NAVAL AIR STATION BARBERS POINT
(Marine Corps Air Station Ewa)
Franklin D. Roosevelt Street, Essex Street, Pacific Ocean, and Drainage Channel
Ewa Vicinity
Honolulu County
Hawaii

HABS No. HI-279

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
Pacific Great Basin System Support Office
National Park Service
San Francisco, California 94107-1372

HISTORIC AMERICAN BUILDINGS SURVEY

NAVAL AIR STATION, BARBERS POINT
(Marine Corps Air Station, Ewa)

HABS No. HI-279

Location: Southwest section of Oahu, on the Ewa plain, bounded on the north by Franklin D. Roosevelt Street, on the east by Essex Street, on the south by the Pacific Ocean, and on the west by a wide concrete drainage channel.
Ewa vicinity, City and County of Honolulu, Hawaii

Present Owner: U.S. Navy

Present Occupants: U.S. Navy and other military activities as tenants

Present Use: Naval Air Station; slated for base closure

Significance: Naval Air Station, Barbers Point (NAS BP) now encompasses much of the land that was designated Marine Corps Air Station, Ewa (MCAS Ewa) during World War II, as well as the original NAS BP area. The history of these two installations is closely intertwined. The Marine air station facilities were developed first, and were attacked by the Japanese on December 7, 1941. Since most of the Marine station's construction was temporary, very little of it remains, compared to the more permanent World War II facilities at the adjacent Naval Air Station. Both air stations played significant roles during World War II in training aviators and other aviation-related personnel who were then sent to battle in the Pacific. In addition, NAS BP in World War II was a major supply, overhaul and repair station for carrier aircraft. There is also significant architecture at the station that embodies distinctive characteristics of specialized military types that were representative of this period of American history. Some of the buildings were designed by Albert Kahn & Associates, a firm that was recognized for its leadership in industrial architecture.

PART 1. PHYSICAL SETTING

Naval Air Station Barbers Point (NAS BP) is located in the south-central section of the Ewa plain, on the island of Oahu (Figure 1). Two mountain "ranges" (the originally shield-shaped volcanoes have eroded into a series of valleys and ridges) are visible from the station. The end of the Waianae range is a large pyramidal shape dominating the station's vistas, while the long spine of the Koolau range is visible to the northeast, but much less prominent because further away.

Barbers Point is the name of the point on the southwest corner of Oahu. It has long been officially spelled without an apostrophe. It is named after "Captain Henry Barber who, on October 31, 1796, was wrecked there on a coral shoal." The Hawaiian name of the point is Kalaeloa, which means "the long point" (Pukui *et al.* 1976).

The station occupies almost 4,600 acres (U.S. Navy Pacific Division Sept. 1994), that are bordered by ocean, former sugarcane fields, an industrial area, and expanding urban development. Much of the station has been developed for military uses, but there are some areas that still have remains of Hawaiian settlements and of early historic period ranching and sisal cultivation.

The emerged coral reef that forms the Ewa plain is generally flat, although it has irregular voids, called sinkholes or "puka" (Hawaiian word for 'hole'), that reflect the marine origin of this land. The land gradually rises from the coast to an elevation of about 50 feet above sea level near the station's inland boundary. The coral has essentially no soil cover, except the northern section, which has some soils deposited from erosion of the Waianae range (Tuggle Oct. 1995: 9).

The climate is arid, with annual rainfall averaging 19 inches but with great variations from year to year; January has the highest monthly average of 4.1 inches, while June and July have the lowest monthly average of 0.3 inches (Tuggle Oct. 1995: 9 & 13). Because of the porous coral ground, there are no defined drainage channels through the base. Intermittent streams in the Waianae mountains do not cut through to the ocean across the Ewa plain. The vegetation that thrives in this dry climate and rocky ground include *kiawe* (*Prosopis pallida* or algaroba) and *koa haole* (*Leucaena leucocephala*) trees, and a variety of grasses and other ground cover. The coastal strand vegetation includes beach *naupaka* (*Scaevola taccada*), and thick stands of pluchea (*Pluchea indica,* Indian fleabane and *Pluchea symphytifolia,* sowbush). A total of 173 plant species have been recorded at NAS BP, including two endangered plants endemic to Oahu: the Ewa plain *akoko* (*Euphorbia skottsbergii*) and *Achyranthes rotundata* (no common name) (Tuggle Oct. 1995: 11).

PART II. HISTORICAL CONTEXT

CIVILIAN HISTORY OF THE AREA

Hawaiians lived in the Ewa plain in the pre-contact period, but much archaeological evidence has been lost due to sugarcane cultivation and urban and military development. Perhaps because of the harsh environment, "there is no archaeological evidence of elite occupation" (Tuggle Oct. 1995: 18). A small number of people lived in a shoreline settlement within the station boundaries in the late 19th century, as indicated by the tax records from 1855 to 1888 (Tuggle Oct. 1995: 23). In the mid-1800s land division that first allowed land ownership in Hawaii,

known as the Great Mahele, the *ahupua'a* of Honouliuli, which includes the Ewa plain, was granted to a granddaughter of King Kamehameha I (Tuggle Oct. 1995: 23). The land was passed on to several relatives before it was sold in 1877 to James Campbell, who used it to raise cattle (Tuggle Oct. 1995: 24). Bee-keeping was another commercial activity in the Ewa plain at the turn of the century. "It is listed on various lease documents for Honouliuli in 1889 and is identified as one of the assets of the Ewa Plantation Company in 1920" (Tuggle Oct. 1995: 11).

In 1889 century Campbell leased Honouliuli to Benjamin Dillingham. Dillingham subleased most of the land to W. R. Castle for the Ewa Plantation, but used a section across the Ewa plain to build the Oahu Railroad and Land Company (OR&L Co.) railroad line (Tuggle Oct. 1995: 24). This line ran from Honolulu, around Pearl Harbor, across the Ewa plain, up the Waianae coast, and eventually to the north shore of Oahu. This railroad line served the major sugar plantations along the route. The line eventually became the northern boundary of the Naval Air Station.

Sisal (*Agave sisalana*) cultivation, for rope fibers, was also a commercial venture on the Ewa plain in the late nineteenth and early twentieth century. The tall sisal plants are still evident in several sections of the station. There are no remains of the U.S. Coast & Geodetic Survey Magnetic Observatory that was built near what is now the center of the station in 1902.

A description of the NAS BP land, before military construction, mentions only ranching, and no other commercial uses. It notes the land was

> formerly part of the Campbell Estate, under lease to the Hawaiian Meat Company, Ltd., for cattle grazing. Virtually the entire area was hard-crusted coral formation, untillable pasture and beach (Contractors Pacific Naval Air Bases n.d.: A-357).

THE U.S. MILITARY IN HAWAII

The earliest recorded U.S. military presence in Hawaii was in 1814, when a captured British ship commanded by a U.S. Marine, Lt. J. M. Gamble, visited Honolulu. The U.S. Navy followed in 1826, with a visit by a Navy ship, the USS *Dolphin*. In 1840 the Navy first surveyed Pearl Harbor. The U.S. military's interest in Hawaii continued to increase during the 19th Century as the role of the Pacific region gained importance in world politics and trade. For the next 50 years, Hawaii was visited by various military sailing ships for purposes of shore leave and re-supply, with purchases of food and water from the civilian sector. In 1872, Major General John M. Schofield, Commander of the Army Division of the Pacific, inspected Oahu to evaluate its military potential for defense of the North American continent, and recommended that Pearl Harbor be developed as a U.S. military base (Bouthillier 1995).

During the negotiations for the renewal in 1887 of Reciprocity Treaty, King David Kalakaua of the Hawaiian Kingdom granted the U.S. exclusive permission to develop Pearl Harbor and to establish a coaling and repair station there, in return for allowing Hawaiian sugar to enter U.S. markets duty-free. The reef at the mouth of Pearl Harbor required dredging before large ships could enter it. This would involve large amounts of money and the U.S. Congress did not appropriate any funds to exercise this option during the remaining years of the nineteenth century. During these years the government in Hawaii changed from a Kingdom to a Provisional Government, to a Republic, and finally to a territory of the United States in 1898.

With the acquisition of the Philippines and Guam in the Spanish-American War, the Territory of Hawaii "suddenly assumed a new importance in America's international considerations. Honolulu Harbor became *the* mid-Pacific coaling station for all shipping to the Philippines" (Coletta 1985: 433). There was still no money to develop Pearl Harbor, so four coal sheds were constructed in Honolulu Harbor. This became the nucleus for the Honolulu Naval Station, and in 1899 the coal shipping duties were turned over to Commander John F. Merry, marking the official beginning of a Navy command in the Hawaiian Islands. Although initial Navy development in Hawaii centered around the coaling station, Pearl Harbor was recognized as being a safe anchorage and the only defensible harbor within the entire Hawaiian Island group. In 1901 Congress appropriated $150,000 to purchase land for a naval station and for channel dredging and harbor defense. Many felt at that time that future use of the harbor would require the channel to be deeper (Bouthillier 1995).

The relationship between the United States and Japan deteriorated after the Russo-Japanese war in 1905. Many people felt that the threat of a Japanese takeover of Hawaii was imminent, including Hawaii writer Sereno Bishop, Albert Barker, president of the 1900 Pearl Harbor Board and commander of the USS *Oregon*, and Assistant Secretary of the Navy Theodore Roosevelt. Bishop wrote:

> She (Japan) has undertaken, in self-defense, to drive Russia from the Pacific. In order to effectuate this object it seems that she will draw to her aid the colossal resources of still slumbering China. It behooves America early and thoroughly to forestall the dangerous possibilities of such a conjunction, and at once to make secure her own great sea power (Coletta, 1985: 436).

Their urgings for preparedness in case of war encouraged a Joint Army-Navy Board in 1907 to call for the immediate establishment of the Pearl Harbor naval facility as the major base in the Pacific. Moreover, the Governor of Hawaii requested the Navy to move out of Honolulu Harbor. In 1908 Congress allocated $3,100,000 to improve the channel, build a dry dock, erect machine shops and storehouses, and develop the coaling facilities. Representative Arthur Bates of Pennsylvania, the Naval Affairs Committee chairman, in 1908 said:

> What a disadvantage it would be . . . if some hostile fleet or some hostile battleship should take possession of Pearl Harbor and of the Hawaiian Islands, to have a coaling station of a possible enemy within 2,100 miles of our coast, and on the other hand, what an advantage it is now they must traverse 4,000 miles there and 4,000 miles back again from a coaling base. Any maritime enemy would think twice before approaching our coast under such conditions, especially when our fleet could coal and repair in this almost perfect harbor at Honolulu, namely Pearl Harbor (Coletta, 1985: 437).

Congress, the president, and the Department of the Navy throughout the first decade of the twentieth century continually identified Japan as the naval power to be confronted in the Pacific. The Navy's view in 1908 was that a coaling station and repair facility in Hawaii were essential in order to remove any forward assault base from Japanese hands and to keep open American commercial lines to the Far East. A new contract was awarded to Hawaiian Dredging Company for $3,296,000 to widen and deepen the channel to Pearl Harbor. Work began in March of 1909 and took two years. The first capital ship, the USS *California*, passed into the harbor on 14 December 1911, and in September of 1912 President William H. Taft closed the harbor to all commercial shipping of foreign registry, while foreign men-of-war could be admitted by special

permission of the Navy. By the end of 1912, construction of the Naval Magazine on Kuahua Island was in progress, and more land at Bishop's Point and on the Waipio Peninsula had been purchased (Bouthillier 1995).

A dry dock was built in 1909, and it was extended in 1910. In 1912 Congress allocated funds to again extend the dock to a total length of 1,008 feet. During construction in 1913, a huge portion of the dock collapsed, and work stopped for the rest of the year. It was what the Secretary of the Navy Josephus Daniels called the "naval disaster of the year." The dock was finally completed in 1919. Pearl Harbor Naval Base continued to expand, with a submarine base, a naval air station on Ford Island, and many other areas being constructed. The 1920s saw Pearl Harbor transform into a major overseas base, with its major purpose the repair and maintenance of the U.S. Fleet. The largest project during the 1920s was further dredging at a cost of almost $6 million (Bouthillier 1995).

The National Industrial Recovery Act of 16 June 1933 specifically authorized the president to utilize funds for military and naval construction. The Hawaiian Islands received $10 million of NIRA funds, which provided improved roads and a Navy radio station in Lualualei valley on Oahu, and ten landing fields throughout the islands (Coletta 1985: 448).

With the outbreak of war in Europe in September 1939, President Roosevelt declared a National Emergency and an extensive amount of construction began at Pearl Harbor. About this time the Navy's first contract with Contractors Pacific Naval Air Bases was signed and work was begun at Kaneohe, Midway atoll, and other Pacific air bases. Work on the Ewa Mooring Mast Field and Naval Air Station Barbers Point was soon added to the contract (see Part III below).

After the 7 December 1941 Pearl Harbor attack, tremendous expansion took place on Oahu, extending to the outer islands. Hawaii became a major logistics and training complex for the Pacific war. The Naval Shipyard was enlarged, as were Naval Supply and support facilities. At the peak, over 600,000 acres of land was being used to support the war effort. This is roughly two and one-half times the area presently used by the military. Facilities were constructed on Hawaii, Maui, Kauai and Molokai, with only the privately owned islands of Lanai and Niihau left relatively untouched.

By the time the Japanese government officially surrendered to the allied forces in 1945, Oahu contained one of the most extensive, if not the most extensive set of defense installations in the world. The end of World War II brought to an end the major construction programs of the military, and as the type of weapons used evolved, many of the facilities constructed became outdated. There was a general phase-down following World War II, which was temporarily suspended by the Korean "police action" in 1950. Although some construction occurred to support the war in Korea, most construction work consisted of modernizations to existing structures or the replacement of outdated structures (Bouthillier 1995).

MILITARY CONSTRUCTION AND PLANNING ON THE EWA PLAIN IN THE 1930s

In 1931 the U.S. Army started to build a battery of two 16-inch guns at Puu-o-Kapolei, the only topographic rise in the Ewa plain, just north of what became Naval Air Station Barbers Point. These huge guns, the largest ever installed in U.S. coastal defenses, had been removed from battleships after the 1922 Naval Limitations Treaty with Britain and Japan. The army installation was named Fort Barette and the gun emplacement called Battery Hatch after Coast Artillery

officers who had served in Hawaii. Originally the battery was open at the top to allow 360-degree fields of fire, but the guns were casemated with 12'-thick walls and 8'-thick roofs of concrete during World War II (Denfeld Feb. 1995: 169). The Army also established training areas and built coastal defenses and a coastal highway in the Ewa plain in the 1930s (Tuggle Oct. 1995: 27).

The Navy announced a plan for a "Million Dollar Barbers Point Radio Station" in 1939. A newspaper article noted that "preliminary investigations have been made and a site selected at Barbers Point for establishment of a new communication center in the Hawaiian area. . . . Other naval radio stations are at Lualualei, Heeia, Pearl Harbor naval air station and at Hilo" (*Star Bulletin* 1939). It is possible that the announcement of a radio station was a cover for plans for an air station, during a period when Japanese and American fortifications in the Pacific were a potentially explosive political topic.

A BRIEF OVERVIEW OF NAVAL AVIATION HISTORY

The United States' first naval air station was built in Pensacola, Florida in 1914. During World War I, the Navy set up seven seaplane patrol bases along the east coast, and had two additional air stations at Norfolk and San Diego. The three air stations, but not all of the patrol bases, continued in use as aviation training stations after World War I. During the 1930s, eight naval reserve air bases were established across the U.S. and three more air stations were built on the west coast, "to accompany the transfer of the Fleet's main strength to the Pacific" (U.S. Navy, Bureau of Yards & Docks 1947: Vol. 1, 227). Two lighter-than-air (dirigible) stations and a Marine Corps air station were also established after World War I.

The lighter-than-air craft were used for coastal anti-submarine patrol, "because of their ability to slow down and hover for immediate scrutiny of suspected objects" (U.S. Navy, Bureau of Yards & Docks 1947: Vol. 1, 251). The airships were equipped with radio to warn shore stations and surface ships, and with depth bombs for attack, and machine guns for defense. The Lakehurst, N.J. station was the Navy's first lighter-than-air (LTA) station, established in 1921. The second LTA station was Naval Air Station Sunnyvale (whose landing field was named Moffett Field in 1933 and that became station name in 1942), in Mountain View, California (U.S. Navy 1970: 370). It was here that the airship as an aircraft carrier was tested. By 1935 the airship *Macon*

> was performing as a true lighter-than-air carrier. With her hook-on planes stationed sixty miles on each beam, the airship could advance a high-speed, high-endurance scouting front approaching 200 miles -- and incredible performance for the time. In 1935 there was not a military plane that could provide a comparable performance (Althoff 1990: 118).

The Navy leased 206 acres in the Ewa plain of Oahu from the Campbell Estate in 1932 (Denfeld 1995: 169). A mooring mast and small, unpaved but oil-surfaced, emergency landing field were then built as an end point for planned Pacific flights by Navy dirigibles. In the spring of 1935 fleet exercise were planned to be held west of Hawaii, making "it probable that the MACON would scout strategically from the mast at Ewa" (Robinson & Keller 1982: 190). Before attempting any trans-Pacific flight, both the *Akron* and *Macon* crashed in storms in the mid 1930s, and the mooring mast at Ewa was abandoned (Denfeld Feb. 1995: 169). The Navy's rigid airships would not be replaced and the facilities on Oahu were used only a few times for blimps

during 1939 and 1940 (*Star Bulletin* 1957). There was some use of lighter-than-air blimps during World War II.

The first Navy aviators arrived in Hawaii in 1919 on the USS *Chicago*. They established a temporary base at Pearl Harbor, and reached agreement with the Army to share Ford Island. Both land planes and seaplanes were used by each service air branch (Coletta 1985: 445). The number of Navy planes grew from four in 1919 to 39 in 1932, and the conflict with the Army's use of Pearl Harbor air facilities increased. The Army developed Wheeler Field in the 1930s and started plans for Hickam Field as a bomber base in the late 1930s. By 1936 carrier-based naval aviation was developing rapidly and the Navy command recognized the need for more space for visiting fleet squadrons as well as Hawaii-based patrol planes (Coletta 1985: 449).

In 1939 the Navy had only eleven air stations and eight reserve air bases in the continental U.S. Ford Island was still the only aviation facility of the Navy in Hawaii (Hewlett 1939). The need for additional naval aviation facilities was recognized in the report to Congress by the Hepburn Board of December 1938. Subsequently authorization was given to build new naval air stations on the mainland, as well as at Kaneohe on Oahu, expand the Ford Island air base, and develop air facilities on Midway atoll, Johnston and Palmyra islands (U.S. Navy, Bureau of Yards & Docks 1947: Vol. II, 121). A consortium of construction companies, named Contractors, Pacific Naval Air Bases (PNAB) was awarded the contract to build all these naval aviation facilities in the Pacific. At these air stations Contractors PNAB was responsible for most construction between 1939 and mid 1943, when the Naval Construction Battalions (CBs or Seabees) took over the work. In 1943 the Navy took over Oahu's commercial airport; improvements included dredging seaplane runways and adding runways for land-based transport planes (Coletta 1985: 459).

PART III. DEVELOPMENT HISTORY OF MARINE CORPS AIR STATION EWA AND NAVAL AIR STATION BARBERS POINT

The PNAB contract was constantly being amended and some of the first additions were to enlarge and pave the existing runway, and build a cross runway at the Ewa Mooring Mast in 1940. "The Marines, who moved in during the summer of 1941, built most of their own facilities" (Contractors Pacific Naval Air Bases n.d.: A-978). Denfeld (Feb. 1995: 170) described the facilities as of December 1941: "two steel hangars, twelve wood-frame buildings, with housing, mess, the dispensary in tents over wood frame walls and wood floors, and the mooring mast in use as a control tower." The Ewa Mooring Mast Field was one of the bases on Oahu attacked by the Japanese on December 7, 1941.

> On the morning of December 7, 1941, there were 49 planes at the Ewa Mooring Mast Field. The 10 Wildcat fighters, 32 Scout bombers, and six utility planes were neatly lined up along the edge of the runway. . . .
>
> Twenty-one Zero aircraft . . . arrived over the field from the northwest, strafing the parked aircraft. The Zeroes from the carriers *Kaga* and *Akagi* destroyed nine Wildcats, 18 Scout planes, and all the utility aircraft. . . .
>
> A second attack of Aichi D3A1 Type 99 Dive bombers, or Vals, . . . arrived at 0835. The Vals dropped their bombs on the surviving aircraft and strafed as they made their bomb runs. . . . The improvised defense at the base responded.

> Arriving over Ewa during the Japanese attack were six Navy planes from the *Enterprise.* Soon the outnumbered American flyers were in aerial battle. [Three American planes crashed in dogfights.] . . .
>
> A third Japanese attack hit at about 0915 and found little to attack. By now virtually all the aircraft at the Mooring Mast Field had been destroyed. At the base four Marines had been killed and 13 wounded (Denfeld Feb. 1995: 170-171).

Before the Japanese attack it had been the plan to use the Ewa runways only until the Barbers Point air station was completed. Clearing for the Barbers Point runways and some paving was evident on December 7, 1941, but no other work had been started on this new station. In early 1942 it was decided to make Ewa a separate station; in September 1942 it was established as Marine Corps Air Station Ewa (U.S. Navy, Bureau of Yards & Docks 1947: Vol. II, 145). The main projects that Contractors PNAB built at Ewa were additional runways, 75 dispersed airplane revetments, and additional temporary buildings for 3,000 men (Contractors Pacific Naval Air Bases n.d.: A-979). The Contractors PNAB report also noted that the amount of construction by Naval Construction Battalions (CBs) was extensive (*Ibid.* A-989). The planning and construction history of this installation was summarized by Contractors PNAB:

> The site-plan layout (by the Design Section of the Public Works Department, 14th Naval District) was determined by the existence on the site of the Ewa mooring mast and the small emergency landing field. From this field the main runway was developed, in the direction of the prevailing northeasterly tradewinds. The first building areas were developed adjacent to this and the first cross runway. All building plans were made or modified by the Design Section, 14th Naval District, or by station forces. Immediately following the "blitz" [Contractors PNAB term for December 7, 1941 attack] it is reported that many buildings were erected without plans, on the verbal orders of the OinC [Officer in Charge].
>
> At this station the chief criterion was emergency construction of the cheapest and quickest sort. The original plan . . . appears to have been to develop the Ewa field for temporary operation, and then to abandon it after completion of Barbers Point. However, once the war had started, to have scrapped the field would have been wasteful; it was decided to develop it further, as a Marine Corps Air Station (Contractors Pacific Naval Air Bases n.d.: A-978).

Marine Corps Air Station Ewa served as a pilot training center and staging area for men and planes serving throughout the Pacific during World War II (Coletta 1985: 202). After the war, the station was disestablished, with the land absorbed by Naval Air Station Barbers Point.

The Naval Air Station at Barbers Point was a major addition to the Pacific Naval Air Bases list; although it was originally designed as an auxiliary, or outlying airfield, of Ford Island Naval Air Station (U.S. Navy, Bureau of Yards & Docks 1947: Vol. II, 139). Additional land adjacent to the Mooring Mast Field was acquired from Campbell Estate in 1939 (Coletta 1985: 43). Work began in November 1941, with clearing of vegetation for the runways. Work was suspended on this installation after the attack on December 7, 1941, as facilities at the Ewa Mooring Mast were rushed to completion. The official establishment of Naval Air Station Barbers Point is often listed as 15 April 1942. "It is believed, however, that this was for emergency use of the landing strip at the Ewa Mooring Mast, before the Marine Corps Air Station was officially established (1 Sep 42). (Until the Ewa field was separately established, it was often referred to as part of

Barbers Point.)" (Contractors Pacific Naval Air Bases n.d.: A-340). The Barbers Point runways were not completed until 1943 (Denfeld Feb. 1995: 171).

Like MCAS Ewa, the major buildings at Naval Air Station Barbers Point were sited in the northern quadrant of the X formed by the runways. The roads in this quadrant are mostly laid out in two intersecting grids.

The hangars, administration buildings and barracks were built, according to the geometry of the first grid, parallel to roads that are oriented 30 degrees from a north/south line (as well as road that are perpendicular to these). Since this angle is in-between a northwest/southwest and a north-northwest/south-southwest orientation, the facades of the buildings in this section of the station are difficult to describe by compass points. Therefore, for descriptive purposes, the assumed direction, of the long axes of Buildings 1, 2, 94, 110, 111, and 117, as well as the short axes of Building 4 and the ready magazines, is northwest/southwest.

The second grid includes the main shop and warehouse buildings on the station, that were originally served by a railroad line along Midway Street. This railroad had spur lines extending into or next to Facilities 140 to 144 (Facility 143 is no longer extant). This grid combines roads that are at the 30-degree angle and other roads that are oriented at 77 degrees from a north-south line. This angle is also difficult to describe by compass points, since it is in-between an east-northeast/west-southwest and an east/west orientation. Therefore, for descriptive purposes, the assumed direction of the long axes of Buildings 91, 115, and 140 is east/west.

The planning and construction history of this installation was summarized by Contractors PNAB:

> Original layout . . . was prepared by the Design Section of the 14th Naval District, Public Works Department. Most of the buildings were constructed from plans issued by the Bureau* for similar structures built elsewhere, modified . . . to meet local requirements. (*Several of the building plans supplied by the Bureau were developed by Albert Kahn Associated Architects and Engineers.)
>
> . . . . Modifications consisted of adaptation of steel-frame construction to wood -- or to other substitutions required by conservation measures adopted in the spring of 1942.
>
> . . . . Many of the buildings at this station were originally designed to be permanent. After the "blitz," however . . . the matter was reconsidered. (There was sufficient time for changes in plan; [because] the contractors' forces were, for a time, fully employed at Ewa, to repair "blitz" damage and to add such facilities as would make the Ewa field more useful for defense.) (Contractors Pacific Naval Air Bases n.d.: A-347-8).

The Contractors PNAB report described the wartime construction criteria, which stressed completion of the runways as soon as possible; smaller, more easily camouflaged buildings, dispersal of vital installations and personnel facilities; bombproof construction for command centers and telephone communication buildings; and all other buildings to be of temporary construction type with adequate blackout installations and ventilation. Another major factor that affected planning and construction at NAS Barbers Point was the decision to double the capacity of the station, from the handling of two aircraft carrier groups to four. This basically required the doubling of all facility requirements at the station. The X-plan runways were even doubled in

width and length. One runway is 750 feet wide and the other 1,000 feet wide and both are over 8,000 feet long, making them among largest, if not the largest in the Pacific.

From these runways an "average of 1,500 planes rose daily during the course" of World War II. Among the schools established at NAS Barbers Point were a combat aircrew training unit "(CATU) and a night attack and combat training unit (NACTU)" (*Honolulu Advertiser* 1947). The installation was also heavily used for pilot training, "particularly day and night carrier landings" (Coletta 1985: 43). These Navy pilots were then assigned to combat units throughout the Pacific. The air station also serviced the planes from carriers.

Many of the buildings at NAS BP were duplicates of ones designed for other bases by Albert Kahn of Detroit, Michigan (Contractors, Pacific Naval Air Bases n.d.: 338). He was "one of the country's foremost industrial designers, and had been chosen to prepare plans for the barracks, messhalls, and hangars that could be standardized for the various bases" (Woodbury 1946: 76). German-born, but raised in the United States, Kahn specialized in factory designs and had many commissions from the Ford Motor Co. (Richards 1977: 163). His buildings were noted for their simplicity, efficiency, and use of natural light. The firm also became famous for the speed of its design process when a huge aircraft factory in Baltimore was completed, from design to construction in 81 days (Bucci 1993: 105). This simplicity of design and construction was much needed and appreciated when Kahn's firm was awarded the contracts to design the new Navy bases in the Pacific and the Atlantic. "They turned out 1650 drawings in seven months" (Bucci 1993: 110).

Brief-format descriptions (sometimes with reduced drawings) and photographs of the significant historic resources remaining from the World War II period at Naval Air Station Barbers Point and the former Marine Corps Air Station Ewa are given in HABS HI-279-A to HI-279-AH.

PART IV. SOURCES OF INFORMATION

A. Architectural drawings

Several different plans for the station were helpful in studying the evolution of the base. One undated (appears to be ca. 1945) and unnumbered map of Marine Corps Air Station Ewa was provided to us by another firm and was copied from one at Naval Air Station Barbers Point Staff Civil Engineer (SCE) files. Other drawings found in the SCE files are:

Drawing # Series	Drawing #	Drawing Name	Drawing Date
14th ND	OA-N1-816	NAS BP Building Layout (As Built)	12-43 (?)
14th ND	OA-N1-1215	NAS BP Existing Condition Contour Map	1-29-45

The following were found on microfilm in the Plan File room at the Pacific Division, Naval Facilities Engineering Command:

Drawing # Series	Drawing #	Drawing Name	Drawing Date
Y&D	176313 - 327	NAS BP Roads, Walks & Bldgs. Layout	12-18-41
14th ND	OA-N1-652	MCAS Ewa/ Warming-Up Platform, Runway Ext.	7-19-43
Y&D	551267	Map of NAS BP showing conditions on	6-30-51

The drawings found for specific buildings are reproduced or listed in individual HABS reports.

B. Historic views

The Public Affairs Office (PAO) of NAS BP had a set of aerial photos showing the development of the station, especially the progress on the runways. The PAO file also included a few shots of facilities that are no longer on the station, including the outdoor amphitheater and the engine overhaul facility housed in a complex of about 30 joined quonset huts.

C. Interviews

Two retired, long-time workers at Naval Air Station Barbers Point, Alfred Abe and Charlotte Inouye were interviewed. Also, the significance of the base was discussed with Dan Martinez and Bob Chenoweth of the National Park Service USS Arizona Memorial Park.

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E. Likely sources not yet investigated

Sources that are not on Oahu have not yet been investigated. The Navy Historical Center and the National Archives are likely sources for additional information on Naval Air Station Barbers Point. Further information on the defensive positions erected by the Army at NAS Barbers Point is more likely to be found at Army historical depositories.

F. Historic resources included in Naval Air Station Barbers Point documentation

Short-form descriptions (some with reduced copies of drawings) and large-format photographs of the following historic resources at Naval Air Station Barbers Point have been prepared as part of this project:

Navy Building No. or State Inventory of Historic Places No.	HABS No. HI-279-	Date	Common Name
1226-1293, 1297-1301 & 2 un-numbered	A	1942	MCAS Ewa Aircraft Revetment Type
1506, 1520, 1523	B	1944	Quonset Hut Type 1 – 40'x100'
1525	C	1944	ARMCO Hut
87	D	1944	Portable Air Raid Shelter
1144, 1149, 1150, 1152, & 1153	E	1943-1944	Quonset Hut Type 2 – 40'x200'
1146	F	1944	MCAS Ewa Hangar
1	G	1942	Administrative Office Building
2	H	1943	WW II Command Center
4	I	1942	Aviation Operations and Control Tower
91	J	1942	Power Plant
92	K	c. 1942	Telephone Exchange Building
94	L	1943	Theater
110, 111	M	1942	Maintenance Hangar Type
115	N	1942	Torpedo and Bombsight Shop and Storehouse
117	O	1944	Assembly and Repair Shop
140	P	1943	Aircraft Storehouse
147	Q	1944	Warehouse
188, 189, 623, 626, 627, 695, 696	R	1943	Ready Magazine, 1943 Type
155	S	1944	Ready Magazine, 1944 Type

318, 321, 342-345, 347, 446-457, 459-461, 463-465, 476 & 477	T	1942-1943	Dispersed Storage Warehouse Type
384, 385, 388 and 387 & 390	U	1943-45	Officer House and Garage Type
5097 (SIHP)	V	c. 1942	Battery complex (4 structures)
Feature 1	W		Small gun position
Feature 2	X		Shelter
Feature 3	Y		Large gun position
Feature 4	Z		Armco Hut
5124 (SIHP)	AA	c. 1942	Battery (3 features - 2 types)
Feature A	AB		Anti-aircraft gun position
Features B & C	AC		Machine gun positions
5125 (SIHP)	AD	c. 1942	Shore pillbox complex (4 types)
Features A-D, F & H	AE		Type 1 pillbox
Feature E	AF		Type 2 pillbox
Feature G	AG		Type 3 pillbox
Feature I	AH		Type 4 structure

Note: For the complexes with State Inventory of Historic Places (SIHP) numbers, separate letters have been given to each feature type, at the request of the Historic American Buildings Survey. Each of the three complexes has a letter designation (V, AA, and AD), under which the written historical and descriptive data is given. Following these are separate photo indexes for each feature type, each with its own letter designation. Cross-references to the related photo material and written data have been included.

PART V. PROJECT INFORMATION

This report is expected to be part of the mitigation of the closure of Naval Air Station Barbers Point. This project was undertaken in 1995, under Navy contract N62742-93-D-0502, Scope of Work #25.

The written documentation was produced by:

Ann Yoklavich, Architectural Historian, and
Glenn Mason, Historical Architect
Spencer Mason Architects, Inc.
1050 Smith Street
Honolulu, Hawaii 96817

and the large-format photography was done by:

David Franzen
Franzen Photography
145 Hekili Street, Suite 100
Kailua, Hawaii 96734)

as sub-contractors to:

Paul H. Rosendahl, Inc.
204 Waianuenue Street
Hilo, Hawaii 96720

Figure 1 Map of Oahu, showing location of Naval Air Station Barbers Point and traditional Hawaiian land divisions