KA'ENA POINT SATELLITE TRACKING STATION, BUILDING 11
(Guardhouse)
Ka'ena Point, Wai'anae Mountains above Keawaula Bay
Waialua
Honolulu County
Hawaii

HAER HI-97-D
HAER HI-97-D

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240-0001

HISTORIC AMERICAN ENGINEERING RECORD

KA'ENA POINT SATELLITE TRACKING STATION
BUILDING NO. 11
(Guardhouse)

Location: Ka'ena Point, Wai'anae Mountains above Keawaula Bay
Waialua, Honolulu County, Hawai'i

United States Geological Survey (USGS) Ka`ena Point,
Hawaii Quadrangle,
Universal Transverse Mercator Coordinates
Building 11: 2384475.05 m N, 578663.95 m E

Present Owner: Headquarters, Air Force Space Command
150 Vandenberg Street, Suite 1105
Peterson Air Force Base, CO 80914

Present Occupant: United States Air Force
Detachment 3, 21st Space Operations Squadron
50th Space Wing
P.O. Box 868
Waianae, Hawai'i 96792-0868

Present Use: Satellite Tracking Station

Significance: Ka'ena Point Satellite Tracking Station (KPSTS) is a radio receiving and transmitting facility that occupies approximately 153 acres of land leased from the State of Hawai`i, including easements and rights-of-way. KPSTS was originally established in 1958 to support the CORONA/Discoverer Satellite Program.

The CORONA/Discoverer Program was a covert surveillance and satellite reconnaissance program run by the United States (U.S.) in the 1950s and 1960s that was instrumental in the development of radar and surveillance technological advancements. The nation's first satellite reconnaissance program was named Discoverer. Since the program was classified, it became known by its codeword CORONA although CORONA is not an acronym. The antenna equipment and support structures, and command stations, located within KPSTS, then known as "HULA," supported the CORONA/Discoverer programs with data retrieval, tracking and relay; as well as gathering orbit and trajectory data to aid in the recovery of surveillance film capsules that were ejected from the satellites.

During the Cold War years when suspicions between the U.S. and the Soviet Union were high, concerns over the manufacture of nuclear

weapons by the Union of Soviet Socialist Republics (U.S.S.R.) spurred the innovations in the U.S. reconnaissance missions. Space surveillance satellites captured photographs of suspect weapons storage and manufacturing locations within the Soviet Union at increasingly higher resolution throughout the duration of the CORONA/Discoverer program.[1] Global mapping and terrain imagery became an indispensable part of military intelligence. The last CORONA/Discoverer mission flight was in 1972.

Selected History Timeline of Events that Influenced the CORONA/Discoverer Program [2]

1946 First Post-war nuclear bombs explode in Operation Crossroads
1947 Central Intelligence Agency (CIA) established; Army separates from Air Force (AF)
1954 U-2 Program begins
1957 Soviets launch Sputnik I
1958 National Aeronautic Space Administration (NASA) established; Advanced Research Projects Agency (ARPA) est.; Air Force WS-117-L cancelled (and reconstituted as CORONA secretly)
1959 First series of "Special students" from Air Force Aeronautical Charting and Information Center (ACIC) arrive at Ohio State University (OSU); Army World Geodetic Datum (WGD59) finished
1960 First successful CORONA/Discoverer mission; Francis Gary Powers and U-2 shot down over Soviet Union; RACOMS Program begins
1961 Bay of Pigs invasion; TALENT-KEYHOLE security protocols formalized; National Reconnaissance Office (NRO) established
1962 Cuban Missile crisis; first successful CORONA-ARGON mission; first "Advanced" CORONA/Discoverer KH-4 mission
1965 Escalation of wars in Vietnam and Laos
1966 Secret Department of Defense (DOD) study suggests applications of classified reconnaissance information by nominally civilian federal agencies

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1 USNSSDC 1960: n.p. United States National Space Science Data Center, U. N., 20 August 1960. "Discoverer 14: NSSDC ID: 1960 -010A." Accessed 21 January 2012. <http://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=1960-010A>

2 Cloud 2002: 262. Cloud, J. "American Cartographic Transformations During the Cold War." In *Cartography and Geographic Information Science*, Vol. 29, No. 3, pp. 261-282, 2002.

Selected History Timeline of Events that Influenced the CORONA/Discoverer Program (continued)

1966 U.S. Geological Survey (USGS) begins Building E-1 at new National Mapping Division (NMD) center in Virginia
1967 Six-Day War, Soviet invasion of Czechoslovakia, first CORONA/Discoverer KH-4B mission; Outer Space Treaty signed
1968 First color films flown in CORONA/Discoverer missions; Civilian Applications Committee (CAC) formed
1969 Strategic Arms Limitations Talks (SALT) begin in Finland; Apollo 11Astronauts reach the Moon; Military Geographic Information Systems (MGIS) Program begins
1971 First HEXAGON satellite reconnaissance mission
1972 Last CORONA/Discoverer Mission; SALT Treaty signed; World Geodetic System of 1972 (WGS72) completed; Most DOD and IC service-level mapping and geodesy service agencies consolidated into the Defense Mapping Agency (DMA)
1973 Office of Management and Budget Mapping Agency Task Force recommends consolidation
1975 Vietnam War ends
1978 President Carter publicly acknowledges the U.S. employs satellite reconnaissance
1992 NRO is officially recognized to exist; President Clinton elected
1995 Authorization for the declassification of CORONA; the CAC is acknowledged to exist

As a result of the contributions of the CORONA/Discoverer program, KPSTS is significant for its contributions to America's history in the science and space exploration advances during the Cold War. KPSTS was a vital part of the U.S. military reconnaissance mission during the early development of our nation's Satellite Command and Control Network.

PART I. ARCHITECTURAL STATEMENT

A. General Statement:

1. History: Building No. 11, a guardhouse that is also identified as "SP Entry Con Bldg.," is a one-story military vernacular building. It was designed along with two other guardhouses by Ralph M. Parsons Company, Los Angeles, California, for the Department of the Air Force, Air Force Ballistic Missile Division, which was part of the Air Research and Development Command (ARDC), in Inglewood, California in 1958. Building No. 11 was erected in the following year as a guardhouse for the Interim Facilities for the WS-117L, Test Tracking Station. Despite five decades of service, the building has not been substantially altered and remains intact. The exceptions are the building's entry

door, which has been changed and signage with the building number has been added at an indeterminate date.

2. Architectural Character: The guardhouse is one-story in height and one-pile in depth. The building has an entry that is located on the south facade. (See photographic documentation for HAER HI-97-D-01 through HAER HI-97-D-08).

B. Description of the Exterior:

1. Overall Dimensions: The building measures 12 feet -0inches in width and 12 feet -0 inches in depth.

2. Foundations: The foundations are concrete with 8 inch footings which have been poured to a depth of 1 feet – 0 inches and support a 6 inch concrete slab.

3. Structural System, Framing: The walls of the guardhouse are framed with nominal 2 inch x 4 inch wood studs which have been spaced at 1 foot – 4 inch centers and attached to 4 inch x 4 inch wood sills which have been secured to a concrete slab with ½ inch diameter anchor bolts. The wall framing has been capped with top plates of continuous doubled 2 inch x 4 inch wood members and the rough openings of windows and a single door have headers that have been framed similarly, with paired 2 inch x 4 inch wood members.

4. Wall Construction: The guardhouse is of balloon frame construction that has been clad with ¾ inch x 7 ½ inch V-Groove wood siding, referred to in the period vernacular as "V-Joint Siding," over building paper.

5. Porches: The building does not have covered entries or porches but their absence has been compensated by continuous eaves that are 2 feet – 0 inches in width.

6. Openings:

a. Doorways and Doors: A single hollow metal entry door which measures 3 feet -0 inch wide x 7 feet – 0 inches in height and 1 ¾ inch thickness is located in the south facade and replaced an original metal entry door that was glazed with a single light. The door has been simply cased with wood trim.

b. Windows: The guardhouse has been fenestrated with metal casement windows that have been installed in all four facades. They include nine-light metal sash which measure 5 feet - 0 7/8 inch x 4 feet -1 inch and are located in the northwest, southeast, and northeast facades and one six-light metal sash that measures 3 feet - 5 7/8 inch x 4 feet -1 inch and is located in the southwest facade. The windows are simply cased with wood trim and feature wood sills.

7. Roof:

a. Shape and Covering: The building has a shed roof which is 16 feet – 0 inches in width and depth and has a slope of ¼ inch per foot. It has been framed with nominal 2 inch x 6 inch rafters which have been spaced at 2 feet – 0 inch centers and covered with a "built-up" roof which consists of composition roll roofing over 1inch insulation board and 5/8 inch exterior plywood.

b. Cornice: The guardhouse roof does not have a cornice but features open eaves with exposed 2 inch x 6 inch rafter tails, known in the vernacular of the period as "outlookers," which terminate into a continuous 2 inch x 8 inch wood fascia board.

C. Description of the Interior:

1. Floor Plan: Entry is made from the southeast facade into the building which consists of a single room that is devoid of interior partitions.

2. Flooring: The floor of the building is concrete.

3. Wall Finishes: Interior wall finishes of the guardhouse consist of 3/8 inch plywood which has been painted.

4. Doorways and Doors: There are no interior doors.

5. Light Fixtures: Mid-twentieth century light fixtures have been removed and replaced with late twentieth century fluorescent fixtures.

6. Heating and Mechanical: No method for heating the building has been provided but a wall-mounted air conditioner has been installed in the southwest wall.

PART II. SOURCES OF INFORMATION

A. Original Architectural/Engineering Drawings:

Parsons, Ralph M., Company. "Guardhouse Plans and Details." As-Built File #199-11-3, Drawing No. 1430-1A, A-6, Sheet 11. Los Angeles, California, 15 April 1958.

PART III. BIBLIOGRAPHY

Cloud, J. "American Cartographic Transformations During the Cold War." In *Cartography and Geographic Information Science*, Vol. 29, No. 3, pp. 261-282, 2002.

United States National Space Science Data Center, U. N., 20 August 1960. "Discoverer 14: NSSDC ID: 1960 -010A." Accessed 21 January 2012. <http://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=1960-010A>

PART IV. HISTORIANS

Historical research was conducted and the historical narrative was prepared by Kathryn Ladoulis Urban, AIA, K Design Group, Honolulu, while the architectural descriptions were prepared by Stanley Solamillo, also of K Design Group, and completed on July 16, 2012.

PART V. PROJECT INFORMATION

This Historic American Engineering Record (HAER) recording project was undertaken and funded by the United States Air Force Center for Environmental Excellence, Department of Defense as part of an agreed mitigation with the Architecture Branch, State Historic Preservation Division (SHPD) of the Hawai'i Department of Land and Natural Resources. The recording team consisted of preservation architect Kathryn Ladoulis Urban, AIA, architectural historian Stanley Solamillo, as well as architectural photographers Steve Brinkman and Tony Martie.

Research for this project was conducted at the University of Hawai'i Government Documents collection; the Joint Base Pearl Harbor Hickam 15 Airlift Wing Base historian office archive collection, at KPSTS Administration Building 10 archive drawing collection; the National Electronics Museum archives in Linthicum Heights, Maryland; the University of Notre Dame Hersburgh Library, South Bend, Indiana, in the General collection and Government documents collection; the Declassified Files section of the National Reconnaissance Office; as well as on-line sources from December 2, 2011 through July 12, 2012.

Initial site visits were performed from December 13 through 15, 2011 at KPSTS. A two day site visit and photographic fieldwork for HAER documentation as well as photography of archival construction and as-built drawings of KPSTS buildings No. 11, 35, 39005, and 39006 was performed from April 18-19, 2012. Additional HAER photography of existing measured drawings was performed on June 28, 2012.