

**Section 106 Consultation  
Publication Form**

**Project Name:** Proposed Undertaking Replace the Heating, Venting & Cooling (HVAC) equipment at Building 35, USAF Kaena Point Satellite Tracking Station (KPSTS)

**Island:** OAHU

**District:** Wai'anae and North Shore

**TMKs:** Project within (1) 6-9-003:005

**Permits:** N/A

**FILE COPY**

SE. 8 2016

**Applicant or Proposing**

**Agency:** United States Air Force (USAF), Kaena Point Satellite Tracking Station  
Detachment 3, 21 Space Operations Squadron/CC  
10 Hickam Court, Unit 4  
JBPHH, HI 96853-5208  
Contact & Phone: Mr. Lance Hayashi, (808) 697-4314

**Approving**

**Agency:** USAF, Kaena Point STS  
Contact & Phone: Mr. Lance Hayashi, (808) 697-4314

**Consultant:** N/A

**Status:** Comments due no later than September 22, 2016 to:  
Det 3, 21 SOPS/CC  
10 Hickam Court, Unit 4  
JBPHH, HI 96853-5208  
(808) 697-4314

**Summary:**

The current HVAC equipment is aged, deteriorating and near failure. Numerous issues such as leaks and mechanical failures have increased costs to maintain the system. The HVAC system failures have become an issue that can potentially damage mission equipment stored inside Building 35 and disrupt operations. The proposed undertaking is to replace the current HVAC systems located on the Northeast (NE) side of Building 35 with a single unit that is smaller in size and is more cost and energy efficient.

KPSTS has requested SHPD's concurrence with its conclusion that the proposed undertaking will have "no adverse effect" on Archeological, Native Hawaiian Cultural Resources or Historic Properties.

The Section 106 consultation document will also be available for review at the Waianae Public Library and the Waiialua Public Library during the review period ending on September 22, 2016.

17-092



DEPARTMENT OF THE AIR FORCE  
50TH SPACE WING (AFSPC)

AUG 11 2016

MEMORANDUM FOR HAWAII STATE HISTORIC PRESERVATION DIVISION  
Administrator  
601 Kamokila Blvd. Suite 555  
Kapolei, Hawaii 96707

FROM: Det 3, 21 SOPS/CC  
10 Hickam Court Unit 4  
JBPHH, HI 96853-5208

Subject: Request for Section 106 Review and Concurrence for a Proposed Undertaking to Replace the Heating, Venting and Cooling (HVAC) Equipment for Building 35 at Kaena Point Satellite Tracking Station (KPSTS).

1. The U.S. Air Force (USAF) is evaluating alternatives for a proposed undertaking, to replace the deteriorating and outdated HVAC equipment at Building 35.
2. In accordance with 36 CFR Part 800.3(c), this letter initiates our Section 106 coordination, and requests your concurrence with our determination of No Adverse Effect for the proposed Undertaking. This letter and the information in the attachments fulfill the documentation requirements of 36 CFR 800.11, and support our determination of No Adverse Effect.
3. Please direct questions or comments to Mr. Lance Hayashi by telephone at 697-4312, by mail at the above address or via email to Ms. Lynn Cruz at: [linda.cruz.ctr@us.af.mil](mailto:linda.cruz.ctr@us.af.mil).

ROBERT F. SHUMAKER, Major, USAF  
Commander

2 Attachments:

1. Section 106 Consultation
2. Building 35, Final HAER

cc:

Office of Hawaiian Affairs (OHA)  
Royal Order of Kamehameha  
Kawaihapai Ohana  
Koa Mana

## **SECTION 106 CONSULTATION**

**PROPOSED UNDERTAKING:  
REPLACEMENT OF HEATING, VENTING & COOLING (HVAC) EQUIPMENT,  
AT BUILDING 35  
KAENA POINT SATELLITE TRACKING STATION  
U.S. AIR FORCE (USAF) SPACE COMMAND  
(Proponent)**

**NATIONAL HISTORIC PRESERVATION ACT COMPLIANCE REQUEST  
FOR SECTION 106 REVIEW AND CONCURRENCE**

**SECTION I (Information from Proponent of Undertaking)**

- A. **TITLE OF UNDERTAKING:** Replace the Heating, Venting & Cooling (HVAC) equipment at Building 35, USAF Kaena Point Satellite Tracking Station (KPSTS)
- B. **PROPOSED START DATE:** September 16, 2016
- C. **LOCATION:** The Tax Map Key for this undertaking is 6-9-003: 005. The project site is within and upon KPSTS Building 35.
- D. **DESCRIPTION OF PROPOSED UNDERTAKINGS:**

The current HVAC equipment is aged, deteriorating and near failure. Numerous issues such as leaks and mechanical failures have increased costs to maintain the system. The HVAC system failures have become an issue that can potentially damage mission equipment stored inside Building 35 and disrupt operations. The proposed undertaking is to replace the current HVAC systems located on the Northeast (NE) side of Building 35 (Appendix A) with a single unit that is smaller in size and is more cost and energy efficient.

The proposed undertaking will include the following:

- a) Existing HVAC units and associated piping will be demolished. Wall penetrations from removed piping will be patched and painted over to match building exterior color.
- b) Two 4 inch (") diameter wall penetrations will be made to support new surface mounted piping. Appendix B shows proposed installation configuration.
- c) Piping straps will be installed to support approximately 100 feet (ft) of surface mounted piping.
- d) The new HVAC unit's dimensions are 4ft x 4ft x 4ft in length, width and height and will be installed on the previous HVAC systems concrete pad.
- e) All newly installed equipment, piping and support straps will be painted to match building exterior color.

## SECTION II (Information from the Environmental Planning Office)

### A. IDENTIFY HISTORIC RESOURCES

#### 1. ARCHITECTURAL FEATURES

Building 35 was constructed in 1963 for its original mission of space vehicle (satellite) radar tracking and communications. Over its lifetime, Building 35 has experienced mission changes as well as modifications, additions and renovations to its architecture, systems, mechanical equipment and mission equipment. The building has reached a current age of 53 years.

In April 2012, KPSTS completed and submitted to the SHPD a Determination of Eligibility (DOE) for buildings at KPSTS that were potentially eligible for registry in the National Register of Historic Places (NRHP). As a result of the DOE, Building 35, despite its alterations, was deemed eligible for listing in the NRHP under Criterion A for associations with persons or events significant to our history, and Criterion C, Architecture, as part of a thematic group of buildings associated with the Cold War. The SHPD concurred with the DOE and recommended Historic American Engineering Record (HAER) Level II recordation as stated in a letter dated May 7, 2012 (SHPD Log 2012.1292, Doc. 1205RS09).

In March 2013, a HAER, recorded by the SHPD as document HAER HI-97, was completed for the four KPSTS buildings determined eligible for NRHP listing. Within that document, Building 35 is recorded as HAER HI-97-E (Atch 2).

The building's history is summarized below, based on documentation in HAER 97-E:

- a) 1963: Building 35 construction completed to support CORONA satellite operations
- b) 1963-1967: two antennae and radomes installed for satellite radar tracking ("Prelort", in west radome) and command (T&C, in east radome)
- c) 1967: penthouse structure added
- d) 1968: radar antenna decommissioned and removed from west radome
- e) 1972: Bldg 39006 completed to replace Building 35's T&C antenna (satellite operators remain in Building 35)
- f) 1992: Hurricane Iniki damaged west radome beyond repair
- g) Present: Building 35 continues in use as a satellite tracking, telecommunications and control facility.

#### 2. ARCHAEOLOGICAL FEATURES:

According to KPSTS' Integrated Cultural Resource Management Plan (ICRMP) (International Archaeological Research Institute, Inc, September 2009), there are no known archeological sites within the Building 35 project area. The proposed undertakings would not adversely affect any archeological sites or cultural resources.

#### 3. TRADITIONAL RESOURCES

Kaena Point is particularly well known as a Hawaiian *leina a ka 'uhane*, or 'leaping place of the spirit.' This cultural use, however, is traditionally understood to have occurred at the

westernmost tip of Oahu Island, several kilometers from the proposed project areas. Although the ahupua'a of Kaena and Keawaula are rich in traditional history, there are no known traditional cultural places within the proposed project areas.

#### B. DETERMINE POTENTIAL EFFECT

The Area of Potential Effect (APE) for this proposed undertaking will be limited to Building 35. Since work on this project will be conducted within and upon Building 35, the likelihood of human remains or other archaeological materials being inadvertently discovered is negligible. If such discovery were to occur, then all work in the vicinity of the discovery will stop and the contractors and KPSTS personnel will take measures to help secure any remains, archaeological materials and associated context and the State Historic Preservation Division will be notified and consulted in accordance with the ICRMP's compliance procedures and standard operating procedures.

Replacement of HVAC equipment will not affect the visual appearance of the building and will be reduced in size from current systems. The visual quality of the site would be improved after the two existing HVAC equipment are removed and the new single system is installed. Its general appearance would not change, and would remain consistent with other facilities on the site.

HAER HI-97-E documents Building 35 as it was determined eligible for NRHP listing. The HAER was recommended by the SHPD in 2012 as adequate recordation for Building 35 and provides a lasting record, through photographs, engineering drawings, history, timeline and references, to mitigate any potentially adverse effects of the proposed undertaking.

#### C. REQUEST FOR CONCURRENCE

It is the opinion of KPSTS that, pursuant to 36 Code of Federal Regulations §800.4 (d) (1), the proposed undertaking will have "no adverse effect" on archaeological resources or other native Hawaiian cultural resources; this is based on the information gathered from archival documents, old maps, and recent archaeological investigations. Further, this undertaking involves no ground-disturbing activities.

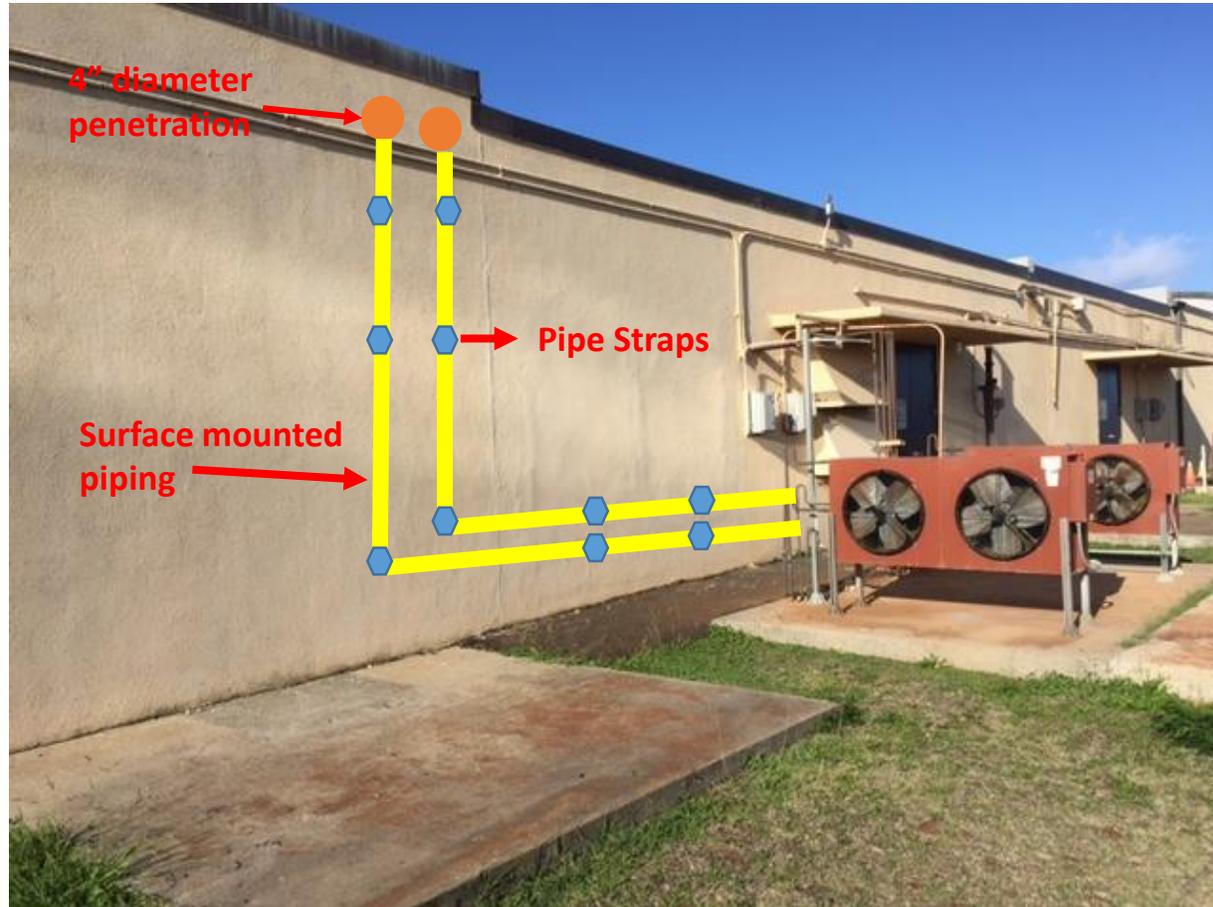
We have determined, and respectfully request your concurrence pursuant to 36 Code of Federal Regulations §800.4 (d) (1) that the proposed undertaking will have "no adverse effect" on historic properties because (1) replacement of HVAC equipment will not change the visual appearance of Bldg 35 and (2) Building 35 is adequately documented in the HAER HI-97-E recordation.

### **SECTION III Contact Information**

For further information you may contact Mr. Lance Hayashi at 697-4312 or via email to linda.cruz.ctr@us.af.mil.



Appendix A: NE wall Bldg 35 Current HVAC



Appendix B: New HVAC Install Configuration

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**THE UNITED STATES AIR FORCE**



**FINAL**

**HISTORIC AMERICAN ENGINEERING RECORD  
FOR HISTORIC AND COLD WAR ERA  
EVALUATION AND SURVEY  
AT KA'ENA POINT SATELLITE TRACKING STATION  
OAHU, HAWAII**

**Contract Number: FA8903-08-D-8791**

**Task Order: 0027**

**Project Number: LXHY496805**

**April 2013**

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HISTORIC AMERICAN ENGINEERING RECORD

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Original materials are owned by the U.S. Air Force and held at Ka`ena Point Satellite Tracking Station Administration Building.

<u>Photo No.</u>	<u>Description</u>
HAER HI-97-E-09	Ka`ena Point Satellite Tracking Station, Building No. 35, exterior Rooftop view, looking Southeast
HAER HI-97-E-10	Norman Engineering Company, "Architectural –Structural Sections & Elevations," Sheet A-2, Los Angeles, 20 August 1969
HAER HI-97-E-11	U.S. Army Engineer Division, Pacific Ocean, Honolulu District, "Update [of] Facility Drawings, Ka`ena Point Satellite Tracking Station, Site Plan," Sheet A-1, Honolulu, Hawai`i, April 1992
HAER HI-97-E-12	U.S. Army Engineer Division, Pacific Ocean, Honolulu District, "Update [of] Facility Drawings, Ka`ena Point Satellite Tracking Station, Building 35, Floor Plan, Reflected Ceiling Plan, Roof/Penthouse Plan, Interior Elevations," Sheet A-2, Honolulu, Hawai`i, April 1992
HAER HI-97-E-13	U.S. Army Engineer Division, Pacific Ocean, Honolulu District, "Update [of] Facility Drawings, Ka`ena Point Satellite Tracking Station, Building 35, Exterior elevations, Wall Sections," Sheet A-3, Honolulu, Hawai`i, April 1992
HAER-HI-97-E-14	U.S. Army Engineer Division, Pacific Ocean, Honolulu District, "Update [of] Facility Drawings, Ka`ena Point Satellite Tracking Station, Building 35, Exterior Elevations, Wall Sections," Sheet A-3, Honolulu, Hawai`i, April 1992

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HAER HI-97-E-01



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HAER HI-97-E-02



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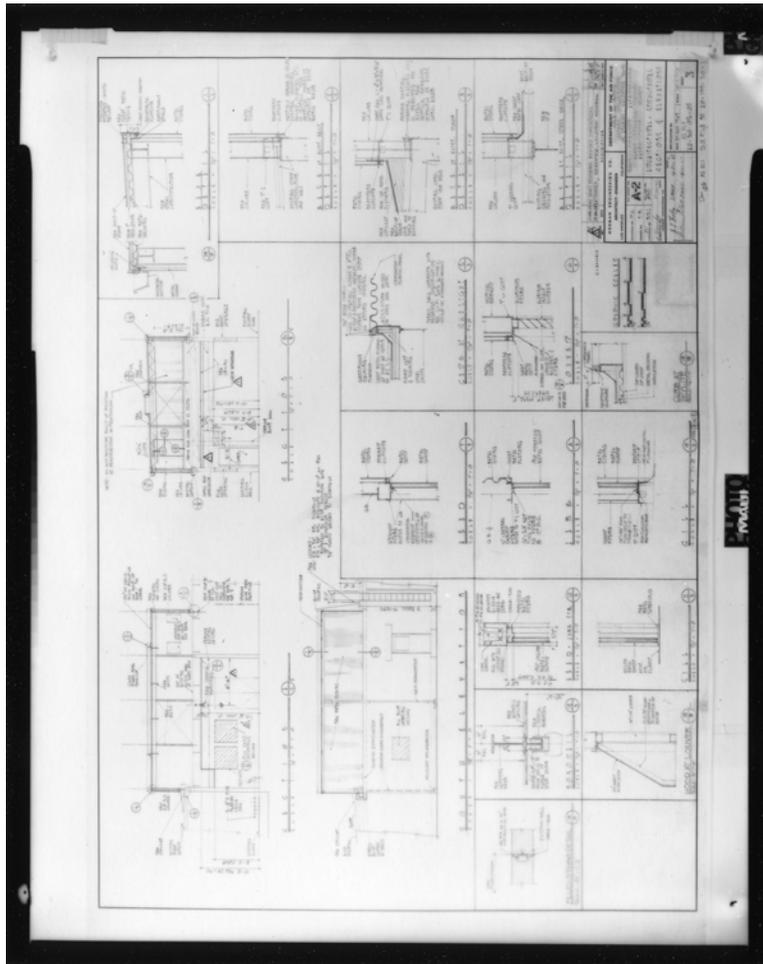
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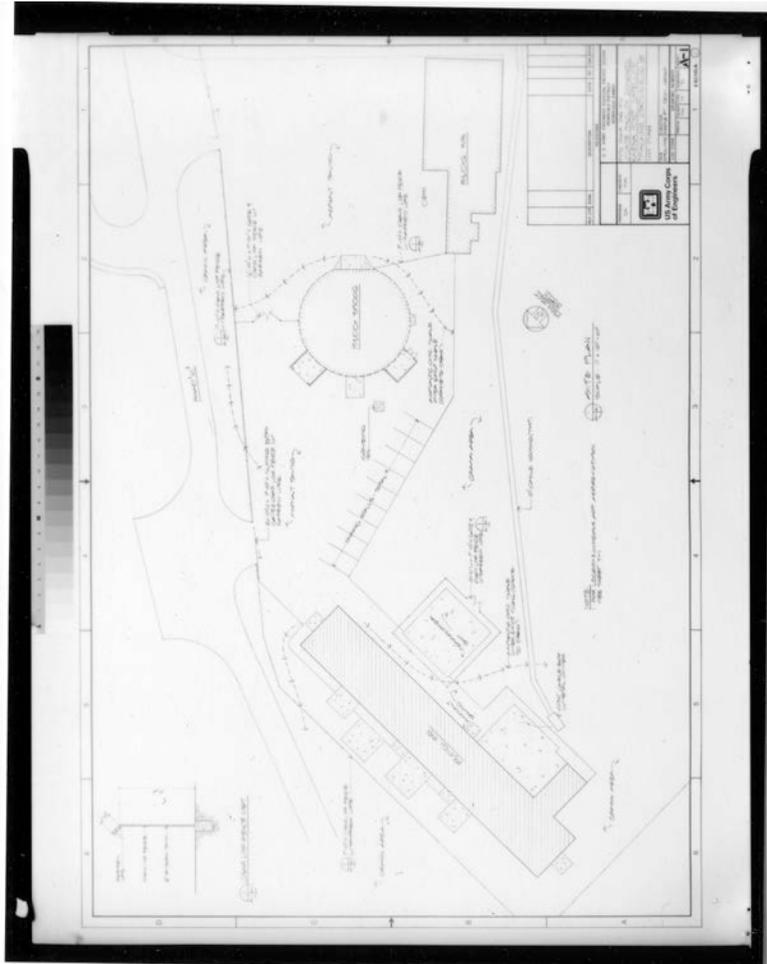
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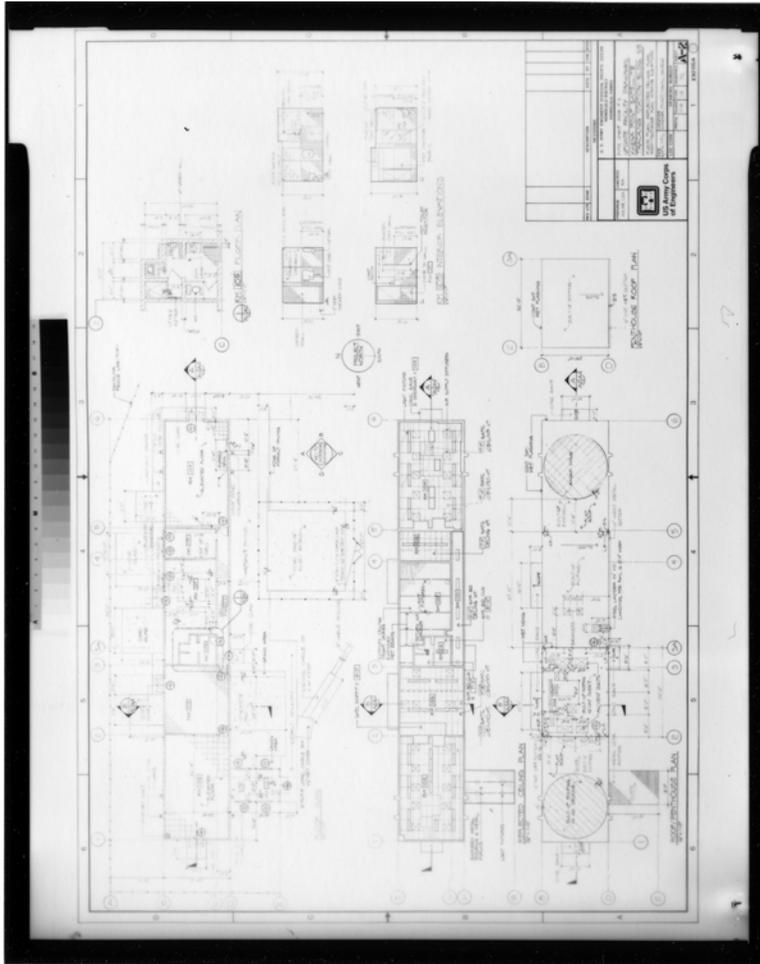
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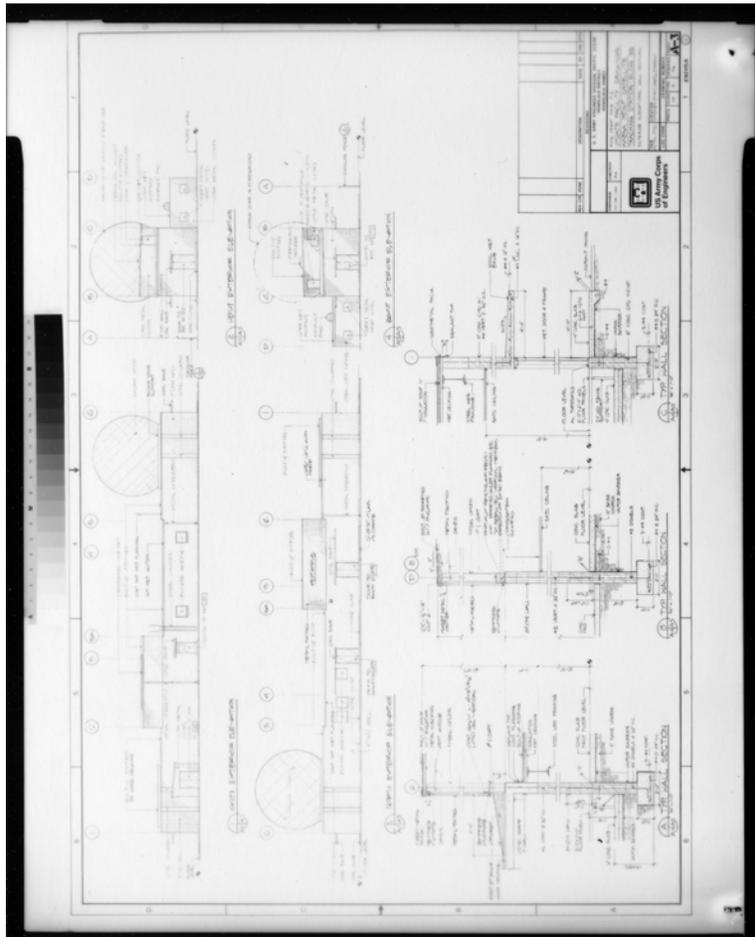
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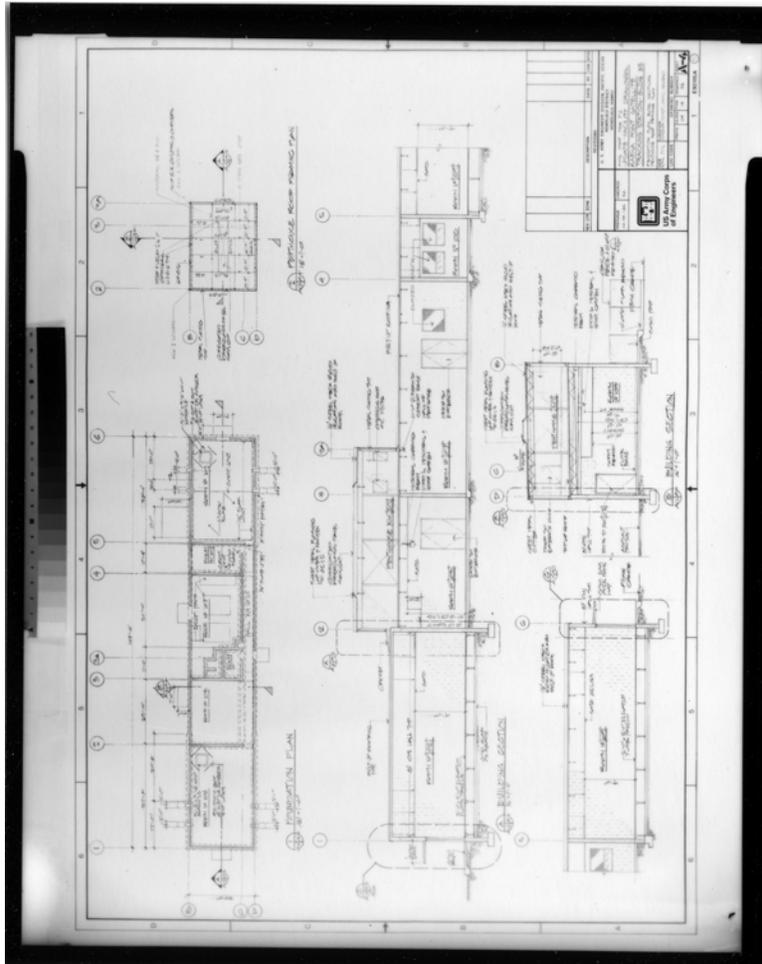
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HAER HI-97-E-14



HISTORIC AMERICAN ENGINEERING RECORD  
KA'ENA POINT SATELLITE TRACKING STATION  
BUILDING NO. 35  
(Satellite Control Station)

HAER HI-97-E  
(Page 1)

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 35: 2385334.02 m N, 576326.56 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.<sup>1</sup> 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<sup>2</sup>

- 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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<sup>1</sup> 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>>

<sup>2</sup> 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 11 Astronauts 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 35, also identified as a "Prelort" building or "Sat Con Station," is a military vernacular building. It was designed by an unidentified engineering company for the Department of the Air Force, Space Systems Division, which was part of the Air Force Systems Command (AFSC), in Los Angeles in 1962 and constructed in the following year as a Satellite Control Facility for the CORONA/Discoverer Project.

By 1963, two antennas were operational atop Building 35; a Prelort (precision long-range tracking) radar unit for space vehicle tracking on the west end of the building, and a bi-helix satellite command (T&C) antenna on the east end of the building.<sup>3</sup> Each antenna had its own Control Room below and within the building;<sup>4</sup> these were presumably in Room 102 and Room 109.<sup>5</sup> These antennas also supported the Defense Meteorological Satellite Program (DMSP) and were protected by radomes which were installed after the building was constructed.<sup>6</sup> Both radome structures comprised an outer wall/skin of fiberglass composite hard plates that were bolted together.<sup>7</sup> In 1967 Burns and Roe, Inc. of Los Angeles, California was hired by AFSC to design and install fire protection for the building.<sup>8</sup>

In 1968, the prelort radar antenna was decommissioned and removed from the building.<sup>9</sup> In 1992, Hurricane Iniki caused irreparable damage to the radome on the west end of the building and it was not replaced.<sup>10</sup> Despite alterations, the building is significant for having had two radomes located on its roof. Tracking equipment computers in the interior are located in the same location as the original computer

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<sup>3</sup> Smith, interview 24 July 2012. Smith, Milton R. Interview with KPSTS Environmental staff. Written notes. 24 July 2012. Waianae, O`ahu.

<sup>4</sup> Ibid. Smith, Milton R. Interview with KPSTS Environmental staff. Written notes. 24 July 2012. Waianae, O`ahu.

<sup>5</sup> Ibid. Smith, Milton R. Interview with KPSTS Environmental staff. Written notes. 24 July 2012. Waianae, O`ahu.

<sup>6</sup> Ibid. Smith, Milton R. Interview with KPSTS Environmental staff. Written notes. 24 July 2012. Waianae, O`ahu.

<sup>7</sup> Ibid. Smith, Milton R. Interview with KPSTS Environmental staff. Written notes. 24 July 2012. Waianae, O`ahu.

<sup>8</sup> Burns & Roes Inc., Drawing No. KP-2, AW 70-03-01, Sheet 3, 1967. Burns & Roe, Inc. "Satellite Control Facility Fire Protection Project, Ka`ena Point Satellite Tracking Station (AFSCF-KPSTS) Site Plan, Control Area, FPA Area & Existing Road B," Drawing No. KP-2, AW 70-03-01, Sheet 3. Los Angeles, California, April 1967.

<sup>9</sup> Smith, interview 19 April 2012. Smith, Milton R. Interview with Kathryn Ladoulis Urban. Written notes. 19 April 2012. Waianae, O`ahu.

<sup>10</sup> Smith, interview 24 July 2012. Smith, Milton R. Interview with KPSTS Environmental staff. Written notes. 24 July 2012. Waianae, O`ahu.

systems that were in operation in 1963.<sup>11</sup> The building represents typical Cold War satellite communications control rooms and how they functioned.

2. Architectural Character: The Satellite Control Station is a one-one-half-story building with multiple one-story additions, and a single-story penthouse addition. It has entrances that are located on all four facades. (See photographic documentation for HAER HI-97-E-01 through HAER HI-97-E-14).

B. Description of the Exterior:

1. Overall Dimensions: The building measures 24 feet – 0 inches in width and is 147 feet - 4 inches in length.

2. Foundations: The foundations are concrete with piers and footings which have been poured to a depth of 2 feet – 6 inches and support concrete masonry unit walls, four pairs of concrete pilasters, and 6 inch concrete floor slabs.

3. Wall Construction: The building's walls are of concrete masonry unit construction with a coating of exterior plaster. There are four pairs of reinforced concrete pilasters which support the roof slabs where two radomes were formerly located. The walls of one addition are constructed of concrete masonry units while one addition is of steel frame construction with an exterior finish of corrugated metal.

4. Structural System, Framing: The exterior walls of the building are reinforced concrete or 8" concrete masonry unit construction.

5. Porches: The building has entry vestibules and canopies which are located on the north and east facades, respectively.

6. Openings:

a. Doorways and Doors: Exterior doors are metal and of varying dimension.

b. Windows: There were originally six extruded aluminum windows which were located in the north and south facades but they have been either infilled or covered with metal lath and plaster.

7. Roof:

a. Shape and Covering: The building has a built-up roof on open web steel trusses and flat roof slabs where two radomes were previously located. The slabs are of indeterminate thickness and include circular concrete curbs which supported both the radomes and the antennae. A corrugated metal penthouse has

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<sup>11</sup> Smith, interview 19 April 2012. Smith, Milton R. Interview with Kathryn Ladoulis Urban. Written notes. 19 April 2012. Waianae, O`ahu.

been constructed on the roof of the building and has a shed roof of standing seam metal with a slope of 1/8 inch per foot.

b. Cornice: The building has a flat parapet capped with metal flashing.

C. Description of the Interior:

1. Floor Plan: Entry is made from the building's exterior into any one of five entrances. There is a corridor which extends the length of the building, provides access to six rooms and terminates in "prelort" and "verlort" rooms which are located at opposite ends of the building. Access to all but two rooms is restricted.
2. Flooring: The floor finish in the hall is low pile carpet, the restroom is ceramic tile, and the "prelort," "verlort," and "data" rooms have floors which are raised 1 foot – 2 inches above 6 inch concrete floor slabs. Restricted room floor finishes are unknown.
3. Wall Finishes: Interior wall finishes include exposed concrete masonry unit that has been painted.
4. Doorways and Doors: Interior doors are metal throughout.
5. Light Fixtures: Light fixtures are mid- late twentieth century fixtures throughout.
6. Heating: Constant temperature, humidity, and air pressure is provided by mechanical systems which have been upgraded since the building's initial construction.

PART II. SOURCES OF INFORMATION:

A. Original Architectural/Engineering Drawings:

Burns & Roe, Inc. "Satellite Control Facility Fire Protection Project, Ka'ena Point Satellite Tracking Station (AFSCF-KPSTS) Site Plan, Control Area, FPA Area & Existing Road B," Drawing No. KP-2, AW 70-03-01, Sheet 3. Los Angeles, California, April 1967.

Louie, Paul & Associates. "[Building 35] Site Plan, Fence Detail," Drawing No. 04-14-92, Sheet A-1. Honolulu, Hawaii, April 1992.

\_\_\_\_\_. "Floor Plan, Reflected Ceiling Plan, Roof/Penthouse, Interior Elevations," Drawing No. 04-14-92, Sheet A-2.

\_\_\_\_\_. "Exterior Elevations, Wall Sections," Drawing No. 04-14-92, Sheet A-3.

\_\_\_\_\_. "Foundation Plan, Building. Sections, Penthouse Roof Framing Plan," Drawing No. 04-14-92, Sheet A-4.

Norman Engineering Company. “[Building 35, Penthouse,] Architectural [and] Structural Sections & Elevations,” As-Built AW-30-05-05, Drawing No. A-2, Los Angeles, California, 30 August 1967.

B. Interviews:

Smith, Milton R. Interview with Kathryn Ladoulis Urban. Written notes. 19 April 2012. Waianae, O`ahu.

Smith, Milton R. Interview with KPSTS Environmental staff. Written notes. 24 July 2012. Waianae, O`ahu.

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 Hershburgh 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.

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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.