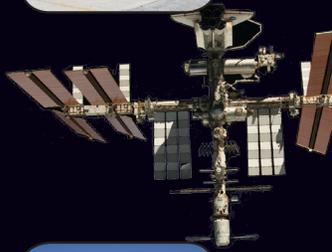
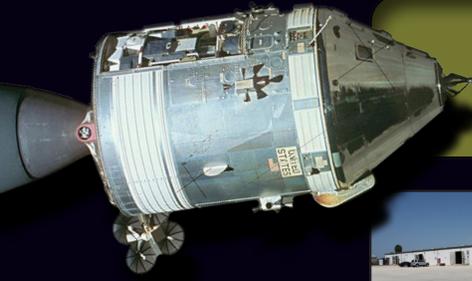


# Architectural Survey and Evaluation of 45 Facilities That Have Reached the Age of 45-50 Years

JOHN F. KENNEDY SPACE CENTER, BREVARD COUNTY, FLORIDA



PAGE INTENTIONALLY LEFT BLANK

# Architectural Survey and Evaluation of 45 Facilities That Have Reached the Age of 45-50 Years

John F. Kennedy Space Center, Brevard County, Florida

Report submitted to:  
InoMedic Health Applications, LLC • John F. Kennedy Space Center •  
Kennedy Space Center, Florida 32899

Report prepared by:  
New South Associates • 6150 East Ponce de Leon Avenue • Stone Mountain, Georgia 30083

  
Mary Beth Reed – Principal Investigator

David Price – Architectural Historian and Author

September 27, 2013 • **Final Report**  
New South Associates Technical Report 2203

PAGE INTENTIONALLY LEFT BLANK

# ABSTRACT

New South Associates Inc., conducted background research and a historic architectural survey of 45 buildings and structures that have reached the age of 45-50 years at the National Aeronautics and Space Administration (NASA) John F. Kennedy Space Center (KSC). Of this total, 37 of the buildings are located on KSC's Merritt Island facilities and eight are located in the Cape Canaveral Air Force Station (CCAFS). Of the 45 areas surveyed, six are recommended eligible for individual listing in the National Register of Historic Places (NRHP), including the Engineering Development Laboratory (EDL) (M7-0409), Missile Assembly Building AE (60680), Beach House (K8-1699), Banana River Bridge (M7-1150), Indian River Bridge (M3-0003), and Haulover Canal Bridge (E4-2414). The Barge Terminal Facility (K7-1005) is recommended eligible as a contributing resource to the NRHP-eligible Vehicle Assembly Building (VAB) (K6-0848/8BR1684). The survey also determined that none of the facilities are located in an existing or newly recommended NRHP historic district.

## ACKNOWLEDGEMENTS

Several people contributed to the successful completion of the 45-50 year survey at KSC. Barbara A. Naylor, 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 entire survey effort. Nancy S. English, KSC Cultural Resources Specialist, assisted with site visits, escorting, and general support. Both Ms. Naylor and Ms. English were very helpful and accommodating when an extra hand was needed during fieldwork. Elaine Liston, KSC Senior Librarian/Archivist, assisted greatly with background research. Jane Provancha, InoMedic Health Applications Projects Manager, assisted with scheduling and communications before and after fieldwork. Larry Taylor, URS Facilities Manager, assisted with background information and provided access to several of the surveyed facilities. Individual facility managers throughout KSC took time from their daily schedules to escort survey staff through buildings and answer questions about their function and history.

# TABLE OF CONTENTS

ABSTRACT.....	i
ACKNOWLEDGEMENTS.....	ii
LIST OF FIGURES.....	ix
LIST OF TABLES.....	xi
LIST OF ACRONYMS.....	xiii
I. INTRODUCTION.....	1
PREVIOUS STUDIES, SURVEYS, AND DOCUMENTATION EFFORTS AT KSC.....	3
REPORT ORGANIZATION.....	16
II. HISTORIC CONTEXT.....	17
ENVIRONMENTAL SETTING.....	17
NASA BEFORE KSC.....	18
THE APOLLO PROGRAM.....	20
KSC PLANNING AND CONSTRUCTION.....	21
U.S. UNMANNED SPACE PROGRAM.....	23
LAUNCH COMPLEX 39 AREA.....	24
KSC INDUSTRIAL AREA.....	25
THE SPACE SHUTTLE PROGRAM (SSP).....	26
III. METHODS.....	29
NRHP CRITERIA FOR EVALUATION.....	30
Criteria Considerations.....	30
NASA GUIDANCE FOR THE SSP.....	32
The Space Shuttle Program: Proposed NRHP Criteria for Evaluation and Criteria Considerations.....	32
Criterion A – Events.....	32
Criterion B – Significant Persons.....	32
Criterion C – Design/Construction.....	33
Criterion D – Information Value.....	33
Criteria of Eligibility by Property Type.....	34
MAN IN SPACE NHL THEMATIC STUDY GUIDANCE.....	40

IV. FACILITY DESCRIPTIONS AND EVALUATIONS .....	41
HISTORIC DISTRICT EVALUATION – KSC INDUSTRIAL AREA .....	46
HISTORIC DISTRICT EVALUATION – CCAFS INDUSTRIAL AREA.....	51
PAINT STORAGE BUILDING (54905) .....	52
Description .....	52
Evaluation .....	52
LITTLE N STORAGE BUILDING (54928).....	54
Description .....	54
Evaluation .....	54
HANGAR M ANNEX (55005) .....	56
Description .....	56
Evaluation .....	56
PRESSURE PROOF TEST CELL (60425).....	58
Description .....	58
Evaluation .....	58
SOLAR ARRAY TEST BUILDING (60540).....	60
Description .....	60
Evaluation .....	60
ENGINEERING AND OPERATIONS (E&O) BUILDING (60650).....	62
Description .....	62
Evaluation .....	62
MISSILE ASSEMBLY BUILDING AE (60680) .....	64
Description .....	64
Evaluation .....	64
EMERGENCY BREATHING EQUIPMENT MAINTENANCE BUILDING (66220).....	68
Description .....	68
Evaluation .....	68
STORAGE FACILITY (J6-0553) .....	70
Description .....	70
Evaluation .....	70
ORDNANCE STORAGE MAGAZINES NO. 1, 2, 3, AND 4 (K7-0255, K7-0306, K7-0356, AND K7-0405) .....	72
Description .....	72
Evaluation .....	72
ORDNANCE LABORATORY NO. 1 (K7-0506) .....	74
Description .....	74
Evaluation .....	74

ORDNANCE LABORATORY NO. 2 (M7-1417).....	76
Description.....	76
Evaluation.....	76
OPERATIONS BUILDING NO. 1 (K7-0416).....	78
Description.....	78
Evaluation.....	78
CONVERTER/COMPRESSOR BUILDING (K7-0468).....	80
Description.....	80
Evaluation.....	80
CONVERTER/COMPRESSOR OPERATIONS BUILDING (K7-0569).....	82
Description.....	82
Evaluation.....	82
BARGE TERMINAL FACILITY (K7-1005).....	84
Description.....	84
Evaluation.....	84
BEACH HOUSE (K8-1699).....	88
Description.....	88
Evaluation.....	88
ENVIRONMENTAL HEALTH BUILDING (L7-1557).....	94
Description.....	94
Evaluation.....	95
ELECTROMAGNETIC LABORATORY (M6-0336).....	96
Description.....	96
Evaluation.....	96
BASE OPERATIONS BUILDING (BOB) (M6-0339).....	98
Description.....	98
Evaluation.....	98
SPACEPORT CENTRAL (M6-0409).....	100
Description.....	100
Evaluation.....	100
BASE SUPPORT BUILDING (M6-0486).....	102
Description.....	102
Evaluation.....	102
SUPPORT BUILDING (M6-0589).....	104
Description.....	104
Evaluation.....	104

INDUSTRIAL AREA SUPPORT BUILDING (M6-0493)	106
Description	106
Evaluation	106
OCCUPATIONAL HEALTH BUILDING (M6-0495)	108
Description	108
Evaluation	108
PROPELLANTS SHOP (M6-0688)	110
Description	110
Evaluation	110
TRANSPORTATION STORAGE BUILDING (M6-0689)	112
Description	112
Evaluation	112
FIRE STATION NO. 1 (M6-0695)	114
Description	114
Evaluation	114
CENTRAL SUPPLY (M6-0744)	116
Description	116
Evaluation	116
SUPPLY WAREHOUSE NO. 1 (M6-0794)	118
Description	118
Evaluation	118
SUPPLY WAREHOUSE NO. 2 (M6-0698)	120
Description	120
Evaluation	120
PAINT & OIL LOCKER (POL) (M6-0894)	122
Description	122
Evaluation	122
AUDITORIUM AND TRAINING BUILDING (M7-0351)	124
Description	124
Evaluation	124
ENGINEERING DEVELOPMENT LABORATORY (EDL) (M7-0409)	126
Description	126
Evaluation	128
ENGINEERING DEVELOPMENT LABORATORY (EDL) EQUIPMENT BUILDING (M7-0409A)	130
Description	130
Evaluation	130
RADIOTHERMALISOTOPIC GENERATOR (RTG) FACILITY (M7-1472)	132

Description .....	132
Evaluation .....	132
KARS PARK .....	134
INDOOR RANGE AND CLUBHOUSE (P6-1435) .....	134
Description .....	134
RECREATION BUILDING (P6-1638).....	135
Description .....	135
ARTS & CRAFTS BUILDING (P6-1738).....	136
Description .....	136
Evaluation of Three KARS Properties.....	136
KSC BRIDGES.....	138
HAULOVER CANAL BRIDGE (E4-2414) .....	138
Description .....	138
INDIAN RIVER BRIDGE (M3-0003).....	139
Description .....	139
BANANA RIVER BRIDGE (M7-1150).....	140
Description .....	140
Evaluation of Three Bridge Properties .....	141
 V. CONCLUSION.....	 147
 REFERENCES CITED.....	 150
 APPENDIX A. FLORIDA SURVEY LOG SHEET	
 APPENDIX B. FLORIDA MASTER SITE FILE FORMS	
 APPENDIX C. CORRESPONDENCE BETWEEN NASA AND FLORIDA STATE HISTORIC PRESERVATION OFFICE	
 APPENDIX D. LIST OF BUILDINGS IN THE KSC INDUSTRIAL AREA	

PAGE INTENTIONALLY LEFT BLANK

# LIST OF FIGURES

Figure 1.	Project Area .....	2
Figure 2.	Location of Surveyed Facilities in the KSC Industrial Area .....	4
Figure 3.	Location of Surveyed Facilities on CCAFS .....	5
Figure 4.	Location of Surveyed Facilities in the Launch Complex 39 Area.....	6
Figure 5.	Location of Surveyed Facilities at KARS Park .....	7
Figure 6.	Location of the Beach House .....	8
Figure 7.	Location of the Indian River Bridge.....	9
Figure 8.	Location of the Haulover Canal Bridge.....	10
Figure 9.	Location of Spaceport Central (KSC Visitor Complex).....	11
Figure 10.	Location of the Storage Facility .....	12
Figure 11.	1973 Aerial View Showing NASA Facilities Surveyed in the CCAFS Industrial Area and Previously Recorded Historic Properties (SSP Survey).....	23
Figure 12.	1966 Aerial View of Saturn Rocket En Route from VAB to Launch Pad with Ordnance Storage Area in Background .....	24
Figure 13.	Historic Views of the KSC Industrial Area .....	25
Figure 14.	Color-coded Map Showing Range of Construction Dates of all Buildings in KSC Industrial Area.....	49
Figure 15.	Views of Paint Storage Building (54905).....	53
Figure 16.	Views of Little N Storage Building (54928) .....	55
Figure 17.	Views of Hangar M Annex (55005) .....	57
Figure 18.	Views of the Pressure Proof Test Cell (60425).....	59
Figure 19.	Views of the Solar Array Test Building (60540) .....	61
Figure 20.	Views of the E&O Building (60650).....	63
Figure 21.	Views of Missile Assembly Building AE (60680).....	65
Figure 22.	Historic Aerial Views of Missile Assembly Building AE (60680).....	66
Figure 23.	Missile Assembly Building AE NRHP Boundary .....	67
Figure 24.	Views of the Emergency Breathing Equipment Maintenance Building (66220) .....	69
Figure 25.	Views of the Storage Facility (J6-0553).....	71
Figure 26.	Views of Ordnance Storage Magazines 1-4 (K7-0255, K7-0306, K7-0356, and K7-0405) .....	73
Figure 27.	Views of Ordnance Laboratory No. 1 (K7-0506).....	75
Figure 28.	Views of Ordnance Laboratory No. 2 (M7-1417) .....	77
Figure 29.	Views of the Operations Building No. 1 (K7-0416).....	79
Figure 30.	Views of the Converter/Compressor Building (K7-0468).....	81
Figure 31.	Views of Converter/Compressor Operations Building (K7-0569).....	83
Figure 32.	Barge Terminal Facility (K7-1005) at Left with Space Shuttle Mockup Ready for Shipping, VAB at Right, View West .....	85

Figure 33. Historic Views of the Barge Terminal Facility (K7-1005) .....	86
Figure 34. NRHP Boundary for the Barge Terminal Facility .....	87
Figure 35. Views of the Beach House (K8-1699).....	89
Figure 36. Historic 1974 Views of the Beach House (K8-1699).....	90
Figure 37. NRHP Boundary for the Beach House .....	93
Figure 38. Views of the Environmental Health Building (L7-1557).....	95
Figure 39. Views of the Electromagnetic Laboratory (M6-0336) .....	97
Figure 40. Views of the BOB (M6-0339) .....	99
Figure 41. Views of Spaceport Central (M6-0409).....	101
Figure 42. Views of the Base Support Building (M6-0486).....	103
Figure 43. Views of the Support Building (M6-0589).....	105
Figure 44. Views of the Industrial Area Support Building (M6-0493).....	107
Figure 45. Views of the Occupational Health Building (M6-0495) .....	109
Figure 46. Views of the Propellants Shop (M6-0688) .....	111
Figure 47. Views of the Transportation Storage Building (M6-0689).....	113
Figure 48. Views of Fire Station No. 1 (M6-0695).....	115
Figure 49. Views of Central Supply (M6-0744) .....	117
Figure 50. Views of Supply Warehouse No. 1 (M6-0794) .....	119
Figure 51. Views of Supply Warehouse No. 2 (M6-0698) .....	121
Figure 52. Views of the POL (M6-0894).....	123
Figure 53. Views of the Auditorium and Training Building (M7-0351).....	125
Figure 54. Views of the EDL (M7-0409).....	126
Figure 55. Historic Views of the EDL .....	127
Figure 56. NRHP Boundary for the EDL.....	129
Figure 57. Views of the EDL Equipment Building (M7-0409A) .....	131
Figure 58. Views of the Radiothermalisotopic Generator (RTG) Facility (M7-1472) .....	133
Figure 59. Views of the KARS Park Indoor Range & Clubhouse (P6-1435).....	134
Figure 60. Views of the KARS Park Recreation Building (P6-1638) .....	135
Figure 61. Views of the KARS Park Arts & Crafts Building (P6-1738).....	137
Figure 62. Haulover Canal Bridge (E4-2414), View Northeast.....	138
Figure 63. Indian River Bridge (M3-0003) Control House, View Southwest.....	139
Figure 64. Banana River Bridge (M7-1150), View Northwest.....	140
Figure 65. Historic Views of the KSC Bridges.....	141
Figure 66. NRHP Boundary for the Haulover Canal Bridge.....	143
Figure 67. NRHP Boundary for the Indian River Bridge .....	144
Figure 68. NRHP Boundary for the Banana River Bridge .....	145

# LIST OF TABLES

Table 1. Surveyed Facilities That Have Reached the Age of 45-50 Years Owned by KSC .....	42
Table 2. List of Buildings Recommended Eligible for the NRHP .....	147

PAGE INTENTIONALLY LEFT BLANK

# LIST OF ACRONYMS

ACHP – Advisory Council of Historic Preservation

ACI – Archaeological Consultants, Inc.

ACTS – Advanced Communications Technology Satellite

ADA – Americans with Disabilities Act

BOB – Base Operations Building

BOSU – Bioastronautics Operations Support Unit

CCAFS – Cape Canaveral Air Force Station

CIF – Central Instrumentation Facility

COMSCAT – Communication Satellite

Corps – U.S. Corps of Engineers

CSM – Command and Service Module

DoD – Department of Defense

EDL – Engineering Development Laboratory

E&A – Environmental & Analysis

E&O – Engineering & Operations

ELV – Expendable Launch Vehicle

FMSF – Florida Master Site File

GSA – General Services Administration

HABS – Historic American Building Survey

HAER – Historic American Engineering Record

HPWG – Historic Preservation Working Group

HVAC – Heating Ventilation Air Conditioning

ISS – International Space Station

ISSP – International Space Station Program

KARS – Kennedy Athletic, Recreation, and Social

KSC – John F. Kennedy Space Center

LCC – Launch Control Center

LEM – Lunar Excursion Module

LiOH – Lithium Hydroxide

M&O – Maintenance & Operations

M&P – Materials & Processes

MLLP – Manned Lunar Landing Program

NASA – National Aeronautics and Space Administration

NHL – National Historic Landmark

NPS – National Park Service

NRHP – National Register of Historic Places

O&C – Operations & Checkout

OPF – Orbiter Processing Facility

POL – Paint and Oil Locker

PRF – Parachute Refurbishment Facility

RAI – Resource Analysts, Inc.

RTG – Radiothermalisotopic Generator

SCAPE – Self-Contained Atmospheric Protective Ensemble

SHPO – State Historic Preservation Office

SRB – Solid Rocket Booster

SSP – Space Shuttle Program

SSPF – Space Station Processing Facility

STS – Space Transportation System

VAB – Vehicle Assembly Building

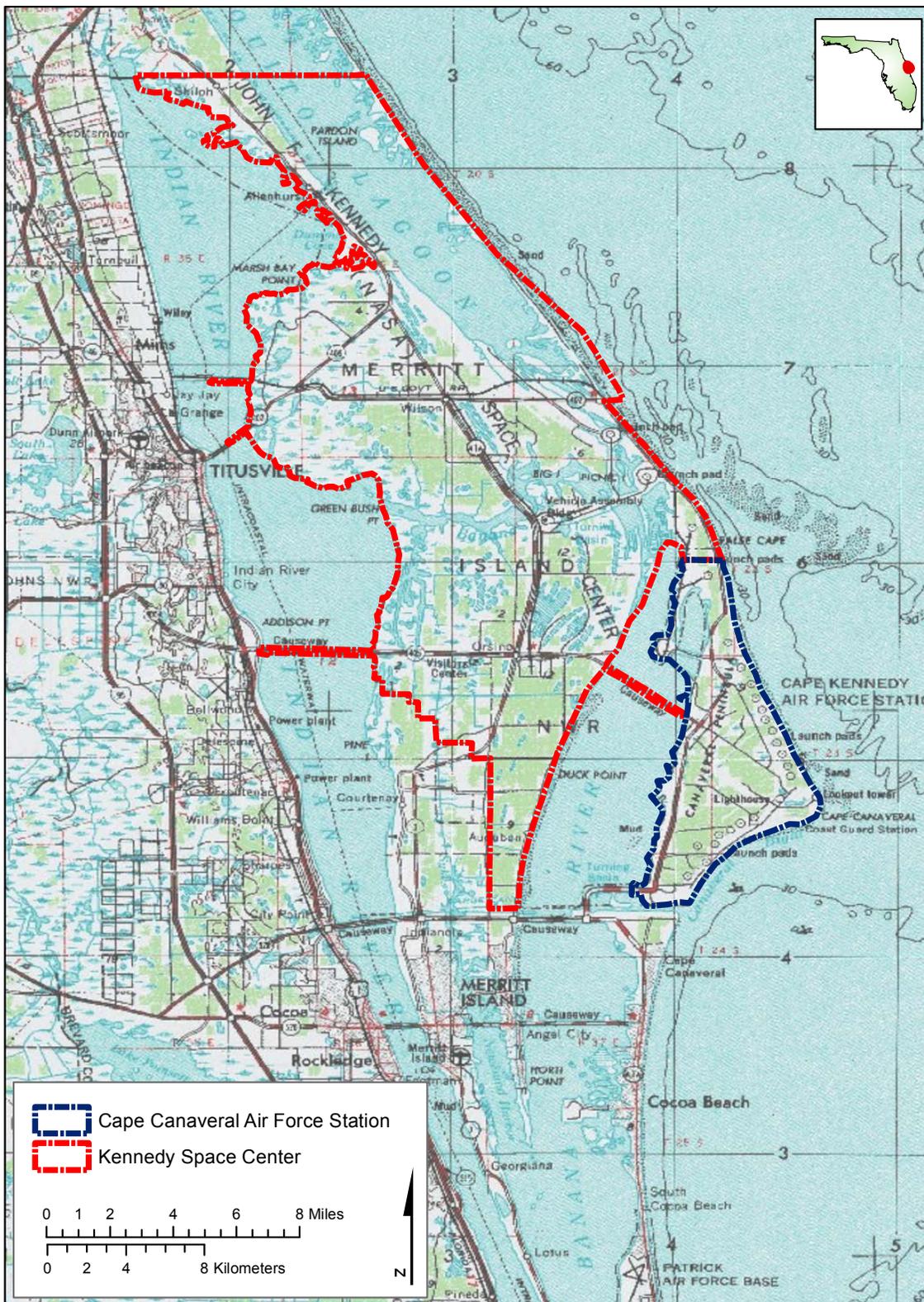
# I. INTRODUCTION

National Aeronautics and Space Administration's (NASA) John F. Kennedy Space Center (KSC) was established in 1960 with the mandate of landing a man on the Moon by the end of the decade. While the goal was singular, its achievement involved a number of critical missions, each requiring highly technical facilities and thousands of scientists, engineers, maintenance workers, support staff, and administrators. The facilities that would be used at KSC and the adjoining Cape Canaveral Air Force Station (CCAFS) were initially a mixture of older buildings and structures constructed at CCAFS after 1949 and new construction completed at both KSC and CCAFS beginning in 1961. Over the next 50 years, as new missions replaced old and technological advances were made, the existing facilities continued to evolve and new ones were added.

As the Apollo missions ended in 1972 and the doors opened to the Space Shuttle era, NASA quickly re-tooled and re-tasked facilities to meet new mission objectives. Mindful that the facilities that had enabled a human to walk on the Moon were being changed, preservation efforts began in the following decades to protect and preserve the history of the space program, even though the facilities had not yet reached the 50-year-old threshold where they would normally be evaluated for this historical significance. The National Historic Landmark (NHL) Theme Study, *Man in Space*, was completed by the National Park Service (NPS) in 1984 to help define what resources best typified the effort to land a man on the Moon (Butowsky 1984). In 2006, as NASA began to prepare for the end of the Space Shuttle Program (SSP), efforts increased to determine what historic properties of the Space Shuttle era best conveyed the significance of that program. It was during this time that many of the historic properties on KSC, were identified and documented, particularly those whose significance clearly warranted preservation efforts despite their not having yet reached 50 years of age.

Currently, KSC is in the final stages of completing extensive documentation of its historic Apollo and Space Shuttle resources. Simultaneously, however, many of the earlier buildings constructed at KSC that clearly were not at a high enough level of significance to warrant NHL or National Register of Historic Places (NRHP) status during the earlier evaluations, or had not been previously evaluated for significance under the Apollo or SSP context, have reached 50 years of age and need to be evaluated for their ability to convey the historical significance of the U.S. Space Program. Working with the Florida State Historic Preservation Office (SHPO), KSC developed a list of 45 buildings and structures, currently managed or owned by NASA, located either on KSC or CCAFS, that needed to be evaluated as they have reached or neared the 50-year mark (Figure 1).

Figure 1.  
Project Area



Source: USGS Courtney, Florida Quadrangle

In 2012, New South Associates, Inc., under contract with InoMedic Health Applications, conducted background research and an architectural history survey of 45 buildings and structures owned by KSC (Figures 2-10). Thirty-seven of these buildings are located in KSC's Merritt Island areas and eight are located in the CCAFS. The survey included the following tasks: background research; field survey; digital photography; interviews of 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 National Register of Historic Places (NRHP) eligibility. A total of four buildings and structures in this survey were part of a "fast track" list or properties slated for demolition and were included in a management summary dated August 2, 2012. These four included: L7-1557/Environmental Health Building (EHB); M6-0339/Base Operations Building (BOB); M6-0486/Base Support (M&O) Building; and 66220/Emergency Breathing Equipment Maintenance Building. SHPO concurrence letters for these resources are included in Appendix C. 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.

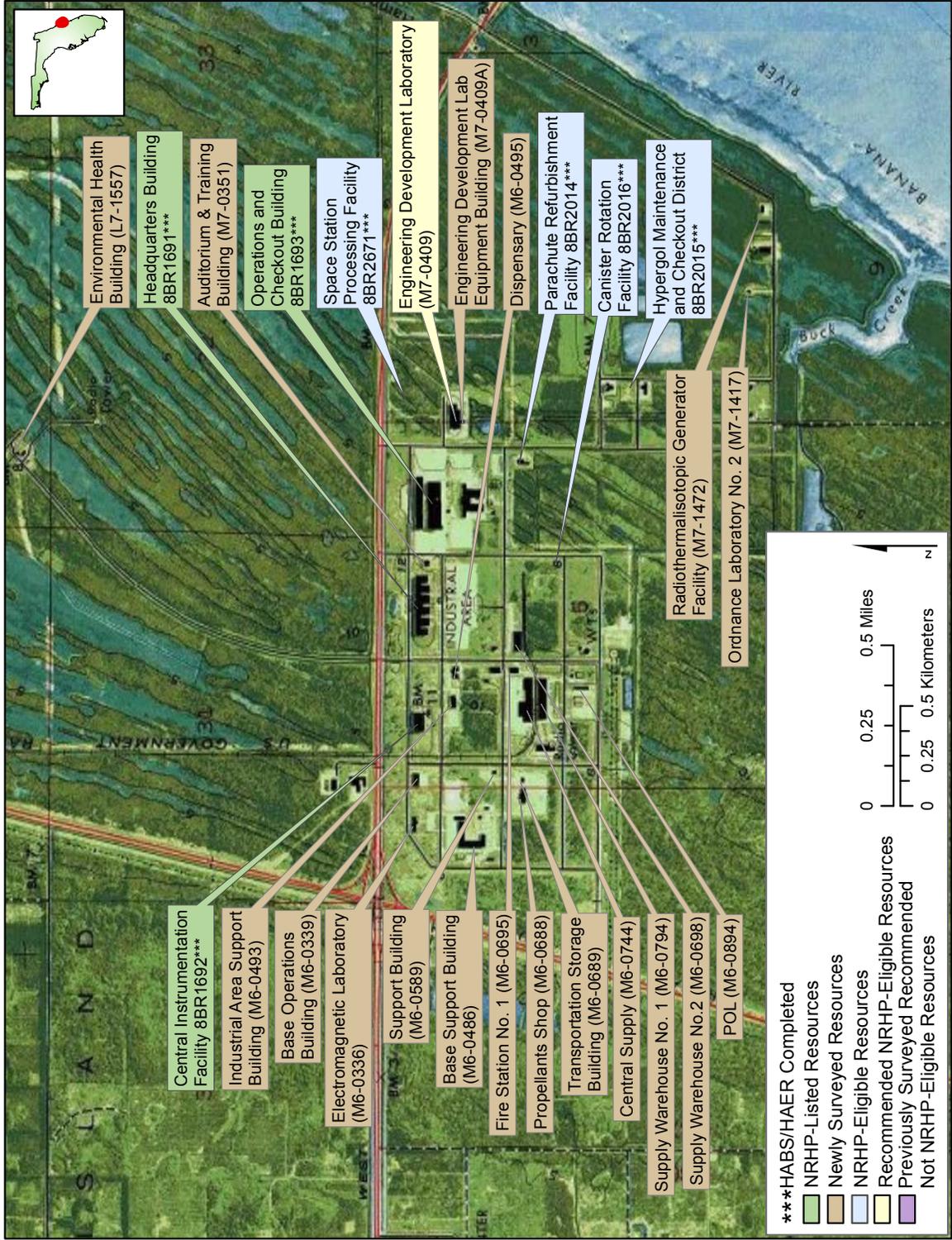
All buildings and structures were evaluated for eligibility to the NRHP as individual resources. In addition, the resources located on KSC were evaluated for the presence of a historic district. As a comprehensive survey of CCAFS has not been conducted, and as the history of many of these facilities functions are shared between NASA and the Air Force, the resources on CCAFS were not evaluated at this time for their potential to contribute to a NASA-owned historic district.

Of the 45 facilities surveyed, six are recommended eligible for individual listing in the NRHP, including the Engineering Development Laboratory (EDL) (M7-0409), Missile Assembly Building AE (60680), Beach House (K8-1699), Banana River Bridge (M7-1150), Indian River Bridge (M3-0003), and Haulover Canal Bridge (E4-2414). Additionally, the Barge Terminal Facility (K7-1005) is recommended eligible as a contributing resource to the NRHP-listed Vehicle Assembly Building (VAB) (K6-0848/8BR0848). Table 1, found in Chapter IV, lists and highlights those properties recommended as NRHP eligible.

## PREVIOUS STUDIES, SURVEYS, AND DOCUMENTATION EFFORTS AT KSC

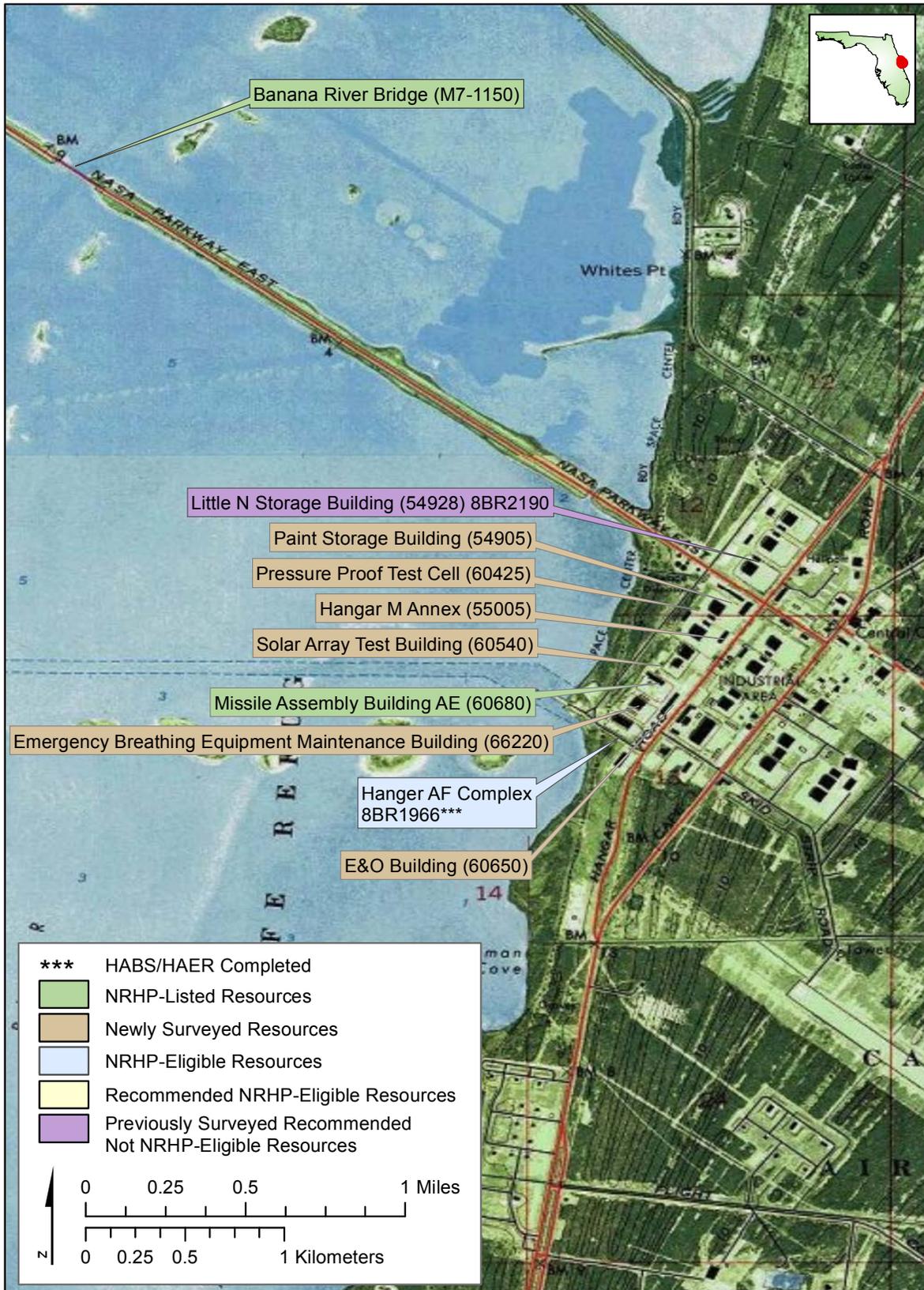
The historic significance of NASA facilities at KSC has long been recognized, beginning with the 1973 listing of Launch Complex 39 on the NRHP for its association with the Apollo lunar landing program. Since that time, both NASA and the U.S. Air Force (USAF) have completed official histories and extensive historic resource surveys, evaluations, and documentation projects at both KSC and CCAFS. Projects have included historic context studies, resource 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 used in the NRHP evaluations included in this report.

Figure 2.  
Locations of Surveyed Facilities in the KSC Industrial Area



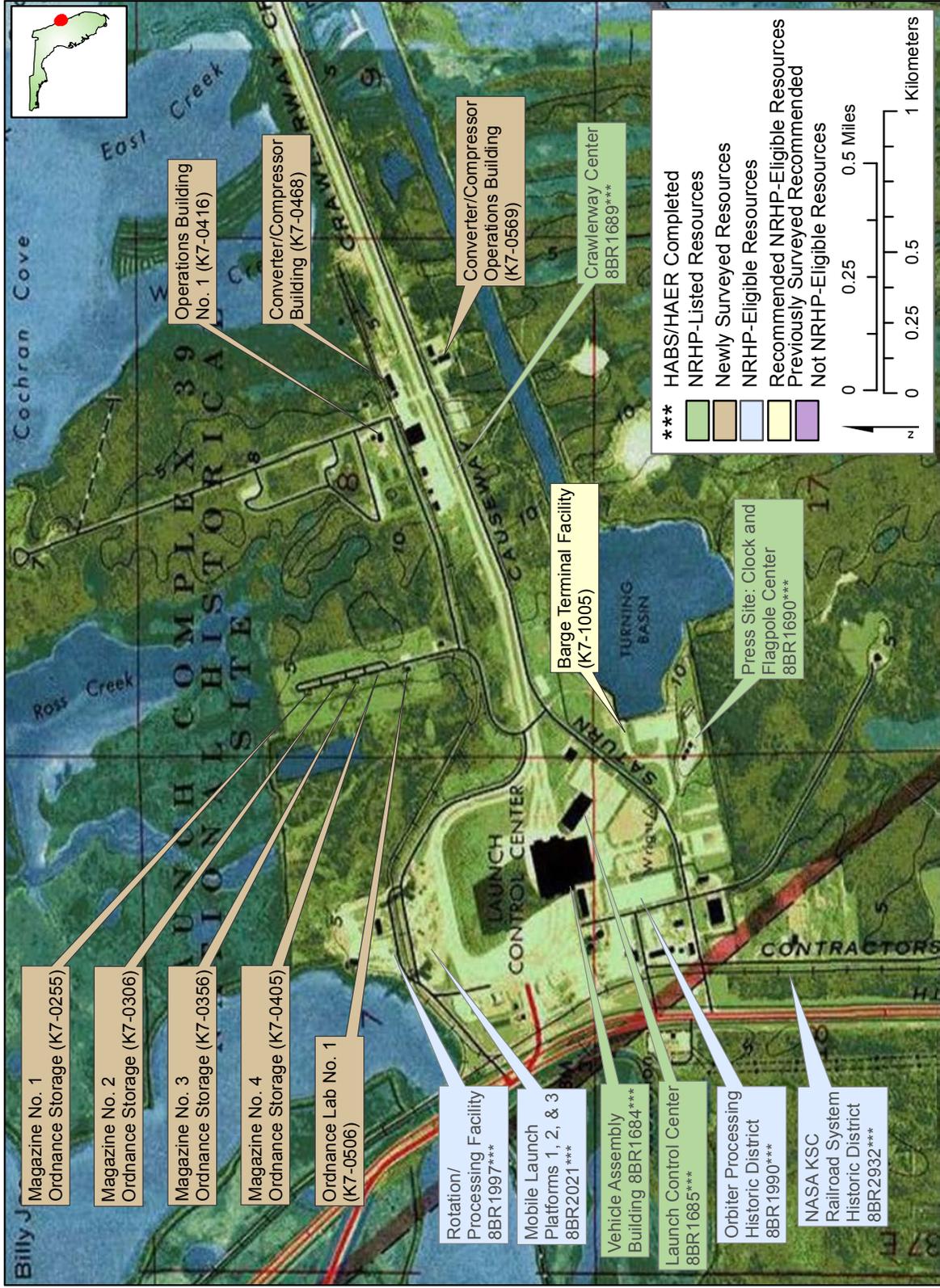
Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Figure 3.  
 Location of Surveyed Facilities on CCAFS



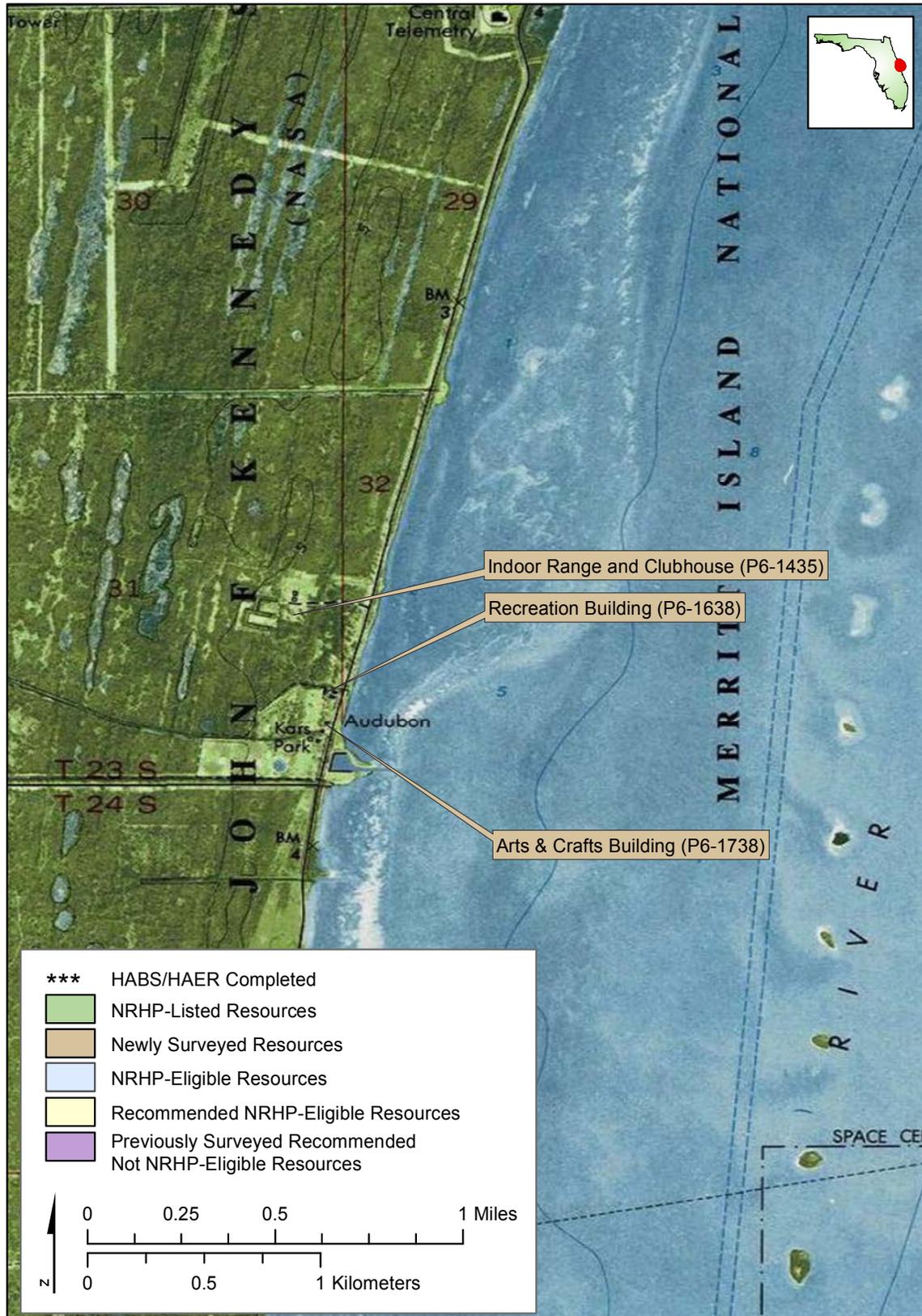
Source: USGS 7.5 Minute Topographic Quadrangle Map, Orsino, FL (1976)

Figure 4.  
Location of Surveyed Facilities in the Launch Complex 39 Area



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

Figure 5.  
 Location of Surveyed Facilities at KARS Park



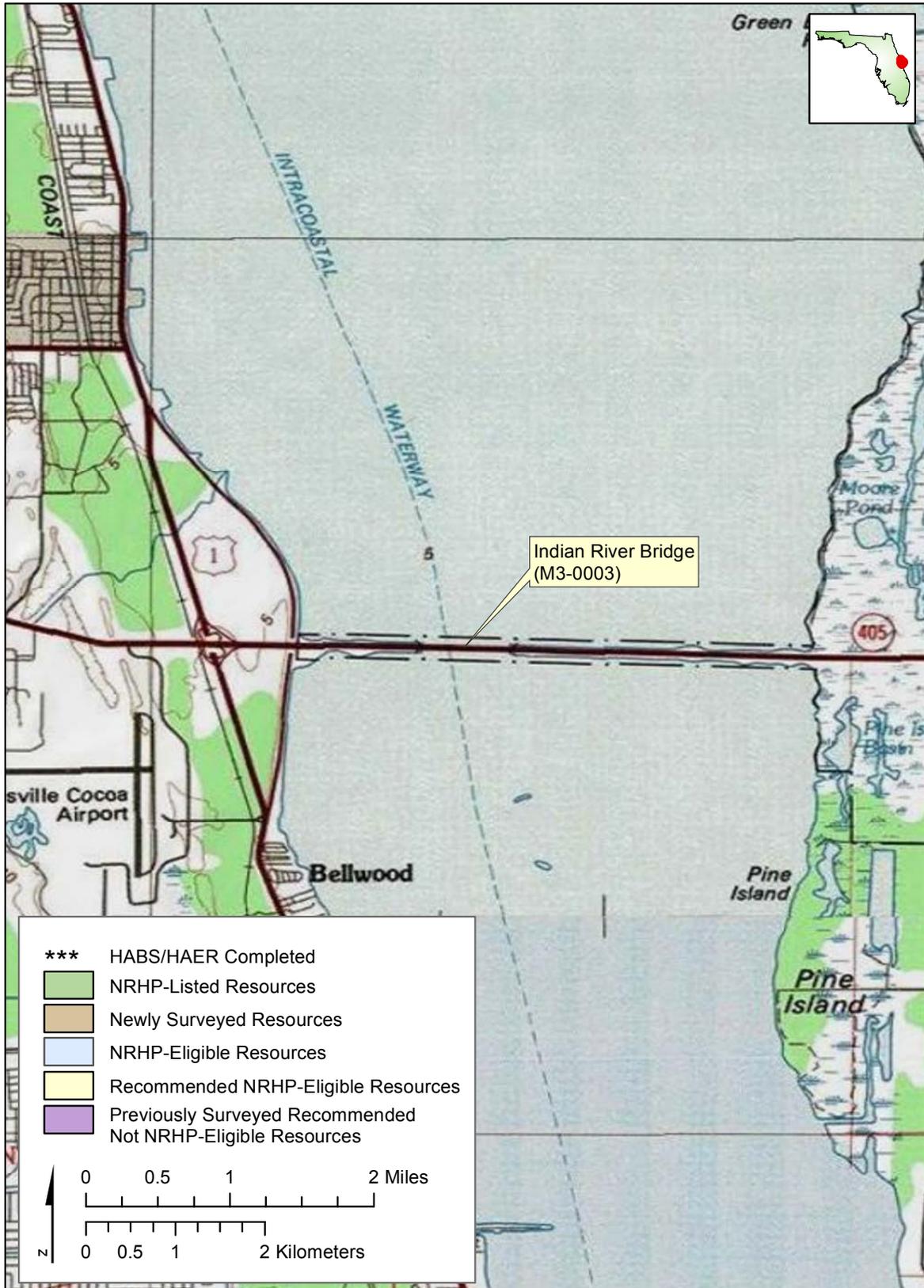
Source: USGS Courtenay, Florida Quadrangle

Figure 6.  
Location of the Beach House



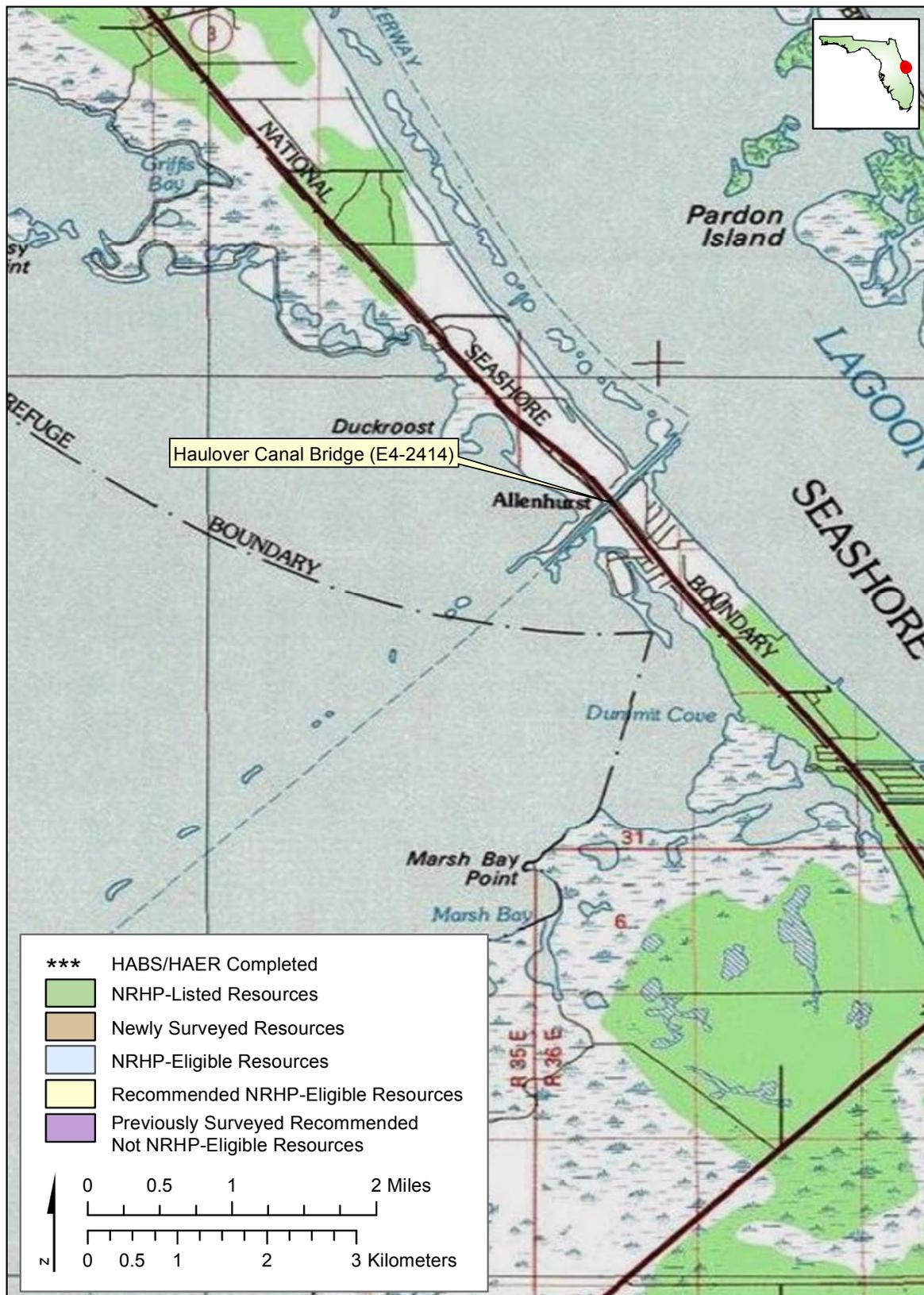
Source: USGS Orsino, Florida Quadrangle

Figure 7.  
Location of the Indian River Bridge



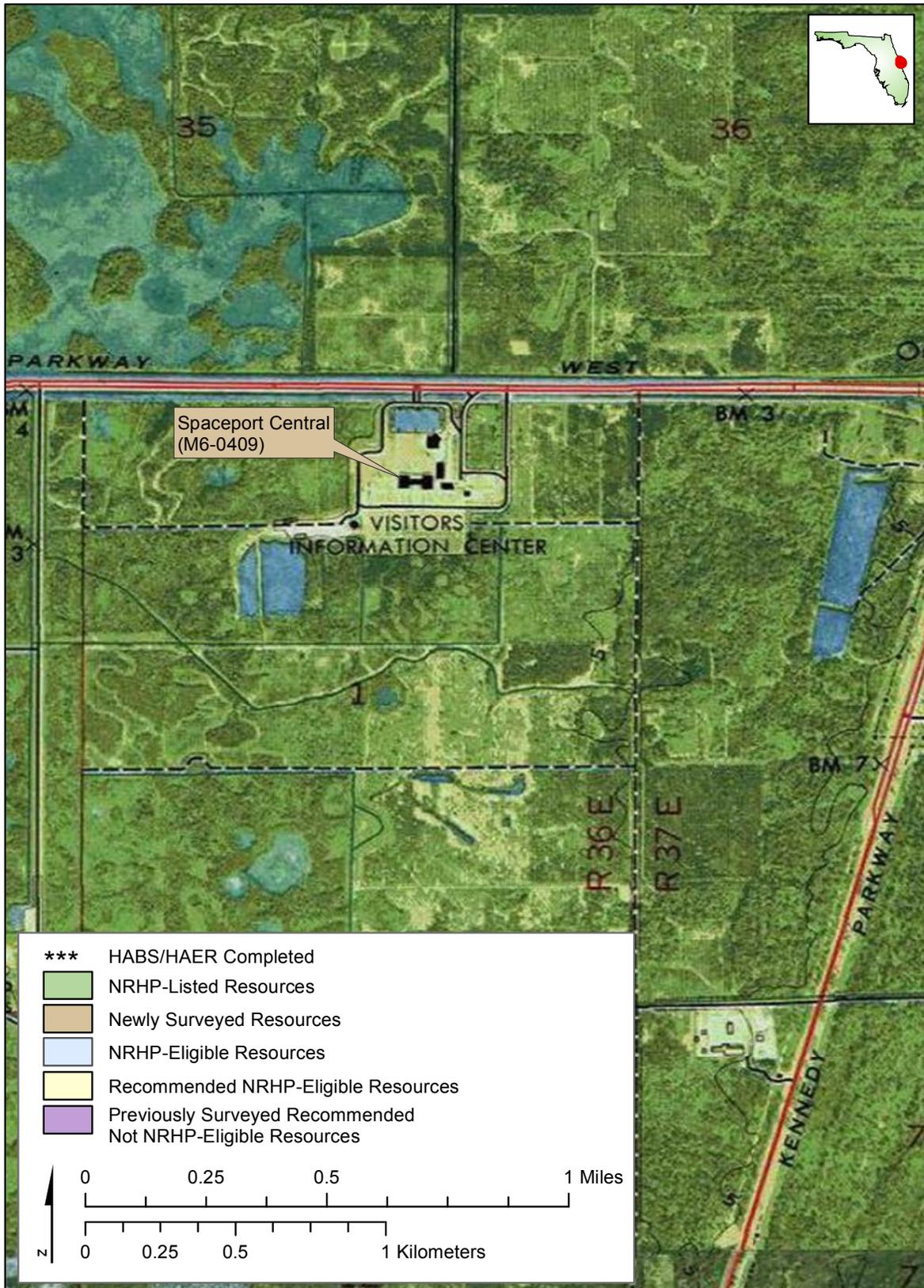
Source: USGS Orsino, Florida Quadrangle

Figure 8.  
Location of the Haulover Canal Bridge



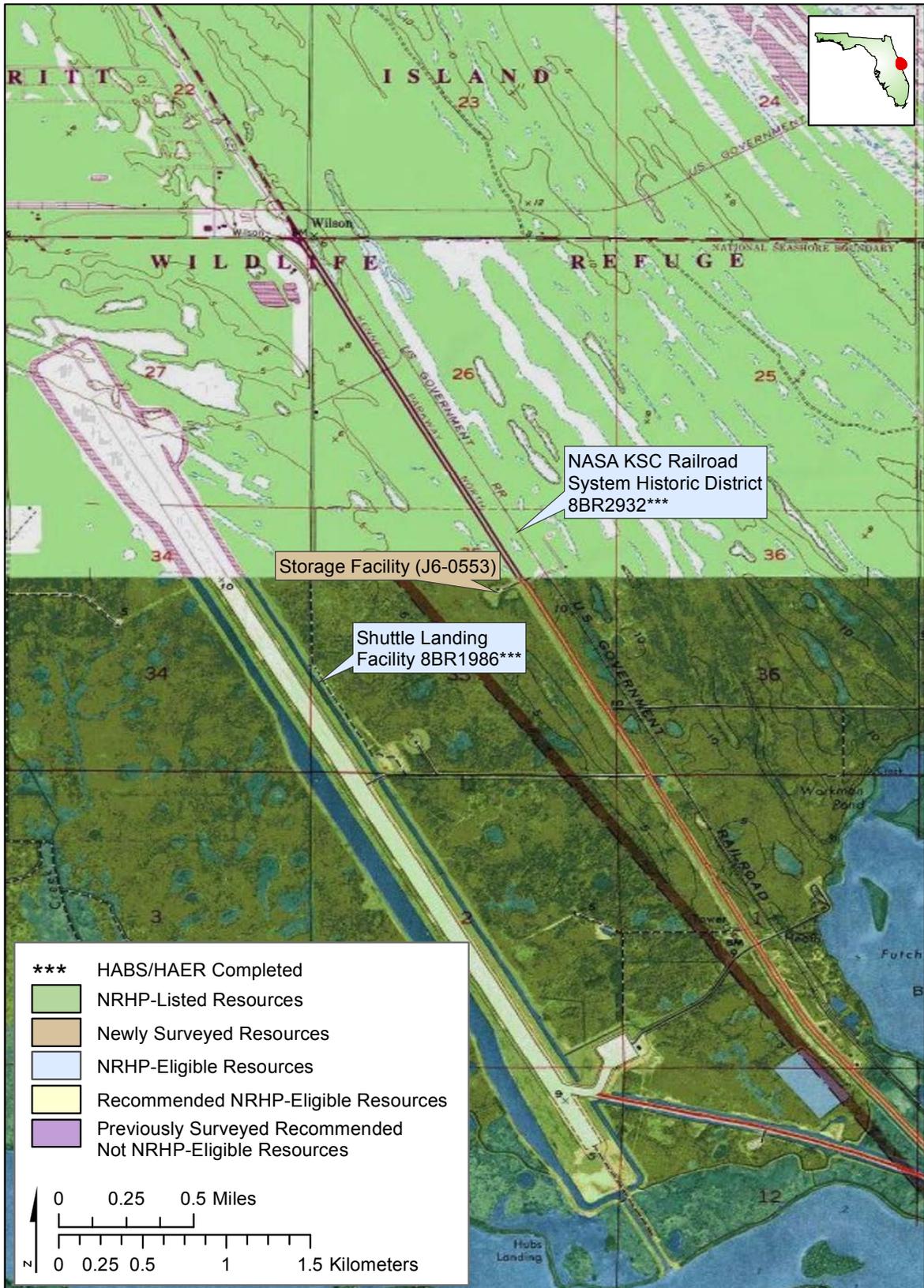
Source: USGS Mims, Florida Quadrangle

Figure 9.  
Location of Spaceport Central (KSC Visitor Complex)



Source: USGS Orsino, Florida Quadrangle

Figure 10.  
Location of the Storage Facility



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

The overall built environment of KSC and CCAFS was evaluated for historic significance in a context study, *Man in Space*, a Congressionally-mandated report completed by the NPS in 1984 (Butowsky 1984). This NHL Thematic Study provided a historic context and preliminary evaluations of NASA facilities across the nation associated with the theme “*Man in Space*” and offered recommendations for certain of those resources as NHLs. The study evaluated resources at CCAFS, KSC, Lyndon B. Johnson Space Center (JSC), Marshall Space Flight Center, and other NASA centers (Barton and Levy 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 recognizes the historic contribution of Launch Complexes 5/6, 13, 14, 19, 26, 34, and the Mercury Control Center (MCC). The NHL nomination 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” (History Division of the National Park Service and United States Air Force 1984: 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 the 1,325 facilities at CCAFS. The firm’s report included an in-depth historic context on the history of 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 1,325 to 750 by excluding small support structures such as fuel storage tanks, camera sites, equipment holding pads, and other non-historic facilities that are ubiquitous throughout CCAFS. Of the 750 facilities that were 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 and Levy 1984). No records were found indicating whether or not the FL SHPO concurred with these recommendations.

In 1996, Archaeological Consultants, Inc. (ACI), entered into a contract with NASA to conduct an archaeological survey and a re-evaluation of 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, including the Vehicle Assembly Building (VAB) – High and Low Bays; Launch Control Center (LCC); Headquarters Building; Operations and Checkout (O&C); 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 10 NRHP listings effectively updated and replaced the earlier 1973 listing. 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, Scupholm, and Deming 2001:10). The report was never forwarded to the FL 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 (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 that 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 FL SHPO concurred on May 27, 2008.

In 2010, ACI conducted 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* (ACI 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 FL 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 railcars. The Jay Jay Bridge, three locomotives, two railcars, and a portion of the track were recommended eligible to the NRHP (Deming et al. 2012). The FL SHPO concurred on October 23, 2012. This was followed by the survey and evaluation of the Environmental Health/Health Physics Facility (BOSU) at CCAFS by ACI, which was recommended eligible to the NRHP (Deming and Slovinac 2012). The FL 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 by New South Associates (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 FL SHPO concurred on March 30, 2012.

The above survey and evaluation efforts have resulted in the NRHP listing of the following NASA resources for their association with the Apollo Program or with both Apollo and the SSP:

- Vehicle Assembly Building (VAB)
- Launch Control Center (LCC)
- Crawlerway
- Two Crawlerway Transporters
- Press Site-Clock and Flag Pole
- Headquarters Building
- Operations and Checkout Building(O&C)
- Central Instrumentation Facility (CIF)
- Environmental Health/Health Physics Facility (BOSU)
- Launch Complex 39A Historic District
- Launch Complex 39B Historic District

Additional resources have been determined eligible only under their association with the SSP. They include:

- Orbiter (Atlantis, Discovery,\* Endeavour\*)
- Shuttle Landing Facility Historic District
- Orbiter Processing Historic District
- Solid Rocket Booster (SRB) Disassembly and Refurbishment Complex Historic District (also known as Hangar AF Historic District)

\*They have been transferred out of NASA ownership.

- Rotation/Processing Facility
- SRB Manufacturing Building
- Parachute Refurbishment Facility (PRF)
- Canister Rotation Facility
- Hypergol Maintenance and Checkout Area Historic District
- NASA KSC Railroad System Historic District
- two Orbiter Payload Canisters
- three Mobile Launcher Platforms

In addition to the identification and NRHP evaluation/listing of the above historic resources, NASA has finalized HABS/HAER Level II documentation studies on 27 facilities. Additional HABS/HAER documentation efforts are currently under way.

## REPORT ORGANIZATION

The remainder of this report is organized as follows. Chapter II provides a historic context, which includes discussion of the environmental setting; a brief history of NASA before KSC; the planning and construction of KSC, with an emphasis on the areas surveyed; and a description of the SSP. 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 this evaluation. Resource descriptions and NRHP-eligibility 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 FMSF forms for the surveyed properties, Appendix C contains relevant correspondence between SHPO and NASA, and a list of the buildings found in the KSC Industrial Area are located in Appendix D.

## II. HISTORIC CONTEXT

**“The road to the moon is paved with bricks, steel and concrete here on earth.”**

- James E. Webb, NASA Administrator

The above quotation from James E. Webb, NASA’s second Administrator from 1961-1968, captures the relationship between KSC’s early built environment and the success of the Apollo Program (Lipartito and Butler 2007:85). The monumental task of landing a man on the Moon required the construction of an unprecedented “Moonport” at KSC that included the VAB, the LCC, launch pads, and other facilities that captivated the minds of the general public and the engineers who designed them. Just beyond KSC’s well-known historic properties, there is a large collection of facilities that provided support to the lunar mission, as well as later space programs like the SSP. With thousands of employees spread over 140 thousand acres, KSC was called “a giant machine and a modern city in its own right” (Lipartito and Butler 2007:101). It was a city that required office buildings, security, emergency services, medical services, a cafeteria, transportation infrastructure, storage warehouses, training facilities, and more. Only a handful of these facilities possess a high level of historic significance; however, they represent the everyday “bricks, steel, and concrete” that paved the road to the Moon.

### ENVIRONMENTAL SETTING

NASA’s KSC is located on Merritt Island, a barrier island on Florida’s central Atlantic coast approximately 40 miles east of Orlando. Just northwest of Cape Canaveral and CCAFS, KSC is approximately 34 miles long and varies from 5-10 miles in width. It is bordered on the north by the town of Oak Hill, on the south by the Merritt Island Barge Canal, on the west by the Indian River, and on the east by the Banana River and Atlantic Ocean. KSC’s setting offers a sufficiently large, undeveloped area to provide safety buffers between launch areas and to surrounding communities during launches.

KSC contains approximately 140,393 acres, or 220 square miles, however, only about 6,000 acres of the area are developed. The land is typically flat and level coastal plain that ranges from 4-6 feet above mean sea level. The undeveloped areas are managed by the Merritt Island National Wildlife Refuge, which was established in coordination with NASA and the Cape Canaveral National Seashore in 1963. These wildlife refuges include some of the largest undeveloped beaches and

wilderness areas on Florida's east coast. They contain diverse habitats of brackish marshes, salt water estuaries, and hardwood hammocks that teem with over 1,000 plant species and 500 animal species, including 15 endangered species. Common animals encountered at KSC include wading birds, shorebirds, songbirds, alligators, manatees, and bald eagles. Outside of KSC's marsh areas, most of the land is covered in dense palmetto scrub, 2-6 feet high. Common plants are cabbage palms, Australian pine, and oak trees (NASA 1972:n.p.; 2008b).

## NASA BEFORE KSC

NASA was created in 1958 in response to the Soviet launch of the Sputnik satellite a year earlier. In this context of Cold War tensions and the "space race," NASA was established as a Federal civilian agency to conduct "research into the problems of flight within and outside the Earth's atmosphere, and for other purposes" related to national defense (Garber and Launius 2005). This research, however, was separate from the rocketry and upper-atmosphere science programs of the military and Department of Defense (DoD). NASA absorbed several earlier research agencies and laboratories, including the National Advisory Committee for Aeronautics, the Naval Research Laboratory in Maryland, the Jet Propulsion Laboratory in California, and the Army Ballistic Missile Agency in Alabama, where Wernher von Braun's engineering team worked on the development of large rockets (Garber and Launius 2005).

Before the construction of KSC, NASA's earliest manned and unmanned space flight missions were carried out from the Atlantic Missile Range, located on CCAFS and administered by the Air Force Missile Test Center. First opened as an Air Force Missile Test Range in 1948-1949, CCAFS was known as "Missile Row" after its chain of beachside missile launch towers and launch control block houses, each associated with a specific type of missile. There was an industrial area located on the Banana River a safe distance to the west of the launch pads, which contained 21 hangar-type assembly and checkout buildings (Benson and Faherty 1978:1-2).

Originally operated exclusively by the Air Force, NASA moved into CCAFS in 1961 during the land acquisition and development phase of KSC, located three miles to the west on Merritt Island. At this time, NASA acquired and modified several existing Air Force launch and support facilities to carry out both manned and unmanned space programs. NASA's largest and most advanced launch facilities at CCAFS were Complexes 34 and 37, which launched Saturn vehicles in October 1961 (NPS 1983).

Much of NASA's early research included space science, aeronautics, and unmanned space flight missions designed to send scientific satellites into orbit. Unmanned launches from CCAFS began in 1958 soon after the Agency's founding and coincided with additional NASA launches from Vandenberg Air Force Base in California. Launches in the late 1950s and early 1960s focused on space physics and astronomy satellites of the Beacon, Vanguard, and Explorer Missions, which were launched from CCAFS on a variety of launch vehicles. Lunar and planetary missions were also launched as part of the Pioneer, Ranger, and Mariner Missions. The early Bioflight Mission launches involved suborbital primate flights that paved the way for later manned space flight missions (NASA 1999b).

In addition to its early unmanned scientific launches, NASA pursued its mission to send man into space, followed by manned orbits around the Earth, mastery of rendezvous and docking procedures, and finally, landing man on the Moon. These objectives were reached through a progressive and logical series of missions that included the Mercury, Gemini, and Apollo programs. It was at CCAFS that NASA's early unmanned and manned space flights for Project Mercury and Project Gemini were launched from Launch Complexes 5, 6, 14, 19, 26, 34, and 37 (NPS 1983).

The first manned space flight program was Project Mercury, established on October 7, 1958. Project Mercury had 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, capped by the 34-hour orbital mission of Astronaut Leroy Gordon Cooper. 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 (Swenson et al. 1963).

The success of Project Mercury helped establish the foundations for NASA's next major program, Project Gemini. Gemini was announced by NASA in December 1961 as a plan to extend the existing manned space flight program with the development of a two-man spacecraft as an intermediate step between Project Mercury and the Apollo Program. Gemini aimed to subject two men and their supporting equipment to long duration space flights, perfect rendezvous and docking maneuvers with other orbital vehicles, perfect methods of spacecraft re-entry and landing, and gain additional information on the effects of weightlessness on crew members during long duration flights. The goals of Project Gemini were accomplished over the course of two unmanned and 10 manned space flights between 1965 and the program's end in 1966 (NASA 2000). Projects Mercury and Gemini were incremental steps taken toward NASA's ultimate goal to land humans on the Moon and bring them safely back to Earth with the Apollo Program.

## THE APOLLO PROGRAM

The Apollo Program was announced in May of 1961 by President John F. Kennedy, who challenged the nation to achieve its goal before the end of the 1960s. It ultimately succeeded with the Apollo 11 mission on July 20, 1969, when astronauts Neil Armstrong and Buzz Aldrin landed the Lunar Excursion Module (LEM) on the Moon while their colleague Michael Collins remained in lunar orbit aboard the Command and Service Module (CSM).

From its official beginning in 1963 through its end in 1972, the Apollo Program included several uncrewed test missions and 11 crewed missions. The crewed missions included two Earth orbiting missions, two lunar orbiting missions, a lunar swingby, and six Moon landing missions (Apollo 11, 12, 14, 15, 16, and 17). In addition to the Moon landings, the Apollo Program also helped establish new technology to meet other national interests in space and achieved U.S. preeminence in human space flight (Dismukes 2009; NASA 2009b).

The Apollo spacecraft and flight mode were selected in 1962. The booster rockets for the program were the Saturn 1B for Earth orbit test flights and the Saturn V for lunar flights. These boosters carried the Apollo spacecraft composed of the CSM and the LEM. The CSM had two segments, including the Command Module, which housed the astronaut crew and equipment needed for re-entry into Earth's atmosphere and splashdown; and a Service Module that provided propulsion and spacecraft support systems. The LEM transported the crew of two astronauts to the lunar surface, supported them on the Moon, and then returned them to the CSM in lunar orbit (NASA 2009b).

To accomplish the Apollo Program's goal, NASA underwent a massive reorganization and expansion that included the construction of major new facilities throughout the nation in the early 1960s. These included the Manned Spacecraft Center in Houston, Texas, which housed the Mission Control Center. The Manned Spacecraft Center was later renamed the Lyndon B. Johnson Space Center after the former President's death in 1973. The program also led to the construction of KSC, visualized as a new launch area located immediately north of NASA's previously established launch facilities at CCAFS. Supporting these new mission control and launch facilities was the expanded Marshall Space Flight Center, NASA's rocketry and spacecraft propulsion research center in Huntsville, Alabama. The final link in NASA's chain of nationwide Apollo facilities was the construction of White Sands Test Facility in the remote desert outside of Las Cruces, New Mexico, a state-of-the-art site to test the spacecraft propulsion systems that would carry astronauts to the Moon.

## KSC PLANNING AND CONSTRUCTION

President John F. Kennedy's 1961 announcement of the Apollo Program left little time to design, build, and equip the extensive facilities needed to make the Manned Lunar Landing Program (MLLP) and the proposed Saturn rocket a success by the end of the decade. First on NASA's agenda was finding a suitable launch site. NASA administrators soon recognized the lack of space at the Atlantic Missile Range on Cape Canaveral and decided that another location was needed. There was no current launch area anywhere in the nation of the magnitude required by the Saturn rocket, and early studies made it clear that it required a great deal of land for launch pads, safety zones between pads, industrial areas, ground support areas, range instrumentation sites, and buffer areas to protect the general public from noise, shock, blast, toxic, and radiation hazards (Benson and Faherty 1978:5-1). At the time, the characteristics of the specific launch site could only be estimated since the design of the Saturn launch vehicles was not final, safety criteria were still being established, and facility, utility, and instrumentation needs existed only in general terms (NASA 1972:n.p.). With these considerations in mind, a joint NASA/DoD planning group investigated nine potential launch sites, which included Merritt Island, Cape Canaveral, the shoals offshore from Cape Canaveral, Mayaguana Island in the Bahamas, Cumberland Island in Georgia, Brownsville in Texas, White Sands Missile Range in New Mexico, Christmas Island in the Pacific Ocean south of Hawaii, and South Point on the island of Hawaii. Each of these locations suffered drawbacks, including high costs of construction, lack of utilities, lack of water transportation, dangerous locations near populated areas, and other logistical problems. After the site investigations, it was announced in August 1961 that NASA had officially selected Merritt Island for the MLLP launch site, which benefitted from its location next to the Cape Canaveral launch facilities, including the 9,000-mile tracking network of the Atlantic Missile Range. It was also the least expensive site to develop (Benson and Faherty 1978:5-4; Lipartito and Butler 2007:58; NASA 1972:n.p.).

In September of 1961, the first master plan for the layout of facilities on Merritt Island was complete, which showed locations for early Saturn and Nova test rocket launch pads along the Island's eastern beach, as well as a rail transfer system and canals for the transportation of rocket stages. It also set aside space for a vehicle assembly area, spacecraft checkout, and launch control areas at a safe distance west of the Saturn launch pads. The KSC Industrial Area was placed near the town of Orsino to provide space for a wide variety of industrial and scientific support facilities such as the KSC Headquarters Building, cafeteria, hospital/dispensary, physical plant maintenance, vehicle maintenance, and spacecraft assembly and checkout buildings (NASA 1972:n.p.).

With initial planning complete, NASA initiated the purchase of 88,000 acres of land on Merritt Island and requested that the U.S. Army Corps of Engineers (the Corps) undertake the land acquisition. The Corps was a key player in both the purchase of land for KSC as well as in

the design and construction of its early buildings and infrastructure. Whether through direct purchase or condemnation, NASA and the Corps acquired all of the Merritt Island property by 1964, including nearly 1,500 properties containing scattered homes, businesses, and citrus groves (Benson and Faherty 1978:5-7, 5-11).

While the rocket designers at Marshall Space Center in Huntsville, Alabama, revised the size of the Saturn rocket boosters and the launch pad designs, NASA and the Corps began construction of launch facilities at KSC. In the 1962-1963 fiscal year, NASA spent \$162 million on roads, utilities, launch pads, towers, propellant depots, cables, and communications systems. KSC also needed a variety of support facilities, operations buildings, canals, barge channels, and equipment warehouses. Several unique facilities were needed, such as the VAB, to stack and assemble the giant Saturn rocket, a mobile transporter mechanism to move it to the launch pad and a mobile tower to service the rocket once in place. According to Lipartito and Butler (2007:86-87), “In all, some 1,500 engineers would have to prepare 100 tons of specifications and drawings before the launch complex at Merritt Island was ready.” In addition to its large, high-profile facilities, the Corps and its contractors built dozens of smaller support buildings throughout KSC’s work areas.

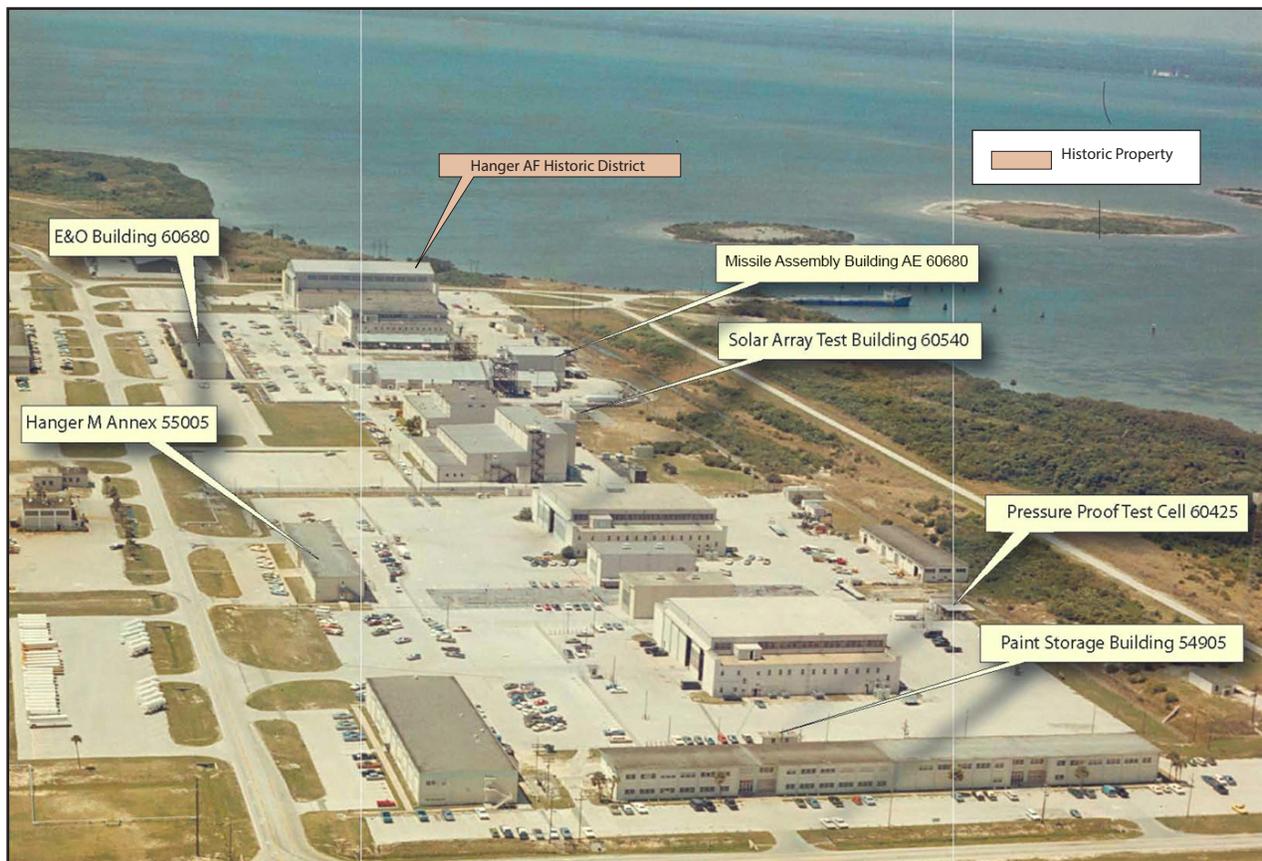
The Corps began construction in 1962 with an influx of workers whose first task was to dry out the swampy launch site. Surface water was drained into canals or lakes, which were in turn dredged and the sand used to create flat building sites. To prepare it for building foundations, the land then underwent a method called “surcharging” where bulldozers made large sand piles with weight sufficient enough to press down on the soggy soil and squeeze out excess moisture (Lipartito and Butler 2007:88).

Site preparation and construction required a large labor force that had to be brought in from outside the area. The working population of Merritt Island “mushroomed 400 percent between July 1962 and July 1963” (Lipartito and Butler 2007:90). By October 1964, more than 4,000 construction workers and 500 installers were on site. Another 2,000 contract workers provided support services to the Center and almost 1,000 more were supporting rocket launches. Most of these workers were contractors with only about 1,700 NASA employees on Merritt Island. By 1965, the construction of KSC was at its peak with approximately 15,000 workers who endured a shortage of local housing, long commutes, and occasional friction with the local population (Lipartito and Butler 2007:90).

Between 1962 and 1965, most of the KSC’s key buildings and equipment were completed, primarily within Launch Complex 39 and the KSC Industrial Area. Few have suggested that beauty or aesthetics had much influence on the design of KSC’s facilities, but architects and planners at the time were captivated by the entire space center as a modern “planned technological landscape” (Lipartito and Butler 2007:104). In fact, the LCC, which is listed on the NRHP, won an architectural award for industrial design in 1965 (Benson and Faherty 1978:11-5).

## U.S. UNMANNED SPACE PROGRAM

During this time, NASA also acquired missile assembly hangars and other support facilities on CCAFS that were originally built for the Air Force. NASA also built new office and administrative facilities on CCAFS where space and program requirements allowed (Figure 11). In 1964, NASA acquired Missile Assembly Building AE from the Air Force, a facility associated with the KSC's Expendable Launch Vehicle (ELV) Program. This program involves the launching of unmanned spacecraft to deliver specific payloads into orbit. The ELVs use two or more rocket-powered stages that are discarded after their engine burns were complete. Whatever a launch vehicle carries above the final discarded stage is considered the payload. The payload's weight, orbital destination, and purpose determine what size launch vehicle is required from NASA's ELV fleet, which includes Atlas, Delta, Taurus, Pegasus, Athena, and Titan launch vehicles. Since the 1960s, KSC's fleet of ELVs has launched hundreds of astronomical, communications, military, weather, and interplanetary exploration payloads into space (NASA 2001:1).



Source: KSC Library Archives, Photograph 116-KSC-373C-549\_65A

Figure 11. 1973 Aerial View Showing NASA Facilities Surveyed in the CCAFS Industrial Area and Previously Recorded Historic Property (SSP Survey)

## LAUNCH COMPLEX 39 AREA

The Launch Complex 39 Area was built on the northern portion of Merritt Island, the so-called “shooting end” of KSC. It featured the VAB, which was KSC’s centerpiece “factory” building where the stages of the Saturn rocket were stacked and assembled. Next to it was the LCC, a four-story building used to supervise the Saturn launches, including rocket telemetry, tracking, instrumentation, and firing rooms. The area also featured the crawler-transporter, a unique machine designed to move the Saturn rocket from the VAB to the launch pad along the crawlerway, a specially designed road made of crushed stone. Assembly of the Saturn rocket in the VAB depended on the construction of water transportation infrastructure, in particular the barge canal, turning basin, and Barge Terminal Facility (K7-1005). The Barge Terminal Facility delivered Saturn rocket stages as well as the Space Shuttle’s external tank and other large materials to Launch Complex 39. Other Launch Complex 39 facilities built during this time were the ordnance storage magazines and laboratory just northeast of the VAB, which stored, inspected, and shipped all of the ordnance used on the rocket (Figure 12). East of the ordnance storage area was the converter/compressor operations area that straddled both sides of the crawlerway. These buildings receive liquid helium and nitrogen and converted them to gaseous form for use as propellants on the launch pad. Nine Launch Complex 39 facilities were documented in this survey and are discussed in Chapter IV.



Source: KSC Library Archives, Photograph 107-KSC-66C-4696

Figure 12. 1966 Aerial View of Saturn Rocket En Route from VAB to Launch Pad with Ordnance Storage Area in Background

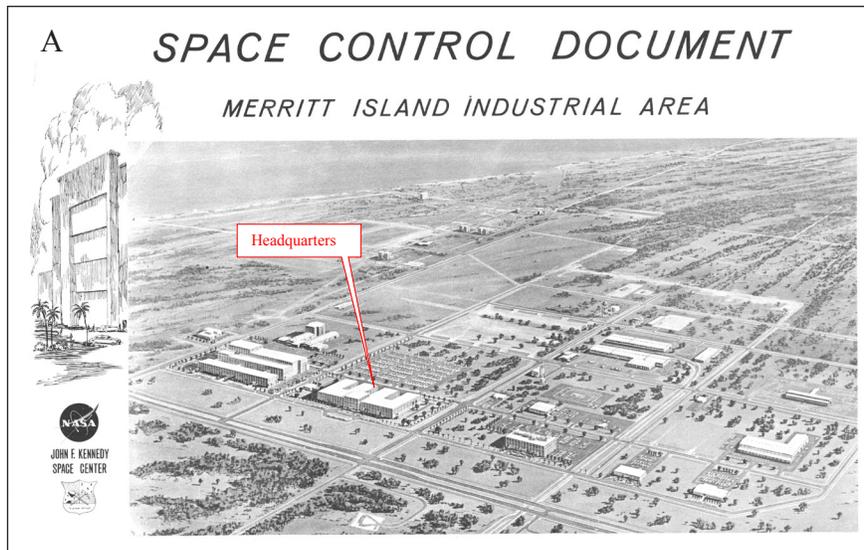
## KSC INDUSTRIAL AREA

Centrally located on Merritt Island at the former town of Orsino, the KSC Industrial Area was established so that functions not requiring immediate location at a launch complex could be grouped for ease of administration and efficiency in the construction of roads and utilities (Figure 13). Roughly five miles from both Launch Complex 39 and CCAFS, the KSC Industrial Area was outside the range of danger areas from the launch complexes.

Figure 13. Historic Views of the KSC Industrial Area

a. 1966 Birds-Eye-View Drawing of the KSC Industrial Area, Looking South-Southeast. (Source: NASA 1966q Space Control Document)

b. 1992 Aerial View to the Southeast of the KSC Industrial Area



Source: NASA 1966q Space Control Document



Source: KSC Library Archives, Photograph KSC-392C-2230-60

The area contains a number of administrative, engineering, and operational facilities arranged on a street grid pattern east of Kennedy Parkway North and south of NASA Parkway East. Major engineering and operations buildings in the area include the Headquarters Building, the CIF, Operations & Checkout (O&C) Building, Hypergolic Maintenance & Checkout Area (historically called the Fluid Test Complex), and PRF. NASA directed the construction of several additional support buildings in the area, including ordnance-related buildings, administrative office buildings, an auditorium and training building, a cafeteria, a medical services dispensary, automotive maintenance and fueling buildings, physical plant maintenance buildings, a security building, a fire station, and several storage warehouses. Sixteen of these facilities were documented in this survey and are discussed in Chapter IV.

## THE SPACE SHUTTLE PROGRAM (SSP)

Following the success of the first Moon landing on July 20, 1969, NASA continued the Apollo Program until 1972. The Agency then shifted to new programs including the Skylab space station that orbited Earth from 1973-1979, and the Apollo-Soyuz Test Project, the first space mission undertaken as a joint effort between the U.S. and the Soviet Union in 1975. By the mid-1970s, it was clear that NASA's next major program would be based on a reusable Space Shuttle, designed to serve orbiting space stations and related missions (Deming and Slovinac 2008:2.1; NASA 2009a; NASA 2010).

President Nixon established the Space Task Group in 1969 to determine the future course of the U.S. Space Program. This led to the creation of the SSP, which was announced in a speech by President Richard Nixon in 1972. In the speech, Nixon outlined the future of the SSP based on the idea that a series of reusable space flight vehicles would provide "routine access to space" (Deming and Slovinac 2008:2.1). Following this announcement, new SSP contracts were awarded, new space vehicles were designed, old Apollo-era facilities were modified, and new facilities were built. After a decade of preparation, the first shuttle flight occurred in 1981. After almost three decades of operations, the SSP was retired in 2011.

During those 30 years of operation, there were 135 different flights, using a total of five Space Shuttles: *Columbia*, *Challenger*, *Discovery*, *Atlantis*, and *Endeavour* (the prototype, *Enterprise*, never went into space). The SSP achieved a number of significant goals. In addition to supporting diverse space facilities such as Spacelab, the Hubble Space Telescope, the *Mir* Space Station, and the International Space Station (ISS), the shuttles contributed to many other space programs. Among these were various satellite systems (from the COMSAT communication satellite to the Advanced Communications Technology Satellite, or ACTS), and the unmanned probes that were sent to Jupiter (*Galileo*), Venus (*Magellan*), and the Sun (*Ulysses*). Additionally, the shuttle has deployed a number of DoD payloads that remain classified (Deming and Slovinac 2008:2.22-24).

Two significant accidents have been associated with the SSP. The *Challenger* (1/28/1986) and *Columbia* (2/1/2003) disasters resulted in the loss of all crewmembers on board (Deming and Slovinac 2008:2.15). Both incidents caused lengthy flight down time for the program, while exhaustive investigations led to extensive physical and procedural improvements.

Most of the Space Transportation System (STS) was in place by the time of the first shuttle launch. The basic STS components have not changed since reusable Space Shuttles were first designed in the 1970s; however, as with any endeavor that occurs over almost a 30-year period, changes were made to the STS, its support structures, and its operational procedures based on mission shifts, the two accidents, and improvements in technology.

The final design for the Space Shuttle was chosen from 29 different possibilities in 1972. After years of testing and preparation, the first shuttle vehicle, *Columbia*, arrived at KSC in 1979. Most of the work required to prepare the vehicle for launch was done in the Orbiter Processing Facility (OPF). After a series of test flights each with a crew of two (STS-1 through STS-4), the first operational flight (STS-5) occurred the following year on November 11, 1982 (Deming and Slovinac 2008:2.13-15).

These launches were conducted from Launch Complex 39, Pad A, on KSC. By the mid-1980s, Launch Complex 39, Pad B, was also available for launch services. Since the beginning, there were on average around five shuttle launches per year with no launches for many months following each of the two major accidents (Deming and Slovinac 2008:6.4).

The end of the SSP came in July of 2011, when the crew of *Atlantis* landed at KSC to complete the program's 135th mission (STS-135). Since the SSP's first launch in 1981, the program launched 355 astronauts from 16 countries. The five shuttles traveled more than 542 million miles and conducted over 2,000 experiments in the fields of Earth, astronomy, biological, and materials sciences. The shuttles docked with two space stations, including the Russian *Mir* and the ISS, and deployed 180 payloads such as satellites and spacecraft. With the return of the final mission, NASA Administrator Charles Bolden said, "the brave astronauts of STS-135 are emblematic of the shuttle program – skilled professionals from diverse backgrounds who propelled America to continued leadership in space with the shuttle's many successes" (Curie et al. 2011).

PAGE INTENTIONALLY LEFT BLANK

### III. METHODS

The surveyed facilities (45) have only recently reached 45-50 years of age and have not received previous evaluation for their NRHP-eligibility. The historic property survey and evaluation of KSC included background research and 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 KSC and its facilities, historic photographs, and other information. The KSC Historic Preservation Officer provided previous KSC 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 several historic photographs of individual facilities just 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. Project staff used this research to prepare a historic context for the overall development of KSC and the surveyed facilities.

The field survey of KSC was conducted April 9-17, 2012, and included guided tours of all 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* (NR Bulletin 15); *Guidelines for Completing National Register of Historic Places Forms: How to Complete the National Register Registration Form* (NR Bulletin 16A); *Guidelines for Evaluating and Nominating Properties that Have Achieved Significance Within the Last Fifty Years* (NR Bulletin 22); and *Guidelines for Evaluating and*

*Documenting Historic Aviation Properties* (NR Bulletin 43). 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* (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* (1984); guidelines from NASA on historic resources associated with the SSP; and historical background material and oral history information gathered as part of this project.

#### *NRHP CRITERIA FOR EVALUATION*

The 45 surveyed facilities at KSC were first 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 but 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.

The significance of the SSP was noted by the NPS in the 1998 National Register Bulletin 43, *Guidelines for Evaluating and Documenting Historic Aviation Properties*. 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).

### *NASA GUIDANCE FOR THE SSP*

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 same criteria in this study to evaluate properties associated with the SSP. 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 2012);
- 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 (1969-2012); 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; or

- 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**

- As 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 (Criterion Consideration B) or properties that have achieved significance within the past 50 years (Criterion Consideration G).

- **Moved Properties** – Some historic resources of significance in the context of the SSP may meet Criterion 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, Criterion 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 Criterion 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 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;
- 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:** 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*), the Transporter and Wash Building, and the flume that brings the SRB to the building from the ships. 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* Theme Study 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), Gemini (1962-1966), and Apollo (1968-1972) as well as the ELV programs and other NASA programs associated with Space Exploration.

## IV. FACILITY DESCRIPTIONS AND EVALUATIONS

The 45 surveyed facilities include a large cross-section of building and structure types associated with KSC's Apollo-era development in the early 1960s and the later Space Shuttle era. At the beginning of the Mercury, Gemini, and Apollo programs, KSC was faced with the twin pressures of rapid launch operations schedules and the need for economy, so most of the surveyed facilities feature utilitarian designs fashioned from cost-effective materials. Common building materials include reinforced concrete in foundations and structural systems, steel frame structural systems, and concrete block used in external elevations and interior walls.

Few of the facilities feature any architectural embellishments beyond creative window and entrance placement. Most of the facilities lack architectural style, though a few display a general Modernist design derived from the International style that was typical in the 1960s, such as the Base Operations Building (BOB) (M6-0339), the Industrial Area Support Building (M6-0493), the Engineering & Operations (E&O) Building (60650), and the Hangar M Annex (55005). This style is marked by the expression of volume, the absence of ornament, asymmetrical elevations, flat roofs, smooth wall surfaces, and windows with minimal exterior reveals (Whiffen 1969:247).

The facilities surveyed are located throughout all areas of KSC and CCAFS, including Launch Complex 39 Area, the KSC Industrial Area, the CCAFS Industrial Area, Kennedy Athletic, Recreation, and Social (KARS) Park, and around the Center's perimeter. Facilities include astronaut training buildings, launch communications buildings, administrative buildings, ordnance-related buildings, transportation infrastructure, materials processing buildings, warehouses, and others. Considered as a group, these facilities were involved in the essential, day-to-day operations of KSC that supported the Center's launch operations. Only a small portion of them rise to the level of historic significance required by the NRHP, and their history reveals important information about how KSC functioned for over five decades as a large Federal installation with thousands of employees and contractors. The facilities in this survey were evaluated for listing in the NRHP as individual properties and as contributing resources in existing or potential historic districts (Table 1). NRHP evaluations were conducted according to Criteria A, B, and C in the context of the Mercury (1958-1963), Gemini (1962-1966), Apollo (1968-1972), Space Shuttle (1969-2011), and ISS (1984-present) programs in the area of Space Exploration. These evaluations were also guided by additional guidelines contained in the NASA document, "Evaluating Historic Resources Associated with the Space Shuttle Program: Criteria of Eligibility for Listing in the NRHP" (NASA

2006). While these KSC criteria were adapted to address the resources associated with the earlier Mercury, Gemini, and Apollo programs, as well as ELV programs, guidance found in the NPS's *Man in Space* NHL Thematic Study was also utilized (Butowsky 1984).

**Table 1. Surveyed Facilities That Have Reached the Age of 45-50 Years Owned by KSC**

Building Number	FMSF Survey Number	Name	Type of Facility and Property Type	Year Built	NRHP Eligibility	Recommendations
54905	8BR2974	Paint Storage Building	Engineering and Administrative Facility	1958	Not Eligible	Does Not Meet NRHP Criteria
54928	8BR2190	Little N Storage Building	Engineering and Administrative Facility	1958	Not Eligible	Does Not Meet NRHP Criteria
55005	8BR2972	Hangar M Annex	Engineering and Administrative Facility	1963	Not Eligible	Does Not Meet NRHP Criteria
60425	8BR2973	Pressure Proof Test Cell	Engineering and Administrative Facility	1958	Not Eligible	Does Not Meet NRHP Criteria
60540	8BR2977	Solar Array Test Building	Engineering and Administrative Facility	1966	Not Eligible	Does Not Meet NRHP Criteria
60650	8BR2975	E&O Building	Engineering and Administrative Facility	1961	Not Eligible	Does Not Meet NRHP Criteria
60680	8BR2976	Missile Assembly Building AE	Communication Facility/Resource Associated with Processing Payloads	1959	Eligible	NRHP-Eligible under Criterion A as a Vehicle Processing Facility and Communications Facility for the ELV Program
66220	8BR2961	Emergency Breathing Equipment Maintenance Building	Engineering and Administrative Facility	1960	Not Eligible	Does Not Meet NRHP Criteria
E4-2414	8BR2957	Haulover Canal Bridge	Resource Associated with Transportation	1965	Eligible	NRHP-Eligible under Criteria A and C as Significant Transportation Resource for the Apollo/Shuttle/ISS
J6-0553	8BR2994	Storage Facility (Weather Sub-Station B)	Engineering and Administrative Facility	1964	Not Eligible	Does Not Meet NRHP Criteria

**Table 1. Surveyed Facilities That Have Reached the Age of 45-50 Years Owned by KSC**

Building Number	FMSF Survey Number	Name	Type of Facility and Property Type	Year Built	NRHP Eligibility	Recommendations
K7-0255	8BR2978	Magazine No. 1 - Ordnance Storage	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
K7-0306	8BR2979	Magazine No. 2 - Ordnance Storage	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
K7-0356	8BR2980	Magazine No. 3 - Ordnance Storage	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
K7-0405	8BR2981	Magazine No. 4 - Ordnance Storage	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
K7-0506	8BR2982	Ordnance Laboratory No. 1	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
M7-1417	8BR2995	Ordnance Laboratory No. 2	Engineering and Administrative Facility	1966	Not Eligible	Does Not Meet NRHP Criteria
K7-0416	8BR2992	Operations Building No. 1	Engineering and Administrative Facility	1967	Not Eligible	Does Not Meet NRHP Criteria
K7-0468	8BR2993	Converter/Compressor Building	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
K7-0569	8BR2991	Converter/Compressor Operations Building	Engineering and Administrative Facility	1967	Not Eligible	Does Not Meet NRHP Criteria
K7-1005	8BR2986	Barge Terminal Facility	Resource Associated with Transportation	1965	Eligible	NRHP-Eligible under Criterion A as a Vehicle Processing Facility and Communications Facility during the Apollo and Shuttle Programs
K8-1699	8BR2990	Beach House	Resources Associated with the Training of Astronauts	1962	Eligible	NRHP Eligible under Criteria A and B as a Resource Associated with the Training of Astronauts during the Apollo and Shuttle Programs

**Table 1. Surveyed Facilities That Have Reached the Age of 45-50 Years Owned by KSC**

Building Number	FMSF Survey Number	Name	Type of Facility and Property Type	Year Built	NRHP Eligibility	Recommendations
L7-1557	8BR2958	Environmental Health Building	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
M3-0003	8BR2956	Indian River Bridge	Resource Associated with Transportation	1964	Eligible	NRHP-Eligible under Criteria A and C as Significant Transportation Resource for the Apollo/Shuttle/ISS Programs
M6-0336	8BR2967	Electromagnetic Laboratory	Engineering and Administrative Facility	1963	Not Eligible	Does Not Meet NRHP Criteria
M6-0339	8BR2959	Base Operations Building	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
M6-0409	8BR2998	Spaceport Central	Tourism/ Recreation	1967	Not Eligible	Does Not Meet NRHP Criteria
M6-0486	8BR2960	Base Support Building	Engineering and Administrative Facility	1964	Not Eligible	Does Not Meet NRHP Criteria
M6-0493	8BR2963	Industrial Area Support Building	Engineering and Administrative Facility	1964	Not Eligible	Does Not Meet NRHP Criteria
M6-0495	8BR2962	Occupational Health Building	Engineering and Administrative Facility	1964	Not Eligible	Does Not Meet NRHP Criteria
M6-0589	8BR2964	Support Building	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
M6-0688	8BR2965	Propellants Shop	Engineering and Administrative Facility	1966	Not Eligible	Does Not Meet NRHP Criteria
M6-0689	8BR2968	Transportation Storage Building	Resource Associated with Transportation	1966	Not Eligible	Does Not Meet NRHP Criteria
M6-0695	8BR2966	Fire Station No.1	Engineering and Administrative Facility	1964	Not Eligible	Does Not Meet NRHP Criteria

**Table 1. Surveyed Facilities That Have Reached the Age of 45-50 Years Owned by KSC**

Building Number	FMSF Survey Number	Name	Type of Facility and Property Type	Year Built	NRHP Eligibility	Recommendations
M6-0794	8BR2988	Supply Warehouse No. 1	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
M6-0698	8BR2987	Supply Warehouse No. 2	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
M6-0744	8BR2996	Central Supply	Engineering and Administrative Facility	1964	Not Eligible	Does Not Meet NRHP Criteria
M6-0894	8BR2997	Paint & Oil Locker	Engineering and Administrative Facility	1965	Not Eligible	Does Not Meet NRHP Criteria
M7-0351	8BR2999	Auditorium & Training Building	Engineering and Administrative Facility	1964	Not Eligible	Does Not Meet NRHP Criteria
M7-0409	8BR2969	Engineering Development Laboratory	Engineering and Administrative Facility	1966	Eligible	NRHP-Eligible under Criteria A and B Astronaut Training Facility during the Apollo Program
M7-0409A	8BR2970	EDL Equipment Building	Engineering and Administrative Facility	1966	Not Eligible	Does Not Meet NRHP Criteria
M7-1150	8BR2955	Banana River Bridge	Resource Associated with Transportation	1964	Eligible	NRHP-Eligible under Criteria A and C as Significant Transportation Resource during the Apollo/ Shuttle/ISS Programs
M7-1472	8BR2989	Radiothermalisotopic Generator Facility	Engineering and Administrative Facility	1964	Not Eligible	Does Not Meet NRHP Criteria
P6-1435	8BR2985	Indoor Range & Clubhouse	Recreation	1966	Not Eligible	KARS Park - Building originally at CCAFS; moved in 1969
P6-1638	8BR2984	Recreation Building	Recreation	1963	Not Eligible	KARS Park - Building originally at CCAFS; moved in 1970

**Table 1. Surveyed Facilities That Have Reached the Age of 45-50 Years Owned by KSC**

Building Number	FMSF Survey Number	Name	Type of Facility and Property Type	Year Built	NRHP Eligibility	Recommendations
P6-1738	8BR2983	Arts & Crafts Building	Recreation	1963	Not Eligible	KARS Park - Building originally at CCAFS;; moved in 1970

## HISTORIC DISTRICT EVALUATION – KSC INDUSTRIAL AREA

For the purposes of this district evaluation, the KSC Industrial Area boundaries are defined as 1st Street on the north, 5th Street on the south, A Avenue on the west, and E Avenue on the east (see Figure 2). The 18 individual facilities surveyed for this project that lie within the KSC Industrial Area are not located in any previously designated NRHP historic districts. Within this study area, the following three previously recorded resources are listed on the NRHP for their significance with the Apollo Program: the Headquarters Building, the Operations and Checkout (O&C) Building, and the Central Instrumentation Facility (CIF). Three additional buildings and one historic district in this study area are considered eligible for the NRHP under the SSP or International Space Station Program (ISSP): the PRF, the Canister Rotation Facility, the three buildings of the Hypergol Maintenance and Checkout Historic District, and the SSPF. These nine facilities were previously determined to be NRHP-eligible at the national level of significance under Criterion A and Criteria Consideration G for their ability to convey the historic significance of NASA missions. NASA KSC has completed HABS/HAER documentations for all nine of these facilities.

The first step in evaluating the KSC Industrial Area as a district was to determine if it exhibits the characteristics of a historic district based on the NRHP definition. The entire KSC Industrial Area was examined to determine if it features a concentration of buildings that are united historically by their geography, dates of construction, design, construction materials, and function.

Although the buildings in the KSC Industrial Area are united superficially by their geography, they exhibit a disparate range of functions, program associations, construction dates, and materials. Aside from the individual NRHP-eligible facilities listed above, the area as a whole does not clearly express the significance of NASA’s scientific mission to explore space. Most of the buildings in the KSC Industrial Area were secondary in function to support the day-to-day operation of the Center, not the seminal scientific missions that define NASA.

The KSC Industrial Area is deliberately set apart from the launch blast zone. Its location provided easy access and efficiency in the construction of roads and utilities. None of the secondary support buildings were directly involved with the launching of rockets. They did not need to be close to launch facilities, and were located at a safe distance from launch activities. Siting them in close proximity to each other was a practical, not a technological, solution. Additionally, the buildings in the area are spaced widely apart and lack sidewalks or paths to connect them together or give a sense of interconnectedness. A visitor standing on a roadside in the middle of the area does not get the sense that the surrounding buildings are united in a common purpose or aesthetic. Each facility is essentially self-contained with its own parking lot and travel to and from many of the buildings requires an automobile. As a whole, the KSC Industrial Area does not possess the “feeling” of a historic district and its geography is, therefore, not a significant historic characteristic that makes the KSC Industrial Area eligible to the NRHP.

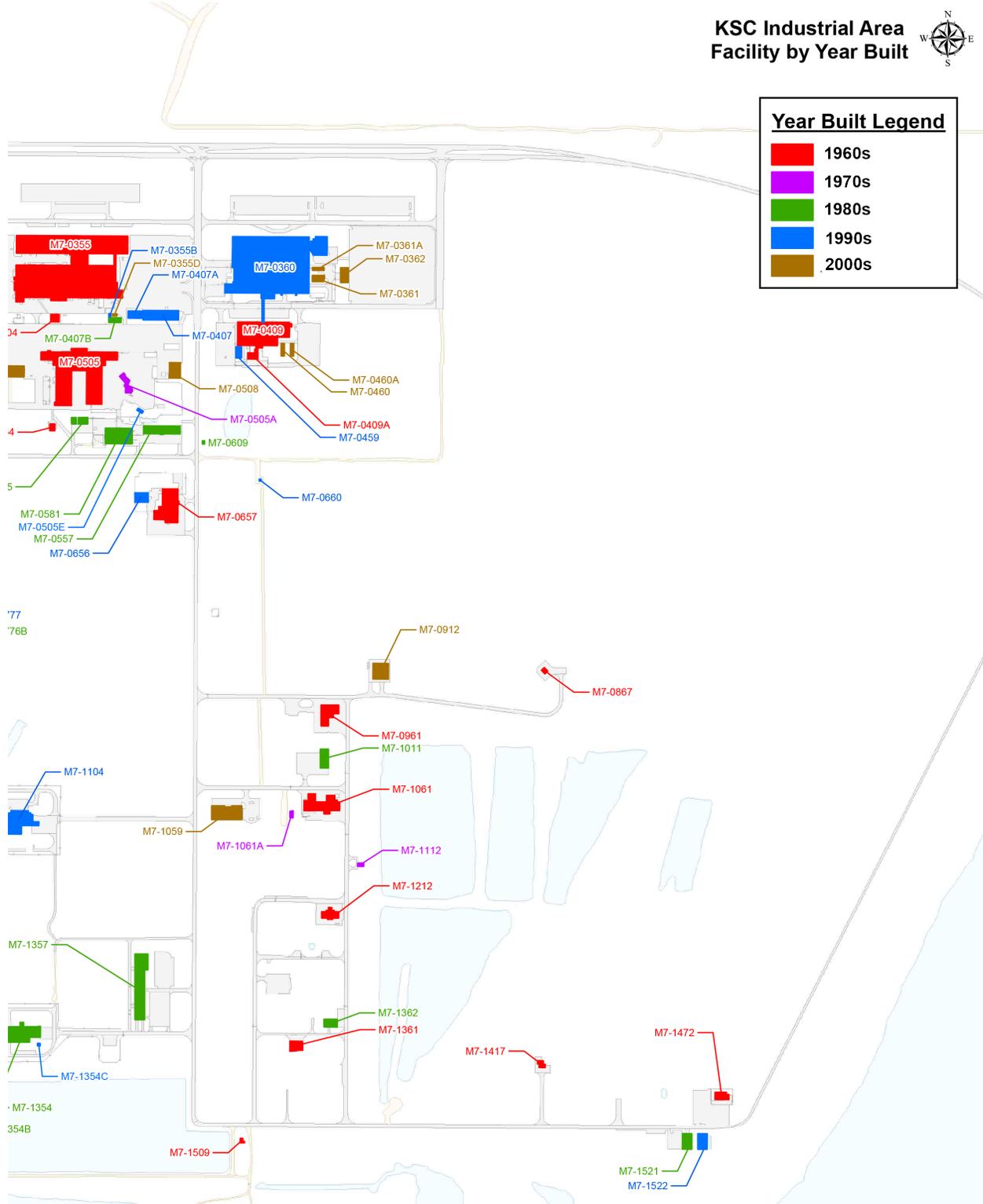
The KSC Industrial Area is not united by its facilities’ dates of construction as they were constructed nearly continuously between 1961 and the present. For this historic district evaluation, survey staff looked beyond the 18 individual buildings included in the original scope of work and considered all 120 buildings in the area. Of these, 46 (38 percent) were built during the Mercury, Gemini or Apollo eras (1963-1972). The remaining 74 buildings and structures (62 percent) were built during the Space Shuttle era of the mid to late 1970s, 1980s, 1990s, and 2000s. The color-coded map in Figure 14 shows the range of construction dates of all the buildings in the KSC Industrial Area. A corresponding list of all buildings in the KSC Industrial Area and their construction dates is included in Appendix D. In looking at the map, periods of development that correspond to specific NASA missions are not evident in the layout, with buildings added throughout the decades where there was available space. They are not grouped by specific mission periods and do not have the ability as a group, or subgroups, to convey significance for their period of development.

The KSC Industrial Area also lacks a cohesive look or design as its buildings were constructed from a variety of materials and architectural styles over a long span of time. While the three central NRHP-listed buildings lining the front street of the KSC Industrial Area were built during initial construction and share a similar International style of Modern architecture, those remaining are a mixture of industrial vernacular buildings with general functional design. When viewed as a group, the style and materials of the buildings fail to convey architectural significance or the significance of the NASA programs they were built to support.

The KSC Industrial Area is not united by its facilities’ uses or functions, which vary widely. Functions in the area include mechanical support (such as maintenance shops, warehouses, garages, and fire stations) human resources support (a clinic, staff training facilities, and cafeterias), administration (headquarters and offices), labs and communications (CIF), highly technical spacecraft processing



Figure 14.  
Color-coded Map Showing Range of Construction Dates of all Buildings in KSC Industrial Area



and checkout (O&C), and payload processing (SSPF). Although nine of the individually NRHP-eligible buildings are highly significant for their contributions to specific NASA programs and their histories, when viewed as a group even they lack a shared, cohesive narrative of function.

Finally, the KSC Industrial Area was evaluated as a potential historic district specifically under NRHP Criteria A and C. The KSC Industrial Area is recommended not eligible as a NRHP historic district under Criterion A, because the area as a whole is not associated with significant historic events. Several previously mentioned individual properties in the area were listed on the NRHP under Criterion A for their association with significant events in the history of NASA, but the newly surveyed properties in the area include secondary office buildings, warehouses, building and grounds maintenance buildings, motor vehicle maintenance buildings, equipment storage, and other support facilities. While these facilities contributed to the day-to-day operations of the KSC Industrial Area they do not, as a group, meet the level of historic significance necessary to make the entire area eligible as a historic district.

The KSC Industrial Area is also recommended not eligible under Criterion C due to its lack of overall architectural unity or distinctive style. The area contains a mixture of buildings designed at different times and associated with a variety of different NASA programs and activities. It does not embody the distinctive characteristics of a type, period, or method of construction or represent the work of a master, or possess high artistic value, nor does it represent a significant and distinguishable entity whose components lack individual distinction. Due to the high level of construction from recent years, the area's historic landscape does not retain its physical integrity of setting, design, workmanship, feeling or association necessary to convey the historic significance of a particular period or periods.

In conclusion, while the individual buildings and facilities located within the KSC Industrial Area served important roles in the successful operation of the spaceport, these roles varied widely along with their dates and styles of construction. Even though these facilities are united by geography, evaluation of their functions, building styles, and dates of construction suggests that they lack the ability to convey the historic significance of NASA and KSC's missions under Criterion A or C. The KSC Industrial Area is, therefore, recommended not eligible as it does not possess the characteristics of a historic district that is united by its geography, dates of construction, design, construction materials, or function. The area as a whole is recommended not eligible as a historic district under Criteria A or C, because it is not associated with significant events that influenced the history of NASA's mission to explore space, nor is it united by a distinctive architectural style or materials.

## HISTORIC DISTRICT EVALUATION – CCAFS INDUSTRIAL AREA

Eight NASA-owned properties that were surveyed for this report are located in the CCAFS Industrial Area. This area is a concentration of hangars, office buildings, and other support buildings that today primarily serve the U.S. Air Force's mission at CCAFS. Of the total number of buildings that compose the CCAFS Industrial Area, approximately 14 percent are owned by NASA with the remainder owned and managed by the Air Force. As NASA and CCAFS have overlapping histories, a number of buildings have changed hands between the Air Force and NASA over the past 50 years.

Among NASA's properties in the CCAFS Industrial Area is one previously identified NRHP-eligible historic district known as the SRB Disassembly & Refurbishment Complex (8BR01996), commonly known as the Hangar AF Complex. Located at the western end of the CCAFS Industrial Area on the shores of the Banana River, this district consists of nine contributing resources (none of which are considered individually eligible), including Hangar AF (8BR2001), the High Pressure Gas Building (8BR2002), the High Pressure Wash Facility (8BR2003), the First Wash Building (8BR2004), the SRB Recovery Slip (8BR2005), the SRB Paint Building (8BR2006), the Robot Wash Building (8BR2007), the Thrust Vector Control Deservicing Building (8BR2008), and the Multi-Media Blast Facility (8BR2009). This district has been documented for the HAER using HAER Level II documentation guidelines.

It was beyond the scope of work for this report to evaluate the eligibility of the entire CCAFS Industrial Area as a NRHP historic district. Without a comprehensive survey of all the buildings to show how they may or may not be related, it is difficult to draw conclusions as their ability to convey significance as a district. Of the eight NASA-owned properties on CCAFS that were surveyed for this study, one is recommended individually eligible (6680/Missile Assembly Building AE) and the remaining buildings are recommended not individually eligible. Plans are forthcoming to conduct a historic resource survey and evaluation of properties in the CCAFS Industrial Area in 2013 to determine if the area contains a NRHP historic district.

## **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 15). 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.

### **Evaluation**

The Paint Storage Building is recommended not eligible for individual listing on the NRHP. 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. The Paint Storage 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's ELV, Mercury, Gemini, Apollo, Space Shuttle, or ISS 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. While the building is recommended not individually eligible to the NRHP, an upcoming survey and evaluation will determine if the Paint Storage Building is a contributing resource to a potential CCAFS Industrial Area historic district.

Figure 15.  
Views of Paint Storage Building (54905)

- a. Exterior View Northwest
- b. Interior View Northwest



## LITTLE N STORAGE BUILDING (54928)

### Description

The 1958 Little N Storage Building is located on the northeast side of Hangar N on the CCAFS (Figure 16). 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.

The building supported the SRB disassembly and refurbishment activities at the nearby Hangar AF and the interior is a single bay used for storage of small SRB parts. Originally built by the Air Force as a support building for missile assembly activities in the adjacent Hangar N, Little N and Hangar N were transferred to NASA in 1985. After this transfer the building housed general storage for the Space Shuttle's SRB disassembly and refurbishment activities for the nearby Hangar AF Historic District with its interior bay used for storage of small SRB parts.

### Evaluation

The Little N Storage Building is recommended not eligible for individual listing on the NRHP. Though the building is associated with the Hangar AF Historic District, it does not contribute to the significance of the district. The building was used purely for storage of SRB parts and did not house significant activities associated with the disassembly or refurbishment of the SRBs. Given its historic 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 the ELV, Mercury, Gemini, Apollo, Space Shuttle, or ISS 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. While the building is recommended not individually eligible to the NRHP, an upcoming survey and evaluation will determine if the Little N Storage Building is a contributing resource to a potential CCAFS Industrial Area historic district.

Figure 16.  
Views of Little N Storage Building (54928)

a. Exterior Oblique, View Northwest

b. Interior, View Northeast



## HANGAR M ANNEX (55005)

### Description

The 1963 Hangar M Annex is located on Hangar Road just southeast of Hangar M on CCAFS (Figure 17). 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 1965c). With a design similar to that of the E&O Building to the southwest, it features an unadorned, utilitarian design that 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. 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.

### Evaluation

The Hangar M Annex is recommended not eligible for individual listing on the NRHP. Originally built by the Air Force to house administrative offices and support laboratories, the building was transferred to NASA in 1966. The building is not directly associated with activities of significance that were associated with the development, component testing, or implementation of the earlier Mercury, Gemini, or Apollo programs or missions. Hangar M Annex housed secondary support activities for the Space Shuttle SRB and ISS programs, and for those reasons, it is recommended not eligible under NRHP Criterion A. The building is recommended not eligible under 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 individually eligible under Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction. While the building does display a generally Modernist design, it is typical of administrative/office facilities built in the 1960s and is not considered an individually significant example of the style. While the building is recommended not individually eligible to the NRHP, an upcoming survey and evaluation will determine if Hangar M Annex is a contributing resource to a potential CCAFS Industrial Area historic district.

Figure 17.  
Views of Hangar M Annex (55005)  
a. Exterior Oblique, View Southwest  
b. Interior Laboratory, View Southeast



## **PRESSURE PROOF TEST CELL (60425)**

### **Description**

The 1958 Pressure Proof Test Cell is located just north of Hangar M on the CCAFS (Figure 18). 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 1965n). Originally associated with Delta rocket operations of the adjacent Hangar M, it is now used as a staff building for the KSC maintenance crew stationed on CCAFS. 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.

### **Evaluation**

The Pressure Proof Test Cell is recommended not eligible for individual listing on the NRHP. Transferred from the Air Force to NASA in 1965, it was originally associated with Delta rocket operations of the adjacent Hangar M as a workshop and storage area. This function was discontinued circa 1971 and since that time was used as a staff building for KSC maintenance staff stationed on CCAFS. The Pressure Proof Test Cell 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's ELV, Gemini, Apollo, Space Shuttle, or ISS programs or missions. The Pressure Proof Test Cell 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. As a small concrete block support building, the Pressure Proof Test Cell is recommended not eligible under NRHP Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction. While the building is recommended not individually eligible to the NRHP, an upcoming survey and evaluation will determine if the Pressure Proof Test Cell is a contributing resource to a potential CCAFS Industrial Area historic district.

Figure 18.  
Views of the Pressure Proof Test Cell (60425)

- a. Exterior View Northwest
- b. Interior View Northwest



## **SOLAR ARRAY TEST BUILDING (60540)**

### **Description**

The 1966 Solar Array Test Building is located on Hangar Road at CCAFS. 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 (Figure 19) (NASA 1966o). 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 purpose of this design was to expose the sun to solar panels on unmanned spacecraft inside the building to calibrate their voltage output (NASA 1966p:4). 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.

### **Evaluation**

The Solar Array Test Building is recommended not eligible for individual listing on the NRHP. The building was originally built by NASA and is associated with satellite solar power systems research. The Solar Array Test Building was an equipment test and calibration facility, not a solar panel development laboratory, and is, therefore, recommended not eligible under NRHP Criterion A, because the building is not directly associated with activities of significance that were associated with the development, component testing, or implementation of the ELV, Gemini, Apollo, Space Shuttle, or ISS programs or missions. The Solar Array Test 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. As a rectangular concrete block building, the Solar Array Test Building is recommended not eligible under NRHP Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction. While the building is recommended not individually eligible to the NRHP, an upcoming survey and evaluation will determine if the Solar Array Test Building is a contributing resource to a potential CCAFS Industrial Area historic district.

Figure 19.  
Views of the Solar Array Test Building (60540)

- a. Exterior Oblique, View Northwest
- b. Interior Storage Area, View Northwest



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

### **Description**

The 1961 E&O Building is located on Hangar Road adjacent to Missile Assembly Building AE on the CCAFS (Figure 20). 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 1963). With a similar design to the Hangar M Annex to the north, the building is an unadorned office building that housed project managers and engineers associated with Project Mercury in Hangar S and the ELV Program in Missile Assembly Building AE. Like Hangar M Annex, the E&O Building has 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.

### **Evaluation**

The E&O Building is recommended not eligible for individual listing on the NRHP. Originally built by the Air Force and transferred to NASA in 1963, it is an administrative office building that supported NASA's Mercury Program as well as the Centaur, Delta, and other ELV programs (NASA 1961:3). Used exclusively as an office and support facility for the adjacent Missile Assembly Building AE, 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 the ELV, Mercury, Gemini, Apollo, Space Shuttle, or ISS 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. As an unadorned concrete block office building, it is recommended not eligible under NRHP Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction. While the building does display a generally Modernist design, it is typical of administrative/office facilities built in the 1960s and is not considered an individually significant example of the style. While the building is recommended not individually eligible to the NRHP, an upcoming survey and evaluation will determine if the E&O Building is a contributing resource to a potential CCFAS Industrial Area historic district.

Figure 20.  
Views of the E&O Building (60650)

a. Exterior Oblique, View Northwest

b. Interior Office Area, View Northeast



## 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 21). It was acquired from the Air Force in 1964 and since that time has functioned as the main telemetry and communications building for all of NASA's unmanned rocket launches (NASA 1964g). 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.

The 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 hangar was transformed into its current appearance, along with the two timber towers that are no longer standing. 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.

### Evaluation

Missile Assembly Building AE is recommended individually eligible to the NRHP under Criterion A in the area of Space Exploration as a communications facility and as a facility associated with processing payloads (Figure 22). The building is eligible under Criterion A for its significant association with KSC's ELV Program during its period of significance from 1961 to the present. It reflects the important events associated with the ELV Program and is distinguished as a place where significant program-level events occurred regarding the origins and operation of the ELV. 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 Program at KSC as a site for instrumentation to receive, monitor, process, display, and/or record information from ELVs during launch and flight.

Figure 21.  
Views of Missile Assembly Building AE (60680)

a. Exterior Oblique, View West

b. High Bay, View North



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 1961). 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. 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.

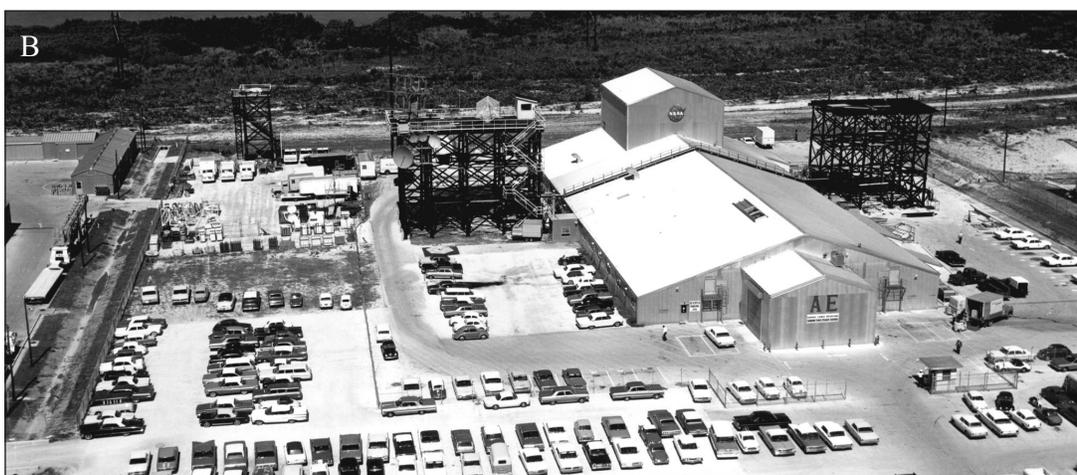
In this building, NASA launch managers and their commercial customers monitor real-time voice, data, and video telemetry information during unmanned spacecraft launches. According to NASA, the building control rooms “give managers and engineers the ability to detect or investigate any problems – with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

Figure 22.

## Historic Aerial Views of Missile Assembly Building AE (60680)

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

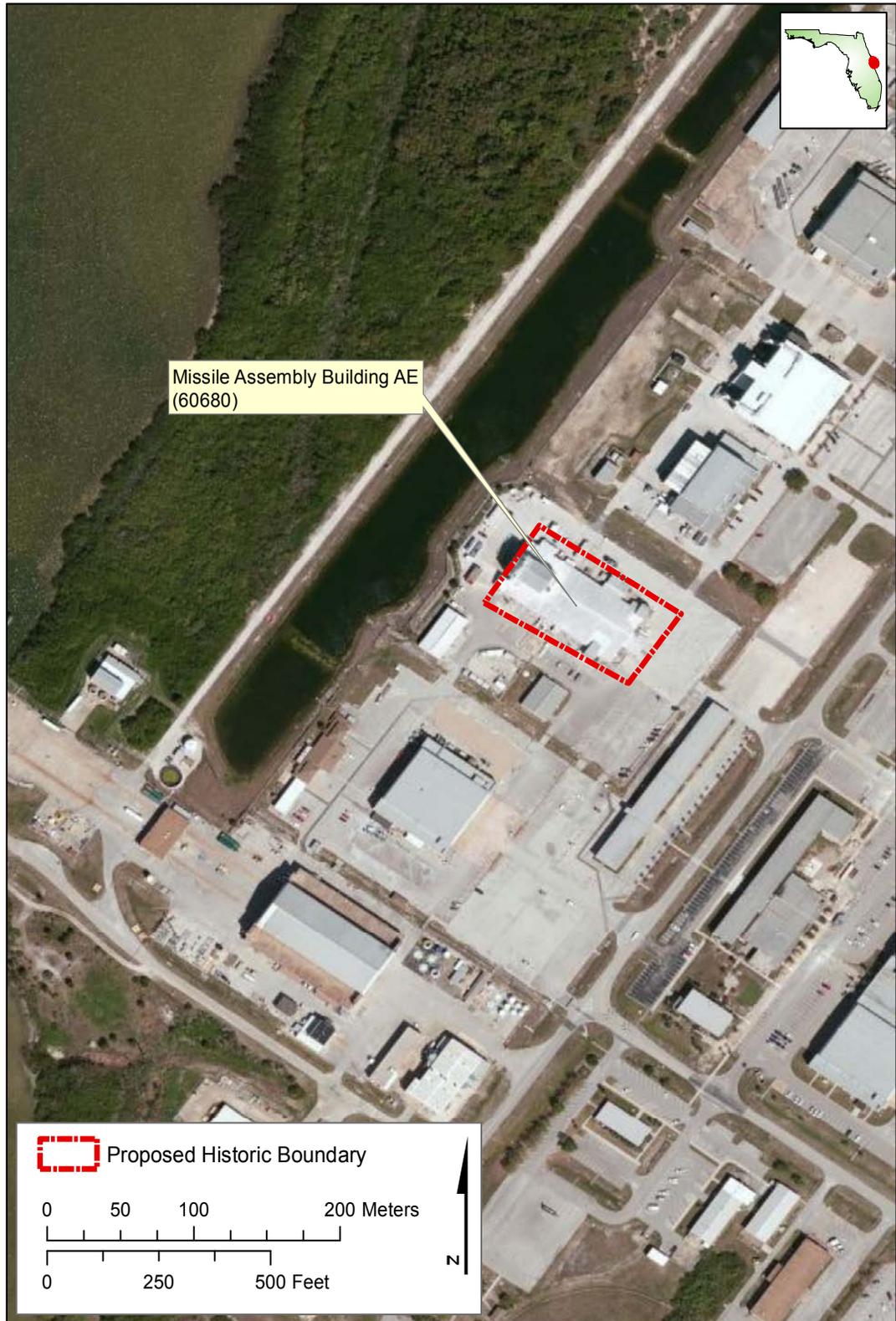
b. 1964 View of Missile Assembly Building AE After Additions and Antenna Platform Construction  
(Source: KSC Library Archives, Photograph KSC-64-10286)



Missile Assembly Building AE retains all seven aspects of integrity, including location, design, setting, materials, workmanship, feeling, and association. The interior of the building was modified a number of times as equipment and ELV Program needs changed, and it maintains a continuity of use from 1961 to the present. The exterior has remained largely unmodified since 1964.

The NRHP boundary of Missile Assembly Building AE is defined as surrounding the footprint of the original 1964 building (Figure 23). The boundary does not include any of the support buildings or storage sheds next to the building. An upcoming survey will evaluate Missile Assembly Building AE's eligibility as a contributing resource to a potential CCAFS Industrial Area historic district.

Figure 23.  
Missile Assembly Building AE NRHP Boundary



Source: ESRI Resource Data

## **EMERGENCY BREATHING EQUIPMENT MAINTENANCE BUILDING (66220)**

### **Description**

The Emergency Breathing Equipment Maintenance Building is located on CCAFS, immediately west of Hangar S (Figure 24). It is accessed via Hangar Road and access roads around Hangar S. Originally built by the Air Force in 1960, the building has been heavily altered and expanded. 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 1964f). 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.

### **Evaluation**

Under the ownership of the Air Force, the Emergency Breathing Equipment Maintenance Building was originally known as the Passivation Building. The original designer and contractor are not known. In 1969, the building was later renamed as the Self-Contained Atmospheric Protective Ensemble (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. 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 (Pfeil 2012).

The Emergency Breathing Equipment Maintenance Building is recommended not eligible for individual listing on the NRHP. 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 the ELV, Mercury, Gemini, Apollo, Space Shuttle, or ISS 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, it is recommended not eligible under NRHP Criterion C, because it does not clearly embody the distinctive characteristics of a type or

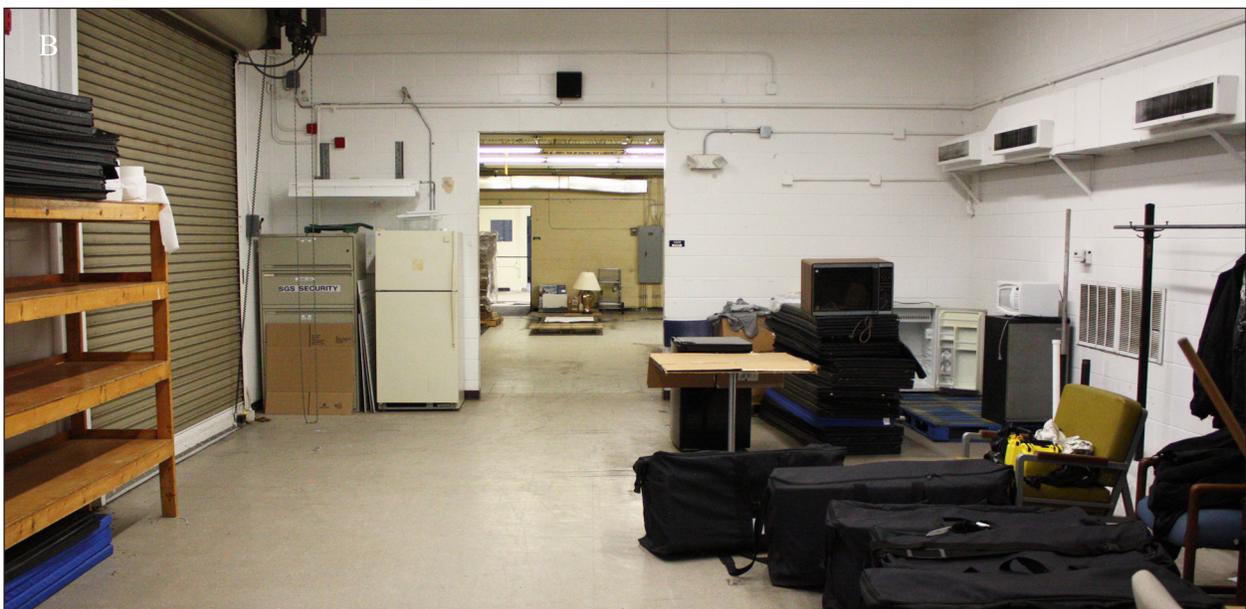
method of construction. An upcoming survey will evaluate whether the building is a contributing resource in a potential CCAFS Industrial Area historic district.

The Emergency Breathing Equipment Maintenance Building was surveyed as one of four “fast-track” buildings scheduled to be demolished by KSC in 2013. 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 24.  
Views of the Emergency Breathing Equipment Maintenance Building (66220)

a. Southeast Elevation, View Northwest

b. Interior Storage Area, View Southwest



## STORAGE FACILITY (J6-0553)

### Description

Originally known as Weather Sub-Station B, the 1964 Storage Facility is located on the west side of Kennedy Parkway North, approximately four miles north of the VAB (Figure 25). It is a two-story building with a flat built-up roof, concrete block walls, and a concrete foundation. It has a rectangular footprint that contains 910 square feet on the ground floor and 401 square feet on the second floor (NASA 1971). The ground floor of the building contains open storage space and the second floor contains a former control room that no longer contains any original equipment. Dual metal doors access the ground floor and a metal stair leads to the upper deck. Windows include multipane examples and single fixed windows. Large, rectangular, fixed windows, installed at an angle, provided visibility within the former control room area. There is a fiberglass dome on the roof that previously housed weather equipment, which is now empty. There is a recently installed satellite dish on the southwest corner of the property.

### Evaluation

The Storage Facility is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. The facility is one of many weather-tracking stations at KSC and is not a unique facility. It was converted to a storage area at an unknown date and is currently under lease by a private contractor. As a weather-tracking station and storage building, the facility 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 the ELV, Mercury, Gemini, Apollo, Space Shuttle, or ISS 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. As a basic concrete block building, the Storage Facility is recommended not eligible under Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction.

Figure 25.  
Views of the Storage Facility (J6-0553)

a. East Elevation, View West

b. Interior of Second Floor Observation Area, View Northeast



## **ORDNANCE STORAGE MAGAZINES NO. 1, 2, 3, AND 4 (K7-0255, K7-0306, K7-0356, AND K7-0405)**

### **Description**

In the Launch Complex 39 Area, about one-half mile northeast of the VAB, is the KSC ordnance storage area. The area contains three identical, stand-alone, reinforced concrete magazines (Ordnance Storage Magazines 1-3), an earth-covered igloo-type magazine (Ordnance Storage Magazine No. 4), and the Ordnance Lab No. 1 (described in the next section) (Figure 26). Built in 1965, the magazines and laboratory are arranged in a row from north to south with a paved access drive connecting them. All of the ordnance used on spacecraft from the Apollo through the Space Shuttle programs was stored in this area. Magazines 1, 2, and 3 all feature the same design, including a reinforced concrete foundation with 18-inch thick reinforced concrete walls and a built-up roof on a pre-stressed concrete deck (NASA 1965f; 1965g; 1965h; 1966j; 1966m). Each is equipped with an overhead crane and measure 50x50 feet with an interior floor space of 2,500 square feet. The interior walls are exposed concrete. The east (front) elevations of each feature a reinforced concrete wing wall and are entered through pairs of horizontal sliding metal doors. Magazine 4 differs from the above three with its earth-covered design that contains three separate ordnance storage magazines (Figure 26). The three barrel-shaped magazines have reinforced concrete foundations, floors, and walls, with a corrugated steel roof (NASA 1965j).

### **Evaluation**

Ordnance Storage Magazines 1-4 are recommended not eligible for individual listing on the NRHP or as contributing resources in a larger historic district. Featuring standardized igloo-type designs that are found in explosive storage areas throughout the nation, the buildings housed ordnance used on NASA launch vehicles from the Apollo through the Space Shuttle eras. The Ordnance Storage Magazines are recommended not eligible under NRHP Criterion A, because they are not directly associated with activities of significance that were associated with the development, component testing, or implementation of the Apollo, Space Shuttle, or ISS programs or missions. The Ordnance Storage Magazines are recommended not eligible under NRHP Criterion B, because they are not buildings where persons who made lasting achievements to these programs worked or convened. With standardized igloo construction, the buildings are recommended not eligible under NRHP Criterion C, because they do not clearly embody the distinctive characteristics of a type or method of construction.

Figure 26.  
Views of Ordnance Storage Magazines 1-4  
(K7-0255, K7-0306, K7-0356, AND K7-0405)

a. Exterior Oblique, View Northwest

b. Interior Storage Area, View West



## **ORDNANCE LABORATORY NO. 1 (K7-0506)**

### **Description**

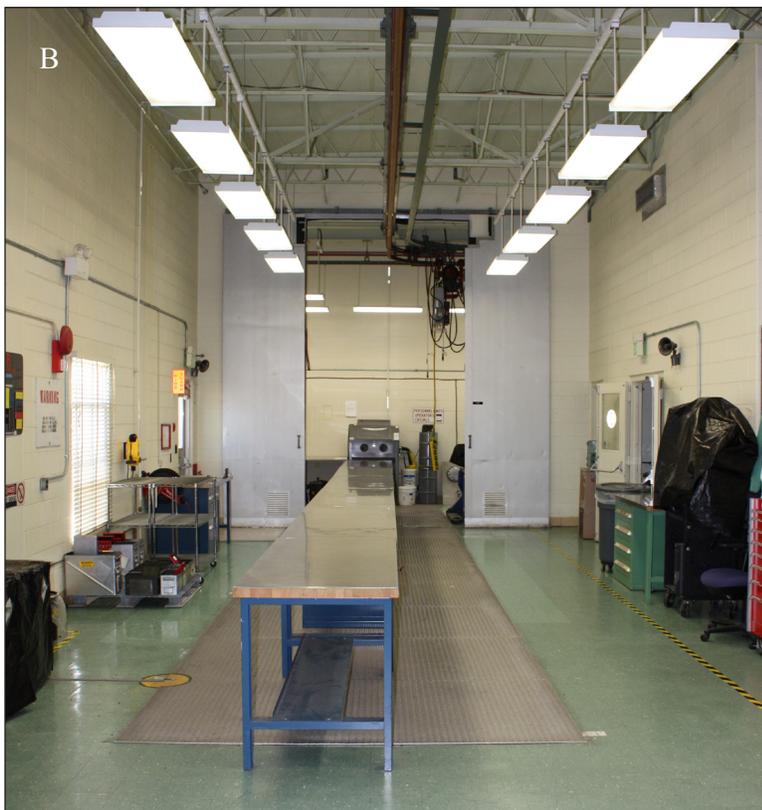
The 1965 Ordnance Laboratory No. 1 is located south of the Ordnance Storage Magazines in the Launch Complex 39 Area. It is a one-story concrete block building with a concrete foundation, a flat built-up roof, and a rectangular footprint that contains 2,600 square feet (Figure 27)(NASA 1965k). The interior finishes include painted concrete block and tile floors. The east (front) elevation is approached by a concrete ramp with aluminum handrails and features both a pedestrian entrance and a horizontally-sliding bay door with overhead crane. There are additional pedestrian entrances on the building's other elevations and four-light metal sash windows throughout.

### **Evaluation**

Ordnance Lab No. 1 is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. The building was used for receiving, inspecting, and shipping ordnance used on NASA launch vehicles from the Apollo through the Space Shuttle eras. The Ordnance Laboratory No. 1 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, implementation, and termination of the Apollo, Space Shuttle, or ISS 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 unadorned concrete block building 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 27.  
Views of Ordnance Laboratory No. 1 (K7-0506)

- a. Exterior Oblique, View Northwest
- b. Interior Processing Area, View West



## ORDNANCE LABORATORY NO. 2 (M7-1417)

### Description

The 1966 Ordnance Laboratory No. 2 is located on 10th Street SE in the southeast corner of the KSC Industrial Area (Figure 28). It is a one-story concrete block building with a flat built-up roof, a concrete foundation, and has an irregular footprint that contains 1,589 square feet (NASA 1965I). The main entrance on the south (front) elevation is a single pedestrian entrance flanked by two square fixed windows. The interior contains work areas and equipment used for testing ordnance devices used on flight vehicles, including a control room and two test cells. The south entry room also contains a display of ordnance devices used on the Space Shuttle.

### Evaluation

Ordnance Laboratory No. 2 is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. It was used to conduct quality tests on the ordnance used on NASA launch vehicles from the Apollo Program through the SSP. 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, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. The laboratory 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 with a utilitarian design, the building 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 28.  
Views of Ordnance Laboratory No. 2 (M7-1417)

- a. South Elevation, View North
- b. Interior Work Area, View North



## **OPERATIONS BUILDING NO. 1 (K7-0416)**

### **Description**

The 1967 Operations Building No. 1 is located in the Launch Complex 39 Area just west of the above Converter/Compressor Building (Figure 29). It is a 2,906 square-foot one-story concrete block building with a flat built-up roof and concrete floor and foundation (NASA 1968b). It has pedestrian entrance doors on all elevations and a metal roll-up door on the south elevation, with metal frame windows throughout. This building was the original administration office and technical support building for the Converter/Compressor Building (K7-0468), but it now houses the KSC hazardous and controlled waste management office.

### **Evaluation**

Operations Building No. 1 is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. As an administrative office 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, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. Operations Building No. 1 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. As a concrete block building with no distinguishing characteristics, the building 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 29.  
Views of the Operations Building No. 1 (K7-0416)

a. Exterior Oblique, View Northwest

b. Interior Storage Area, View Northeast



## **CONVERTER/COMPRESSOR BUILDING (K7-0468)**

### **Description**

The 1965 Converter/Compressor Building is located on the north side of the Saturn Causeway in the Launch Complex 39 Area, between the VAB and Pad A (Figure 30). The building converts liquid helium and nitrogen into gas form and then pumps the gases to the nearby launch pads. It is a one-story building with a shed sheet-metal roof, concrete block walls, a concrete floor and foundation, and a rectangular footprint that contains 9,377 square feet (NASA 2011a). The interior contains four work areas, including - from west to east - a nitrogen compressor room, tube fabrication shop, office and control room, and a helium compressor room (NASA 1966e). There are pedestrian entrance doors on the central office area and metal roll-up doors on the compressor rooms. On the west side of the building are two gaseous helium storage tanks paired with two liquid helium tanks. On the east side of the building is a liquid nitrogen valve yard.

### **Evaluation**

The Converter/Compressor Building is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. The Converter/Compressor Building is recommended not eligible under Criterion A, because it is not directly associated with activities of significance that were associated with the development, component testing, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. The building is recommended not eligible under Criterion B, because it is not a building where persons who made lasting achievements to these programs worked or convened. It is a concrete block support building that 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 30.  
Views of the Converter/Compressor Building (K7-0468)

- a. Southeast Elevation, View Northwest
- b. Interior Compressor Area, View North



## **CONVERTER/COMPRESSOR OPERATIONS BUILDING (K7-0569)**

### **Description**

The 1967 Converter/Compressor Operations Building is composed of two buildings that contain 17,606 square feet (K7-0569) (Figure 31). Additionally, there are two other buildings connected to these buildings known as K7-0569 East and K7-0569 South. This complex of four buildings is located on the south side of Saturn Parkway, directly across from Converter/Compressor Building (K7-0468). The westernmost building has a flat built-up roof, concrete block walls, a concrete foundation and floor (NASA 1968a) and contains the support operations. There are a variety of single window types throughout these buildings, as well as single pedestrian entrances and metal roll-up doors. The easternmost building has a corrugated-metal gable roof, corrugated metal siding, a concrete foundation, and contains office areas.

Originally the Converter/Compressor Operations Building was an administrative building for the gas converter and compressor area between LC39A and B. These facilities have not been used for converter/compressor operations since the 1990s, when they were renovated to house a non-destructive examination laboratory with an x-ray machine and control room. Today, it houses the KSC non-destructive evaluation lab, oxygen deficiency monitoring systems testing, and maintenance crews.

### **Evaluation**

The Converter/Compressor Operations Building is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. The Converter/Compressor Operations 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, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. It 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 Converter/Compressor Operations Building is a utilitarian concrete block building that 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 31.  
Converter/Compressor Operations Building (K7-0569)

a. Exterior Oblique, View Southwest

b. Interior, View West



## **BARGE TERMINAL FACILITY (K7-1005)**

### **Description**

The 1965 Barge Terminal Facility is located immediately southeast of the VAB on the south side of the Saturn Causeway (Figure 32). The facility was originally designed to receive the incoming stages of the Saturn rocket and later received the Space Shuttle's external tank. These spacecraft components were unloaded from barges and placed on specially-designed trailers, or dollies, which were then hauled by a truck into the adjacent VAB. The facility consists of an access canal from the Banana River, a turning basin, and a concrete unloading dock that wraps around the west and north sides of the turning basin. The primary unloading dock is 75x37.5 feet. The turning basin is approximately 1,200 feet wide with a depth of 10 feet. The unloading dock is a wharf-type structure composed of a pre-stressed concrete bulkhead held in place by precast ground anchors. A continuous cast-in-place concrete cap tops the bulkhead. Weep-holes are positioned through the concrete cap to allow drainage and limit water behind the bulkhead. Horizontal and vertical timbers protect the face of the cap (NASA 1964b; 1964c:1; 1965a:1-11).

### **Evaluation**

The Barge Terminal Facility is recommended eligible to the NRHP as a contributing transportation-related resource to the NRHP-eligible VAB under Criterion A in the area of Space Exploration during the Apollo Program and SSP (Figure 33). The facility provided docking space for ships that delivered the first and second stages of the Saturn rockets, the Space Shuttle's external tank, and other heavy equipment to the Launch Complex 39 Area. It is a key transportation facility that had a direct historical association with Launch Complex 39 during its period of significance from 1965 through the end of the SSP (NASA 1964c).

The Barge Terminal Facility retains all seven aspects of integrity, including location, design, setting, materials, workmanship, feeling, and association. The NRHP boundary of the Barge Terminal Facility is defined as the footprint of the structure's concrete loading dock and retaining wall bulkhead (Figure 34).

Figure 32.  
Barge Terminal Facility (K7-1005) at Left with Space Shuttle Mockup  
Ready for Shipping, VAB at Right, View West



Figure 33.

Historic Views of the Barge Terminal Facility (K7-1005)

- a. 1963 Aerial View of Canal, Turning Basin, and Barge Terminal Facility Under Construction  
(Source: KSC Library Archives, Photograph LOC-63-6296)
- b. 1964 Aerial View of Barge Terminal Facility and VAB Under Construction  
(Source: KSC Library Archives, Photograph KSC-64C-1007)
- c. 1966 View of a NASA Barge Docked at Barge Terminal Facility  
(Source: KSC Library Archives, Photograph 100-KSC-66-8163)

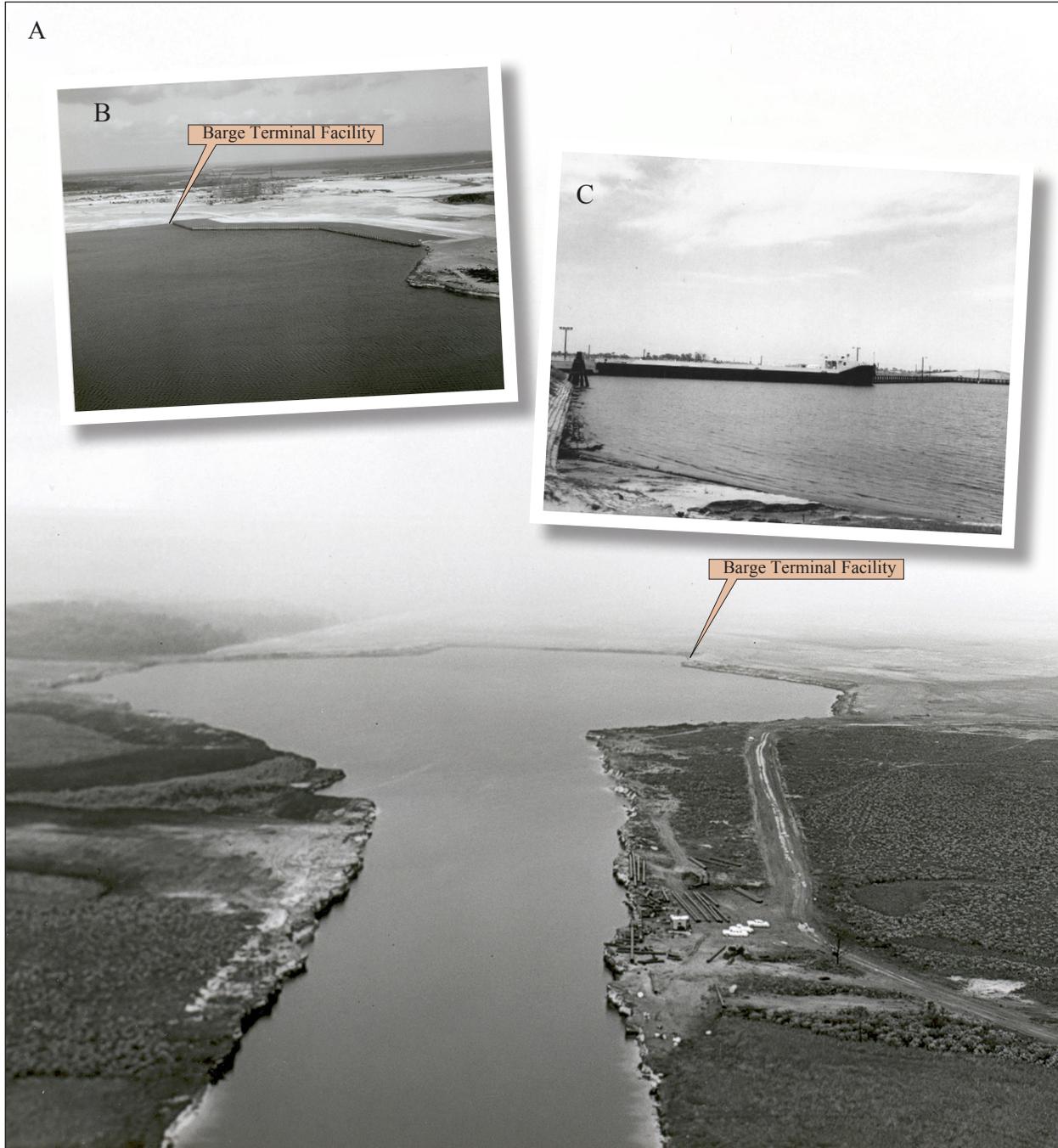


Figure 34.  
Barge Terminal Facility NRHP Boundary



Source: ESRI Resource Data

## BEACH HOUSE (K8-1699)

### Description

The 1962 Beach House is a two-story former residence constructed of concrete block and wood frame, containing 2,675 square feet (Figures 35 and 36). It is located on the eastern shore of KSC on the Atlantic Ocean on the east side of Phillips Parkway between Launch Complexes 40 and 41. The house faces east toward a stretch of isolated beach and is surrounded by low dunes covered in palmetto bushes and other vegetation. The nearest facilities are launch complexes that are only barely visible from the house. Used as a retreat for astronauts and their families prior to launches, the house's secluded feeling is evident. The building has undergone a number of interior and exterior alterations but its overall scale and massing remain intact, as well as its isolated beach location, setting, feeling, and association.

Originally a modest beach house that was typical for the Florida coast in the 1960s, the Beach House's interior and exterior was renovated in 1997. The first floor originally contained a garage and storage area, while the second floor included a den, two bedrooms, small kitchen, bathroom, and a deck. The ground floor today contains a finished living room with a small kitchen. There are two display cases filled with ceremonial wine and other beverage bottles decorated with flight mission stickers, some of which are also signed by the astronauts. The original second floor living area floor plan was removed and is now an open-plan meeting room with a kitchen and bathroom.

Exterior renovations include the installation of a slightly-pitched shed roof that replaced the original flat roof. There are two small, two-story additions on the rear of the building. The addition on the west (rear) elevation contains a mechanical room on the ground floor and a Heating Ventilation Air Conditioning (HVAC) chase in the second floor. The addition on the north elevation, next to the rear deck entrance, contains an elevator. A two-story wood deck wraps around the north and east elevations. While there are replacement windows throughout the house, they match the size and shape of the original window openings. The original picture window on the east elevation was replaced with a sliding glass door (NASA 1960). The house retains its original wood clapboard siding, which has been painted yellow.

### Evaluation

The Beach House is recommended individually eligible to the NRHP under Criteria A and B in the area of Space Exploration as a resource associated with the training of astronauts. Built in 1962 as part of the Neptune Beach Subdivision, NASA purchased it for \$31,500 in 1963. All of the other original buildings in the immediate area were demolished. The house was renovated and renamed the Astronaut Training Building, colloquially known as the Beach House (NASA 1999a).

Figure 35.  
 Views of the Beach House (K8-1699)

- a. Exterior View of the East (Front) Elevation, View West
- b. Wine Bottle Display Case on Ground Floor, View West
- c. View South from the Beach House Deck, Showing Launch Complex 37 at Right in Background



The Beach House is a one-of-a-kind building that was exceptionally significant in the lives and training of America’s astronauts during its period of significance from 1963 to the present. Prior to every launch, the astronauts enjoyed a meal at the Beach House with their spouses, close relatives, and a few NASA personnel. After the meal, the astronauts and family members often walked on the beach to talk about the potent mix of “fear and excitement” that preceded a launch (Mullane

Figure 36.

## Historic 1974 Views of the Beach House (K8-1699)

a. East Elevation, View West (Source: KSC Library Archives, Photograph 116-KSC74C-939)

b. Oblique View Showing Southwest Corner, View Northeast  
(Source: KSC Library Archives, Photograph 116-KSC-74C-940)

1992:43). This was the last place that astronauts were allowed to relax and say goodbye to their families before risking their lives for America's space programs. It is the place where the three astronauts killed in the 1967 Apollo 1 launch pad fire saw their spouses for the last time, as it was for the 14 Space Shuttle astronauts lost in the Challenger (STS-51) and Columbia (STS-107) accidents. There is no other building at KSC that better represents the vulnerable and human side of space flight, with all its risks and rewards, than the Beach House.

Several astronauts have commented on the significance of the Beach House to their lives and work. Space Shuttle astronaut Dave Wolf remarked that "the beach house is a great refuge during a tense time where you can go and be away from the institutionalized environment and spend a little time at peace on a beach near the ocean... It's very good for a person's thinking before their launch in space" (Young 2002:3A). Three-time Space Shuttle astronaut Mike Mullane remarked that the Beach House "plays an essential role in every astronaut's life" (Mullane 1992:41). Mullane commented on the excitement and fear felt by astronauts: "Before the first mission, to sit out here and look at the sky and say, 'I'm next! I'm next! It's going to happen! I'm going to go into space! That would just overwhelm me'" (Pasternack 2011). The astronauts needed this place to get away during their KSC training, a place to reflect on the magnitude of what they were about to do.

In another interview, Mullane went a step further to describe the Beach House as a "sacred" place, a feeling that extends beyond the walls of the house itself to the sand of the beach and the surrounding landscape:

This is sacred sand out here, it really is. It's where people have made those final goodbyes and some were final. There's no spouse, no astronaut walks that sand that doesn't know, that there is a possibility that this is forever... It's a thing for people to understand. At the same time you are boundlessly joyful, you're also fearful. That's hard to get your mind around that. But it is. That's the reality of an astronaut's life, and a spouse's life, in those final days and hours before a mission. Fear and joy overwhelming you (Pasternack 2011).

The significance of the Beach House's beachside setting was also described by three-time Space Shuttle astronaut Pam Melroy. "The psychic energy is kind of incredible... But the best part really is being able to walk along the beach, because I think seeing the ocean satisfies some part of you that, you are seeing the Earth, and you know you're going to miss it, and it's really special, but somehow the giantness of the ocean makes you feel like it's all part of space too. So it seems like it's a perfect place to get you ready to go" (Pasternack 2011).

In addition to the significant events that occurred there, the Beach House is also significant for the people – the astronauts – associated with it. The house was available for use as a retreat by all astronauts from the Apollo era through the SSP, though it is not known whether or not all of the astronauts during these programs actually visited it. There were 12 manned Apollo missions

(Apollo 1, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, and 17) that included 36 astronauts who used the Beach House, including famous names like Gus Grissom, Wally Schirra, Neil Armstrong, Buzz Aldrin, and Alan Shepard. There were 135 Space Shuttle missions with a total of 314 individual astronauts, including Franklin Chang-Diaz and Jerry Ross (who both flew seven missions, more than all other astronauts), Michael Foale and Curtis Brown Jr. (who each flew six missions), John Glenn (STS-95), and others (NASA 2011b).

The Beach House retains four NRHP aspects of integrity, including location, setting, feeling, and association. The building's eligibility is based on these four aspects of integrity, which are sufficient to convey the building's significance under Criterion A. The house's isolated location and beachside setting, which are considered profoundly significant by former astronauts, remain undisturbed by modern intrusions. The pristine beach in front of the house is unlike almost any other along Florida's mid-Atlantic coast, with its completely undeveloped shoreline that is visible for as far as the eye can see to the north and south. Additionally, the surrounding dunes are undisturbed, providing habitat to scores of native plant and animal species and enhancing the overall setting. The intact location and setting contribute to the feeling that the Beach House was a significant place in the lives of astronauts. The building was used as a retreat for astronauts up until the very end of the SSP and it retains integrity of association, or a direct link to the historic events of America's manned spacecraft program.

The Beach House retains its overall massing and scale, although recent renovations have resulted in a loss of its integrity of design, materials, and workmanship. The original flat roof has been covered by a slightly-pitched shed roof. The original single-pane metal windows were replaced with modern insulated windows. The east elevation that faces the beach retains its overall massing and scale, but was remodeled with a new two-story wraparound deck and a bank of sliding-glass doors that replaced the building's original picture window. The original interior floor plan of the house has been completely remodeled into an open-plan conference center with new ceiling, wall, and floor materials. Two small additions were built on the north and west elevations for mechanical and elevator chases. In all, while there has been a loss of integrity in these categories, many of the alterations have been to the interior of the house, not the exterior. Massing remains the same. If any of NASA's astronauts were to stand in front of the house today, it would still be instantly recognizable to them as the NASA Beach House.

The NRHP boundary for the Beach House is difficult to determine because it needs to include the building's setting, viewshed, and the beach, all of which were significant to the astronauts who used the property (Figure 37). There are, however, no parcel lines or visual barriers such as tree lines or fences to use as a guide for the NRHP boundary. The boundary recommended here includes an approximately 14-acre trapezoid with the Beach House near its center. It includes the Beach House itself as well as a substantial portion of the surrounding dunes, beach, and viewshed, which is sufficient to convey the property's location, setting, feeling, and association.

Figure 37.  
Beach House NRHP Boundary



Source: ESRI Resource Data

## ENVIRONMENTAL HEALTH BUILDING (L7-1557)

### Description

The 1965 Environmental Health Building is located in an isolated area approximately one mile northeast of the main CIF in the KSC Industrial Area, surrounded by woods (Figure 38). The building, originally known as the CIF Antenna Field Building, was designed by the Corps, Canaveral District, and built by the Akwa-Downey Construction Company (NASA 1966g). The building was located nearly a mile northeast of the main CIF in a radio frequency “quiet zone” to minimize interference with other radio and antenna equipment in the KSC Industrial Area. It was originally equipped with high-gain parabolic antennas that received and relayed telemetry, flight television, and vehicle tracking signals from spacecraft to the main CIF, which then recorded and processed the signals. The gain and sensitivity features of the building’s antenna systems provided improvements in general data gathering, applied research in electronic tracking techniques, plane plasma noise studies, and flight telemetry technology (NASA 1965a:4-5; NASA 1966a:2-9).

The facility’s name and function were changed to the Environmental Health Building in 1982 and since that time, it has housed the Environmental Health Branch personnel. The building is located via C Avenue north of NASA Parkway East. There are parking areas on the southwest (front) and northwest sides of the building, with an antenna field and cable trenches in the northeast (rear) yard of the building. There are two non-original storage buildings that were installed on the site at an unknown date, including one adjacent to the front parking lot, and one on the north side of the building. The building was extensively remodeled in 1992 with a 3,000-square-foot annex built on the rear (north) elevation for additional office space (NASA 1966g).

The building has an irregular footprint that encloses 10,735 square feet, including an original 7,735-square-foot portion on the front of the building and a 3,000-square-foot rear annex addition. The building is one-story tall with a concrete foundation, concrete block walls with concrete pilasters, and a flat built-up roof (NASA 1966f). Like the main CIF in the KSC Industrial Area, the building’s roof features a concrete block parapet screen wall that originally enclosed antennas and communications equipment that were removed at an unknown date following its 1982 renovation. The exterior is painted white, except for the cornice, which is painted gray. The main entrance on the southwest elevation has a half-light double door accessed by a concrete staircase and covered by a flat concrete awning. There are irregularly placed double-light, fixed windows with metal frames throughout the building’s exterior. The 3,000-square-foot rear annex was built in 1992 and has an open floor plan used for office space. The building’s original rooftop communications equipment is no longer intact.

**Evaluation**

The Environmental Health Building is recommended not eligible for individual listing in the NRHP or as a contributing resource in a larger historic district. The building is strongly associated with the NRHP-listed main CIF, however, it no longer retains a continuity of its original use or integrity of design, setting, materials, feeling, or association. For this reason 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, implementation, and termination of the Apollo, Space Shuttle, or ISS 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 interior of the building was extensively remodeled for a new use in the 1980s and its original exterior antennas and communications equipment were removed or replaced. The construction of the 3,000-square-foot rear annex and two storage buildings immediately adjacent to the building further compromised its integrity of setting, feeling, and association. With poor integrity and a utilitarian design, the building 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 38.  
 Views of the Environmental Health Building (L7-1557)

- a. Exterior Oblique, View Northeast
- b. Interior Office Space, View West

The Environmental Health 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 eligible to the NRHP.



## **ELECTROMAGNETIC LABORATORY (M6-0336)**

### **Description**

The 1963 Electromagnetic Laboratory is located on 1st Street in the northwest corner of the KSC Industrial Area (Figure 39). It is a one-story concrete-block building with a slightly-gabled built-up roof, concrete foundation, and a T-shaped footprint that contains 9,486 square feet (NASA 1964e). It has an offset, recessed entrance on the north (front) elevation. The front elevation is divided into 12 bays, each of which contains a set of six-light ribbon windows. The building was originally called the Corps of Engineers Building and it housed the Corps' administrative offices, architectural drafting areas, and engineering stations while KSC was under construction in the early 1960s. Today, the western end of the building contains the KSC Electromagnetic Test Lab that conducts compliance testing on electromagnetic equipment used throughout KSC's many facilities; the remainder contains administrative offices.

### **Evaluation**

The Electromagnetic Laboratory is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. The administrative/laboratory 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, implementation, and termination of the Gemini, Apollo, Space Shuttle, or ISS programs or missions. It 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 with a utilitarian design, the laboratory 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 39.  
Views of the Electromagnetic Laboratory (M6-0336)

- a. Exterior Oblique, View Southwest
- b. Interior Laboratory, View Southwest



## **BASE OPERATIONS BUILDING (BOB) (M6-0339)**

### **Description**

The 1965 Base Operations Building (BOB) is located in the northwest corner of the KSC Industrial Area, at the intersection of 1st Street and B Avenue Southeast (Figure 40). There is a circular driveway on the north (front) side of the building and a parking area on the south side. The BOB is a rectangular two-story building with a reinforced concrete structure, reinforced concrete slab foundation, and a flat built-up roof. The BOB features a general Modernist style. It provides 20,088 square feet of office floor space (NASA 1965c). The exterior is composed of precast concrete panels with a rough pebble finish. A modest cornice projects out along the roof line of the entire building. The symmetrical north and south elevations are each divided into seven bays by concrete pilasters and the east and west elevations have three bays each. There is a central main entrance on the north façade. It has bands of double-light fixed metal windows along the first and second floors. There is a two-story 1997 addition on the east elevation that provides an Americans with Disabilities Act (ADA)-compliant entrance with elevator and second-floor freight loading door. The interior floor plan of the building contains individual offices, open cubicle office areas on the second floor, and conference rooms. According to current employees in the building, many of the original interior offices on the second floor were removed to make room for the current cubicle office area.

The BOB provides office space to KSC support and contractor personnel for operations, maintenance, administrative, and technical management functions. It was designed by the architectural firm of Gordon, Drake, & Pattillo of Jacksonville, Florida, and built by the contractor H.J. High (NASA 1965c). The building continued to function as a contractor office building until it was demolished in early 2013.

### **Evaluation**

Before its demolition, the BOB was recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. As an administrative office building for support contractors, the building was recommended not eligible under NRHP Criterion A, because it was not directly associated with activities of significance that were associated with the development, component testing, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. The BOB housed support contractors and was recommended not eligible under NRHP Criterion B, because it was not a building where persons who made lasting achievements to these programs worked or convened. The BOB featured a general Modernist

Figure 40.  
Views of the BOB (M6-0339)

a. Exterior Oblique, View Southwest

b. Second Floor Office Space, View Northeast



design that was typical for small office buildings of the era by a regional architect of lesser renown. The building was recommended not eligible under NRHP Criterion C, because it did not clearly embody the distinctive characteristics of a type or method of construction.

The Base Operations Building was surveyed as one of four “fast-track” buildings scheduled to be demolished by KSC in 2013. In a letter dated July 17, 2012, the Florida SHPO concurred with the above recommendation that it is not eligible to the NRHP (see Appendix C).

## SPACEPORT CENTRAL (M6-0409)

### Description

The Spaceport Central is KSC's main Visitor Complex that includes museum displays, interactive media, an IMAX theater, and other educational exhibits as well as snack bars and gift shops geared toward tourists visiting KSC. It is located on the south side of NASA Parkway West, just west of the KSC Industrial Area (Figure 41). The facility began as a single building and grew over the decades to include several individual buildings within a larger complex. The complex is currently undergoing its latest addition, the construction of the Space Shuttle *Atlantis* exhibit, set to open in the summer of 2013.

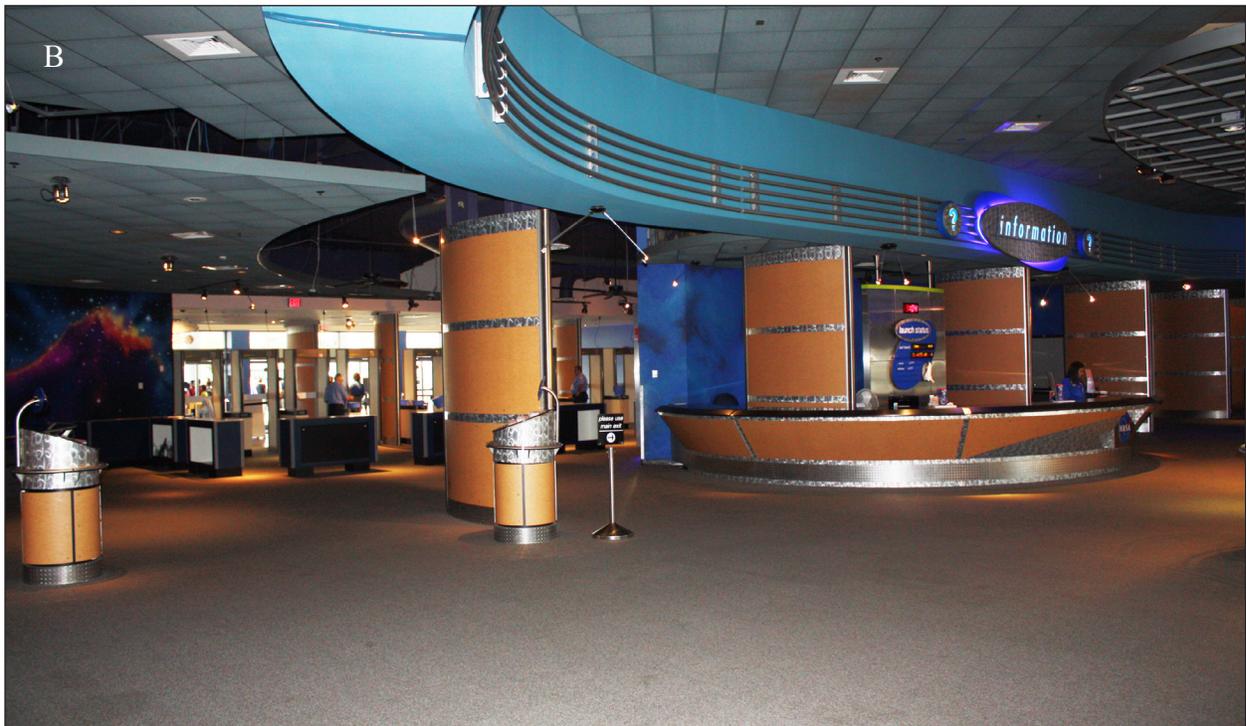
The original 1967 building is now almost totally obscured by later additions and modifications to its interior and exterior, in addition to several newer buildings and exhibits surrounding it (NASA 1967). The original one-story building had a multi-part, corrugated metal gable roof, corrugated metal walls, a concrete foundation, and an irregular footprint that contained 21,273 square feet.

New facilities that post-date the original construction include the entrance ticket plaza on the south side; the Rocket Garden, Debus Conference Center, and Early Space Exploration Museum on the southwest side; the Astronaut Memorial, Imax Theater, Orbit Café and Space Shop on the north side; and the bus boarding area on the east side. There are additional small exhibits and administrative facilities throughout the Visitor Complex.

### Evaluation

Spaceport Central is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. As KSC's main Visitor Complex, the building is recommended not eligible under NRHP Criterion A, because it is a facility associated with tourism and education that is not directly associated with activities of significance that were associated with the development, component testing, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. Spaceport Central 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. Spaceport Central is recommended not eligible under NRHP Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction. While Spaceport Central is recommended not eligible, it does contain a number of historically significant artifacts and replicas, including original NASA rockets in the Rocket Garden and others in the Early Space Exploration Museum.

Figure 41.  
Views of Spaceport Central (M6-0409)  
a. Exterior Oblique, View Northwest  
b. Interior Lobby Area, View Northeast



## BASE SUPPORT BUILDING (M6-0486)

### Description

The 1964 Base Support Building, also known as the Maintenance & Operations (M&O) Building, is located on the western edge of the KSC Industrial Area, south of 2nd Street and east of A Avenue Southeast (Figure 42). It is a central shop for the dispatching of KSC facilities maintenance crews (NASA 1966c). The facility houses a number of maintenance shops, including roads and grounds, sheet metal, welding, machine and mill wright, plumbing, parts and tool crib, air conditioning and refrigeration, electrical, painting, carpenters, and masons. It also contains facilities for janitors, offices, locker and washrooms, storage, and salvage areas.

The Base Support Building is an L-shaped industrial manufacturing type building that contains 90,804 square feet (NASA 1966c). It has a reinforced concrete slab foundation, a steel frame structure, concrete block exterior walls, and a slightly pitched built-up roof. Approximately 8,000 feet of the floor space along the north (front) end of the building contains offices and the remaining space houses shop maintenance. Shop areas include roads and grounds, sheet metal, welding, machine and mill wright, plumbing, parts and tool crib, air conditioning and refrigeration, electrical, painting, carpenters, and masons. The minimum shop clearance, floor to ceiling joist, is 17 feet (NASA 1966a:2-13). The interior maintenance shops areas are accessed from the exterior by regularly spaced 14x14-foot metal roll-up bay doors. A variety of original window types are used throughout the building, including louvered windows across the north façade and multi-light windows on the rest of the building. The building has several pedestrian entrances of single and double pedestrian doors. There is a large parking area on the north side of the building with access roads and paved equipment storage areas surrounding all three other sides.

### Evaluation

The M&O Building is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger 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, implementation, and termination of the Gemini, Apollo, Space Shuttle, or ISS programs or missions. The M&O 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. It has a utilitarian concrete block construction 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 42.  
Views of the Base Support Building (M6-0486)

a. Exterior Oblique, View Southwest

b. Interior Carpentry Shop, View Northwest



The Base Support 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 eligible to the NRHP (see Appendix C).

## SUPPORT BUILDING (M6-0589)

### Description

The 1965 Support Building is located at the corner of 3rd Street and B Avenue in the KSC Industrial Area (Figure 43). It is a one-story concrete block building with a slightly-gabled built-up roof, concrete foundation, and a rectangular footprint that contains 2,526 square feet (NASA 1965o). It was originally called the Security Building, which housed KSC's security force personnel, equipment, and visitor badging operations. The south (front) elevation has a central, double-door pedestrian entrance covered by a concrete awning that is flanked by original six-light casement windows. These original casement windows are intact throughout the building. There is a secondary rear entrance on the west elevation. The interior of the building has received few alterations and now houses the KSC communications cabling staff.

### Evaluation

The Support Building is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger 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, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. The Support Building housed security guards and personnel and 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 with a utilitarian design, it 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 43.  
Views of the Support Building (M6-0589)

- a. Exterior Oblique, View Northeast
- b. Interior Office Space, View East



## **INDUSTRIAL AREA SUPPORT BUILDING (M6-0493)**

### **Description**

The 1964 Industrial Area Support Building is located just west of the Occupational Health Building on 2nd Street (Figure 44). It is a one-story concrete block building with a slightly-gabled built-up roof, concrete foundation, and a rectangular footprint that contains 15,449 square feet (NASA 1965f). Originally called the KSC Main Cafeteria, it features window-walls on the west end of the north and south elevations that allowed natural light into the interior dining area. The rest of the building features fixed-windows in groups of three positioned just under the eaves of the north and south elevations. When the KSC cafeteria was moved to the Headquarters Building in 1983, this building's name was changed to the Industrial Area Support Building. There are two entrances on the west end of the building that lead into what was the original dining area, which was renovated into office space that houses KSC contractors. The east end of the building features a loading dock that served the building's original kitchen, which was extensively renovated in 2010 with modern institutional kitchen appointments.

### **Evaluation**

The Industrial Area Support Building is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. Built as a cafeteria, 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, implementation, and termination of the Gemini, Apollo, Space Shuttle, or ISS 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 has a utilitarian concrete block design 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 44.  
Views of the Industrial Area Support Building (M6-0493)

a. Exterior Oblique, View Southwest

b. Interior Office Space in the Original Cafeteria Space, View North



## OCCUPATIONAL HEALTH BUILDING (M6-0495)

### Description

The 1964 Occupational Health Building is located at the corner of 2nd Street and C Avenue just southwest of the Headquarters Building in the KSC Industrial Area (Figure 45). It is a one-story concrete block building with a built-up roof, concrete foundation, and an irregular footprint that contains 14,400 square feet (NASA 1964d). Originally called the Dispensary, the building is KSC's chief medical services facility that offers emergency room services, eye exams, physicals, vaccinations, and other routine procedures. Patients and staff enter the building through its offset entrance portico on the north elevation, which was altered and enclosed in the 1990s. The emergency room entrance is on the south (rear) elevation. The building has been enlarged twice, once in 1968 and again in 1996 when an addition containing office and conference room space was added to the building's west end.

### Evaluation

The Occupational Health Building is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. As a staff support building, the Occupational Health 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, implementation, and termination of the Gemini, Apollo, Space Shuttle, or ISS 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 with utilitarian design, it 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 45.  
Views of the Occupational Health Building (M6-0495)  
a. Exterior Oblique, View Southwest  
b. Interior Medical Treatment Room, View West



## PROPELLANTS SHOP (M6-0688)

### Description

The 1966 Propellants Shop is located on 3rd Street in the KSC Industrial Area, just south of the Support Building (M6-0589) (Figure 46). It is a two-story concrete block building with a built-up roof, concrete foundation, and a rectangular footprint that contains over 17,000 square feet (NASA 1966b). It is surrounded on all sides by extensive asphalt parking, work areas, and a parking area for KSC tour buses. It has a central two-story portion containing offices and a second-floor meeting room. This portion is flanked on the west and east by automotive maintenance garages. Each of the garage areas contains four bays. The building was originally called the Automotive Maintenance & Service Building and served as the vehicle maintenance facility for KSC's fleet of cars and trucks that were managed at the time by the General Services Administration (GSA). According to the current facility manager, the GSA ceased this function circa 2003. Today, the building services KSC's fleet of trucks that transport propellants.

### Evaluation

The Propellants Shop is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. The Propellants Shop is recommended not eligible under NRHP Criterion A, because as a maintenance building for fleet vehicles, it does not directly contribute to the activities of significance that were associated with the development, component testing, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. The Propellants Shop 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 with a utilitarian garage-type design, the building 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 46.  
Views of the Propellants Shop (M6-0688)  
a. Exterior Oblique, View Southeast  
b. Interior Garage Bay, View Southeast



## **TRANSPORTATION STORAGE BUILDING (M6-0689)**

### **Description**

Located immediately east of the Propellants Shop (M6-0688), the 1966 Transportation Storage Building was originally called the Fueling Facility, which served the Automotive Maintenance & Service Building (Figure 47). It has a central, one-story, concrete-block office building with a flat concrete roof that measures 29.33x10 feet. It is flanked by two open-air fueling bays. The original fuel pumps and air and water reels are no longer intact (NASA 1966j).

### **Evaluation**

The Transportation Storage Building is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. It was originally a fuel pump station for the Propellants Shop. The Transportation Storage 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, implementation, and termination of the Apollo, Space Shuttle, or ISS 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 with a utilitarian fuel pump station design, the building 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 47.  
Views of the Transportation Storage Building (M6-0689)

- a. South Elevation, View North
- b. Interior Storage Space, View North



## **FIRE STATION NO. 1 (M6-0695)**

### **Description**

The 1964 Fire Station No. 1 is located at the corner of 3rd Street and C Avenue in the KSC Industrial Area (Figure 48). It is a one-story concrete block building with a flat built-up roof, concrete foundation, and an irregular footprint that contains 10,088 square feet (NASA 2008a). It has one-over-one metal windows throughout. There is a three-bay fire truck garage on the east side of the building and a two-bay ambulance garage on the north end of the building. The remaining interior areas of the building contain a firefighter day room and kitchen, fire alarm dispatch room, weight room, and three bedrooms that sleep 12 firefighters per shift.

### **Evaluation**

The Fire Station No. 1 is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. The Fire Station has served as the KSC Industrial Area's primary Fire and Rescue Station since the time it was built to the present. It is not a unique facility as there are other fire stations located throughout KSC. 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, implementation, and termination of the Gemini, Apollo, Space Shuttle, or ISS programs or missions. The Fire Station No. 1 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 with utilitarian design, the building 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 48.  
Views of Fire Station No. 1 (M6-0695)

- a. Exterior Oblique, View Southwest
- b. Interior Garage Bay, View North



## CENTRAL SUPPLY (M6-0744)

### Description

The 1964 Central Supply building is located on 3rd Street between B Avenue SE and C Avenue SE in the KSC Industrial Area, immediately north of Supply Warehouse No. 1 (Figure 49). Since the 1960s, it has been the main shipping and receiving facility in support of facilities, equipment, systems, utilities, propellants, life support, laboratories, helicopter and railroad spares, as well as various consumables to ensure that KSC is fully operational. Central Supply is a one-story concrete block building with a combination flat and gable roof, concrete foundation, and an irregular footprint that contains 92,894 square feet (NASA 1966d). There are a number of pedestrian entrances throughout the building's exterior and metal roll-up doors on its shipping and receiving areas. The building's administrative offices are contained in the flat-roof section on the north (front) elevation. The administrative section of the building features one-over-one metal frame windows on all elevations. The main warehouse portion contains a covered receiving dock on the west end, a packing/crating area, a cool storage area, and general storage. Automated storage retrieval units are located within the warehouse and cool storage areas.

### Evaluation

The Central Supply building is one of several warehouse and storage facilities located throughout the operation areas of KSC. It is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. It is KSC's main shipping, receiving, and storage building for non-flight hardware and equipment, including janitorial, cafeteria, and office supplies. 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, implementation, and termination of the Gemini, Apollo, Space Shuttle, or ISS programs or missions. Central Supply 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 warehouse building with a utilitarian design, Central Supply 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 49.  
Views of Central Supply (M6-0744)  
a. Exterior Oblique, View Southeast  
b. Interior Warehouse Space, View Southeast



## SUPPLY WAREHOUSE NO. 1 (M6-0794)

### Description

The 1965 Supply Warehouse No. 1, located at the northwest corner of 4th Street and C Avenue SE, is a one-story warehouse with a metal gable roof, concrete block walls, and a concrete foundation and floor system (Figure 50). It has a rectangular footprint that contains 69,939 square feet (NASA 1966r). The building primarily serves the ISSP by storing flight and non-flight hardware as well as critical ground support equipment. There are five metal roll-up doors on the south (front) elevation and one on the north elevation adjacent to the KSC railroad system. The interior contains three main warehouse areas that are equipped with an Automatic Guided Vehicle retrieval system. The west end of the building contains long-term storage items and excess ISSP hardware and the east end contains items that are needed on a more day-to-day basis.

### Evaluation

The Supply Warehouse No. 1 is one of several warehouses and storage facilities located throughout the operation areas of KSC. It is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. Primarily associated with the storage of ISS flight and non-flight hardware, 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, implementation, and termination of the Apollo, Space Shuttle, or ISS 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 warehouse with a utilitarian design, the building 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 50.  
Views of Supply Warehouse No. 1 (M6-0794)

- a. Exterior Oblique, View Northwest
- b. Interior Warehouse Space, View West



## SUPPLY WAREHOUSE NO. 2 (M6-0698)

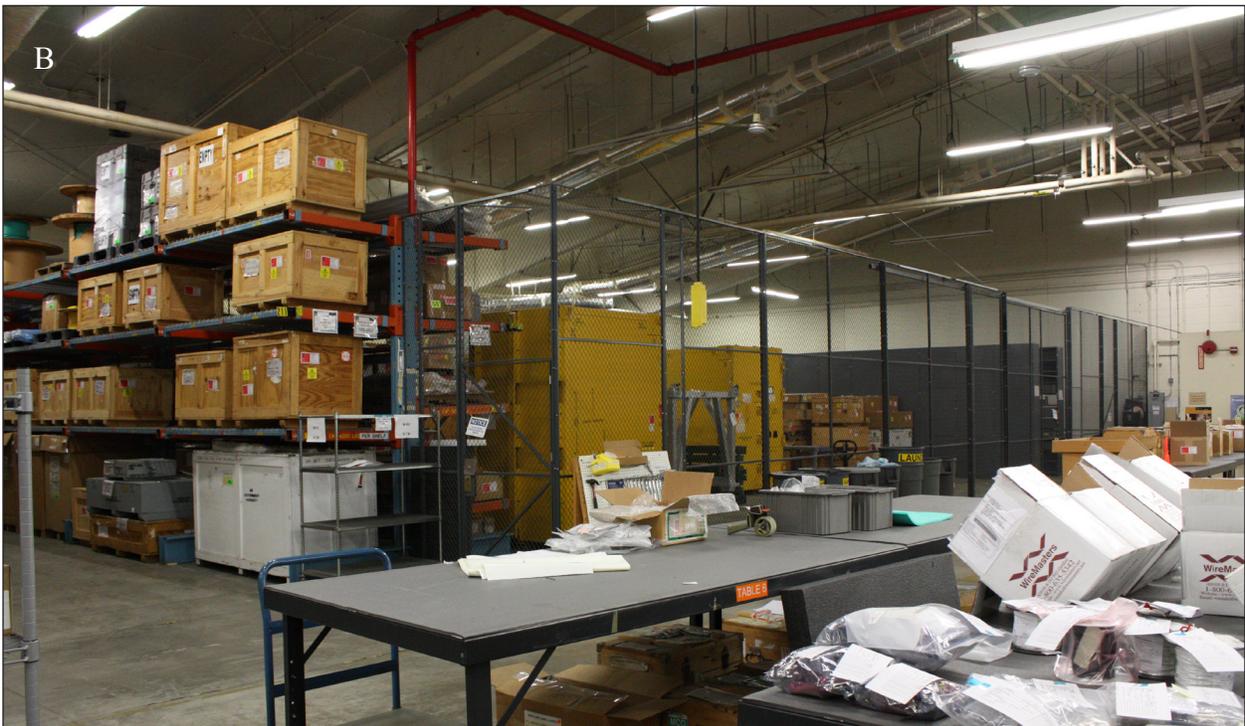
### Description

The 1965 Supply Warehouse No. 2, located at the intersection of 3rd Street and C Avenue SE, is a one-story warehouse with a built-up gable roof, concrete block walls, and a concrete foundation and floor system (Figure 51). It has a rectangular footprint that contains 35,580 square feet (NASA 1966s). There are three metal roll-up doors covered by metal awnings on the north (front) elevation, one on the east elevation, and two on the south (rear) elevation that face the KSC railroad system. The interior contains a central office area and storage warehouse, a packing/crating manufacturing area on the east end, and a receiving area on the west end. The building supports NASA and Air Force shipping and receiving of both flight and non-flight hardware through KSC's Carrier Assembly Payload Processing Systems.

### Evaluation

Supply Warehouse No. 2 is one of several warehouses and storage facilities located throughout the operation areas of KSC. As a flight and non-flight hardware storage warehouse, the Supply Warehouse No. 2 is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. The Supply Warehouse No. 2 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, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. The warehouse 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 with a utilitarian warehouse design, the building 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 51.  
Views of Supply Warehouse No. 2 (M6-0698)  
a. Exterior, View Southwest  
b. Interior Warehouse Space, View Southwest



## **PAINT & OIL LOCKER (POL) (M6-0894)**

### **Description**

The 1965 POL is located on 4th Street between B Avenue SE and C Avenue SE in the KSC Industrial Area (Figure 52). The one-story concrete block building is a storage facility for volatile liquids like alcohol, solvents, paint thinner, detergents, hard cleaners, insecticides, grease, oil, lubricants, etc. Additional open-air storage sheds to the west of the main building store gas cylinders and paint. The POL has a flat built-up roof and a concrete foundation and floor. The long and narrow rectangular building contains 10,000 square feet that is divided into four storage cells identified with letters A, B, C, and D (NASA 1966n). Each cell is accessed by a pair of louvered pedestrian doors on the west (front) elevation. The interiors of the storage cells contain a variety of storage shelves with concrete floors and exposed metal roof system on the ceiling.

### **Evaluation**

The POL is one of several POL storage facilities located throughout the operation areas of KSC. It is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. It is a storage building for hazardous chemicals and solvents like paint, paint remover, oil, etc. The POL 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, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. The POL 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 storage building with a utilitarian design, the POL 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 52.  
Views of the POL (M6-0894)  
a. Exterior Oblique, View Northeast  
b. Interior Storage Area, View Northwest



## **AUDITORIUM AND TRAINING BUILDING (M7-0351)**

### **Description**

The 1964 Auditorium and Training Building is located on Avenue D immediately east of the Headquarters Building in the KSC Industrial Area (Figure 53). It has a flat built-up roof, precast concrete panel walls, a concrete foundation, and a rectangular footprint that contains 9,224 square feet (NASA 1965b). The main entrance has a new mechanical sliding door on the east (front) elevation that is covered by a concrete awning. The interior contains employee orientation classrooms, an auditorium, and a second-floor projector room. The building originally had four classrooms, although two walls were removed at an unknown date to create two larger classrooms. The auditorium and projector room remain in original condition.

### **Evaluation**

The Auditorium & Training Building is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. No significant press communication or other activities took place in the Auditorium & Training Building. The building is recommended not eligible under NRHP Criterion A because is not directly associated with activities of significance that were associated with the development, component testing, implementation, and termination of the Gemini, Apollo, Space Shuttle, or ISS programs or missions. Auditorium & Training 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 with a utilitarian design, the Auditorium & Training Building 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 53.  
Views of the Auditorium and Training Building (M7-0351)

- a. Exterior Oblique, View Northwest
- b. Interior Auditorium, View North



# ENGINEERING DEVELOPMENT LABORATORY (EDL) (M7-0409)

## Description

The 1966 EDL was originally built as the Flight Crew Training Building, which was expanded with a substantial two-story addition on its east end in 1967 (Figure 54) (NASA 1966f). The building is located immediately south of the SSPF on the east end of the KSC Industrial Area.

The EDL has a concrete frame structure with concrete-block walls, a concrete foundation, a flat built-up roof, and an irregular footprint that contains 47,493 square feet on the first floor and 17,822 square feet on the second floor. The original two-story high-bay area contains 17,770

Figure 54.

Views of the EDL (M7-0409)

a. Exterior Oblique, View Southeast

b. Original High Bay Astronaut Training Area, View East

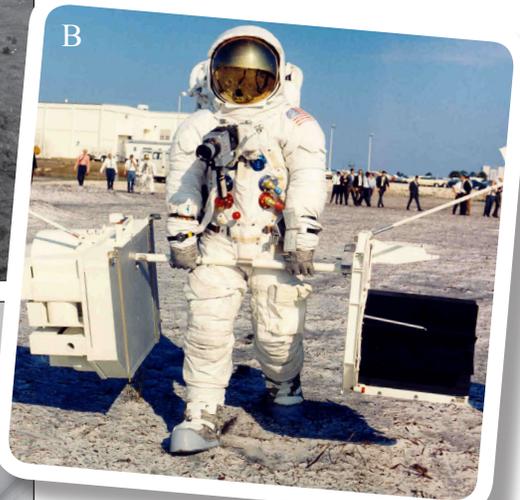


square feet. The simulators are no longer located in the high-bay, although the area was open for viewing by tourists and other interested visitors until an unknown date in recent years.

The high bay was designed and constructed for the unique purpose of training astronauts for the Apollo missions. According to a *Spaceport News* article published January 20, 1966, the building was patterned after the astronauts' training facility used at Johnson Space Center in Houston, Texas, although "training at the two Centers will differ in that KSC will emphasize specific mission objectives while Houston training is of a more general nature" (NASA 1966i:3). The building was opened by the summer of 1967 in time to prepare astronauts for the first Apollo/Saturn IB manned flights. Training activities took place in the building's high-bay, which housed two mission simulators that are no longer intact. One simulator duplicated the interior of the Apollo spacecraft and the other LEMs (NASA 1966i:3). As seen in Figure 55b, certain astronaut

Figure 55.  
Historic Views of the EDL

- a. 1966 Aerial View of the original EDL Before 1967 Addition  
(Source: KSC Library Archives, Photograph 100-KSC-66C-5746)
- b. 1970 Photograph of an Apollo Astronaut Training Outside of EDL, View North  
(Source: KSC Library Archives, Photograph KSC-70PC-15)
- c. 1966 Photograph of Apollo Flight Simulator in EDL High Bay  
(Source: KSC Library Archives, Photograph 108-KSC-66C-9209)



equipment tests and training activities also took place in what was at the time a vacant sandy field south of the building, which is now overgrown with vegetation.

The entire facility includes the main building, Equipment Building (M7-0409A), three portable type storage buildings, an empty shed, and the ISS visitor's facility. Current operations at the site include office and laboratory space that provide facilities for complete system design, development, prototype, assembly, integration, testing, and verification of flight systems. These labs include the Advanced Imaging Laboratory, Electronic Development Lab, Power Systems Development Lab, Control Systems Development Lab, Instrumentation & Data Acquisition Development Lab, Transducers & Sensors Development Lab, Range Technologies Development Lab, and Embedded Systems Development Lab.

Over the years, the EDL has undergone several modifications with the removal of its cooling towers in 1994. The other exterior additions included the ISS visitor's facility on its south side in 1998, the interior renovation of its office and laboratory spaces, and the construction of a skywalk connecting the building to the SSPF on the north. The original high-bay area on the south side of the building, which housed the Apollo astronaut training simulators, remains intact.

## **Evaluation**

The EDL is recommended individually eligible to the NRHP under Criteria A and B in the area of Space Exploration as a significant Apollo astronaut training facility (Figure 55). The building is eligible under Criterion A for its association with significant events that occurred in the high bay area on its south side. The laboratories and office spaces on its north and west sides were secondary support areas that are not directly associated with the astronaut training activities in the high bay. The building is eligible under Criterion B for its association with the Apollo astronauts, all of whom trained on mission simulators during its period of significance from 1966 to 1972.

The EDL retains five NRHP aspects of integrity, including location, setting, design, materials, and workmanship. The building's integrity of feeling and association are compromised by the fact that the original Apollo training simulators are no longer intact. Historic views such as Figure 55c show what the simulators looked like and their configuration in the high bay. While the simulators are gone, the remainder of the high bay's original historic fabric is intact, including the ceiling, wall, and floor materials, and the mezzanine gallery on the north wall overlooking the area. The building retains enough physical integrity to convey its historic significance in the context of the Apollo Program.

The EDL's NRHP boundary is defined as surrounding the footprint of the original 1966-1967 portion of the building (Figure 56). The boundary does not include any of the support buildings on the south side nor does it include the walkway that connects the EDL to the SSPF to the north.

Figure 56.  
EDL NRHP Boundary



Source: ESRI Resource Data

## **ENGINEERING DEVELOPMENT LABORATORY (EDL) EQUIPMENT BUILDING (M7-0409A)**

### **Description**

The 1966 EDL Equipment Building is located immediately south of the main EDL Building (M7-0409) (Figure 57). It is a concrete block building with a gently sloping shed built-up roof, concrete foundation, and L-shaped footprint that contains 2,983 square feet (NASA 1966h). There is a louvered ventilation panel in the wall of the south elevation. Metal roll up doors and personnel doors provide access. Originally the EDL's Generator and Chiller Building, it now houses a chilled and hot water pump system, power equipment, with a storage room on the east end.

### **Evaluation**

The EDL Equipment Building is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. As the EDL's chiller and hot water pump building, 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, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. The EDL Equipment 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 NRHP Criterion C, because it does not clearly embody the distinctive characteristics of a type or method of construction.

Figure 57.  
Views of the EDL Equipment Building (M7-0409A)

- a. Exterior Oblique, View Northwest
- b. Interior, View Northeast



## RADIOTHERMALISOTOPIC GENERATOR (RTG) FACILITY (M7-1472)

### Description

The 1964 Radiothermalisotopic Generator (RTG) Facility, originally called the Ordnance Storage Building, is located on 10th Street SE in the southeast corner of the KSC Industrial Area (Figure 58). Most recently, the building was used to conduct power source checks for deep space vehicles like the *Mars Science Laboratory*, *Galileo*, and *Cassini*. The building has a flat built-up roof, concrete block walls, and concrete floor and foundation. It has a rectangular footprint that contains 3,788 square feet in two sections, including the main high bay and an offset one-story mechanical room on the east elevation (NASA 1965m). There are three metal vertical-lift doors on the south elevation but two of them are no longer functional and have been sealed on the interior with concrete block. The building is surrounded by a chain-link fence and there is a metal security checkpoint building at the southeast entrance. The interior of the high bay features a suspended acoustic tile ceiling with fluorescent lights, an overhead bridge crane, painted concrete block walls, and a tile floor.

### Evaluation

The RTG Facility is recommended not eligible for individual listing on the NRHP or as a contributing resource in a larger historic district. It was originally used as an ordnance storage and installation building and was most recently used to conduct power source checks for deep space vehicles. 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, implementation, and termination of the Gemini, Apollo, Space Shuttle, or ISS programs or missions. It 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 with a utilitarian design, the RTG Facility 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 58.  
Views of Radiothermalisotopic Generator (RTG) Facility (M7-1472)

- a. Southwest Elevation, View Northeast
- b. Interior Work Area, View Southwest



## KARS PARK

KARS Park is a recreation complex located on the south end of KSC on East Hall Road off of State Route 3. The park contains picnic pavilions, campsites, tennis courts, a marina, playgrounds, and other facilities. Below are the descriptions of three facilities surveyed followed by their evaluation as a group.

### INDOOR RANGE AND CLUBHOUSE (P6-1435)

#### Description

The 1966 Indoor Range & Clubhouse was moved to this location from CCAFS in 1969 (Figure 59). It is a one-story frame building with a front-gable corrugated metal roof, corrugated metal and plywood exterior, and a concrete foundation (NASA 1966l). The north (front) elevation features

Figure 59.  
Views of the KARS Park Indoor Range & Clubhouse (P6-1435)

a. Exterior Oblique, View South

b. Interior Community Area, View South



a pedestrian entrance that is covered by a corrugated metal awning with wood posts, and a row of five side-by-side, two-light, horizontal sliding windows. There is a shed-roof storage room addition on the rear of the building, as well as a covered breezeway that leads to a concrete block rest room building. The recently remodeled interior of the clubhouse building contains an open meeting/dining area and kitchen.

## RECREATION BUILDING (P6-1638)

### Description

The 1963 Recreation Building was moved from CCAFS in 1970 (Figure 60). Though it is referred to by a single name and building number, it is actually composed of three separate, identical buildings arranged in a U-shape with narrow breezeways between them. They are one-story

Figure 60.  
Views of the KARS Park Recreation Building (P6-1638)

a. Exterior, View West

b. Interior Community Area, View Northwest



frame buildings with asphalt-shingle gable roofs, vinyl siding exteriors, and concrete block pier foundations. They have long, narrow, rectangular footprints that contain a total of 6,480 square feet (NASA 1970b). There are overhanging eaves along the inside of the U-shaped building that cover the buildings many pedestrian entrances into the various interior activity areas. There are replacement four-light windows throughout the building. The interior areas in the north building include a convenience store, office, and storage. The west building contains a dance instruction room, storage, and a KSC conference room with kitchen. The south building contains American Legion Post 332, which includes a kitchen, bar, dining area, and ceremony room.

## **ARTS & CRAFTS BUILDING (P6-1738)**

### **Description**

The 1963 Arts & Crafts Building was moved to KARS Park from CCAFS in 1970 (Figure 61). It is a one-story frame building with an asphalt-shingle gable roof, vinyl siding exterior, and concrete-block pier foundation. It has a long, narrow, rectangular footprint that contains 2,160 square feet (NASA 1970a). There is an overhanging eave on the east (front) elevation that covers the building's four pedestrian entrances, which are evenly spaced along the front. There are replacement four-light windows throughout the building. The interior contains four rooms for recreational use with tile floors and drywall walls and ceilings

### **Evaluation of Three KARS Park Properties**

The KARS Park buildings were originally built in the 1960s on the CCAFS and moved to the recreation area for NASA/contractors in 1970. All three buildings are recommended not eligible for individual listing on the NRHP or as contributing resources in a larger historic district. The buildings are recommended not eligible under NRHP Criterion A, because they are not directly associated with activities of significance that were associated with the development, component testing, implementation, and termination of the Apollo, Space Shuttle, or ISS programs or missions. The buildings are recommended not eligible under NRHP Criterion B, because they are not buildings where persons who made lasting achievements to these programs worked or convened. The three KARS Park buildings are recommended not eligible under NRHP Criterion C, because they do not clearly embody the distinctive characteristics of a type or method of construction.

Figure 61.  
Views of the KARS Park Arts & Crafts Building (P6-1738)

- a. Exterior Oblique, View Northwest
- b. Interior Work Area, View Southwest



## KSC BRIDGES

The three bridges surveyed at KSC feature double-leaf, simple trunnion bascule designs. They consist of two steel trusses or girders (leaves) that rotate from a horizontal to near vertical position on a trunnion, or axle, through the use of counterweights. They have approach spans built of standard plan concrete girders on piers with aluminum railings typical of bridges built in the 1950s and 1960s. Descriptions of each individual bridge are given below, followed by an evaluation of all three as a single resource group.

### HAULOVER CANAL BRIDGE (E4-2414)

#### Description

The 1965 Haulover Canal Bridge is a two-lane, double-leaf bascule bridge that crosses over the Haulover Canal at the northern end of KSC, approximately 7.5 miles north of the intersection of Kennedy Parkway North and Max Brewer Memorial Parkway (SR 402) (Figure 62). The canal connects Mosquito Lagoon on the east with the Indian River on the west. The bridge has reinforced concrete approaches and support piers, aluminum handrails, and the bascule span creates an approximately 100-foot channel when open. The concrete approaches are 41.25x28 feet, and the bascule span is 142.75x28 feet. Attached to the east side of the bridge is a concrete control house containing 659 square feet, including a mechanical room below and operator control room on top. The operator control room has a flat roof with metal and glass walls that flare out from bottom to top (NASA 1966k; Colburn and Tzareff 2011:6).

Figure 62.  
Haulover Canal Bridge (E4-2414), View Northeast



The Haulover Canal Bridge was built in 1965 to improve KSC's northern access point over the Haulover Canal. The canal was built by the Federal Government in 1884, replacing an earlier 1854 canal, to connect the Mosquito Lagoon on the east with the Indian River on the West. It was an important transportation link in Florida's inland water way system, especially for the movement of local citrus fruits and fish. The town of Allenhurst was established along the canal in 1888 as a local citrus and fishing community. The narrow, old bridge that crossed the canal was insufficient for NASA's transportation needs and it was replaced with the current double-leaf bascule bridge (Colburn and Tzareff 2011:3).

## INDIAN RIVER BRIDGE (M3-0003)

### Description

The 1964 Indian River Bridge is a divided, four-lane, double-leaf bascule bridge on NASA Causeway West, also known as SR 405, which crosses over the Indian River (Figure 63). The bridge connects Titusville, Florida, to KSC traveling east and is located approximately four miles west of the KSC Industrial Area. The bridge has reinforced concrete approaches, aluminum handrails, and the bascule span creates an approximately 105-foot wide channel when open. The concrete bridge approaches are 1,460x28 feet and the bascule span is 142.75x28 feet. There is a three-story concrete control house that is 14.33x12.75 feet. The control house is capped by a metal and glass control room with a flat roof and walls that flare out from bottom to top (NASA 1965d; Fears and Tzareff 2007:3).

Figure 63.  
Indian River Bridge (M3-0003) Control House, View Southwest



## BANANA RIVER BRIDGE (M7-1150)

### Description

The 1964 Banana River Bridge is a two-lane, double-leaf bascule bridge on NASA Causeway East, also known as SR 405, which crosses over the Banana River (Figure 64). The bridge connects KSC on the west with CCAFS on the east and is located approximately two miles east of KSC Industrial Area. The bridge has reinforced concrete approaches and aluminum handrails and the bascule span creates an approximately 100-foot wide channel when open. It is 925x28 feet wide, and reaches a height of approximately 38 feet above the Banana River. There is a three-story concrete control house on the south side of the bridge that is capped by a metal and glass control room with a flat roof and walls that flare out from bottom to top (NASA 1964a; Fears and Tzareff 2007:2). The Banana River Bridge was recently renamed the Roy D. Bridges Bridge in 2003.

Figure 64.  
Banana River Bridge (M7-1150), View Northwest



### Evaluation of Three Bridge Properties

The Indian River Bridge, Banana River Bridge, and Haulover Canal Bridge are recommended eligible to the NRHP as significant transportation-related structures associated with the development of KSC during their period of significance from 1964 to the present (Figure 65). They are eligible under Criterion A in the areas of Space Exploration, Community Planning and Development, and Transportation for their association with the Apollo, SSP, and ISS programs. They are also eligible under Criterion C in the area of Engineering as significant local examples of simple trunnion bascule bridges.

The three bridges are a cohesive set of transportation structures designed and built simultaneously for KSC by the Corps. They each feature a double-leaf, simple trunnion bascule design, a historic

Figure 65.

#### Historic Views of the KSC Bridges

a. 1965 View of the Banana River Bridge

(Source: KSC Library Archives, Photograph 100-KSC-65-12643)

b. 1964 Aerial View of the Banana River Bridge (Source: NASA:1964a)

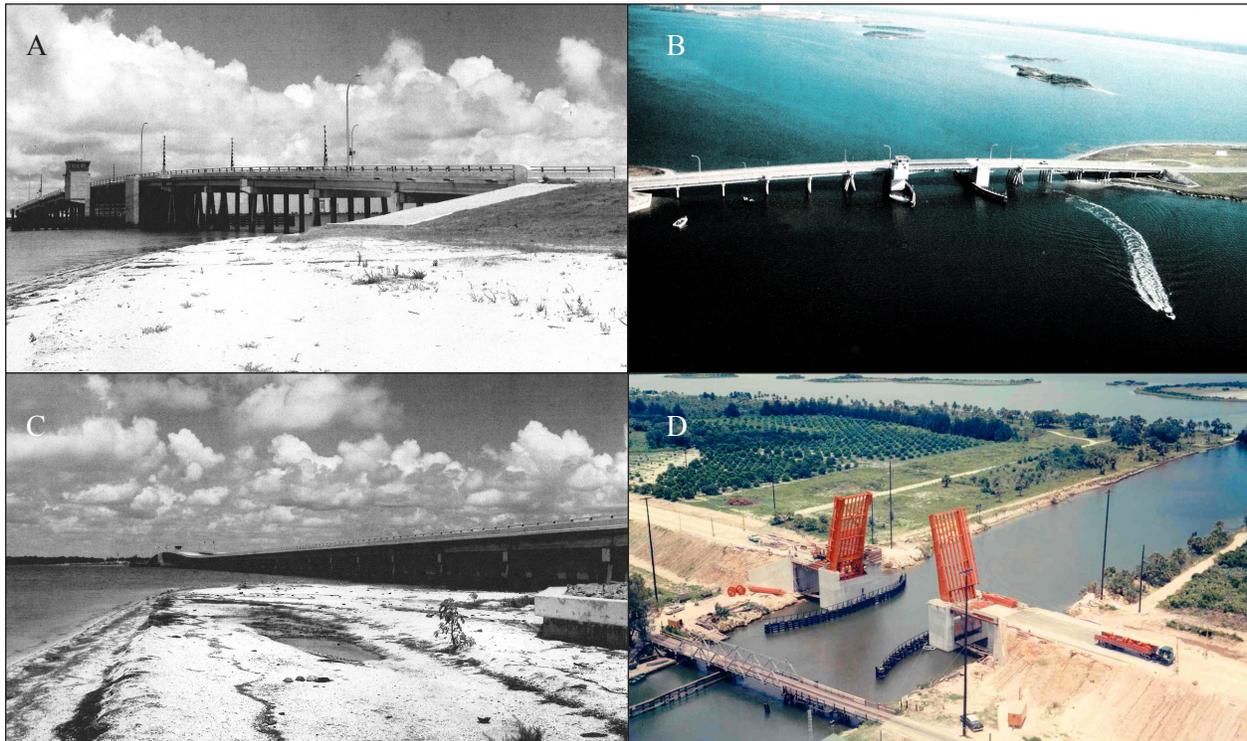
c. 1965 View of the Indian River Bridge

(Source: NASA:1965e)

d. 1965 View of the Haulover Canal Bridge Under Construction with Bascules In Raised Position.

Note the Earlier Swing Bridge in Foreground and Citrus Grove in Background

(Source: KSC Library Archives, Photograph 100-KSC-65-12643)



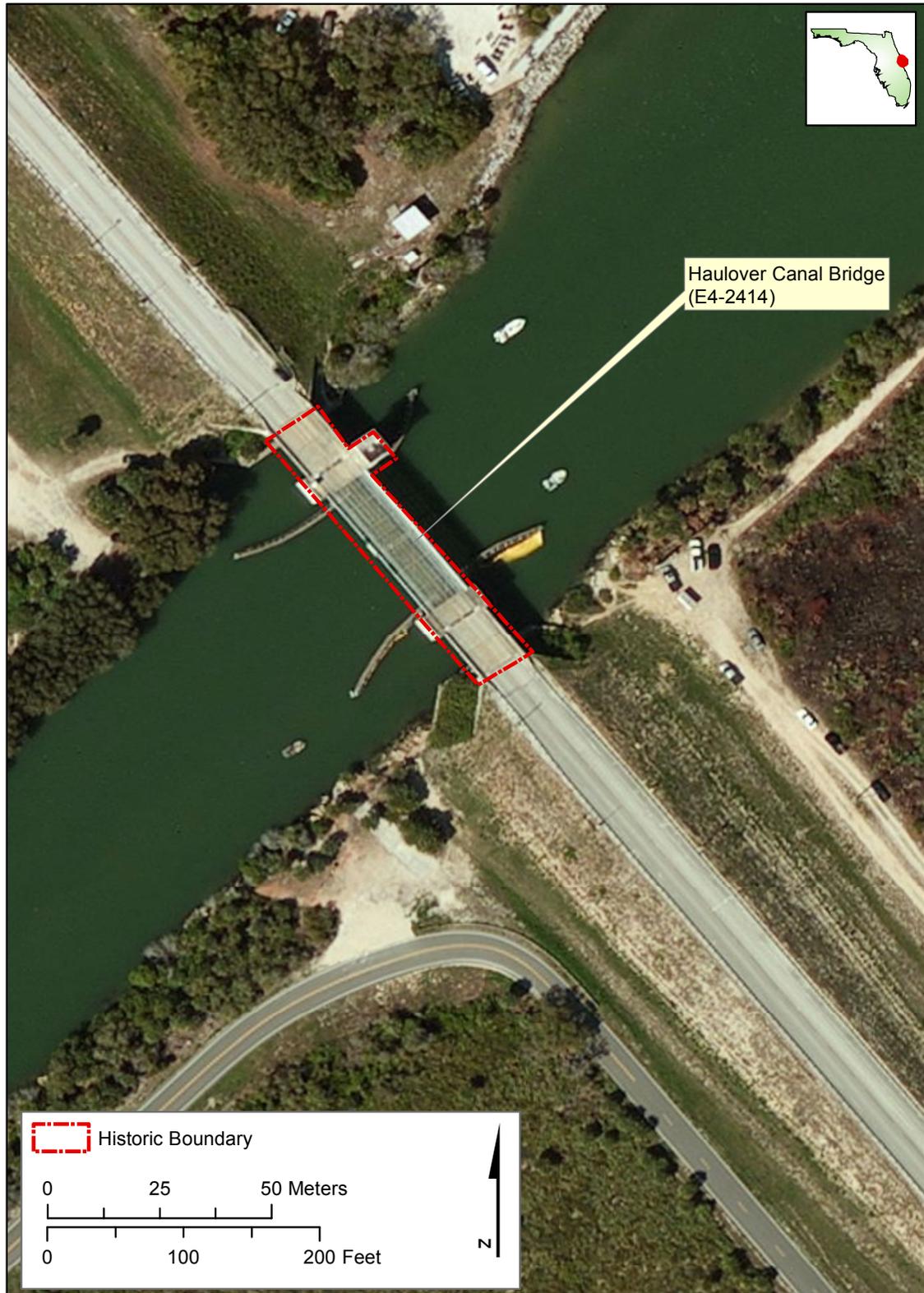
bridge type found along Florida's coast. The bascule, or drawbridge, was first developed in Chicago, Illinois, and Milwaukee, Wisconsin, in the early twentieth century. This bridge type provided a number of advantages over other movable types of bridges like vertical lift and swing bridges. Earlier swing span bridges in particular, like the one replaced by the Haulover Canal Bridge, were problematic because they featured a central pier that partially blocked the waterway channel. The bascule bridge was less obstructive of the channel and quicker to open (Jackson 2004:90; Parsons Brinckerhoff and Engineering and Industrial Heritage 2005:123-124).

The three bridges are associated with the early 1960s development of KSC on Merritt Island, which contributed to the dramatic growth and economic development of the surrounding communities. There was no major city in the area to absorb this population boom, which spread south and west into Cocoa Beach, Cocoa, Titusville, and other areas. Between 1950 and 1960 the population of Brevard County grew from 23,653 to 111,435, an increase of 371 percent, which made it one of the fastest growing counties in the country at the time. By 1963, just before the three bridges were built, the county population grew to 156,688, with 42 new residents arriving every day (Benson and Faherty 1978:14-4).

The construction of the bridges and other transportation infrastructure was essential for the flow of thousands of new employees, building materials, and spacecraft parts to and from KSC. Prior to the Indian and Banana River bridges, the main route into KSC was up State Route 3 from State Route A1A in the south. Getting from the KSC Industrial Area to CCAFS required a long trip back down State Route 3 and around to State Route 401 on the Capeside. The construction of these two bridges, along with dredging of the Banana River to create the NASA Causeway, provided direct routes from Titusville and other mainland communities to KSC and CCAFS for the first time.

The three KSC bridges retain all seven NRHP aspects of integrity, including location, setting, design, materials, workmanship, feeling, and association. The boundaries for each of the bridges are defined as the footprints of the bridges as measured from their concrete abutments on either end (Figure 66-68). These boundaries include all of the bridges' historic fabric, including the steel bascule portions, control houses, and reinforced concrete approaches.

Figure 66.  
NRHP Boundary for the Haulover Canal Bridge



Source: ESRI Resource Data

Figure 67.  
NRHP Boundary for the Indian River Bridge



Source: ESRI Resource Data

Figure 68.  
NRHP Boundary for the Banana River Bridge



Source: ESRI Resource Data

PAGE INTENTIONALLY LEFT BLANK

## V. CONCLUSION

New South Associates conducted background research, a historic architectural survey, historic context development, and NRHP evaluation of 45 facilities that have reached 45-50 years of age at KSC. The surveyed facilities represent a wide cross-section of building and structure types associated with the development of KSC at the beginning of the unmanned/manned space flight era, many of which were modified for use during the later Space Shuttle era. They include administrative support buildings, transportation infrastructure, ordnance-related buildings, a combined telemetry/spacecraft checkout building, astronaut training buildings, storage warehouses, and maintenance and support facilities. While the majority of these facilities do not reach the level of historic significance necessary for eligibility to the NRHP, they nonetheless contribute to an understanding of KSC's development and the nation's history of space travel.

The KSC Industrial Area was evaluated as a potential historic district and is recommended not eligible as it lacks the cohesiveness of an NRHP-eligible historic district and subsequently, when evaluated as a group, the buildings do not convey the historic significance of the U.S. Space Program under Criterion A, are not associated with a significant person or people under Criterion B, and do not represent the distinctive characteristics of a type, period or method of construction under Criterion C.

Six of the surveyed facilities are recommended eligible for individual listing in the NRHP, including the EDL (M7-0409), Missile Assembly Building AE (60680), Beach House (K8-1699), Banana River Bridge (M7-1150), Indian River Bridge (M3-0003), and Haulover Canal Bridge (E4-2414). The Barge Terminal Facility (K7-1005) is recommended eligible as a contributing resource to the NRHP-eligible VAB. These six individually eligible facilities possess exceptional significance at the local and national levels and meet the NRHP Criteria for Eligibility in the areas of Space Exploration, Community Planning and Development, Transportation, and Engineering

**Table 2. List of Buildings Recommended Eligible for the NRHP**

Building #	FMSF Survey #	Name	Property Type
M7-0409	8BR2969	Engineering Development Laboratory	Astronaut Training Facility
60680	8BR2976	Missile Assembly Building AE	Vehicle Processing and Communications
K7-1005	8BR2986	Barge Terminal Facility	Transportation
K8-1699	8BR2990	Beach House	Astronaut Training Facility
M7-1150	8BR2955	Banana River Bridge	Transportation
M3-0003	8BR2956	Indian River Bridge	Transportation
E4-2414	8BR2957	Haulover Canal Bridge	Transportation

PAGE INTENTIONALLY LEFT BLANK

## REFERENCES CITED

Advisory Council on Historic Preservation

- 1991 *Balancing Historic Preservation Needs with the Operation of Highly Technical or Scientific Facilities*. Available at <http://www.achp.gov/balancingsum.html>. Accessed on April 9, 2013.

Barton, David F. and Richard Levy

- 1984 *An Architectural and Engineering Survey and Evaluation of Facilities at Cape Canaveral Air Force Station, Brevard County, Florida*. Submitted to the National Park Service, Southeast Regional Office by Resource Analysts, Inc.

Benson, Charles D. and William Barnaby Faherty

- 1978 *Moonport: A History of Apollo Launch Facilities and Operations*. "The Spaceport's Impact on the Local Communities." NASA Special Publication 4204 in the NASA History Series. <http://history.nasa.gov/SP-4204/contents.html>. Accessed July 6, 2012.

Butowsky, Harry A.

- 1984 *Man in Space: National Historic Landmark Theme Study*. Published by the National Park Service, Department of the Interior.

Center for Historic Preservation and Technology, Texas Tech University

- 1989 "Indian River Bridge." Florida Historic Bridge Survey Inventory Form. On file at the Florida Division of Historical Resources.

Colburn, Mike and Susan S. Tzareff

- 2011 Haulover Canal (HAUL) (E4-2414) PRL 200 SWMU [Solid Waste Management Unit] Assessment Report (Revision 0) [KSC-TA-11321]. Kennedy Space Center, Florida. Report prepared by MESC/IHA Environmental Services Branch, Environmental Sampling, Analysis and Monitoring Section. John F. Kennedy Space Center, Florida.

Curie, Michael, Kyle Herring, and Candrea Thomas

- 2011 "NASA's Proud Space Shuttle Program Ends With *Atlantis* Landing," NASA press release. Available at: [http://www.nasa.gov/home/hqnews/2011/jul/HQ\\_11-240\\_Atlantis\\_Lands.html](http://www.nasa.gov/home/hqnews/2011/jul/HQ_11-240_Atlantis_Lands.html). Accessed on March 8, 2012.

Deming, Joan, and Patricia Slovinac.

- 2007 *NASA-Wide Survey and Evaluation of Historic Facilities and Properties in the Context of the U.S. Space Shuttle Program, John F. Kennedy Space Center, Brevard County, Florida*. Submitted to the National Aeronautics and Space Administration Kennedy Space Center Environmental Management Branch by Archaeological Consultants Inc. for InoMedic Health Applications.
- 2008 *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 by Archaeological Consultants, Inc. for Dynamac.
- 2012 *Historical Survey and Evaluation of Facility 49635/Environmental Health/Health Physics Facility (BOSU), Cape Canaveral Air Force Station, Brevard County, Florida*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch by Archaeological Consultants, Inc., for InoMedic Health Applications.

Deming, Joan, Trish Slovinac, Christopher Berger, and Beth Horvath

- 2012 *Historical Survey and Evaluation of the Jay Jay Bridge, Railroad System, and Locomotives, John F. Kennedy Space Center, Brevard County, Florida*. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch by Archaeological Consultants, Inc., for InoMedic Health Applications.

Deming, Joan, Trish Slovinac, Christine Newman, and Tesa Norman

- 2010 *Historical Survey and Evaluation of the Space Station Processing Facility, John F. Kennedy Space Center, Brevard County, Florida*. Submitted to the National Aeronautics and Space Administration, Kennedy Space Center, Environmental Management Branch by Archaeological Consultants Inc. for InoMedic Health Applications.

Dismukes, Kim

- 2009 “The Apollo Program.” Electronic document, <http://spaceflight.nasa.gov/history/apollo/index.html>. Accessed on November 30, 2012.

Fears, Micah Q. and Susan S. Tzareff

- 2007 Indian River Bridge (M3-0003), NASA/Kennedy Parkway Interchange Bridge (M6-0232), Banana River Bridge (MT-1150), PRL #151 SWMU [Solid Waste Management Unit] Assessment, Report (Revision 0) [KSC-TA-8262] Kennedy Space Center, Florida. Report prepared by JBOSC/CHS Environmental Services, John F. Kennedy Space Center. John F. Kennedy Space Center, Florida.

Garber, Steve and Roger Launius

- 2005 "A Brief History of NASA." Available at <http://history.nasa.gov/factsheet.htm>. Accessed July 11, 2012.

Hinder, Kimberly, Carrie Scuphold, and Joan Deming

- 2001 Survey and Evaluation of NASA Facilities with the Cape Canaveral Air Force Station. Submitted to the National Aeronautics and Space Administration, Environmental Management Branch by Archaeological Consultants, Inc. for DYNAMAC Corporation.

Jackson, Roy A.

- 2004 *Historic Highway Bridges of Florida*. Florida Department of Transportation, Tallahassee, Florida. Available at <http://www.dot.state.fl.us/emo/pubs/bridgebk.pdf>. Accessed on July 10, 2012.

Mullane, Mike

- 1992 "The Beach House." *Air & Space*. June/July.

National Aeronautics and Space Administration (NASA)

- 1960 "Astronaut's Training Building [Beach House] (K8-1699)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1961 "Master Development Plan for NASA Technical Facilities at AMR, Revision II." George C. Marshall Space Flight Center, Huntsville, Alabama. Launch Facilities Design Group, National Aeronautics & Space Administration, Launch Operations Directorate, Atlantic Missile Range. Manuscript on file at the John F. Kennedy Space Center Library Archives.
- 1963 "Engineering and Operations Bldg. (60650)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1964a "Banana River Bridge (M7-1150)." Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.

- 1964b “Barge Terminal Facility (K7-1005).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1964c “Data Manual for Vertical Assembly Building, Associated Facilities and Site Work.” 9 June, 1964. On file at the John F. Kennedy Space Center Library Archives.
- 1964d “Dispensary [Occupational Health Building] (M6-0495).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1964e “Electromagnetic Laboratory (M6-0336).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1964f “Emergency Breathing Equipment Maintenance Building (66220). Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1964g “Missile Assembly Building AE (60680).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965a *Apollo/Saturn V MILA Facilities Descriptions*. K-V-011. On file at the John F. Kennedy Space Center Library Archives.
- 1965b “Auditorium & Training (M7-0351).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965c “Base Operations Building (M6-0339).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965d “Hangar M Annex (55005).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965e “Indian River Bridge (M3-0003).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965f “Industrial Area Support Building (M6-0493).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965g “Ordnance Storage Magazine No. 1 (K7-0255).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.

- 1965h “Ordnance Storage Magazine No. 2 (K7-0306).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965i “Ordnance Storage Magazine No. 3 (K7-0356).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965j “Ordnance Storage Magazine No. 4 (K7-0405).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965k “Ordnance Lab No. 1 (K7-0506).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965l “Ordnance Lab No. 2 (M7-1417).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965m “Radiothermalisotopic Generator Facility (M7-1472) [RTG Facility].” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965n “Pressure Proof Test Cell (60425).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1965o “Support Building (M6-0589).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966a Apollo/Saturn V Facility Description, Volume I of IV Volumes, Industrial Area and Remote Facilities Description. K-V-012. (1 October 1966.) On file at the John F. Kennedy Space Center Library Archives.
- 1966b “Automotive Maintenance & Service [Propellants Shop] (M6-0688).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966c “Base Support Building (M6-486).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966d “Central Supply Building (M6-0744).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966e “Converter/Compressor Building (K7-0468).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.

- 1966f “Engineering Development Laboratory (M7-0409).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966g “Environmental Health Building (L7-1557).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966h “Equipment Building [Engineering Development Laboratory] (M7-0409A).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966i “Flight Crew Training Building Approved.” *Spaceport News*. 20 January 1966.
- 1966j “Fueling Facility [Transportation Storage Building] (M6-0689).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966k “Haulover Canal Bridge (E4-2414).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966l “Indoor Range & Clubhouse (P6-1435).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966m “KSC Ordnance Storage Facility Open for Business.” *Spaceport News*. 13 January 1966.
- 1966n “POL Building (M6-0894).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966o “Solar Array Test Building (60540).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966p “Solar Test Facility Supports Satellite.” *Spaceport News*. 18 February 1966.
- 1966q *Space Control Document – Merritt Island Industrial Area*. On file at the John F. Kennedy Space Center Library Archives.
- 1966r “Supply Warehouse No. 1 (M6-0794).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1966s “Supply Warehouse No. 2 (M6-0698).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.

- 1967 “Spaceport Central (M6-0409).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1968a “Converter/Compressor Operations Building (K7-0569).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1968b “Operations Building (K7-0416).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1970a “Arts and Crafts Building (P6-1738).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1970b “Recreation Building (P6-1638).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1971 “Weather Sub-Station ‘B’ [Storage Facility] (J6-0553).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1972 “Master Plan.” Manuscript on file at the KSC Master Planning Office.
- 1982 “Paint Storage Building – Hangar L (54905).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 1999a “KSC Conference Center and Astronaut Training Building ((Beach House) K8-1699).” On file at the John F. Kennedy Space Center Real Property Office.
- 2000 “Gemini Overview.” Available at <http://www-pao.ksc.nasa.gov/history/gemini/gemini-overview.htm>. Accessed April 4, 2013.
- 2001 “NASA Facts: NASA’s Expendable Launch Vehicle [ELV] Program Center.” [http://www.nasa.gov/centers/kennedy/pdf/167408main\\_ELVrev.pdf](http://www.nasa.gov/centers/kennedy/pdf/167408main_ELVrev.pdf). Accessed September 18, 2012.
- 2006 “Evaluating Historic Resources Associated with the Space Shuttle Program: Criteria of Eligibility for Listing in the National Register of Historic Places (NRHP).” Unpublished manuscript on file at the John F. Kennedy Space Center Historic Preservation Office.
- 2008a “Fire Station No. 1 (M6-0695).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.

- 2008b “Alligators and Rocket Ships – National Wildlife Refuge.” <http://www.nasa.gov/centers/kennedy/shuttleoperations/alligators/kscovrv.html>. Accessed July 5, 2012.
- 2009a “Skylab.” Available at: [http://www.nasa.gov/mission\\_pages/skylab/](http://www.nasa.gov/mission_pages/skylab/). Accessed March 30, 2012.
- 2009b “The Apollo Program.” Electronic document, [http://www.nasa.gov/mission\\_pages/apollo/missions/index.html](http://www.nasa.gov/mission_pages/apollo/missions/index.html), accessed September 18, 2012.
- 2010 “Apollo-Soyuz Test Project.” Available at: <http://history.nasa.gov/astp/>. Accessed March 30, 2012.
- 2011a “Converter/Compressor Building (K7-0468).” Real Property Record. On file at the John F. Kennedy Space Center Real Property Office.
- 2011b “NASA Astronauts.” NASA database, published online through The Guardian at <http://www.guardian.co.uk/news/datablog/2011/jul/08/us-astronauts-listed-nasa#data>. Accessed September 19, 2012.

#### National Park Service (NPS)

- 1983 “Cape Canaveral Air Force Station.” National Historic Landmark Federal Agency Nomination. Washington D.C.: National Park Service, History Division.

#### Parsons Brinckerhoff and Engineering and Industrial Heritage

- 2005 *A Context for Common Historic Bridge Types – NCHRP Project 25-25, Task 15*. Prepared for The National Cooperative Highway Research Program, Transportation Research Council, National Research Council.

#### Pasternack, Alex

- 2011 “Inside the Private NASA Beach House Where Astronauts Chill Out Before Space.” <http://motherboard.vice.com/2011/7/6/inside-the-private-nasa-beach-house-where-astronauts-chill-out-before-space>. Accessed September 19, 2012.

#### Price, David

- 2012 *History Survey and Evaluation, Hypergol Module Processing South (M7-1212) and Boresight Control Building (M7-0867), John F. Kennedy Space Center, Brevard County, Florida*. Submitted to the National Aeronautics and Space Administration, Kennedy Space Center, Environmental Management Branch by New South Associates, Inc. for InoMedic Health Applications.

Streelman, Amy

- 2002 “The A. Max Brewer Bridge and Causeway (8BR1699).” Historical Bridge Form, Florida Master Site File. On file at the Florida Division of Historical Resources.

Swenson, Loyd S., James M. Grimwood, and Charles C. Alexander

- 1963 “Mercury Project Summary, Including Results of the Fourth Manned Orbital Flight, May 15 and 16, 1963.” Available at <http://www-pao.ksc.nasa.gov/history/mercury/mercury-overview.htm>. Accessed April 4, 2013.

Whiffen, Marcus

- 1969 *American Architecture Since 1780*. Cambridge, MA: Massachusetts Institute of Technology Press. Revised edition, 1992.

Young, Kelly

- 2002 “NASA’s Beach Retreat Puts Astronauts at Ease.” *Florida Today*. 22 September.

PAGE INTENTIONALLY LEFT BLANK

APPENDIX A.

FLORIDA SURVEY LOG SHEET

PAGE INTENTIONALLY LEFT BLANK

APPENDIX B.

FLORIDA MASTER SITE FILE FORMS

PAGE INTENTIONALLY LEFT BLANK

## APPENDIX C.

# CORRESPONDENCE BETWEEN NASA AND FLORIDA STATE HISTORIC PRESERVATION OFFICE

PAGE INTENTIONALLY LEFT BLANK

## APPENDIX D.

### LIST OF BUILDINGS IN THE KSC INDUSTRIAL AREA

PAGE INTENTIONALLY LEFT BLANK