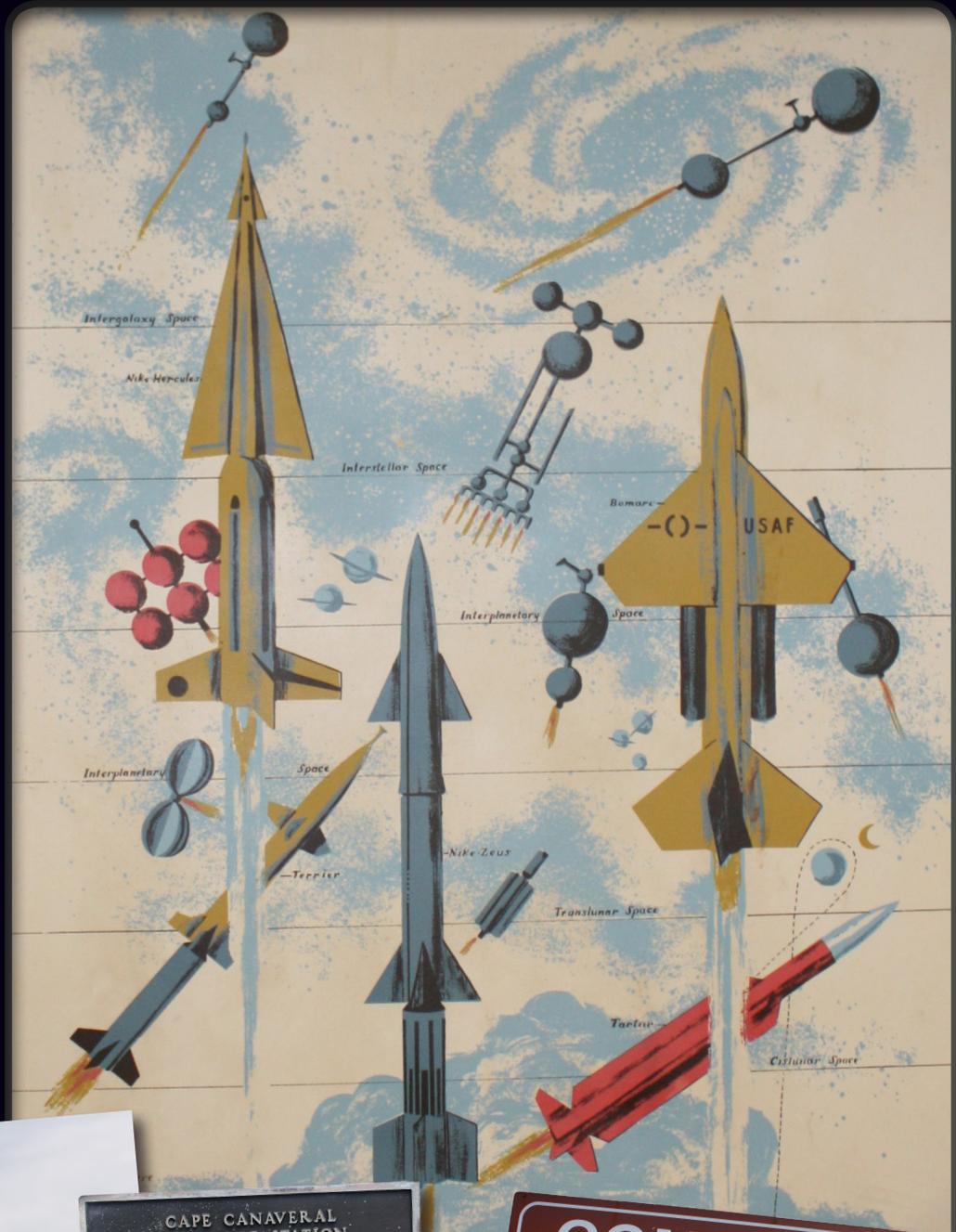


Architectural Survey and Evaluation of NASA-owned Facilities on Cape Canaveral Air Force Station

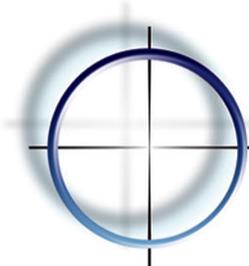
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NEW SOUTH ASSOCIATES

PROVIDING PERSPECTIVES ON THE PAST

Architectural Survey and Evaluation of NASA-owned Facilities on Cape Canaveral Air Force Station

Cape Canaveral Air Force Station, Brevard County, Florida

Report submitted to:

InoMedic Health Applications, LLC • John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

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New South Associates Technical Report 2315

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ABSTRACT

New South Associates, Inc., conducted background research and a historic architectural survey of 12 buildings (see Table 1, page 50) owned by the National Aeronautics and Space Administration (NASA) that have reached the age of 50 years or more and are located on Cape Canaveral Air Force Station (CCAFS). The survey was to determine if a historic district existed in the CCAFS Industrial Area. The nine properties within the eligible Hangar AF Complex Historic District were also evaluated to determine if those facilities should be incorporated into a potential historic district. These facilities were evaluated for their eligibility to the National Register of Historic Places (NRHP) as a historic district, an individually eligible property, or as a contributing resource to the district. The survey resulted in the recommendation that the facilities do form a historic district with a discontinuous boundary, and that two of the buildings – Hangar S and Missile Assembly Building AE (also known as Hangar AE) – are individually eligible to the NRHP and contribute to the newly-identified historic district, “*NASA-owned CCAFS Industrial Area Historic District*.” Hangar AE was previously determined individually eligible under the 45-50 Year Historic Survey performed by New South Associates in 2012, which received concurrence by the Florida State Historic Preservation Office in November 2013. Thirty support facilities were also surveyed and determined not eligible for listing on the NRHP (see Table 2, page 54).

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ACKNOWLEDGEMENTS

Several people contributed to the successful completion of this survey. Barbara A. Naylor, John F. Kennedy Space Center (KSC) Historic Preservation Officer, coordinated the project, arranged for site visits with facility managers, escorted staff during the survey and provided general information and support throughout the effort. Nancy S. English, KSC Cultural Resources Specialist, assisted with site visits, scheduling, and general support. Elaine Liston, KSC Senior Librarian/Archivist, assisted greatly with background research and report editing. Jane Provanca, InoMedic Health Applications Projects Manager, assisted with scheduling and communications before and after fieldwork. Emily Perry and Roger McCormick assisted with background research on the history of CCAFS and its historic resources. Thomas E. Penders, CCAFS Archaeologist/Cultural Resources Manager, provided historic photographs, as-built drawings, and an extensive tour and background information on the U.S. Air Force's historic resources at CCAFS. Individual facility managers at CCAFS took time from their daily schedules to escort survey staff through the buildings and answer questions about the facilities' function and history.

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LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
ACI	Archaeological Consultants, Inc.
AFB	Air Force Base
ASCS	Auto Stabilization and Control System
BOSU	Bioastronautics Operations Support Unit
CCAFS	Cape Canaveral Air Force Station
CIF	Central Instrumentation Facility
DoD	Department of Defense
E&O Building	Engineering & Operations Building
ELV	Expendable Launch Vehicle
FMSF	Florida Master Site File
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HMCA	Hypergol Maintenance and Checkout Area
HMP	Hypergol Module Processing
HPWG	Historic Preservation Working Group
ICBM	Intercontinental Ballistic Missile
IRBM	Intermediate Range Ballistic Missile
ISS	International Space Station
ISSP	International Space Station Program
JSC	Lyndon B. Johnson Space Center
KSC	John F. Kennedy Space Center

LC	Launch Complex
LCC	Launch Control Center
LiOH	Lithium Hydroxide
LVDC	Launch Vehicle Data Center
M&P	Materials & Processes
MCC	Mercury Control Center
NACA	National Advisory Committee for Aeronautics
NASA	National Aeronautics and Space Administration
NDE	Non-Destructive Testing and Evaluation
NHL	National Historic Landmark
NPS	National Park Service
NRHP	National Register of Historic Places
O&C	Operations & Checkout Building
OAO	Orbiting Astronomical Observatory
OSO	Orbiting Solar Observatory
PAFB	Patrick Air Force Base
RAI	Resource Analysts, Inc.
SCAPE	Self-Contained Atmospheric Protective Ensemble
SHPO	State Historic Preservation Office
SRB	Solid Rocket Booster
SSP	Space Shuttle Program
SSPF	Space Station Processing Facility
STG	Space Task Group
USACE	U.S. Army Corps of Engineers
USAF	United States Air Force
VAB	Vehicle Assembly Building

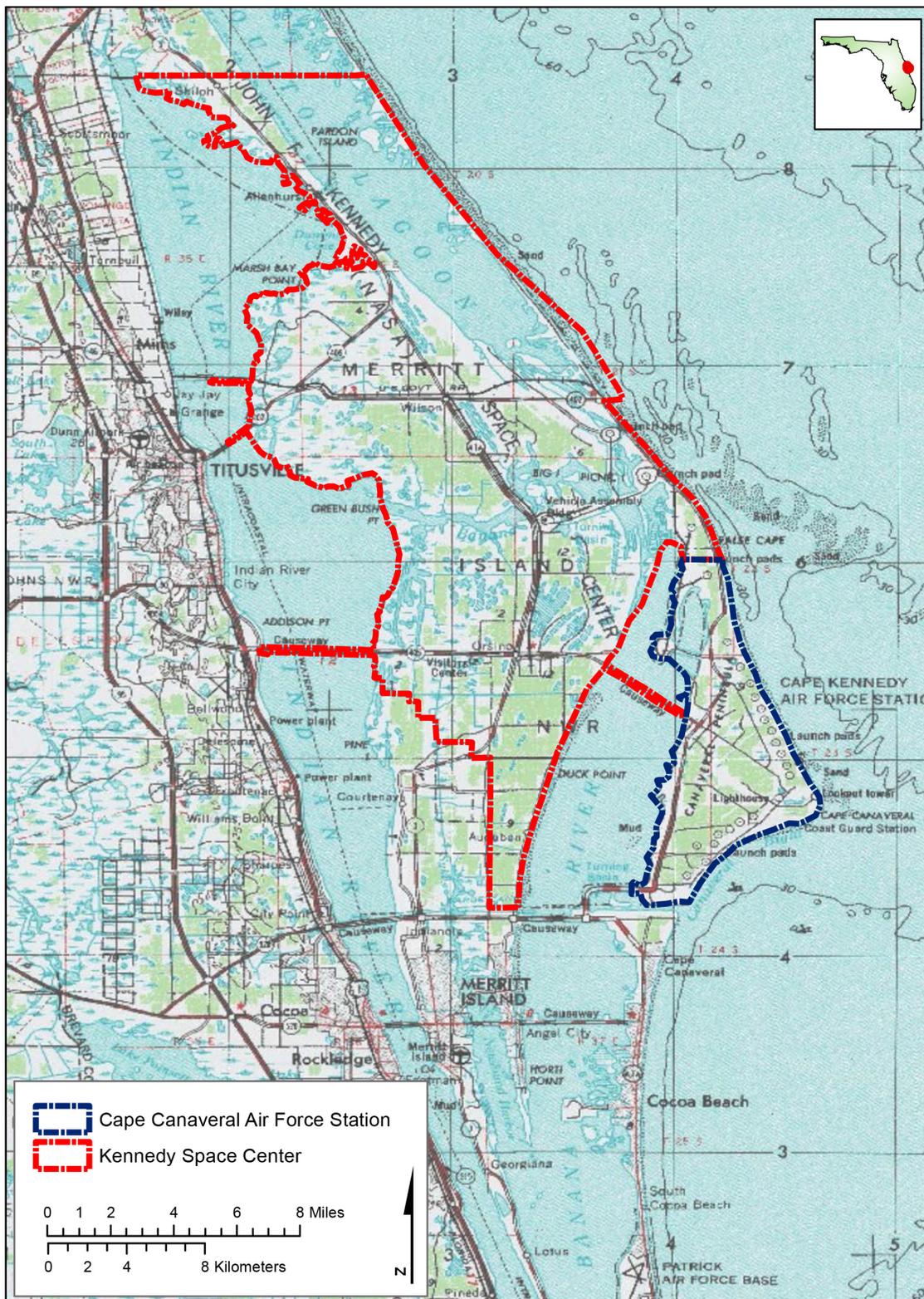
I. INTRODUCTION

This historic resource survey of properties owned by the National Aeronautics and Space Administration (NASA) Kennedy Space Center (KSC) on Cape Canaveral Air Force Station (CCAFS) is part of NASA's ongoing efforts to evaluate its extensive collection of properties that have reached the age of 45-50 years. Previous survey efforts of NASA-owned facilities in the CCAFS Industrial Area examined individual resources based on their association with specific NASA missions like the Space Shuttle Program (SSP) or because they had reached 45-50 years of age. The scope of these previous investigations, however, did not include an examination of the entire assembly of NASA-owned properties in the CCAFS Industrial Area to determine if they formed a historic district eligible for listing on the National Register of Historic Places (NRHP). This report completes that gap.

Located on Cape Canaveral, a peninsula on the east coast of central Florida between the Atlantic Ocean and the Banana River, CCAFS contains some of the nation's earliest facilities associated with rocket experimentation and space exploration (Figure 1). It continues to function as an active spaceport for military and NASA rocket programs. Established as a missile proving ground in 1949, CCAFS contains complete missile launch complexes for ballistic missiles and spaceflight launch vehicles as well as an industrial area and support facilities for storage and dispersal of fuels and oxidizers. Historic launch complexes include those associated with spaceflight launches of Projects Mercury, Gemini, and the early launches of the Apollo Program, as well as the placement of numerous scientific satellites into orbit. The CCAFS Industrial Area contains 21 missile assembly buildings, commonly called "hangars," as well as office buildings and other support buildings and structures (Figure 2). CCAFS also contains a landing strip, called the "Skid Strip," that enables the transportation of missile components directly from the manufacturer to the Cape. There is a deep-water port and canal on the southern end of the Cape, which provides water access to NASA KSC's Hangar AF Complex, Launch Complex (LC) 39, and docking for missile tracking and Navy ships.

Under contract with InoMedic Health Applications, New South Associates conducted this historic resource survey to evaluate the NRHP eligibility of 42 NASA-owned facilities located in the CCAFS. Of these 42 resources, 12 are located within close proximity to one another and underwent a full survey to determine their eligibility as a NRHP historic district (see Table 1, page 50). The remaining 30 NASA-owned facilities (listed in Table 2, page 54, and photos of these properties are shown in Appendix E) underwent a reconnaissance survey, due to their status as standardized support structures located throughout CCAFS, and were evaluated to determine their NRHP eligibility. These facilities have not reached the age of 50 years or more. Field investigations and background research for this project occurred during the week of May 13-16, 2013, with additional research during the week of May 20-24.

Figure 1. CCAFS Location Map



Source: USGS Courtenay, Florida Quadrangle

The survey included: background research; literature review; field survey; digital photography; interviews with current KSC facility managers; preparation of Florida Master Site File (FMSF) and Survey Log forms; preparation of a historic context; and an evaluation of the buildings for both individual and contributing status in a potential historic district for NRHP eligibility. The survey was conducted in accordance with Section 110 of the National Historic Preservation Act of 1966, as amended. The purpose of this survey is to evaluate the significance of these facilities in terms of the criteria of eligibility for listing in the NRHP, as per 36 CFR Part 60.4.

PREVIOUS STUDIES AND DOCUMENTATION EFFORTS AT KSC AND CCAFS

The historic significance of NASA facilities at KSC and CCAFS has long been recognized, beginning with the skid strip listing of Launch Complex 39 on the NRHP for its association with the Apollo lunar landing program. Since that time, both NASA and the U.S. Air Force (USAF) have completed official histories and extensive historic resource surveys, evaluations, and documentation projects at both KSC and CCAFS. Projects have included historic context studies, architectural surveys, NRHP nominations, and documentation studies for the Historic American Building Survey (HABS) and Historic American Engineering Record (HAER). These studies provide much of the historic context and background information that forms the basis of the NRHP evaluations included in this report.

In 1974, the USAF and Pan American Airways completed an early official history of CCAFS titled *From Sand to Moondust: A Narrative of Cape Canaveral, Then and Now*. This study included a chronological overview of the site selection and construction of CCAFS, as well as the history of missile testing and space exploration programs from 1950 to the early 1970s (USAF and Pan American Airways 1974). The contents and organization of this 1974 report formed the basic historical framework for many of the CCAFS cultural resource studies that followed it.

Likewise, NASA has published a series of books in its “NASA History Series,” which tells the histories of the early manned space programs and provides information on their relationships to the built environment at CCAFS, including *Project Mercury: A Chronology* (Grimwood 1963), *This New Ocean: A History of Project Mercury* (Swenson et al. 1989), *On the Shoulders of Titans: A History of Project Gemini* (Hacker and Grimwood 1977), and *Chariots for Apollo: A History of Manned Lunar Spacecraft* (Brooks et al. 1979). Together these works provide an extraordinarily in-depth history of the research and development that made space exploration possible, as well as the cultural, organizational, and political trends that influenced the early manned spaceflight programs.

A valuable “outsider” perspective on the early history of the manned space program and the first astronauts is Tom Wolfe’s critically-acclaimed, National Book Award-winning work of non-fiction, *The Right Stuff*. Through extensive research and interviews with the Mercury Seven astronauts, their wives, and others, Wolfe’s narrative examines the lives and motivations of the test pilots who became America’s first astronauts. Of specific interest to this historic resource survey report is Wolfe’s attention to the astronauts’ training programs and the associated NASA facilities at CCAFS.

The built environment of CCAFS was first evaluated for historic significance in a context study, *Man in Space National Historic Landmark Theme Study*, a Congressionally-mandated report completed by the National Park Service (NPS) in 1984 (Butowsky 1984). The National Historic Landmark (NHL) Thematic Study provided a historic context and preliminary evaluations of NASA facilities across the nation associated with the theme “Man in Space,” and served to recommend certain resources for designation as NHLs. The study evaluated resources at CCAFS, KSC, Lyndon B. Johnson Space Center (JSC), Marshall Space Flight Center, and other NASA centers. At CCAFS, the report identified 10 sites of primary historical significance, including Launch Complexes 3, 5/6, 13, 14, 19, 26, 34, 37A and B, the original Mercury Control Center (MCC), and Hangar S. This study was a first step in evaluating the historic resources of CCAFS and its findings were preliminary, which did not address significant CCAFS facilities associated with the U.S. missile testing program or NASA’s unmanned launches (Barton et al. 1984:35).

The Man in Space Theme Study resulted in the 1984 listing of the CCAFS NHL. Prepared at the request of the Secretary of the Interior’s Advisory Board through a partnership between the NPS and the USAF, the NHL nomination recognized the historic contribution of Launch Complexes 5/6, 13, 14, 19, 26, 34, and the MCC. Hangar S was also mentioned in this report but its significance was never clearly defined. The NHL nomination, completed fewer than 50 years after the establishment of CCAFS, acknowledged that “the omission of other facilities at Cape Canaveral Air Force Station does not preclude their being designated as national significant at some future time” (NPS 1983: Section 7).

Concurrent with the 1984 NHL process, cultural resources consulting firm Resource Analysts, Inc. (RAI) conducted a historic resources survey and NRHP evaluation of 1,325 facilities at CCAFS. The firm’s report included a historic context on CCAFS development and the facilities associated with NASA’s unmanned and manned space program. The firm narrowed the number of facilities for evaluation down from a total of 1,325 to 750 by excluding small support structures, such as fuel storage tanks, camera sites, equipment holding pads, and other facilities, which are ubiquitous throughout CCAFS. Of the 750 facilities surveyed, RAI recommended that 21 CCAFS launch complexes, Hangar S, the MCC, and the Cape Canaveral Lighthouse were of “primary significance” and “potentially eligible” for listing in the NRHP. The RAI report further concluded that all other facilities at CCAFS outside of the launch complexes lacked engineering and historical significance (Barton et al. 1984). No records were found to determine whether or not the Florida State Historic Preservation Office (SHPO) concurred with RAI’s recommendations.

In 1996, Archaeological Consultants, Inc. (ACI), entered into contract with NASA to conduct an architectural history survey at KSC to re-evaluate the boundaries and building inventory of the 1973 NRHP listing of Launch Complex 39. The Complex’s original boundary was a simple rectangle encompassing 7,000 acres of land and 262 buildings under KSC’s management. Many of the Complex’s original facilities had been altered or dismantled for the SSP and new ones had been added, raising questions of integrity and the number of contributing vs. non-contributing resources.

Recognizing the impracticality of this NRHP listing for proper historic preservation and compliance, ACI prepared an updated NRHP nomination in the multiple property format. This nomination provided a historical context for KSC and the Launch Complex 39 Area under which individual properties and districts were evaluated for their NRHP eligibility. Within this framework, ACI evaluated 812 properties at KSC and then listed eight individual buildings and two districts on the NRHP in 2000. This included the Vehicle Assembly Building (VAB) – High and Low Bays; Launch Control Center (LCC); Headquarters Building; Operations and Checkout (O&C) Building; Central Instrumentation Facility (CIF); Crawlerway; Press Site: Clock and Flagpole; Missile Crawler Transporter Facilities (Crawlers); Launch Complex 39: Pad A Historic District; and Launch Complex 39: Pad B Historic District. These ten NRHP listings effectively updated and replaced the earlier 1973 listing (Hinder et al. 2001:1). The Florida SHPO concurred on August 27, 1998.

In 2001, ACI conducted a survey and evaluation of NASA-owned facilities at CCAFS. However, security concerns following the September 11, 2001 terrorist attacks prevented access to historic records and detailed field investigations. The NASA facilities surveyed in this project were subject to NRHP eligibility evaluations under Criteria Consideration G for exceptional significance since they had not yet reached the age of 50 years or more. Due to the limits placed on ACI's background research and field survey, the firm could not make a case for the facilities' exceptional significance under Criteria Consideration G and concluded that "no additional NASA facilities at CCAFS appear to meet the NRHP eligibility requirements at this time" (Hinder et al. 2001:10). Hanger S was included in this survey and determined not eligible. This report was never forwarded to the Florida SHPO for concurrence.

In 2006, KSC initiated a survey with ACI to evaluate all NASA-owned facilities at KSC and CCAFS that may be eligible for listing in the NRHP in the context of the SSP (1969-2011). A follow-up report, the NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report, evaluated 335 facilities at 13 NASA centers and component facilities across the nation to determine their eligibility for listing in the NRHP in the context of the SSP (Deming and Slovinac 2008). Since these facilities achieved significance within the 50-year period before the survey, Criteria Consideration G for exceptional significance applied. The survey identified 70 NASA-owned historic properties, which were listed or determined eligible for individual listing in the NRHP in the context of the SSP. Of these 70 resources, 25 were located at KSC and one at CCAFS. The one property at CCAFS identified in the 2007 ACI survey was the Solid Rocket Booster Disassembly and Refurbishment Complex Historic District, also known as the Hangar AF Complex. The Florida SHPO concurred on May 27, 2008.

In 2010, ACI completed a HAER documentation report of the MCC, which provided a detailed historic context on the development of CCAFS and its relationship to the history of NASA and the manned space program. The report includes an overview of Project Mercury, including its goals and individual missions, the engineering of the Mercury capsules, the booster rockets used to launch America's first astronauts into space, and the construction of the MCC.

Also conducted by ACI in 2010 was a historic resource survey and evaluation of the Space Station Processing Facility (SSPF) at KSC. The survey results were published in the report, *Historical Survey and Evaluation of the Space Station Processing Facility, John F. Kennedy Space Center, Brevard County, Florida* (Deming et al. 2010). The survey recommended that the SSPF is eligible for listing in the NRHP in the context of the International Space Station Program (ISSP) (1984-2020) under Criterion A in the areas of Space Exploration and Science and under Criterion C in the area of Engineering. The Florida SHPO concurred on September 1, 2010.

Three historic resource surveys were completed for NASA in 2012 by ACI and New South Associates. The first of these was a survey and evaluation by ACI of the Jay Jay Bridge, railroad system, locomotives, and rail cars. The survey results recommended that the Jay Jay Bridge, three locomotives, two 70-ton aft skirt rail cars, and a portion of the track were eligible to the NRHP (Deming et al. 2012). This was followed by the survey and evaluation of the Environmental Health/Health Physics facility, known as the Bioastronautics Operations Support Unit (BOSU), at CCAFS by ACI, which was recommended eligible to the NRHP (Deming and Slovinac 2012). The Florida SHPO concurred on July 30, 2012. The third survey of the year was conducted to determine the NRHP eligibility of the Hypergol Module Processing South (HMP South) building in the already identified Hypergol Maintenance and Checkout Area (HMCA) Historic District and the Boresight Control Building (Price 2012). This survey resulted in a recommendation that the HMP South building was eligible to the NRHP as a contributing building in the HMCA Historic District and the Boresight Control Building was not eligible. The Florida SHPO concurred on March 30, 2012.

The above survey and evaluation efforts resulted in the NRHP listing of the following NASA resources for their association with the Apollo Program and some of these facilities are also eligible under SSP. For Apollo, they include:

- Vehicle Assembly Building (VAB)
- Launch Control Center (LCC)
- Crawlerway
- two Crawlerway Transporters (Crawlers)
- Press Site-Clock and Flag Pole
- Headquarters Building
- Operations & Checkout (O&C) Building
- Central Instrumentation Facility (CIF)

- Environmental Health/Health Physics Facility (Bioastronautics Operations Support Unit – BOSU) - Demolished in 2013
- Launch Complex 39A Historic District
- Launch Complex 39B Historic District

For SSP, they include:

- Shuttle Transportation System (Orbiter, Atlantis)
- Shuttle Landing Facility Historic District
- Orbiter Processing Historic District
- Solid Rocket Booster (SRB) Disassembly and Refurbishment Complex Historic District (also known as Hangar AF Complex Historic District)
- Rotation/Processing Facility
- SRB Manufacturing Building
- Parachute Refurbishment Facility
- Canister Rotation Facility
- HMCA Historic District
- NASA KSC Railroad System Historic District
- two Orbiter Payload Canisters
- three Mobile Launcher Platforms.

The Space Station Processing Facility was determined eligible for the NRHP under its association with the International Space Station Program.

In addition to the identification and NRHP evaluation/listing of the above historic resources, NASA has conducted HABS/HAER Level II documentation studies on approximately 34 facilities. Additional HABS/HAER documentation efforts are currently under way.

The USAF is likewise engaged in ongoing efforts to document its historic resources at CCAFS. Following the Man in Space Theme Study and the 1984 NHL nomination, the USAF conducted NRHP evaluations and HABS/HAER documentation studies of many significant launch complexes, including 1/2, 3/4, 9/10, 13, 14, 17, 19, 21/22, 25/29, 31/32, 34, and 36. Hangar C, the first permanent hangar built at CCAFS, also underwent HABS documentation. Additional facilities have been determined eligible for NRHP listing, including the Delta Spin Test Facility and Building 49800 (Heavy Equipment Shop), the latter of which is located in the CCAFS Industrial Area. To date, no other USAF-owned buildings in the CCAFS Industrial Area aside from Building 49800 have been determined individually eligible to the NRHP, nor has the whole Industrial Area been evaluated for NRHP eligibility as an entire historic district.

REPORT ORGANIZATION

The remainder of this report is organized as follows. Chapter II provides a historic context, which includes the establishment of CCAFS, launch complex construction, CCAFS Industrial Area development, and the history of space exploration programs at CCAFS. Chapter III contains the methods used when collecting the data used in this report, as well as a discussion of the NRHP criteria used in the historic district evaluation. Facility descriptions and NRHP-evaluations are found in Chapter IV and the conclusions follow in Chapter V. Following a list of References Cited, Appendix A contains the Survey Log Sheet, Appendix B contains the Resource Group Form, Appendix C contains the FMSF forms for the surveyed facilities, Appendix D contains relevant correspondence between the Florida SHPO and NASA, and Appendix E contains a list of the NASA-owned facilities (30) at CCAFS that received reconnaissance level survey.

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II. HISTORIC CONTEXT

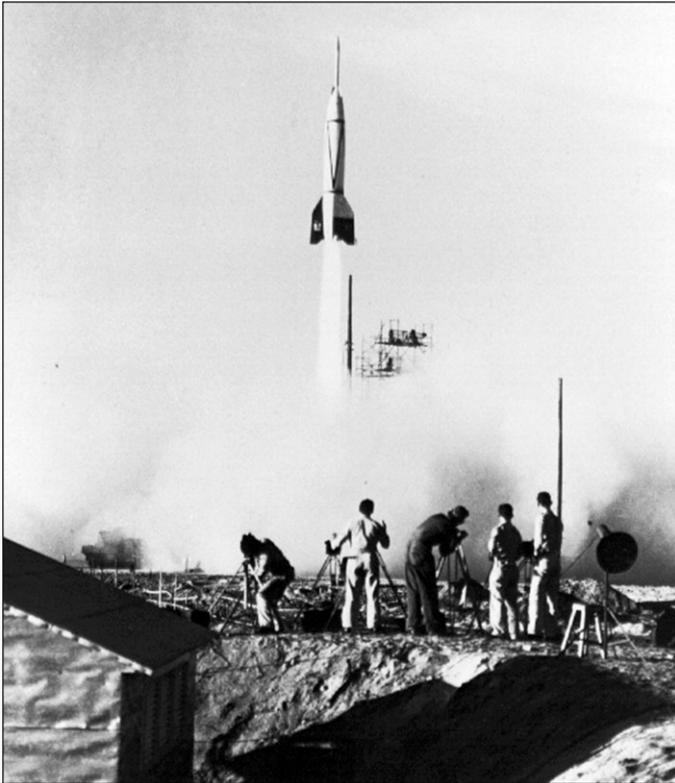


Figure 3. Launch of Bumper 8 from Cape Canaveral, July 24, 1950 (Source: CCAFS)

INTRODUCTION

Since it was established in 1949, the CCAFS has played a central role in the United States history of missile testing and the closely-related space program. Following the first Cape Canaveral rocket launch of a modified German V-2 missile called Bumper 8 on July 24, 1950, military scientists and engineers at CCAFS proceeded to test an ever-evolving series of deadly twentieth-century weapons (Figure 3). These included winged cruise-type missiles and the Atlas, the nation's first intercontinental ballistic missile (ICBM). In the midst of this Cold War-era arms development, the unique facilities of CCAFS also hosted the early development of NASA's unmanned and manned space program launches, including the nation's first orbiting satellite, *Explorer 1*, and the first spaceflights of Projects Mercury, Gemini, and Apollo. This distinguished history earned CCAFS designation as a National Historic Landmark in 1984.

As discussed in the previous chapter, the history of CCAFS is well documented. This historic context will draw on the information in NASA's official histories, cultural resource survey reports, and other primary and secondary sources to provide a summary of CCAFS's development, including the history of missile testing, space exploration programs, and their associated buildings and structures. Emphasis is placed on the growth and development of NASA's facilities in the CCAFS Industrial Area.

CCAFS ESTABLISHED

In the closing months of World War II, Germany launched a frightening new type of weapon against Allied targets, the V-2 missile, a rocket armed with a warhead containing 1,000 pounds of TNT, which reached an altitude of 60 miles and a range of 200 miles. After capturing a German missile plant at the end of the war, the U.S. embarked on a rocket technology research and development program to

counter similar efforts by the Soviet Union. In 1946, the Department of Defense (DoD) organized a joint committee of military and civilian leaders to select a suitable site for a new long range proving ground where missiles could be tested without threatening surrounding populations. The committee evaluated four sites in California, Georgia, Texas, and Florida, and ultimately chose Cape Canaveral, a 15,000-acre sandy peninsula on Florida's eastern coast, which had all the characteristics required for missile testing. The Cape was isolated, sparsely populated, and offered an over-water flight range, which was relatively free from shipping lanes and inhabited land masses. Also, the islands of the Caribbean and South Atlantic were ideal locations for missile tracking stations (USAF and Pan American Airways 1974:9; NPS 1983:8-1; Barton et al. 1984:3).

In October 1949, Cape Canaveral was activated as the Joint Long Range Proving Ground. Construction of the first missile launch pads and support facilities began in 1950 along with tracking facilities on downrange island locations. The USAF was assigned the management of the proving ground and was headquartered in the newly reactivated Banana River Naval Air Station located 15 miles to the south of Cape Canaveral. In August of 1950, this station was renamed Patrick Air Force Base (PAFB) (USAF and Pan American Airways 1974:9; Barton et al. 1984:4).

LAUNCH COMPLEX CONSTRUCTION

Construction at the Cape was directed by the Jacksonville District of the U.S. Army Corps of Engineers (USACE). The first launch pad, eventually called Launch Complex (LC) 3, was hastily built for the launch of Bumper 8. LC 3 was followed over the next two years by the nearby construction of LCs 1, 2, 4, 9, 10, 21, and 22. These early launch complexes were designed with small concrete pads with crude blockhouses and scaffolding erected to service the rockets. Grouped near the eastern tip of the Cape, the Air Force used these early launch complexes from 1950 through 1952 to fire experimental winged cruise missiles like the Matador, Lark, Navaho, Snark, Bomarc, Bull Goose, and Mace (Figure 4). Support buildings were constructed nearby, including a communications building, a water plant, a firefighting unit, electrical substations, and Hangars C and O, the earliest permanent missile assembly hangars built at CCAFS (Barton et al. 1984:38).

Built alongside the early launch complexes were a range of fuel and oxidizer storage and dispersal areas, a 10,000-foot long aircraft landing strip called the "Skid Strip," originally used for the Navaho and Snark missile programs, and the deep water Port Canaveral at the southern end of the Cape. The Skid Strip and Port Canaveral were both later used for the delivery of missile parts and the port provided dock facilities for Navy tracking ships and missile-launching submarines (Barton et al. 1984:6).

The pace of construction at the Cape accelerated through the 1950s. Following the Soviet Union's 1949 detonation of a nuclear bomb and intelligence reports of its work to develop long-range missiles, the USAF persuaded President Eisenhower to assign the nation's highest defense priority to the development

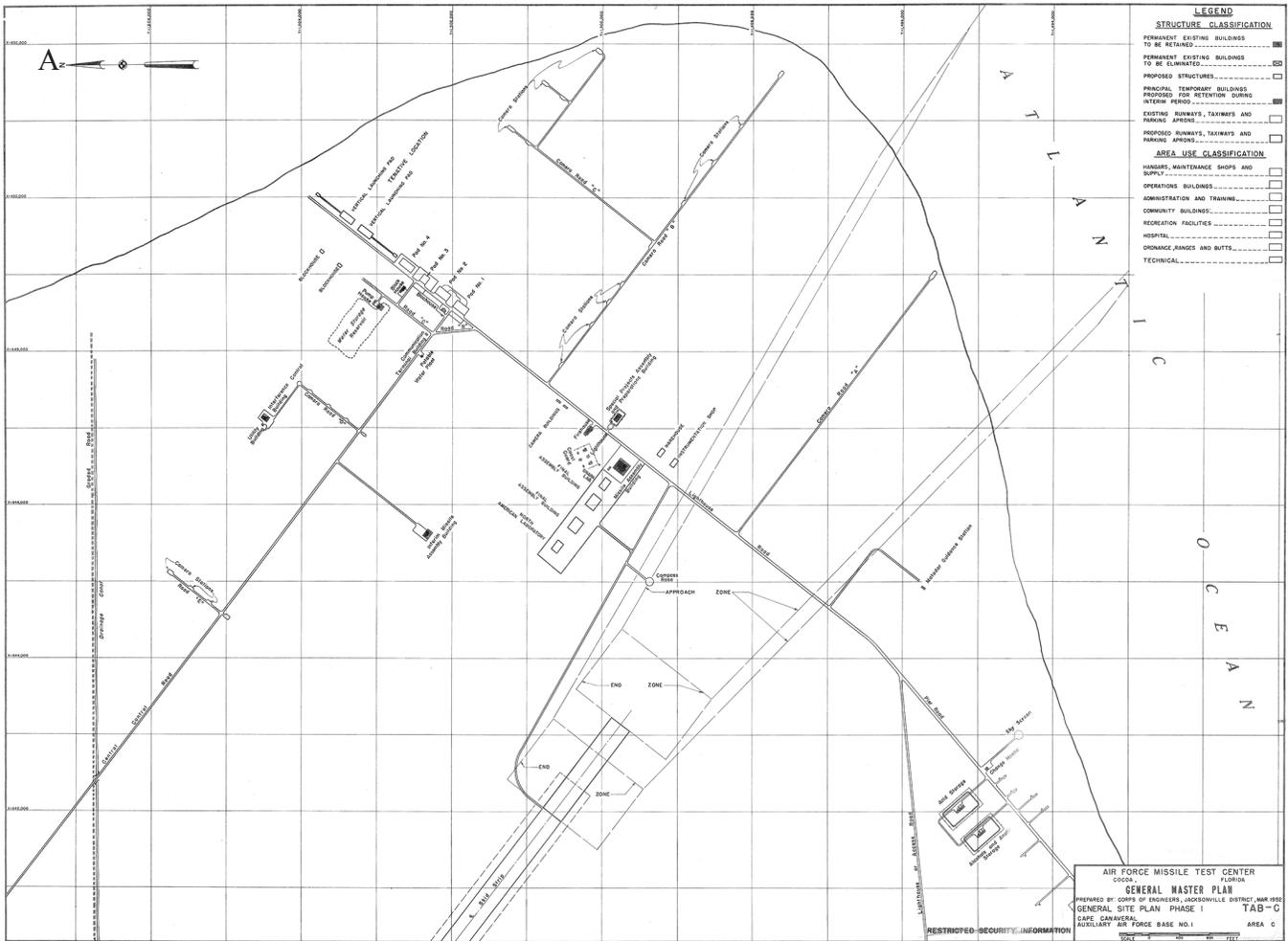


Figure 4.
Early Launch Facilities
at CCAFS

A. 1952 Map of CCAFS Launch Facilities.
 (Source: CCAFS).

B. Launch of a Goose Winged Missile at CCAFS Launch Complex 22 with the Cape Canaveral Lighthouse in Background, No Date.
 (Source: CCAFS).

were Hangars C and O, built in 1953 near the earliest launch complexes on the eastern tip of the Cape. These hangars, however, were too close to the launch pads in terms of safety considerations, especially as missiles became larger and more explosive (Barton et al. 1984:43).

To address these problems and manage the expansion of IRBM and ICBM development, the Air Force in 1954-55 selected a site for a new Industrial Area on the west side of the Cape. Located adjacent to the Banana River and roughly midway between the southern and northern ends of the Cape, the Industrial Area site had water access for the delivery of missile components and was a safe distance away from the seaside launch complexes. Built in 1955, Hangar 1 was the first missile assembly building in the CCAFS Industrial Area. Eventually there were 21 missile assembly buildings completed in the area, most of which are gabled steel truss buildings based on standardized military hangar designs developed in the late 1950s and used at nearby Patrick Air Force Base and other air stations around the nation (Pedrotty et al. 1999:5-18).

Each hangar had a gabled central high bay flanked by two-story, concrete block wings on either side. Large sliding doors on either side of the high bay provided access to missile components and completed missiles. The buildings contained approximately 40,000 square feet of usable space, including a 30,000 square feet of high bay area, 5,000 square feet of office area, and 5,000 square feet of shop and laboratory area (Neilon n.d.:11; Atlantic Missile Range Office 1962:II-25). The standardized hangars' "shop, office, and assembly area met the requirements of the early missiles; inside, a maze of power and instrumentation circuits ran through covered trenches" (Benson and Feherty 1978:4). Over the years, the standardized forms of the assembly buildings were adapted to meet the needs of increasingly sophisticated missile families, including the addition of overhead cranes that were interchangeable in all structures (Benson and Faherty 1978:4) (Figure 6). Missile stages were assembled in the hangars and then transported to their associated launch complexes by truck or rail and then carted up an approach ramp. The final assembly and checkout of the missile was accomplished via a mobile service structure or tower.

In all, the CCAFS Industrial Area at this time included approximately 110 permanent facilities, including missile assembly buildings, shops, chemical storage areas, standards laboratories, heating plants, cafeteria, fire station, operational buildings, emergency power plants, and miscellaneous utility structures and systems (Barton et al. 1984:43, 46). Several of the buildings surveyed for this report were built during this initial phase of CCAFS Industrial Area construction, including Hangar N, Little N Storage Building, Missile Assembly Building AE, Hangar S, the Paint Storage Building, and the Pressure Proof Test Cell.

Just south of the CCAFS Industrial Area, the Air Force in 1957 built what was first called the Mission Control Center on what was originally called Flight Control Road. Also located on the west side of the Cape for safety reasons, the building took over flight control of rockets after they left the launch pad and then tracked them through splashdown in the ocean. With the advent of Project Mercury in 1959, the building received two additions and its name was changed to the Mercury Control Center. Flight control facilities for manned missions during the Gemini and Apollo Programs were later transferred to JSC in 1965 (Barton et al. 1984:43; Slovinac and Deming et al. 2010:24).

A

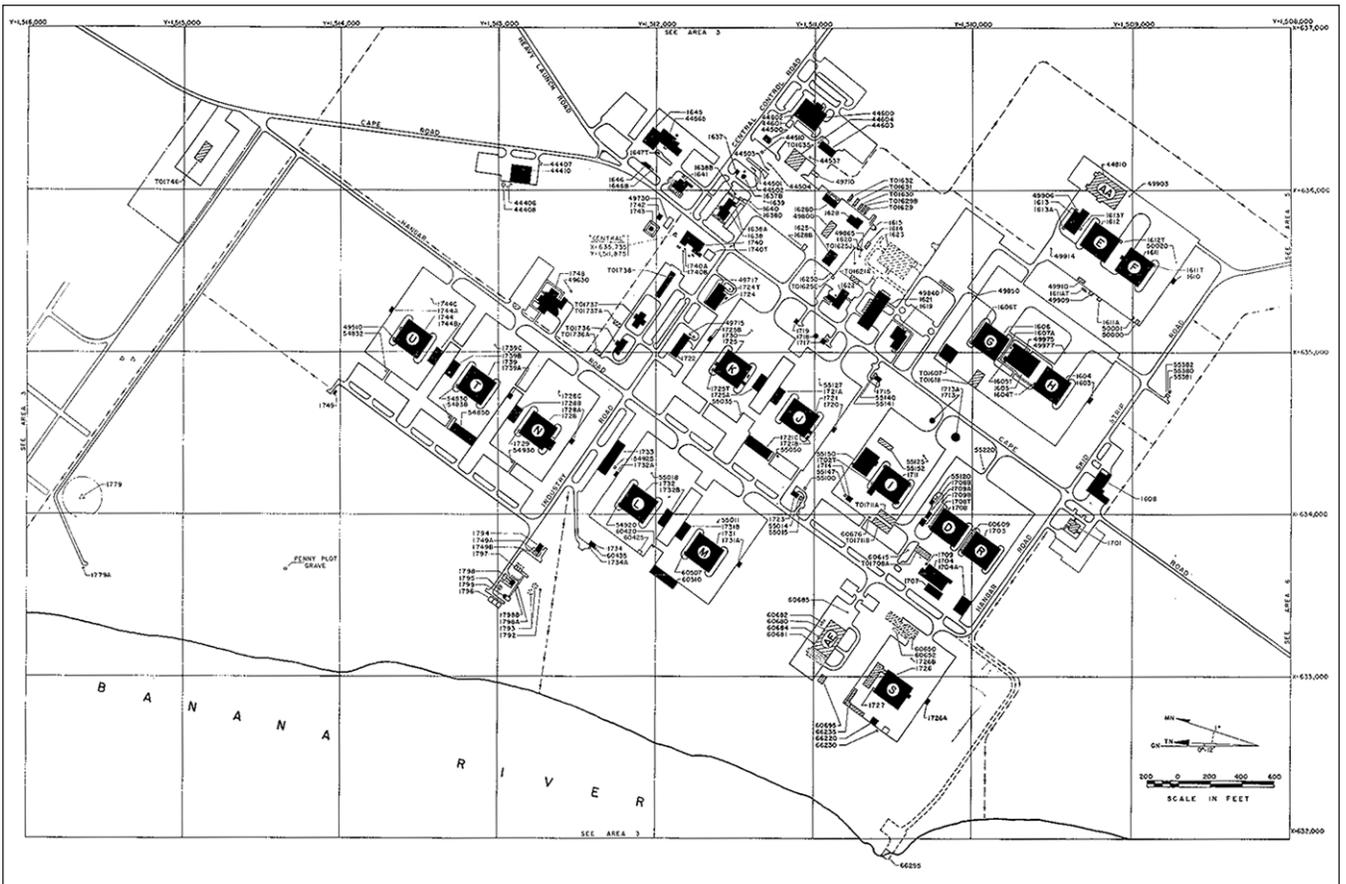


Figure 6.
CCAFS Industrial Area

A. 1950s Sign at the Entrance to the CCAFS Industrial Area. (Source: CCAFS)

B. 1960 Map of CCAFS Industrial Area. (Source: CCAFS)

B



CCAFS AND SPACE EXPLORATION

The construction of CCAFS's military facilities and the missile engineering programs tested there during the 1950s laid the foundation for the civilian space program. Here, the hardware and management techniques created to launch nuclear warheads atop IRBMs and ICBMs were adapted to carry experimental satellites into space. From 1958 through the 1960s, the rocket and launch facilities at CCAFS that were primarily used for missile testing also supported NASA's early manned spaceflight programs.

In 1952, leading scientists around the world designated the year 1957 as the International Geophysical Year, a yearlong international scientific effort to better understand global geophysical phenomena. The U.S. and the Soviet Union both participated in the yearlong event in a mutual challenge to see which nation could launch the first artificial satellite into orbit. In 1955, President Eisenhower asked Congress to appropriate \$13 million for the effort and created a scientific committee to accept proposals from the Air Force, Army, and the Navy. Under the direction of its chief missile scientist and space visionary, Wernher Von Braun, the Army proposed to use a modified Redstone rocket to put the Explorer 1 satellite into orbit, but the committee instead chose the Navy's Project Vanguard that used the Viking missile (Lipartito and Butler 2007:41-42).

On October 4, 1957, the Soviet Union successfully launched the satellite Sputnik I, making the first strike in the "space race" and a major blow to public confidence of U.S. scientific and missile capabilities. The Soviets quickly followed this first launch with the liftoff of Sputnik II on November 3, 1957, which carried a live payload, a dog named Laika. Pressure mounted on President Eisenhower to catch up with the Soviets, and after a series of embarrassing launch failures with the Vanguard Program, the Explorer 1 satellite was finally launched into orbit from CCAFS on January 31, 1958, atop a modified Redstone rocket (Lipartito and Butler 2007:43-44).

The launch of Explorer 1 was the beginning of the U.S. space program and helped fuel increasing public interest in space exploration. While the Explorer 1 launch was a success, there remained intense national anxiety over the fact that the U.S. was second into space and that the nation's rocket technology was behind that of the Soviet Union. In early 1958, the President's Science Advisory Committee recommended the creation of a new Federal agency to achieve the scientific exploration of space. This agency would be separate from military space research, however it would cooperate with the military where missions overlapped and benefit from military advances in rocket technology. On July 29, 1958, President Eisenhower signed the National Aeronautics and Space Act creating NASA to pursue a nonmilitary "activities in space...devoted to peaceful purposes for the benefit of all mankind" (Lipartito and Butler 2007:46). While NASA's mission was a peaceful one run by civilians, it was also understood that the space race was a part of the larger Cold War confrontation with the Soviet Union.

NASA was created by combining several predecessor research-oriented agencies into a new hybrid agency. At its core was the National Advisory Committee for Aeronautics (NACA), which had been a leader in both military and civilian aviation and aeronautics research since 1915. NASA also absorbed over 400

scientists from the Naval Research Laboratory and the Army's Jet Propulsion Laboratory at the California Institute of Technology. President Eisenhower also transferred the Army's Development Operations Division, including Wernher von Braun's rocket research team at Huntsville, which was renamed as the Marshall Space Flight Center. Kurt Debus and the 5,000 members of his Missile Firing Laboratory at Cape Canaveral were similarly released from the military and reassigned to NASA (Lipartito and Butler 2007:46; Slovinac and Deming et al. 2010:6).

The creation of NASA transformed the management and built environment of CCAFS as it absorbed new civilian space programs alongside those of the military. Debus' Missile Firing Laboratory at the Cape was renamed NASA's Launch Operations Directorate, which by 1964 had acquired or built nearly two dozen facilities in the southwest corner of the CCAFS Industrial Area. The historic map and aerial photo shown in Figure 7 illustrate the progress of NASA's CCAFS facility development in the mid-1960s. Those managed by NASA are shaded in black.

By 1964, NASA was assigned the management of launch complexes 5/6, 26, and 34, as well as several office and missile assembly buildings in the CCAFS Industrial Area, including Hangar S, Hangar AF, the Engineering & Operations (E&O) Building, and Missile Assembly Building AE. NASA in the early 1960s also leased several Air Force buildings as needed, including the Engineering and Laboratory (E&L) Building, the Engineering Office, and Hangars R, D, H, and E, which were associated with the Redstone, Saturn, Jupiter, and Centaur launch vehicle programs (NASA 1961b:24-26). The Cape by this time also provided the radar tracking and telemetry facilities of the Atlantic Missile Range for use by NASA (Lipartito and Butler 2007:50-51).

Following the success of Explorer 1, NASA launched a number of significant unmanned operations from CCAFS in the early 1960s. The U.S. space program grew rapidly during this period and developed five "families" of launch vehicles to send experimental satellite payloads into space, including the Scout, Thor/Delta, Atlas, Titan, and Saturn rockets. Each rocket offered different capabilities depending on the payload launched. NASA's Mission Director's Center for all of these launches was located in Missile Assembly Building AE (commonly called Hangar AE), where project managers monitored all vehicle telemetry and communications data during a launch. Hangar AE also contained clean-room checkout facilities for satellite payloads (Figure 8).

In April of 1960, NASA used a Thor/Delta vehicle to launch the Television Infrared Observation Satellite (*TIROS*), a meteorological observation satellite that was the Agency's first experimental satellite used to study the Earth (NASA 2013). Other significant Thor/Delta payloads included the Echo 1 experimental global communications satellite, the Orbiting Solar Observatory (OSO), and Telstar, the first satellite capable of relaying television signals from Europe to North America. In the early 1960s, Atlas rockets launched the Ranger moon probe spacecraft, the Mariner interplanetary spacecraft to Venus and Mars, the Gemini target vehicle, the Orbiting Astronomical Observatory (OAO), the Lunar Orbiter, the Surveyor 1 lunar lander, and other scientific satellites (Barton et al. 1984:26; USAF and Pan American Airways 1974:22).

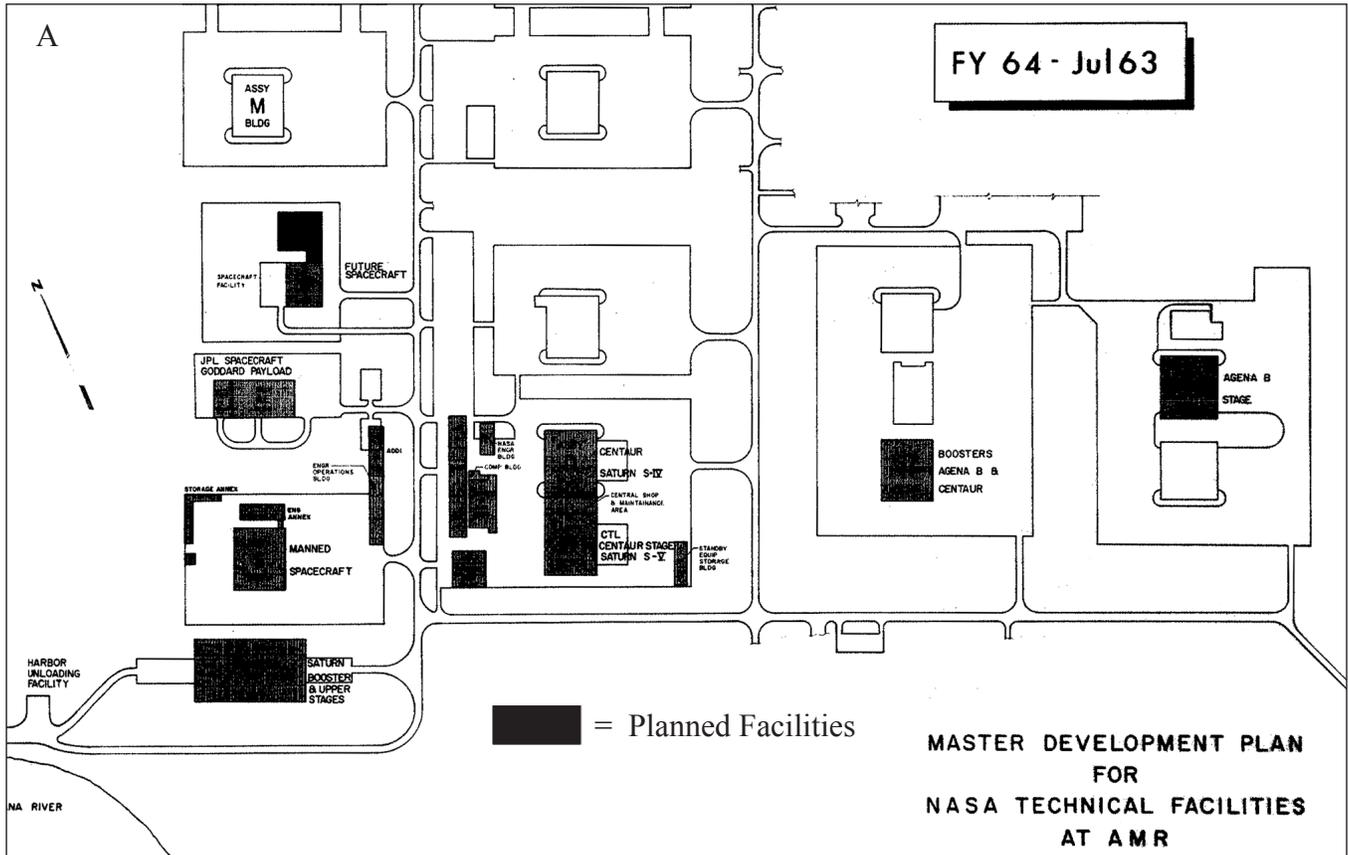


Figure 7. CCAFS Industrial Area Development

A. 1961 Master Plan Map of Planned or Projected NASA Facilities in the CCAFS Industrial Area by 1963-1964. (Source: NASA 1961a).

B. 1966 Aerial View of the CCAFS Industrial Area (Source: KSC Image 100-KSC-66C-8056).

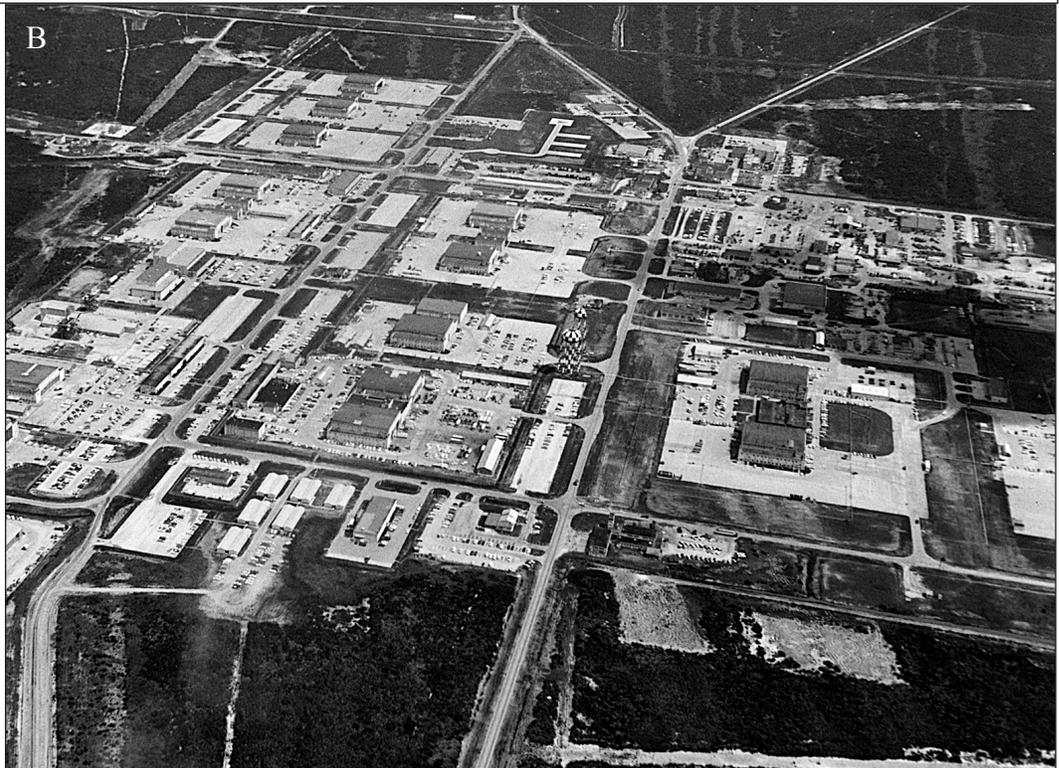
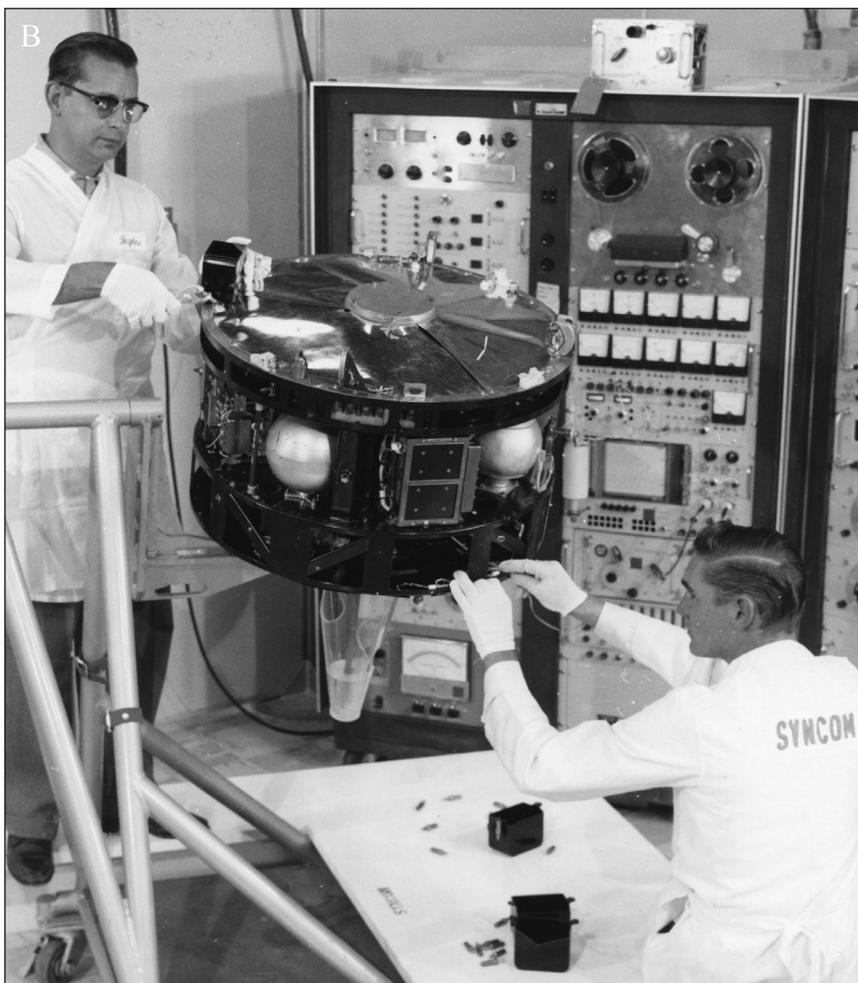




Figure 8.
Views of Hangar AE

A. The Mission Director's Center
Hangar AE, 1963 (Source: KSC
Archives, Image LOC-63-9487).

B. Engineers Check Out the First
Synchronous Communication
(SYNCOM) Satellite in Hangar AE's
Clean Room, 1963 (Source: KSC
Archives, Image 63-Syncom-18).



MANNED SPACEFLIGHT PROGRAMS

The American space program grew rapidly after the establishment of NASA. The Agency's first major priority was the development of a program to place a man in orbit, which began with the establishment of Project Mercury in October of 1958 and the selection of the first Mercury Seven astronauts in April of 1959 (Grimwood 1963). During the research and development phase of Project Mercury, however, the Soviet Union again upstaged the U.S. with the April 1961 orbital launch of cosmonaut Yuri Gagarin in the Vostok 1 spacecraft. As with the earlier successes of Sputniks I and II, the Soviet achievement undermined American confidence in its space program (Butowsky 1984:4).

President John F. Kennedy responded to the Gagarin flight and rising national interest in space exploration by issuing a new national challenge to surpass the Soviet space program by “achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to Earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space; and none will be so difficult or expensive to accomplish” (Butowsky 1984:4-5). Support for the lunar landing project was widespread among the public and leaders in Washington, D.C., money was appropriated by Congress with virtually no dissent.

To accomplish this ambitious goal, the space program was organized into a series of progressive missions: Project Mercury, the Gemini Program, and the Apollo Program. Building on the technological advances of each mission, NASA pursued its mission to first send a man into space, followed by manned orbits around the Earth, mastery of rendezvous and docking procedures, and finally, landing a man on the moon and returning him safely to Earth. The launch operations of Project Mercury were conducted entirely within facilities at CCAFS, while the Gemini and Apollo Programs used them less so as the new KSC spaceport was completed in the early 1960s. Gemini and Apollo's relationships to CCAFS are briefly summarized below, followed by an extensive discussion of Project Mercury.

The Gemini Program (1962-1966) began at CCAFS with seven launches at LC 14 and twelve launches at LC 19, including the first manned Gemini mission using a Titan rocket in March 1965. Gemini also utilized the MCC for its early missions before transitioning in 1965 to NASA's Mission Control Center at the new Manned Spacecraft Center in Houston, Texas. The Apollo Program (1963-1972) relied on Wernher von Braun's huge new Saturn rocket that required the construction of LC 34 and 37 at the northern tip of Cape Canaveral. These launch complexes hosted early test flights of the Saturn launch vehicle as well as Apollo 7, the program's first manned flight. It was also at LC 34 that the first major tragedy of the space program took place, the Apollo 1 cockpit fire (also known as the AS-204 mission) that claimed the lives of Virgil “Gus” Grissom, Edward White, and Roger Chafee. The last manned space mission to lift off from CCAFS was Apollo 7 on October 11, 1968. After that launch all manned flights were conducted from LC 39 on Kennedy Space Center (Slovinac and Deming 2010:6-7).

PROJECT MERCURY

America's manned spaceflight program and its influence on the built environment of CCAFS began with Project Mercury and its three objectives: 1) place a manned spacecraft in orbital flight around the Earth; 2) investigate man's performance capabilities and his ability to function in the environment of space; and 3) recover the man and the spacecraft safely. NASA accomplished these objectives between 1958 and 1963 with 20 unmanned launches and six manned space flights, including the first U.S. suborbital ballistic flight of Alan Shepard on May 5, 1961 (Figure 9), and the first U.S. orbital flight of John Glenn on February 20, 1961. Project Mercury proved that man could function well as a pilot-engineer-experimenter for up to 34 hours of weightless flight without undesirable reactions or deteriorations of normal body functions. The program also demonstrated that NASA and its contractors successfully designed a spacecraft that could withstand the conditions of space and atmospheric re-entry, developed a worldwide tracking network, and created mission control procedures, which served all future spaceflight programs (Swenson et al. 1963; Slovinac and Deming 2010:8).

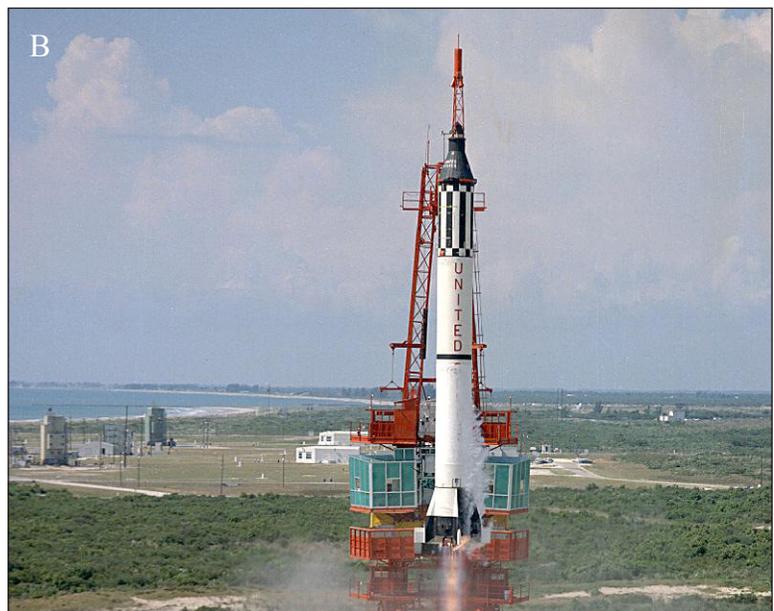


Figure 9.

Images from Project Mercury

A. Mercury Capsule (Source: NASA http://www.nasa.gov/mission_pages/mercury/missions/spacecraft.html).

B. Launch of *Freedom 7*, America's First Manned Suborbital Spaceflight, From Launch Pad 5 by a Mercury-Redstone Rocket That Carried Astronaut Alan B. Shepard (Source: NASA http://www.nasa.gov/mission_pages/mercury/missions/spacecraft.html).

The spacecraft used in Project Mercury was essentially a manned satellite, a one-man, bell-shaped ballistic capsule with high aerodynamic drag. Designed by McDonnell Aircraft Corporation of St. Louis, Missouri, the capsule was 9.5 feet high and 6 feet in diameter at the heat shield base and was designed to withstand any combination of acceleration, heat loads, and aerodynamic forces that occurred during boost and re-entry of each mission. McDonnell produced 20 capsules in all, each one essentially similar in overall size and systems with certain individual characteristics, such as the astronauts' custom-fitted "couch" that helped them withstand the high-G forces of launch and re-entry. Once each orbital mission was complete the capsule was moved out of orbit via a retrorocket system and descended into the Atlantic Ocean with a parachute after atmospheric re-entry (Swenson et al. 1989:112, 134).

The launch vehicle for the two manned Mercury suborbital ballistic missions was a modified Redstone rocket, at that time "the only trustworthy booster rocket in the American arsenal" (Swenson et al. 1989:123). Originally developed as an IRBM by the Army under the direction of Wernher von Braun at Redstone Arsenal in Huntsville, Alabama, the Redstone rocket generated 78,000 pounds of thrust at liftoff. The four manned orbital Mercury flights used a modified Atlas rocket, which had three engines capable of producing 367,000 pounds of thrust (Butowsky 1984:5).

THE MERCURY SEVEN ASTRONAUTS

In December of 1958, NASA published a call for applications to select the first team of Mercury astronauts, who President Eisenhower decided would be chosen from the ranks of America's daring military test pilots. A seven-item formula for "Project Astronaut" selection required that candidates be: 1) a male between 25 and 40 years of age; 2) less than 5 feet 11 inches in height; 3) in excellent physical condition; 4) have at least a bachelor's degree, though additional graduate studies and stringent professional experience were desired; 5) graduate of a military test pilot school; 6) have 1,500 hours total flying time; and 7) a qualified jet pilot (Swenson et al. 1989:131).

After an extensive selection process, NASA announced on April 9, 1959 that seven pilots from the Navy and Air Force had been selected for Project Mercury, including Lt. Commander Alan B. Shepard, Navy; Captain Virgil I. Grissom, Air Force; Lt. Colonel John H. Glenn, Jr., Marines; Lieutenant Malcolm Scott Carpenter, Navy; Lt. Commander Walter M. Schirra, Jr., Navy; Captain Donald K. Slayton, Air Force; and Captain Leroy Gordon Cooper, Jr., Air Force (Grimwood 1963). The astronauts were officially headquartered at Langley Air Force Base (AFB) in Virginia and they increasingly travelled to their eventual launch site at CCAFS for training.

At the end of 1959 and beginning of 1960, the Mercury Seven astronauts underwent a rigorous training program that began with a series of lectures at Langley AFB on all aspects of Project Mercury, including

the capsule configuration and escape system. They then toured the various contractor facilities around the nation for closer familiarization with mockup capsules, hardware, and the manufacturing process. Training sessions at Cape Canaveral and other NASA centers helped adapt their bodies to disorientation, tumbling, high-G forces, and high levels of carbon dioxide absorption. Other training included sessions in pressure suits, heat chambers, parabolic flying to simulate weightlessness, and mastering their assigned specialty areas in the program (Swenson et al. 1989:235). The training schedule prepared them to manually fly the spacecraft and perform a variety of in-flight tasks, including system checks under strenuous conditions (Slovinac and Deming 2010:13-14).

HANGAR S - MERCURY MOVES TO THE CAPE

NASA shifted from the Mercury development phase to the operational phase in the summer of 1960 when approximately 50 men from the NASA Space Task Group (STG) established residence at CCAFS. Joining them were nearly 80 technicians from McDonnell, who set up new offices and testing areas at Hangar S, originally built for the Navy's Vanguard satellite program. Figure 10 shows a 1963 aerial photograph of Hangar S and a general sketch of the hangar with its support buildings. By the end of the year, NASA referred to Hangar S as the "nerve center" of Project Mercury and home of the STG's Pre-Flight Operations Division, which had grown to over 400 technicians and contractors who received, tested, and prepared the Mercury capsules for flight (Swenson et al. 1989:268; NASA 1961a:1).

There were five branches of the Pre-Flight Operations Division, including Launch Coordination, Inspection Office, Capsule Systems, Instrumentation, and Technical Services. The E&O Building adjacent to Hangar S contained the division staff offices, which showed the diversity of administrative duties that Project Mercury required, including the Business Administration, Contracting Officer, Property Administrator, Weather, Goddard's Mercury Tracking Network, Reliability and Flight Safety, Data Coordination, Life Systems, and Public Affairs (NASA 1961a:1).

The processing of the Mercury spacecraft began with its arrival at the Skid Strip via airplane and transfer to Hangar S for a capsule "shake-down." The hangar contained all the necessary facilities, storage, and work areas required to prepare the capsule, including the "White Room," located in the northeast corner of the high bay. The White Room, or "Capsule Checkout Area," was an enclosed clean room for checking out the capsule systems equipped with high performance air filters and humidity controls. Across the high bay from the White Room was the Altitude Chamber used for capsule environmental control system checkout and verification in a high-altitude environment. Other work areas in the high bay included the enclosed Automatic Stabilization and Control System (ASCS) Fixture Area, in which technicians mounted the primary component used in the stabilization of the capsule; the enclosed Rocket Alignment and Weight Check Area; trailers containing telemetry and checkout equipment; and shipping/receiving/office/tool crib area (Figure 11) (NASA 1961a:2-3).

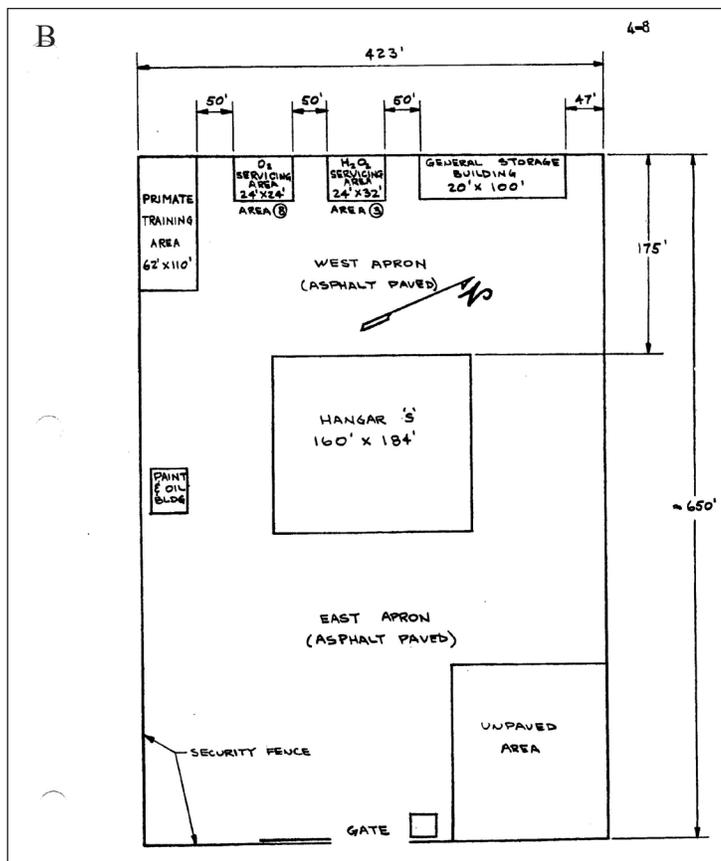


Figure 10.
 Hangar S, Aerial and Plan

A. 1963 Aerial View of Hangar S Labeled with Signs that Read “Manned Spacecraft Center” and “Pre-Flight Operations Division.” Visible in This Photo are the North and South Annexes, the Primate Training Area at Upper Left, Oxygen and Water Servicing Areas Behind, and General Storage Buildings at Upper Right. (Source: KSC Image LOC-63-4897).

B. Sketch of Hangar S and its Support Buildings (Source: NASA 1960).

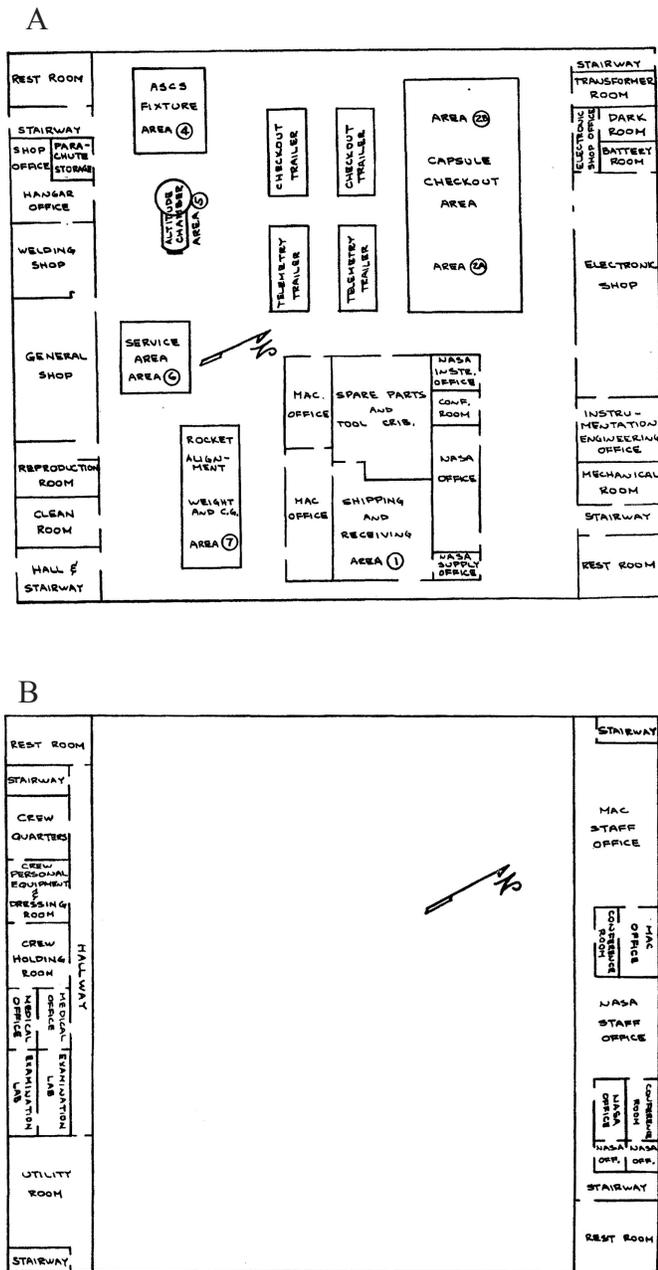


Figure 11. Hangar S, Layout and Floorplans During Mercury (Source: NASA 1960).

A. Hangar S, First Floor Plan

B. Hangar S, Second Floor Plan

Preflight operations at Hangar S were unusual compared to other missile operations at the Cape in that the staff there were permitted to make “‘on-the-spot’ analyses of any troubles detected as well as ‘on-the-spot’ design changes to rectify troubles if presented. This concept is considered mandatory for the Mercury program in order to insure [sic] that adequate flight reliability be obtained with a reasonable schedule” (NASA 1961a:3). Systems engineers conducted all capsule systems tests, which were conducted jointly by NASA and McDonnell personnel.

Among the engineers of the Pre-Flight Operations Division was Guenter Wendt, the Pad Leader for McDonnell, who was responsible for all activity in and around the Mercury capsule at Hangar S. “If you came up to the spacecraft,” Wendt wrote, “you didn’t touch it without my permission.” In his memoir, Wendt described the early days of work at Hangar S as:

Our first job was to get the facility prepared to receive the Mercury capsules from St. Louis. A clean room was built on the hangar floor, and we got our control room established and set up power, cabling, and instrumentation. At that time, all missiles being launched from the Cape – the Thor, Matador, Snark, Navaho, Redstone, and Atlas – were prepared for their flights in hangars surrounding ours. It was a very busy place.



Hangar S, located a couple of miles from the Redstone launch complex, was a fairly large structure. Pretty conventional for a big Air Force hangar. Concrete block, three-stories tall, and huge sliding doors filled with glass windows. As a mechanical engineer, I was anxious to oversee the operation every minute of the day. We constructed our offices inside the hangar at the south end of the building so that we could be close to the activity (Wendt 2001:11-12).

Wendt and his engineering team typically worked long 12-14 days in Hangar S with little time for rest (Wendt 2001:13). Checkout work in the hangar's White Room typically required 50 days for systems tests and 60 more days to verify and rework the capsule's wiring and systems. Technicians in the Altitude Chamber tested the leakage rate of the capsule's pressure shell, while in the White Room they corrected minor difficulties with instruments and conducted integrated tests to verify the sequencing of every capsule system required from launch to splashdown (Swenson et al. 1989:274, 310). Figure 12 shows Capsules 16 and 18 being processed in the Altitude Chamber and White Room, respectively.

Figure 12.
Mercury Capsule Checkout
Operations in Hangar S

A. Mercury Capsule #18 in the White Room, April 11, 1962 (Source: KSC Image LOC-62-2948).

B. Mercury Capsule #16 Being Moved into the Altitude Chamber, 1962 (Source: KSC Image LOD-62-3051).

Hangar S also served as the astronaut training area and crew quarters at CCAFS throughout Project Mercury. It was used as the base of operation by the astronauts when they were on the Cape, especially in the days and weeks just prior to a manned mission launch. In Tom Wolfe's non-fiction work on the lives of the Mercury astronauts, *The Right Stuff*, the author described the activities in Hangar S nearly a dozen times, including this descriptive passage:

The hangar had been rebuilt inside to house the procedures trainer, a pressure chamber, and most of the other facilities an astronaut would need in the final preparations for a flight. There was a suite of rooms for living quarters, a dining room, a medical examination room, a ready room in which the astronaut would put on his pressure suit, a special doorway where the astronaut would get into a van to be driven out to the launch pad, and so forth. The boys seldom stayed there overnight, however, much preferring the motels in Cocoa Beach (Wolfe 1983:218).

While they did prefer the local Holiday Inn to the cramped quarters of Hangar S, the astronauts did manage to sleep and eat in the hangar quarters on the nights leading up to launches (Figure 13). In a memoir he co-wrote with Deke Slayton, Alan Shepard remembered the “crew quarters in Hangar S were spartan, austere, nondescript, and totally uncomfortable” (Shepard and Slayton 1994:86). These conditions were



Figure 13.
The Mercury Astronauts at Hangar S

A. Breakfast of Steak, Eggs, Toast, and Coffee at Hangar S Before Astronaut Cooper's 22-Orbit Mission, May 14, 1963. Mercury Astronauts Deke Slayton, Gordon Cooper, Wally Schirra, and Dr. H.A. Minners (Source: KSC Image 63-MA9-0133).

B. Mercury Astronaut Gordon Cooper In Flight Suit Leaves Hangar S Altitude Chamber After a 5-Hour Training Session, January 1, 1963 (Source: KSC Image 63-MA9-0045).

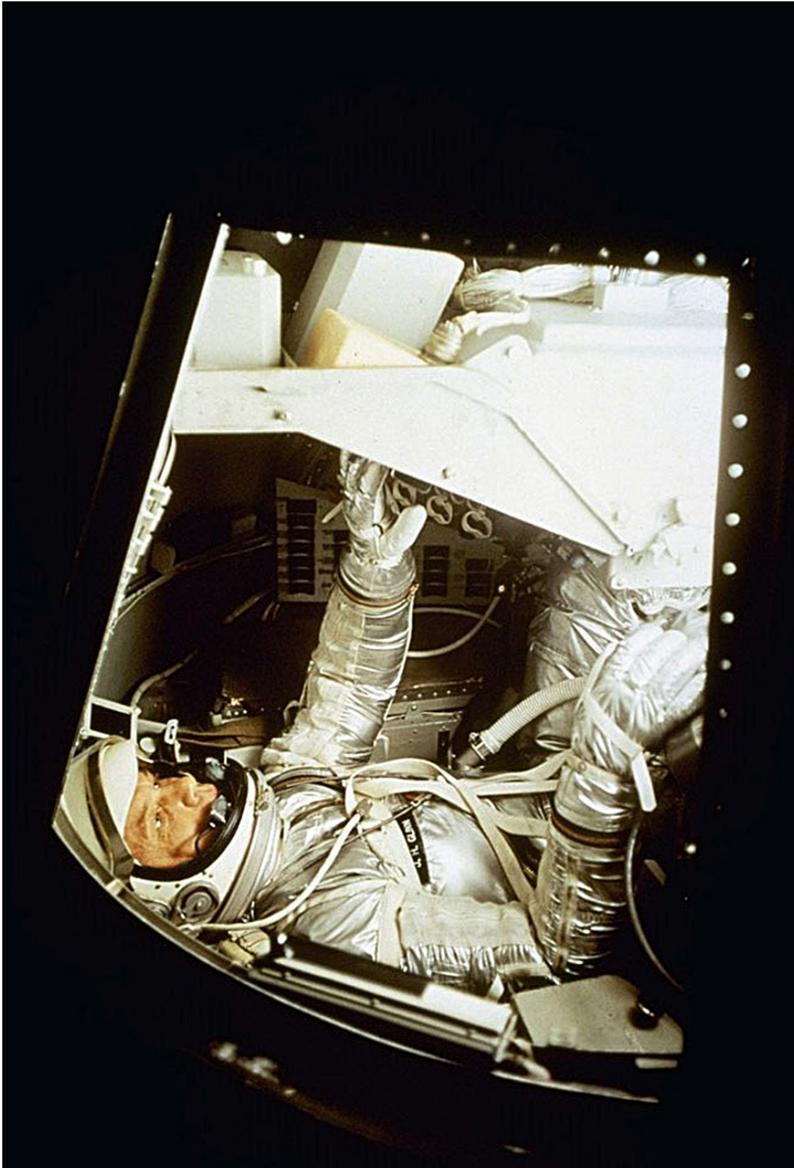


Figure 14.

Astronaut John Glenn in the Mercury Capsule Procedures Trainer
(Source: Taylor 2011).

somewhat eased by the presence of the astronauts' well-liked nurse, Air Force Lieutenant Dolores "Dee" O'Hara, who supervised their physical well-being and flight readiness (NASA 1961a:2).

When the astronauts weren't relaxing in Cocoa Beach, they spent long 12-hour days at Hangar S rehearsing launch procedures in the "procedures trainer," an exact mockup of the Mercury capsule's interior (Figure 14). During these training sessions the astronauts climbed into the trainer and lay on their backs as if they were sitting in a chair pushed over backward on the floor. This was the position the astronauts would be in during launch and re-entry. "No one liked the trainer," wrote Shepard and Slayton. "It was like taking a straight-backed chair, placing it on its back and then 'sitting' in it. This is where the astronaut trained to reach all his instruments and controls until he could go through every motion of his scheduled flight with his eyes closed and never miss hitting the right button or lever" (Shepard and Slayton 1994:86).

The trainer's control console was connected to a bank of computers manned by technicians, who guided the astronauts through every step of their spaceflight from launch to splashdown. The technicians also fed simulated mission scenarios and problems into the system, to which the astronaut learned to react appropriately. Each of the Mercury astronauts spent approximately 100 hours in the Hangar S procedures trainer in preparation for flight (Wolfe 1983:164, 184; Catchpole 2001:107).



Figure 15.

Ham the Chimpanzee Showing Off His Space Suit and the Specially-Developed “Couch” Capsule Designed to Hold Him in the Mercury Capsule During Launch, January 23, 1961

(Source: KSC Image KSC-61C-0109).

In January 1961, NASA installed temporary quarters behind Hangar S for a colony of six chimpanzees and 20 medical specialists and veterinarians. Since they were biologically similar to human beings, NASA used chimpanzees and other primates in the Project Mercury research, development, and rocket qualification stages to ensure that a man could withstand the physical strain of g-forces during a rocket launch and to see if he could use his brain and hands throughout the spaceflight. The chimpanzees at Hangar S were trained to ride on the Redstone rocket and perform manual lever-pulling tasks to test the Mercury capsule’s environmental control system and to prove that levers could be pulled during launch, weightlessness, and re-entry. All of these functions were successfully demonstrated during the Mercury/Redstone (MR-2) qualification launch on January 31, 1961 (Figure 15). The chimpanzee “Ham” performed

all of his scheduled tasks well during his 16.5-minute sub-orbital flight and showed that a manned mission could be accomplished. Ham's flight was followed by that of "Enos" during the Mercury/Atlas (MA-5) qualification launch on November 29, 1961 (Swenson et al. 1989:312-318; Wolfe 1983:194).

Following 20 initial research, development, and qualification launches, Project Mercury successfully launched six manned missions into space from CCAFS. The first two were suborbital ballistic flights launched from a Mercury/Redstone rocket configuration, including, Alan Shepard's launch on May 5, 1961; America's first astronaut in space. Shepard launched in the "Freedom 7" Mercury capsule from Pad 5 at LC-5/6 at CCAFS. His 15.5-minute flight took him to an altitude of 116.5 miles and carried him 303 miles downrange at a velocity of 5,134 miles per hour, a successful mission which demonstrated that a man could safely launch into space and complete mission objectives in a weightless environment. Shepard's flight was soon followed by that of Virgil "Gus" Grissom on July 21, 1961, in the "Liberty Bell 7" capsule. Grissom's flight was a successful repeat of Shepard's mission until he splashed down and awaited recovery. While in the water, the capsule's explosive egress hatch blew off and the capsule took on water and sank. Grissom was eventually rescued by a helicopter (Slovinac and Deming 2010:20).

The first two suborbital Mercury missions were followed by four orbital missions. John Glenn became the first American to orbit the Earth on February 20, 1962, when he launched in the spacecraft *Friendship 7*, from LC-14 at CCAFS. Glenn completed three orbits of Earth over a period of nearly five hours at an average velocity of 17,544 miles per hour. His mission was a total success and proved that a man could perform well in a weightless environment for an extended period of time and then be safely recovered. Following Glenn's historic mission, President Kennedy visited CCAFS to tour its facilities and congratulate Glenn at a special ceremony at Hangar S, also attended by Vice President Johnson, the other Mercury astronauts, and NASA officials (Figure 16). Glenn's mission was followed by three more orbital flights by astronauts Carpenter, Schirra, and Cooper, each of which added longer orbits and increasingly sophisticated capsule maneuvers and experiments (Figure 17). With these six manned flights, Project Mercury was deemed a success with all of its mission objectives completed by the summer of 1963 (Slovinac and Deming 2010:21).

CCAFS INDUSTRIAL AREA AFTER PROJECT MERCURY

Just as Project Mercury concluded in 1963, NASA had largely completed its new spaceport facilities at KSC on Merritt Island. Located immediately west of CCAFS across the Banana River, KSC included all of the launch facilities, operations and checkout, engineering, and administrative facilities necessary to accomplish a manned spaceflight to the Moon. Built between 1962 and 1965, KSC featured the new LC 39 Area, which included the VAB, LCC, and the crawlerway and crawler-transporters designed to transport the Apollo Program's enormous new Saturn V rocket to the launch pad. Built on the former Merritt Island town of Orsino is the KSC Industrial Area, designed to house facilities not requiring immediate location to the LC 39 Area. The KSC Industrial Area facilities included the Headquarters Building, O&C Building,



Figure 16.
President Kennedy visits Hangar S

A. President Kennedy Speaking in Front of Hangar S after Astronaut John Glenn's Historic Orbital Mission, February 23, 1962. (Source: KSC Image KSC-62PC-0015).

B. President Kennedy, Vice President Johnson, and NASA Administrator James Webb Next to Astronaut John Glenn's *Freedom 7* Mercury Capsule in Hangar S High Bay, February 23, 1962. (Source: KSC Image LOC-62-6880).

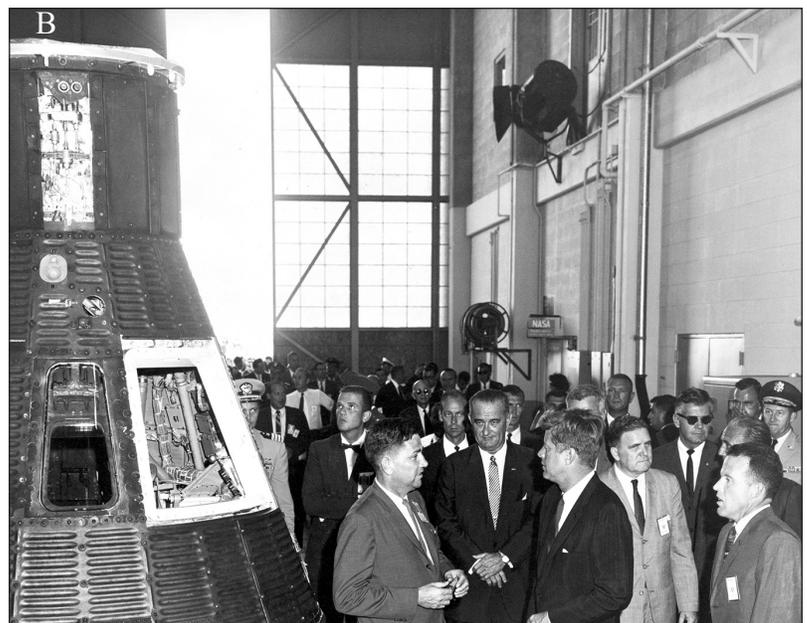
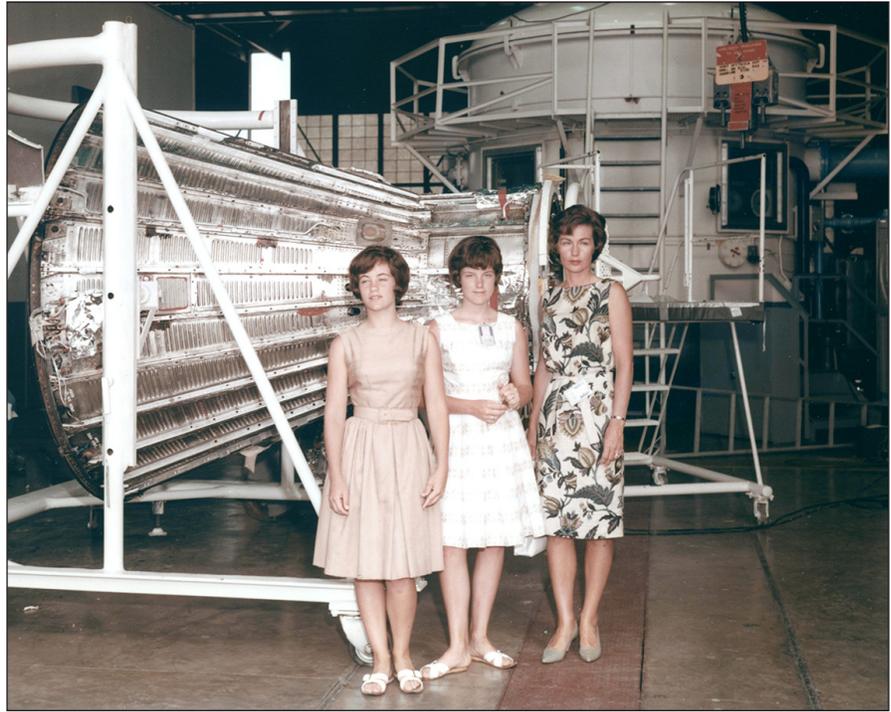


Figure 17.
Astronaut Gordon Cooper's
Wife Trudy and Two Daughters
view the Mercury Capsule in
Hangar S, May 20, 1963, after
his successful 22-orbit Mercury
Flight. The Altitude Chamber
is in the background.
(Source: KSC, USAF Photo 2333-39).



and CIF. It also housed a number of administrative and support buildings such as a cafeteria, medical clinic, fire station, contractor office buildings, and storage warehouses. They were grouped for ease of administration and the safety of employees and visitors. Following the Apollo Program, KSC facilities were modified and constructed for the SSP and ISSP in the 1970s and 1980s.

As NASA moved into its new facilities at KSC, the Agency maintained a presence in the CCAFS Industrial Area, altering earlier facilities as needed for new programs and building new ones where space allowed. By 1964-65, NASA facilities in the CCAFS Industrial Area included Hangar S, Hangar AE, Hangar AF, Hangar AM, Hangar AO, the Apollo Warehouse, the Solar Array Test Building, the E&O Building, and the Hangar M Annex (Figure 18). Hangars AM and AO were constructed with clean room facilities to process NASA spacecraft payloads. In 1965, the interior high bay of Hangar S was modified with the construction of clean rooms for spacecraft payload processing as well as logistics and office areas. Hangar AE continued in its function as the flight telemetry and data center for NASA's ELV Program with the addition of a payload processing clean room on its west end. ELV Program staff and managers were housed in the adjacent E&O Building.

Originally built in 1962 and used by NASA to receive and checkout Saturn rocket components during the Apollo Program, the Hangar AF area at CCAFS was modified and expanded in the late 1970s to disassemble and refurbish the Space Shuttle Solid Rocket Boosters (SRBs). The Hangar AF Complex continued to serve in this role until the end of the SSP in 2011. After a Space Shuttle launch, the SRBs were retrieved at sea by two specially designed NASA ships, the *Liberty Star* and *Freedom Star*, which towed the SRBs

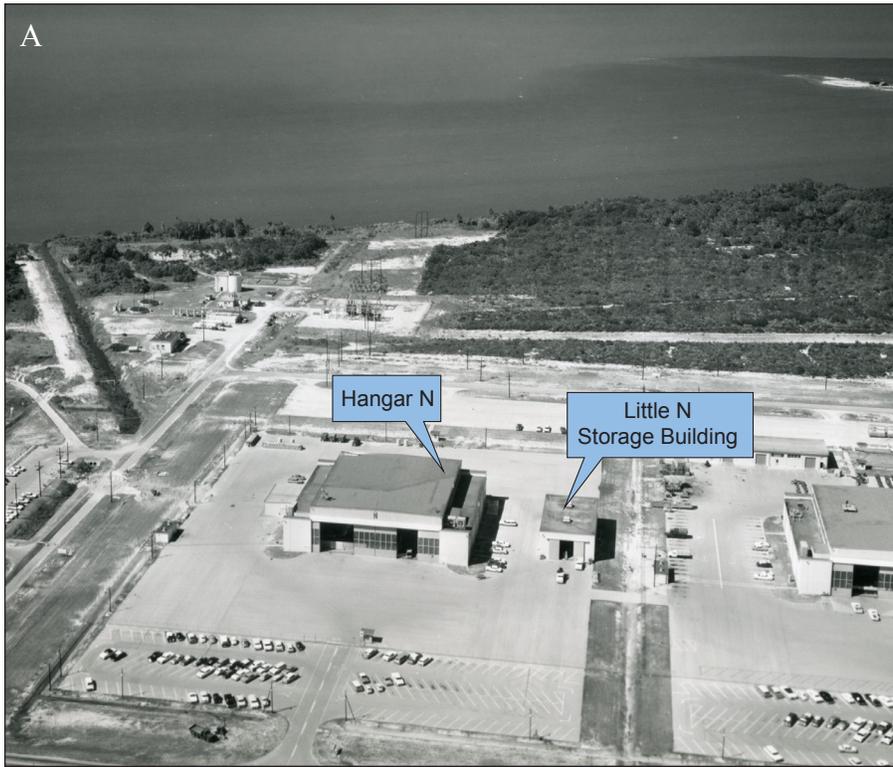
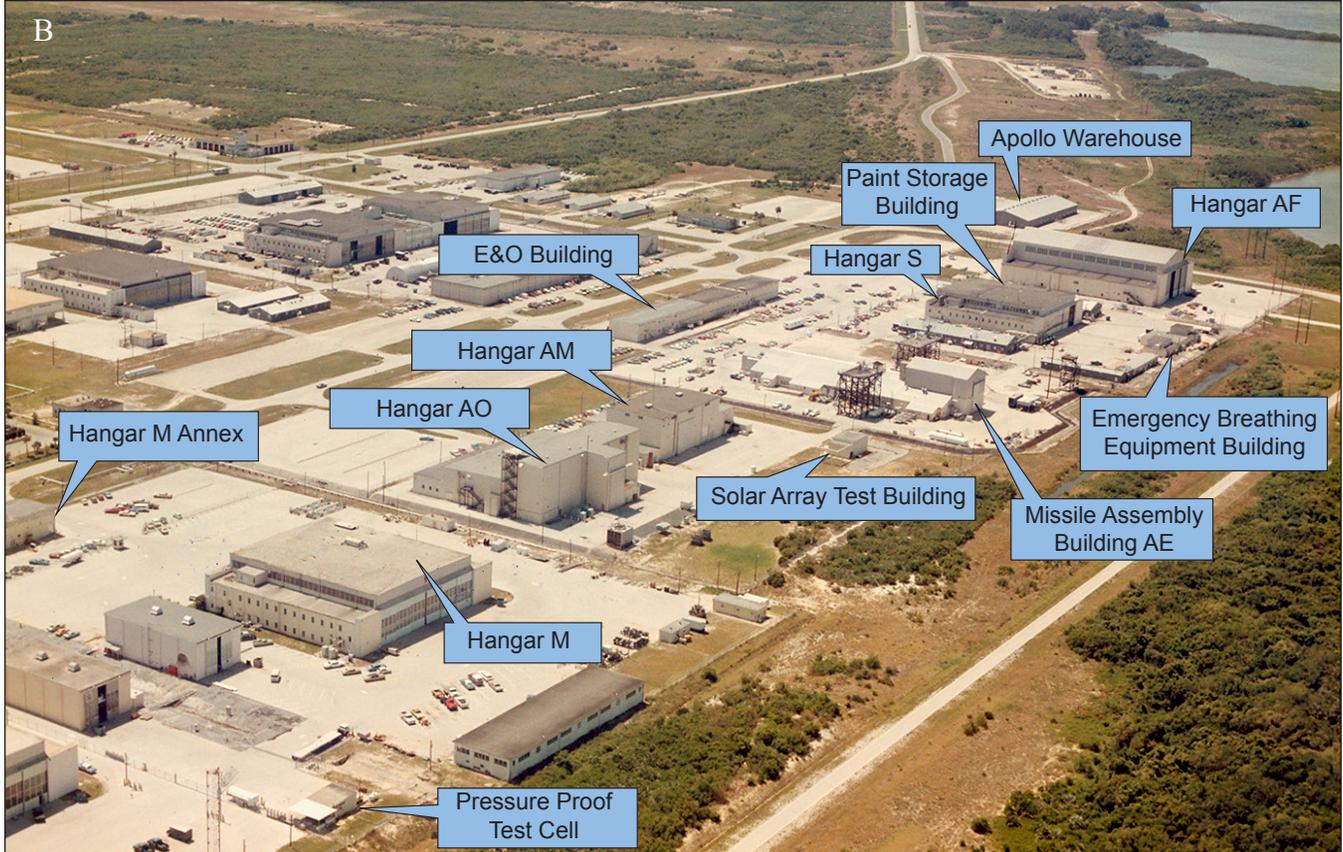


Figure 18. Aerial Views of NASA-owned Facilities in the CCAFS Industrial Area

A. 1962 Aerial View of Hangar N and Little N Storage Building, View West (Source: KSC Image LOC-62-162).

B. 1973 Aerial View Southeast (Source: KSC Image 116-KSC-373C-549/59)



back to Hangar AF where they were lifted out of the water, cleaned, disassembled, and refurbished for the next flight. The disassembly and refurbishment work took place in nine separate facilities, including Hangar AF, the SRB Recovery Slip, the First Wash Building, the Robot Wash Building, the High Pressure Gas Building, the Thrust Vector Control Deservicing Building, the Multi-Media Blast Facility, and the SRB Paint Building. Together these facilities constitute an NRHP historic district known as the SRB Disassembly and Refurbishment Complex.

Also related to the SRB refurbishment work at Hangar AF was Hangar N, which was acquired by NASA from the Air Force in 1985. Hangar N housed NASA's Nondestructive Testing and Evaluation (NDE) unit that used a variety of methods to examine the SRB aft skirts for damage, including radiography, ultrasonics, backscatter testing, and magnetic particle testing. Following the Space Shuttle *Challenger* disaster in 1986 the testing of SRBs through non-destructive means was especially critical to the SSP.

Following the end of the SSP in 2011, the presence of NASA personnel at CCAFS diminished significantly. Many NASA facilities there are now vacant, including the Hangar AF Complex, Hangar S, Hangar M Annex, and the E&O Building. Hangars AM and AO, originally built by NASA in the early 1960s, were transferred to the Air Force for military payload processing. Hangar N still contains NDE testing equipment and technicians. NASA's historically significant ELV Program continues to operate out of Hangar AE, which recently completed a major interior renovation with the addition of a state-of-the-art Launch Vehicle Data Center (LVDC) to track rocket telemetry and communications during unmanned launches.

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III. METHODS

The historic resource survey and evaluation of NASA-owned properties in the CCAFS Industrial Area included background research, literature review, context development, field survey, and the preparation of draft and final reports. Background research began at the FMSF, which provided information on previously surveyed facilities at KSC. Archival research and context development was conducted at the KSC Library Archives, which provided primary and secondary sources about the history of NASA-owned properties at CCAFS as well as historic photographs and other information. The KSC Historic Preservation Officer provided previous cultural resource survey reports, NRHP nominations, and other relevant information. Real property records were obtained from the KSC Real Property Office to determine construction dates and other building information, including historic photographs of individual facilities after construction. Additional research was conducted on a number of NASA websites and other published materials available on the web. Interviews with current KSC facility managers and other employees provided crucial information on the technical operations of the surveyed facilities. Historic photographs, as-built drawings, and cultural resource survey reports were obtained from the CCAFS Cultural Resource Office. Project staff used this research to prepare a historic context for the overall development of the CCAFS Industrial Area and the surveyed facilities.

The field survey of the CCAFS Industrial Area was conducted May 6-10, 2013, and included guided tours of all 12 surveyed buildings' interior and exterior spaces, as well as interviews with facility managers and other personnel regarding the history and uses of the surveyed buildings. Site sketch maps and architectural description information were recorded on site, including construction materials and distinguishing structural or engineering features. The facilities were documented with digital photography of all primary elevations and oblique views, as well as representative views of interior spaces such as corridors, offices, conference rooms, and work areas. Building floor plan maps were keyed to show photograph number and direction.

Following the background research, field survey, and context development, the surveyed facilities at KSC were evaluated for their eligibility to the NRHP. The application of NRHP criteria was guided by U.S. Department of Interior, NPS publications, including: *Guidelines for Applying the National Register Criteria for Evaluation* (NPS 2002); *Guidelines for Completing National Register of Historic Places Forms: How to Complete the National Register Registration Form* (NPS 1997); *Guidelines for Evaluating and Nominating Properties that Have Achieved Significance Within the Last Fifty Years* (NPS 1998a); and *Guidelines for Evaluating and Documenting Historic Aviation Properties* (NPS 1998b). Additional guidance was provided by the Advisory Council on Historic Preservation (ACHP) document, *Balancing Historic Preservation Needs with the Operation of Highly Technical or Scientific Facilities* (ACHP 1991). Multiple sources were used to provide guidelines for evaluating the surveyed facilities' historic

significance in the context of their association with specific NASA missions. These sources included: the *Man in Space National Historic Landmark Thematic Study* (Butowsky 1984); guidelines from NASA on historic resources associated with the SSP; *Understanding NASA's Historic Districts* (URS 2008); and historical background material and oral history information gathered as part of this project.

NRHP CRITERIA FOR EVALUATION

The NASA-owned facilities in the CCAFS Industrial Area were evaluated according to the NRHP Criteria for Evaluation. The NRHP Criteria for Evaluation are as follows:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. are associated with events that have made a significant contribution to the broad patterns of our history;
- B. are associated with the lives of significant persons in or past;
- C. embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. have yielded or may be likely to yield, information important in history or prehistory.

Criteria Considerations

Ordinarily, cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

- A. a religious property deriving primary significance from architectural or artistic distinction or historical importance;
- B. a building or structure removed from its original location, which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event;
- C. a birthplace or grave of a historical figure of outstanding importance, if there is no appropriate

site or building directly associated with his productive life;

D. a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events;

E. a reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived;

F. a property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

G. a property achieving significance within the past 50 years, if it is of exceptional importance.

NASA GUIDANCE FOR THE SSP

The significance of the Space Shuttle Program was noted by the NPS in the 1998 National Register Bulletin 43, *Guidelines for Evaluating and Documenting Historic Aviation Properties* (NPS 1998b). The following excerpt is from that bulletin.

The Space Shuttle was the U.S. space program's next generation. Key aspects of the shuttle's design and performance were based on a rocket-powered space plane, the X-15, the world's first transatmospheric vehicle. The Space Shuttle provided a new method of space flight, taking off like a rocket and landing like an airplane. The Space Shuttle Columbia, the first reusable manned spaceship, initiated the Space Shuttle flight program in April 1981, and a new era for the U.S. Space Program (Milbrooke 1998:12).

As ACI stated, "the historic values of this program, like the Apollo-era program which preceded it, are embodied in the facilities, that is; the buildings, structures and objects within the NASA centers. Such facilities may include, but are not necessarily limited to, those used for research, development, design, testing, fabrication, and operations" (Deming and Slovinac 2007:Section 2-2).

In order to prepare an evaluation of all SSP-related properties at all NASA centers, NASA formed the Shuttle Transition Historic Preservation Working Group (HPWG). Composed of the Historic Preservation Officers for all the centers and in conjunction with the Shuttle Transition Environmental Support Team, the HPWG created a series of guidelines for evaluating SSP-related properties. These guidelines, which were submitted to the Florida SHPO for review and then approved by NASA Headquarters, were used by ACI to evaluate SSP-related properties at KSC (Deming and Slovinac 2008:1-1). New South Associates used these criteria in this study to evaluate properties associated with the SSP and adapted them to help categorize facilities associated with earlier space programs. These criteria were as follows:

The Space Shuttle Program: Proposed NRHP Criteria for Evaluation and Criteria Considerations

In order to qualify for listing in the NRHP under this study, resources must meet all of the following general registration requirements:

- is real or personal property owned or controlled by NASA;
- was constructed, modified, or used for the SSP between the years 1969 and 2010 (or the actual end of the SSP in 2011);
- is classified as a structure, building, site, object, or district; or
- is eligible under one or more of the four NRHP Criteria.
- All properties considered eligible for listing under:

Criterion A – Events

- must be of significance in reflecting the important events associated with the SSP during the period of significance (1969-2011); or
- must be distinguished as a place where significant program-level events occurred regarding the origins, operation, and/or termination of the SSP.

Criterion B – Significant Persons

- must be associated with a person whose individual significance to the goals, missions, development and design of the SSP can be identified and documented;
- must be distinguished as a place where persons of significance to SSP trained or worked;
- best represents the important achievements or the cumulative importance of prominent persons; or
- has consequential association with a person who gained prominence relative to the SSP during the period of significance.

Criterion C – Design/Construction

- was uniquely designed and constructed or modified to support the pre-launch testing, processing, launch and retrieval of the Space Shuttle and its associated payloads;
- reflects the historical mission of the Space Shuttle in terms of its unique design features without which the program would not have operated; or

- reflects the distinctive progression of engineering and adaptive reuse from the Apollo era to the Shuttle era.

Criterion D – Information Value

- This Criterion is primarily used for archaeological sites and this document is focused on historic properties, it is inappropriate to use this Criterion as a discriminator; therefore, it will not be a valid Criterion for surveys used as a part of the Space Shuttle transition activities.

Certain kinds of property that are not usually considered eligible for listing in the NRHP, although they may meet the NRHP Criteria stated above, will require special considerations. Such properties which might fall into this category are those that have been moved (Criteria Consideration B) or properties that have achieved significance within the past 50 years (Criteria Consideration G).

- **Moved Properties** – Some historic resources of significance in the context of the SSP may meet Criteria Consideration B since they were designed to be moved. Thus, it is not required that they, or their integral components, be at their original location in order to retain integrity. These resources are generally significant for their engineering or are significant for their association with events or persons integral to the SSP. However, objects removed from their original setting and that are now located within a museum are typically excluded from NRHP-listing as the change in setting and location diminishes the resource’s historic integrity (NPS 1998:36).
- **Properties that have achieved significance within the past 50 years** – The entire SSP is less than 50 years old. Therefore, Criteria Consideration G cannot be a discriminator for determining eligibility, as some properties utilized by the SSP may be over 50 years old.
- **Properties that are determined to possess exceptional significance in the context of the SSP that are less than 50 years old** must meet Criteria Consideration G.

Integrity

- **Retains enough integrity to convey its historical significance.** The NRHP recognizes seven aspects or qualities that, in various combinations, define integrity: location, setting, materials, design, workmanship, feeling, and association. However, many original NASA Apollo-era facilities, for example, have undergone major modification and are in active use supporting the SSP. As a general rule, in the case of highly technical and scientific facilities, “there should be continuity in function, and thus in integrity of design and materials, and there may always be integrity of association” (ACHP 1991:33).

CRITERIA OF ELIGIBILITY BY PROPERTY TYPE

The following 12 property types, and the associated NRHP eligibility criteria, may be used in the evaluation of all NASA-owned and controlled facilities at all NASA centers. Use of these categories will help narrow the list of eligible properties to those that have true significance in the overall context of the Apollo and SSPs.

1. Resources Associated with Transportation: A variety of transportation resources were constructed and/or modified to support mission and launch operations in support of the SSP. These resources include roadways, bridges, crawlerways, runways and landing facilities, helipads, and waterways. Special-use vehicles also are part of the transportation network. These include payload transporters, crawler transporters, Multi-use Mission Support Equipment Transporters, 747 carrier aircraft, the astrovan, external tank barge and recovery vessels. In order to qualify for NRHP listing, transportation resources must meet one or more of the following criteria:

- have been used for the transportation of unique objects, structures, or significant persons associated with Space Shuttle missions;
- have been an essential component to the Space Shuttle missions, such that the program could not function without it;
- clearly embody the distinctive characteristics of a type or method of construction specifically designed for the transportation of the Space Shuttle or its payloads;
- have a direct historical association with the Space Shuttle (including the Orbiter, external tank and solid rocket boosters), or a significant person associated with the SSP; and/or
- must be examples of one of the identified subtypes: road-related resources, water-related resources, rail-related resources, and air-related resources.

2. Vehicle Processing Facilities: Vehicle processing facilities include those resources which are vital to the preparation of the launch vehicle for its mission. NASA vehicle processing facilities administer such operations as assembly, testing, checkout, refurbishment, and protective storage for launch vehicles and spacecraft. Those processing facilities which are eligible for the NRHP were essential in support of the SSP and include but are not limited to the “Tile Shop”, the VAB, the Orbiter Processing Facility (OPF), and Hangar AF. To be considered significant, the resources must have been essential to the successful completion of Space Shuttle missions. Vehicle processing facilities were specifically designed for processing the launch vehicle and, therefore, played a major role in nationally significant events related to space exploration. In order to qualify for listing, resources must:

- have been an essential component to the processing of the Space Shuttle;
- clearly embody the distinctive characteristics of a type or method of construction specifically designed or modified for the processing of the Space Shuttle for launch; and
- have a direct historical association with the Space Shuttle, or a significant person associated with the SSP.

3. Launch Operation Facilities: Launch operation facilities support all activities which occur after the launch vehicle has been processed up to the point of launch. These facilities provide a base and support structure for the transport and launching of the vehicle, service the launch vehicle at the launch pad, control pre-launch and launch operations, and launch the vehicle. These facilities include but are not limited to launch pads, LCC, Mobile Launcher Platforms, the Rotating Service Structure, and the Fixed Service Structure. Such facilities function as the primary resources integral to the launch of the Space Shuttle. In order to qualify for listing, resources must:

- possess engineering importance and have facilitated nationally significant events associated with space travel;
- have been integral in pre-launch and launch preparation or the launching of the Space Shuttle;
- clearly embody the distinctive characteristics of a type or method of construction specifically designed for the Space Shuttle; and
- have a direct historical association with the Space Shuttle, or a significant person associated with the SSP.

4. Mission Control Facilities: Mission control facilities support the design, development, planning, training and flight control operations for Space Shuttle flights. These facilities provide the infrastructure that allow the planning, training and flight operations processes necessary to support the Space Shuttle from the inception of requirements through the flight execution process. In order to qualify for listing, resources must have:

- developed integrated flight crew and flight control plans, procedures, and training;
- established simulators and flight control ground instrumentation;
- configured Orbiter flight software;
- contributed to the development and integration of spacecraft and payload support system; and
- provided onboard portable computer hardware and software for the Space Shuttle.

5. News Broadcast Facilities: Press facilities provide a primary site for news media activities at NASA-owned facilities. These broadcasting facilities were essential for relating to the American public news of the SSP to the nation and the world. In order to qualify for listing, resources must:

- have been an integral facility in the dissemination of information about the Space Shuttle missions to the public;
- clearly embody the distinctive characteristics of a type or method of construction specifically designed to broadcast information; and
- be associated with a significant person associated with the broadcast of Space Shuttle events.

6. Communication Facilities: Communication facilities in support of the SSP provide a vital site for instrumentation to receive, monitor, process, display and/or record information from the space vehicle during test, launch, and/or flight. Significant communication facilities were designed specifically to house computers and computer-related technology vital to the Space Shuttle mission. In order to qualify for listing, resources must:

- have been integral to the mission of the Space Shuttle;
- clearly embody the distinctive characteristics of a type or method of construction specifically designed for the Space Shuttle missions; and
- have a direct historical association with the Space Shuttle, or a significant person associated with the SSP.

7. Engineering and Administrative Facilities: Engineering and administrative facilities include those resources which are essential to the administrative, scientific, and engineering work of the SSP. Engineering and administrative facilities administer such operations as research and development, testing, fiscal matters, procurement, planning, central management, and facilities engineering and construction, as well as providing offices for associated contractors and laboratories for engineers and scientists. These facilities which qualify for listing under the Space Shuttle context must:

- be places, such as test facilities, that are directly associated with activities of significance which were associated with the development, component testing, implementation and termination of the SSP or missions;
- be places where persons who made lasting achievements to the SSP worked or convened; and
- should clearly embody the distinctive characteristics of a type or method of construction.

8. Space Flight Vehicle (or Space Shuttle): This property type includes resources that comprise and/or facilitate the space flight vehicle or Space Shuttle. These include, but are not limited to, the Orbiter,

SRB, and external tank, as well as mockups of these components that were used for flight tests or other important development activities. In order to qualify for listing, resources must:

- have been an integral component of the Space Shuttle stack in its completed form, ready for space flight;
- have been essential to the Space Shuttle missions and should clearly embody the distinctive aspect of reusability which reflects the goals of the SSP;
- have been developed and used as test components used in preparation or evaluation for flight or flight tests; and
- have a direct historical association with the Space Shuttle, or a significant person associated with the SSP.

9. Manufacturing and Assembly Facilities: This property type includes facilities where major flight components were manufactured or assembled. These would include the manufacturing plants where the major components of the Space Shuttle vehicle were fabricated and assembled. In order to qualify, these facilities must:

- have been an essential component to the manufacturing or assembling of the Space Shuttle;
- have been constructed or modified to house this manufacturing or assembly facility exclusively;
- embody a design that is unique to the Space Shuttle requirements; and
- have a direct historical association with the Space Shuttle, or a significant person associated with the SSP.

10. Resources Associated with the Training of Astronauts: This property type includes resources constructed or modified for the purpose of astronaut training and preparation for Space Shuttle missions. These facilities may include but are not limited to: processing facilities, neutral buoyancy tank, flight simulators, and training aircraft. In order to qualify for listing, resources must:

- have been designed and constructed, or modified, for the unique purpose of astronaut training and be directly associated with preparing astronauts for the completion of a Space Shuttle mission;

- clearly embody the distinctive characteristics of a type or method of construction specifically designed for aeronautical training; and
- have a direct historical association with the Space Shuttle, or a significant person associated with the SSP.

11. Resources Associated with Space Flight Recovery: This property type includes resources that facilitate the recovery of the space flight vehicle or Space Shuttle and its significant components after its return to Earth. These include, but are not limited to, runways, the Mate/Demate Facility(s) and equipment, the SRB Retrieval Ships (*Liberty* and *Freedom*). These resources are essential to the recovery and subsequent reuse of the Space Shuttle and are, therefore, a significant resource to the program as a whole. In order to qualify for listing, resources must:

- have been integral to the recovery of the Space Shuttle and/or its significant components;
- clearly embody the distinctive characteristics of a type or method of construction specifically designed for the recovery of the Space Shuttle; and
- have a direct historical association with the Space Shuttle, or a significant person associated with the SSP.

12. Resources Associated with Processing Payloads: This property type is limited to facilities where fully assembled payloads are readied for insertion in the Space Shuttle orbiter. In order to qualify for listing, resources must have been used in the processing of payloads for the Space Shuttle. Eligibility is restricted to resources which:

- represent outstanding achievements in technological, aeronautical or scientific research which would otherwise not have been attainable without the use of the Space Shuttle;
- clearly embody the distinctive characteristics of a type or method of construction, and which reflect the distinctive aspect of reusability unique to the goals of the SSP; and/or
- have a direct historical association with the Space Shuttle, or a significant person associated with scientific and/or technological advancements of national significance made as part of the SSP.

MAN IN SPACE NHL THEMATIC STUDY GUIDANCE

The *Man in Space National Historic Landmark Theme Study* (Butowsky 1984) categorized historic resources based on the following themes:

- A. Technical Foundations before 1958;
- B. The Effort to Land a Man on the Moon;
- C. The Exploration of Planets and the Solar System; and
- D. The Role of Scientific and Communications Satellites.

These themes are used in discussing the significance of various resources that predate the SSP, specifically Mercury (1958-1963), and Apollo (1968-1972) as well as the ELV and other NASA programs.

NASA GUIDANCE ON UNDERSTANDING HISTORIC DISTRICTS

The NASA publication *Understanding NASA's Historic Districts* was prepared by URS for NASA in 2008. The document contains guidance for NASA Historic Preservation Officers in the following areas: identifying historic districts within their installations; considering the impacts to historic districts based on maintenance and normal facility operation; and incorporating considerations for historic districts in planning. In addition to providing pathways for identifying districts based on the NRHP Criteria and preparing boundaries, the document contains guidance on developing Programmatic Agreements for the treatment and maintenance of NASA historic districts during the transition from SSP to the next generation of missions. Numerous examples of historic districts at NASA facilities nationwide are provided along with maps showing their NRHP district boundaries.

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IV. HISTORIC DISTRICT DESCRIPTION AND EVALUATION

DESCRIPTION OF THE AREA

Located on the west side of Cape Canaveral adjacent to the Banana River, the CCAFS Industrial Area contains missile assembly buildings (hangars), administrative buildings, warehouse/storage buildings, and other facilities that support both the Air Force and NASA's mission at CCAFS. These facilities were grouped together away from the seaside launch complexes for safety reasons. The area is arranged in a grid shape with most hangars arrayed along the east and west sides of Hangar Road and Phillips Parkway. Of the total number of buildings that compose the CCAFS Industrial Area, approximately 14 percent are currently owned by NASA with the remainder owned and managed by the Air Force. The manned and unmanned spaceflight missions of NASA and the Air Force have overlapping histories and a number of buildings have changed hands between the two agencies over the past 50 years.

The 12 NASA-owned facilities in the CCAFS Industrial Area, which underwent a full survey and evaluation for this report, are located along the western edge of the area between Hangar Road and Scrub-Jay Road (reference Table 1 and Figure 20). Hangar AF, previously recorded and eligible for listing in the NRHP under the SSP was also evaluated as part of a potential historic district. Many of these buildings were transferred to NASA from the Air Force in the early 1960s and then modified for new missions (Figure 19). Details of each facility and their NRHP eligibility recommendations are discussed in this section.

Overall, the buildings of the CCAFS Industrial Area have functional industrial vernacular designs. In contrast, the Hangar M Annex and E&O Building display generally Modern designs derived from the International style that was popular in 1950s and 1960s military and institutional buildings. This style is characterized by the buildings' flat roofs, horizontal orientation, lack of ornamentation, and smooth wall surfaces broken by bands of glass block windows. Building materials in the CCAFS Industrial Area reflect its industrial function, including reinforced concrete in foundations and structural systems, steel frame structural systems, concrete block, and corrugated metal. The standardized building designs, materials, and close proximity to one another give the overall area the distinct character of a military industrial facility.

Table 1. NASA-owned Facilities Surveyed in the CCAFS Industrial Area

Facility Number	FMSF Number	Facility Name	Facility Type	Year Built
1728	8BR3069	Hangar N	Engineering and Administrative	1958
54928	8BR2190	Little N Storage Building	Engineering and Administrative	1958
54905	8BR2974	Paint Storage Building	Engineering and Administrative	1958
60425	8BR2973	Pressure Proof Test Cell	Engineering and Administrative	1958
55005	8BR2972	Hangar M Annex	Engineering and Administrative	1963
60540	8BR2977	Solar Array Test Building	Engineering and Administrative	1966
60680	8BR2976	Missile Assembly Building AE	Communication Facility/Resource Associated with Processing Payloads	1959
1726	8BR3070	Hangar S	Engineering and Administrative Facility	1959
66200	8BR3072	Paint Storage Building	Engineering and Administrative	1958
66220	8BR2961	Emergency Breathing Equipment Building	Engineering and Administrative	1960
60650	8BR2975	E&O Building	Engineering and Administrative	1961
66330	8BR3071	Apollo Warehouse	Engineering and Administrative	1963
66250	8BR2001	Hangar AF	Vehicle Processing Facility/Engineering and Administrative Facility	1961
66251	8BR2002	High Pressure Gas Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1962
66240	8BR2003	High Pressure Wash Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1978
66242	8BR2004	First Wash Building	Vehicle Processing Facility/Engineering and Administrative Facility	1978
66244	8BR2005	SRB Recovery Slip	Vehicle Processing Facility/Engineering and Administrative Facility	1978
66310	8BR2006	SRB Paint Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1983
66320	8BR2007	Robot Wash Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1985
66249	8BR2008	TVC Deservicing Building	Vehicle Processing Facility/Engineering and Administrative Facility	1984
66340	8BR2009	Multi-Media Blast Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1991

*Gray fields above indicate NASA-owned properties that are located in the previously identified Solid Rocket Booster (SRB) Disassembly and Refurbishment Complex (Hangar AF Complex).

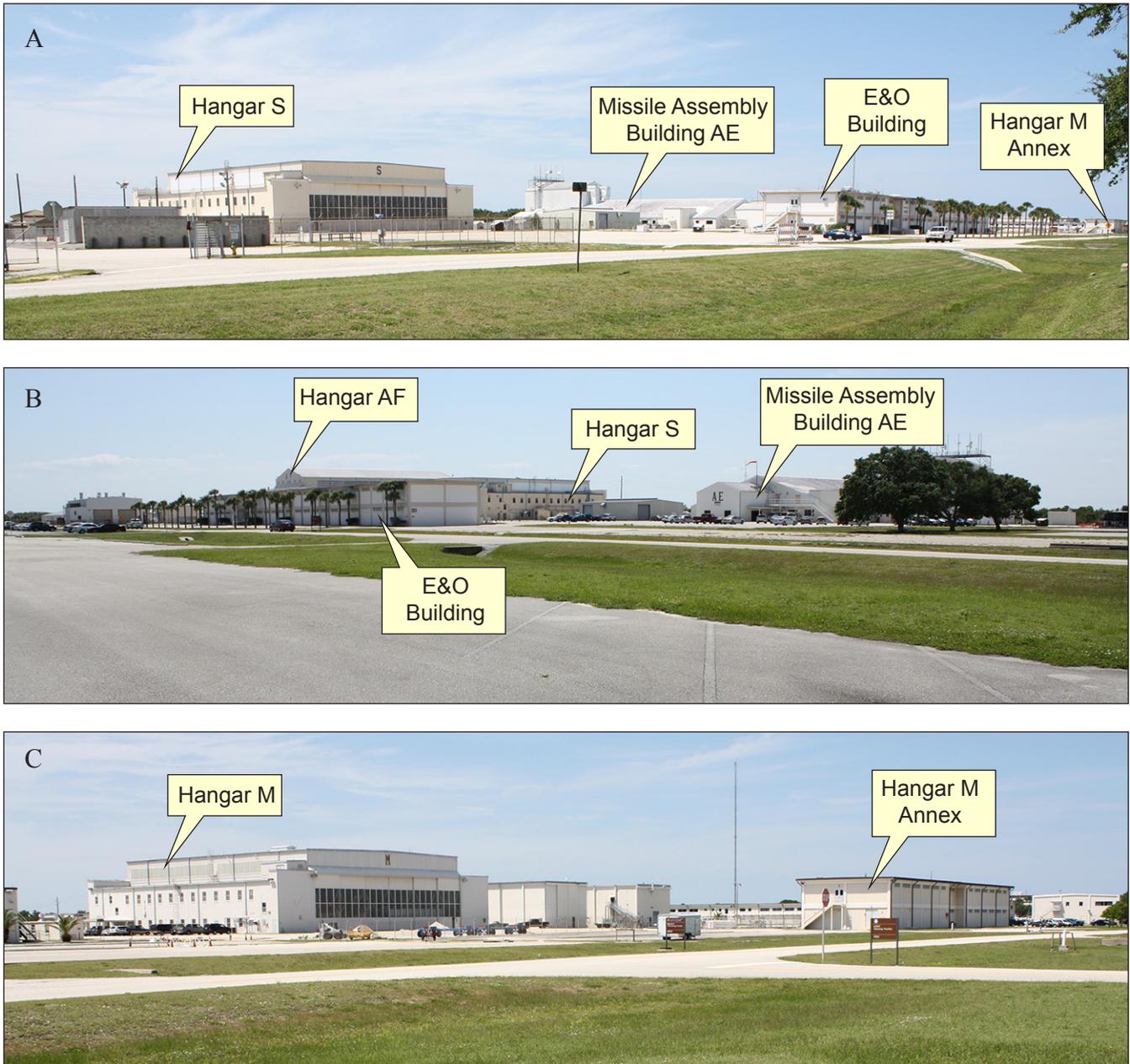


Figure 19.
Streetscape Views of the NASA-owned Facilities in the CCAFS Industrial Area

A. View Northeast Along Hangar Road Showing (L-R): Hangar S, Missile Assembly Building AE, E&O Building, and Hangar M Annex at Far Right.

B. View Southwest Along Hangar Road Showing (L-R): E&O Building, Hangar AF (Roofline), Hangar S, and Missile Assembly Building AE.

C. View Northeast Along Hangar Road Showing (L-R): Hangar M and Hangar M Annex.

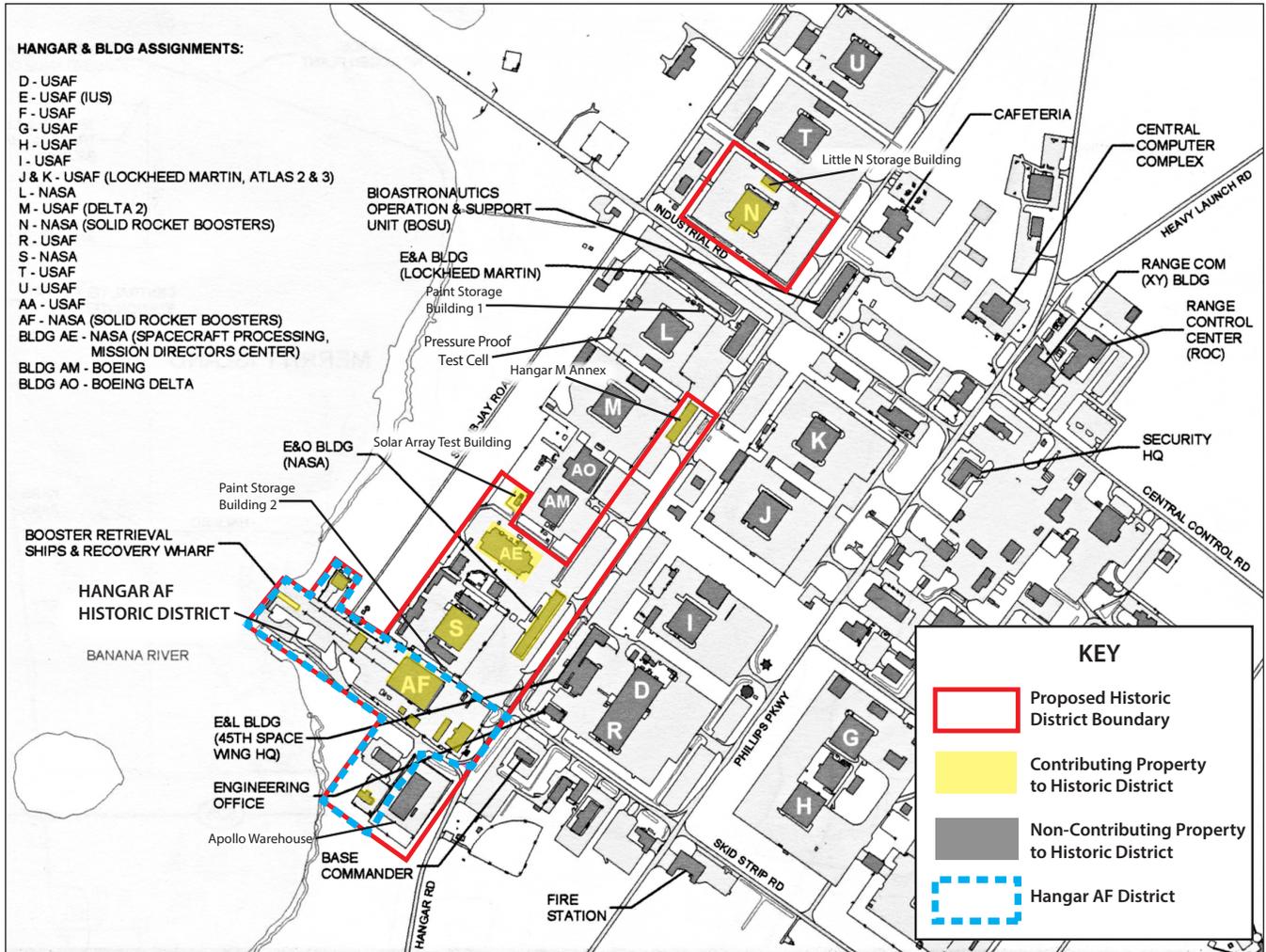


Figure 20.

Map of the Proposed Boundaries for the NASA-owned CCAFS Industrial Area Historic District Showing Contributing/Non-Contributing Resources

HISTORIC DISTRICT EVALUATION – NASA-OWNED FACILITIES IN THE CCAFS INDUSTRIAL AREA

It is recommended that 7 of the 12 NASA-owned facilities surveyed in the CCAFS Industrial Area are eligible to the NRHP as a historic district with a discontinuous boundary excluding Hangar AF Complex. As a result of the discontinuous boundaries, the district only contains 10 of the 12 facilities that were surveyed (Figure 20, Table 1), and of these seven are contributing and three are non-contributing. The remaining two surveyed facilities – the Paint Storage Building (54905) and the Pressure Proof Test Cell (60425) – fall outside of the district’s discontinuous boundary and are recommended not individually eligible and non-contributing.

The newly-identified NASA-owned CCAFS Industrial Area Historic District is immediately adjacent to the previously-identified SRB Disassembly and Refurbishment Complex (commonly called the Hangar AF Complex), a NRHP-eligible historic district that contains nine contributing facilities. It is recommended that the boundary of the NASA-owned CCAFS Industrial Area historic district also include the Hangar AF Complex and all nine of its contributing resources. This brings the total resource count in the discontinuous boundary of the NASA-owned CCAFS Industrial Area Historic District to 19 facilities, including 16 contributing resources and three non-contributing resources.

The NASA-owned CCAFS Industrial Area Historic District is recommended eligible as a historic district at the national level of significance under Criterion A in the area of Space Exploration for its association with significant events in the history of NASA's manned and unmanned space programs. The district contains facilities that are associated with several significant NASA programs, including the unmanned Expendable Launch Vehicle (ELV) Program (1960-present), Project Mercury (1959-1963), the Apollo Program (1963-1972), and the Space Shuttle Program (1969-2011). Additionally, two of the district's contributing resources – Hangar S and the Missile Assembly Building AE – are recommended individually eligible to the NRHP and are evaluated in more detail below.

The NASA-owned CCAFS Industrial Area Historic District is also recommended eligible under Criterion C in the area of Architecture as a unified group of facilities that share distinctive architectural characteristics. The district contains a concentration of NASA-owned buildings, which share standardized architectural design, color, and function. The district's identity is further expressed by the close proximity and interrelationship of its buildings, which conveys the overall historic environment and functionality of the district.

The evaluation guidance provided by the *Man in Space National Historic Landmark Theme Study* (Butowsky 1984; see end of Chapter III - Methods) further categorizes the district's significance under Themes B (The Effort to Land a Man on the Moon), C (The Exploration of Planets and the Solar System), and D (The Role of Scientific and Communications Satellites). Theme B is represented by Hangar S and its association with Project Mercury, which was the first programmatic step toward landing a man on the Moon with the Apollo Program. Theme C is represented by the unmanned launch operations of Missile Assembly Building AE. Theme D is represented by the Solar Array Test Facility and the unmanned launch operations and satellite payload checkout facilities in Missile Assembly Building AE.

The NASA-owned CCAFS Industrial Area Historic District retains all seven aspects of integrity, including location, setting, materials, design, workmanship, feeling, and association. Individual buildings in the area have been modified through the years, especially the interior spaces and the area as a whole retains its original appearance with few modern intrusions. The district retains its original *location* on Hangar Road in the CCAFS Industrial Area. The district's *setting*, or physical environment, remains intact and illustrates the surrounding character of the CCAFS Industrial Area. The district retains much of its

original *design*, including elements that constitute its overall military industrial form, plan, and style. The original concrete block and metal frame *materials* that make up the buildings in the district are intact. The standardized military *workmanship* that defines the overall CCAFS Industrial Area is intact and reflected by the district. The district retains its integrity of *feeling*, or its ability to evoke the sense of its historic past and period of significance. The combined integrity of the above characteristics conveys the district's integrity of *association*, or a direct link between the district and events associated with the significant NASA programs.

The district has a discontinuous boundary as a result of this project's scope of work being limited to surveying only those facilities in the CCAFS Industrial Area that are owned by NASA, which are interspersed with those owned by the Air Force. In many cases, ownership of buildings in the area has switched from NASA to the Air Force since the 1960s, such as with Hangars AO, AM, R, D, H, and E. The history, use, and significance of these buildings in NASA's space programs are currently unclear since they are owned by the Air Force and were not surveyed. In the event that the Air Force conducts a historic resources survey of its buildings in the CCAFS Industrial Area, those buildings will need to be evaluated for NRHP eligibility both individually and as part of a district at that time.

NASA also owns several other small infrastructure support structures and buildings at CCAFS, such as fuel and generator shelters, storage buildings, and equipment pads. A reconnaissance survey was conducted of these resources, because they have not reached 50 years of age. They are all standard support structures or buildings, which are not unique in function and are ubiquitous on KSC and CCAFS. These facilities are listed in the following table, and photos of most of these can be found in Appendix E:

Table 2. NASA-owned Support Structures at CCAFS

Facility Number	Facility Name	Facility Type	Year Built
49637	Vehicle Shelter	Shelter	1992
54945	Hazardous Waste Staging Shelter	Shelter	1986
60541	Electrical Storage Building	Shelter	1977
60628	POL	Shelter	2009
60630	POL Facility, Hangar AF	Shelter	1983
60631	Blast Wall	Wall	1989
60640	Payload Container and GSE Storage Building	Shelter	1985
60674	Backup Generators	Generator	2011
60675	Diesel Fuel Tank	Fuel Tank	2011
60677	Antenna Structure	Antenna	2006

Table 2. NASA-owned Support Structures at CCAFS (continued)

Facility Number	Facility Name	Facility Type	Year Built
60678	Antenna Structure	Antenna	2006
60679	Antenna Structure	Antenna	2006
60683	Equipment Pad	Pad	1968
60686	Antenna	Antenna	2002
60687	Storage Building	Shelter	1994
60690-1	Tank, Boiler	Tank	1980
66216	Propane Tank	Tank	1998
66232	Range Contractor Shop	Shop	1986
66237	Hazardous Waste Staging Shelter	Shelter	1984
66238	Hazardous Waste Staging Shelter	Shelter	1984
66241	Deionized Water Tank	Tank	1979
66257	Boiler Building	Building	1966
66257A	Fuel Tank	Tank	1968
66259	Equipment Building	Building	1994
66266	Drum Storage Building	Building	1994
66267	Tank Farm Area	Storage Area	1994
66297	X-Band Radar Pad	Pad	2007
66310-1	Tank, Waste Detergent	Tank	1984
66310-2	Tank, Waste Alodine	Tank	1984
66311	Substation	Substation	1984

FACILITY DESCRIPTIONS AND NRHP ELIGIBILITY DETERMINATIONS

The following descriptions and evaluations of the 12 NASA-owned facilities in the CCAFS Industrial Area are organized by their location from north to south. The nine facilities of the previously-identified Hangar AF Complex have already been determined NRHP-eligible by NASA and documented according to HAER Level II recordation standards, so their descriptions and evaluations in this section are brief.

HANGAR N (1728)

Description

Built by the Air Force in 1958, Hangar N is located on the northeast side of the CCAFS Industrial Area on Hangar Road (Figure 18A). It features the standardized gabled steel truss hangar design shared by the other hangars in the area with a central high-bay area flanked by two-story wings on its north and south sides that contain offices and small work areas. The hangar has a steel truss structural system with concrete block interior walls, a concrete foundation, and a rectangular footprint that contains 43,062 square feet (NASA 1978). The upper level of the high bay exterior has a slightly pitched, built-up roof and corrugated metal exterior, and bands of frosted clerestory windows on the north and south elevations. The east and west elevations of the high bay have full-length retractable doors for moving large rocket parts in and out. The two-story wings on either side of the high bay have concrete block exteriors with one-over-one metal frame windows throughout (Figure 21).

History and Use

Hangar N was originally built by the Air Force as a missile assembly building for the Atlas and Titan Programs (Atlantic Missile Range Office 1962:II-25). In 1985 it was transferred to NASA and modified to house the SSP's SRB post-flight assessment and NDE unit. The NDE unit used radiography, ultra sonic, backscatter, and magnetic particle testing to detect damage in SRB aft skirts and associated flight hardware. These SRB components were brought in for testing every 2-3 flights. The office areas in the north and south wings of the hangar housed NDE-associated laboratories and contracting firm offices (March 2013; Bell 2013).

Evaluation

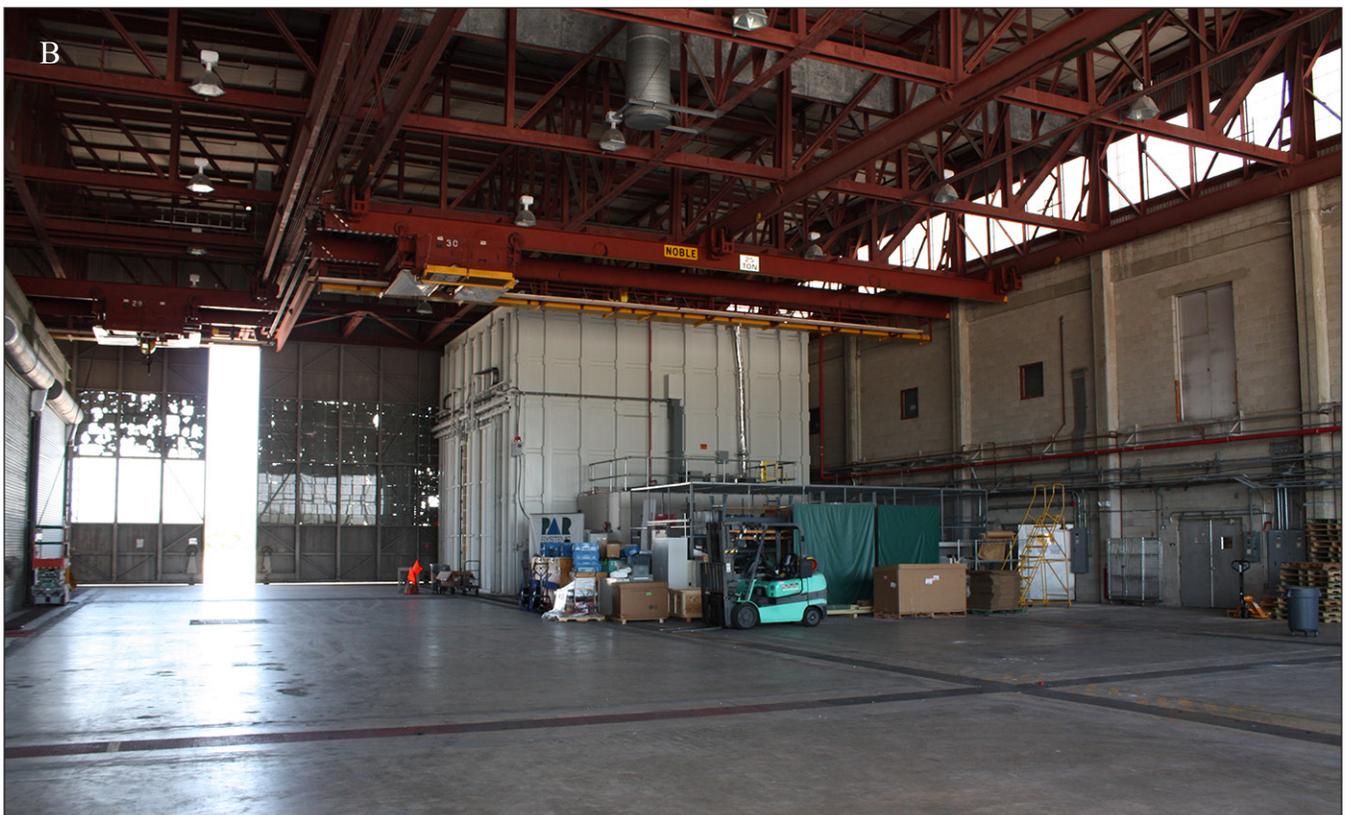
Hangar N is recommended eligible as a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The building contributes under Criterion A as a vehicle processing facility associated with the NDE testing of SRB components during the SSP era. It also contributes under Criterion C as a representative example of CCAFS hangar architecture.

Hangar N retains all seven aspects of integrity, including its original *location* on Hangar Road in the CCAFS Industrial Area. The building's *setting*, or physical environment, remains intact and illustrates the surrounding military industrial character of the CCAFS Industrial Area. The building retains its original *design*, including elements that constitute its overall hangar form, plan, and style. The original concrete block and steel frame *materials* that make up the building are intact. The standardized military *workmanship* that defines the building is intact. The building retains its integrity of *feeling* or its ability to evoke the sense of its historic past and period of significance. All of the above characteristics convey the building's integrity of *association* or a direct link between the building and the events associated with its historic context.

Figure 21. Views of Hangar N (1728)

A. Hangar N and the Little N Storage Building, Exterior Oblique, View Northwest.

B. Interior of Hangar N Showing NDE X-Ray Test Chamber, View North.



LITTLE N STORAGE BUILDING (54928)

Description

The 1958 Little N Storage Building is located on the northeast side of Hangar N (Figure 18A). It is a one-story hangar-type building with a built-up roof, concrete block construction, and a concrete foundation. It contains approximately 3,000 square feet. There is a sliding bay door on the southeast elevation and there are clerestory awning windows on the northeast and southwest elevations (Figure 22).

History and Use

The Little N Storage Building was originally an auxiliary storage facility for the adjacent Hangar N, which supported the Air Force's Atlas and Titan missile testing program. Transferred to NASA in 1985, the building supported the SRB post-flight assessment unit and the disassembly and refurbishment activities of Hangar AF. The building's single interior bay was used for the storage of small SRB parts.

Evaluation

The Little N Storage Building is recommended as a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. It contributes to the district under Criterion A for its association with the SRB post-flight assessment unit and NDE testing of the SSP. It contributes to the district under Criterion C as a representative example of CCAFS hangar/storage building architecture.

The Little N Storage Building retains all seven aspects of integrity, including its original *location* on Hangar Road in the CCAFS Industrial Area. The building's *setting*, or physical environment, remains intact and illustrates the surrounding military industrial character of the CCAFS Industrial Area. The building retains its original *design*, including elements that constitute its overall hangar storage building form, plan, and style. The original concrete block and steel frame *materials* that make up the building are intact. The standardized military *workmanship* that defines the building is intact. The building retains its integrity of *feeling* or its ability to evoke the sense of its historic past and period of significance. All of the above characteristics convey the building's integrity of *association* or a direct link between the building and the events associated with its historic context.

Figure 22. Views of Little N Storage Building (54928)

A. Exterior Oblique, View Northwest

B. Interior, View Northwest



PAINT STORAGE BUILDING (54905)

Description

The 1958 Paint Storage Building is located off of Hangar Road just south of the Environmental & Analysis (E&A) Building on CCAFS (Figure 2). It is a one-story concrete block utility building with a new metal shed roof, concrete foundation, and an irregular footprint that contains 778 square feet of paint storage space (NASA 1982). It has three pedestrian entrances on the southwest elevation and two more on the southeast elevation. There are two six-light metal windows on the northeast elevation. The interior rooms contain metal storage racks surrounding open storage areas (Figure 23).

History and Use

Transferred to NASA from the Air Force in 1982, the building was used for the storage of paint used in the maintenance of NASA buildings at CCAFS. It has always been used to store paint.

Evaluation

The Paint Storage Building does not meet NRHP eligibility criteria for individual eligibility nor as a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The building is recommended not eligible under NRHP Criterion A, because it is not directly associated with activities of significance that were associated with the development, component testing, or implementation of NASA programs or missions. The building is recommended not eligible under NRHP Criterion B, because it is not a building where persons who made lasting achievements to these programs worked or convened. The building is recommended not eligible under Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction.

Figure 23. Views of the Paint Storage Building (54905)

A. Exterior View Northwest

B. Interior View Northwest



PRESSURE PROOF TEST CELL (60425)

Description

The 1958 Pressure Proof Test Cell is located just north of Hangar M (Figure 18B). It is a one-story reinforced concrete building with a flat built-up roof, concrete foundation, and rectangular footprint that contains 1,122 square feet (NASA 1965a). The building contains three rooms, including what was originally the materials processing room, a control room, and the pressure proof test cell room. There are single and double pedestrian entrances on the east elevation. There is a carport that was added in 1971 on the northeast elevation of the building with a corrugated metal roof and metal support posts (Figure 24).

History and Use

The building was original associated with Delta rocket operations of the adjacent Hangar M. It was acquired by NASA from the Air Force in 1965. Most recently, the building was used as a staff building for the KSC maintenance crew stationed on CCAFS.

Evaluation

The Pressure Proof Test Cell is recommended not eligible for individual listing to the NRHP nor as a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The building is recommended not eligible under NRHP Criterion A, because it is not directly associated with activities of significance that were associated with the development, component testing, or implementation of NASA programs or missions. The building is recommended not eligible under NRHP Criterion B, because it is not a building where persons who made lasting achievements to these programs worked or convened. The building is recommended not eligible under Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction.

Figure 24. Views of the Pressure Proof Test Cell (60425)

A. Exterior View Northwest

B. Interior View Northwest



HANGAR M ANNEX (55005)

Description

The 1963 Hangar M Annex is located on Hangar Road just southeast of Hangar M (Figure 18B). It is a two-story concrete block building with a flat built-up roof, concrete foundation, and a rectangular footprint that contains 20,510 square feet (NASA 1965b). The building's design is derived from the International style of Modern architecture that was common in 1950s- and 1960s-era institutional and military architecture. The southeast (front) elevation features an offset recessed entrance bay and glass-block ribbon windows on the northwest and southwest elevations of the first and second floors (Figure 25).

History and Use

Hangar M Annex was built as a support building for the adjacent Hangar M, which was a missile assembly building associated with the Air Force's Thor Missile Program. Hangar M Annex was transferred to NASA in 1966, but Hangar M remained under Air Force management. During the SSP era, the Hangar M Annex housed KSC's SRB program management offices, the SRB Materials & Processes (M&P) Laboratory, and a Lithium Hydroxide (LiOH) Laboratory. The M&P Lab conducted materials testing and analysis of SRB parts, including Thermal Protection System materials, electromagnetic discharge testing, thermal testing, and microscope analysis. The LiOH Laboratory processed LiOH canisters used on the Space Shuttle and ISS.

Evaluation

Hangar M Annex is recommended as a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. It contributes to the district under Criterion A for its association with NASA's SRB management and materials testing laboratories. It contributes to the district under Criterion C as a representative example of International-style military architecture at CCAFS.

Hangar M Annex retains all seven aspects of integrity, including its original *location* on Hangar Road in the CCAFS Industrial Area. The building's *setting*, or physical environment, remains intact and illustrates the surrounding military industrial character of the CCAFS Industrial Area. The building retains its original *design*, including elements that constitute its overall form, plan, and style as an administrative support building. The original concrete block and steel frame *materials* that make up the building are intact. The standardized military *workmanship* that defines the building is intact. The building retains its integrity of *feeling* or its ability to evoke the sense of its historic past and period of significance. All of the above characteristics convey the building's integrity of *association* or a direct link between the building and the events associated with its historic context.

Figure 25. Views of Hangar M Annex (55005)

A. Exterior Oblique, View Southwest

B. Interior Laboratory, View Southeast



SOLAR ARRAY TEST BUILDING (60540)

Description

The 1966 Solar Array Test Building is located off of Hangar Road at CCAFS, behind Hangar AM (Figure 18B). It is a one-story concrete block building with a flat built-up roof, concrete foundation, and a rectangular footprint that contains 1,186 square feet (NASA 1966). The building has a unique retractable roof (no longer functioning) designed to slide off the main portion of the building onto a reinforced concrete support frame on the building's northeast elevation. The interior contains the original test area, control room, and mechanical room. There are three entrances on the east elevation, including a single pedestrian entrance, a double pedestrian entrance, and a pair of large bay doors that permitted the entrance of large spacecraft. The building has been used for storage for an unknown length of time (Figure 26).

History and Use

The Solar Array Test Building was built by NASA to house the checkout of solar panels on satellites such as the Interplanetary Monitoring Platforms and Surveyors. The building was designed with a retractable roof over the test area so solar panels on unmanned spacecraft could be exposed to the sun for calibrating their voltage output (NASA 1966:4). No records could be located to indicate how long the building was used for its original purpose and when it became an auxiliary storage building.

Evaluation

The Solar Array Test Building is recommended as a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The building supports Hangars AE, AM, and AP for its association with unmanned spacecraft testing and checkout under Criterion A. The building also contributes under Criterion C as a representative example of the utilitarian industrial architecture that defines the CCAFS Industrial Area.

The Solar Array Test Building retains all seven aspects of integrity, including its original *location* on Hangar Road in the CCAFS Industrial Area. The building's setting, or physical environment, remains intact and illustrates the surrounding military industrial character of the CCAFS Industrial Area. The building retains its original design, including its original retractable roof and other elements that constitute its overall form, plan, and style. The original concrete block and steel frame materials that make up the building are intact. The standardized military workmanship that defines the building is intact. The building retains its integrity of *feeling* or its ability to evoke the sense of its historic past and period of significance. All of the above characteristics convey the building's integrity of *association* or a direct link between the building and the events associated with its historic context.



Figure 26.
Views of the Solar Array
Test Building (60540)

- A. Exterior Oblique, View Northwest
- B. Interior Storage Area, View Northwest

MISSILE ASSEMBLY BUILDING AE (60680)

Description

The 1959 Missile Assembly Building AE is located on Hangar Road in the CCAFS Industrial Area, between Hangar S and Hangar AM (Figure 18). The one-story building has a corrugated aluminum gable roof, concrete foundation, corrugated aluminum exterior walls, and a 3,600-square-foot high bay on the northwest end. The building has a rectangular footprint with three projecting shed-roof additions on the northeast elevation, and a gable-roof addition next to the entrance on the southeast (front) elevation. Two timber antenna towers on its north and south sides that were removed circa 1990 originally flanked the building (Figure 27).

The original 1959 hangar was expanded in 1961 with an addition that included the high bay on its northwest end. The original sliding hangar doors on the southeast elevation were replaced with a one-story gable-roof addition in 1963. By 1964, the original hangar was transformed into its current appearance, along with the two timber towers that are no longer standing. The high bay checkout area was substantially modified in 1965 to accommodate the Orbital Astronomical Observatory spacecraft. The modifications consisted of construction of an airlock on the exterior vertical lift door, provisions for Class 10 cleanliness standards, and installation of a monorail and hoist with a 40-foot hook height.

The building's interior was altered a number of times throughout its history as new telemetry equipment was developed and installed. Recent interior changes in the last decade include the addition of a second floor office area within the original roofline, a remodeled entrance lobby, and the construction of the Launch Vehicle Data Center, which monitors all telemetry data during a launch vehicle flight. The high bay on the northwest end of the building is a Class 10 clean room that was used for expendable spacecraft vehicle and payload checkout until circa 1995. At that time, these functions passed to private contractors. Other major interior areas include the Mission Director Center, telemetry room, network monitoring, and offices.

History and Use

The Missile Assembly Building AE was originally built by the Air Force in 1959 and was first used by NASA in 1961 as a payload checkout facility for launches by NASA's Jet Propulsion Laboratory, the Delta Payload Project, and Goddard Space Center (NASA 1961b). The building was transferred to NASA in 1964 and since that time has been the telemetry and communications site for all of KSC's ELV Programs.

In this building, NASA launch managers and their commercial customers monitor real-time voice, data, and video telemetry information during unmanned spacecraft launches. According to NASA, the building control rooms "give managers and engineers the ability to detect or investigate any problems – with

weather, the vehicle, the payload or the pad – that may develop during operations” (NASA 2006:n.p.). The facility does not house launch control capabilities, which are conducted in buildings at the actual launch pads at CCAFS. Once the rocket launches, this building is the flight nerve center (NASA 2006:n.p.). The high bay checkout area was deactivated circa 1995, and the building continues to act as NASA’s Expendable Vehicle Telemetry Center.

Evaluation

The Missile Assembly Building AE is recommended as a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. It was also determined individually eligible to the NRHP during the 45-50 Year Historic Survey performed by New South under Criterion A in the area of Space Exploration as a communications facility associated with payload processing. The building is individually eligible under Criterion A for its significant association with KSC’s ELV Programs during its period of significance from 1961 to the present. It reflects the important events associated with the ELV Programs and is distinguished as a place where significant program-level events occurred regarding the origins and operation of the ELV Programs. The building was an essential component to the processing of ELV payloads from 1961 to circa 1995, when KSC ceased using the high bay as a payload checkout facility. Finally, the building is an essential communications facility in support of the ELV Programs at KSC as a site for instrumentation to receive, monitor, process, display, and/or record information from ELVs during launch and flight.

According to the *Man in Space National Historic Landmark Theme Study*, the Missile Assembly Building AE is significant under Themes C and D for its role in the “Exploration of Planets and the Solar System” and “The Role of Scientific and Communications Satellites.”

The Missile Assembly Building AE retains all seven aspects of integrity, including its original *location* on Hangar Road in the CCAFS Industrial Area. The building’s *setting*, or physical environment, remains intact and illustrates the surrounding military industrial character of the CCAFS Industrial Area. The building retains its original *design*, including elements that constitute its overall hangar form, plan, and style. The building’s interior floor plan underwent modifications as telemetry computing equipment and ELV Programs’ need changed. It maintains a continuity of use from 1961 to the present and the exterior has remained largely unchanged since 1964. The original concrete block and steel frame *materials* that make up the building are intact. The standardized military *workmanship* that defines the building is intact. The building retains its integrity of *feeling* or its ability to evoke the sense of its historic past and period of significance. All of the above characteristics convey the building’s integrity of *association* or a direct link between the building and the events associated with its historic context. The building retains all seven aspects of integrity, including location, design, setting, materials, workmanship, feeling, and association.



Figure 27.
Views of Missile Assembly
Building AE (60680)

A. Exterior Oblique, View West

B. High Bay Interior, View North

C. 1961 View of Original Missile Assembly Building AE Before Additions (Source: KSC Library Archives, Photograph PL-61-90012).

D. 1964 View of Missile Assembly Building AE After Additions and Antenna Platform Construction (Source: KSC Library Archives, Image KSC-64-10286).



HANGAR S (1726)

Description

The 1957 Hangar S is located in the CCAFS Industrial Area on Hangar Road, between Hangar AF and Hangar AE (Figure 18B). It features the standardized gabled steel truss hangar design shared by the other hangars in the area with a central high-bay flanked by two-story concrete block wings on its north and south sides that contain former offices and work areas. The hangar has a steel and concrete block structural system, a concrete foundation, and a rectangular footprint that contains 41,666 square feet (NASA 1964a). The upper level of the high bay exterior has a slightly pitched, built-up roof and corrugated metal exterior. The original bands of frosted clerestory windows on the north and south elevations are now enclosed with corrugated metal. The east and west elevations of the high bay have full-length retractable doors. The two-story wings on either side of the high bay have concrete block exteriors with one-over-one metal frame windows throughout (Figure 28).

In 1965, the interior of the Hangar S was modified for the SSP with the construction of the spacecraft test area, an enclosed payload processing and staff training area that contains two clean rooms with an airlock in between them, technician clothes changing rooms, and systems test areas. This interior enclosure occupies approximately half of the floor space in the high bay. There are walkways around the entire enclosure and it is structurally independent from the original surrounding hangar. Today, the remaining floor space of the high bay contains a fenced area previously used as a logistics area (NASA 1975:12). Markings on the main floor show where temporary office spaces were partitioned or were installed as part of the 1965 modifications.

History and Use

Built in 1957 by the U.S. Air Force, Hangar S first housed operations of Project Vanguard, conducted by the U.S. Naval Research Laboratory to launch an Earth orbiting satellite. In 1959, NASA's Pre-Flight Operations Division moved into Hangar S, where the Mercury spacecraft capsules were received, tested, and prepared for flight. The hangar contained personnel offices for NASA and McDonnell Aircraft Corporation, which designed and built the capsules.

The hangar also housed the Mercury Seven astronauts' pre-flight training and preparation, including extensive capsule simulator training, flight pressure suit tests, flight plan development, and communications training. The Mercury astronaut crew quarters were located on the second floor of the hangar's south wing, where the astronauts slept, ate, suited-up, and underwent medical examinations in the days and weeks before flight. On launch days, astronauts were transferred in medical vans from Hangar S to Launch Complexes 5/6 or 14 for launch. Hangar S is directly associated with events that led to the first U.S. manned sub-orbital space flight of Alan B. Shepard in 1961 and the orbital flight of John Glenn in 1962. The ownership of Hangar S was officially transferred from the Air Force to NASA in 1964 (NASA 1964a).

Additionally, the Hangar S site was home to NASA's Primate Training Area, which housed a group of experimental chimpanzees, including Ham, the first chimpanzee launched into space. Ham's suborbital flight atop a Mercury-Redstone rocket preceded that of America's first man in space, astronaut Alan B. Shepard.

Until 2011, the hangar had annex additions on its north and south sides that contained laboratories and offices. The north annex was built in 1963 and was soon followed by the south annex. The north annex was used for space-related studies in the 1960s, including experimental primate research. The Air Force Chemistry Laboratory moved into the north annex in 1971 and then vacated it in 1994 after moving into a new facility. The south annex was reportedly used by the McDonnell-Douglas Corporation for parts fabrication and tube bending during the manned spaceflight programs of the 1960s. The south annex also housed the Self-Contained Atmospheric Protective Ensemble (SCAPE) Suit Maintenance Facility until 1968, when those activities shifted to the Emergency Breathing Equipment Maintenance Building (66220) behind Hangar S (Johnson Controls World Services 1995:5-6). The north and south annexes were demolished in 2011 (NASA 1964a).

The interior of the hangar's high bay was modified in 1965 with the construction of the payload processing area. A 1982 facility handbook states that the payload processing area's south clean room was used during the Space Shuttle era to process small orbiter payloads and the north clean room was dedicated to processing the orbiter experiments. Much of the operation area in the hangar was used at this time to process the SRB recovery equipment and the office areas were dedicated to base support and SRB contractor personnel (NASA 1982:2-1).

Evaluation

Hangar S is recommended as a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District under Criterion C as a good example of the hangar architecture that defines the district's character. It is also recommended individually eligible to the NRHP at the national level of significance under Criterion A in the area of Space Exploration for its role as the home of NASA's Pre-Flight Operations Division of Project Mercury (1959-1963) at CCAFS.

Hangar S is eligible to the NRHP under Criterion B for its association with the training activities of the original Mercury Seven astronauts, including Alan B. Shepard, Virgil "Gus" Grissom, John Glenn, Scott Carpenter, Walter "Wally" Schirra, Gordon "Gordo" Cooper, and Donald K. "Deke" Slayton.

According to guidance in the *Man in Space National Historic Landmark Theme Study*, Hangar S is significant under Theme B for its association with Project Mercury, the first programmatic step toward landing a man on the Moon with the Apollo Program.

Hangar S retains sufficient physical integrity to convey its historic significance under Criteria A, B, and C despite modifications made to the building after Project Mercury. The building retains its original *location* on Hangar Road in the CCAFS Industrial Area. The hangar's *setting*, or physical environment, remains intact and illustrates the surrounding military industrial character of the CCAFS Industrial Area. Hangar S retains much of its original *design*, including elements that constitute its overall hangar form,



Figure 28.
Views of Hangar S (1726)

A. Exterior Elevation, View Northwest

B. Exterior Oblique, View West

C. Interior View of the High Bay Looking
Toward Payload Processing Area, View West





D. Interior View of the High Bay, View South

E. Interior View of the South Clean Room Looking Toward Air Lock and North Clean Room, View Northeast

F. Second Floor Corridor Leading to Former Astronaut Quarters, View Northwest

G. View of a Room in the Former Astronaut Quarters Area, View Southeast

plan, structural system, and style. While the building has changed through time with interior alterations to the astronaut quarters and high bay, these changes do not constitute a total loss of design integrity. The original concrete block and steel frame *materials* that make up the bulk of the hangar are intact. The standardized hangar *workmanship* that defines the hangar and many other hangars in the CCAFS Industrial Area is intact. The historic *feeling* of Hangar S is intact and continues to evoke the historic sense of the Project Mercury era. The combined integrity of the above characteristics conveys the hangar's integrity of *association*, or a direct link between the hangar and the events of Project Mercury and the Mercury Seven astronauts for which the property is significant.

PAINT STORAGE BUILDING (66200)

Description

The 1957 Paint Storage Building is located between Hangar S and Hangar AF on the north side of Hangar Road in the CCAFS Industrial Area (Figure 18B). It is a one-story concrete block building with a metal hipped roof, concrete foundation, and a rectangular footprint that contains approximately 100 square feet of storage space. It has a single metal entrance on the north elevation and no windows (Figure 29).

History and Use

The Paint Storage Building was originally built by the Air Force for the storage of paint, oil, and chemicals at Hangar S. The building was transferred to NASA in 1964 at the same time as Hangar S. The building was used to store the chemical butyl that was used in the Air Force Chemistry Laboratory housed in the adjacent Hangar S after 1971 (Johnson Controls World Services 1995).

Evaluation

The Paint Storage Building is recommended not eligible for individual listing on the NRHP but as a non-contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The building is one of many paint and oil storage facilities throughout CCAFS and KSC and is not unique in its design or function. The building is recommended not eligible under NRHP Criterion A, because it is not directly associated with activities of significance that were associated with the development, component testing, or implementation of NASA programs or missions. The building is recommended not eligible under NRHP Criterion B, because it is not a building where persons who made lasting achievements to these programs worked or convened. The building is recommended not eligible under Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction.

Figure 29.
View of the Paint Storage Building (66200)

(no interior photo available)



EMERGENCY BREATHING EQUIPMENT MAINTENANCE BUILDING (66220)

Description

The Emergency Breathing Equipment Maintenance Building is located immediately west of Hangar S (Figure 18B). Originally built by the Air Force in 1960, the building has been heavily altered and expanded over the years. It is one story in height with a reinforced concrete slab foundation, concrete block walls, and a combination of non-original roof types on its various sections. The irregular floor plan encloses 8,111 square feet (NASA 1964b). The building has a main central section with a gable roof that is flanked on the northeast and southwest sides by smaller wings with combination hip and shed roofs. These wings were originally flat-roofed work bays that were enclosed and enlarged after NASA acquired the building in 1964. There are a variety of single and double pedestrian entrances on the building, and one-over-one metal windows throughout (Figure 30).

In 1988, the Institutional Storage Facility (66221) was added to the south side of the Emergency Breathing Equipment Maintenance Building and is connected to it by a breezeway. It was used to store life support equipment. For the purposes of this survey, the Institutional Storage Facility is treated as a non-historic addition to the Emergency Breathing Equipment Maintenance Building and not as a separate facility.

History and Use

The two-block-shaped portions on the ends of the building were originally built as oxygen and water servicing areas that supported operations in Hangar S. Additional support service additions and partitions were added to these buildings and their original roll-up bay doors were enclosed with concrete block and pedestrian entrances. In 1969, the building was renamed as the SCAPE Suit Maintenance Building by NASA. SCAPE suits are protective airtight suits that provide NASA technicians with chemical, bacteriological, and radiation protection during the handling of volatile fuels and other materials. In 1993, the building's name was again changed to the Emergency Breathing Equipment Maintenance Building (NASA 1964b). At that time, it contained workshops, bench testing areas, filling areas, and offices associated with the maintenance and repair of Emergency Life Support Apparatus and other equipment used in the adjacent Hangar S building.

Evaluation

The Emergency Breathing Equipment Maintenance Building is recommended not eligible for individual listing on the NRHP but as a non-contributing building to the newly-identified NASA-owned CCAFS Industrial Area Historic District. As a support building that housed the maintenance of SCAPE suits, the

building is recommended not eligible under NRHP Criterion A, because it is not directly associated with activities of significance that were associated with the development, component testing, or implementation of NASA programs or missions. The building is recommended not eligible under NRHP Criterion B, because it is not a building where persons who made lasting achievements to these programs worked or convened. A concrete block building that has been altered several times, the building does not retain its original integrity and is recommended not eligible under NRHP Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction.

The Emergency Breathing Equipment Building was surveyed as one of four “fast-track” buildings scheduled to be demolished by KSC. In a letter dated July 17, 2012, the Florida SHPO concurred with the above recommendation that it is not individually eligible to the NRHP.

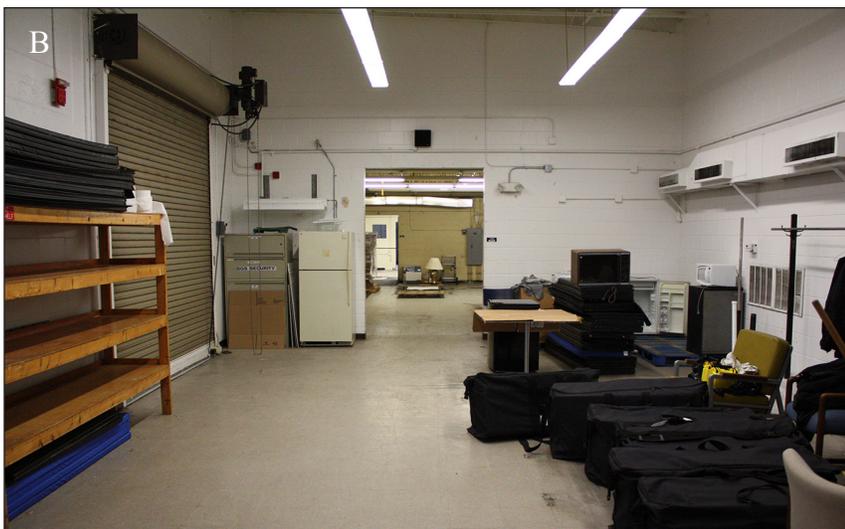


Figure 30.
Views of the Emergency
Breathing Equipment Building
(66220)

- A. Exterior Elevation, View Northwest
- B. Interior Storage Area, View Southwest

ENGINEERING AND OPERATIONS (E&O) BUILDING (60650)

Description

The 1961 E&O Building is located on Hangar Road adjacent to Missile Assembly Building AE (Figure 18B). It is a two-story concrete block building with a flat built-up roof, concrete foundation, and a rectangular footprint that contains 36,488 square feet (NASA 1963a). With a similar International-style design to the Hangar M Annex to the north, the building is an unadorned office building with an offset recessed entrance bay on the southeast (front) elevation and glass-block ribbon windows on the northwest and southwest elevations. The main entrance leads into a small lobby area and the remainder of the interior contains office areas (Figure 31).

History and Use

The E&O Building was originally built by the Air Force and transferred to NASA in 1963. It is an administrative office building that accommodated approximately 200 personnel, including project managers and other technical staff associated with the Pre-flight Operations Division of Project Mercury in the adjacent Hangar S. Following the end of Project Mercury, the building provided office space for project managers and engineers associated with the Centaur, Delta, and other ELV Programs (NASA 1961b:3).

Evaluation

The E&O Building is recommended as a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The building contributes to the district under NRHP Criterion A, because of its association with the project management and engineering of Project Mercury in Hangar S and with the ELV Programs in Missile Assembly Building AE. The building also contributes to the district under Criterion C as a representative example of International-style military architecture at CCAFS.

The E&O building retains all seven aspects of integrity, including its original *location* on Hangar Road in the CCAFS Industrial Area. The building's *setting*, or physical environment, remains intact and illustrates the surrounding military industrial character of the CCAFS Industrial Area. The building retains its original *design*, including elements that constitute its overall form, plan, and style as an administrative support building. The original concrete block and other *materials* that make up the building are intact. The standardized military *workmanship* that defines the building is intact. The building retains its integrity of *feeling* or its ability to evoke the sense of its historic past and period of significance. All of the above characteristics convey the building's integrity of *association* or a direct link between the building and the events associated with its historic context.

Figure 31. Views of the E&O Building (60650)

A. Exterior Oblique, View Southwest

B. Interior Office Cubicle Area, View Northeast



WAREHOUSE (66330)

Description

The 1963 Warehouse, also known as the “Apollo Warehouse,” is located adjacent to the Hangar AF Multi-Media Blast Facility (Figure 18B). It is a one-story warehouse with a corrugated metal gable roof and corrugated metal exterior. It has a concrete foundation, a steel structural system, and a rectangular footprint that contains 25,366 square feet. There are single pedestrian entrances throughout the exterior of the building in addition to large bay doors for the movement of large items into and out of the warehouse. The original horizontal sliding steel bay doors were replaced in 2010 with roll-up doors, and the exterior of the building was completely refurbished with new corrugated metal in 2011 (NASA 1963b) (Figure 32).

History and Use

The Warehouse was built as a general storage warehouse and machine shop area. It gained the nickname “Apollo Warehouse,” but no documentation was found for this report to describe the precise relationship that it had to the Apollo Program. The building continues to be used by NASA for general storage and machine shops.

Evaluation

The Warehouse is recommended not eligible for listing on the NRHP but as a non-contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District. As a warehouse and storage building, it is recommended not eligible under NRHP Criterion A, because it is not directly associated with activities of significance that were associated with the development, component testing, or implementation of NASA programs or missions. The building is recommended not eligible under NRHP Criterion B, because it is not a building where persons who made lasting achievements to these programs worked or convened. A corrugated metal building, which has been completely renovated on the exterior, it does not retain its original integrity and is recommended not eligible under NRHP Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction.

Figure 32. Views of the Apollo Warehouse (66330)

A. Exterior Oblique, View Southwest

B. Interior Storage Area, View Southeast



HANGAR AF COMPLEX

The Hangar AF Complex is located south of Hangar S (Figure 18B). It contains nine contributing resources that processed the SRBs during post-launch recovery, disassembly, cleaning, and refurbishment. It played an essential role in the re-usability of the SRBs, which provided most of the thrust used to launch the Space Shuttle. NASA determined the Complex is eligible to the NRHP in the context of the SSP (1969-2011) under Criterion A for Space Exploration in the NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report (Deming and Slovinac 2008). The Complex has achieved exceptional significance within the past 50 years, so Criteria Consideration G also applies. The Florida State Historic Preservation Office concurred with NASA's determinations on May 27, 2008. The Complex was recorded as HAER No. FI-8-11-S according to HAER Level II documentation standards in October 2011 (Figure 33).

While the Hangar AF Complex is a distinct district with its own unique history, it also shares a common history and location with the other historically significant NASA buildings in the area. It is recommended that the Hangar AF Complex is a contributing resource to the newly-identified NASA-owned CCAFS Industrial Area Historic District.



Figure 33.
Hangar AF Complex

- A. Hangar AF
- B. High Pressure Gas Facility
- C. High Pressure Wash Facility



- D. First Wash Building
- E. SRB Recovery Slip
- F. SRB Paint Facility

- G. Robot Wash Facility
- H. TVC Deservicing Building
- I. Multi-Media Blast Facility



HANGAR AF (66250)

Description

Built by NASA in 1962 to support the Saturn rocket and Apollo Program, Hangar AF features a standardized gabled steel truss design that is similar to the other hangars in the CCAFS Industrial Area (Figure 33A). The building has three primary sections, including the central hangar bay with an aluminum gable roof and two-story concrete block “lean-to” sections on the hangar’s north and south elevations. It has a rectangular footprint that contains 66,170 square feet and sliding hangar doors. The hangar bay contains the building’s open SRB disassembly area and the lean-to sections contain the small parts processing area, storage rooms, offices, and other support spaces.

History and Use

Hangar AF was first used to receive Saturn rocket components for assembly and checkout. The rocket parts were delivered to a concrete receiving dock that is still intact just south of the SRB Recovery Slip. During the SSP era, Hangar AF was the centerpiece of the larger Hangar AF Complex, the first place to which the SRBs were brought after their recovery from sea, and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for build-up and assembly.

Evaluation

Hangar AF is a contributing resource to the Hangar AF Complex Historic District and to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The Complex is considered eligible to the NRHP as a historic district in the context of the SSP (1969-2011) under Criterion A for Space Exploration. Hangar AF has achieved exceptional significance within the past 50 years, so Criteria Consideration G also applies. Hangar AF maintains a high level of physical integrity from its period of significance.

HIGH PRESSURE GAS FACILITY (66251)

Description

The 1962 High Pressure Gas Building is a one-story concrete block building with a shed roof, cast-in-place concrete foundation, and a square floor plan (Figure 33B). The shed roof extends out to create an eave overhanging the west-facing façade, but is flush with the other three exterior walls. There are four original side-by-side gaseous nitrogen holding tanks on the east side of the building, but they are no longer in use.

History and Use

The High Pressure Gas Building was originally built as a gas storage facility for the Hangar AF Complex. At a later unknown date, it was modified for storage use and for the media blasting of small SRB parts.

Evaluation

The High Pressure Gas Building is a contributing resource in the larger Hangar AF Complex Historic District and to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The complex is considered eligible to the NRHP as a historic district in the context of the SSP (1969-2011) under Criterion A for Space Exploration. The building maintains a high level of physical integrity from its period of significance.

HIGH PRESSURE WASH FACILITY (66240)

Description

The 1979 High Pressure Wash Facility is a one-story building of concrete block and precast concrete construction (Figure 33C). It has a rectangular floor plan with four side-by-side work bays. From north to south, the work bays include an equipment room, high-pressure wash room (with turntable in floor), mechanical build-up bay, and External Tank Attachment (ETA) ring build-up bay.

History and Use

The High Pressure Wash Facility housed the manual high-pressure wash system that removed Thermal Protection System (TPS) residue off the SRB segments. The SRB segments went to this building after they had first gone through the First Wash Building and then disassembled in Hangar AF.

Evaluation

The High Pressure Wash Facility is a contributing resource to the Hangar AF Complex Historic District and to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The Complex is considered eligible to the NRHP as a historic district in the context of the SSP (1969-2011) under Criterion A for Space Exploration. The building has achieved exceptional significance within the past 50 years, so Criteria Consideration G also applies. The building maintains a high level of physical integrity from its period of significance.

FIRST WASH BUILDING (66242)

Description

The 1979 First Wash Building is a one-story car wash-type building that was used to give the SRBs an initial water hydrolase wash before proceeding to other steps in the refurbishment process (Figure 33D). The building has a rectangular floor plan in three sections: a central closed pump/equipment room flanked by two open wash bays.

History and Use

From the SRB Recovery Slip, the SRBs were lifted out of the water onto a gantry crane, called the Shuttlelift, which placed them on specially designed rail cars. After placement the “safing” process was initiated, in which the ordinance ring and various other equipment was removed from the Aft Skirt. Then the SRBs were visually inspected before transporting the rail cars into the First Wash Building for hydrolase washing, which removes about 90 percent of the TPS.

Evaluation

The First Wash Building is a contributing resource to the Hangar AF Complex Historic District and to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The Complex is eligible to the NRHP as a historic district in the context of the SSP (1969-2011) under Criterion A for Space Exploration. The building has achieved exceptional significance within the past 50 years, so Criteria Consideration G also applies. The building maintains a high level of physical integrity from its period of significance.

SRB RECOVERY SLIP (66244)

Description

The 1978 SRB Recovery Slip is located on the edge of the Banana River on the far western edge of the Hangar AF Complex (Figure 33E). The T-shaped concrete slip has an opening 25 feet wide, 96 feet long, and 12 feet deep. It is located immediately north of Hangar AF’s original concrete pad, which was used to receive Saturn rocket components.

History and Use

The SRBs were recovered from sea and towed by the *Freedom Star* and *Liberty Star* ships to the Hangar AF Complex where they were floated, one at a time, into the SRB Recovery Slip. A mobile 200-ton

capacity gantry crane, called the Shuttlelift, then lifted the SRBs out of the slip and placed them onto rail cars, or dollies, which then moved them into the complex for disassembly and refurbishment.

Evaluation

The SRB Recovery Slip is a contributing resource to the Hangar AF Complex Historic District and to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The Complex is considered eligible to the NRHP as a historic district in the context of the SSP (1969-2011) under Criterion A for Space Exploration. The slip has achieved exceptional significance within the past 50 years, so Criteria Consideration G also applies. The slip maintains a high level of physical integrity from its period of significance.

SRB PAINT FACILITY (66310)

Description

The 1983 SRB Paint Facility is a one-story corrugated metal building with a lightly-pitched gable roof (Figure 33F). The main portion of the building has a rectangular footprint with a reinforced concrete foundation. Extending out from this main portion are additional rooms and equipment stacks, including a mechanical room, electrical room, and ventilation equipment. The interior contains staging areas and paint cells used for priming and painting SRB frustums, aft skirts, and forward skirts.

History and Use

The SRB Paint Facility was completed to house the application of alodine and paint primer to the SRB frustums, forward skirts, and aft skirts after they had been disassembled and stripped of all paint.

Evaluation

The SRB Paint Facility is a contributing resource to the Hangar AF Complex Historic District and to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The Complex is considered eligible to the NRHP as a historic district in the context of the SSP (1969-2011) under Criterion A for Space Exploration. The SRB Paint Facility has achieved exceptional significance within the past 50 years, so Criteria Consideration G also applies. The building maintains a high level of physical integrity from its period of significance.

ROBOT WASH FACILITY (66320)

Description

The 1985 Robot Wash Facility is a one-story concrete block building with a flat built-up metal roof, aluminum cornice, and a reinforced concrete foundation (Figure 33G). The main bay contains the robot wash machine and has a concrete block structural system. This bay is surrounded on the south and west sides by one-story wraparound portions with steel frame structural systems that are clad in aluminum.

History and Use

The Robot Wash Facility housed an automated high-pressure water system used to blast TPS coating materials off of SRB segments.

Evaluation

The Robot Wash Facility is a contributing resource to the larger Hangar AF Complex Historic District and to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The Complex is considered eligible to the NRHP as a historic district in the context of the SSP (1969-2011) under Criterion A for Space Exploration. The Robot Wash Facility has achieved exceptional significance within the past 50 years, so Criteria Consideration G also applies. The building maintains a high level of physical integrity from its period of significance.

TVC DESERVICING BUILDING (66249)

Description

The 1984 TVC Deservicing Building is a metal and concrete block building with a double-bay work area, storage/pump room, control area, and TVC processing area (Figure 33H).

History and Use

The TVC Deservicing Building housed equipment used to remove leftover fuel and TVC components from the SRB aft skirts after they were recovered and disassembled in the Hangar AF Complex.

Evaluation

The TVC Deservicing Building is a contributing resource to the larger Hangar AF Complex Historic District and to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The Complex is considered eligible to the NRHP as a historic district in the context of the SSP (1969-2011) under Criterion A for Space Exploration. The building has achieved exceptional significance within the past 50 years, so Criteria Consideration G also applies. The building maintains a high level of physical integrity from its period of significance.

MULTI-MEDIA BLAST FACILITY (66340)

Description

The 1991 Multi-Media Blast Facility is a one-story building composed of four block-shaped sections, including two blast bays on its east and west ends, a central equipment area, and a protruding office/restroom area on the north end (Figure 33I). The exterior of the building is painted concrete block, which also serves as its structural system. It has a flat gravel-surface roof and a reinforced concrete foundation.

History and Use

After disassembly and TPS removal, the SRB aft skirts, forward skirts, and frustums were moved into one of the facility's two blast bays. The exterior accordion-style doors were then closed. Workers used handheld blasting guns to remove the last remaining areas of TPS material and the underlying coats of Hypalon paint and primer. The end result was the exposure of the segments' bare aluminum surface. The blast bays were each equipped with high-powered vacuum ventilation systems that removed all of the dust and debris from the blast bay during operations.

Evaluation

The Multi-Media Blast Facility is a contributing resource to the Hangar AF Complex Historic District and to the newly-identified NASA-owned CCAFS Industrial Area Historic District. The Complex is considered eligible to the NRHP as a historic district in the context of the SSP (1969-2011) under Criterion A for Space Exploration. The building has achieved exceptional significance within the past 50 years, so Criteria Consideration G also applies. The building maintains a high level of physical integrity from its period of significance.

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V. CONCLUSION

New South Associates conducted background research, a historic architectural survey, historic context development, and a NRHP historic district evaluation of 12 NASA-owned facilities in the CCAFS Industrial Area, plus the nine contributing resources within the Hangar AF Complex Historic District. The buildings are directly associated with a wide variety of NASA’s historically significant manned and unmanned spaceflight missions, including the Unmanned ELV Program, Project Mercury, the Apollo Program, and the SSP. The buildings are also united by standardized design characteristics that give the overall area a distinctive look and feeling.

As a result of these findings, it is recommended that the NASA-owned facilities in the CCAFS Industrial Area form a historic district with a discontinuous boundary. The district is eligible at the national level of significance under NRHP Criteria A and C. Additionally, the district contains two individually eligible facilities, including Missile Assembly Building AE and Hangar S.

Table 3 lists the newly-identified NASA-owned CCAFS Industrial Area Historic District’s 16 contributing and three non-contributing facilities. Table 4 lists the 32 ineligible facilities identified in the survey.

Table 3. Contributing and Non-contributing Facilities in the NASA-owned CCAFS Industrial Area Historic District

Facility #	FMSF #	Facility Name	Facility Type	Year Built	NRHP Recommendation	Criteria	Program Association
1728	8BR3069	Hangar N	Engineering and Administrative	1958	Contributing	Eligible Under Criteria A and C	SSP
54928	8BR2190	Little N Storage Building	Engineering and Administrative	1958	Contributing	Eligible Under Criteria A and C	SSP
55005	8BR2972	Hangar M Annex	Engineering and Administrative	1963	Contributing	Eligible Under Criteria A and C	SSP
60540	8BR2977	Solar Array Test Building	Engineering and Administrative	1966	Contributing	Eligible Under Criteria A and C	ELV

Table 3. Contributing and Non-contributing Facilities in the NASA-owned CCAFS Industrial Area Historic District (continued)

Facility #	FMSF #	Facility Name	Facility Type	Year Built	NRHP Recommendation	Criteria	Program Association
60680	8BR2976	Missile Assembly Building AE	Communication Facility/Resource Associated with Processing Payloads	1959	Individually Eligible and Contributing	Eligible Under A as a Vehicle Processing and Communications Facility Themes C and D for its role in the "Exploration of Planets and the Solar System" and "The Role of Scientific and Communications Satellites."	ELV
66200	BR3072	Paint Storage Building	Engineering and Administrative	1958	Non-contributing	Does Not Meet NRHP Criteria	None
66220	8BR2961	Emergency Breathing Equipment Building	Engineering and Administrative	1960	Non-contributing	Does Not Meet NRHP Criteria and Lacks Integrity	None
1726	8BR3070	Hangar S	Vehicle Processing Facility/Engineering and Administrative Facility	1959	Individually Eligible and Contributing	Eligible Under Criteria A, B, and C as a Vehicle Processing and Astronaut Training Facility and under Theme B for its association with Project Mercury	Mercury
60650	8BR2975	E&O Building	Engineering and Administrative	1961	Contributing	Eligible Under Criteria A and C	Mercury
66330	8BR3071	Apollo Warehouse	Engineering and Administrative	1963	Non-contributing	Does Not Meet NRHP Criteria	None
66250	8BR2001	Hangar AF	Vehicle Processing Facility/Engineering and Administrative Facility	1961	Contributing	Eligible Under Criteria A and C	SSP
66244	8BR2005	SRB Recovery Slip	Vehicle Processing Facility/Engineering and Administrative Facility	1978	Contributing	Eligible Under Criteria A and C	SSP
66249	8BR2008	TVC Deservicing Building	Vehicle Processing Facility/Engineering and Administrative Facility	1984	Contributing	Eligible Under Criteria A and C	SSP

Table 3. Contributing and Non-contributing Facilities in the NASA-owned CCAFS Industrial Area Historic District (continued)

Facility #	FMSF #	Facility Name	Facility Type	Year Built	NRHP Recommendation	Criteria	Program Association
66251	8BR2002	High Pressure Gas Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1962	Contributing	Eligible Under Criteria A and C	SSP
66310	8BR2006	SRB Paint Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1983	Contributing	Eligible Under Criteria A and C	SSP
66320	8BR2007	Robot Wash Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1985	Contributing	Eligible Under Criteria A and C	SSP
66340	8BR2009	Multi-Media Blast Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1991	Contributing	Eligible Under Criteria A and C	SSP
66240	8BR2004	High Pressure Wash Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1978	Contributing	Eligible Under Criteria A and C	SSP
66242	8BR2004	First Wash Building	Vehicle Processing Facility/Engineering and Administrative Facility	1978	Contributing	Eligible Under Criteria A and C	SSP

Table 4. Ineligible NASA-owned Facilities (32) Identified in the Survey

Facility #	FMSF #	Facility Name	Facility Type	Year Built	NRHP Evaluation	Criteria
54905	8BR2974	Paint Storage Building	Engineering and Administrative	1958	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60425	8BR2973	Pressure Proof Test Cell	Engineering and Administrative	1958	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
49637	None	Vehicle Shelter	Engineering and Administrative	1992	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
54945	None	Hazardous Waste Staging Shelter	Engineering and Administrative	1986	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4

Table 4. Ineligible NASA-owned Facilities (32) Identified in the Survey (continued)

Facility #	FMSF #	Facility Name	Facility Type	Year Built	NRHP Evaluation	Criteria
60541	None	Electrical Storage Building	Engineering and Administrative	1977	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60628	None	POL	Engineering and Administrative	2009	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60630	None	POL Facility, Hangar AF	Engineering and Administrative	1983	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60631	None	Blast Wall	Engineering and Administrative	1989	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60640	None	Payload Container and GSE Storage Building	Engineering and Administrative	1985	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60674	None	Backup Generators	Engineering and Administrative	2011	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60675	None	Diesel Fuel Tank	Engineering and Administrative	2011	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60677	None	Antenna Structure	Engineering and Administrative	2006	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60678	None	Antenna Structure	Engineering and Administrative	2006	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60679	None	Antenna Structure	Engineering and Administrative	2006	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60683	None	Equipment Pad	Engineering and Administrative	1968	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60686	None	Antenna	Engineering and Administrative	2002	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60687	None	Storage Building	Engineering and Administrative	1994	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
60690-1	None	Tank, Boiler	Engineering and Administrative	1980	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4

Table 4. Ineligible NASA-owned Facilities (32) Identified in the Survey (continued)

Facility #	FMSF #	Facility Name	Facility Type	Year Built	NRHP Evaluation	Criteria
66216	None	Propane Tank	Engineering and Administrative	1998	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66232	None	Range Contractor Shop	Engineering and Administrative	1986	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66237	None	Hazardous Waste Staging Shelter	Engineering and Administrative	1984	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66238	None	Hazardous Waste Staging Shelter	Engineering and Administrative	1984	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66241	None	Deionized Water Tank	Engineering and Administrative	1979	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66257	None	Boiler Building	Engineering and Administrative	1966	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66257A	None	Fuel Tank	Engineering and Administrative	1968	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66259	None	Equipment Building	Engineering and Administrative	1994	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66266	None	Drum Storage Building	Engineering and Administrative	1994	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66267	None	Tank Farm Area	Engineering and Administrative	1994	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66297	None	X-Band Radar Pad	Engineering and Administrative	2007	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66310-1	None	Tank, Waste Detergent	Engineering and Administrative	1984	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66310-2	None	Tank, Waste Alodine	Engineering and Administrative	1984	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4
66311	None	Substation	Engineering and Administrative	1984	Not Eligible	Does not meet the Criteria Eligibility, 36 CFR Part 60.4

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APPENDIX A: SURVEY LOG SHEET

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Ent D (FMSF only) _____



Survey Log Sheet

Florida Master Site File
Version 4.1 1/07

Survey # (FMSF only) _____

Consult *Guide to the Survey Log Sheet* for detailed instructions.

Identification and Bibliographic Information

Survey Project (name and project phase) Architectural Survey and Evaluation of NASA-owned Facilities at Cape Canaveral Air Force Station

Report Title (exactly as on title page) Architectural Survey and Evaluation of NASA-owned Facilities at Cape Canaveral Air Force Station

Report Authors (as on title page, last names first) 1. David L. Price 3. _____
2. _____ 4. _____

Publication Date (year) 2013 Total Number of Pages in Report (count text, figures, tables, not site forms) 104

Publication Information (Give series, number in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)

Supervisors of Fieldwork (even if same as author) Names Mary Beth Reed - New South Associates

Affiliation of Fieldworkers: Organization New South Associates City Nashville, Tennessee

Key Words/Phrases (Don't use county name, or common words like *archaeology, structure, survey, architecture, etc.*)

1. NASA 3. United States Air Force 5. _____ 7. _____
2. Cape Canaveral 4. _____ 6. _____ 8. _____

Survey Sponsors (corporation, government unit, organization or person directly funding fieldwork)

Name Barbara A. Naylor Organization National Aeronautics and Space Administration

Address/Phone/E-mail Mail Code TA-A4C, Kennedy Space Center, Florida 32899

Recorder of Log Sheet David L. Price Date Log Sheet Completed 11-11-2013

Is this survey or project a continuation of a previous project? No Yes: Previous survey #s (FMSF only) _____

Mapping

[Clear Mapping Values](#)

Counties (List each one in which field survey was done; attach additional sheet if necessary)

1. Brevard 3. _____ 5. _____
2. _____ 4. _____ 6. _____

USGS 1:24,000 Map Names/Year of Latest Revision (attach additional sheet if necessary)

1. Name CAPE CANAVERAL Year 1976 4. Name _____ Year _____
2. Name _____ Year _____ 5. Name _____ Year _____
3. Name _____ Year _____ 6. Name _____ Year _____

Description of Survey Area

Dates for Fieldwork: Start 5-13-2013 End 5-24-2013 Total Area Surveyed (fill in one) _____ hectares _____ acres

Number of Distinct Tracts or Areas Surveyed 1

If Corridor (fill in one for each) Width: _____ meters _____ feet Length: _____ kilometers _____ miles

Research and Field Methods

Types of Survey (check all that apply): archaeological architectural historical/archival underwater
 damage assessment monitoring report other(describe): _____

Scope/Intensity/Procedures Survey of 12 NASA-owned facilities located at CCAFS to determine their eligibility as a NRHP historic district

Preliminary Methods (check as many as apply to the project as a whole)

Florida Archives (Gray Building) library research- local public local property or tax records other historic maps
 Florida Photo Archives (Gray Building) library-special collection - nonlocal newspaper files soils maps or data
 Site File property search Public Lands Survey (maps at DEP) literature search windshield survey
 Site File survey search local informant(s) Sanborn Insurance maps aerial photography
 other (describe): _____

Archaeological Methods (check as many as apply to the project as a whole)

Check here if NO archaeological methods were used.
 surface collection, controlled shovel test-other screen size block excavation (at least 2x2 m)
 surface collection, uncontrolled water screen soil resistivity
 shovel test-1/4" screen posthole tests magnetometer
 shovel test-1/8" screen auger tests side scan sonar
 shovel test 1/16" screen coring pedestrian survey
 shovel test-unscreened test excavation (at least 1x2 m) unknown
 other (describe): _____

Historical/Architectural Methods (check as many as apply to the project as a whole)

Check here if NO historical/architectural methods were used.
 building permits demolition permits neighbor interview subdivision maps
 commercial permits exposed ground inspected occupant interview tax records
 interior documentation local property records occupation permits unknown
 other (describe): KSC Library/Archive research

Survey Results (cultural resources recorded)

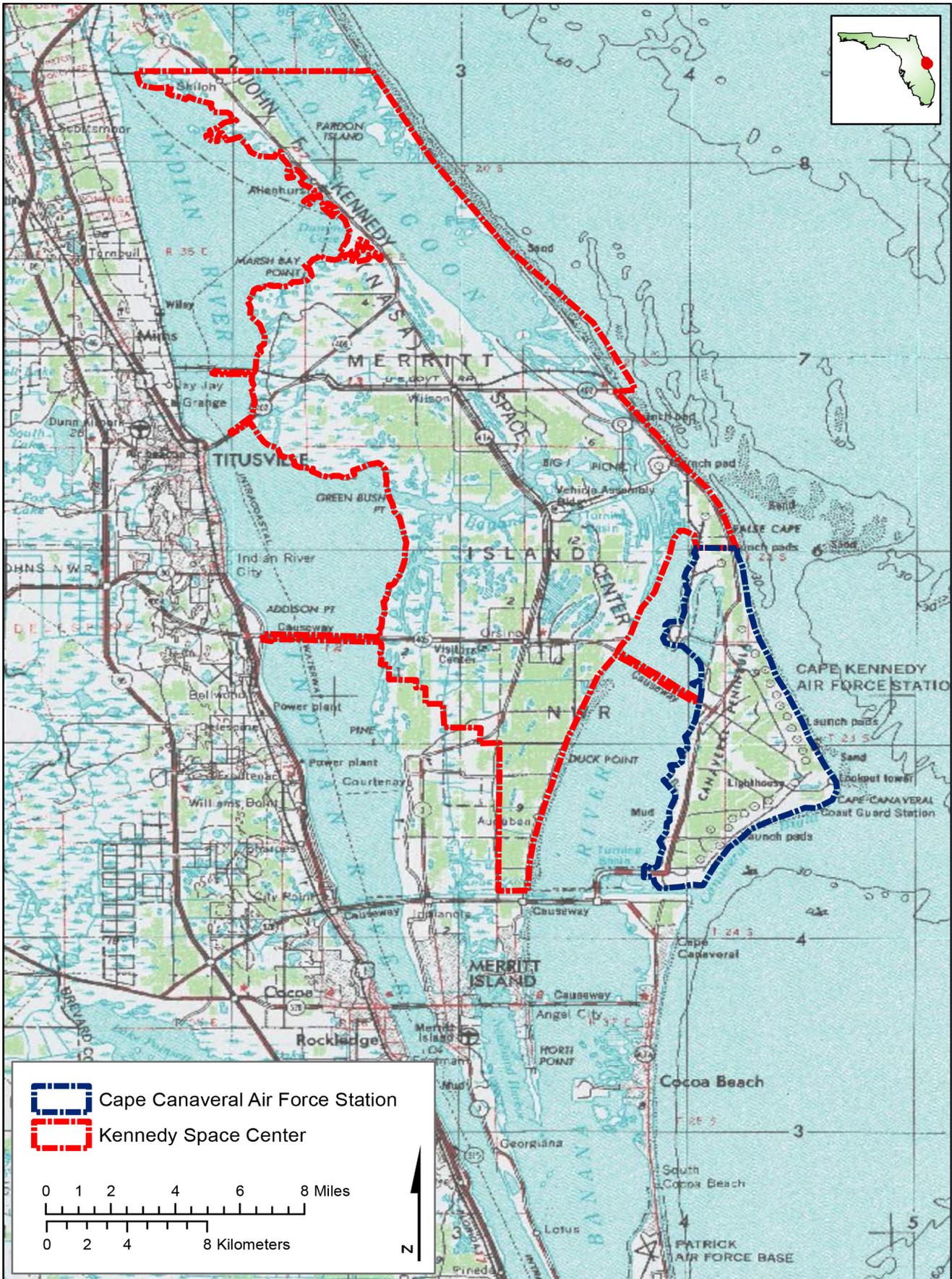
Site Significance Evaluated? Yes No
Count of Previously Recorded Sites 8 Count of Newly Recorded Sites 4
Previously Recorded Site #'s with Site File Update Forms (List site #'s without "8". Attach additional pages if necessary.) BR2190, BR2973, BR2974, BR2972, BR2977, BR2976, BR2961, BR2975

Newly Recorded Site #'s (Are all originals and not updates? List site #'s without "8". Attach additional pages if necessary.) BR3069, BR3070, BR3072, BR3071

Site Forms Used: Site File Paper Form Site File Electronic Recording Form

REQUIRED: ATTACH PLOT OF SURVEY AREA ON PHOTOCOPY OF USGS 1:24,000 MAP(S)

SHPO USE ONLY SHPO USE ONLY SHPO USE ONLY
Origin of Report: 872 CARL UW 1A32 # _____ Academic Contract Avocational
 Grant Project # _____ Compliance Review: CRAT # _____
Type of Document: Archaeological Survey Historical/Architectural Survey Marine Survey Cell Tower CRAS Monitoring Report
 Overview Excavation Report Multi-Site Excavation Report Structure Detailed Report Library, Hist. or Archival Doc
 MPS MRA TG Other: _____
Document Destination: _____ Plotability: _____



Source: USGS Courtenay, Florida Quadrangle

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APPENDIX B: RESOURCE GROUP FORM

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RESOURCE GROUP FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Site #8 BR03073
Field Date 5-13-2013
Form Date 8-5-2013
Recorder#

[X] Original
[] Update

NOTE: Use this form to document districts, landscapes, building complexes and linear resources as described in the box below. Cultural resources contributing to the Resource Group should also be documented individually at the Site File. Do not use this form for National Register multiple property submissions (MPSs).

Check ONE box that best describes the Resource Group:

- [X] Historic district (NR category "district"): buildings and NR structures only: NO archaeological sites
[] Archaeological district (NR category "district"): archaeological sites only: NO buildings or NR structures
[] Mixed district (NR category "district"): includes more than one type of cultural resource (example: archaeological sites and buildings)
[] Building complex (NR category usually "building(s)": multiple buildings in close spatial and functional association
[] Designed historic landscape (NR category usually "district" or "site"): can include multiple resources (see National Register Bulletin #18, page 2 for more detailed definition and examples: e.g. parks, golf courses, campuses, resorts, etc.)
[] Rural historic landscape (NR category usually "district" or "site"): can include multiple resources and resources not formally designed (see National Register Bulletin #30, Guidelines for Evaluating and Documenting Rural Historic Landscapes for more detailed definition and examples: e.g. farmsteads, fish camps, lumber camps, traditional ceremonial sites, etc.)
[] Linear resource (NR category usually "structure"): Linear resources are a special type of rural historic landscape and can include canals, railways, roads, etc.

Resource Group Name NASA-owned Facilities CCAFS Indust. Area Multiple Listing [DHR only]
Project Name Architectural Survey of NASA facilities at CCAFS FMSF Survey # BR3073
National Register Category (please check one): []building(s) []structure [X]district []site []object
Linear Resource Type (if applicable): []canal []railway []road []other (describe):
Ownership: []private-profit []private-nonprofit []private-individual []private-nonspecific []city []county []state [X]federal []Native American []foreign []unknown

LOCATION & MAPPING

Clear Location Info

Street Number Direction Street Name Street Type Suffix Direction
Address:
City/Town (within 3 miles) Cape Canaveral In Current City Limits? []yes [X]no []unknown
County or Counties (do not abbreviate) Brevard
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station
1) Township 23S Range 37E Section 12 1/4 section: []NW []SW []SE []NE Irregular-name:
2) Township 23S Range 37E Section 13 1/4 section: []NW []SW []SE []NE
3) Township Range Section 1/4 section: []NW []SW []SE []NE
4) Township Range Section 1/4 section: []NW []SW []SE []NE
USGS 7.5' Map(s) 1) Name CAPE CANAVERAL USGS Date 1976
2) Name USGS Date
Plat, Aerial, or Other Map (map's name, originating office with location) CCAFS Industrial Area, CCAFS
Landgrant
Verbal Description of Boundaries (description does not replace required map) The NASA-owned Facilities at the CCAFS Industrial Area Historic District has an irregular boundary roughly bordered by Scrub-Jay Rd. on the west, Hangar Rd. on the south, Hangar N on the north, and the Hangar AF Complex Historic District on the south.

Table with 3 columns: DHR USE ONLY, OFFICIAL EVALUATION, DHR USE ONLY. Rows include NR List Date, Owner Objection, SHPO - Appears to meet criteria for NR listing, KEEPER - Determined eligible, and NR Criteria for Evaluation.

HISTORY & DESCRIPTION

Clear History Info

Construction Year: 1955 [X]approximately []year listed or earlier []year listed or later

Architect/Designer(last name first): Air Force/Corps of Engineers Builder(last name first): unknown

Total number of individual resources included in this Resource Group: # of contributing 16 # of non-contributing 3

Time period(s) of significance (choose a period from the list or type in date range(s), e.g. 1895-1925)

- 1. 1958-present 3.
2. 4.

Narrative Description (National Register Bulletin 16A pp. 33-34; fit a summary into 3 lines or attach supplementary sheets if needed) The CCAFS Industrial Area contains missile assembly buildings (hangars), administrative buildings, and support facilities required to launch rockets from the CCAFS launch complexes.

RESEARCH METHODS (check all that apply)

- [X]FMSF record search (sites/surveys) [X]library research []building permits []Sanborn maps
[]FL State Archives/photo collection []city directory [X]occupant/owner interview []plat maps
[]property appraiser / tax records [X]newspaper files []neighbor interview []Public Lands Survey (DEP)
[X]cultural resource survey [X]historic photos [X]interior inspection [X]HABS/HAER record search
[]other methods (specify)

Bibliographic References (give FMSF Manuscript # if relevant) See continuation sheet.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Info

Potentially eligible individually for National Register of Historic Places? [X]yes []no []insufficient information

Potentially eligible as contributor to a National Register district? [X]yes []no []insufficient information

Explanation of Evaluation (required, see National Register Bulletin 16A p. 48-49. Attach longer statement, if needed, on separate sheet.) The NASA-owned facilities in CCAFS Industrial Area are eligible at the national level under Criteria A and C in the area of Space Exploration for their association with NASA's space programs and their distinctive architectural characteristics.

Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

- 1. Other 3. 5.
2. 4. 6.

DOCUMENTATION

Clear Documentation Info

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

- 1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type
Document description File or accession #'s

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates

Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 PHOTOCOPY OF USGS 7.5' MAP WITH DISTRICT BOUNDARY CLEARLY MARKED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP WITH RESOURCES MAPPED & LABELED
3 TABULATION OF ALL INCLUDED RESOURCES (name, FMSF #, contributing? Y/N, resource category, street address or township-range-section if no address)
4 PHOTOS OF GENERAL STREETScape OR VIEWS (Optional: aerial photos, views of typical resources)
Photos may be archival B&W prints OR digital image files. If submitting digital image files, they must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital images must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

**Resource Group Form
Continuation Sheet**

Site # 8BR03073

CONTRIBUTING RESOURCES

Facility Number	FMSF Number	Facility Name	Facility Type	Year Built	NRHP Eligibility Recommendation	Criteria/Notes
1728	8BR3069	Hangar N	Engineering and Administrative	1958	Contributing	Eligible Under Criteria A and C
54928	8BR2190	Little N Storage Building	Engineering and Administrative	1958	Contributing	Eligible Under Criteria A and C
54905	8BR2974	Paint Storage Building	Engineering and Administrative	1958	Not Eligible	Outside District Boundary, Not Individually Eligible
60425	8BR2973	Pressure Proof Test Cell	Engineering and Administrative	1958	Not Eligible	Outside District Boundary, Not Individually Eligible
55005	8BR2972	Hangar M Annex	Engineering and Administrative	1963	Contributing	Eligible Under Criteria A and C
60540	8BR2977	Solar Array Test Building	Engineering and Administrative	1966	Contributing	Eligible Under Criteria A and C
60680	8BR2976	Missile Assembly Building AE	Communication Facility/Resource Associated with Processing Payloads	1959	Individually Eligible and Contributing	Eligible Under Criterion A and Contributes Under C
1726	8BR3070	Hangar S	Vehicle Processing Facility/Engineering and Administrative Facility	1959	Individually Eligible and Contributing	Eligible Under Criteria A, B, and Contributes Under C
66200	8BR3072	Paint Storage Building	Engineering and Administrative	1958	Non-contributing	Does Not Meet NRHP Criteria
66220	8BR2961	Emergency Breathing Equipment Building	Engineering and Administrative	1960	Non-contributing	Does Not Meet NRHP Criteria and Lacks Integrity
60650	8BR2975	E&O Building	Engineering and Administrative	1961	Contributing	Eligible Under Criteria A and C
66330	8BR3071	Apollo Warehouse	Engineering and Administrative	1963	Non-contributing	Does Not Meet NRHP Criteria
66250	8BR2001	Hangar AF	Vehicle Processing Facility/Engineering and Administrative Facility	1961	Contributing	Eligible Under Criteria A and C
66251	8BR2002	High Pressure Gas Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1962	Contributing	Eligible Under Criteria A and C
66240	8BR2003	High Pressure Wash Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1978	Contributing	Eligible Under Criteria A and C

**Resource Group Form
Continuation Sheet**

Site # 8BR03073

CONTRIBUTING RESOURCES

Facility Number	FMSF Number	Facility Name	Facility Type	Year Built	NRHP Eligibility Recommendation	Criteria/Notes
66242	8BR2004	First Wash Building	Vehicle Processing Facility/Engineering and Administrative Facility	1978	Contributing	Eligible Under Criteria A and C
66244	8BR2005	SRB Recovery Slip	Vehicle Processing Facility/Engineering and Administrative Facility	1978	Contributing	Eligible Under Criteria A and C
66310	8BR2006	SRB Paint Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1983	Contributing	Eligible Under Criteria A and C
66320	8BR2007	Robot Wash Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1985	Contributing	Eligible Under Criteria A and C
66249	8BR2008	TVC Deservicing Building	Vehicle Processing Facility/Engineering and Administrative Facility	1984	Contributing	Eligible Under Criteria A and C
66340	8BR2009	Multi-Media Blast Facility	Vehicle Processing Facility/Engineering and Administrative Facility	1991	Contributing	Eligible Under Criteria A and C



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)



Source: ESRI Resource Data, Imagery Layer

**Resource Group Form
Photographs**

Site # 8BR03073



CCAFS Industrial Area, View Southwest



CCAFS Industrial Area, View Northeast

**Resource Group Form
Photographs**

Site # 8BR03073



CCAFS Industrial Area, View Northeast



RESOURCE GROUP FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Site #8 BR01996
Field Date 10-10-2011
Form Date 2-21-2013
Recorder#

Original
Update

NOTE: Use this form to document districts, landscapes, building complexes and linear resources as described in the box below. Cultural resources contributing to the Resource Group should also be documented individually at the Site File. Do not use this form for National Register multiple property submissions (MPSs).

Check ONE box that best describes the Resource Group:

- Historic district (NR category "district"): buildings and NR structures only: NO archaeological sites
Archaeological district (NR category "district"): archaeological sites only: NO buildings or NR structures
Mixed district (NR category "district"): includes more than one type of cultural resource (example: archaeological sites and buildings)
Building complex (NR category usually "building(s)": multiple buildings in close spatial and functional association
Designed historic landscape (NR category usually "district" or "site"): can include multiple resources (see National Register Bulletin #18, page 2 for more detailed definition and examples: e.g. parks, golf courses, campuses, resorts, etc.)
Rural historic landscape (NR category usually "district" or "site"): can include multiple resources and resources not formally designed (see National Register Bulletin #30, Guidelines for Evaluating and Documenting Rural Historic Landscapes for more detailed definition and examples: e.g. farmsteads, fish camps, lumber camps, traditional ceremonial sites, etc.)
Linear resource (NR category usually "structure"): Linear resources are a special type of rural historic landscape and can include canals, railways, roads, etc.

Resource Group Name Hangar AF Complex Multiple Listing [DHR only]
Project Name Hangar AF Complex FMSF Survey #
National Register Category (please check one): building(s) structure district site object
Linear Resource Type (if applicable): canal railway road other (describe):
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Info

Street Number Direction Street Name Street Type Suffix Direction
Address: Hangar Road
City/Town (within 3 miles) In Current City Limits? yes no unknown
County or Counties (do not abbreviate) Brevard
Name of Public Tract (e.g., park) CCAFS Industrial Area
1) Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name:
2) Township Range Section 1/4 section: NW SW SE NE
3) Township Range Section 1/4 section: NW SW SE NE
4) Township Range Section 1/4 section: NW SW SE NE
USGS 7.5' Map(s) 1) Name CAPE CANAVERAL USGS Date 1976
2) Name USGS Date
Plat, Aerial, or Other Map (map's name, originating office with location)
Landgrant
Verbal Description of Boundaries (description does not replace required map) The boundaries of this historic district are defined as the edges of the concrete hardscape that encompasses the Hangar AF area.

Table with 3 columns: DHR USE ONLY, OFFICIAL EVALUATION, DHR USE ONLY. Rows include NR List Date, SHPO - Appears to meet criteria for NR listing, OWNER OBJECTION, and NR Criteria for Evaluation.

HISTORY & DESCRIPTION

Clear History Info

Construction Year: 1962 [] approximately [] year listed or earlier [] year listed or later
Architect/Designer(last name first): Multiple Builder(last name first): Multiple
Total number of individual resources included in this Resource Group: # of contributing 9 # of non-contributing
Time period(s) of significance (choose a period from the list or type in date range(s), e.g. 1895-1925)
1. 1962-2011 3.
2. 4.
Narrative Description (National Register Bulletin 16A pp. 33-34; fit a summary into 3 lines or attach supplementary sheets if needed) See continuation sheet.

RESEARCH METHODS (check all that apply)

[x] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey [x] historic photos [x] interior inspection [] HABS/HAER record search
[] other methods (specify)
Bibliographic References (give FMSF Manuscript # if relevant) See continuation sheet.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Info

Potentially eligible individually for National Register of Historic Places? [x] yes [] no [] insufficient information
Potentially eligible as contributor to a National Register district? [x] yes [] no [] insufficient information
Explanation of Evaluation (required, see National Register Bulletin 16A p. 48-49. Attach longer statement, if needed, on separate sheet.) See continuation sheet.

Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Other 3. 5.
2. 4. 6.

DOCUMENTATION

Clear Documentation Info

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description File or accession #'s
2) Document type Maintaining organization
Document description File or accession #'s

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information 615-262-4326; dprice@newsouthassoc.com
(address / phone / fax / e-mail)

Required Attachments

- 1 PHOTOCOPY OF USGS 7.5' MAP WITH DISTRICT BOUNDARY CLEARLY MARKED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP WITH RESOURCES MAPPED & LABELED
3 TABULATION OF ALL INCLUDED RESOURCES (name, FMSF #, contributing? Y/N, resource category, street address or township-range-section if no address)
4 PHOTOS OF GENERAL STREETScape OR VIEWS (Optional: aerial photos, views of typical resources)
Photos may be archival B&W prints OR digital image files. If submitting digital image files, they must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital images must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

**Resource Group Form
Continuation Sheet**

Site # 8BR01996

CONTRIBUTING RESOURCES

FMSF #	SITE NAME AND ADDRESS	RESOURCE CATEGORY
8BR02001	Hangar AF Building 66250 Industrial Area, Cape Canaveral Air Force Station	Building
8BR02002	High Pressure Gas Building Building 66251 Industrial Area, Cape Canaveral Air Force Station	Building
8BR02003	High Pressure Wash Facility Building 66240 Industrial Area, Cape Canaveral Air Force Station	Building
8BR02004	First Wash Building Building 66242 Industrial Area, Cape Canaveral Air Force Station	Building
8BR02005	SRB Recovery Slip Building 66244 Industrial Area, Cape Canaveral Air Force Station	Structure
8BR02006	SRB Paint Building Building 66310 Industrial Area, Cape Canaveral Air Force Station	Building
8BR02007	Robot Wash Building Building 66320 Industrial Area, Cape Canaveral Air Force Station	Building
8BR02008	Thrust Vector Control Deservicing Building Building 66249 Industrial Area, Cape Canaveral Air Force Station	Building
8BR02009	Multi-Media Blast Facility Building 66340 Industrial Area, Cape Canaveral Air Force Station	Building

**Resource Group Form
Continuation Sheet**

Site # 8BR01996

NON-CONTRIBUTING RESOURCES

SITE NAME AND ADDRESS	RESOURCE CATEGORY
POL Shelter Building 60629 Industrial Area, Cape Canaveral Air Force Station	Building
POL Facility Building 60630 Industrial Area, Cape Canaveral Air Force Station	Building
Blast Wall Building 60631 Industrial Area, Cape Canaveral Air Force Station	Building
Hazardous Waste Staging Structure Building 66237 Industrial Area, Cape Canaveral Air Force Station	Building
Deionized Water Tank Building 66241 Industrial Area, Cape Canaveral Air Force Station	Structure
Drum Storage Building Building 66266 Industrial Area, Cape Canaveral Air Force Station	Building
Tank Farm Area Building 66267 Industrial Area, Cape Canaveral Air Force Station	Structure
Barge Unloading Facility Building 66295 Industrial Area, Cape Canaveral Air Force Station	Structure
Substation Building 66311 Industrial Area, Cape Canaveral Air Force Station	Structure
Warehouse Building 66330 Industrial Area, Cape Canaveral Air Force Station	Building
Waste Staging Facility Building 66336 Industrial Area, Cape Canaveral Air Force Station	Building

Resource Group Form
Continuation Sheet

Site # 8BR01996

SUMMARY DESCRIPTION:

The Solid Rocket Booster (SRB) Disassembly and Refurbishment Complex Historic District includes nine contributing resources and 11 non-contributing resources. All of the resources are located within the Industrial Area of the Cape Canaveral Air Force Station (CCAFS). The district boundaries are defined as the edges of the concrete hardscape that encompasses the Hangar AF area. The contributing resources are Hangar AF, the High Pressure Gas Building, the High Pressure Wash Facility, the First Wash Building, the SRB Recovery Slip, the SRB Paint Building, the Robot Wash Building, the Thrust Vector Control Deservicing Building, and the Multi-Media Blast Facility. The 11 non-contributing resources are listed in the preceding table.

Explanation of Evaluation:

The SRB Disassembly and Refurbishment Complex Historic District is eligible for listing in the NRHP in the context of the U.S. Space Shuttle Program (1969-2011) under Criterion A in the area of Space Exploration. Because it has achieved significance within the past 50 years, Criteria Consideration G applies. The SRBs are one of the major components of the Space Shuttle. Most of the structures within the historic district were specifically designed for processing SRBs, from pre-launch manufacture and assembly to post-launch recovery, disassembly, cleaning and refurbishment in preparation for their next use. The historic district is also essential to the re-usability of this essential component; re-usability is a key defining element of the Space Shuttle Program. The district maintains a high level of integrity with regard to location, design, setting, materials, workmanship, feeling, and association. The district also contributes to the NASA-owned Facilities in the CCAFS Industrial Area Historic District under Criterion A in the area of Space Exploration and Criterion C for architecture.

BIBLIOGRAPHIC INFORMATION

AJT & Associates, Inc. "Hangar AF New Multi-Media Blast Facility." Kennedy Space Center, Florida. Construction drawings, 1991.

Bail, Horton & Associates. "Hangar 'AF'." Kennedy Space Center, Florida. Construction drawings, 1962.

Burns and Roe. "Solid Rocket Booster Paint Facility - Modification to Existing High Pressure Wash Facility." Kennedy Space Center, Florida. Construction drawings, 1983.

Burns and Roe. "Solid Rocket Booster Paint Facility." Kennedy Space Center, Florida. Construction drawings, 1983.

Burns and Roe Industrial Services Corporation. "Thrust Vector Control Deservicing Facility." Kennedy Space Center, Florida. Construction drawings, 1984.

Brown, Joseph Andrew. *Bid Cost of Shuttle Facilities, Construction Bidding Cost of KSC's Space Shuttle Facilities*. Proceedings from the 23rd Annual American Association of Cost Engineers Meeting, Cincinnati, Ohio, July 15-18, 1979, 14. On file at Kennedy Space Center Archives.

Resource Group Form
Continuation Sheet

Site # 8BR01996

Cape Canaveral Air Force Station Master Plan and Building Schedule. Department of the Air Force, Air Force Systems Command. Cape Canaveral, Florida, 1963.

Curie, Michael, Kyle Herring, and Candrea Thomas.

“NASA’s Proud Space Shuttle Program Ends With Atlantis Landing,” NASA press release, 2011. Available at: http://www.nasa.gov/home/hqnews/2011/jul/HQ_11-240_Atlantis_Lands.html. Accessed on March 8, 2012.

Deming, Joan, and Patricia Slovinac. *NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch. Sarasota, Florida: Archaeological Consultants, Inc. February 2008, revised July 2008.

Grinter, Kay. “Assembly and Refurbishment Facility Finishes Shuttle Duties.” *Spaceport News*. October 1, 2010.

Kennedy Space Center. *Technical Facilities Resume: Hangar AF*. Facility No. 10-00-22-00 (John F. Kennedy Space Center, Florida, 1966), 43-44. On file at Kennedy Space Center Archive.

National Aeronautics and Space Administration (NASA)

NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-KSC, Revised 2006.

NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

Presidential Commission. *Report of the Presidential Commission on the Space Shuttle Challenger Accident, June 6, 1986*. Washington, D.C. Steven J. Dick, NASA Chief Historian, Steve Garber, NASA History Web Curator. National Aeronautics and Space Administration, NASA History Office. Available at <http://history.nasa.gov/rogersrep/511cover.htm>. Accessed on August 1, 2010

Sverdrup & Parcel and Associates. “Solid Rocket Booster Recovery & Disassembly Facility, Hangar AF, CCAFS, Industrial Area.” Kennedy Space Center, Florida. Construction drawings, 1977.

United Space Alliance

“Marine Operations, Revision J.” (John F. Kennedy Space Center, n.d.), MO-1.

“Structures Assembly Buildup Operations, Revision J” (John F. Kennedy Space Center, n.d.).

Wolfberg/Alvarez/Taracido & Associates. “Robot Operated High Pressure Wash Facility.” Kennedy Space Center, Florida. Construction drawings, 1985.



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)



Source: ESRI Resource Data, Imagery Layer



Hangar AF, General View

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APPENDIX C: FMSF SITE FORMS

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Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02001**
Field Date 5-13-2013
Form Date 7-30-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Hangar AF Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg 66250 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540429 Northing 3151131
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1962 approximately year listed or earlier year listed or later
Original Use Other From (year): 1962 To (year): 1977
Current Use Other From (year): 1977 To (year): 2012
Other Use Saturn rocket support; SRB processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): Bail, Horton & Assoc Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA is the original owner

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Irregular Number of Stories 2
Exterior Fabric(s) 1. Concrete block 2. Metal 3. _____
Roof Type(s) 1. Gable 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) Translucent windows in the bay doors and 1/1 metal frame windows in the north and south lean-to portions.
Distinguishing Architectural Features (exterior or interior ornaments) N/A

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) See Hangar AF resource group form.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Clear Check Boxes	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. 2.
Structural System(s): 1. Steel skeleton 2. Concrete block 3.
Foundation Type(s): 1. Slab 2.
Foundation Material(s): 1. Poured Concrete Footing 2.
Main Entrance (stylistic details) There are sliding high bay doors on the end elevations and double, one-light pedestrian doors throughout the building.
Porch Descriptions (types, locations, roof types, etc.) n/a

Condition (overall resource condition): [] excellent [x] good [] fair [] deteriorated [] ruinous
Narrative Description of Resource Hangar AF features a typical aeronautic hangar design that is similar to the other hangars in the CCAFS Industrial Area. It has a central hangar bay with a gable roof and two-story, concrete-block "lean-to" sections, 66,170 sq. ft.
Archaeological Remains [] Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [x] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [x] HABS/HAER record search
[] other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) Solid Rocket Booster Disassembly and Refurbishment Complex HAER Documentation

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? [] yes [x] no [] insufficient information
Appears to meet the criteria for National Register listing as part of a district? [x] yes [] no [] insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) Hangar AF is a contributing resource in the NRHP-eligible, HAER-documented SRB Disassembly and Refurbishment Complex, and also contributes to the larger CCAFS Industrial Area historic district.
Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Other 3. 5.
2. 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report. File or accession #'s
2) Document type Maintaining organization
Document description File or accession #'s

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Historic Structure Form Continuation Sheets

DESCRIPTION OF RESOURCE:

Hangar AF is the central building of the Hangar AF Complex. It features a typical aeronautic hangar design that is similar to the other hangars in the Cape Canaveral Air Force Station (CCAFS) Industrial Area. The building has three primary sections, including the central hangar bay with an aluminum gable roof and two-story "lean-to" sections on the hangar's north and south elevations. The hangar bay contains the building's open solid rocket booster (SRB) disassembly area, and the "lean-to" sections contain the small parts processing area, storage rooms, offices, and other support spaces.

The exterior of the hangar bay is clad in 4" ribbed embossed aluminum siding, while the north and south "lean-to" sections have concrete block exteriors. The sliding hangar doors on the east and west elevations are made of 1/4" steel plates with translucent ribbed plastic sheets used as window lights. The hangar bay has a load-bearing steel truss wall structure with a steel truss gable roof structure. The two-story "lean-to" sections have load-bearing concrete block walls with steel-truss shed roof structures.

Hangar AF has four horizontal sliding bay doors with a steel frame structure with translucent ribbed plastic cover sheets in a pastel green color on the west and east sides of the building. Each door has two moving sections that roll on rubber drive wheels to collapse into concrete block pocket structures on either side of the bay. Within each bay door is a standard size pedestrian entrance door for worker access. There are secondary exterior pedestrian entrance doors on the north and south elevations of the hangar.

The hangar bay has clerestory windows along the north and south elevations. The windows are arranged in eleven bays, each of which contains eighteen fixed lights. There are additional secondary one-over-one double-hung windows along the exterior ground floor of the "lean-to" sections, with two square one-over-one windows in the stair corridors.

The Hangar AF bay has an aluminum gable roof with a steel truss structure. This roof structure provides a clear, uninterrupted workspace in the bay and room for the building's bridge crane to move back and forth along the bay, as needed. The "lean-to" sections of the hangar have built-up roof systems on an aluminum base. Hangar AF has no cornice. It has aluminum boxed eaves with aluminum gutters.

The interior of Hangar AF is composed of the main assembly area found in the hangar bay, which is flanked on the north and south by two-story "lean-to" sections that contain offices, storage rooms, the small parts processing area, and other work areas. The concrete slab floor of the hangar includes a grid system of covered trenches that contain electrical cables, mechanical lines, compressed air, and grounding cables that serve the building's various equipment and work stations. There are also stairwells leading to the second floor at each of the building's four corners.

Notable machinery in Hangar AF includes the building's bridge crane, the decoupling rings, and the two EDOP devices. The bridge crane has a 40-ton lift capacity with a 10-ton auxiliary outrigger hoist. The crane was used to maneuver the six different decoupling rings into place, as

well as to move SRB segments and other heavy equipment. The decoupling rings are hydraulic clamps placed over the SRB segment joints, one on either side of each joint, and used to disassemble the boosters in a process called “segment demate.” The EDOPs are used in the SRB marine recovery process.

Detailed building descriptions and context are included in HAER No. FL-8-11-S and HAER No. FL-8-11-S-1.

EXPLANATION OF EVALUATION:

Hangar AF was built in 1962 and was used for staff headquarters and administrative support offices of the Saturn IB and Saturn V rockets during the Apollo program. The advent of the SSP in the 1970s initiated the second phase in the construction history of the Hangar AF Complex. Under the SSP (Space Shuttle Program), NASA planned to use Hangar AF for the disassembly and refurbishment of the shuttle’s re-usable SRBs. The hangar location on the Banana River made it ideal for receiving the boosters from specially-designed ships that towed them in from sea. Hangar AF remained largely unchanged for the Shuttle Program, but its surrounding site received extensive modifications from 1977-1979, including new paving and infrastructure, the construction of the SRB Recovery Slip, the railways, the First Wash Building, and the High Pressure Wash Building.

The entire Hangar AF Complex (SRB Disassembly and Refurbishment Historic District) functioned as a one-of-a-kind facility that is considered eligible for listing in the National Register of Historic Places (NRHP) in the context of the SSP (1969-2011) under Criterion A in the area of Space Exploration. The complex is a significant historic property for its association with the Space Transportation System (STS), commonly known as the “space shuttle.” The STS was a unique breakthrough in the history of the U.S. Space Program, because it was based on a design that made most of its major components re-usable, a model that decreased program costs, and helped make orbital space flight a routine endeavor. Along with the orbiter spacecraft, the SRBs were two of the shuttle’s primary re-usable elements. The SRBs’ re-usability was made possible by a number of facilities at Kennedy Space Center (KSC) and CCAFS, including the SRB Disassembly and Refurbishment Complex. The complex is the first place to which the SRBs were brought after their recovery from sea and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for buildup and assembly. Because it achieved significance within the past 50 years, Criteria Consideration G also applies. Hangar AF, as one component of this complex, is considered a contributing resource to the SRB Disassembly and Refurbishment Historic District as it played an essential role in the re-usability of the Space Shuttle orbiter and SRBs.

BIBLIOGRAPHIC REFERENCES:

Photographs and Drawings

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Construction drawings, 1962.

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Christy, Howard, RPSF Manager, Personal Communication, February 24, 2010.

Morales, Art. George C. Marshall Space Flight Center
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Price, David. Hangar AF Facility Manager, United Space Alliance. Interview with the author. September 27, 2011.

Sources

Brown, Joseph Andrew. *Bid Cost of Shuttle Facilities, Construction Bidding Cost of KSC's Space Shuttle Facilities*. Proceedings from the 23rd Annual American Association of Cost Engineers Meeting, Cincinnati, Ohio, July 15-18, 1979, 14. On file at Kennedy Space Center Archives.

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Kennedy Space Center. *Technical Facilities Resume: Hangar AF*. Facility No. 10-00-22-00 (John F. Kennedy Space Center, Florida, 1966), 43-44. On file at Kennedy Space Center Archives.

Curie, Michael, Kyle Herring, and Candrea Thomas
"NASA's Proud Space Shuttle Program Ends with Atlantis Landing," NASA press release, 2011. Available at: http://www.nasa.gov/home/hqnews/2011/jul/HQ_11-240_Atlantis_Lands.html. Accessed on March 8, 2012.

Grinter, Kay. "Assembly and Refurbishment Facility Finishes Shuttle Duties." *Spaceport News*, Volume 21, No. 17, October 1, 2010. Pg. 7.

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National Aeronautics and Space Administration (NASA)

NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-KSC, Revised 2006.

NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

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No Author. "SRB Complex Work Begins on Site North of VAB," *Spaceport News*, Volume 21, No. 17, August 19, 1982, p. 7.

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McQuade, Thomas J., Donna A. McQuade, and George Bail. "George H. Bail AIA" (Fort Myers, FL: American Institute of Architects FLASW and The Southwest Florida Museum of History, 2011), 1. <http://mcmo-swfl.com/bio/Bail-%20George%20H%20-%20Narrative.pdf>. Accessed November 17, 2011.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Hangar AF, Exterior

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Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02002**
Field Date 5-13-2013
Form Date 7-30-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) High Pressure Gas Buiding Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 66251 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540396 Northing 3151093
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1963 approximately year listed or earlier year listed or later
Original Use Other From (year): 1963 To (year): 1977
Current Use Abandoned/Vacant From (year): 1977 To (year): 2012
Other Use Apollo Program support; SRB Processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): Bail, Horton & Assoc Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA is the original owner.

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Flat 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) N/A

Distinguishing Architectural Features (exterior or interior ornaments) N/A

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) N/A

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued) Clear Description Values

Chimney: No. ___ Chimney Material(s): 1. ___ 2. ___
Structural System(s): 1. Concrete block 2. ___ 3. ___
Foundation Type(s): 1. Slab 2. ___
Foundation Material(s): 1. Poured Concrete Footing 2. ___
Main Entrance (stylistic details) single-light metal door

Porch Descriptions (types, locations, roof types, etc.) N/A

Condition (overall resource condition): [] excellent [x] good [] fair [] deteriorated [] ruinous

Narrative Description of Resource This is a one-story concrete block building with a shed roof, cast-in-place concrete foundation, and a square floor plan. The shed roof extends out to create an eave overhanging the west-facing facade but is flush with the other three exterior walls.

Archaeological Remains [] Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [x] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [x] HABS/HAER record search
[] other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) SRB Disassembly and Refurbishment Complex HAER Documentation

OPINION OF RESOURCE SIGNIFICANCE Clear Significance Values

Appears to meet the criteria for National Register listing individually? [] yes [x] no [] insufficient information
Appears to meet the criteria for National Register listing as part of a district? [x] yes [] no [] insufficient information

Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The High Pressure Gas Building is a contributing resource in the NRHP-eligible, HAER-documented SRB Disassembly and Refurbishment Complex, and also contributes to the larger CCAFS Industrial Area historic district.

Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Other 3. ___ 5. ___
2. ___ 4. ___ 6. ___

DOCUMENTATION Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s ___
2) Document type ___ Maintaining organization ___
Document description ___ File or accession #'s ___

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments
1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

DESCRIPTION OF RESOURCE:

The High Pressure Gas Building (1963) is a one-story concrete block building with a shed roof, cast-in-place concrete foundation, and a square floor plan. The shed roof extends out to create an eave overhanging the west-facing façade and is flush with the other three exterior walls. There are four side-by-side gaseous nitrogen holding tanks on the east side of the building. These tanks date from the building's original construction for the Apollo Program and are no longer in use. The front (west) façade of the building was originally an open bay, hence its original nickname as the "lean-to" building, and it was enclosed with concrete block at an unknown date. A 1983 aerial photograph shows the building's west façade open, so it was not enclosed until after this date. The façade features a central roll-up door flanked by a single metal pedestrian entrance.

The interior of the High Pressure Gas Building consists of a single room that contains an Empire blast cabinet, a machine used to strip the metal surfaces of solid rocket booster (SRB) small parts. It has a polished concrete floor. The blast machine is vented to the exterior on the east and north sides of the building. There is a 1,000-pound overhead crane with hoist that runs from the front to the back of the building that was used to load parts into the blast cabinet. The room is illuminated by suspended fluorescent light fixtures.

EXPLANATION OF EVALUATION:

Hangar AF and the High Pressure Gas Building were originally built in 1963 for NASA's Apollo program. According to technical reports, they were used for Saturn IB and Saturn V Staff Headquarters and Administrative Support Offices. The building was later adapted for the Space Shuttle Program (SSP) to house a blast machine. Each of the SRB segments contained a number of small but heavy aluminum parts that were individually removed for refurbishment at Hangar AF's Small Parts Processing Area and in the High Pressure Gas Building after each flight.

The entire Hangar AF Complex (SRB Disassembly and Refurbishment Historic District) functioned as a one-of-a-kind facility that is considered eligible for listing in the National Register of Historic Places (NRHP) in the context of the SSP (1969-2011) under Criterion A in the area of Space Exploration. The complex is a significant historic property for its association with the Space Transportation System (STS), commonly known as the "space shuttle." The STS was a unique breakthrough in the history of the U.S. Space Program, because it was based on a design that made most of its major components re-usable, a model that decreased program costs, and helped make orbital space flight a routine endeavor. Along with the orbiter spacecraft, the SRBs were two of the shuttle's primary re-usable elements. The SRBs' re-usability was made possible by a number of facilities at Kennedy Space Center (KSC) and CCAFS, including the SRB Disassembly and Refurbishment Complex. The complex is the first place to which the SRBs were brought after their recovery from sea and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for buildup and assembly. Because it achieved significance within the past 50 years, Criteria Consideration G also applies. The High Pressure Gas building, as one component of this complex, is considered a contributing resource to the SRB Disassembly and Refurbishment Historic District as it played an essential role in the re-usability of the SRBs.

BIBLIOGRAPHIC REFERENCES:

Photographs and Drawings

Bail, Horton & Associates. "Hangar 'AF'." Kennedy Space Center, Florida. Construction Drawings, 1962.

Kennedy Space Center.

Photograph negative number 108-KSC-378C-203/3, 1978. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-81PC-459, 1981. On file at Kennedy Space Center Archives.

Photograph negative number 116-KSC-383C-1256, 1983. On file at Kennedy Space Center Archives.

Interviews

Christy, Howard, RPSF Manager, Personal Communication, February 24, 2010.

Morales, Art. George C. Marshall Space Flight Center
Office of the Director Shuttle - ARES Transition Office. Interview with author.
September 27, 2011.

Price, David. Hangar AF Facility Manager, United Space Alliance. Interview with the author. September 27, 2011.

Sources

Deming, Joan, and Patricia Slovinac. *NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch. Sarasota, Florida: Archaeological Consultants, Inc. February 2008, revised July 2008.

Kennedy Space Center. *Technical Facilities Resume: Hangar AF*. Facility No. 10-00-22-00 (John F. Kennedy Space Center, Florida, 1966), 43-44. On file at Kennedy Space Center Archives.

National Aeronautics and Space Administration (NASA)

NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-KSC, Revised 2006.

NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

United Space Alliance

“Marine Operations, Revision J.” (John F. Kennedy Space Center, n.d.), MO-1.

“Structures Assembly Buildup Operations, Revision J” (John F. Kennedy Space Center, n.d.).

McQuade, Thomas J., Donna A. McQuade, and George Bail. “George H. Bail AIA” (Fort Myers, FL: American Institute of Architects FLASW and The Southwest Florida Museum of History, 2011), 1. <http://mcmo-swfl.com/bio/Bail-%20George%20H%20-%20Narrative.pdf>. Accessed November 17, 2011.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



High Pressure Gas Building, Exterior

Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02003**
Field Date 5-13-2013
Form Date 7-30-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) High Pressure Wash Facility Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg 66240 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) _____
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 ¼ section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540457 Northing 3151063
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1979 approximately year listed or earlier year listed or later
Original Use Other From (year): 1979 To (year): 2011
Current Use Abandoned/Vacant From (year): _____ To (year): _____
Other Use SRB processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): Sverdrup & Parcel and Assoc. Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA is the original owner.

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Flat 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) N/A

Distinguishing Architectural Features (exterior or interior ornaments) N/A

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) N/A

DHR USE ONLY

OFFICIAL EVALUATION

DHR USE ONLY

NR List Date _____	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info Date _____ Init. _____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info Date _____
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)

DESCRIPTION (continued)

Clear Description Values

Chimney: No. ____ Chimney Material(s): 1. _____ 2. _____
 Structural System(s): 1. Concrete block 2. _____ 3. _____
 Foundation Type(s): 1. Slab 2. _____ Note: you may use the last box in each field to type in
 Foundation Material(s): 1. Poured Concrete Footing 2. _____ an answer that does not appear in the list provided
 Main Entrance (stylistic details) single-light metal doors throughout, vertical lift bay doors on work bays

Porch Descriptions (types, locations, roof types, etc.) N/A

Condition (overall resource condition): excellent good fair deteriorated ruinous

Narrative Description of Resource A one-story building of concrete block and precast concrete construction. It has a rectangular floor plan with four side-by-side work bays, including an equipment room, high-pressure wash room, mechanical build-up bay, and ETA ring build-up bay.

Archaeological Remains _____ Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

FMSF record search (sites/surveys) library research building permits Sanborn maps
 FL State Archives/photo collection city directory occupant/owner interview plat maps
 property appraiser / tax records newspaper files neighbor interview Public Lands Survey (DEP)
 cultural resource survey (CRAS) historic photos interior inspection HABS/HAER record search
 other methods (describe) _____

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) SRB Disassembly and Refurbishment Complex
HAER Documentation

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? yes no insufficient information

Appears to meet the criteria for National Register listing as part of a district? yes no insufficient information

Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The High Pressure Wash Building is a contributing resource in the NRHP-eligible SRB Disassembly and Refurbishment Complex, and also contributes to the larger NASA-owned CCAFS Industrial Area Historic District.

Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Other 3. _____ 5. _____
 2. _____ 4. _____ 6. _____

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
 Document description Survey report File or accession #'s _____
 2) Document type _____ Maintaining organization _____
 Document description _____ File or accession #'s _____

RECORDER INFORMATION

Recorder Name David L. Price Affiliation National Aeronautics and Space Administration
 Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
 (address / phone / fax / e-mail)

Required Attachments

① USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED

② LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)

③ PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable).

Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

DESCRIPTION OF RESOURCE:

The High Pressure Wash Building was completed during the 1977-79 modifications of the Hangar AF area. The building was completed to house the manual high-pressure wash system that removed the remaining residue of the Thermal Protection System (TPS) off the solid rocket booster (SRB) segments. The segments went to the First Wash Building and then to the High Pressure Wash Building before being disassembled in Hangar AF.

The High Pressure Wash Building is a one-story industrial-type building of concrete block and precast concrete construction. It has a rectangular floor plan composed of a line of four side-by-side work bays. From north to south, the work bays include an equipment room, high-pressure washroom (with turntable in floor), mechanical buildup bay, and ETA ring buildup bay. This last room was also used as a storage area for the MPSS. The building has a nearly flat precast concrete slab roof that slopes from front (west) to back (east). The roof is rimmed with a galvanized roof edge fascia and galvanized gutters. A single metal exhaust fan stack protrudes from the roof of the northernmost equipment room.

The building's exterior features painted concrete block with precast 16" concrete pilasters. The building is accessed via a series of four steel roll-up doors on the west elevation, one on each work bay. The equipment room has a small steel roll-up door, which is suitable for people and small equipment, while the other three bays have full bay-sized roll-up doors. There are also pedestrian entrance doors into each of the three work bays.

The interior of the High Pressure Wash Building has four rooms. All have concrete block interior walls, concrete slab ceilings, and concrete slab floors. The northernmost room is an equipment storage and observation room that looks into the wash bay next door. The equipment room is primarily a tool and equipment storage room. The high-pressure washroom contains a 20'-0" diameter mechanical turntable embedded in the floor. SRB components such as the aft skirts, forward skirts, and frustums were placed on top of the turntable and rotated for high-pressure wash. The mechanical buildup room, originally called the "wash/rinse room," has a similar configuration as the high-pressure washroom, except it has no turntable in the floor, no observation window, and no metal work stand. The ETA buildup room, originally called the "dry room," is the southernmost room of the building. The room's configuration is similar to the wash/rinse room. It has a 1-ton crane installed laterally from north to south across the ceiling.

EXPLANATION OF EVALUATION:

The High Pressure Wash Building was constructed in 1979 to aid in the refurbishment of the Space Shuttle's SRBs. After demating in Hangar AF, the SRB segments were transferred to the High Pressure Wash Building's high-pressure washroom. The segments were placed on the in-floor turntable, which rotated while workers on stationary work stands washed off TPS materials. Additional washing and parts removal occurred in the mechanical buildup room. From the High Pressure Wash Building, the SRB segments were transferred to the MMBF for further blasting of all remaining surface paint down to bare aluminum.

The entire Hangar AF Complex (SRB Disassembly and Refurbishment Historic District) functioned as a one-of-a-kind facility that is considered eligible for listing in the National Register of Historic Places (NRHP) in the context of the SSP (1969-2011) under Criterion A in the area of Space Exploration. The complex is a significant historic property for its association with the Space Transportation System (STS), commonly known as the “space shuttle.” The STS was a unique breakthrough in the history of the U.S. Space Program, because it was based on a design that made most of its major components re-usable, a model that decreased program costs, and helped make orbital space flight a routine endeavor. Along with the orbiter spacecraft, the SRBs were two of the shuttle’s primary re-usable elements. The SRBs’ re-usability was made possible by a number of facilities at Kennedy Space Center (KSC) and CCAFS, including the SRB Disassembly and Refurbishment Complex. The complex is the first place to which the SRBs were brought after their recovery from sea and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for buildup and assembly. Because it achieved significance within the past 50 years, Criteria Consideration G also applies. The High Pressure Wash building, as one component of this complex, is considered a contributing resource to the SRB Disassembly and Refurbishment Historic District as it played an essential role in the re-usability of the SRBs.

BIBLIOGRAPHIC REFERENCES:

Photographs and Drawings

Sverdrup & Parcel and Associates. “Solid Rocket Booster Recovery & Disassembly Facility, Hangar AF, CCAFS, Industrial Area.” Kennedy Space Center, Florida. Construction drawings, 1977.

Kennedy Space Center.

Photograph negative number 108-KSC-81PC-459, 1981. On file at Kennedy Space Center Archives.

Photograph negative number 116-KSC-383C-1256, 1983. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-378C-364/3, 1978. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-3796-1060/3, 1979. On file at Kennedy Space Center Archives.

Interviews

Christy, Howard, RPSF Manager, Personal Communication, February 24, 2010.

Morales, Art. George C. Marshall Space Flight Center

Office of the Director Shuttle - ARES Transition Office. Interview with author. September 27, 2011.

Price, David. Hangar AF Facility Manager, United Space Alliance. Interview with the author. September 27, 2011.

Sources

Deming, Joan, and Patricia Slovinac. *NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch. Sarasota, Florida: Archaeological Consultants, Inc. February 2008, revised July 2008.

National Aeronautics and Space Administration (NASA)
NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-KSC, Revised 2006.

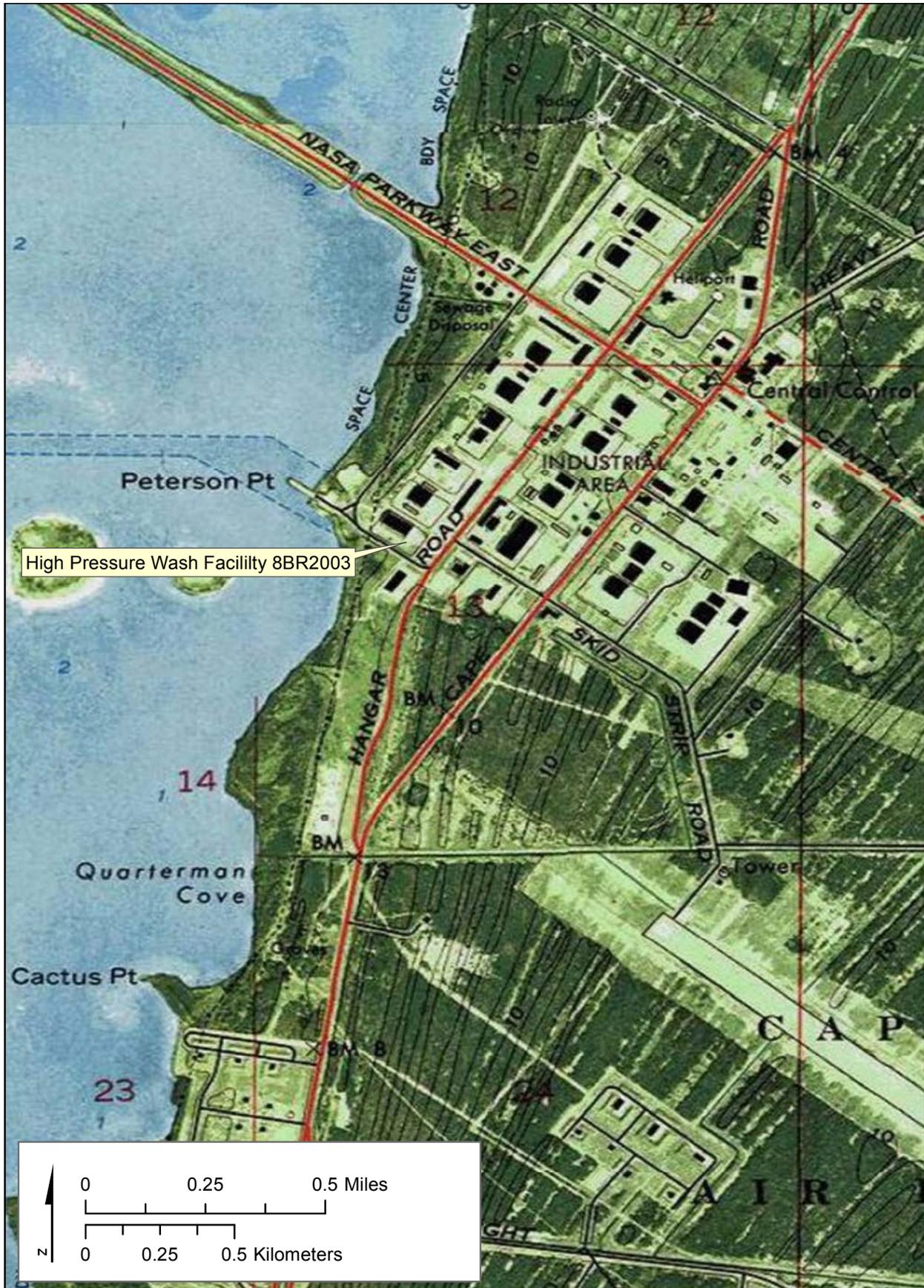
NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

Sverdrup Corporation: Company History. <http://www.fundinguniverse.com/company-histories/Sverdrup-Corporation-Company-History.html>. Accessed November 17, 2011.

United Space Alliance

“Marine Operations, Revision J.” (John F. Kennedy Space Center, n.d.), MO-1.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



High Pressure Wash Facility, Exterior



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02004**
Field Date 5-13-2013
Form Date 7-30-2013
Recorder # _____

Original
 Update

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) First Wash Building Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 66242 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # _____ Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540353 Northing 3151182
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1979 approximately year listed or earlier year listed or later
Original Use Other From (year): 1979 To (year): 2011
Current Use Abandoned/Vacant From (year): _____ To (year): _____
Other Use SRB processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): Sverdrup & Parcel and Assoc. Builder (last name first): unkonwn
Ownership History (especially original owner, dates, profession, etc.) NASA is the original owner.

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Flat 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) N/A

Distinguishing Architectural Features (exterior or interior ornaments) N/A

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) N/A

DHR USE ONLY

OFFICIAL EVALUATION

DHR USE ONLY

NR List Date _____	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info Date _____ Init. _____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="button" value="Clear Check Boxes"/> Date _____
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)

DESCRIPTION (continued)

[Clear Description Values](#)

Chimney: No. _____ Chimney Material(s): 1. _____ 2. _____
 Structural System(s): 1. Concrete block 2. _____ 3. _____
 Foundation Type(s): 1. Slab 2. _____
 Foundation Material(s): 1. Poured Concrete Footing 2. _____ Note: you may use the last box in each field to type in
 an answer that does not appear in the list provided
 Main Entrance (stylistic details) single-light pedestrian entrance

Porch Descriptions (types, locations, roof types, etc.) N/A

Condition (overall resource condition): excellent good fair deteriorated ruinous

Narrative Description of Resource This is a one-story car-wash type building with three sections: a central closed pump/equipment room flanked by two open wash bays.

Archaeological Remains _____ Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> FMSF record search (sites/surveys) | <input checked="" type="checkbox"/> library research | <input type="checkbox"/> building permits | <input type="checkbox"/> Sanborn maps |
| <input type="checkbox"/> FL State Archives/photo collection | <input type="checkbox"/> city directory | <input checked="" type="checkbox"/> occupant/owner interview | <input type="checkbox"/> plat maps |
| <input type="checkbox"/> property appraiser / tax records | <input checked="" type="checkbox"/> newspaper files | <input type="checkbox"/> neighbor interview | <input type="checkbox"/> Public Lands Survey (DEP) |
| <input checked="" type="checkbox"/> cultural resource survey (CRAS) | <input checked="" type="checkbox"/> historic photos | <input checked="" type="checkbox"/> interior inspection | <input checked="" type="checkbox"/> HABS/HAER record search |
| <input type="checkbox"/> other methods (describe) _____ | | | |

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) SRB Disassembly and Refurbishment Complex
HAER Documentation

OPINION OF RESOURCE SIGNIFICANCE

[Clear Significance Values](#)

Appears to meet the criteria for National Register listing individually? yes no insufficient information

Appears to meet the criteria for National Register listing as part of a district? yes no insufficient information

Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The First Wash Building is a contributing resource in the NRHP-eligible SRB Disassembly and Refurbishment Complex, and also contributes to the larger NASA-owned CCAFS Industrial Area Historic District.

Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Other 3. _____ 5. _____
 2. _____ 4. _____ 6. _____

DOCUMENTATION

[Clear Documentation Values](#)

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

- 1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
 Document description Survey report File or accession #'s _____
- 2) Document type _____ Maintaining organization _____
 Document description _____ File or accession #'s _____

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates

Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
 (address / phone / fax / e-mail)

Required Attachments

- ① USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
- ② LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
- ③ PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable).
 Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

DESCRIPTION OF RESOURCE:

The First Wash Building is a one-story car-wash type building that was used to give the Solid Rocket boosters (SRBs) an initial water hydrolase wash before proceeding to other steps in the refurbishment process. The building has a rectangular floor plan in three sections: a central closed pump/equipment room flanked by two open wash bays. The roof is composed of precast pre-stressed hollow core concrete slabs. The roof slabs are slightly pitched over the north wash bay to create a slope for water runoff.

The exterior of the building is composed of its exposed structural system of load-bearing concrete block panels separated by 16" x 16" precast concrete pilasters. These pilasters create an arrangement of eight wall sections on the west and east elevations, and four wall sections on the north and south elevations. The west and east elevations have identical arrangements of open wash bays on their north and south ends, with the enclosed pump/equipment room in between. At the building roofline on the west and east elevations, the pilasters rise to join cantilevered concrete beams, which originally held sliding horizontal bay doors. Each wash bay is accessible by two metal roll-up doors, along with four pedestrian entrance doors, one on each building elevation.

The central enclosed pump/equipment room is accessed by exterior pedestrian entrance doors and an interior metal roll-up door on the west elevation. There are also interior pedestrian doors that lead from the wash bays into the pump/equipment room. The building has no windows. There is a one-story equipment "lean-to" on the north elevation of the building. The First Wash Building originally had four specially designed horizontal sliding doors that were replaced at an unknown date with standard motor-operated, rolling steel doors. The original doors featured large main panels that opened and closed to allow the SRBs entry into the interior workspace. These doors also contained smaller, secondary sliding doors that covered circular openings with a diameter that matched that of the SRBs.

Each of the building's wash bays has concrete block walls and concrete ceilings and floors. In between the rail car tracks on the floor of each bay is a linear metal water drain covered with a metal filter grate. Wastewater and Thermal Protection System (TPS) material flowed into these drains into the first of two sumps that pumped it over a mechanical roll filter to remove TPS solids. The water then flowed into a second sump that pumped it through paper cartridge filters. The water was then filtered a third time with chemicals before being pumped into an aboveground storage tank located just north of the First Wash Building. The walls of each bay in the building are mounted with high-pressure plumbing pipes and fixtures that serve the hydrolase equipment. The interior of the pump/equipment room contains three high-pressure water pumps, one serves the south bay, one the north bay, and the third is a stand-by pump.

EXPLANATION OF EVALUATION:

The First Wash Building was built in 1979 to aid in the refurbishment of the Space Shuttle's SRBs. The SRBs were moved from the SRB Recovery Slip on rail cars into the First Wash Building for a high-pressure hydrolase water wash at 20,000 pounds of pressure per square inch. The boosters were hydrolased with both overhead spray bars and by manual hydrolase guns,

which removed approximately 90 percent of their TPS. The wastewater is collected in a series of drains, sumps, and filters before it is cleaned and stored in an adjacent aboveground tank for future use. While in the First Wash Building, the boosters' exit cones were removed and inspected. The exit cones were then shipped back to their manufacturer, a defense and aerospace company in Utah called ATK, for refurbishment.

The entire Hangar AF Complex (SRB Disassembly and Refurbishment Historic District) functioned as a one-of-a-kind facility that is considered eligible for listing in the National Register of Historic Places (NRHP) in the context of the Space Shuttle Program (SSP) (1969-2011) under Criterion A in the area of Space Exploration. The complex is a significant historic property for its association with the Space Transportation System (STS), commonly known as the "space shuttle." The STS was a unique breakthrough in the history of the U.S. Space Program, because it was based on a design that made most of its major components re-usable, a model that decreased program costs, and helped make orbital space flight a routine endeavor. Along with the orbiter spacecraft, the SRBs were two of the shuttle's primary re-usable elements. The SRBs' re-usability was made possible by a number of facilities at Kennedy Space Center (KSC) and CCAFS, including the SRB Disassembly and Refurbishment Complex. The complex is the first place to which the SRBs were brought after their recovery from sea and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for buildup and assembly. Because it achieved significance within the past 50 years, Criteria Consideration G also applies. The First Wash Building, as one component of this complex, is considered a contributing resource to the SRB Disassembly and Refurbishment Historic District as it played an essential role in the re-usability of the SRBs.

BIBLIOGRAPHIC REFERENCES:

Photographs and Drawings

Sverdrup & Parcel and Associates. "Solid Rocket Booster Recovery & Disassembly Facility, Hangar AF, CCAFS, Industrial Area." Kennedy Space Center, Florida. Construction drawings, 1977.

Kennedy Space Center.

Photograph negative number 116-KSC-373c-548/16. 1973. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-378C-203/3. 1978. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-81PC-459. 1983. On file at Kennedy Space Center Archives.

Photograph negative number 116-KSC-383C-1256. 1983. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-378C-759. 1978. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-379C-1060/1. 1979. On file at Kennedy Space Center Archives.

Interviews

Christy, Howard, RPSF Manager, Personal Communication, February 24, 2010.

Morales, Art. George C. Marshall Space Flight Center
Office of the Director Shuttle - ARES Transition Office. Interview with author.
September 27, 2011.

Price, David. Hangar AF Facility Manager, United Space Alliance. Interview with the author. September 27, 2011.

Sources

Brown, Joseph Andrew. *Bid Cost of Shuttle Facilities, Construction Bidding Cost of KSC's Space Shuttle Facilities*. Proceedings from the 23rd Annual American Association of Cost Engineers Meeting, Cincinnati, Ohio, July 15-18, 1979, 14. On file at Kennedy Space Center Archives.

Cape Canaveral Air Force Station Master Plan and Building Schedule. Department of the Air Force, Air Force Systems Command. Cape Canaveral, Florida, 1963.

Deming, Joan, and Patricia Slovinac. *NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch. Sarasota, Florida: Archaeological Consultants, Inc. February 2008, revised July 2008.

Kennedy Space Center. *Technical Facilities Resume: Hangar AF*. Facility No. 10-00-22-00 (John F. Kennedy Space Center, Florida, 1966), 43-44. On file at Kennedy Space Center Archives.

National Aeronautics and Space Administration (NASA)
NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-KSC, Revised 2006.

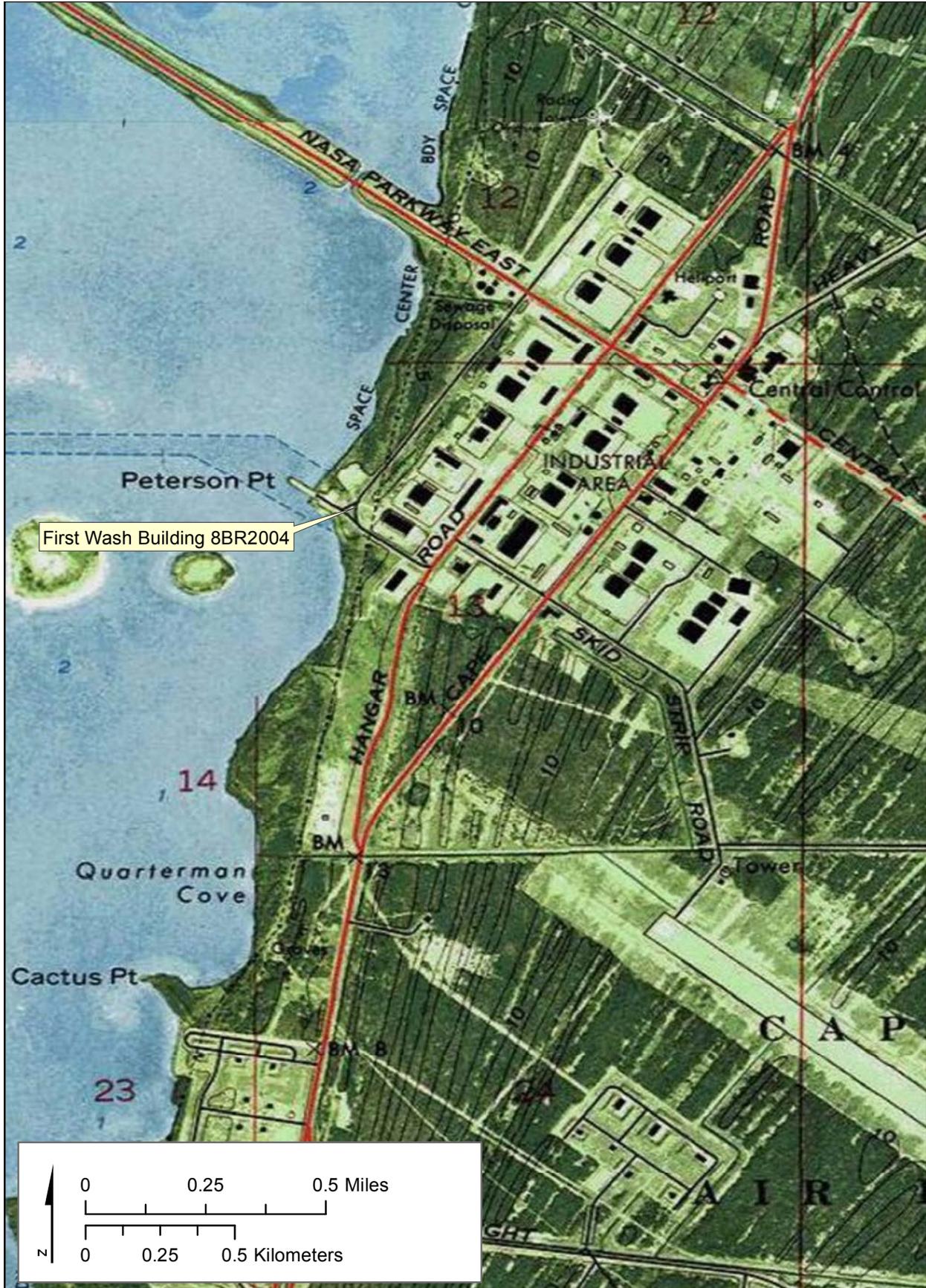
NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

Sverdrup Corporation: Company History. <http://www.fundinguniverse.com/company-histories/Sverdrup-Corporation-Company-History.html>. Accessed November 17, 2011.

United Space Alliance

“Marine Operations, Revision J.” (John F. Kennedy Space Center, n.d.), MO-1.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



First Wash Building, Exterior

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Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02005**
Field Date 5-13-2013
Form Date 7-30-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) SRB Recovery Slip Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg 66244 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # _____ Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540118 Northing 3151228
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1979 approximately year listed or earlier year listed or later
Original Use Other From (year): 1979 To (year): 2011
Current Use Abandoned/Vacant From (year): _____ To (year): _____
Other Use SRB processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): Sverdrup & Parcel and Assoc. Builder (last name first): _____
Ownership History (especially original owner, dates, profession, etc.) NASA is the original owner.
Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style No style Exterior Plan T-shaped Number of Stories N/A
Exterior Fabric(s) 1. Concrete-poured 2. _____ 3. _____
Roof Type(s) 1. _____ 2. _____ 3. _____
Roof Material(s) 1. _____ 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) N/A
Distinguishing Architectural Features (exterior or interior ornaments) N/A
Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) N/A

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date _____	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date _____	Init. _____		
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Clear Check Boxes	Date _____			
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin</i> 15, p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. ___ Chimney Material(s): 1. ___ 2. ___ 3. ___
Structural System(s): 1. Cast-in-place concrete 2. ___ 3. ___
Foundation Type(s): 1. ___ 2. ___
Foundation Material(s): 1. ___ 2. ___
Main Entrance (stylistic details) N/A

Porch Descriptions (types, locations, roof types, etc.) N/A

Condition (overall resource condition): [] excellent [x] good [] fair [] deteriorated [] ruinous
Narrative Description of Resource This is a T-shaped concrete slip at the water's edge with an opening 25 ft. wide, 96 ft long, and 12 ft. deep used to receive the SRB's after retrieval.

Archaeological Remains ___ [] Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [x] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [x] HABS/HAER record search
[] other methods (describe) ___

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) SRB Disassembly and Refurbishment Complex
HAER Documentation

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? [] yes [x] no [] insufficient information
Appears to meet the criteria for National Register listing as part of a district? [x] yes [] no [] insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The SRB Recovery Slip is a contributing resource in the NRHP-eligible SRB Disassembly and Refurbishment Complex, and also contributes to the larger NASA-owned CCAFS Industrial Area Historic District.
Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Other 3. ___ 5. ___
2. ___ 4. ___ 6. ___

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s ___
2) Document type ___ Maintaining organization ___
Document description ___ File or accession #'s ___

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

DESCRIPTION OF RESOURCE:

The Solid Rocket Booster (SRB) Recovery Slip is located on the Banana River at the far western edge of the Hangar AF Complex. The T-shaped slip is used to lift the SRBs out of the water after they are recovered and towed in from sea. It is located immediately north of Hangar AF's original concrete pad, which was used to receive Saturn rocket components.

The slip consists of a concrete bulkhead facing the water and a perpendicular slip opening, into which the SRBs are floated for recovery. Once inside the slip, a 200-ton capacity gantry crane straddles the slip and lifts the SRBs out of the water. The bulkhead is approximately 100 feet long from north to south and is faced with marine rubber fenders. Marine cleats positioned at regular intervals along the top of the bulkhead allow the retrieval ships to tie up once they are in port.

The slip's opening is 25'-0" wide, 96'-0" long, and 12'-0" deep. There are marine rubber fenders at the mouth and terminal end of the slip, but the majority of its length is lined with 4" x 8" timber fenders. The eastern end of the slip features a pair of circular or cylinder-shaped marine rubber fenders. There is a 1'-0" concrete curb extending around the top perimeter of the bulkhead and slip. The ground surface surrounding the slip is concrete pavement. There are capstans (hydraulic machines used to tighten ship lines and cables) mounted on either side of the slip mouth and one at its terminal end.

EXPLANATION OF EVALUATION:

The SRB Recovery Slip was constructed in 1979. The disassembly and refurbishment process began at the SRB Recovery Slip on the west end of the complex, where the SRBs were towed by the *Freedom Star* and *Liberty Star* ships. The SRBs were then floated, one at a time, into the slip. A mobile 200-ton capacity gantry crane then lifted the SRBs out of the slip and placed them onto specially-designed rail cars, or dollies, which moved along tracks embedded in the paved surface of the complex. The dollies resemble flatbed rail cars, each of which is equipped with a series of eight semi-circle "cradles" that hold the SRBs. The cradles all have belts and rollers along their inside surface that allow workers to rotate the SRBs into correct position using control panels mounted on the sides of the dollies.

The two sets of dolly rail tracks extend all the way from the slip area through the wash bays of the First Wash Building and then into Hangar AF where both SRBs were processed at the same time. The SRBs weighed approximately 190,000 pounds at the beginning of the refurbishment process. After the SRBs were removed from the slip, the booster frustums and parachutes were offloaded from the ships, placed on transport trailers, and taken to Hangar AF for processing.

The entire Hangar AF Complex (SRB Disassembly and Refurbishment Historic District) functioned as a one-of-a-kind facility that is considered eligible for listing in the National Register of Historic Places (NRHP) in the context of the Space Shuttle Program (SSP) (1969-2011) under Criterion A in the area of Space Exploration. The complex is a significant historic property for its association with the Space Transportation System (STS), commonly known as the "space shuttle." The STS was a unique breakthrough in the history of the U.S. Space

Program, because it was based on a design that made most of its major components re-usable, a model that decreased program costs, and helped make orbital space flight a routine endeavor. Along with the orbiter spacecraft, the SRBs were two of the shuttle's primary re-usable elements. The SRBs' re-usability was made possible by a number of facilities at Kennedy Space Center (KSC) and CCAFS, including the SRB Disassembly and Refurbishment Complex. The complex is the first place to which the SRBs were brought after their recovery from sea and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for buildup and assembly. Because it achieved significance within the past 50 years, Criteria Consideration G also applies. The SRB Recovery Slip, as one component of this complex, is considered a contributing resource to the SRB Disassembly and Refurbishment Historic District as it played an essential role in the re-usability of the SRBs.

BIBLIOGRAPHIC REFERENCES:

Photographs and Drawings

Sverdrup & Parcel and Associates. "Solid Rocket Booster Recovery & Disassembly Facility, Hangar AF, CCAFS, Industrial Area." Kennedy Space Center, Florida. Construction drawings, 1977.

Kennedy Space Center.

Photograph negative number 116-KSC-373C-548/16. 1973. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-378C-203/3. 1978. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-81PC-459. 1983. On file at Kennedy Space Center Archives.

Photograph negative number 116-KSC-383C-1256. 1983. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-378C-759. 1978. On file at Kennedy Space Center Archives.

Photograph negative number 108-KSC-379C-1060/1. 1979. On file at Kennedy Space Center Archives.

Interviews

Christy, Howard, RPSF Manager, Personal Communication, February 24, 2010.

Morales, Art. George C. Marshall Space Flight Center
Office of the Director Shuttle - ARES Transition Office. Interview with author.
September 27, 2011.

Price, David. Hangar AF Facility Manager, United Space Alliance. Interview with the author. September 27, 2011.

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Brown, Joseph Andrew. *Bid Cost of Shuttle Facilities, Construction Bidding Cost of KSC's Space Shuttle Facilities*. Proceedings from the 23rd Annual American Association of Cost Engineers Meeting, Cincinnati, Ohio, July 15-18, 1979, 14. On file at Kennedy Space Center Archives.

Cape Canaveral Air Force Station Master Plan and Building Schedule. Department of the Air Force, Air Force Systems Command. Cape Canaveral, Florida, 1963.

Deming, Joan, and Patricia Slovinac. *NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch. Sarasota, Florida: Archaeological Consultants, Inc. February 2008, revised July 2008.

Kennedy Space Center. *Technical Facilities Resume: Hangar AF*. Facility No. 10-00-22-00 (John F. Kennedy Space Center, Florida, 1966), 43-44. On file at Kennedy Space Center Archives.

National Aeronautics and Space Administration (NASA)
NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-KSC, Revised 2006.

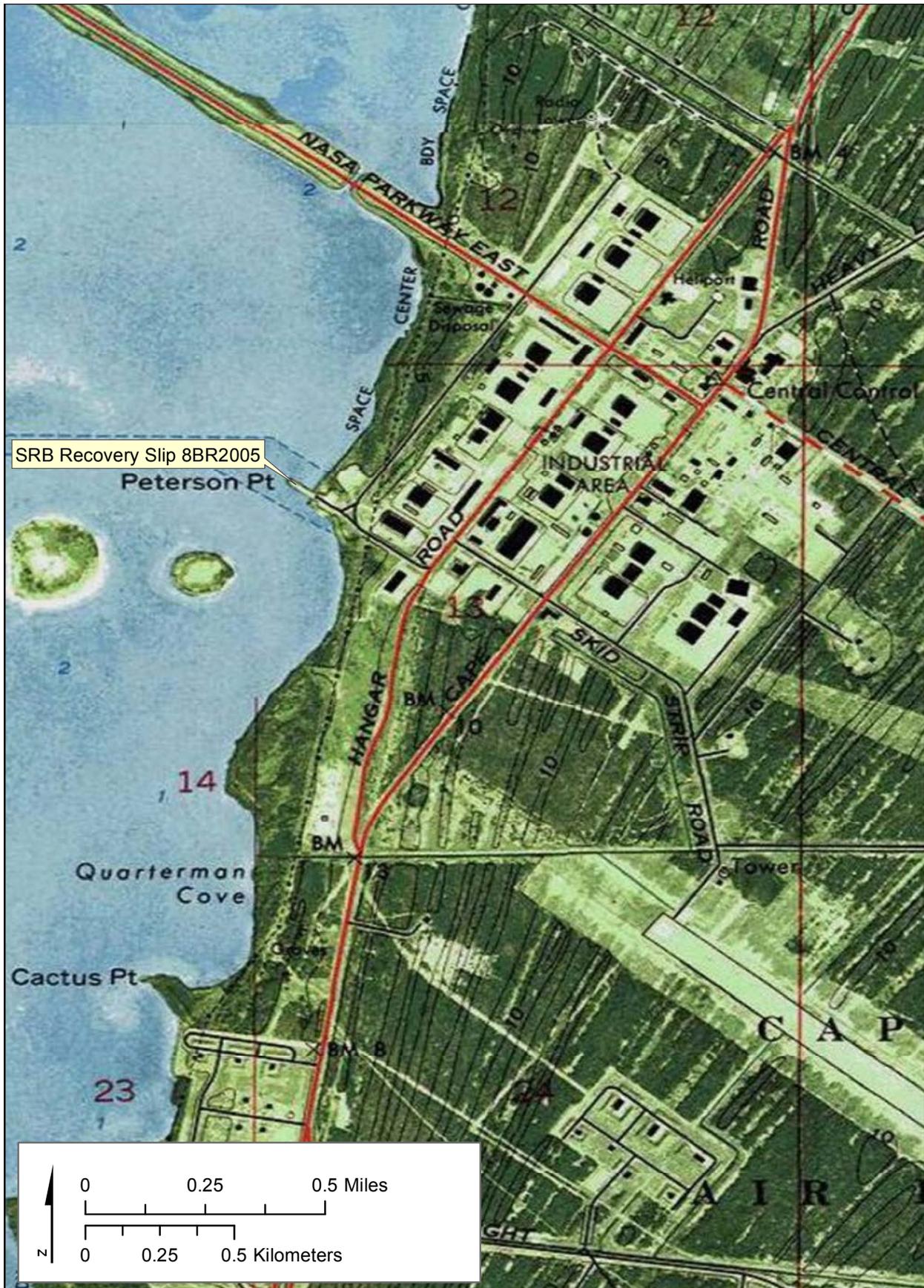
NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

Sverdrup Corporation: Company History. <http://www.fundinguniverse.com/company-histories/Sverdrup-Corporation-Company-History.html>. Accessed November 17, 2011.

United Space Alliance

“Marine Operations, Revision J.” (John F. Kennedy Space Center, n.d.), MO-1.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



SRB Recovery Slip, Exterior

Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02006**
Field Date 5-13-2013
Form Date 7-31-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) SRB Paint Building Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 66310 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540503 Northing 3151032
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1984 approximately year listed or earlier year listed or later
Original Use Other From (year): 1984 To (year): 2011
Current Use Abandoned/Vacant From (year): _____ To (year): _____
Other Use SRB processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): Burns and Roe Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA is the original owner.
Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Metal 2. _____ 3. _____
Roof Type(s) 1. Gable 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) N/A
Distinguishing Architectural Features (exterior or interior ornaments) N/A
Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) N/A

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. ___ Chimney Material(s): 1. ___ 2. ___
Structural System(s): 1. Steel skeleton 2. ___ 3. ___
Foundation Type(s): 1. Slab 2. ___
Foundation Material(s): 1. Poured Concrete Footing 2. ___
Main Entrance (stylistic details) Single-light, metal pedestrian entrance.

Porch Descriptions (types, locations, roof types, etc.) N/A

Condition (overall resource condition): [] excellent [x] good [] fair [] deteriorated [] ruinous

Narrative Description of Resource This is a one-story corrugated metal building with a lightly-pitched gable roof, rectangular footprint. The interior contains staging areas and paint cells for priming and painting SRB frustums, aft skirts, and forward skirts.

Archaeological Remains [] Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [x] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [x] HABS/HAER record search
[] other methods (describe) ___

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) SRB Disassembly and Refurbishment Complex HAER Documentation

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? [] yes [x] no [] insufficient information

Appears to meet the criteria for National Register listing as part of a district? [x] yes [] no [] insufficient information

Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The SRB Paint Building is a contributing resource in the NRHP-eligible SRB Disassembly and Refurbishment Complex, and also contributes to the larger NASA-owned CCAFS Industrial Area Historic District.

Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Other 3. ___ 5. ___
2. ___ 4. ___ 6. ___

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s ___
2) Document type ___ Maintaining organization ___
Document description ___ File or accession #'s ___

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments
1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

DESCRIPTION OF RESOURCE:

The Solid Rocket Booster (SRB) Paint Building is a one-story metal industrial-type building with a lightly pitched gable roof. There are metal ventilation stacks projecting from the roof. The main portion of the building has a rectangular footprint with a reinforced concrete foundation. Extending out from this main portion are additional rooms and equipment stacks, including a mechanical room, electrical room, and ventilation equipment.

The entire building is clad in corrugated aluminum siding. The north elevation features a pair of metal roll-up doors and a double pedestrian entrance. The west elevation is the building's most complex, containing the following components: a metal "lean-to" on the north end that covers the building's main pedestrian entrance and electrical equipment; a metal platform holding ventilation equipment and compressed air tanks over the projecting electrical room near the middle of the building; and a projecting mechanical room at the south end of the elevation. The east elevation features a non-original two-story projecting section that contains bathrooms on the ground floor and office space above. As on the west elevation, there is a metal platform structure that supports ventilation equipment. The south elevation features a single metal roll-up door and a double pedestrian entrance. There is a louvered metal vent over the pedestrian entrance.

The interior floor plan of the SRB Paint Building is organized according to the workflow as SRB segments go through the paint process. It is roughly divided into four sections: the blast booth/logistics area, the wash area, the spray booths, and the cure area. The blast and spray booth areas stand as separate structures within the overall building. They have their own independent structural systems that are not integrated into the steel framing of the surrounding building. The walnut blast booth use was discontinued with the construction of the Multi-Media Blast Facility. It was converted to use as a mechanical buildup room. Adjacent to the walnut blast booth is a multi-function area in the southeast corner of the building.

The wash area is an open bay between the walnut blast booth and the spray booths with a concrete floor. There are water/detergent and alodine drains embedded in the floor. The cure area on the north end of the building is an open work area with a concrete floor. The ceiling and walls are unfinished and reveal the building's metal structural system. There are two metal roll-up doors on the north wall, and an overhead 15-ton bridge crane that runs over the room from north to south.

EXPLANATION OF EVALUATION:

The SRB Paint Building was added to the Hangar AF Complex in 1984. It was completed to house the application of alodine and paint primer to the SRB frustums, forward skirts, and aft skirts after they had been disassembled and stripped of all paint and Thermal Protection System (TPS). The demated SRB segments entered the SRB Paint Building through the roll-up doors on the south or west elevations of the building. From there they were wheeled into the former walnut blast booth in the southwest corner of the building. Although glass beads are used now, until about 2000 this booth used ground walnut shells as a blast medium to strip the exterior of SRB segments down to bare metal.

From the blast booth, the SRB segments were moved into the area labeled “wash area” on the original construction drawings, where they were washed with water and then coated with alodine, an anti-corrosion primer that formed the first layer of protection for the segments.

Once cleaned and coated with alodine, the SRB segments were wheeled into one of the building’s two spray booths, labeled on the construction drawings as “spray booth no. 1” and “spray booth no. 2.” These booths have square floor plans with concrete floors and drywall walls. They are lit by fluorescent fixtures embedded in the ceiling. Here, the SRB segments receive coats of primer and a top coat of hypalon paint. These layers serve as the base for the later application of TPS.

Once primed and painted, the SRB segments were removed from the spray booth to the northernmost room of the facility called the 'cure area' where the finish dried and hardened. At that point the SRB segment refurbishment at Hangar AF was complete and they awaited shipment to the SRB ARF Manufacturing Building for further refurbishment and assembly

The entire Hangar AF Complex (SRB Disassembly and Refurbishment Historic District) functioned as a one-of-a-kind facility that is considered eligible for listing in the National Register of Historic Places (NRHP) in the context of the Space Shuttle Program (SSP) (1969-2011) under Criterion A in the area of Space Exploration. The complex is a significant historic property for its association with the Space Transportation System (STS), commonly known as the “space shuttle.” The STS was a unique breakthrough in the history of the U.S. Space Program, because it was based on a design that made most of its major components re-usable, a model that decreased program costs, and helped make orbital space flight a routine endeavor. Along with the orbiter spacecraft, the SRBs were two of the shuttle’s primary re-usable elements. The SRBs’ re-usability was made possible by a number of facilities at Kennedy Space Center (KSC) and CCAFS, including the SRB Disassembly and Refurbishment Complex. The complex is the first place to which the SRBs were brought after their recovery from sea and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for buildup and assembly. Because it achieved significance within the past 50 years, Criteria Consideration G also applies. The SRB Paint Building, as one component of this complex, is considered a contributing resource to the SRB Disassembly and Refurbishment Historic District as it played an essential role in the re-usability of the SRBs.

BIBLIOGRAPHIC REFERENCES:

Photographs and Drawings

Burns and Roe. “Solid Rocket Booster Paint Building - Modification to Existing High Pressure Wash Building.” Kennedy Space Center, Florida. Construction drawings, 1983.

Interviews

Christy, Howard, RPSF Manager, Personal Communication, February 24, 2010.

Morales, Art. George C. Marshall Space Flight Center
Office of the Director Shuttle - ARES Transition Office. Interview with author.
September 27, 2011.

Price, David. Hangar AF Facility Manager, United Space Alliance. Interview with the
author. September 27, 2011.

Sources

Burns and Roe. "History and Legacy." http://www.roe.com/about_legacy.htm. Accessed
December 20, 2011.

Deming, Joan, and Patricia Slovinac. *NASA-Wide Survey and Evaluation of Historic
Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report*. Submitted
to the National Aeronautics and Space Administration, Environmental Management
Branch. Sarasota, Florida: Archaeological Consultants, Inc. February 2008, revised July
2008.

National Aeronautics and Space Administration (NASA)
NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-
KSC, Revised 2006.

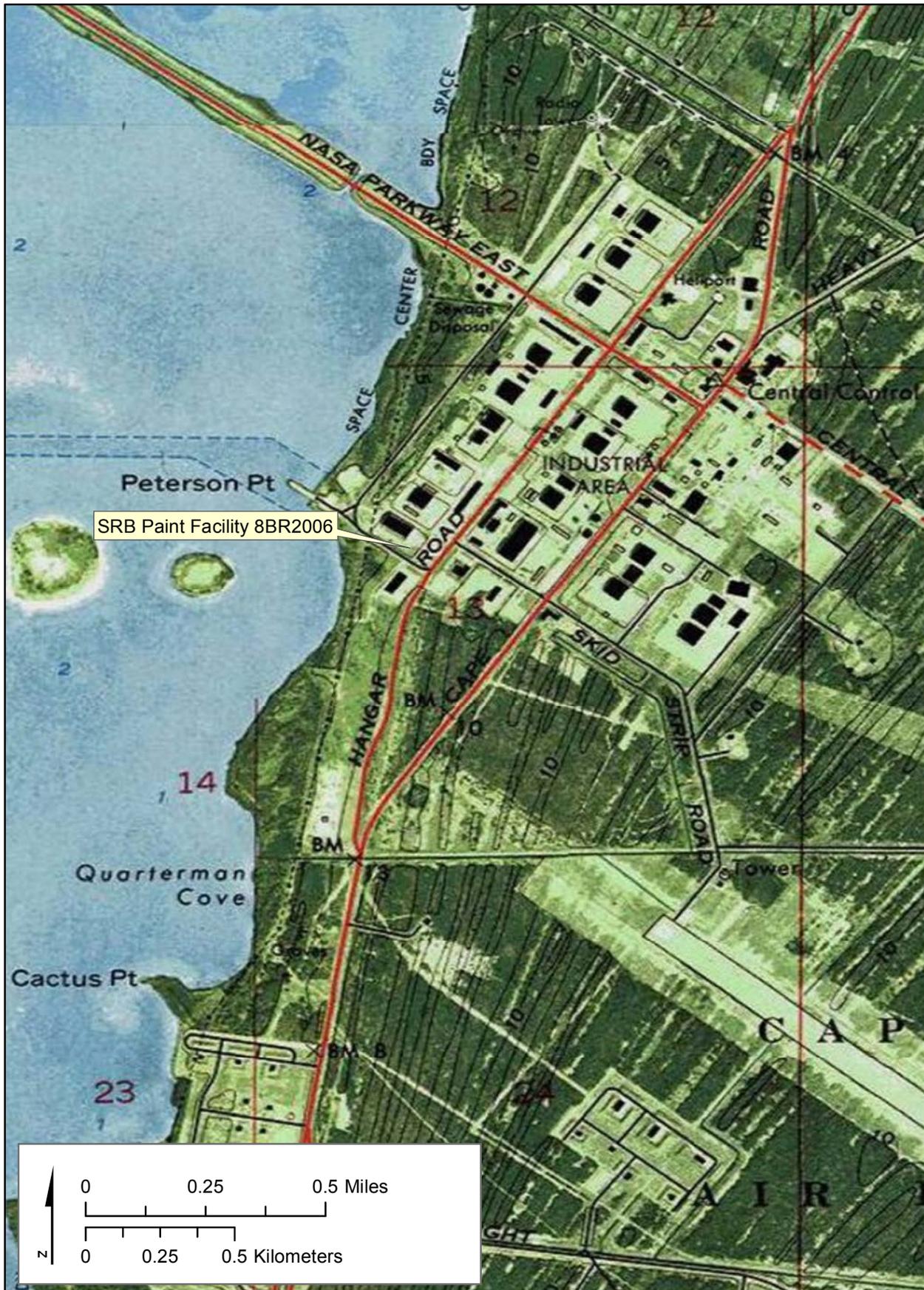
NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space
Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

United Space Alliance

"Marine Operations, Revision J." (John F. Kennedy Space Center, n.d.), MO-1.

"Structures Assembly Buildup Operations, Revision J" (John F. Kennedy Space Center,
n.d.).

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



SRB Paint Facility, Exterior

Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02007**
Field Date 5-13-2013
Form Date 7-31-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Robot Wash Building Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 66320 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540429 Northing 3151065
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1987 approximately year listed or earlier year listed or later
Original Use Other From (year): 1987 To (year): 2012
Current Use Abandoned/Vacant From (year): _____ To (year): _____
Other Use SRB processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): Wolfberg/Alvarez/Taracido Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA is the original owner.

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Flat 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) N/A
Distinguishing Architectural Features (exterior or interior ornaments) N/A

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) N/A

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

[Clear Description Values](#)

Chimney: No. _____ Chimney Material(s): 1. _____ 2. _____
 Structural System(s): 1. Concrete block 2. _____ 3. _____
 Foundation Type(s): 1. Slab 2. _____
 Foundation Material(s): 1. Poured Concrete Footing 2. _____
 Main Entrance (stylistic details) single-light metal pedestrian entrances

Note: you may use the last box in each field to type in an answer that does not appear in the list provided

Porch Descriptions (types, locations, roof types, etc.) N/A

Condition (overall resource condition): excellent good fair deteriorated ruinous

Narrative Description of Resource This is a one-story concrete block building with a flat built-up metal roof, aluminum cornice, and a reinforced concrete foundation. The main bay contains the robot wash machine and has a concrete block structural system.

Archaeological Remains _____ Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> FMSF record search (sites/surveys) | <input checked="" type="checkbox"/> library research | <input type="checkbox"/> building permits | <input type="checkbox"/> Sanborn maps |
| <input type="checkbox"/> FL State Archives/photo collection | <input type="checkbox"/> city directory | <input checked="" type="checkbox"/> occupant/owner interview | <input type="checkbox"/> plat maps |
| <input type="checkbox"/> property appraiser / tax records | <input checked="" type="checkbox"/> newspaper files | <input type="checkbox"/> neighbor interview | <input type="checkbox"/> Public Lands Survey (DEP) |
| <input checked="" type="checkbox"/> cultural resource survey (CRAS) | <input checked="" type="checkbox"/> historic photos | <input checked="" type="checkbox"/> interior inspection | <input checked="" type="checkbox"/> HABS/HAER record search |
| <input type="checkbox"/> other methods (describe) _____ | | | |

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) SRB Disassembly and Refurbishment Complex
HAER Documentation

OPINION OF RESOURCE SIGNIFICANCE

[Clear Significance Values](#)

Appears to meet the criteria for National Register listing individually? yes no insufficient information

Appears to meet the criteria for National Register listing as part of a district? yes no insufficient information

Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The Robot Wash Building is a contributing resource in the NRHP-eligible SRB Disassembly and Refurbishment Complex, and also contributes to the larger NASA-owned CCAFS Industrial Area Historic District.

Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Other 3. _____ 5. _____
 2. _____ 4. _____ 6. _____

DOCUMENTATION

[Clear Documentation Values](#)

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

- 1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
 Document description Survey report File or accession #'s _____
- 2) Document type _____ Maintaining organization _____
 Document description _____ File or accession #'s _____

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates

Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326

(address / phone / fax / e-mail)

Required Attachments

① USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED

② LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)

③ PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable).
 Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

DESCRIPTION OF RESOURCE:

The main portion of the Robot Wash Building is a painted concrete block bay with a flat built-up metal roof, aluminum cornice, and a reinforced concrete foundation. This bay contains the robot wash machine and has a concrete block structural system. It is surrounded on the south and west sides by one-story wraparound portions with steel frame structural systems that are clad in aluminum. The wraparound portion contains a hydraulic pump room on the west side and the control room/tech room/dressing room on the south side.

The east elevation features the robot bay roll-up door, roof-access ladder, and the aluminum clad end of the control room. The north elevation features a pedestrian entrance at ground level. Over this entrance is a rack of ventilation and compression equipment used by the interior wash robot. The south elevation features two ventilation louvers and the south face of the control room with two pedestrian entrances. The west elevation features a metal “lean-to” structure that houses additional ventilation and compression equipment.

The interior floor plan of the building includes four rooms: a blast room, containing the high-pressure wash robot; a control room; a tech room; and a dressing room. The robot bay has painted concrete block interior walls and a concrete floor with a 16'-0" diameter floor turntable. The ceiling is concrete. There is an observation window between this room and the control room. The robot includes a single movable arm that can be positioned to wash both the interior and exterior of the SRB segments. It blasts water at 17,500 psi. It travels diagonally across the blast bay on a steel overhead track that is supported by two concrete pillars.

EXPLANATION OF EVALUATION:

The Robot Wash Building was completed in 1987 to house an automated high-pressure water system used to blast Thermal Protection System (TPS) material off of the Solid Rocket Booster (SRB) segments. It is located just south of Hangar AF and the High Pressure Gas Building. Once they were demated in Hangar AF, the SRB segments were transferred to the High Pressure Wash or the Robot Wash buildings where the TPS was stripped. In the Robot Wash Building, an SRB segment was placed on the in-floor turntable that rotated while the automated high-pressure spray machine (the “robot”) moved up and down, left to right, inside and outside to remove the TPS material. A computer operator in the adjacent control room controlled the automated robot.

The entire Hangar AF Complex (SRB Disassembly and Refurbishment Historic District) functioned as a one-of-a-kind facility that is considered eligible for listing in the National Register of Historic Places (NRHP) in the context of the Space Shuttle Program (SSP) (1969-2011) under Criterion A in the area of Space Exploration. The complex is a significant historic property for its association with the Space Transportation System (STS), commonly known as the “space shuttle.” The STS was a unique breakthrough in the history of the U.S. Space Program, because it was based on a design that made most of its major components re-usable, a model that decreased program costs, and helped make orbital space flight a routine endeavor. Along with the orbiter spacecraft, the SRBs were two of the shuttle’s primary re-usable elements. The SRBs’ re-usability was made possible by a number of facilities at Kennedy Space Center (KSC) and CCAFS, including the SRB Disassembly and Refurbishment Complex. The complex

is the first place to which the SRBs were brought after their recovery from sea and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for buildup and assembly. Because it achieved significance within the past 50 years, Criteria Consideration G also applies. The Robot Wash Building, as one component of this complex, is considered a contributing resource to the SRB Disassembly and Refurbishment Historic District as it played an essential role in the re-usability of the SRBs.

BIBLIOGRAPHIC REFERENCES:

Photographs and Drawings

Wolfberg/Alvarez/Taracido & Associates. "Robot Operated High Pressure Wash Facility." Kennedy Space Center, Florida. Construction drawings, 1985.

Interviews

Christy, Howard, RPSF Manager, Personal Communication, February 24, 2010.

Morales, Art. George C. Marshall Space Flight Center
Office of the Director, Shuttle - ARES Transition Office. Interview with author.
September 27, 2011.

Pappalardo, David. United Space Alliance, TVC Technician. Interview with author.
October 11, 2011.

Price, David. United Space Alliance, Hangar AF Facility Manager. Interview with the
author. October 11, 2011.

Sources

Deming, Joan, and Patricia Slovinac. *NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch. Sarasota, Florida: Archaeological Consultants, Inc. February 2008, revised July 2008.

National Aeronautics and Space Administration (NASA)
NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-KSC, Revised 2006.

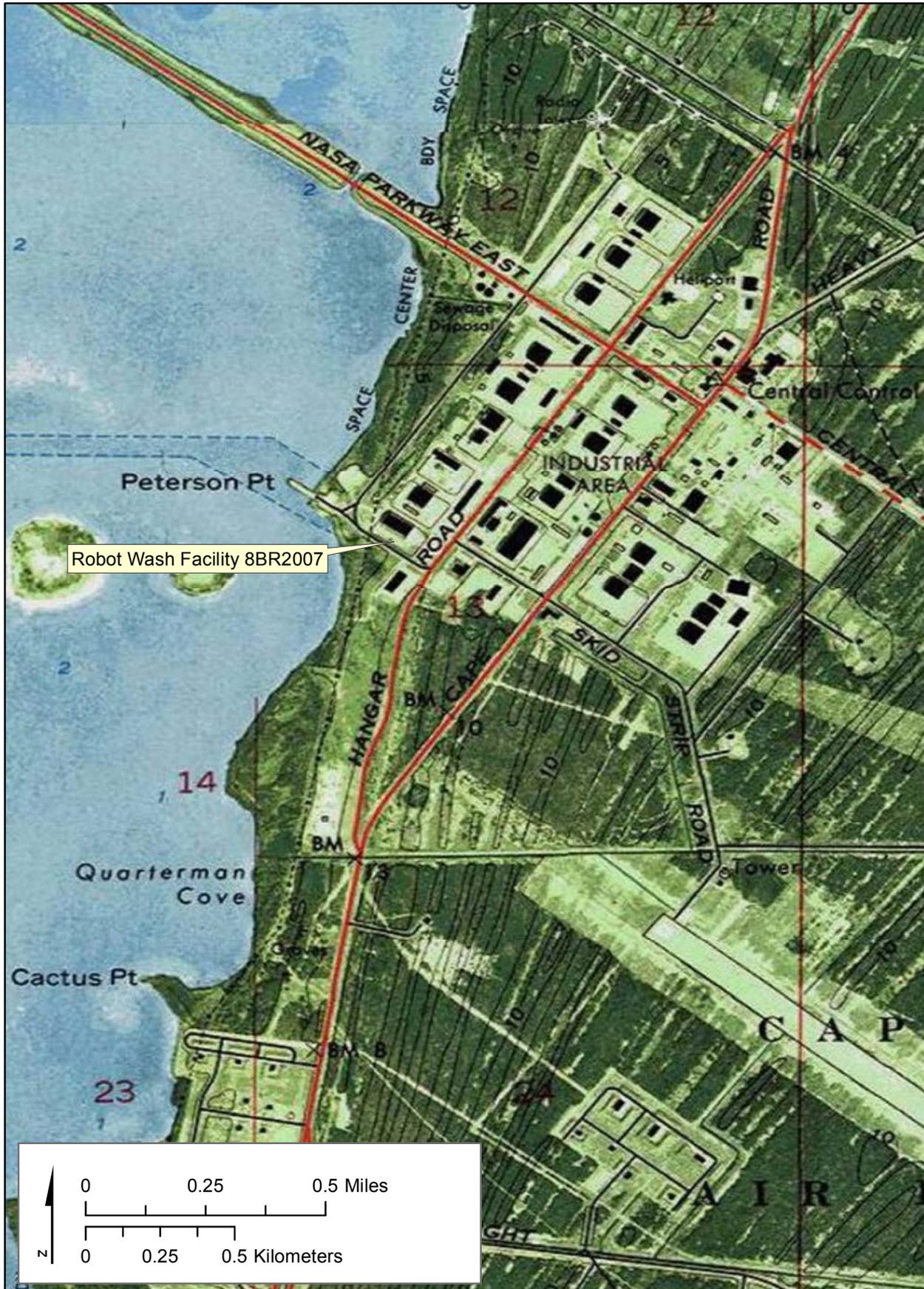
NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

United Space Alliance

"Marine Operations, Revision J." (John F. Kennedy Space Center, n.d.), MO-1.

“Structures Assembly Buildup Operations, Revision J” (John F. Kennedy Space Center, n.d.).

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Robot Wash Facility, Exterior

Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02008**
Field Date 5-13-2013
Form Date 7-31-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Thrust Vector Control Deservicing Bldg Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 66249 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540229 Northing 3151250
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1985 approximately year listed or earlier year listed or later
Original Use Other From (year): 1985 To (year): 2012
Current Use Abandoned/Vacant From (year): _____ To (year): _____
Other Use SRB processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): Burns and Roe Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA is the original owner.

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Metal 2. _____ 3. _____
Roof Type(s) 1. Shed 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) N/A
Distinguishing Architectural Features (exterior or interior ornaments) N/A

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) N/A

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. ___ Chimney Material(s): 1. ___ 2. ___
Structural System(s): 1. Steel skeleton 2. ___ 3. ___
Foundation Type(s): 1. Slab 2. ___
Foundation Material(s): 1. Poured Concrete Footing 2. ___
Main Entrance (stylistic details) Single-light metal pedestrian entrance
Porch Descriptions (types, locations, roof types, etc.) N/A

Condition (overall resource condition): [] excellent [x] good [] fair [] deteriorated [] ruinous

Narrative Description of Resource The TVC Deservicing Building is an industrial-type metal and concrete block building with a double-bay work area, storage/pump room, control area, and TVC processing area.

Archaeological Remains ___ [] Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [x] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [x] HABS/HAER record search
[] other methods (describe) ___

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) SRB Disassembly and Refurbishment Complex HAER Documentation

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? [] yes [x] no [] insufficient information
Appears to meet the criteria for National Register listing as part of a district? [x] yes [] no [] insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The TVC Deservicing Building is a contributing resource in the NRHP-eligible SRB Disassembly and Refurbishment Complex, and also contributes to the larger NASA-owned CCAFS Industrial Area Historic District.
Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Other 3. ___ 5. ___
2. ___ 4. ___ 6. ___

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s ___
2) Document type ___ Maintaining organization ___
Document description ___ File or accession #'s ___

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

DESCRIPTION OF RESOURCE:

The Thrust Vector Control (TVC) Deservicing Building is an industrial-type metal and concrete block building with a double-bay work area, storage/pump room, control area, and TVC process area. Each of the building's four areas is clad in corrugated metal siding and has its own roof. The main work bay has a slightly-pitched gable roof and the other areas have shed roofs. It has a cast-in-place concrete slab floor throughout and a reinforced concrete foundation.

The first 12' of the building's high-bay work area walls are built of concrete block, the upper portion is steel frame with corrugated metal siding. The work bay is accessed by two roll-up doors on the south façade. The one-story air compressor room portion of the building lies on the east side of the building, while the control area lies on the north side of the work bays. The control room, a long room that stretches the length of the building, is where operations in the work bay are observed. North of the control area is an addition that contains the TVC parts decontamination room, an office/staging area, and a break room with rest room. This addition was not included on the original 1984 construction drawings.

In the middle of the double-bay work area is the "skirt stand," a metal work platform device specifically designed to remove the TVC from the SRB aft skirts. The stand can service two skirts at one time, one on either side. The top level of the "skirt stand" has hinged extensions that lower down onto the curved top of the aft skirts. The bay work area surrounding the "skirt stand" resembles a typical hangar or mechanical work area. The unfinished interior is composed of the exposed concrete block and steel frame structural system of the building. There are viewing windows in the north wall that allow observation by staff in the control room. Overhead is a one-ton hoist that travels the length of the room on a track.

Through a pair of pedestrian doors on the east side of the bay area is the air compressor room. It has a cast concrete floor with exposed steel frame and corrugated metal walls and ceiling. Just north of the bay area is the building's control room. This room has a concrete block south wall with observation windows. The other walls are faced with drywall. The final interior part of the building is the north wing, which houses the TVC decontamination room, an office/staging area, and a break room with restroom.

EXPLANATION OF EVALUATION:

The TVC Deservicing Building was completed in 1985 to house the removal and cleaning of the TVC system from the SRB aft skirts. After the SRB aft skirts were demated in Hangar AF and the Thermal Protection System (TPS) removed through hydrolasing, the aft skirts were transferred to the TVC Deservicing Building on the northern edge of the complex. Once there, the skirts were positioned on either side of the aft skirt deservicing stand, a structure in the middle of the building's main processing bay. There the fuel was removed and the TVC components were disassembled, including the hydraulic reservoirs, APUs, hydraulic power units (HPUs), and related line replaceable units (LRUs). The TVC fuel was removed with the use of the "skirt stand's" two deservicing panels on the south side of its upper level. For their protection, technicians at the TVC Deservicing Building complete this work while wearing a SCAPE outfit: Self Contained Atmospheric Protective Ensemble.

Once removed, the TVC system's fuel service modules, fuel isolation valves, and other fuel components were transferred to the TVC decontamination room in the rear (north) end of the building. After the aft skirts completed the TPS blasting and TVC deservicing process, they received an inspection for necessary modifications or structural repairs.

The entire Hangar AF Complex (SRB Disassembly and Refurbishment Historic District) functioned as a one-of-a-kind facility that is considered eligible for listing in the National Register of Historic Places (NRHP) in the context of the Space Shuttle Program (SSP) (1969-2011) under Criterion A in the area of Space Exploration. The complex is a significant historic property for its association with the Space Transportation System (STS), commonly known as the "space shuttle." The STS was a unique breakthrough in the history of the U.S. Space Program, because it was based on a design that made most of its major components re-usable, a model that decreased program costs, and helped make orbital space flight a routine endeavor. Along with the orbiter spacecraft, the SRBs were two of the shuttle's primary re-usable elements. The SRBs' re-usability was made possible by a number of facilities at Kennedy Space Center (KSC) and CCAFS, including the SRB Disassembly and Refurbishment Complex. The complex is the first place to which the SRBs were brought after their recovery from sea and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for buildup and assembly. Because it achieved significance within the past 50 years, Criteria Consideration G also applies. The Thrust Vector Control Deservicing Building, as one component of this complex, is considered a contributing resource to the SRB Disassembly and Refurbishment Historic District as it played an essential role in the re-usability of the SRBs.

BIBLIOGRAPHIC REFERENCES:

Photographs and Drawings

Burns and Roe Industrial Services Corporation. "Thrust Vector Control Deservicing Facility." Kennedy Space Center, Florida. Construction drawings, 1984.

Kennedy Space Center.

Photograph negative number 108-KSC-81PC-459. 1981. On file at Kennedy Space Center Archives.

Photograph negative number 116-KSC-383C-1256. 1983. On file at Kennedy Space Center Archives.

Interviews

Pappalardo, David. United Space Alliance, TVC Technician. Interview with author. October 11, 2011.

Price, David. United Space Alliance, Hangar AF Facility Manager. September 27, 2011.

Sources

Burns and Roe. "History and Legacy." http://www.roe.com/about_legacy.htm. Accessed December 20, 2011.

Deming, Joan, and Patricia Slovinac. *NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch. Sarasota, Florida: Archaeological Consultants, Inc. February 2008, revised July 2008.

National Aeronautics and Space Administration (NASA)
NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-KSC, Revised 2006.

NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

United Space Alliance

"Marine Operations, Revision J." (John F. Kennedy Space Center, n.d.), MO-1.

"Structures Assembly Buildup Operations, Revision J" (John F. Kennedy Space Center, n.d.).

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



TVC Deservicing Building, Exterior

Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02009**
Field Date 5-13-2013
Form Date 7-31-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Multi-Media Blast Facility Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 66340 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540363 Northing 3150955
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1992 approximately year listed or earlier year listed or later
Original Use Other From (year): 1992 To (year): 2012
Current Use Other From (year): _____ To (year): _____
Other Use SRB processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): AJT & Associates Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA is the original owner.

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Irregular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Flat 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) N/A
Distinguishing Architectural Features (exterior or interior ornaments) N/A

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) N/A

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION OF RESOURCE:

The most recently built of the complex's buildings, it is located on the south end of the complex and is separated from the remaining complex buildings by a non-contributing GSE storage building. The Multi-Media Blast Facility (MMBF) is accessed by a paved road that leads south from the main hangar area.

The building is composed of four block-shaped sections, including two blast bays on its east and west ends, a central equipment area, and a protruding office/restroom area on the north end. The exterior of the building is painted concrete block, which also serves as its structural system. It has a flat gravel-surface roof and a reinforced concrete foundation. There is an aluminum flashing and gutter system around the perimeter of the roofline.

The main north façade of the building features two bi-fold metal bay doors on each of the blast bays, with the office/restroom area in between. There are three ventilation hoods on the roof of the west blast bay and three more on the east blast bay. On the east elevation is a steel frame "lean-to" structure with aluminum roof that covers a nine-unit vacuum machine that sucks air out of the west blast bay. The south elevation has two additional bi-fold doors leading into the blast bays. The building's central equipment area is visible on this elevation. Installed south of the east blast bay is a four-unit vacuum machine that sucks air out of the bay when in use.

The interior is composed of five areas, including the two blast bays, a rear (south) equipment room, a blast equipment hopper room, and the office/restroom area. This last area has an office room, locker room, and restroom, and it is separated from the rest of the building by a covered corridor walkway. Both sandblasting bays have exposed metal structural system ceilings, painted concrete block walls, and concrete floors. The blasting activities in these rooms have weathered the paint on the interior walls. The hopper room contains a central hopper where the glass-bead media fired by the blast machines is loaded and distributed.

EXPLANATION OF EVALUATION:

The MMBF was built in 1992 to house a new blasting facility at the Hangar AF Complex. After disassembly and Thermal Protection System (TPS) removal, the Solid Rocket Booster (SRB) aft skirts, forward skirts, and frustums were moved into one of the facility's two blast bays. The exterior accordion-style doors were then closed. Workers used handheld blasting guns to remove the last remaining areas of TPS material and the underlying coats of hypalon paint and primer. The end result was the exposure of the segments' bare aluminum surface. The blast bays were each equipped with high-powered vacuum ventilation systems that removed all of the dust and debris from the blast bay during operations.

The entire Hangar AF Complex (SRB Disassembly and Refurbishment Historic District) functioned as a one-of-a-kind facility that is considered eligible for listing in the National Register of Historic Places (NRHP) in the context of the Space Shuttle Program (SSP) (1969-2011) under Criterion A in the area of Space Exploration. The complex is a significant historic property for its association with the Space Transportation System (STS), commonly known as

the “space shuttle.” The STS was a unique breakthrough in the history of the U.S. Space Program, because it was based on a design that made most of its major components re-usable, a model that decreased program costs, and helped make orbital space flight a routine endeavor. Along with the orbiter spacecraft, the SRBs were two of the shuttle’s primary re-usable elements. The SRBs’ re-usability was made possible by a number of facilities at Kennedy Space Center (KSC) and CCAFS, including the SRB Disassembly and Refurbishment Complex. The complex is the first place to which the SRBs were brought after their recovery from sea and where they were disassembled, cleaned, and processed before they were moved to other KSC facilities for buildup and assembly. Because it achieved significance within the past 50 years, Criteria Consideration G also applies. The Multi-Media Blast Facility, as one component of this complex, is considered a contributing resource to the SRB Disassembly and Refurbishment Historic District as it played an essential role in the re-usability of the SRBs.

BIBLIOGRAPHIC REFERENCES:

Photographs and Drawings

AJT & Associates, Inc. “Hangar AF New Multi-Media Blast Facility.” Kennedy Space Center, Florida. Construction drawings, 1991.

Sources

Deming, Joan, and Patricia Slovinac. *NASA-Wide Survey and Evaluation of Historic Facilities in the Context of the U.S. Space Shuttle Program: Roll-Up Report*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch. Sarasota, Florida: Archaeological Consultants, Inc. February 2008, revised July 2008.

National Aeronautics and Space Administration (NASA)
NASA Facts: Solid Rocket Boosters. Kennedy Space Center, Florida. IS-2004-09-014-KSC, Revised 2006.

NASA Facts: Solid Rocket Boosters and Post-Launch Processing. Kennedy Space Center, Florida. FS-2004-07-012-KSC (Rev. 2006).

United Space Alliance

“Marine Operations, Revision J.” (John F. Kennedy Space Center, n.d.), MO-1.

“Structures Assembly Buildup Operations, Revision J” (John F. Kennedy Space Center, n.d.).

Interviews

Christy, Howard, RPSF Manager, Personal Communication, February 24, 2010.

Morales, Art. George C. Marshall Space Flight Center
Office of the Director Shuttle - ARES Transition Office. Interview with author.
September 27, 2011.

Price, David. Hangar AF Facility Manager, United Space Alliance. Interview with the
author. September 27, 2011.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Multi-Media Blast Facility, Exterior

Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02190**
Field Date 5-13-2013
Form Date 7-22-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Little N Storage Building Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 54928 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) NASA Pkwy E
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 12 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # _____ Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 541046 Northing 3152156
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1958 approximately year listed or earlier year listed or later
Original Use Storage building From (year): 1958 To (year): 2012
Current Use Storage building From (year): _____ To (year): _____
Other Use SRB processing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): unknown Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) Built by the US Air Force in 1958, transferred to NASA circa 1962.
Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Flat 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) There are bands of clerestory awning windows on the north and south elevations.
Distinguishing Architectural Features (exterior or interior ornaments) None.
Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) Located on the north side of Hangar N at Cape Canaveral Air Force Station.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. 2.
Structural System(s): 1. Concrete block 2. 3.
Foundation Type(s): 1. Slab 2.
Foundation Material(s): 1. Concrete, Generic 2.
Main Entrance (stylistic details) There is a pair of horizontal sliding bay doors on the east (front) elevation.
Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): []excellent [x]good []fair []deteriorated []ruinous
Narrative Description of Resource This is a one-story storage/garage type building with a built-up roof, concrete block construction, and a concrete foundation.

Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [] HABS/HAER record search
[] other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) No real property or other records for this building were located at NASA Kennedy Space Center or CCAFS.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? []yes [x]no []insufficient information
Appears to meet the criteria for National Register listing as part of a district? [x]yes []no []insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The Little N Storage Building contributes to the NASA-owned CCAFS Industrial Area Historic District under Crit. A for its association with the Space Shuttle SRB program and under Crit. C as an example of CCAFS hangar architecture.
Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Other 3. 5.
2. Architecture 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type
Document description File or accession #'s

RECORDER INFORMATION

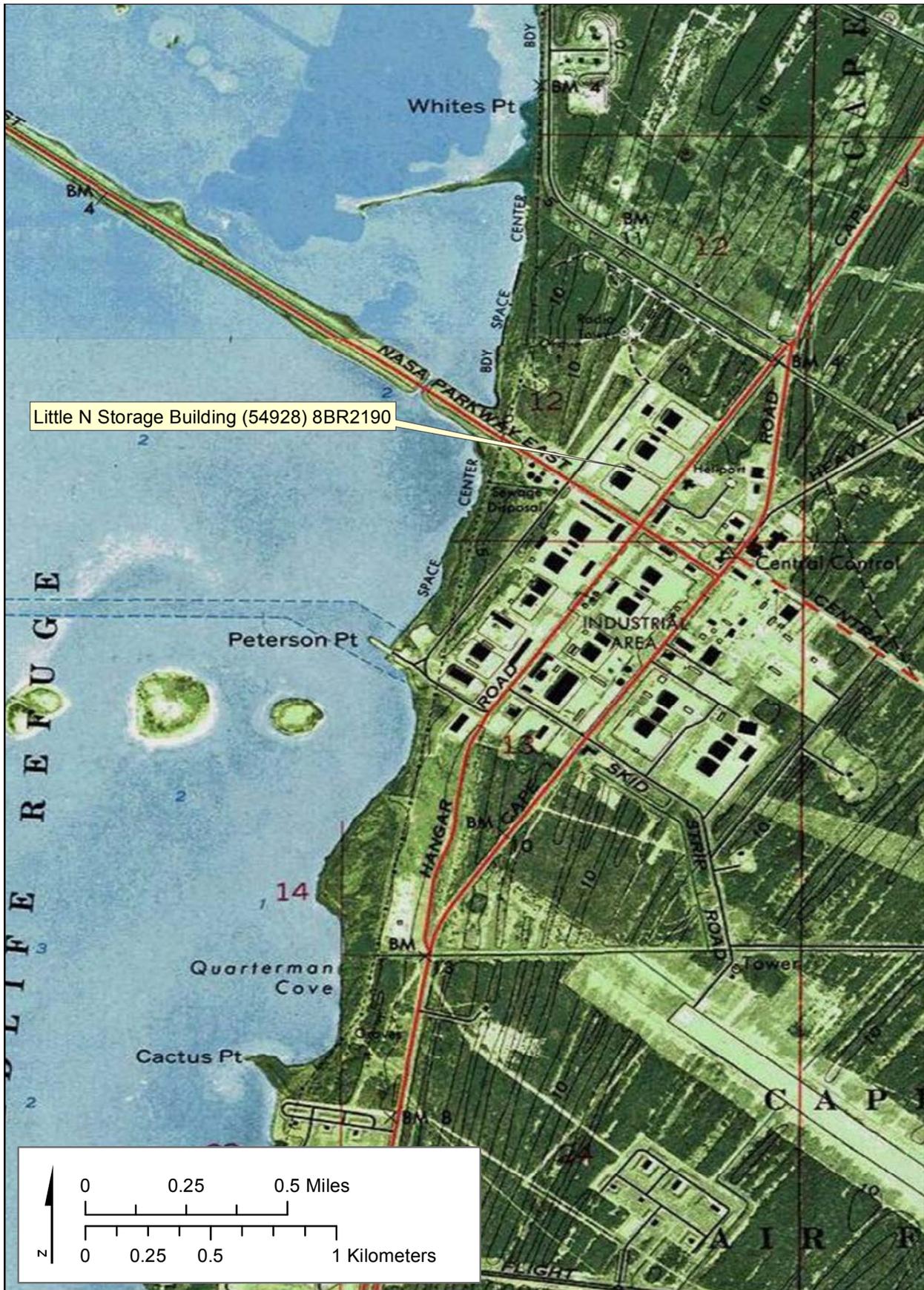
Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

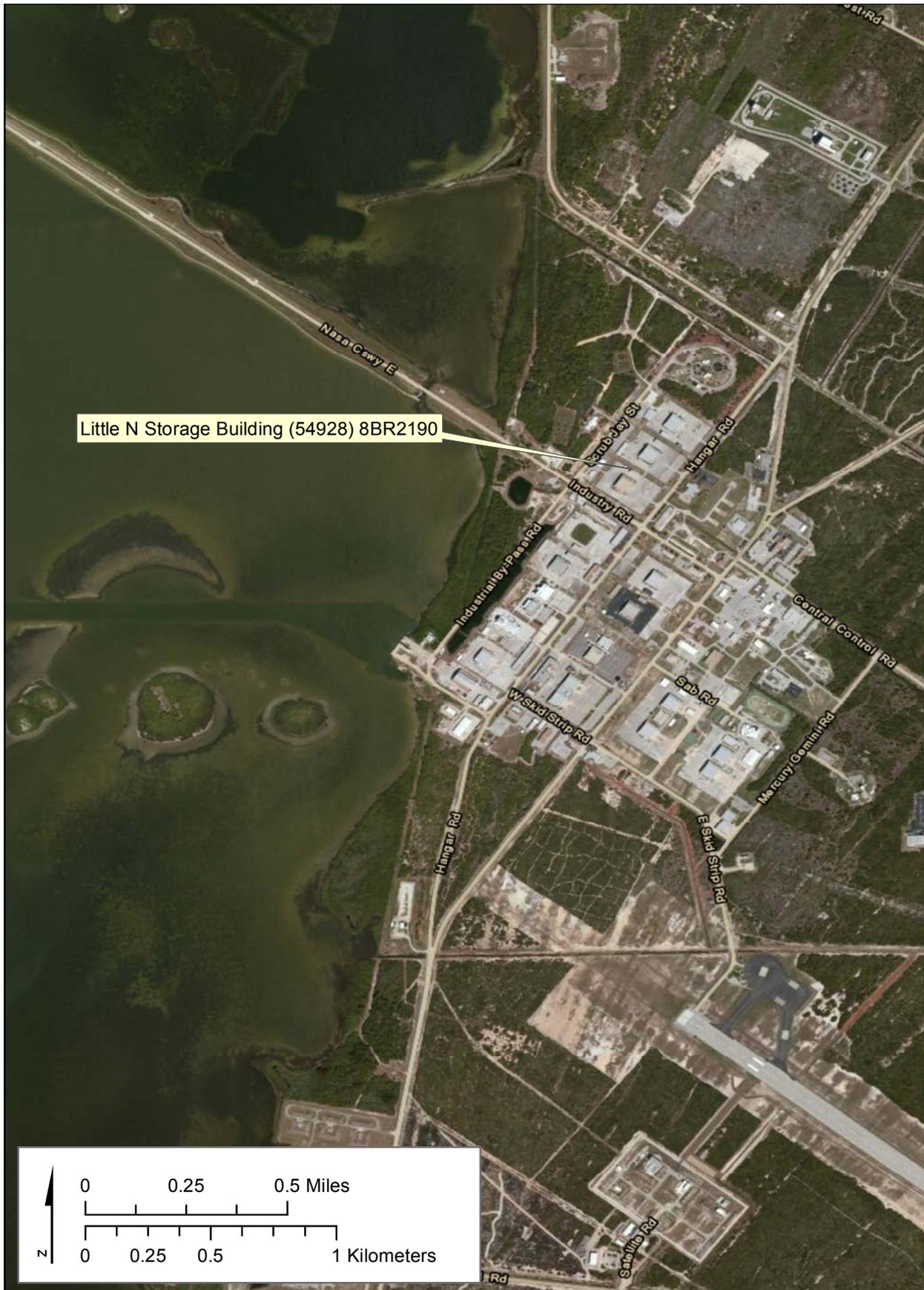
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs



Little N Storage Building, Exterior Oblique, View Northwest



Little N Storage Building, Interior, View Northwest

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Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02961**
Field Date 5-13-2013
Form Date 7-23-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Emergency Breathing Equipment Building Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 66220 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest/between) Behind (west) of Hangar S on CCAFS
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # _____ Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540461 Northing 3151447
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1960 approximately year listed or earlier year listed or later
Original Use Other From (year): 1960 To (year): 1964
Current Use Abandoned/Vacant From (year): 1964 To (year): 2010
Other Use Hangar S support/Breathing safety equip From (year): 2010 To (year): 2012
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature Replacement roof, exterior alterations
Additions: yes no unknown Date: _____ Nature Storage bldg 66221 added in 1988
Architect (last name first): Unknown Builder (last name first): Unknown
Ownership History (especially original owner, dates, profession, etc.) The building was built by the Air Force and transferred to NASA in 1964.
Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Irregular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Gable on hip 2. _____ 3. _____
Roof Material(s) 1. Other 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) The building has irregularly placed one-over-one metal frame windows.
Distinguishing Architectural Features (exterior or interior ornaments) None.
Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="button" value="Clear Check Boxes"/>	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Structural System(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Foundation Type(s): 1. Slab 2. Poured Concrete Footing
Foundation Material(s): 1. Poured Concrete Footing 2.
Main Entrance (stylistic details) There are multiple entrances on the southeast elevation, including double and single metal pedestrian doors.
Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): []excellent [x]good []fair []deteriorated []ruinous
Narrative Description of Resource This is a one-story concrete block building containing 8,111 sq. ft. that has been altered considerably with a new gable and hip roof over the original flat roof, enclosed bay entrances, and additions.
Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

[]FMSF record search (sites/surveys) [x]library research []building permits []Sanborn maps
[]FL State Archives/photo collection []city directory [x]occupant/owner interview []plat maps
[]property appraiser / tax records [x]newspaper files []neighbor interview []Public Lands Survey (DEP)
[x]cultural resource survey (CRAS) [x]historic photos [x]interior inspection []HABS/HAER record search
[]other methods (describe)
Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) NASA. "Emergency Breathing Equipment Maintenance Building (66220). Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1964.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? []yes [x]no []insufficient information
Appears to meet the criteria for National Register listing as part of a district? []yes [x]no []insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The building is not associated with significant NASA events, missions, or people. It is not the work of a master architect and does not embody the distinctive characteristics of a type or method of construction.
Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. 3. 5.
2. 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type Maintaining organization
Document description File or accession #'s

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps

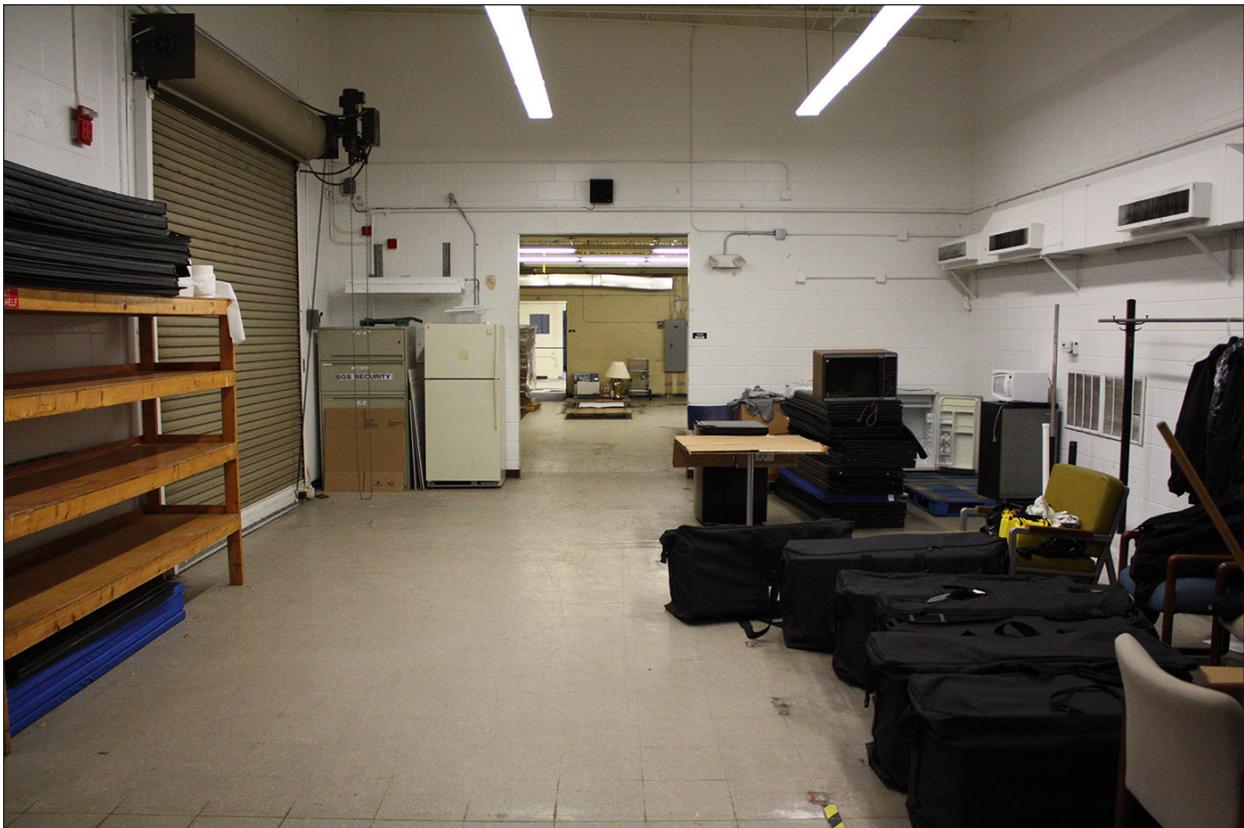


Source: ESRI Resource Data, Imagery Layer

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs



Emergency Breating Equipment Building, Exterior Elevation, View Northwest



Emergency Breating Equipment Building, Interior Storage Area, View Southwest

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Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02972**
Field Date 5-13-2013
Form Date 7-23-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Hangar M Annex Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 55005 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) NASA Pkwy E
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # _____ Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540896 Northing 3151755
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1963 approximately year listed or earlier year listed or later
Original Use Dentist/Medical/Professional office From (year): 1963 To (year): 2012
Current Use Abandoned/Vacant From (year): _____ To (year): _____
Other Use SRB processing/Laboratory From (year): 1963 To (year): 2012
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature Interior office/lab renovations.
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): unknown Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA KSC is the original owner.

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Mid-Century Modern Exterior Plan Rectangular Number of Stories 2
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Flat 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) There are glass block clerestory windows on the first and second floors of the east and west elevations.
Distinguishing Architectural Features (exterior or interior ornaments) Modern design features including flat roof, smooth wall surfaces, horizontal bands of glass block windows.

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Structural System(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Foundation Type(s): 1. Slab 2. Poured Concrete Footing
Foundation Material(s): 1. Poured Concrete Footing 2.
Main Entrance (stylistic details) There is a recessed entrance bay with a double pedestrian door on the east elevation.

Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): []excellent [x]good []fair []deteriorated []ruinous

Narrative Description of Resource This two-story office and laboratory building contains 20,510 sq. ft. It has an unadorned design that housed KSC's Solid Rocket Booster program offices, the SRB Materials & Processes Lab, and a Lithium Hydroxide (LiOH) Lab.

Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [] HABS/HAER record search
[] other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) NASA. "Hangar M Annex (55005)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1965.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? []yes [x]no []insufficient information
Appears to meet the criteria for National Register listing as part of a district? [x]yes []no []insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) Hangar M Annex is a contributing resource in the NASA-owned CCAFS Indust. Area Historic District under Crit. A for association with Air Force missile testing and NASA's SRB management & materials testing labs, and under Crit. C as a Modern style bldg.
Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Architecture 3. 5.
2. Other 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type Maintaining organization
Document description File or accession #'s

RECORDER INFORMATION

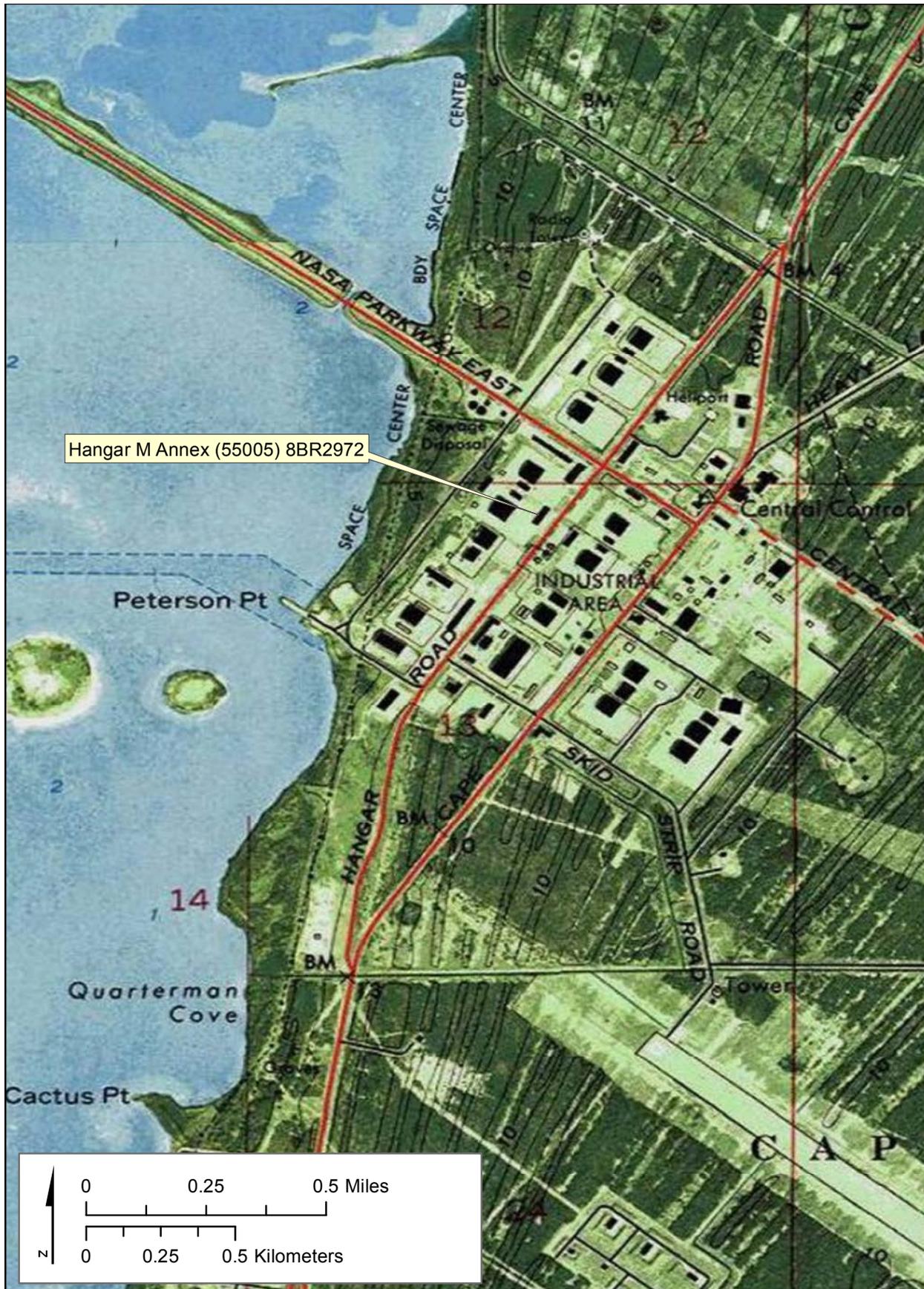
Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Hangar M Annex, Exterior Oblique, View Southwest



Hangar M Annex, Interior Laboratory, View Southeast

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HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02973**
Field Date 5-13-2013
Form Date 7-23-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Pressure Proof Test Cell Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 60425 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) NASA Pkwy E
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # _____ Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540787 Northing 3151912
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1958 approximately year listed or earlier year listed or later
Original Use Other From (year): 1958 To (year): c1965
Current Use Other From (year): c1965 To (year): 2012
Other Use Test cell for Hangar L rocket program From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): unknown Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) Originally built by the Air Force, the building was transferred to NASA in 1965.
Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style No style Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Flat 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) None
Distinguishing Architectural Features (exterior or interior ornaments) None
Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="button" value="Clear Check Boxes"/>	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Structural System(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Foundation Type(s): 1. Slab 2. Poured Concrete Footing
Foundation Material(s): 1. Poured Concrete Footing 2.
Main Entrance (stylistic details) There is one single and one double pedestrian entrance on the east elevation.

Porch Descriptions (types, locations, roof types, etc.) None

Condition (overall resource condition): []excellent []good [x]fair []deteriorated []ruinous

Narrative Description of Resource This is a one-story former test cell building containing 1,122 square feet. It was originally associated with Delta rocket operations at adjacent Hangar L (demolished), now a staff building for KSC maintenance crews.

Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [] FMSF record search (sites/surveys) [] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [] HABS/HAER record search
[] other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) NASA. "Pressure Proof Test Cell (60425)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1965.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? []yes [x]no []insufficient information
Appears to meet the criteria for National Register listing as part of a district? []yes [x]no []insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The building is not associated with significant NASA events, missions, or people. It is not the work of a master architect, nor does it embody the distinctive characteristics of a type or method of construction.

Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. 3. 5.
2. 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type Maintaining organization
Document description File or accession #'s

RECORDER INFORMATION

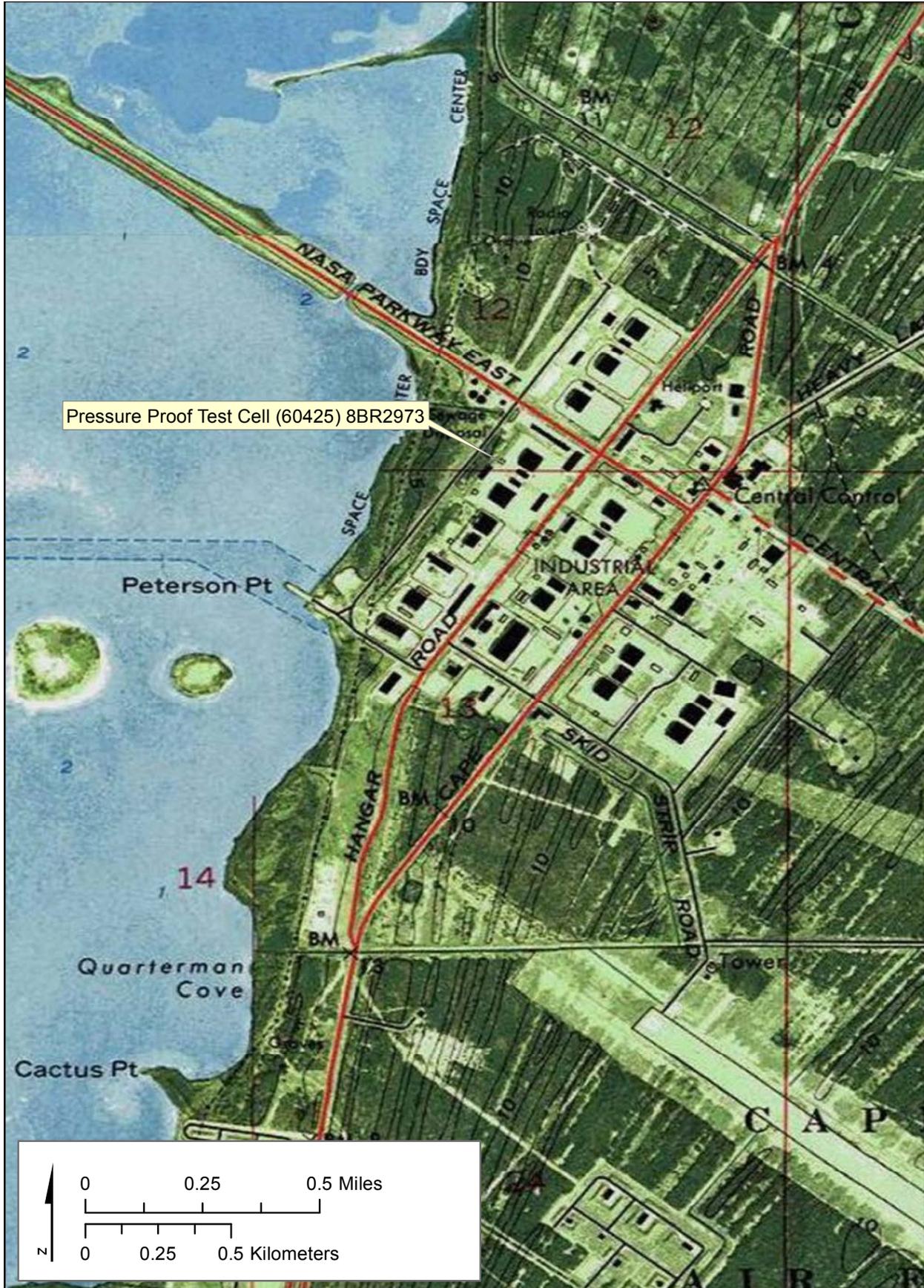
Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs



Pressure Proof Test Cell, Exterior View Northwest



Pressure Proof Test Cell, Interior View Northwest

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HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02974**
Field Date 5-13-2013
Form Date 7-23-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Paint Storage Building Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 54905 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) NASA Pkwy E
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 12 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # _____ Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540929 Northing 3151946
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1958 approximately year listed or earlier year listed or later
Original Use Storage building From (year): 1958 To (year): 2012
Current Use Storage building From (year): _____ To (year): _____
Other Use _____ From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature Replacement metal shed roof.
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): unknown Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) The building was originally built by the Air Force and transferred to NASA circa 1964.
Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Irregular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Shed 2. _____ 3. _____
Roof Material(s) 1. Sheet metal: corrugated 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) There are two six-light metal windows on the north elevation.

Distinguishing Architectural Features (exterior or interior ornaments) None

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="button" value="Clear Check Boxes"/>	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

[Clear Description Values](#)

Chimney: No. 0 Chimney Material(s): 1. _____ 2. _____

Structural System(s): 1. Concrete block 2. _____ 3. _____

Foundation Type(s): 1. Slab 2. _____

Foundation Material(s): 1. Concrete, Generic 2. _____ Note: you may use the last box in each field to type in an answer that does not appear in the list provided

Main Entrance (stylistic details) There are five single pedestrian entrances into the building's interior storage rooms.

Porch Descriptions (types, locations, roof types, etc.) None

Condition (overall resource condition): excellent good fair deteriorated ruinous

Narrative Description of Resource This is a one-story concrete block storage building with non-original metal shed roof containing 778 square feet of storage space in two interior rooms.

Archaeological Remains _____ Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- | | | | |
|---|--|--|--|
| <input type="checkbox"/> FMSF record search (sites/surveys) | <input checked="" type="checkbox"/> library research | <input type="checkbox"/> building permits | <input type="checkbox"/> Sanborn maps |
| <input type="checkbox"/> FL State Archives/photo collection | <input type="checkbox"/> city directory | <input checked="" type="checkbox"/> occupant/owner interview | <input type="checkbox"/> plat maps |
| <input type="checkbox"/> property appraiser / tax records | <input checked="" type="checkbox"/> newspaper files | <input type="checkbox"/> neighbor interview | <input type="checkbox"/> Public Lands Survey (DEP) |
| <input checked="" type="checkbox"/> cultural resource survey (CRAS) | <input checked="" type="checkbox"/> historic photos | <input checked="" type="checkbox"/> interior inspection | <input type="checkbox"/> HABS/HAER record search |
| <input type="checkbox"/> other methods (describe) _____ | | | |

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) NASA. "Paint Storage Building - Hangar L (54905)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1982.

OPINION OF RESOURCE SIGNIFICANCE

[Clear Significance Values](#)

Appears to meet the criteria for National Register listing individually? yes no insufficient information

Appears to meet the criteria for National Register listing as part of a district? yes no insufficient information

Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The building is not associated with significant NASA events, missions, or people. It is not the work of a master architect, nor does it embody the distinctive characteristics of a type or method of construction.

Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. _____ 3. _____ 5. _____

2. _____ 4. _____ 6. _____

DOCUMENTATION

[Clear Documentation Values](#)

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

- 1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
- Document description Survey report File or accession #'s _____
- 2) Document type _____ Maintaining organization _____
- Document description _____ File or accession #'s _____

RECORDER INFORMATION

Recorder Name David L. Price Affiliation National Aeronautics and Space Administration

Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326

(address / phone / fax / e-mail)

Required Attachments

- ① USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
- ② LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
- ③ PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs



Paint Storage Building, Exterior View Northwest



Paint Storage Building , Interior View Northwest

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HISTORICAL STRUCTURE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Site #8 BR02975
Field Date 5-13-2013
Form Date 7-23-2013
Recorder #

Shaded Fields represent the minimum acceptable level of documentation.
Consult the Guide to Historical Structure Forms for detailed instructions.

Site Name(s) (address if none) Engineering & Operations (E&O) Building
Survey Project Name Survey of NASA-owned Facilities at CCAFS
National Register Category (please check one) [] building [] structure [x] district [] site [] object
Ownership: [] private-profit [] private-nonprofit [] private-individual [] private-nonspecific [] city [] county [] state [x] federal [] Native American [] foreign [] unknown

LOCATION & MAPPING Clear Location Values

Street Number Bldg. 60650 Direction Street Name Hangar Street Type Road Suffix Direction
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map
City / Town (within 3 miles) Cape Canaveral In City Limits? [x] yes [] no [] unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: [] NW [] SW [] SE [] NE Irregular-name:
Tax Parcel # Landgrant
Subdivision Name Block Lot
UTM Coordinates: Zone [] 16 [x] 17 Easting 540675 Northing 3151431
Other Coordinates: X: Y: Coordinate System & Datum
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY Clear History Values

Construction Year: 1961 [] approximately [] year listed or earlier [] year listed or later
Original Use Office building From (year): 1961 To (year): 2012
Current Use Laboratory From (year): To (year):
Other Use From (year): To (year):
Moves: [] yes [x] no [] unknown Date: Original address
Alterations: [x] yes [] no [] unknown Date: Nature Interior office renovations.
Additions: [] yes [x] no [] unknown Date: Nature
Architect (last name first): US Army Corps of Engineers Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA KSC original owner

Is the Resource Affected by a Local Preservation Ordinance? [] yes [x] no [] unknown Describe

DESCRIPTION Clear Description Values

Style Mid-Century Modern Exterior Plan Rectangular Number of Stories 2
Exterior Fabric(s) 1. Concrete block 2. 3.
Roof Type(s) 1. Flat 2. 3.
Roof Material(s) 1. Built-up 2. 3.
Roof secondary strucs. (dormers etc.) 1. 2.
Windows (types, materials, etc.) There are ribbons of glass block clerestory windows on the first and second floors of the east and west elevations.
Distinguishing Architectural Features (exterior or interior ornaments) The bands of glass block windows contribute to its Mid-Century Modern design.
Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None

DHR USE ONLY OFFICIAL EVALUATION DHR USE ONLY
NR List Date SHPO - Appears to meet criteria for NR listing: [] yes [] no [] insufficient info Date Init.
KEEPER - Determined eligible: [] yes [] no Clear Check Boxes Date
[] Owner Objection NR Criteria for Evaluation: [] a [] b [] c [] d (see National Register Bulletin 15, p. 2)

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Structural System(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Foundation Type(s): 1. Slab 2. Poured Concrete Footing
Foundation Material(s): 1. Poured Concrete Footing 2.
Main Entrance (stylistic details) There is a recessed entrance bay with a single pedestrian entrance.

Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): []excellent [x]good []fair []deteriorated []ruinous

Narrative Description of Resource This is a two-story office building containing 36,488 sq. ft. It has a similar Mid-Century Modern design as the Hangar M Annex building to the north on Hangar Rd., with a flat roof, bands of glass block windows, and smooth wall surfaces.

Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [] HABS/HAER record search
[] other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) NASA. "Engineering and Operations Bldg. (60650)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1963.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? []yes [x]no []insufficient information

Appears to meet the criteria for National Register listing as part of a district? [x]yes []no []insufficient information

Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The E&O Building is a contributing resource to the NASA-owned CCAFS Industrial Area Historic District under Crit. A for association with NASA's Project Mercury and under Crit. C as an example of Modern military architecture at CCAFS.

Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

- 1. Architecture 3. 5.
2. Other 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

- 1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type Maintaining organization
Document description File or accession #'s

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates

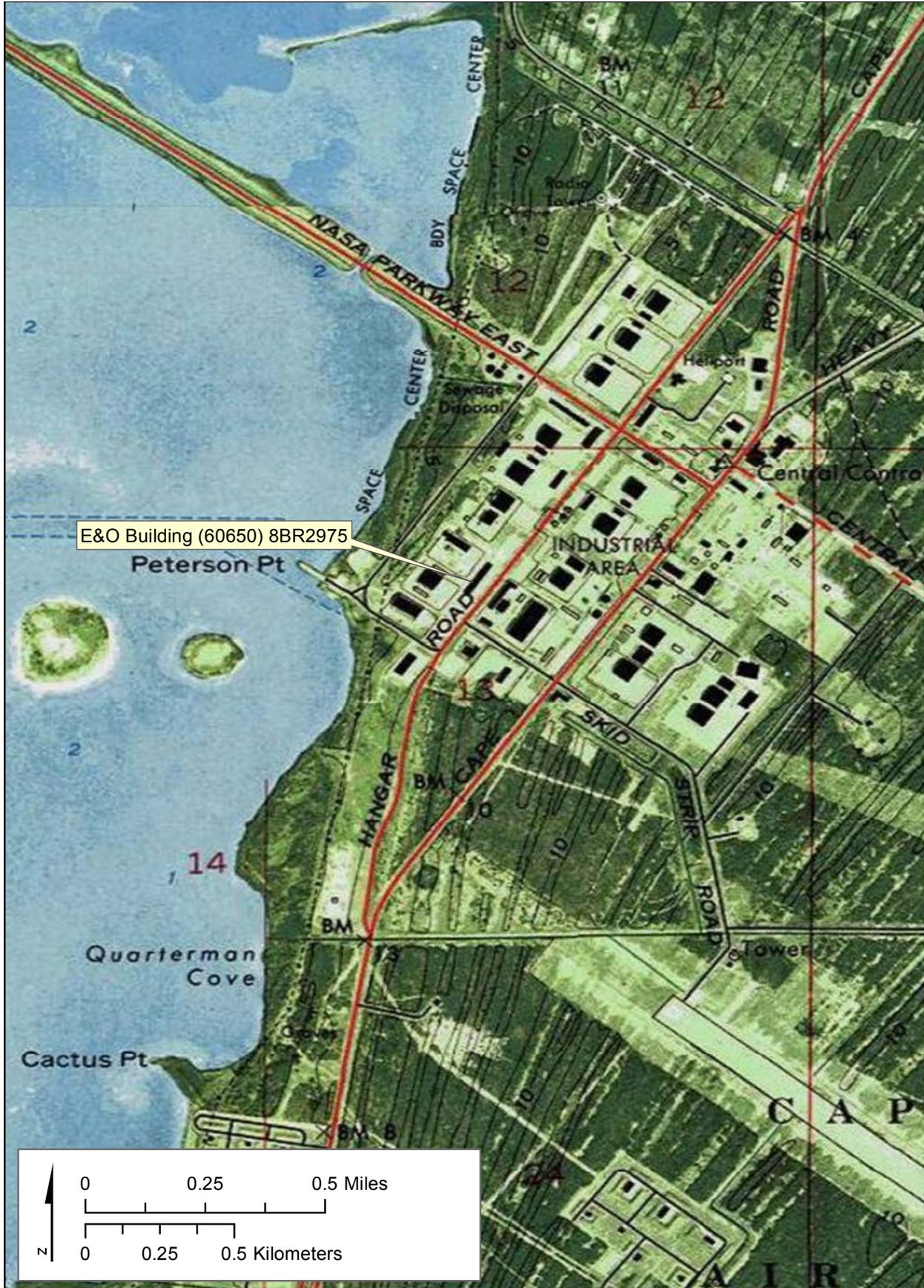
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



E&O Building, Exterior Oblique, View Southwest



E&O Building, Interior Office Cubicle Area, View Northeast

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HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02976**
Field Date 5-13-2013
Form Date 7-23-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Missile Assembly Building AE (Hangar AE) Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 60680 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County _____
Township 23S Range 37E Section 13 ¼ section: NW SW SE NE Irregular-name: _____
Tax Parcel # _____ Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540619 Northing 3151545
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1959 approximately year listed or earlier year listed or later
Original Use Hangar From (year): 1959 To (year): 1964
Current Use Other From (year): 1964 To (year): 2012
Other Use Rocket telemetry and communications From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature Interior renovations and modifications
Additions: yes no unknown Date: 1-1-1961 Nature High bay and other additions
Architect (last name first): unknown Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) The building was built by the Air Force and transferred to NASA in 1964.
Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Irregular Number of Stories 1
Exterior Fabric(s) 1. Aluminum 2. _____ 3. _____
Roof Type(s) 1. Gable 2. _____ 3. _____
Roof Material(s) 1. Sheet metal: corrugated 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) Fixed metal windows.

Distinguishing Architectural Features (exterior or interior ornaments) There is a high bay spacecraft checkout area on the northwest (rear) elevation.

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Clear Check Boxes	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. 2.
Structural System(s): 1. Steel skeleton 2. 3.
Foundation Type(s): 1. Slab 2.
Foundation Material(s): 1. Poured Concrete Footing 2.
Main Entrance (stylistic details) The non-original main entrance on the southeast (front) elevation is a mechanical sliding door.
Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): []excellent [x]good []fair []deteriorated []ruinous

Narrative Description of Resource This one-story building has a corrugated aluminum gable roof, concrete foundation, corrugated aluminum exterior walls, and a 3,600-square foot high bay on the northwest end. The building has a rectangular footprint with three projecting shed-roof adds.

Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- []FMSF record search (sites/surveys) [x]library research []building permits []Sanborn maps
[]FL State Archives/photo collection []city directory [x]occupant/owner interview []plat maps
[]property appraiser / tax records [x]newspaper files []neighbor interview []Public Lands Survey (DEP)
[x]cultural resource survey (CRAS) [x]historic photos [x]interior inspection []HABS/HAER record search
[]other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) "Missile Assembly Building AE (60680)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1964.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? [x]yes []no []insufficient information
Appears to meet the criteria for National Register listing as part of a district? []yes [x]no []insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) Missile Assembly Building AE is recommended individually eligible and as a contrib. resource to NASA-owned CCAFS Historic District under Crit. A-Space Exploration & as a vehicle processing and comm. facility for NASA's Expendable Launch Vehicles (ELV).
Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Other 3. 5.
2. Architecture 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type Maintaining organization
Document description File or accession #'s

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dlprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

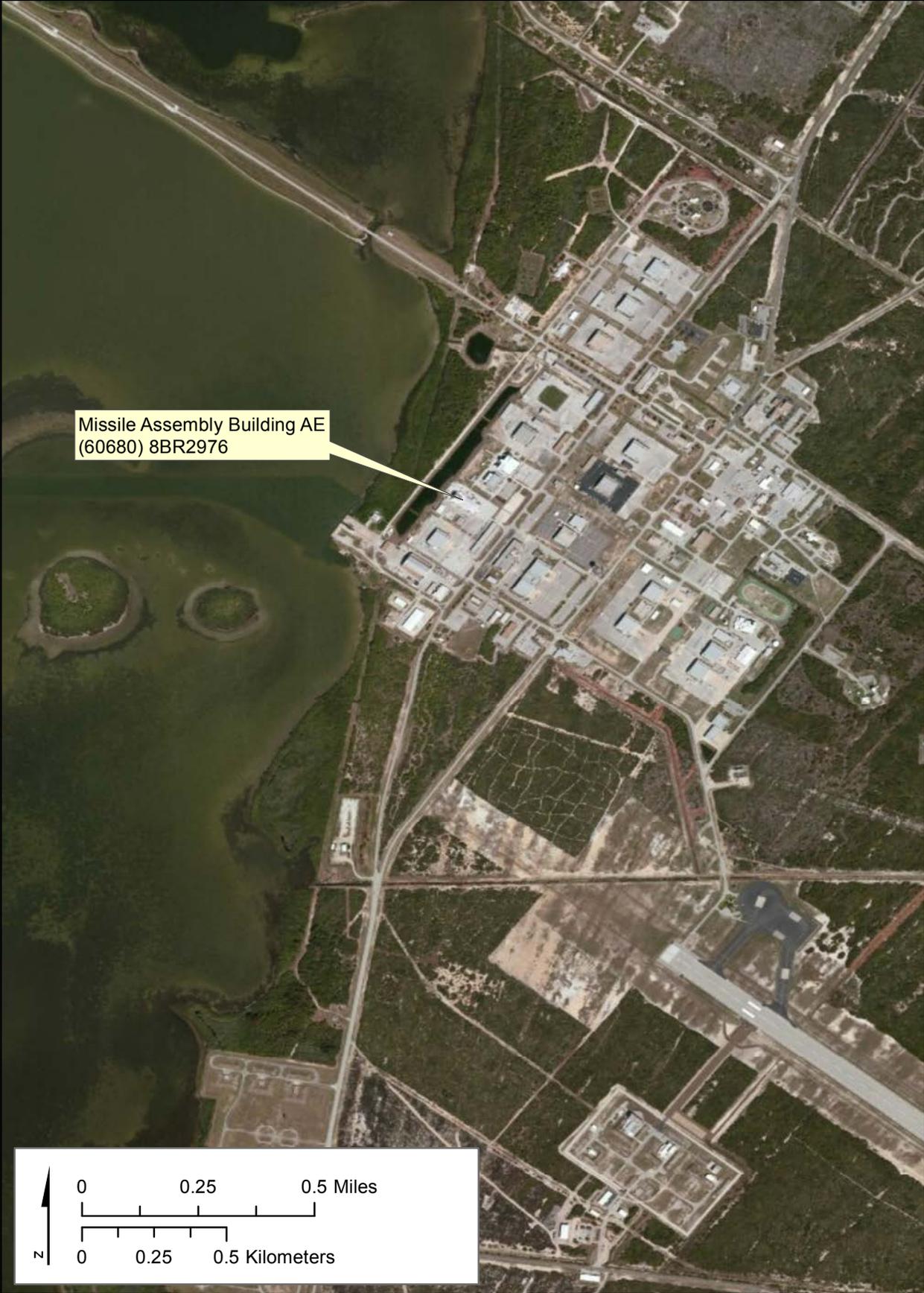
- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Missile Assembly Building AE, Exterior Oblique, View West



Missile Assembly Building AE,
High Bay Interior, View North

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HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR02977**
Field Date 5-13-2013
Form Date 7-23-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Solar Array Test Building Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 60540 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # _____ Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540632 Northing 3151632
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1966 approximately year listed or earlier year listed or later
Original Use Laboratory From (year): 1966 To (year): c1975
Current Use Abandoned/Vacant From (year): _____ To (year): _____
Other Use Storage From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): US Corps of Engineers Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA KSC is the original owner.

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Flat 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) None.

Distinguishing Architectural Features (exterior or interior ornaments) The roof is retractable to allow sunlight into the building to calibrate solar panels on satellite spacecraft.

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Clear Check Boxes	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Structural System(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Foundation Type(s): 1. Slab 2. Poured Concrete Footing
Foundation Material(s): 1. Poured Concrete Footing 2. Slab
Main Entrance (stylistic details) There are two pedestrian entrances and a pair of bay doors on the east elevation.

Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): []excellent []good [x]fair []deteriorated []ruinous

Narrative Description of Resource This is a one-story concrete block building that contains 1,186 sq. ft. The retractable roof slides off the main portion onto a concrete support frame on the north elevation, this exposed solar test panels inside the building.

Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [] FMSF record search (sites/surveys) [x] library research [] building permits [] Sanborn maps
[] FL State Archives/photo collection [] city directory [x] occupant/owner interview [] plat maps
[] property appraiser / tax records [x] newspaper files [] neighbor interview [] Public Lands Survey (DEP)
[x] cultural resource survey (CRAS) [x] historic photos [x] interior inspection [] HABS/HAER record search
[] other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) NASA. "Solar Array Test Building (60540)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1966; NASA. "Solar Test Facility Supports Satellite." Spaceport News. 18 February 1966.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? []yes [x]no []insufficient information
Appears to meet the criteria for National Register listing as part of a district? [x]yes []no []insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The Solar array Test Building contributes to the NASA-owned CCAFS Indust. Area Historic District under Crit.A for Space Exploration for its assoc. with unmanned space programs and under Crit. C as an example of CCAFS industrial architecture.

Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Other 3. 5.
2. Architecture 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type Maintaining organization
Document description File or accession #'s

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Data

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Solar Array Test Building, Exterior Oblique, View Northwest



Solar Array Test Building,
Interior Storage Area,
View Northwest

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HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR03069**
Field Date 5-13-2013
Form Date 7-22-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Hangar N Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 1728 Direction _____ Street Name Hangar Road Street Type _____ Suffix Direction _____
Address: _____
Cross Streets (nearest / between) NASA Parkway East
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 12 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 541006 Northing 3152110
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1958 approximately year listed or earlier year listed or later
Original Use Hangar From (year): 1958 To (year): 1985
Current Use Other From (year): 1985 To (year): now
Other Use Missile assembly/non-destructive testing From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): unknown Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) First built and owned by the Air Force, Hangar N was transferred to NASA in 1985.
Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 2
Exterior Fabric(s) 1. Metal 2. Concrete block 3. _____
Roof Type(s) 1. Gable 2. _____ 3. _____
Roof Material(s) 1. Built-up 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) 1:1 metal sash
Distinguishing Architectural Features (exterior or interior ornaments) None.

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) The Little N Storage Building is an auxiliary storage building on the north side of Hangar N.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Clear Check Boxes	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. 2.
Structural System(s): 1. Metal skeleton 2. Concrete block 3.
Foundation Type(s): 1. Slab 2.
Foundation Material(s): 1. Poured Concrete Footing 2.
Main Entrance (stylistic details) There are metal, single pedestrian entrances set into the high bay sliding doors.

Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): []excellent [x]good []fair []deteriorated []ruinous

Narrative Description of Resource Standard CCAFS hangar design with central high bay flanked by two-story concrete block wings on the north and south sides. It has a rectangular footprint that contains 43,062 square feet. Full-length sliding doors on the east and west elevations.

Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [x]FMSF record search (sites/surveys) [x]library research []building permits []Sanborn maps
[]FL State Archives/photo collection []city directory [x]occupant/owner interview [x]plat maps
[]property appraiser / tax records [x]newspaper files []neighbor interview []Public Lands Survey (DEP)
[x]cultural resource survey (CRAS) [x]historic photos [x]interior inspection [x]HABS/HAER record search
[]other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) "Hangar N (1728)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1978.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? []yes [x]no []insufficient information
Appears to meet the criteria for National Register listing as part of a district? [x]yes []no []insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) Hangar N is eligible as a contributing resource in the NASA-owned CCAFS Industrial Area Historic District under Crit. A for association with USAF missile testing and NASA Space Shuttle Program, and under Crit. C as example of CCAFS hangar architecture.
Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. Military 3. Other 5.
2. 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type
Document description File or accession #'s

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Hangar N and the Little N Storage Building, Exterior Oblique, View Northwest



Interior of Hangar N Showing NDE X-Ray Test Chamber, View North.

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HISTORICAL STRUCTURE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Site #8 BR03070
Field Date 5-13-2013
Form Date 7-22-2013
Recorder #

Shaded Fields represent the minimum acceptable level of documentation.
Consult the Guide to Historical Structure Forms for detailed instructions.

Site Name(s) (address if none) Hangar S
Survey Project Name Survey of NASA-owned Facilities at CCAFS
National Register Category (please check one) [] building [] structure [x] district [] site [] object
Ownership: [] private-profit [] private-nonprofit [] private-individual [] private-nonspecific [] city [] county [] state [x] federal [] Native American [] foreign [] unknown

LOCATION & MAPPING Clear Location Values

Street Number Bldg. 1726 Direction Street Name Hangar Street Type Road Suffix Direction
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map
City / Town (within 3 miles) Cape Canaveral In City Limits? [] yes [x] no [] unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: [] NW [] SW [] SE [] NE Irregular-name:
Tax Parcel # N/A Landgrant
Subdivision Name Block Lot
UTM Coordinates: Zone [] 16 [x] 17 Easting 540530 Northing 3151415
Other Coordinates: X: Y: Coordinate System & Datum
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY Clear History Values

Construction Year: 1957 [] approximately [x] year listed or earlier [] year listed or later
Original Use Hangar From (year): 1957 To (year): 2013
Current Use Unused From (year): 2013 To (year): 2014
Other Use NASA Project Mercury checkout facility From (year): To (year):
Moves: [] yes [x] no [] unknown Date: Original address:
Alterations: [x] yes [] no [] unknown Date: 1-1-1965 Nature Interior construction in high bay
Additions: [] yes [x] no [] unknown Date: Nature:
Architect (last name first): Builder (last name first):
Ownership History (especially original owner, dates, profession, etc.) Built by the Air Force in 1958, Hangar S was transferred to NASA in 1964.
Is the Resource Affected by a Local Preservation Ordinance? [] yes [x] no [] unknown Describe

DESCRIPTION Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 2
Exterior Fabric(s) 1. Metal 2. Concrete block 3.
Roof Type(s) 1. Gable 2. 3.
Roof Material(s) 1. Built-up 2. 3.
Roof secondary strucs. (dormers etc.) 1. 2.
Windows (types, materials, etc.) 1:1 metal
Distinguishing Architectural Features (exterior or interior ornaments) None.
Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None.

DHR USE ONLY OFFICIAL EVALUATION DHR USE ONLY
NR List Date SHPO - Appears to meet criteria for NR listing: [] yes [] no [] insufficient info Date Init.
KEEPER - Determined eligible: [] yes [] no Clear Check Boxes Date
[] Owner Objection NR Criteria for Evaluation: [] a [] b [] c [] d (see National Register Bulletin 15, p. 2)

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. _____ 2. _____
 Structural System(s): 1. Metal skeleton 2. Concrete block 3. _____
 Foundation Type(s): 1. Slab 2. _____ Note: you may use the last box in each field to type in
 Foundation Material(s): 1. Poured Concrete Footing 2. _____ an answer that does not appear in the list provided
 Main Entrance (stylistic details) There are single metal pedestrian entrances set within the large sliding high bay doors.
 Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): excellent good fair deteriorated ruinous

Narrative Description of Resource Features a standardized CCAFS hangar design with central high bay flanked by two-story concrete block wings on its north and south sides. It has a rectangular footprint that contains 41,666 square feet.

Archaeological Remains _____ Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> FMSF record search (sites/surveys) | <input checked="" type="checkbox"/> library research | <input type="checkbox"/> building permits | <input type="checkbox"/> Sanborn maps |
| <input type="checkbox"/> FL State Archives/photo collection | <input type="checkbox"/> city directory | <input checked="" type="checkbox"/> occupant/owner interview | <input checked="" type="checkbox"/> plat maps |
| <input type="checkbox"/> property appraiser / tax records | <input checked="" type="checkbox"/> newspaper files | <input type="checkbox"/> neighbor interview | <input type="checkbox"/> Public Lands Survey (DEP) |
| <input checked="" type="checkbox"/> cultural resource survey (CRAS) | <input checked="" type="checkbox"/> historic photos | <input checked="" type="checkbox"/> interior inspection | <input checked="" type="checkbox"/> HABS/HAER record search |
| <input type="checkbox"/> other methods (describe) _____ | | | |

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) "Hangar S (1726)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1964.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? yes no insufficient information
 Appears to meet the criteria for National Register listing as part of a district? yes no insufficient information
 Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) Hangar S is individually eligible at the national level under Crit. A-Space Exploration (Project Mercury), Crit. B-Mercury Astronauts, and Crit. C as an example of a CCAFS hangar. Contributing resource to NASA-owned CCAFS Indust. Area Historic District.
 Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
 1. Other 3. Architecture 5. _____
 2. _____ 4. _____ 6. _____

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
 Document description Survey report File or accession #'s _____

2) Document type _____ Maintaining organization _____
 Document description _____ File or accession #'s _____

RECORDER INFORMATION

Recorder Name David L. Price Affiliation New South Associates
 Recorder Contact Information dlprice@newsouthassoc.com, 615-262-4326
 (address / phone / fax / e-mail)

Required Attachments

- ① USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
- ② LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
- ③ PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

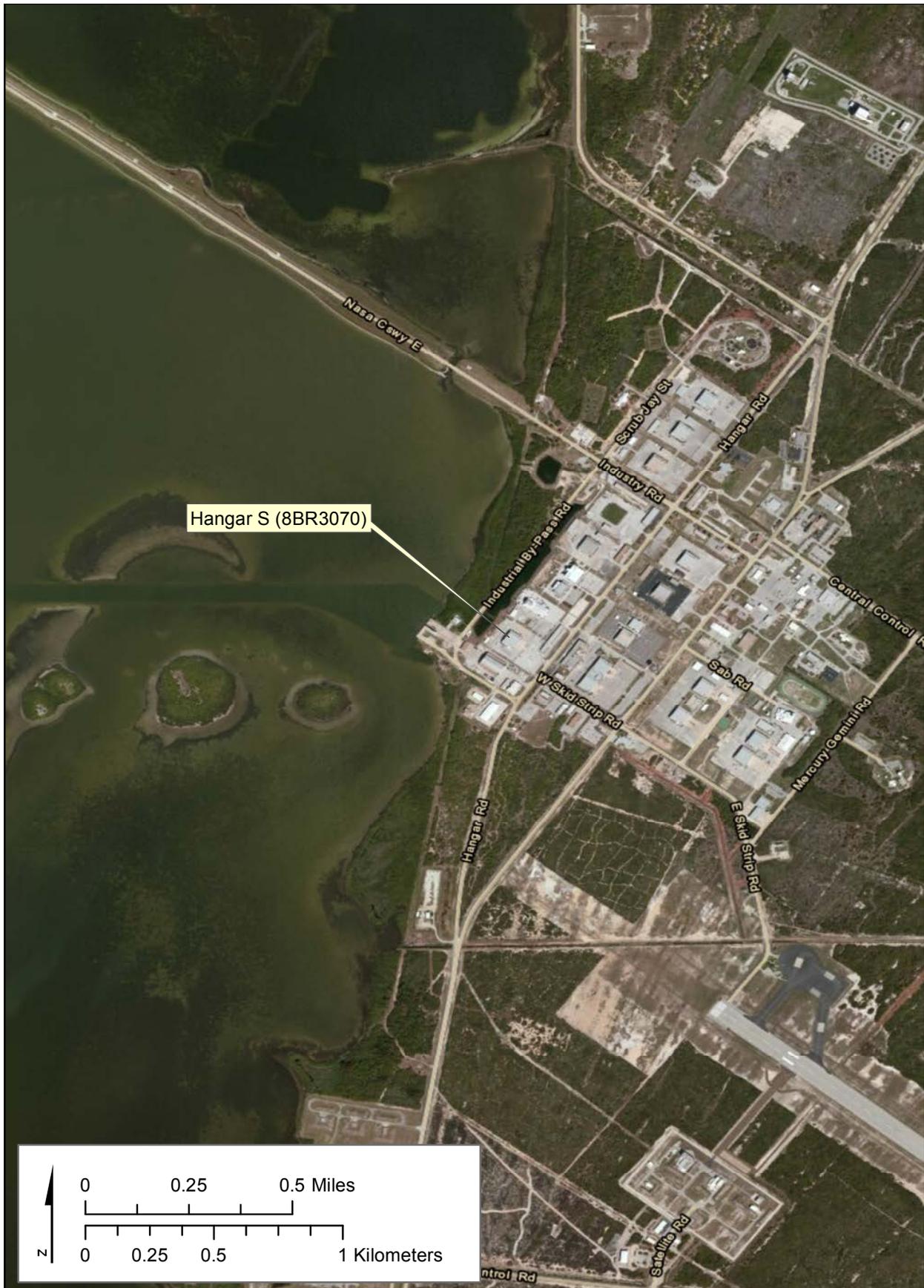
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Hangar S, Exterior Elevation, View Northwest



Hangar S, Exterior Oblique, View West

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs



Hangar S, Interior View of the High Bay Looking Toward Payload Processing Area, View West



Hangar S, Interior View of the High Bay, View South

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Hangar S, Interior View of the South Clean Room Looking Toward Air Lock and North Clean Room, View Northeast

Hangar S, Second Floor Corridor Leading to Former Astronaut Quarters, View Northwest



**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Hangar S, View of a Room in the Former Astronaut Quarters Area, View Southeast

Original
 Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR03071**
Field Date 5-13-2013
Form Date 7-22-2013
Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Apollo Warehouse Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 66330 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540451 Northing 3151152
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1963 approximately year listed or earlier year listed or later
Original Use Storage building From (year): 1963 To (year): 2013
Current Use Storage building From (year): _____ To (year): _____
Other Use _____ From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: 1-1-2011 Nature Complete exterior renovation
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): unknown Builder (last name first): unknown
Ownership History (especially original owner, dates, profession, etc.) NASA has owned the building since its construction.

Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Metal 2. _____ 3. _____
Roof Type(s) 1. Gable 2. _____ 3. _____
Roof Material(s) 1. Sheet metal: corrugated 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) None.

Distinguishing Architectural Features (exterior or interior ornaments) None.

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin</i> 15, p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. 2.
Structural System(s): 1. Metal skeleton 2. 3.
Foundation Type(s): 1. Slab 2.
Foundation Material(s): 1. Poured Concrete Footing 2.
Main Entrance (stylistic details) There are single pedestrian entrances and vertical lift bay doors located throughout the building.
Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): [x]excellent []good []fair []deteriorated []ruinous

Narrative Description of Resource A one-story warehouse with corrugated metal gable roof and exterior. It has a concrete foundation, steel structural system, and a rectangular footprint that contains 25,366 square feet. The entire exterior was replaced with new metal sheeting in 2011.

Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [x]FMSF record search (sites/surveys) [x]library research []building permits []Sanborn maps
[]FL State Archives/photo collection []city directory [x]occupant/owner interview []plat maps
[]property appraiser / tax records [x]newspaper files []neighbor interview []Public Lands Survey (DEP)
[x]cultural resource survey (CRAS) [x]historic photos [x]interior inspection [x]HABS/HAER record search
[]other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) Warehouse (66330). Real Property Record. On file at the John F. Kennedy Space Center Real Property Office. 1963.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? []yes [x]no []insufficient information
Appears to meet the criteria for National Register listing as part of a district? []yes [x]no []insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) Not eligible and non-contributing to a historic district because it is not associated with significant events or people and is not significant for its design or method of construction.
Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. 3. 5.
2. 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type
Document description File or accession #'s

RECORDER INFORMATION

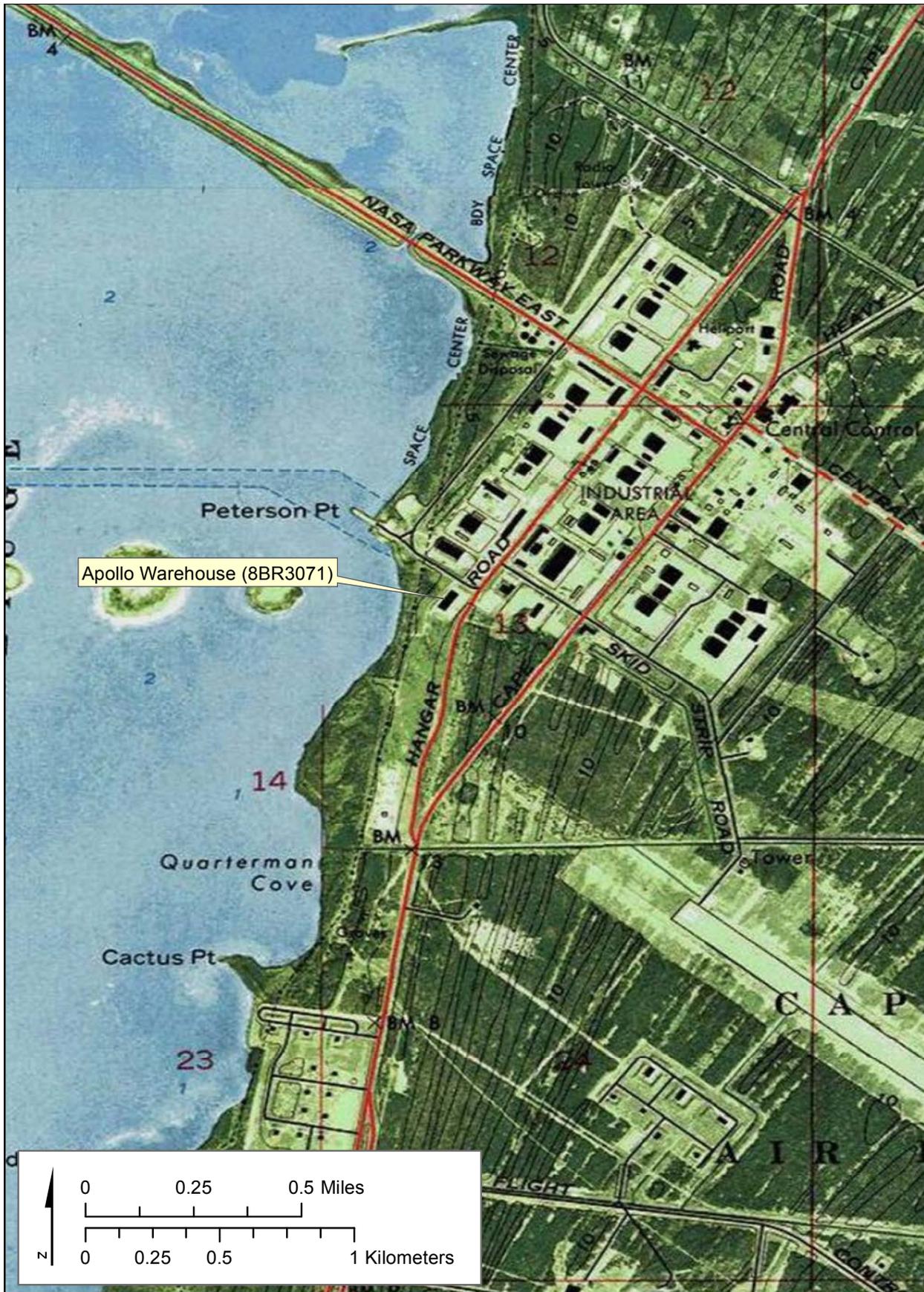
Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

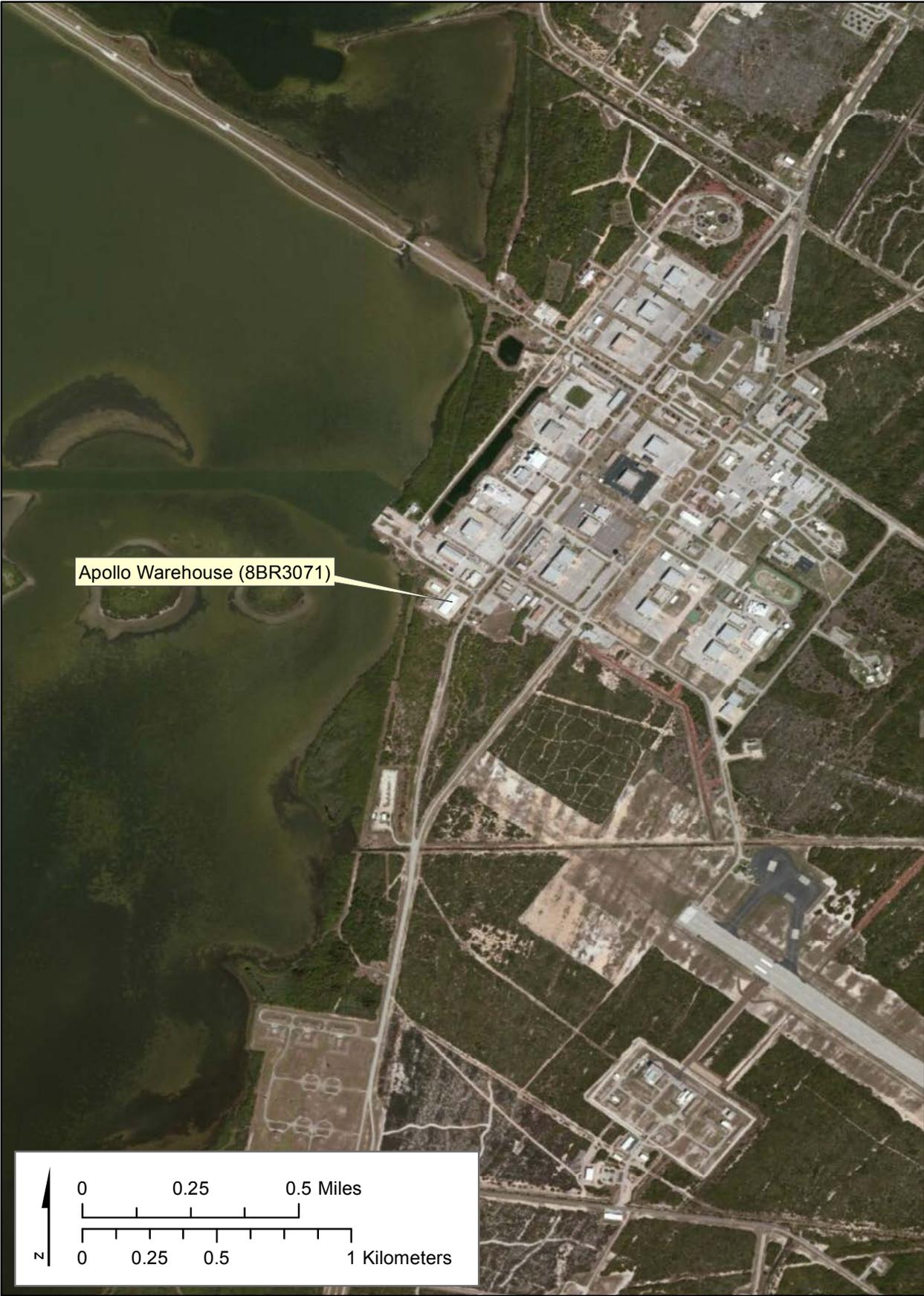
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: ESRI Resource Data, Imagery Layer

**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Apollo Warehouse, Exterior Oblique, View Southwest



Apollo Warehouse, Interior Storage Area, View Southeast

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HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BR03072**
Field Date 5-13-2013
Form Date 7-23-2013
Recorder # _____

Original
 Update

Shaded Fields represent the minimum acceptable level of documentation.
Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Paint Storage Building Multiple Listing (DHR only) _____
Survey Project Name Survey of NASA-owned Facilities at CCAFS Survey # (DHR only) _____
National Register Category (please check one) building structure district site object
Ownership: private-profit private-nonprofit private-individual private-nonspecific city county state federal Native American foreign unknown

LOCATION & MAPPING

Clear Location Values

Street Number Bldg. 66200 Direction _____ Street Name Hangar Street Type Road Suffix Direction _____
Address: _____
Cross Streets (nearest / between) West Skid Strip Road
USGS 7.5 Map Name CAPE CANAVERAL USGS Date 1976 Plat or Other Map _____
City / Town (within 3 miles) Cape Canaveral In City Limits? yes no unknown County Brevard
Township 23S Range 37E Section 13 1/4 section: NW SW SE NE Irregular-name: _____
Tax Parcel # N/A Landgrant _____
Subdivision Name _____ Block _____ Lot _____
UTM Coordinates: Zone 16 17 Easting 540506 Northing 3151355
Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
Name of Public Tract (e.g., park) Cape Canaveral Air Force Station

HISTORY

Clear History Values

Construction Year: 1957 approximately year listed or earlier year listed or later
Original Use Storage building From (year): 1957 To (year): 2013
Current Use Storage building From (year): _____ To (year): _____
Other Use _____ From (year): _____ To (year): _____
Moves: yes no unknown Date: _____ Original address _____
Alterations: yes no unknown Date: _____ Nature _____
Additions: yes no unknown Date: _____ Nature _____
Architect (last name first): _____ Builder (last name first): _____
Ownership History (especially original owner, dates, profession, etc.) The building was built by the Air Force in 1957 and transferred to NASA in 1964.
Is the Resource Affected by a Local Preservation Ordinance? yes no unknown Describe _____

DESCRIPTION

Clear Description Values

Style Industrial Vernacular Exterior Plan Rectangular Number of Stories 1
Exterior Fabric(s) 1. Concrete block 2. _____ 3. _____
Roof Type(s) 1. Hip 2. _____ 3. _____
Roof Material(s) 1. Sheet metal:standing seam 2. _____ 3. _____
Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
Windows (types, materials, etc.) None.

Distinguishing Architectural Features (exterior or interior ornaments) None.

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) None.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date	SHPO – Appears to meet criteria for NR listing: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> insufficient info	Date	_____	Init.	_____
<input type="checkbox"/> Owner Objection	KEEPER – Determined eligible: <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Clear Check Boxes	Date	_____		
	NR Criteria for Evaluation: <input type="checkbox"/> a <input type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Clear Description Values

Chimney: No. 0 Chimney Material(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Structural System(s): 1. Concrete block 2. Slab 3. Poured Concrete Footing
Foundation Type(s): 1. Slab 2. Poured Concrete Footing
Foundation Material(s): 1. Poured Concrete Footing 2.
Main Entrance (stylistic details) There is a single, metal door pedestrian entrance on the north elevation.

Porch Descriptions (types, locations, roof types, etc.) None.

Condition (overall resource condition): [x]excellent []good []fair []deteriorated []ruinous

Narrative Description of Resource This is a one-story concrete block building with a metal hipped roof, concrete foundation, and a rectangular footprint that contains approximately 100 square feet of storage space.

Archaeological Remains []Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

- [x]FMSF record search (sites/surveys) [x]library research []building permits []Sanborn maps
[]FL State Archives/photo collection []city directory [x]occupant/owner interview []plat maps
[]property appraiser / tax records [x]newspaper files []neighbor interview []Public Lands Survey (DEP)
[x]cultural resource survey (CRAS) [x]historic photos [x]interior inspection [x]HABS/HAER record search
[]other methods (describe)

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) None.

OPINION OF RESOURCE SIGNIFICANCE

Clear Significance Values

Appears to meet the criteria for National Register listing individually? []yes [x]no []insufficient information
Appears to meet the criteria for National Register listing as part of a district? []yes [x]no []insufficient information
Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) The building is not associated with significant NASA events, missions, or people. It is not the work of a master architect, nor does it embody the distinctive characteristics of a type or method of construction.

Area(s) of Historical Significance (see National Register Bulletin 15, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)
1. 3. 5.
2. 4. 6.

DOCUMENTATION

Clear Documentation Values

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents
1) Document type All materials at one location Maintaining organization National Aeronautics and Space Administration
Document description Survey report File or accession #'s
2) Document type Maintaining organization
Document description File or accession #'s

RECORDER INFORMATION

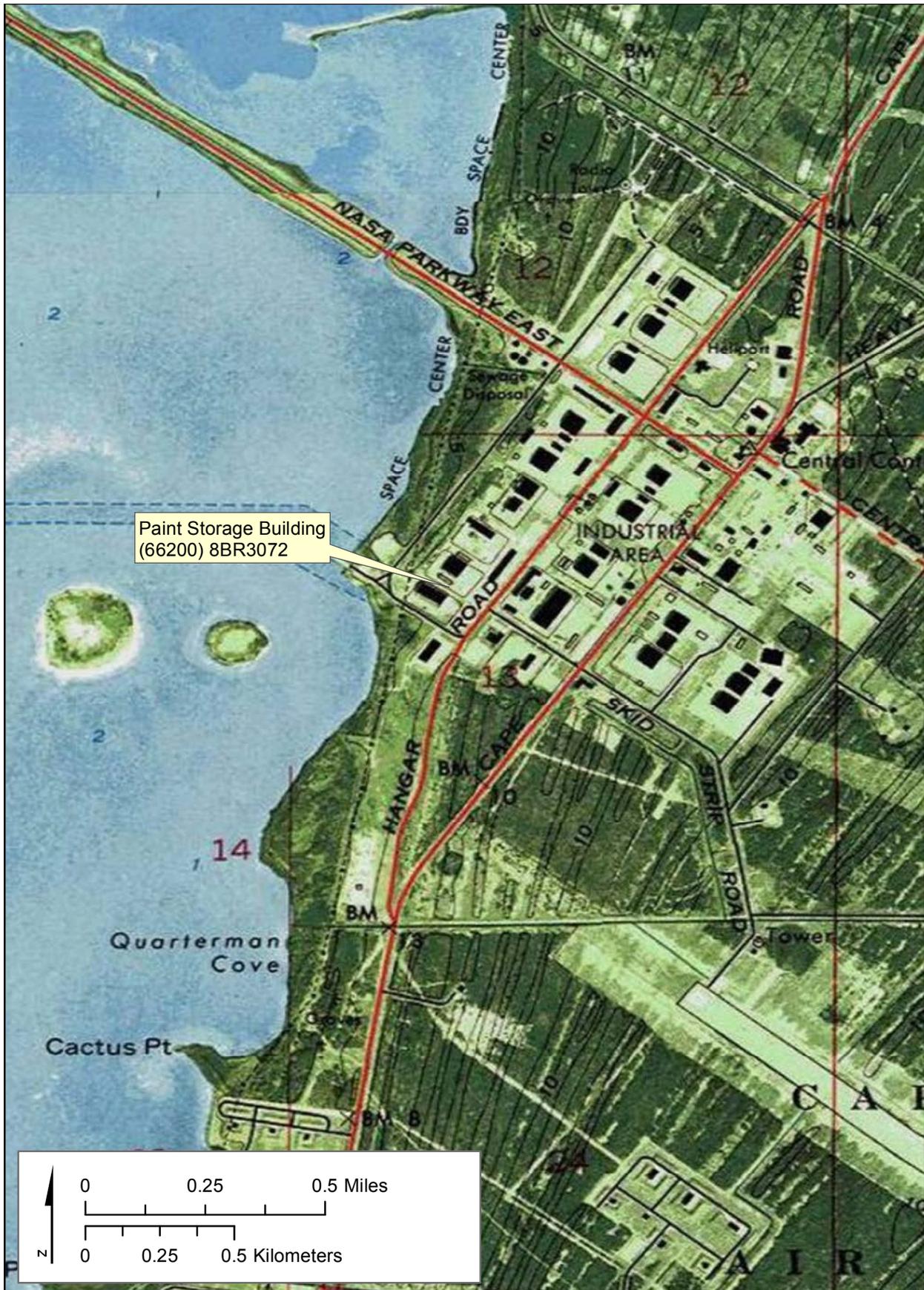
Recorder Name David L. Price Affiliation New South Associates
Recorder Contact Information dprice@newsouthassoc.com, 615-262-4326
(address / phone / fax / e-mail)

Required Attachments

- 1 USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED
2 LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)
3 PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Maps



**Architectural Survey of NASA-Owned Facilities on Cape Canaveral Air Force Station
Site Form Photographs**



Paint Storage Building, Exterior View Northwest

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APPENDIX D: CORRESPONDENCE BETWEEN
FLORIDA STATE HISTORIC PRESERVATION
OFFICE AND NASA KSC

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Read

FLORIDA DEPARTMENT of STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Ms. Barbara A. Naylor
Kennedy Space Center
National Aeronautics and Space Administration
Kennedy Space Center, FL 32899

September 26, 2012

RE: DHR Project File Number: 2012-4355
Proposed Demolition of Hangar S (Building 1726)
Cape Canaveral Air Force Station, Brevard County

Dear Ms. Naylor:

This office reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended and *36 CFR Part 800: Protection of Historic Properties*.

When reviewing properties, our responsibility under Section 106 is to determine if they meet the criteria for listing in the *National Register*, individually or as contributing resources to a district.

Therefore, we determined that we have not been provided sufficient information to complete our determination. In order for this office to continue our review we request supporting documents (i.e., blueprints, floor plans, photographs, etc.) that show the configuration of the interior rooms during its period(s) of significance (i.e., NASA programs) versus today.

In addition, Hangar S (Building 1726) is located in the *Industrial Area* at Cape Canaveral Air Force Station (CCAFS). This office has previously requested that a comprehensive historic building survey be conducted of this area to determine if a historic district exists. Please provide your justification and finding on whether Hangar S is or is not a contributing resource to a potential historic district, bearing in mind that the integrity of the interior as a contributing resource carries less weight in district evaluations.

If you have any questions concerning our comments, please contact Scott Edwards, Historic Preservationist, by electronic mail scott.edwards@dos.myflorida.com, or at 850.245.6333 or 800.847.7278.

Sincerely,

Missy M. Slade, Deputy SHPO

for Robert F. Bendus, Director
Division of Historical Resources
and State Historic Preservation Officer

DIVISION OF HISTORICAL RESOURCES

R. A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399-0250

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FLORIDA DEPARTMENT *of* STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Ms. Barbara A. Naylor
Kennedy Space Center
National Aeronautics and Space Administration
Kennedy Space Center, FL 32899

February 14, 2013

RE: DHR Project File Number: 2012-4355-B
Requested Documentation for Hangar S (Building 1726)
Cape Canaveral Air Force Station, Brevard County

Dear Ms. Naylor:

Thank you for your response to our September 16, 2012 review comments regarding proposed demolition of Hangar S (Building 1726). This office would like to compliment you and your office on the thoroughness of the material sent. We have reviewed the additional information provided in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended and *36 CFR Part 800: Protection of Historic Properties*.

As indicated in our previous correspondence, Hangar S (Building 1726) is located in the *Industrial Area* at Cape Canaveral Air Force Station (CCAFS). Based on the information provided, as thorough as it is, we are still unable to make a determination on whether Hangar S is a contributing resource to a potential historic district.

We understand the complexity and difficulty of evaluating an area that involves two separate federal agencies owning buildings that are in some cases adjacent to each other. This office has previously requested that CCAFS conduct a comprehensive historic building survey of this area to determine if a historic district exists. It is very likely that there is a historic district in the *Industrial Area* given the range and the importance of the programs it provided to support the mission and foundation to the early development of the manned space program.

Cape Canaveral Air Force Station has indicated that they will conduct a comprehensive historic building survey of the *Industrial Area* in Fiscal Year 2013. We strongly encourage you to coordinate and assist them with the survey to ensure that National Aeronautics and Space Administration (NASA) properties will be included and evaluated.

This survey will greatly benefit both agencies in that it will help expedite reviews, eliminate buildings from further reviews, and identify historically significant buildings/district, which will help in the future planning/development of NASA property.



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Ms. Naylor
DHR No: 2012-4355-B
February 14, 2013
Page 2 of 2

If you have any questions concerning our comments, please contact Scott Edwards, Historic Preservationist, by electronic mail scott.edwards@dos.myflorida.com, or at 850.245.6333 or 800.847.7278.

Sincerely,

Timothy A. Parsons, DSHPO for

Robert F. Bendus, Director
Division of Historical Resources
and State Historic Preservation Officer

PC: Thomas Penders, USAF
Steven Kovachevich

National Aeronautics and Space Administration
Kennedy Space Center
Kennedy Space Center, FL 32899



March 8, 2013

Reply to Attn of: TA-A4C

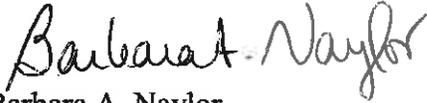
Florida Division of Historical Resources
Attn: Timothy A. Parsons
500 S. Bronough Street
R. A. Gray Building
Tallahassee, Florida 32399-0250

Subject: Demolition of Hangar S (Building 1726) at the Cape Canaveral Air Force Station,
Brevard County, Florida

In reference to your letter (DHR Project File Number: 2012-4355-B) dated February 14, 2013, and conversations with our National Aeronautics and Space Administration (NASA) Federal Preservation Officer, the Advisory Council on Historic Preservation, and comments from the public, the Kennedy Space Center (KSC) agrees with the recommendation that the Air Force conduct a historic survey of portions of the Cape Canaveral Air Force Station (CCAFS) to determine if a potential historic district exists in the CCAFS Industrial Area. Per a recent conversation with the Cultural Resources Management Manager at CCAFS, however, it is unlikely that the Air Force will have the funding to partner or conduct a survey in the near future. Consequently, as an alternative, NASA KSC will develop a brief historic context and survey of the NASA-owned properties that relate to an appropriate period of significance.

In addition, NASA KSC recognizes that the demolition activities proposed (currently on hold) for Hangar S could constitute an "adverse effect" if the hangar is found to be a contributing resource to a historic district. As appropriate mitigation, should Hangar S be found to be a contributing resource to a CCAFS Industrial Area Historic District, pursuant to KCA-4185, *Programmatic Agreement for Management of Historic Properties*, Stipulation II.C.1, Demolition, NASA KSC proposes to perform Level II HABS (Historic American Building Survey) to record the hangar in its latest configuration and add this to the existing photos and drawings. Additionally, NASA KSC will prepare a Florida Master Site File Form for the hangar.

If you have any questions on the document, please contact me at 321-867-8452 or Nancy English at 321-867-6987.



Barbara A. Naylor
KSC Historic Preservation Officer

cc:

FL SHPO/S. Edwards
ACHP/T. McCulloch
HQS/J. Groman
KSC/AA-D/T. Carlson
KSC-AA-D1/M. Busacca
KSC/CC/T. Belford
KSC/TA-B/D. Tweed
KSC/TA-B4C/S. Chaffee
KSC/TA-B/K. Gorman
KSC/TA-B3A/S. Miller

Interested Parties:

Steven Kovachevich
CCAFS/MS-9125/T. Penders
FWS/R. Lloyd
NPS/J. Stiner
U.S. Spacewalk of Fame
North Brevard Historical Society
Air Force Space and Missile Museum
Brevard County Historic Commission
Apollo One Memorial Foundation
North Brevard Heritage Foundation
Veterans Memorial Foundation



FLORIDA DEPARTMENT OF STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Ms. Barbara A. Naylor
Kennedy Space Center
National Aeronautics and Space Administration
Kennedy Space Center, FL 32899

April 11, 2013

RE: DHR Project File Number: 2012-4355-C
Hangar S (Building 1726)
Cape Canaveral Air Force Station, Brevard County

Dear Ms. Naylor:

Thank you for your letter dated March 8, 2013 regarding the development of a historic context and survey of the NASA owned properties at the Industrial Area of Cape Canaveral Air Force Station. The purpose of this survey will be to determine if a historic district exists in the industrial area and if *Hangar S* would be a contributing resource. We look forward to receiving and reviewing the survey report and evaluation when it becomes available.

If you have any questions concerning our comments, please contact Scott Edwards, Historic Preservationist, by electronic mail scott.edwards@dos.myflorida.com, or at 850.245.6333 or 800.847.7278.

Sincerely,

Timothy A. Parsons, DSHPO for

Robert F. Bendus, Director
Division of Historical Resources
and State Historic Preservation Officer

PC: Thomas Penders, USAF



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APPENDIX E: PHOTOGRAPHS OF NASA-
OWNED FACILITIES THAT RECEIVED A
RECONNAISSANCE-LEVEL SURVEY

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49637/Vehicle Shelter



54945/Hazardous Waste Staging Shelter



60541/Electrical Storage Building



60628/POL



60630/POL Facility, Hangar AF



60631/Blast Wall



60640/Payload Container and GSE Storage Building



60674/Back-up Generators



60675/Diesel Fuel Tank



60677/Antenna Structure



60678/Antenna Structure



60679/Antenna Structure



60683/Equipment Pad

60686/Antenna - Picture Not Available



60687/Storage Building

60690-1/Tank, Boiler - Picture Not Available



66216/Propane Tank



66232/Range Contractor Shop



66237/Hazardous Waste Staging Shelter



66238/Hazardous Waste Staging Shelter



66241/Deionized Water Tank



66257/Boiler Building



66257A/Fuel Tank



66259/Equipment Building



66266/Drum Storage Building



66267/Tank Farm Area



66297/X-Band Radar Pad



66310-1/Tank, Waste Detergent



66310-2/Tank, Waste Alodine



66311/Substation