	1902	Main Post
1550-1562		Cavallo Point Lodge Buildings	2008	Main Post

FORT BARRY BUILDING-STRUCTURE KEY

Notes: Numbers reflect latest Army or NPS designation. Repeats indicate reuse of number after removal of building. Missing numbers indicate redesignation or loss of building-structure. Buildings not numbered on plans not listed in table. LCS = NPS List of Classified Structures database (for existing buildings-structures).

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
3		Rifle Range Camp Officer Quarters (gone)	ca.1904-1925	Balloon Hanagar Area
7		Barracks (gone)	ca.1904-1930	Balloon Hanagar Area
10		Post Exchange (gone)	ca.1904-1925	Balloon Hanagar Area
11		Firehouse (gone)	1918-ca.1960	Main Post
13		Ordnance Storehouse (gone)	ca.1904-1925	Smith Housing Area
14		Ordnance Storehouse (gone)	ca.1904-1925	Smith Housing Area
16		Quartermaster Storehouse (gone)	ca.1904-1925	Smith Housing Area
16D		Engineer Office (gone)	ca.1901-ca.1960	Point Bonita
16E		Engineer Tramway Engine House (gone)	ca.1901-1917	Point Bonita
19		Engineer Wells (gone)	ca.1901-1920	nr. SF-88A
24		Stables (gone)	ca.1904-1925	Smith Housing Area
25		Blacksmith Shop (gone)	ca.1904-1930	Smith Housing Area
28		Civilian Employee Quarters (gone)	ca.1904-1930	Smith Housing Area
31		Post Exchange/Temp. Canteen (gone)	ca.1908-1920	Main Post
32		Engineer Tramway (gone)	ca.1901-1921	Point Bonita
41		Engineer Department Bldgs. (gone)	ca.1901-43	nr. SF-88A
70		YMCA (gone)	ca.1918-1925	Main Post
77		Coal Shed (gone)	1907-1940	Quartermaster Area
89		Oil House (gone)	ca.1907-1940	Quartermaster Area
91		Storehouse (gone)	ca.1907-1940	Quartermaster Area
93		Wagon Shed (gone)	1907-ca.1930	Quartermaster Area
94		Lavatory (gone)	1907-ca.1940	Quartermaster Area
95		Stable (gone)	1907-ca.1940	Quartermaster Area
112		Mess Hall (gone)	ca.1917-1921	Main Post
116		Post Exchange (gone)	ca.1917-1925	Main Post
117		Mess Hall (gone)	ca.1917-1921	Main Post
118		Lavatory (gone)	ca.1917-1921	Main Post
119		Barracks (gone)	ca.1917-1921	Main Post
120		Barracks (gone)	ca.1917-1921	Main Post
121		Officers Quarters (gone)	ca.1917-1921	Main Post
122		Officers Quarters (gone)	ca.1917-1921	Main Post
126		Enlisted Mens Quarters (gone)	ca.1917-1921	nr. Quartermaster Area
127		Civilian Employees Quarters (gone)	ca.1917-1921	nr. Quartermaster Area
128		Enlisted Mens Quarters (gone)	ca.1917-1921	nr. Quartermaster Area
131		Scales (gone)	ca.1921-45	Quartermaster Area
132		Officer Quarters (gone)	ca.1915-1921	nr. Quartermaster Area
133		Garage (gone)	ca.1915-1938	Main Post
772		SF-87C TRR Pedestal	1963	Hawk Hill
773	10122	Battery Construction #129	1944	Hawk Hill
773A	58029	Battery Construction #129 Tunnel	1944	Hawk Hill
774	58030	Concrete Pole Base & Wall (SF-87C BSM antenna)	1962	Hawk Hill
775		Septic Tank	1944	Hawk Hill

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
776		Battery Construction 129 Water Storage Tank	1944	Hawk Hill
778		Battery Construction 129 Reserve reservoir	1950	Hawk Hill
780		SF-87C Bore Site Mast (gone)	1954-ca.1972	Hawk Hill
781		SF-87C Distribution Transformer (gone)	1961-ca.1972	Hawk Hill
782		SF-87C ABAR Shed (gone)	1961-ca.1972	Hawk Hill
783		SF-87C ABAR Van Piers	1961	Hawk Hill
784		SF-87C Generator Building Pad	1961	Hawk Hill
786		SF-87C MTR Pad	1954	Hawk Hill
787		SF-87C LOPAR Pad	1954	Hawk Hill
788	58033	SF-87C Nike Radar Platform (TTR)	1954	Hawk Hill
788	58032	SF-87C Nike Missile Control Site	1954	Hawk Hill
790		SF-87C Sentry Station (gone)	1959-ca.1972	Hawk Hill
791		SF-87C Standby Generator Building (gone)	1957-ca.1972	Hawk Hill
792	58031	Batttery Construction 129 BC Station (SF-87C Ready Room)	1944	Hawk Hill
793		SF-87C Interconnecting Corridor (gone)	1957-ca.1972	Hawk Hill
802		Bus shelter	1962	Capehart Housing Area
806		CCC Camp Mess Hall, West Portal Area (gone)	1935-ca.1950	Capehart Housing Area
800-812		CCC Camp Barracks, West Portal Area (gone)	1935-ca.1950	Capehart Housing Area
814		Utility building	ca.1980	Balloon Hanagar area
813 - 814		Bathhouse - Latrine, West Portal Area (gone)	1939-1958	Capehart Housing Area
815		CCC Camp Storeroom, West Portal Area	1939-ca.1950	Capehart Housing Area
815 - 818, 821, 825, 829, 832-834, 837-838		Fort Barry Capehart Quarters	1959	Capehart Housing Area
816		Tool House, West Portal Area (gone)	1935-ca.1950	Capehart Housing Area
817		Garage, West Portal Area (gone)	1939-1958	Capehart Housing Area
818, 819		Mess Hall - Kitchen, West Portal Area (gone)	1939-ca.1950	Capehart Housing Area
819		Fire Siren (Air Raid Siren Tower)	1950	Capehart Housing Area
820		Motor Veh. Shed, West Portal Area (gone)	1940-1958	Capehart Housing Area
821		Recreation Buidling, West Portal Area (gone)	1941-1958	Capehart Housing Area
821-829		Barracks - 4-Family Residences, West Portal Area (gone)	1941-1958	Capehart Housing Area
826		Indoor Rifle Range (gone)	1941-ca.1975	Rifle Range
827		Ready Magazine (gone)	1941-ca.1975	Rifle Range
828	58010	Target House	1942	Rifle Range

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
830		Storehouse (gone)	ca.1939-1958	Capehart Housing Area
830	10123	Rifle Range Target Pit	1904	Rifle Range
831		Day Room, West Portal Area (gone)	ca.1939-1958	Capehart Housing Area
831	10124	Pistol Range	1904	Rifle Range
832		Storehouse, West Portal Area (gone)	1939-1958	Capehart Housing Area
833		Mess Hall, West Portal Area (gone)	1939-1958	Capehart Housing Area
834		Septic Tank, West Portal Area (gone)		Capehart Housing Area
835		Septic Tank	1942	Balloon Hanagar area
836		Water Pump Station	1943	nr. Dubois Road
841		Utility Building	ca.1980	Balloon Hanagar area
892	21291	Entrance sign, SF-88 Admin area	1965	SF-88A
900		Distribution Transformer	1962	Balloon Hanagar area
901	58004	Vehicle shed -Stable	1940	Balloon Hanagar area
902	58005	Vehicle shed -Stable	1940	Balloon Hanagar area
903		Guard House - Dispatch Office (gone)	1940-ca.1980	Balloon Hanagar area
904		Gas station (gone)	1940, ca.1966-ca.1980	Balloon Hanagar area
905	10125	Balloon Hangar (Garage, Nike Assembly Building)	1921	Balloon Hanagar area
906		Distribution Transformer Shed	1962	Balloon Hanagar area
907		Compressor Building	1962	Balloon Hanagar area
908		Fire-Air Raid Siren (gone)	ca.1950-1970	Balloon Hanagar area
909	58021	Electrical Substation	1950	Main Post
910		Radio Tower (gone)	1964-ca.1974	Battery Rathbone-McIndoe
911	10126	Battery Rathbone-McIndoe	1905	Battery Rathbone-McIndoe
911B	58018	AA AW #9 remnant	ca.1942	Rodeo Ridge
912 thru 924	10129	Smith Housing Area Quarters (gone)	1941-ca.1978	Smith Housing Area
925		Septic Tank (gone)	1950-ca.1978	Smith Housing Area
927		Gate (Former Tennessee Point Road)	ca.1914, 1969	Rodeo Valley
928		Pumphouse (gone)	1909-ca.1980	Main Post
929		Flushing Reservoir (above barracks)	1910	Main Post
930		Fresh Water Reservoir	1907	e. of Main Post
931		Distribution Transformer Shed (new, site of 958)	ca.1990	Main Post
931		Reservoir (replaced)	1908-1941	nr. AA Battery #2
932		Flagstaff, second site (gone)	ca.1940-1960	Main Post
932	58001	Multi-use Court, parade ground	1959	Main Post
933	58003	Rosenstock Road Wall	ca.1939	Main Post
933		Garage (gone)	1915, 1939-ca.1980	Main Post
934	10127	Officers' Quarters – Double	1907	Main Post
935		Garage (gone)	ca.1915-1980	Main Post
936	10128	Commanding Officer's Quarters -Field Quarters	1907	Main Post
937		Officers' Quarters – Double	1907	Main Post
938		Garage (gone)	ca.1915/39-1980	Main Post

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
939	10130	Officers' Quarters – Double	1907	Main Post
940	10131	Post Headquarters -Administration Building	1907	Main Post
941	10132	Post Hospital -Dispensary	1907	Main Post
942	10133	Hospital Steward's quarters -NCO quarters	1907	Main Post
943		Garage (gone)	ca.1942-1980	Main Post
944	10134	Artillery Barracks	1907	Main Post
945	10135	Artillery Barracks	1907	Main Post
946		Theater (gone)	1941-ca.1990	Main Post
948		Tailor Shop (gone)	ca.1939-1970	Main Post
948	10136	Chapel (Visitor Center)	1941	Main Post
949		Vehicle shed (gone)	ca.1939-1970	Main Post
949		Frequency Converter pad (gone?)	1955	SF-888L
949	58130	Fort Barry Entrance Gates (west post gone)	ca.1910	Main Post
950		Reservoir (replaced 931)	1941	nr. AA Battery #2
950		Motor Dispatch Office (gone)	ca.1940-1970	Main Post
950	58131	Fort Barry Flagstaff Base (1st location)	1909	Main Post
951		Radio Shop (gone)	1940-ca.1980	Main Post
952	10137	Gymnasium - Post Exchange	1909	Main Post
953		Guardhouse (gone)	1907-ca.1960	Main Post
954		Garage (gone)	1940-ca.1980	Main Post
955	10138	NCO Quarters	1907	Main Post
956	10139	NCO Quarters	1907	Main Post
957		Septic Tank (gone)	1961-ca.1980	w. of MainPost
958		Distribution Transformer Shed (gone)	ca.1950-1990	Main Post
959	58016	Latrine (slab remnant)	1905-ca.1980	Battery Rathbone-McIndoe
960	10140	Storehouse	1907	Quartermaster Area
961	10141	Ordnance Storehouse	1907	Quartermaster Area
962	10142	Bakery, SF-88L Ready Room	1907	Quartermaster Area
963	21292	SF-88L Missile Test Building	1962	SF-88L
964	58022	SF-88L Entrance Retaining Wall	1952-1955	SF-88L
964		Carpenter-Blacksmith Shops (gone)	ca.1907-1970	Quartermaster Area
965		Firehouse (gone)	ca.1907-1970	Quartermaster Area
966	10143	SF-88L Generator Building	1965	SF-88L
967	10144	SF-88L Missile Warhead Bldg.	1955	SF-88L
968	58025	SF-88L Flammable Material Storage (acid storage, gone)	1955-ca. 1975	SF-88L
969	10145	SF-88L A Section Launcher	1955	SF-88L
970	58023	SF-88L Launch Site Sentry Post	1955	SF-88L
971	10146	SF-88L B Section Launcher	1955	SF-88L
973		Septic Tank	1964	SF-88L
973		Mendell Area Post Exchange (gone)	1940-1964	SF-88A
974		Mendell Area Recreation - Day Room (gone)	1940-1964	SF-88A
974	58026	SF-88L Kennel Office	1965	SF-88L
975	58027	SF-88L Kennels	1959	SF-88L
975		Mendell Area Recreation - Day Room (gone)	1940-1964	SF-88A
976		Mendell Area Barracks (gone)	1940-1964	SF-88A

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
976	10147	SF-88L Sentry Station	1959	SF-88L
977		Mendell Area Barracks (gone)	1940-1964	SF-88A
978		Mendell Area Barracks (gone)	1940-1964	SF-88A
979		Mendell Area Barracks (gone)	1940-1964	SF-88A
979	58024	SF-88L Bore Siting Mast	1955	SF-88L
980		Mendell Area Barracks (gone)	1940-1964	SF-88A
981	21293	SF-88A Administration Building	1965	SF-88A
981		Mendell Area Storehouse - Administration Building (gone)	1940-1964	SF-88A
982		Mendell Area Storehouse - Administration Building (gone)	1940-1964	SF-88A
983	21294	SF-88A Mess Hall	1965	SF-88A
983		Mendell Area Mess Hall (gone)	1940-1964	SF-88A
984	21295	SF-88A Barracks	1965	SF-88A
984		Mendell Area Mess Hall (gone)	1940-1964	SF-88A
985	10148	BC Wallace	1943	Rodeo Ridge
985		Mendell Area Mess Hall (gone)	1940-1964	SF-88A
985A	58129	BC Wallace Powerhouse	1944	Rodeo Ridge
986	21296	SF-88A Barracks	1965	SF-88A
987		Mendell Area Recreation Hall (former Engineer Department barracks) (gone)	1901-ca.1980	SF-88A
988		Electrical substation (gone)	1950-ca.1980	SF-88A
989		Fort Barry Schoolhouse (gone)	1899/1912-ca.1970	nr. Life-Saving Station
989	10149	B1S1 Wallace	1921	Rodeo Ridge
991	10068	AA Battery #2 Magazine	1942	Rodeo Ridge
992		AA Battery #2 Gen.-Storage (gone)	ca.1925	Rodeo Ridge
993	10069	AA Battery #2 Storeroom-Powerhouse	1940	Rodeo Ridge
997		Navy Quarters (NCO Quarters) (gone)	ca.1917-1950	nr. Bird Island
997		Sewage Lift Station (gone)	1948-ca.1980	Main Post
998		Navy shed (gone)	ca.1917-1950	nr. Bird Island
998	21297	Multi-use Court, SF-88	1961	SF-88A
999	10070	Battery Wallace	1921, 1943	Rodeo Ridge
1342		Garage	ca.1900	Life-Saving Station
1343		Coast Guard Quarters D (Quarters 19)	1938, 1961	Point Bonita
1344		Coast Guard Quarters 17	1961	Life-Saving Station
1346		Coast Guard Quarters 18	1961	Life-Saving Station
1347		Life-Saving Station Building (gone)	1899-1961	Life-Saving Station
1349		Cable Mine Hut Mines I	ca.1943-1980	Rodeo Beach
1350		Septic Tank	1944	s. of Rodeo Lagoon
1351	10071	Fort Barry Battery Patrick O'Rorke	1905	Battery O'Rorke
1352	58011	Fort Barry Telephone Switchboard Building (Smith-Guthrie PSR Room)	1943	Battery Smith-Guthrie
1353	10072	Battery Alexander Mortar Booth	1902	Battery Alexander
1354	10073	Battery Smith-Guthrie	1905	Battery Smith-Guthrie
1354A	58012	Battery Smith-Guthrie Latrine (remnant)	1942	Battery Smith-Guthrie
1354B	58013	Battery Smith-Guthrie Hutment Mess Hall (remnant)	1942	Battery Smith-Guthrie
1354C	58028	Battery Smith-Guthrie Mess Trash Area	1942-1950	Battery Smith-Guthrie
1355	10074	Battery Alexander Mortar Booth	1902	Battery Alexander
1356	10075	Battery Alexander	1901-1902	Battery Alexander

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
1356A	58014	Battery Alexander Latrine	1902	Battery Alexander
1357		Septic Tank	1910-ca.1980	w. of Battery Alexander
1357	21298	Searchlight #15 Powerhouse	1911	nr. Bird Island
1358	10076	Searchlight Shelter #15	1911	nr. Bird Island
1359	10077	B1S1 Smith	1941	Bird Island Overlook
1362	10078	M4 Mines II	1941	Bird Island Overlook
1363	10079	B2S2 Chamberlin	1943	Bird Island Overlook
1364	10080	Battery Mendell	1905	Bonita Ridge
1365	10081	Fort Barry Mine Casemate	1908	Bonita Ridge
1366	58015	Radio and Switchboard Building (Mine Casemate)	1908, 1943	Bonita Ridge
1376		HDSF Navy No. 2 Signal Tower	1943	Bonita Ridge
1377	21303	BC B1S1 Alexander (B1 Mendell)	1910	Bonita Ridge
1378		G2 Barry (F1 4th FC)	1910	Bonita Ridge
1379	21300	Mine Groupment (F1 3rd FC)	1910	Bonita Ridge
1380	21304	Anti-Aircraft Battery #2 (Original 2 Gun Plugs)	1925	Rodeo Ridge
1381	21305	Anti-Aircraft Battery #2 (Gun Plug 3)	1941	Rodeo Ridge
1382		Navy Shoran Radio Tower (footings)	1957	Bonita Ridge
1382	21306	Searchlight Shelter #10	1911	Point Bonita
1382A	58002	Searchlight #10 Powerhouse	1912-1913	Point Bonita
1383		Navy Shoran Radio Transmitter Building	1957	Bonita Ridge
1384		Coast Guard (QM) Dock (remnant)	1901, 1930	Bonita Cove
1385	21299	M1 Mines (M1 Barry)	1910	Bonita Ridge
1389		BC B4S4 Alexander B1S1 Mendell	1917	Point Bonita
1391		Searchlight #10 Shelter	1911	Point Bonita
1393		Lighthouse	1877	Point Bonita
1394		Fog Signal Building	1903	Point Bonita
1395		Suspension Bridge	1954	Point Bonita
1396		Lighthouse Trail Tunnel	1876	Point Bonita

FORT CRONKITE BUILDING-STRUCTURE KEY

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Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
1000	58118	Anti-Aircraft Storage & Shelter	ca.1942	Near Rodeo Beach
1001		Storehouse/Admin Building *(gone)*	1941-1966	Cantonment E Wing
1002		Recreation Building *(gone)*	1941-1966	Cantonment E Wing
1003		Mess Hall *(gone)*	1941-1966	Cantonment E Wing
1004		Storehouse/Admin Building *(gone)*	1941-1966	Cantonment E Wing
1005		Storehouse/Admin Building *(gone)*	1941-1966	Cantonment E Wing
1006		Mess Hall *(gone)*	1941-1966	Cantonment E Wing
1007		Recreation Building *(gone)*	1941-1966	Cantonment E Wing
1008		Barracks *(gone)*	1941-1966	Cantonment E Wing
1008	10082	Townsley Radio/Plot/Switchboard Rms	1940	Mitchell Road
1009		Barracks *(gone)*	1941-1966	Cantonment E Wing
1010		Barracks *(gone)*	1941-1966	Cantonment E Wing
1010	57600	Nike Barracks	1966	SF-88A
1011		Barracks *(gone)*	1941-1966	Cantonment E Wing
1011	57601	SF-87A Administration Building	1966	SF-88A
1012		Barracks *(gone)*	1941-1966	Cantonment E Wing
1012	57602	SF-87A Mess Hall	1966	SF-88A
1013		Barracks *(gone)*	1941-1966	Cantonment E Wing
1013	57603	SF-87A Barracks	1966	SF-88A
1014		Barracks *(gone)*	1941-1966	Cantonment E Wing
1014	10083	Battery Townsley	1940	Battery Townsley
1015		Pumphouse	ca.1938-1980	Little Ranch Valley
1015		Barracks *(gone)*	1941-1966	Cantonment E Wing
1016		Barracks *(gone)*	1941-1966	Cantonment E Wing
1017		Barracks *(gone)*	1941-1966	Cantonment E Wing
1017		SF087A Flagpole (gone)	1966-ca.1980	Not numbered on plan
1018		Barracks *(gone)*	1941-1966	Cantonment E Wing
1019		Barracks *(gone)*	1941-1966	Cantonment E Wing
1020		Recreation Building *(gone)*	1941-1966	Cantonment E Wing
1021		Mess Hall *(gone)*	1941-1966	Cantonment E Wing
1022		Storehouse/Admin Building *(gone)*	1941-1966	Cantonment E Wing
1023		Storehouse/Admin Building *(gone)*	1941-1966	Cantonment E Wing
1024		Mess Hall *(gone)*	1941-1966	Cantonment E Wing
1025		Recreation Building *(gone)*	1941-1966	Cantonment E Wing
1026		Recreation Building *(gone)*	1941-1966	Cantonment E Wing
1027		Mess Hall *(gone)*	1941-1966	Cantonment E Wing
1028		Storehouse/Admin Building *(gone)*	1941-1966	Cantonment E Wing
1029		Storehouse/Admin Building *(gone)*	1941-1966	Cantonment E Wing
1030		Recreation Building *(gone)*	1941-1966	Cantonment E Wing
1031		Septic Tank	1941-ca.1980	Cantonment
1031		Mess Hall *(gone)*	1941-1966	Cantonment E Wing
1032		Storehouse/Admin Building *(gone)*	1941-1966	Cantonment E Wing
1033	57501	Post Headquarters Building	1941	Cantonment
1034	10084	Barracks	1941	Cantonment E Wing

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
1035	10085	Barracks	1941-1966	Cantonment E Wing
1036		Barracks *(gone)*	1941-ca.1980	Cantonment E Wing
1037		Barracks *(gone)*	1941-ca.1980	Cantonment E Wing
1038		Barracks *(gone)*	1941-ca.1980	Cantonment E Wing
1039		Barracks *(gone)*	1941-ca.1980	Cantonment E Wing
1040		BOQ with Mess *(gone)*	1941-ca.1980	Cantonment E Wing
1041		Officers Service Club (gone)	1941-ca.1980	Cantonment E Wing
1042	10092	BOQ with Mess	1941	Cantonment E Wing
1043		Flammable Storage-Gas Station (moved to Ft. Baker #678)	1941-ca.1980	Cantonment
1044	57500	Guard House	1941	Cantonment W Wing
1045	57503	Fire House	1941	Cantonment
1046	57504	Post Exchange	1941	Cantonment
1047		Sewage Pump Station	1943-ca.1980	Cantonment
1047	58097	Kirkpatrick Street Wall	1941, ca.1950	Cantonment W Wing
1048		Recreation Building *(gone)*	1941-ca.1980	Cantonment W Wing
1049	10093	Mess Hall	1941	Cantonment W Wing
1050	10093	Storehouse/Admin Building (Old Visitor Center)	1941	Cantonment W Wing
1051		Storehouse/Admin Building *(gone)*	1941-ca.1980	Cantonment W Wing
1052		Mess Hall *(gone)*	1941-ca.1980	Cantonment W Wing
1152		Townsley Storage Reservoir	ca.1938	Lower Wolf Ridge
1053		Recreation Building *(gone)*	1941-ca.1980	Cantonment W Wing
1054	10094	Barracks	1941	Cantonment W Wing
1055	10095	Barracks	1941	Cantonment W Wing
1056	10096	Barracks	1941	Cantonment W Wing
1057	10097	Barracks	1941	Cantonment W Wing
1058	10098	Barracks	1941	Cantonment W Wing
1059	10099	Barracks	1941	Cantonment W Wing
1060	21308	Storehouse/Admin Building	1941	Cantonment W Wing
1061	10100	Barracks	1941	Cantonment W Wing
1062	10101	Barracks	1941	Cantonment W Wing
1063	10102	Barracks	1941	Cantonment W Wing
1064	10103	Barracks	1941	Cantonment W Wing
1065	10104	Barracks	1941	Cantonment W Wing
1066	10105	Recreation Building	1941	Cantonment W Wing
1067	10106	Mess Hall	1941	Cantonment W Wing
1068	10107	Storehouse/Admin Building	1941	Cantonment W Wing
1069	10108	Storehouse/Admin Building	1941	Cantonment W Wing
1070	10109	Mess Hall	1941	Cantonment W Wing
1071	10110	Recreation Building	1941	Cantonment W Wing
1072		Infirmary *(gone)*	1941-ca.1970	Cantonment W Wing
1073	58264	Commanding Officer's Residence	1941	Cantonment
1075		Flagpole at Administration Bldg. (gone, base remnant)	1941-ca.1955	Cantonment
1076	58263	Guest House	1941	Cantonment E Wing
1077	57502	Enlisted Service Club	1941	Cantonment W Wing
1078	57604	Multi-use Court	1959	Cantonment W Wing

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
1079		Mess Storage ("Spud bin") *(gone)*	1941-ca.1966	Cantonment E Wing
1082		Mess Storage ("Spud bin") *(gone)*	1941-ca.1980	Cantonment W Wing
1083		Mess Storage ("Spud bin") *(gone)*	1941-ca.1980	Cantonment W Wing
1084	57515	Mess Storage ("Spud bin")	1941	Cantonment W Wing
1085	57507	Mess Storage ("Spud bin")	1941	Cantonment W Wing
1086		Mess Storage ("Spud bin") *(gone)*	1941-ca.1966	Cantonment E Wing
1100		SF-88L East Launcher-Missile Storage Shelter	1955	SF-88L (MMC)
1101		SF-88L West Launcher-Missile Storage Shelter	1955	SF-88L (MMC)
1102		SF-88L Sentry Station	1959	SF-88L (Park Maint.)
1103		SF-88L Sentry Station Exclusion Area (gone)	1960-ca.1990	SF-88L (MMC)
1104		SF-88L Ready Room	1965	SF-88L (MMC)
1106		SF-88L Missile Assembly & Test Building	1955	SF-88L (Park Maint.)
1107		SF-88L Standby Generator Building	1965	SF-88L (Park Maint.)
1108		SF-88L Acid Storage Shed	1955	SF-88L (Park Maint.)
1109		SF-88L Acid Fuel Station	1959	SF-88L (Park Maint.)
1110	58100	Water Reservoir	1941	Bunker Road
1111	57506	Warehouse	1942	Bunker Road
1112		Incinerator *(gone)*	ca.1940-1980	Bunker Road
1120		Flammable Storage	1959	SF-88L (Park Maint.)
1123		SF-88L Dog Kennels	1960	SF-88L
1125		SF-88L Dog Kennel Storage	1965	SF-88L
1128		SF-88L Van Pad / Launcher Control Trailer	1962	SF-88L
1130	10116	Central Reserve Magazine (Townsley Reserve Magazine)	1940	Bunker Road
1161	21309	SF-88C Entrance Sign	1965	Not on plan
1162-1163		Sewage Lagoons (gone)	1959-ca.1980	SF-88C
1167	21310	SF-88C Entry Gates	1965	Not numbered on plan
1169	21311	SF-88C Helipad & Heliparking (gone)	1961-ca.1974	SF-88C
1176	21312	SF-88C Lightning Mast Base	1955	Not on plan
1177	21314	SF-88C Lightning Mast Base	1955	No on plan
1178	21315	SF-88C Helipad & Heliparking	1961	SF-88C
1179	21316	SF-88C Sentry Station	1959	SF-88C
1180	21317	SF-88C HIPAR Building	1962	SF-88C
1181	21318	SF-88C Radar Pad	1959	SF-88C
1182	21319	SF-88C Radar Pad	1957	SF-88C
1183	21320	SF-88C Integrated Control Ctr.	1957	SF-88C
1184	21321	SF-88C Detached Day Room (slab remnant)	1961-ca.1974	SF-88C
1185	21322	SF-88C Standby Generator Plant	1957	SF-88C
1186	21323	SF-88C Ready Room	1955	SF-88C
1187	21324	SF-88C HIPAR Radar Platform	1962	SF-88C
1188	21325	SF-88C Radar Van Pad	1957	Not on plan
1189	21326	SF-88C Radar Van Pad	1957	Not on plan
1190	21327	SF-88C FUIF Radar Pad	1961	SF-88C

Army-NPS Number	LCS	Offical Designation / Known Use	Construction-Removal	Location
1193	21328	SF-88C Bore Siting Mast Base	1962	SF-88C
1194		SF-88C TRR Radar Tower	1962	SF-88C
1195	21329	SF-88C Acquisition Radar Pad (LOPAR)	1962	SF-88C
1196	21330	SF-88C Missile Tracking Radar (MTR, and retaining wall)	1962	SF-88C
1197	10118	SF-88C Target Tracking Tower TTR)	1962	SF-88C
1200A	57612	AA Battery #1 Director Pit & Ht Finder	1942	Wolf Ridge
1200B	58125	AA Battery #1 Offices & Day Room/Mess	1941	Wolf Ridge
1200C	57609	AA Battery #1 Hutment/Anteroom	1942	Wolf Ridge
1200D	58114	AA Battery #1 Quonset Shelter/Store	1942	Wolf Ridge
1200E	21331	AA Battery #1 Gun Plugs	1940	Lower Wolf Ridge
1200F	57607	AA Battery #1 Gun Pits	1942	Lower Wolf Ridge
1200G	58124	AA Gun Emplacements (Korean Era) (Position No. 10)	ca.1951	Lower Wolf Ridge
1206	55348	M4 Mines1	1944	Tennessee Valley
1206A	55349	Mines1 Powerhouse	1944	Tennessee Valley
1206B	55350	Mine Cable Hut (cable manhole Mines I)	ca.1940	Tennessee Valley
1259	58115	SCR-296 #4 Radar Site	ca.1943	Lower Wolf Ridge
1260	58098	Acid Storage Building (remnant foundation)	ca.1943	Lower Wolf Ridge
1261	58099	SCR 296 #4 Fuel Tank Stand	ca.1941	Lower Wolf Ridge
1262	21332	B4S4 Davis	1941	Lower Wolf Ridge
1263	21333	B1S1 Battery Construction 129	1943	Lower Wolf Ridge
1269	21336	Telephone Switchboard Building	1944	Lower Wolf Ridge
1271	21335	BC Station Townsley	1940	Lower Wolf Ridge
1272	21334	GB-1 (G1 Cronkhite)	1941	Lower Wolf Ridge
1273	21337	B1S1 Townsley	1941	Lower Wolf Ridge
1274	57610	AA Battery #1 Magazine	ca.1940	Lower Wolf Ridge
1275	57611	AA Battery #1 Power & Store Rooms	ca.1940	Lower Wolf Ridge
1275A	57605	AA Battery #1 Ready Room	1942	Lower Wolf Ridge

Appendix B: Commemorative Road Names

Transcribed, reorganized, and updated from an undated (ca. 1960) document at the California Historical Society (Courtesy of John Martini)

Recorded Text from General Orders

The following streets and roads of the FORT BAKER, FORT BARRY, AND FORT CRONKHITE reservations, sub-installations of the Presidio of San Francisco, are hereby named in honor and memory of deceased members of the Coast Artillery Corps:

BALDWIN ROAD: The north-south street at the western edge of the Fort Cronkhite Cantonment area, beginning at intersection with Mitchell Road and extending north to intersection with Stennis Street. Named in honor and memory of Captain Lawrence Chandler Baldwin, 0-1171, Coast Artillery Corps, B.S., UAMA, 1930, who served in the Defenses of Manila and Subic Bays and on Bataan, Philippine Islands, was captured by the enemy in the surrender of American Military Forces, and died in a hospital in Moji, Japan, 4 February 1945.

BOSWORTH ROAD: Beginning at intersection with Bunker Road opposite Building 909, and extending southwest to junction with Simmonds Road. Named in honor and memory of Major Lawrence A. Bosworth, 0-19039, Coast Artillery Corps, B.S. USMA 1930, who served in the Defenses of Manila and Subic Bays and on Bataan, was captured by the enemy in the capitulation of these defenses, and later killed in the bombing of the Japanese prisoner of war transport Oryoku Maru in Subic Bay, 15 December 1944. [Incorrectly signed as "Bodsworth Road"]

BOTTOMS ROAD: Beginning at junction with Bunker Road [Capehart area] approximately 200 feet southeast of the Baker-Barry boundary line and proceeding generally northerly terminating in a turnaround southeast of Building 870. Named in honor and memory of Colonel Sam F. Bottoms, 040, first Commanding Officer of Fort Barry following service in the Spanish American War. USMA Class of 1897.

BREITUNG ROAD: Beginning at the intersection with Murray Circle and extending southeast to run south of Buildings 627 and 644, to intersection with Satterlee Road. Named in honor and memory of Lieutenant Colonel Edward E. C. Breitung, 0-15314, Coast Artillery Corps, B.S. USMA '23, who served in the Defenses of Manila and Subic Bays and Bataan, Philippine islands, was captured by the enemy in the capitulation of these defenses and later killed by the Japanese, 30 September 1942.

BUNKER ROAD: Beginning at intersection with Murray Circle south of Building 631 and proceeding through the Fort Barry tunnel past the Defense Housing area [Capehart area], across the Rodeo Lagoon causeway, passing the east end of Fort Cronkhite housing area [cantonment] and uphill to termination on the crest of Wolf Ridge. Named in honor and memory of Colonel Paul D. Bunker, 0-1897, Coast Artillery Corps, USMA '03, who served at numerous Coast Artillery stations throughout the United States and foreign possessions, who was Seawater Defense Commander during the siege of Corregidor, and died as a prisoner of war of the Japanese in Formosa, 16 March 1943.

CONZELMAN ROAD: Beginning at intersection with Moore Road at Fort Baker Mine dock and proceeding uphill under the Golden Gate Bridge past Battery Spencer, skirting the north shore of the Golden Gate past Battery Rathbone and Building 695 to termination at the Coast Guard area [Point Bonita]. Named in honor and memory of Lieutenant Colonel Clair M. Conzelmam, 0-16442, Coast Artillery Cops, USMA '26, who served on the staff of the Philippine Coast Artillery Command, was captured by the enemy upon the fall of Corregidor, and died on a prisoner of was ship in the hands of the Japanese 14 January 1945.

DROWN ROAD: Beginning at intersection with East Road east of Building 694 and proceeding northerly up-grade past Building 690 and terminating at intersection with the Sausalito Lateral of Highway 101 [Alexander Avenue] at Building 698. Named in honor and memory of Master Sergeant Calvin L. Drown, 6134001, Hq & Hq Det., Harbor Defenses of Manila and Subic Bays, who served long and faithfully in many Coast Artillery garrisons, who was captured by the enemy upon the fall of Corregidor and died in a Japanese prison camp in August 1943.

EAST ROAD: Beginning at Bldg. 615 and proceeding past Buildings 693 and 694 in a general northeasterly direction and terminating at junction with the Sausalito Lateral of Highway 101 [Alexander Avenue]. The reservation at the sentry building at this junction are hereby designated the Fort Baker East Gate and East Gate Gatehouse, respectively [no longer standing]. Named in honor and memory of Major Joe C. East, 0-18192, Coast Artillery Corp, and USMA '30 who served at Fort Baker as Battery commander prior to World War II, and was taken prisoner by the Japanese upon the full of Corregidor, and died at sea on a prison ship 15 January 1945.

EDISON STREET: Beginning at intersection with Bunker Road north of Mitchell Road and proceeding parallel with Mitchell Road through the Cronkhite Housing area [cantonment] to termination. Named in honor and memory of Lieutenant Colonel Dwight D. Edison, 0-18786, Coast Artillery Corps, USMA '32, who was serving with the 59th Coast Artillery regiment upon the surrender of Corregidor, and who died as a prisoner of was in the hands of the Japanese near San Fernando, Pampaganga Province, 15 December 1941.

FIELD ROAD: Beginning at intersection with Bunker Road near Building 928 and proceeding westerly between Buildings 949 and 950 and thence through the Bonita meteorological station [Bonita Ridge]. Named in honor and memory of Lieutenant Colonel Girvelle L. Field, 0-15409, Coast Artillery Corps, C.E. North University '20, who was commissioned in the Coast Artillery in 1923, and was serving as a division staff officer in the Philippines upon the fall of Bataan, and who died as a prisoner of war at Osaka, Japan, 1 February 1943.

GLASSBURN STREET: Beginning at intersection with Mitchell Road at Building 1007 [Cronkhite cantonment] and proceeding northerly to termination at intersection with Kirkpatrick Street. Named in honor and memory of Major Robert D. Glassburn, 0-18730, Coast Artillery Corps, USMA '32, who served with the Philippine Coast Artillery Command until capitulation, and who died as prisoner of war in the hands of the Japanese 30 January 1945.

HAGGERTY STREET: Beginning at intersection with Mitchell Road at Building 1048 [Cronkhite cantonment] and proceeding northerly to termination at intersection with Stennis Street. Named in honor and memory of Major Robert F. Haggerty, 0-18085, Coast Artillery Corps, USMA '30, Mass. Inst. Tech. '37, who served with the 91st Coast Artillery regiment in command of beach defense sector until the surrender of Corregidor, and who was killed in the bombing of a Japanese Prisoner of war transport, the Oryoku Maru in Subic Bay, 15 December 1944. [Incorrectly signed as "Hagget Street']

JULIAN ROAD: Beginning at intersection with Bunker Road at the Balloon Hangar area and proceeding upgrade to termination at intersection with Conzelman Road. Named in honor and memory of Major Harry Julian, 0-18999. Coast Artillery Corps, USMA '33, who serve with the 5th Coast Artillery regiment on Corregidor until the capitulation of that garrison, and who perished in the sinking of a Japanese prisoner of war transport in the China Sea, 24 October 1944.

KIRKPATRICK STREET: Beginning at intersection with Bunker Road north of Stennis Street [Cronkhite cantonment] and proceeding parallel with Edison Street to termination near Building 1072. Named in honor and memory of Lieutenant Colonel Lewis S. Kirkpatrick, 0-15709, Coast Artillery Corps, USMA '24, who commanded Fort Drum on El Fraile Island until the capitulation of the Harbor Defenses of Manila Bay, and who died as a prisoner of war in a Japanese labor camp on Corregidor, 27 April 1943.

KOBER STREET: Beginning at intersection with Murray Circle between Buildings 601 and 603 and proceeding northerly to and passing in rear of Building 611 to termination at road intersection west of Building 680. Named in honor and memory of Technician Third Grade George B. Kober 33003718, who was for several years a member of the enlisted staff of the Coast Artillery School and the Coast Artillery Board, who sought combat duty and was killed in action 13 March 1945, leading his squad near the Remagen Bridge on the Rhine River.

LAMOREAUX ROAD: Beginning at junction with Bunker Road [Capehart area] approximately 200 feet northeast of Baker-Barry boundary line and proceeding generally southerly and terminating in a turnaround just short of Building 291. Named in honor and memory of Colonel Thomas B. Lamoreaux, second Commanding Officer of Fort Barry. Colonel Lamoreaux established an enviable record of accomplishment under difficult and trying conditions during his war service in Cuba. USMA Class of 1890.

McCULLOUGH ROAD: Beginning at intersection with Bunker Road at the westerly end of West Portal housing area [Capehart area] and proceeding southeasterly upgrade to termination at intersection with Conzelman Road. Named in honor and memory of Colonel Samuel McCullough, 0-9816, Coast Artillery Corps, E.E., Northeastern College, '17, who served on the staff of the Harbor Defenses of Manila and Subic Bays, was captured by the enemy upon the fall of Corregidor and died in Bilibid Prison, Manila, 1 September 1942.

McREYNOLDS ROAD: Beginning at intersection with East Road Between Buildings 615 and 693 and proceeding northerly past the Post Exchange and crossing Kober Street and thence southerly to termination at road intersection south of Building 613. Named in honor and memory of Captain Samuel M. McReynolds, Jr., 0-1908 Coast Artillery Corps, USMA '33, who was stationed at Fort Baker prior to World War II and was Post Exchange Officer as one of his duties, who was captured by the enemy upon the fall of the Philippines, died in a Japanese prison camp 1 February 1945.

MENGES ROAD: Beginning at the turnaround immediately west of Building 817 [Capehart area] and proceeding generally northwesterly acting as southwest terminus of Shiley Street and terminating in a turnaround just north of Bunker Road. Named in honor and memory of Colonel W. H. Menges. Colonel Menges served as Commanding Officer of Fort Barry at the close of World War I. Colonel Menges served as an enlisted man in the United States

Army and was promoted to Second Lieutenant during the Spanish American War. His distinguished military service, including two wars, is a monument to the career soldier.

MERRILL ROAD: Beginning at junction with Seitler Road approximately 150 feet north of Bldg 635 and proceeding generally easterly and terminating in a turnaround just short of Building 594. Named in honor and memory of Brigadier General Abner H. Merrill, Coast Artillery Corps. General Merrill then Colonel, service as Commanding Officer at Fort Baker following the close of the Spanish American War. General Merrill was retired at his own request after 40 years of continuous and distinguished service in the United States Army. USMA Class of 1866.

MITCHELL ROAD: Beginning at intersection with Bunker Road at the southeast corner of the Cronkhite housing area [cantonment] and proceeding westerly along Rodeo Lagoon and upgrade to termination at intersection again with Bunker Road. Named in honor and memory of Lieutenant Colonel Floyd A. Mitchell, 0-15535, Coast Artillery Corps, USMA '24, M.S. Mass. Inst. Tech. '33 who was mine commander in the Harbor Defense of Manila and Subic Bays upon the outbreak of World War II, who was captured by the enemy on Corregidor, and who was killed in the bombing of the Japanese prisoner of war transport on the Oryoku Maru, in Subic Bay, 15 December 1944.

MOORE ROAD: Beginning at the junction with Murray Circle at the mine cable tank and proceeding southerly and ending at the mine dock, the breakwater near the mine dock being hereby designated Moore Breakwater. Named in honor and memory of Corporal Francis J. Moore, 59th Coast Artillery, who was stationed at Fort Baker prior to World War II as member of the submarine mine flotilla, and who was killed in action at Battery Geary on Corregidor, 2 April 1942.

MURRAY CIRCLE: Beginning at junction with East Road at Building 615 and completely encircling the parade ground of Fort Baker. Named in honor and memory of Chief Warrant Officer James E. Murray V-901083, United State Army Mine Planter Service, who was killed in action as Master of USAMP "GEORGE F. E. HARRISON' when that ship was attacked by a Japanese dive-bomber, off Corregider, 2 May 1942.

ROSENSTOCK ROAD: Beginning at intersection with Simmonds Road west of Building 934 and proceeding easterly and southerly to termination at second intersection with Simmonds Road at Building 942 [Fort Barry main post]. Named in honor and memory of Captain Edgar ?. Rosenstock, 0-21158, Coast Artillery Corps, graduate of the West Point Preparatory School, Fort Winfield Scott, California USMA '38, who served with the 91st Coast Artillery regiment until fall of Corregidor, and who died while a prisoner of war at Ioii, Japan, 31 January 1945.

ROTH ROAD: Beginning at intersection with Conzelman Road west of Battery Spencer and proceeding downgrade to termination at Battery Kirby. Named in honor and memory of Second Lieutenant Frederick J. Roth, Jr., Coast Artillery Corps, a former noncommissioned staff officer who was commissioned during the siege of Corregidor, was captured by the enemy and killed in the bombing of a Japanese prisoner of war ship, the Oryoku Maru, in Subic Bay, 15 December 1944.

SATTERLEE ROAD: Beginning at junction with Murray Circle at Building 616 and proceeding generally southeasterly past Building 670 toward Point Cavallo and ending on the breakwater which is hereby designated Satterlee Breakwater. Named in honor and memory of Second Lieutenant William G. Satterlee, 0-890380 Coast Artillery Corps,

who served prior to World War II as an enlisted member of Battery A, Sixth Coast Artillery, Fort Winfield Scott, who was commissioned on the field of battle in Bataan, and who died as prisoner of war of the Japanese 28 May 1942.

SEITLER ROAD: Beginning at intersection with McReynolds Road west of Building 604 and proceeding northwesterly in front of Building 751 to termination at junction with Kober Street west of Building 680. Named in honor and memory of Second Lieutenant Kenneth J. Seitler, 0-890253, Coast Artillery Corps, who served as a first sergeant until commissioned on Corregidor who was captured by enemy upon the capitulation of that garrison, and was killed in the bombing of Japanese prisoner of was ship, the Oryoku Maru, in Subic Bay, 15 December 1944.

SHILEY STREET: Beginning at intersection with Bunker Road at easterly end of the West Portal housing area [Capehart area], passing through the area and terminating at second intersection with Bunker Road. Named in honor and memory of Captain Earle M. Shiley, 0-21234, Coast Artillery Corps, graduate of the West Point Preparatory School at Fort Monroe, Virginia, USMA '38 who was captured by the Japanese in the Philippines, and died in a prison at Fukuoka, Japan 2 February 1945.

SIMMONDS ROAD: Beginning at intersection with Bunker Road at westerly end of the Balloon Hanger area and proceeding upgrade past Building 934 skirting the parade ground of Fort Barry to termination at road intersection at Building 956. Named in honor and memory of Lieutenant Colonel Norm [?] B. Simmonds, 0-15913, Coast Artillery Corps, U.S. Naval Academy '24 who commended Fort Barry in 1939, who was executive officer of the Seaward Defense Command on Corregidor, was captured by the enemy upon the capitulation of the garrison, and died at sea on Japanese prisoner of was transport, 15 January 1945.

SMITH STREET: Beginning at intersection with Bunker Road at easterly end of Defense housing area [former Smith Housing Area, removed] and passing westerly through the area to termination at second intersection with Bunker Road. Named in honor and memory of Captain Richard S. Smith, 0-19512, Coast Artillery Corps, USMA '34, who commended a submarine mine battery in the Harbor Defense of Manila and Subic Bay, was captured by the enemy upon the surrender of Corregidor, and was killed in the bombing on the Japanese prisoner of war transport, the Oryoku Maru, in Subic Bay, 15 December 1941.

SOMERVILLE ROAD: Beginning at the junction with Murray Circle at Building 620 and proceeding southerly and along the shore of Horseshoe Cove past Building 699 and ending at junction with Satterlee Road. Named in honor and memory of Major Ervin G. Somerville 0-18734, Coast Artillery Corps, USMA '32, who was a submarine mine battery commander of 91st Coast Artillery, was captured by the Japanese upon the fall of Corregider, and died while a prisoner of war, 11 February 1945.

STENNIS STREET: Beginning at intersection with Bunker Road north of Edison Street and proceeding parallel with Edison Street through the Cronkhite housing area [cantonment] to termination. Named in honor and memory of Lieutenant Colonel Will K. Stennis, 0-15995. Coast Artillery Corps, C.E. Miss. A. & N. College, '24, who was commissioned in the Coast Artillery regiment upon the capitulation of Corregidor, and who was killed in the bombing of the Japanese prisoner of war transport, the Oryoku Maru, Subic Bay, 15 December 1944.

SWAIN ROAD: Beginning at intersection with Kober Street south of Building 635 [Fort Baker main post] and passing to the rear of the building to termination at second intersection with Kober Street. Named in honor and memory of

First Lieutenant Roger W. Swain, 0-317005, Coast Artillery Corps, who had long service as a noncommissioned staff officer until called to active commissioned service, who was captured by the enemy upon fall of Corregidor, and was killed in the bombing of a prisoner of war ship, the Oryoku Maru, in Subic Bay, 15 December 1944.

UMIA STREET: Not on original list; source of name could not be determined for this CLR. Road redesigned as parking lot with redevelopment of Fort Baker main post as CavalloPoint Lodge.

Appendix C: Related Cultural Resource Reports

The following reports, which address in whole or part the cultural landscape of Forts Baker, Barry, and Cronkhite, provide additional documentation on the history of the cultural landscape. Because these reports focus on small areas, they provide more detail in some cases than is documented in this cultural landscape report that covers the entire landscape of the three forts.

1. Barker, Leo, and Peter Gavette, Jason Hagin, and Amy Hoke. "Rodeo Valley Stables: Cultural Resource Reports and Site Treatments: Cultural Landscape Report, Historic Structures Report, Archeological Assessment and Treatment Report." Unpublished National Park Service report, April 30, 2013.

2. Bookstein, Emily. "Preliminary Cultural Landscape Report: Rodeo Beach Wetlands and Parking Lot." Unpublished report prepared for the National Park Service, September 2009.

3. Feierabend, Carey. "Historic Road Characterization Study, Supplemental Work, Marin Headlands, Golden Gate National Recreation Area." Unpublished report prepared for the National Park Service, April 2004.

4. Judy, Barbara, and Jessica Shorts, with Cathy Gilbert, Michael Hankinson, Amy Hoke, Erica Owens, Kimball Koch, and Len Warner. "Cultural Landscape Report for Fort Baker." Unpublished National Park Service report, July 2005.

5. Lehman, Jane, and John Martini. "Fort Barry Balloon Hangar and Motor Vehicle Sheds Abbreviated Historic Structure Report." Unpublished National Park Service report, ca. 2005.

6. Kramer, Daniel. "Preliminary Cultural Landscape Report for AA Position No. 81." Unpublished report prepared for the National Park Service, 2009.

7. Martini, John. "Fort Baker Marine Repair Facility, Historic Structure Report, Part 1A." Draft report prepared for the National Park Service, 2009.

8. Martini, John. "Preliminary Cultural Landscape Report, Kirby Cove." Unpublished report prepared for the National Park Service, September 2010.

9. Martini, John and Stephen Haller. "What We Have We Shall Defend: An Interim History and Preservation Plan for Nike Site SF-88L, Fort Barry, California." Unpublished National Park Service report, 1998.

10. Rurik, Chris. "Preliminary Cultural Landscape Report, Departmental Rifle Range, Fort Barry, Marin Headlands." Unpublished National Park Service report, 2010.

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