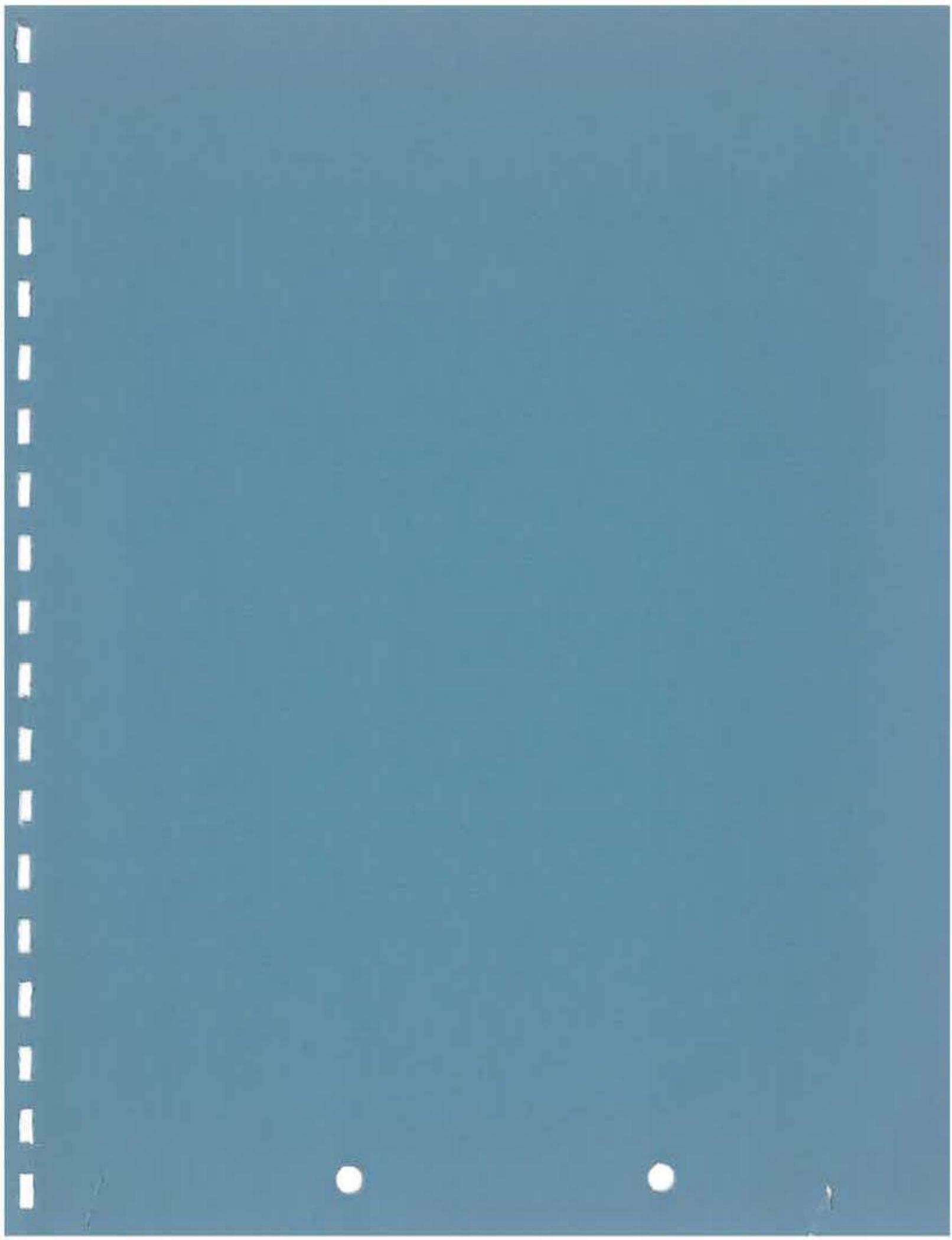


**Environmental Assessment
for the
Proposed Construction of a
Rocket Motor Storage Building
at
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, Virginia**

February 1994

Prepared for NASA by:
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NOTICE (94-WFF-01)

National Environmental Policy Act; Finding of No Significant Impact

AGENCY: National Aeronautics and Space Administration (NASA)

ACTION: Finding of No Significant Impact for the Construction of a Rocket Motor Storage Building at Goddard Space Flight Center/Wallops Flight Facility, Wallops Island, Virginia

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, as amended (NEPA) (42 U.S.C. 4321 *et seq.*), the Council on Environmental Quality Regulations (CEQ) for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500 - 1508), and NASA's Procedures for Implementing NEPA (14 CFR Subpart 1216.3), NASA has made a Finding of No Significant Impact (FONSI) for proposed construction of a rocket motor storage building at Goddard Space Flight Center/Wallops Flight Facility (GSFC/WFF) located at Wallops Island, Virginia. NASA proposes to construct a 743.2 square meter (8,000 square foot) concrete masonry unit rocket motor storage building on the northern portion of Wallops Island. This facility will provide long-term storage of Explosive Class 1.1 rocket motors. GSFC/WFF currently stores Class 1.1 rocket motors in Building V-80 located approximately 0.8 km (0.5 mi) south of the site proposed for construction of the new rocket motor storage building.

DATE: NASA will proceed with this project 30 days from the first date of publication of this FONSI.

ADDRESS: Address all inquiries about the rocket motor storage building FONSI to Ms. Pamela Whitman, Goddard Space Flight Center, Wallops Flight Facility, Code 205.3, Wallops Island, Virginia, 23337.

Interested Parties may request, in writing, single copies of the supporting Environmental Assessment (EA) prepared for the proposed construction of a rocket motor storage building at GSFC/WFF from the above address. Copies are also available for review at: Goddard Space Flight Center/Wallops Flight Facility, Public Affairs Office, Wallops Island, Virginia; the Eastern Shore Public Library, Accomac, Virginia; and NASA Headquarters Information Center, Room 1H23, Two Independence Square, SW, Washington, DC.

FOR ADDITIONAL INFORMATION CONTACT: The Wallops Flight Facility Public Affairs Office at (804) 824-1579.

SUPPLEMENTARY INFORMATION: NASA has reviewed the supporting EA and determined that it adequately and accurately describes the scope and level of environmental impacts from the proposed construction of a rocket motor storage building at GSFC/WFF. The EA identifies potential impacts that may occur during construction and operation of the rocket motor storage facility. NASA hereby incorporates this EA by reference into this FONSI. Page references herein refer to the EA. The EA includes input from Federal and

Commonwealth of Virginia regulatory agencies and members of the affected public. Copies of the EA have been provided to the Commonwealth of Virginia Department of Environmental Quality's (DEQ) Office of Public and Intergovernmental Affairs.

The purpose of the proposed project is to provide NASA with a facility with sufficient storage capacity to house up to 74,844 kg (165,000 pounds) of Class 1.1 explosives. This capacity for storing Class 1.1 explosives is currently not available at any other existing facility on Wallops Island. The proposed storage building must be located in an isolated area to satisfy safety distance requirements established by GSFC/WFF's Range Safety Section.

GSFC/WFF considered the following alternatives to the proposed action: selection of alternative construction sites at GSFC/WFF and continued use of existing GSFC/WFF rocket motor storage facilities.

Impacts to the human environment associated with this project can be divided into short-term (construction phase, approximately nine months) and long-term (operational phase) impacts. The EA evaluated impacts on land use, infrastructure, water quality, soils, wetlands and floodplains, health and safety, flora and fauna, threatened and endangered species, socioeconomics, and cultural resources. The following summarizes specific environmental impacts associated with the construction of a rocket motor storage facility on Wallops Island:

1. **Land Use** Neither construction or operational activities will alter existing land use at GSFC/WFF (p. 19).
2. **Soils** The construction phase will have a minor short-term impact on soil resources (p. 19). NASA would minimize loss of topsoil and accidental release of silt and sediments into surface waters by ensuring that erosion and sediment controls are used for all construction activities. Once construction is completed, NASA will ensure revegetation of exposed earth surfaces. The operational phase will not impact soils (p. 19).
3. **Infrastructure** The construction phase will improve electrical utility availability at the proposed construction site (p. 20). Electrical consumption during the operational phase will not differ significantly from current consumption on Wallops Island.
4. **Water Resources** Neither the construction phase or the operational phase will significantly impact water resources (p. 20).
5. **Wetlands and Floodplains** The rocket motor storage building will be built in a floodplain (p. 20). Since all of Wallops Island lies within the 100- and 500-year floodplains, no practicable alternative that avoids floodplains exists. The proposed project is not a critical action facility and would be constructed to protect rocket motors from the 100-year flood. Neither the construction nor operational phase will impact wetlands (p. 22). Neither the construction phase nor the operational phase will impact the coastal zone.

6. **Health and Safety** The construction phase will not impact health and safety (p. 22). Because of the remoteness of the location for the rocket motor storage building, the operational phase will minimize risk to health and safety (p. 22).
7. **Flora and Fauna** The construction phase will require clearing approximately 0.18 hectares (0.45 acres) of vegetated land (p. 24). NASA will ensure that vegetation is established and maintained through one planting season where exposed surfaces remain. The construction activity may temporarily disturb wildlife in the vicinity of the construction site (p. 24). The operational phase will not impact flora or fauna (p. 24).
8. **Threatened and Endangered Species** NASA consulted with the State and Federal regulatory agencies having jurisdiction over threatened and endangered species in the Commonwealth of Virginia. These agencies determined that neither construction nor operation of a rocket motor storage building on Wallops Island will impact species or critical habitat protected under the Endangered Species Act (p. 24).
9. **Socioeconomic Environment** Neither the construction nor operational phases will impact the local economy (p. 25). Once the facility is constructed, NASA will place some restrictions on wildlife research and recreational activities within the safety hazard area surrounding the facility.
10. **Cultural Resources** The Virginia Department of Historic Resources has concurred that constructing a rocket motor storage building on Wallops Island will not impact cultural resources (p. 25).

No other issues of environmental concern have come to NASA's attention. On the basis of the EA for the proposed construction of a rocket motor storage building at GSFC/WFF and underlying reference documents, NASA has determined that the environmental impacts associated with the mission will not individually or cumulatively have a significant effect on the quality of the human environment. Therefore, an environmental impact statement is not required. NASA will take no final action concerning the proposed activity until the closing of the 30-day comment period.


John M. Klineberg
Director
Goddard Space Flight Center

2/3/94
Date

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LIST OF ABBREVIATIONS AND ACRONYMS

GSFC	-	Goddard Space Flight Center
QD	-	Quantity Distance
EA	-	Environmental Assessment
WFF	-	Wallops Flight Facility
NEPA	-	National Environmental Policy Act
CFR	-	Code of Federal Regulations
DOD	-	Department of Defense
UNO	-	United Nations Organization
STD	-	Standard
CMU	-	concrete masonry unit
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
NSWC	-	Naval Surface Warfare Center
SSDCS	-	Ships Self Defense Combat System
OSHA	-	Occupational Safety and Health Administration
ERD	-	Environmental Resources Document
DP&L	-	Delmarva Power and Light
NWI	-	National Wetland Inventory
COE	-	Corps of Engineers
VDGIF	-	Virginia Department of Game and Inland Fisheries
VDACA	-	Virginia Department of Agriculture and Consumer Affairs
VDNH	-	Virginia Department of Natural Heritage
USFWS	-	U.S. Fish and Wildlife Service

- USDOT - U.S. Department of Transportation's**
- VR - Virginia Regulation**
- ESA - Endangered Species Act**
- VDACS - Virginia Department of Agriculture and Consumer Service**
- VDHR - Virginia Department of Historic Resources**
- NOI - Notice of Intent**
- CSC - Computer Sciences Corporation**
- COTR - Contracting Officers Technical Representative**

SECTION 1.0 PURPOSE AND NEED

This environmental assessment (EA) addresses the proposed construction of a rocket motor storage building at Goddard Space Flight Center's Wallops Flight Facility (GSFC/WFF). This EA is consistent with the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 et seq.); the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (Chapter 40 of the Code of Federal Regulations (CFR) Parts 1500-1508); and NASA's Procedures for Implementing NEPA (14 CFR Subpart 1216.3).

Wallops Flight Facility is located on the Eastern Shore of Virginia, approximately 40 miles southeast of Salisbury, Maryland, and 150 miles southeast of the GSFC/Greenbelt, MD Campus (Figure 1.0-1). Wallops consists of three separate sections of real property: the Main Base, the Wallops Island launch site, and the Wallops Mainland. The primary mission of GSFC/WFF is to manage and implement NASA's sounding rocket and balloon programs, to conduct observational Earth science studies, to provide aircraft and other flight services, and to operate a launch range and research airport (Reference 1). The GSFC/WFF launch range (including launch pads, launchers, blockhouses, and booster preparation and payload check-out buildings) is located on the southern half of Wallops Island. Wallops Island provides a safe, low cost, quick response east coast base for the launch of rockets in support of NASA, other U.S. government agencies, and commercial operations. The NASA Sounding Rocket Program obtains rocket motors from commercial vendors or from U.S. Department of Defense (DOD) surplus.

NASA uses DOD Standard (STD) 6055.9, Ammunition and Explosives Safety Standards as its guidance for explosive classification and storage. DOD's standards use the United Nations Organization (UNO) classification system for transport of dangerous goods. According to UNO classification, rocket motors fall into explosive Class 1 (Reference 2). The UNO explosive classification system further subdivides explosive material classes into the following divisions: Division 1 (mass detonating), Division 2 (non-mass detonating, fragment producing), Division 3 (mass fire), Division 4 (moderate fire, no blast), Division 5 (very insensitive explosives), and Division 6 (extremely insensitive ammunition). Based on this UNO classification system, WFF's rocket motor inventory consists of Class 1.1 and Class 1.3 explosives [this nomenclature identifies the rocket motors as Class 1 Division 1 and Class 1 Division 3, respectively and will be used throughout this document]. Class 1.1 is the most explosive of the two types of rocket motors, and upon detonation can create a blastwave or supersonic shock front. Class 1.3 rocket motors are less explosive and are predominantly a fire hazard.

Wallops Island is one of two GSFC/WFF areas designated for storage of explosive materials (Reference 3). The other GSFC/WFF location is the "M" area on the northern edge of the Main Base. GSFC/WFF has currently designated the M area for the storage of Class 1.3 or less explosive materials.

The GSFC/WFF sounding rocket inventory includes Class 1.1 motors (Taurus or Improved Honest John) and because of the potential to mass detonate, NASA prefers not to store these materials in the M area of the Main Base which is in close proximity to populated

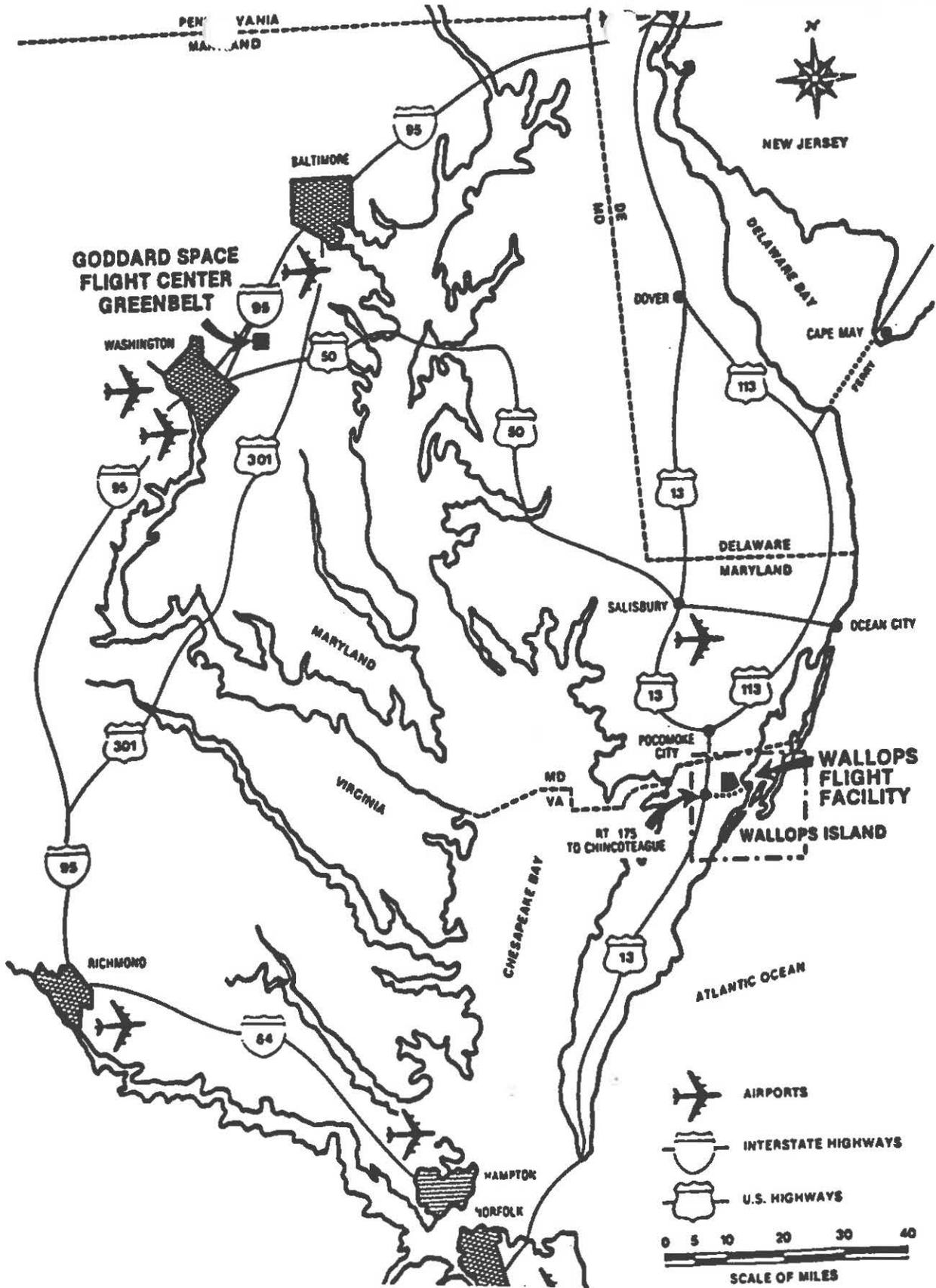
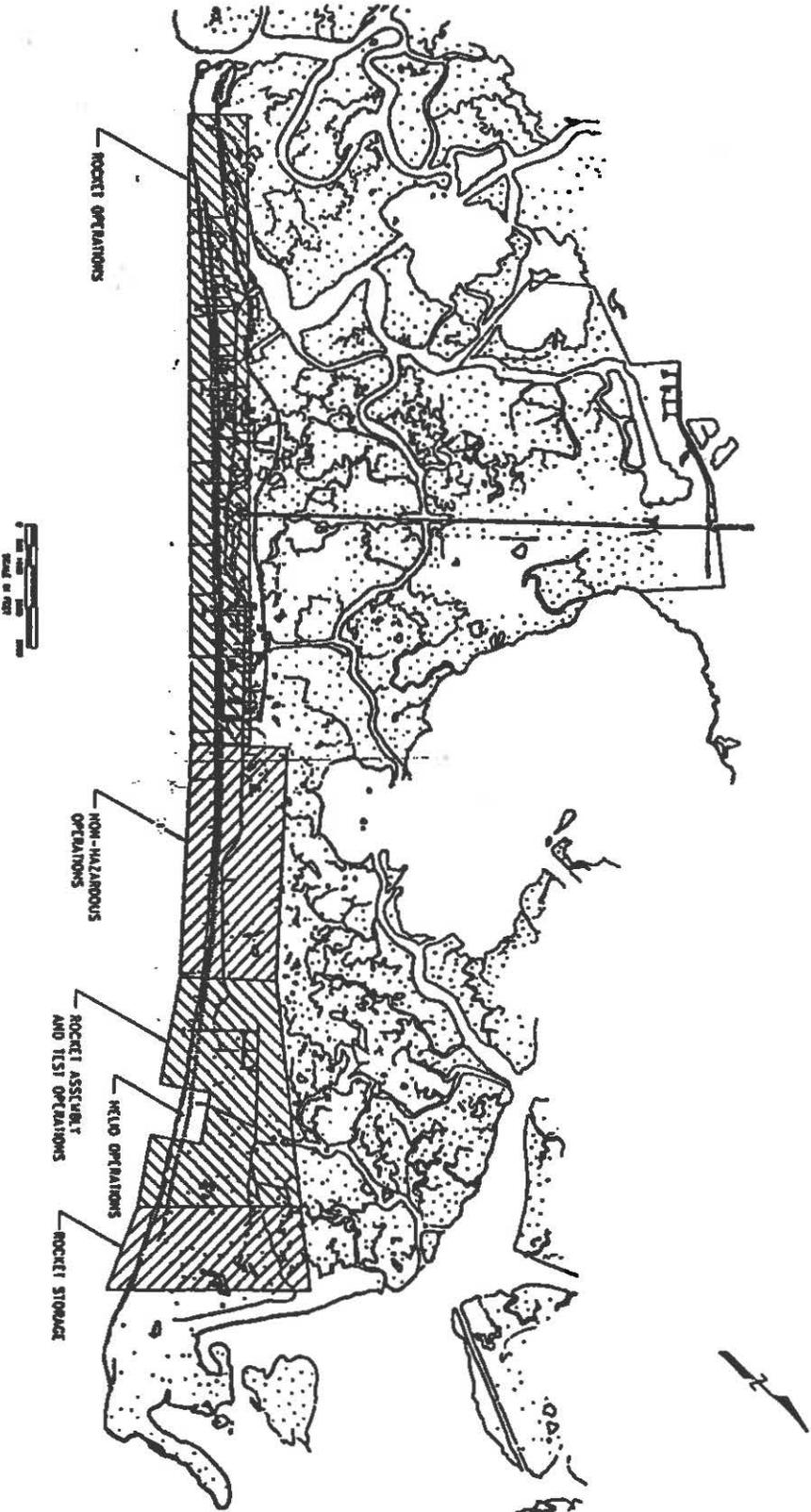


Figure 1.0 -1
 NASA Wallops Flight Facility Vicinity Map



areas (i.e., NASA work areas and residential areas). The proposed construction of a rocket motor storage building on Wallops Island, addressed in this EA would allow for storage of the Taurus or any Class 1.1 explosives NASA may acquire in the future. The safety requirements for storing Class 1.1 explosives prohibit GSFC/WFF from storing Class 1.1 rocket motors in the M area. GSFC/WFF uses the M area for storage of Class 1.3 or less explosive materials.

GSFC/WFF currently stores Class 1.1 rocket motors in Building V-80 on Wallops Island (Reference 4). Building V-80, an above-ground building adjacent to the old Coast Guard Station, currently stores 93 Taurus motors with a total net explosive weight of 154,659 lbs. (70,153.3 kg). According to the DOD Standard for explosive storage, the maximum capacity for this building is 85,000 lbs. (38,556 kg) of Class 1.1 explosives (Reference 4). The proposed storage building would provide compliant long-term rocket motor storage capacity of up to 165,000 pounds (74,844 kg) of Class 1.1 explosives. This capacity for storing Class 1.1 explosives is currently not available at any other existing facility on Wallops Island (Reference 5). The proposed storage building must be located in an isolated area to satisfy safety distance requirements established by NASA's Range Safety Division. The GSFC/WFF Range Safety Division calculates explosive quantity distances (QD) using DOD 6055.9-STD; QDs provide safety zones to protect both personnel and facilities from unexpected explosive detonation. QD calculations depend on the explosive, the construction of the facility containing the explosive, the facility to be protected from explosion, and personnel activities within those areas. QDs are a risk assessment of the potential damage to the surroundings. NASA has designated the northern end of Wallops Island for the storage of rocket motors because it is the most isolated area on Wallops Island (Figure 1.0-2) (Reference 6). Since future projects at WFF may use larger Class 1.1 rocket motors, the proposed building would be constructed both to meet current needs and to accommodate the anticipated future storage requirements (Reference 5).



Source: Reference 7
not to scale

Figure 1.0-2
NASA Designated Land Use
for Wallops Island

SECTION 2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

The alternatives considered for this project include the proposed action at the proposed location, the proposed action at alternative locations, and the no action alternative (Reference 7). Discussions of each of the alternatives considered follows:

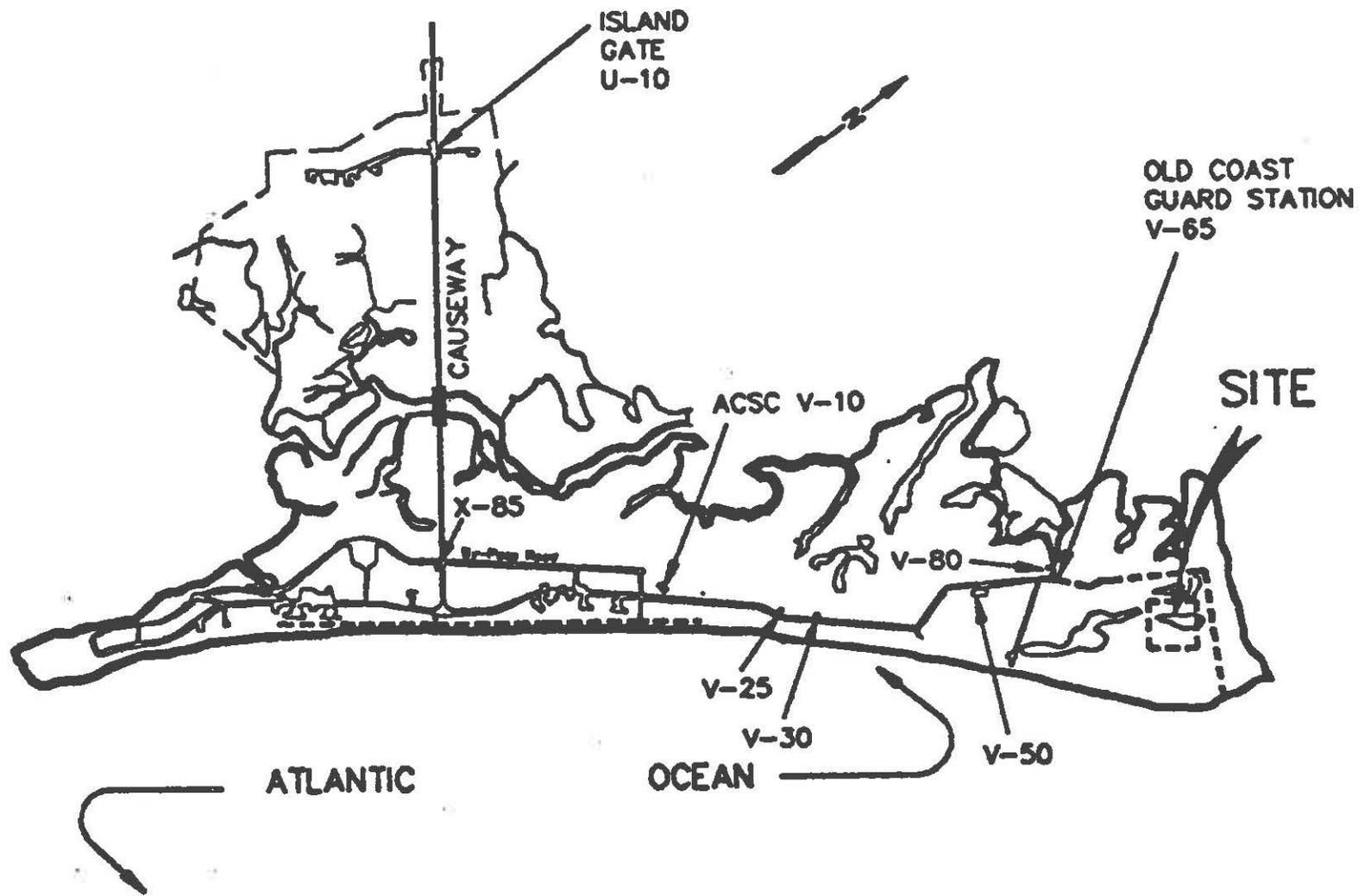
2.1 PROPOSED ACTION

The proposed action is to locate a rocket motor storage building, dedicated to long-term storage of Class 1.1 motors, on the northern end of Wallops Island (Figures 2.1-1 and 2.1-2). Approximately 0.45 and 0.12 acres (0.18 and 0.05 hectares) would be cleared and graded, respectively for the proposed building. The concrete masonry unit (CMU) building would be rectangular (80 feet (24.38 meters) by 100 feet (30.48 meters) and approximately sixteen feet (5.49 meters) high. The building would have a 6-inch (15.24 centimeters) concrete slab floor (over a 6 mil polyethylene vapor barrier and 4-inch (10.16 centimeters) depth of porous fill). There would be a personnel door on each of the longer sides (east/west facing) and an electrically operated 25 feet (7.62 meters) by 16 feet (4.88 meters) coiling vehicle access door on the front (south facing) side of the building. The only utility lines required for the building (electrical) would be installed underground (via trench) and would connect to an existing transformer substation (near the old U.S. Coast Guard Station). The 100-year elevation for Wallops Island is 11.0 feet/3.35 meters (Reference 12). The floor slab elevation (9.0 feet/2.74 meters) would be below the 100-year flood elevation. All stored rocket motors would be elevated above the 100-year flood elevation. The electrical disconnect switch would be mounted at 13.0 feet (3.96 meters) and the wall thermometer at 14.0 feet (4.27 meters). No water or sewer would be available nor needed at this building. The building would be constructed to contain any Class 1.1 motors used at GSFC/WFF. GSFC/WFF's current inventory of Class 1.1 rocket motors consists entirely of Taurus (Improved Honest John) motors.

The building would have four roof-mounted exhaust fans with four side louvers located on the north and south sides of the building for temperature control. A thermostat would trigger the ventilation system to turn on at 90 degrees fahrenheit (21.11 degrees celsius) to prevent rocket motors from overheating. The building would have a lightning protection system (six 65-foot (19.81 meters) wooden poles set nine feet (2.74 meters) in the earth with grounded wires crossing overhead). The building's frame would be grounded through the lightning protection system, designed according to the Military Handbook (Reference 8).

No personnel would be located at the facility on a permanent basis. Only authorized personnel, trained in the proper handling of explosive materials, would use the facility. The remote location proposed for the building minimizes the life and safety risks of a fire or explosion. The 24-hour on-duty Wallops Island fire protection crew (with back-up assistance from NASA's Main Base fire protection crew or surrounding communities) would provide for fire protection control.

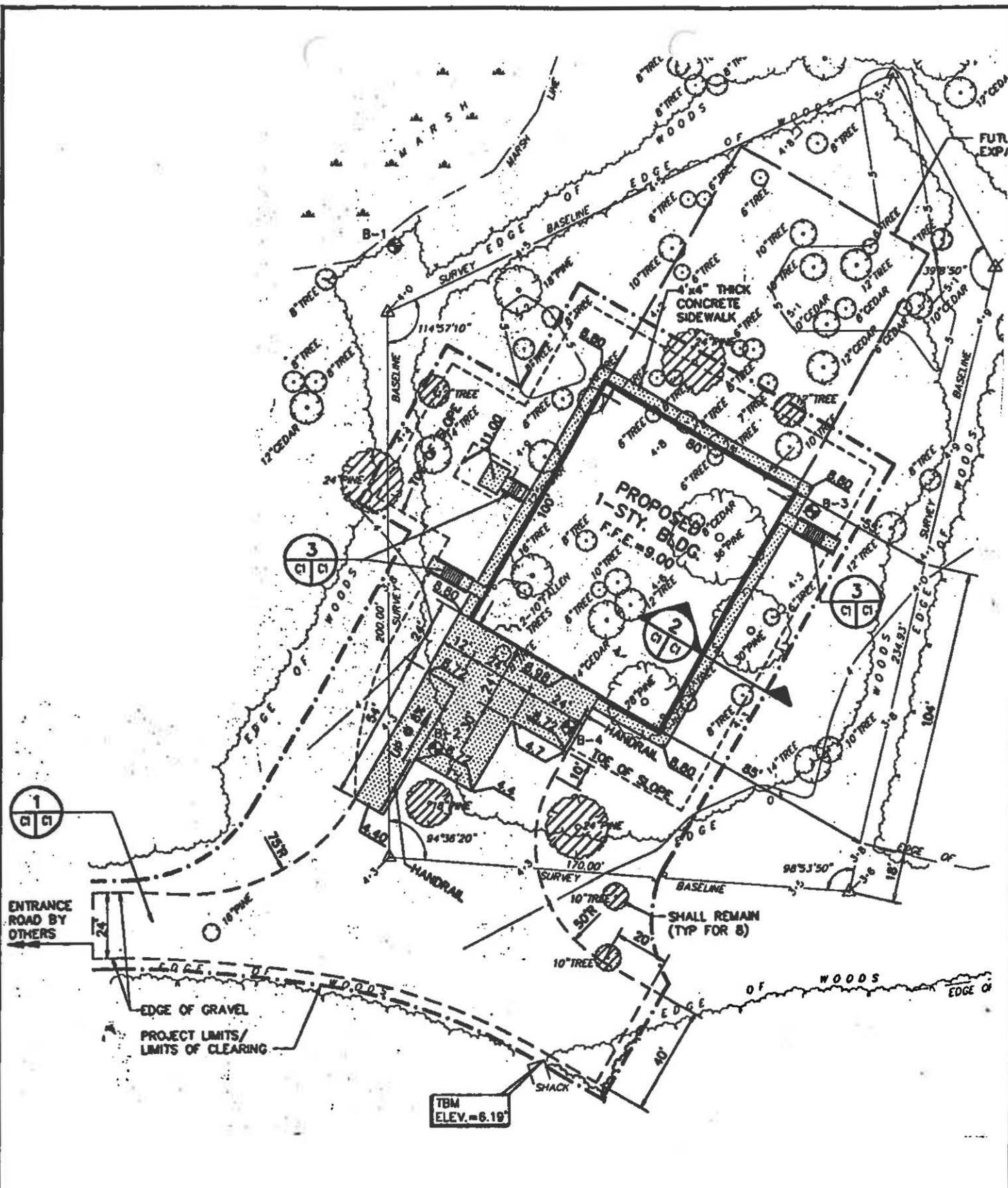
The proposed action would require the construction and upgrade of an access road through an upland maritime forest (Figure 2.1-3).



Source: Reference 10



Figure 2.1-1
 Proposed Location of the Rocket Motor Storage Building



Approximate Scale 1" = 50'

Source : Reference 9



Figure 2.1-2
 SITE PLAN FOR THE PROPOSED ROCKET MOTOR STORAGE FACILITY

No other area on Wallops Island meets the QD requirements for the proposed storage of Class 1.1 motors. The northern end of Wallops Island is also wider and more stable than the southern end of the Island. The long-term natural transport of sediment parallel to the Island's Atlantic shore has resulted in erosion occurring on the southern end of the Island and accretion occurring on the northern end. Therefore, NASA has eliminated alternative Wallops Island locations from further consideration due to a lack of suitable alternative sites on Wallops Island.

2.3 NO ACTION ALTERNATIVE

The no action alternative would be for NASA to continue to store Class 1.1 rocket motors in Building V-80 on Wallops Island. Building V-80 does not meet DOD or U.S. Occupational Safety and Health Administration (OSHA) standards for storage of Class 1.1 explosives. NASA's continued use of this facility would leave the facility in noncompliance with regulations for storing Class 1.1 explosives which poses an unacceptable risk to GSFC/WFF. NASA's storage of Class 1.1 explosives in Building V-80 also limits the use of the adjacent boat dock and the old Coast Guard Station. Modifying/refurbishing Building V-80 was eliminated as a viable alternative because of the limitations the storage would place on activities at or near the adjacent boat dock and old Coast Guard Station.

SECTION 3.0 AFFECTED ENVIRONMENT

This section describes the existing environmental conditions at the locations for the preferred and no action alternatives described in section 2.0. This section discusses only those environmental resources that these alternatives *may affect* or *may be affected* by these alternatives. Resources evaluated but eliminated from detailed discussion include: wild and scenic rivers, air quality, noise, population dynamics, social institutions and aesthetics. The following subsections address resources of concern: Physical Factors, Biological Factors, and Socioeconomic Factors. The 1993 GSFC/WFF Environmental Resources Document (ERD) contains detailed descriptions of the environmental resources for all of GSFC/WFF (Reference 12).

3.1 PHYSICAL FACTORS

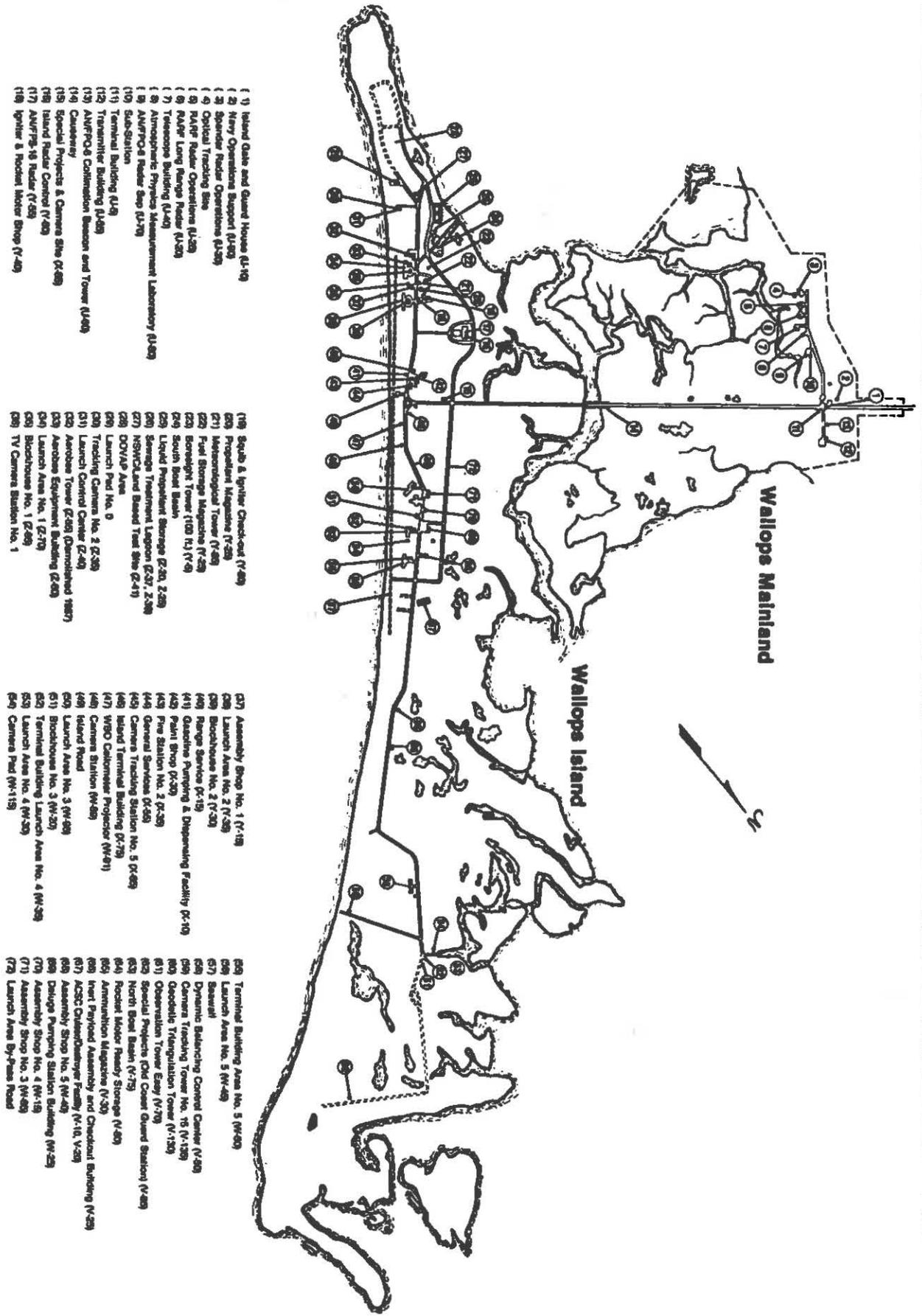
Physical factors discussed in this section include land use, soils, infrastructure, water resources, wetlands and floodplains, and health and safety.

3.1.1 Land Use

Wallops Island is zoned for industrial land use by Accomack County (Reference 13). No lands at Wallops Island qualify as prime or unique farmlands for purposes of the Farmland Protection Policy Act. NASA has designated Wallops Island land use zones including a rocket operations area, non-hazardous operations area, rocket launch area, rocket assembly and test operations area, helicopter operations area, and rocket storage area. Existing buildings are concentrated in the rocket operations area on the southern end of the Island (Figure 3.1.1-1). NASA has previously proposed the area of the rocket motor storage building construction site as a land use zone for rocket motor storage. Location number 64 (Building V-80) on Figure 3.1.1-1 is currently being used for the storage of the Class 1.1 Taurus rocket motors and lies within the land use zone designated by NASA for rocket assembly and test operations.

3.1.2 Soils

GSFC/WFF is located within the Delmarva Peninsula of the Atlantic Coastal Plain physiographic region. Land at GSFC/WFF is mainly comprised of Quaternary age marine and non-marine clay, silt, sand and gravel formation. The Quaternary aged formation is underlain by loose to partly indurated sand and clay of Tertiary age. The subsurface near the proposed rocket motor storage building is characterized from soil borings as brown, moist to saturated, loose silty fine sand underlain by 20 to 300 feet (6.10 to 91.44 meters) of gray, saturated medium dense silty fine sand with trace of calcareous shell fragments (Reference 14). There are no prime or unique farmlands on Wallops Island. No soil borings are available to characterize the subsurface near Building V-80. Predominant U.S. Soil Conservation Service soil types on the Island include Chincoteague silt loam, Udorthents and Udipsamments, Fisherman Assateague fine sands complex, Fisherman Comacca fine sands complex, Comacca fine sands complex, and Assateague fine sand.



- (1) Island Gate and Guard House (I-10)
- (2) Navy Operations Support (N-20)
- (3) Special Radar Operations (S-20)
- (4) Optical Tracking Site
- (5) RAMP Radar Operations (R-20)
- (6) RAMP Long Range Radar (L-20)
- (7) Telescope Building (T-20)
- (8) Atmospheric Physics Measurement Laboratory (A-20)
- (9) AN/FRCA Radar Shop (A-20)
- (10) Sub-Station
- (11) Terminal Building (T-40)
- (12) Transmitter Building (T-40)
- (13) AN/FRCA Combination Beacon and Tower (A-40)
- (14) Casemate
- (15) Special Projects & Camera Site (S-40)
- (16) Island Radar Control (I-40)
- (17) AN/FRS-16 Radar (F-40)
- (18) Igniter & Rocket Motor Shop (I-40)

- (19) Sub-Station (S-40)
- (20) Propellant Magazine (P-20)
- (21) Meteorological Tower (M-20)
- (22) Fuel Storage Magazine (F-20)
- (23) Searchlight Tower (S-10) (I-40)
- (24) South Boat Basin
- (25) Liquid Propellant Storage (L-20) (S-20)
- (26) Storage Treatment Lagoon (S-20) (S-20)
- (27) NSR/Cand Based Test Site (S-20)
- (28) DOWAP Area
- (29) Launch Pad No. 0
- (30) Launch Pad No. 2 (S-20)
- (31) Launch Control Center (L-20)
- (32) Aerobics Tower (A-20) (Demolished 1987)
- (33) Aerobics Equipment Building (A-20)
- (34) Launch Area No. 1 (L-20)
- (35) Blockhouse No. 1 (B-20)
- (36) TV Camera Station No. 1

- (37) Assembly Shop No. 1 (A-10)
- (38) Launch Area No. 2 (L-20)
- (39) Blockhouse No. 2 (B-20)
- (40) Range Services (R-10)
- (41) Gasoline Pumping & Dispensing Facility (G-10)
- (42) Paint Shop (P-20)
- (43) Fire Station No. 2 (F-20)
- (44) General Services (G-20)
- (45) Camera Tracking Station No. 5 (C-20)
- (46) Island Terminal Building (I-20)
- (47) WFO Calorimeter Projector (W-80)
- (48) Camera Station (C-80)
- (49) Island Road
- (50) Launch Area No. 3 (L-40)
- (51) Blockhouse No. 3 (B-20)
- (52) Terminal Building Launch Area No. 4 (T-20)
- (53) Launch Area No. 4 (L-20)
- (54) Camera Pad (C-110)

- (55) Terminal Building Area No. 5 (T-40)
- (56) Launch Area No. 5 (L-40)
- (57) Sawmill
- (58) Dynamic Balancing Control Center (D-20)
- (59) Camera Tracking Tower No. 18 (C-120)
- (60) Geostatic Transposition Tower (G-120)
- (61) Observation Tower Easy (O-10)
- (62) Special Projects (S-10) (S-10)
- (63) North Boat Basin (N-10)
- (64) Rocket Motor Ready Storage (R-20)
- (65) Ammunition Magazine (A-20)
- (66) Inert Physics Assembly and Checkout Building (I-20)
- (67) ASCC Challenger Facility (A-10) (V-20)
- (68) Assembly Shop No. 5 (A-40)
- (69) Design Pumping Station Building (D-20)
- (70) Assembly Shop No. 4 (A-10)
- (71) Assembly Shop No. 3 (A-40)
- (72) Launch Area By-Pass Road



Source: NASA
not to scale

Figure 3.1.1-1
GSFC Wallops Flight Facility
Building Locations on Mainland
and Wallops Island

3.1.3 Infrastructure

Electrical service to Wallops Island is provided by Delmarva Power and Light (DP&L). During the 1991 Fiscal year, the Wallops Island launch area consumed approximately 45% of the total GSFC/WFF consumption of electricity. The largest consumers of electricity on the Island are super computers and radio-frequency equipment (tracking and communications).

Solid waste on the Island is collected by a private contractor and transported off the Island for disposal. There are no sanitary landfills located on the Island. An abandoned debris pile is located on the northern end of the Island, between the left and right fork roads.

NASA uses two groundwater supply wells located on the Mainland to supply drinking water for Wallops Island. There are no drinking water wells located on Wallops Island. Two primary supply storage systems: a 50,000 gallon (189.3 cubic meter) elevated storage tank (X-45) located on Wallops Island near the rocket launching pads, and an 80,000 gallon (302.7 cubic meter) ground level reservoir located on the mainland (U-49) serve Wallops Island for drinking water and emergency fire protection water. An additional partially operating 50,000 gallon (189.2 cubic meter) elevated storage tank (V-90), located on the northern end of the Island, serves as back-up emergency firewater storage. At the northern portion of the Island, septic systems are used for wastewater disposal. Building V-80 does not have a septic system or potable water supply connection.

3.1.4 Water Resources

A portion of the IntraCoastal Waterway and an extensive saltwater marsh system separate Wallops Island from the mainland. Building V-80 which currently stores Class 1.1 rocket motors has an adjacent boat dock on an inlet from Cat Creek, with access to the IntraCoastal Waterway. Surface drainage from Building V-80 is towards Cat Creek. The northern portion of Wallops Island where the proposed building would be located, drains by overland flow to Bogues Bay and Chincoteague Inlet via Sloop Gut and Ballast Narrows. Depth to the groundwater averages approximately 2 feet (0.61 meter) below the ground level. The shallow groundwater table on the Island is tidally influence and fluctuates seasonally.

3.1.5 Wetlands and Floodplains

All of Wallops Island is located within the 100- and 500-year floodplain. The U.S. Fish and Wildlife's National Wetland Inventory (NWI) Maps developed in 1978, classify all Island wetland resources. The NWI maps for Wallops Island can be found in the 1993 ERD (Reference 12). In August 1991, the U.S. Army Corps of Engineers (COE) visited the site of the proposed rocket motor storage building and the proposed access route (the right fork road). The COE determined during their visit that the right fork road is an upland area and is not under Federal wetlands jurisdiction. There are no wetlands present at the Building V-80 site (the no action alternative).

3.1.6 Health and Safety

Building V-80 is currently being used as a rocket motor storage building. An explosive hazard zone (QD) is established for protection around this building and other areas where explosives are used on the Island. The QD for the Class 1.1 rocket motors currently stored in building V-80 is 1,785 feet/544.07 meters (Figure 3.1.6-1). This QD allows up to 80,000 lbs. (36,281 kg) of Class 1.1 explosives. Building V-65 (old Coast Guard Building) and the nearby boat dock may not be used while the Class 1.1 explosives are stored in Building V-80. The proposed site for the new rocket motor storage building does not lie within any established QD distances for nearby facilities.

3.2 BIOLOGICAL FACTORS

The biological factors resource category discussed in this section includes existing flora (vegetation), existing fauna (wildlife), and threatened and endangered species. The GSFC/WFF ERD provides a detailed description of the biological components at GSFC/WFF; however, actual field observations form the basis for most of the following resources descriptions.

3.2.1 Existing Flora

Wallops Island contains beaches, dunes, swales, maritime forests, and marshes in various ecological successional stages. The proposed rocket motor storage building location is a maritime forest characterized by a predominance of loblolly pine (*Pinus taeda*) and cherry trees (*Prunus spp.*), and an understory of the northern bayberry, wax myrtle, and groundsel-tree (Reference 18). The existing Class 1.1 rocket motor storage building (V-80) is bordered by a thicket or scrub-shrub zone dominated by clusters of northern bayberry, wax myrtle, and groundsel-tree. The thicket zone sometimes contains dense stands of poison ivy (*Rhus radicans*) and greenbriar (*Smilox spp.*) (Reference 18).

3.2.2 Existing Fauna

Dominant fauna known to occur near both the existing storage building (V-80) and the proposed building location are birds and mammals. Birds known to occur in the maritime forest and scrub-shrub thicket areas include various species of sparrows, red-winged blackbirds (*Agelaius phoeniceus*), boat-tailed grackles (*Quiscalus major*), fish crows (*Corvus ossifragus*), the song sparrow (*Melospiza melodia*), gray catbird (*Dumetella carolinensis*), and mourning dove (*Zenaidura macroura*) (Reference 12). Mammals known to occur in these areas include the white-tailed deer (*Odocoileus virginianus*), opossum (*Didelphis marsupialis*), raccoons (*Procyon lotor*), grey squirrels (*Sciurus carolinensis*), red foxes (*Vulpes fulva*), white-footed mouse (*Peromyscus leucopus*), meadow vole (*Microtus pennsylvanicus*), and cotton-tail rabbit (*Sylvilagus floridanus*). (Reference 12)

3.2.3 Threatened and Endangered Species

The Virginia Department of Game and Inland Fisheries (VDGIF), Virginia Department of Agriculture and Consumer Affairs (VDACA), Virginia Department of Natural Heritage (VDNH) and the U.S. Fish and Wildlife Service (USFWS) determined that no threatened or

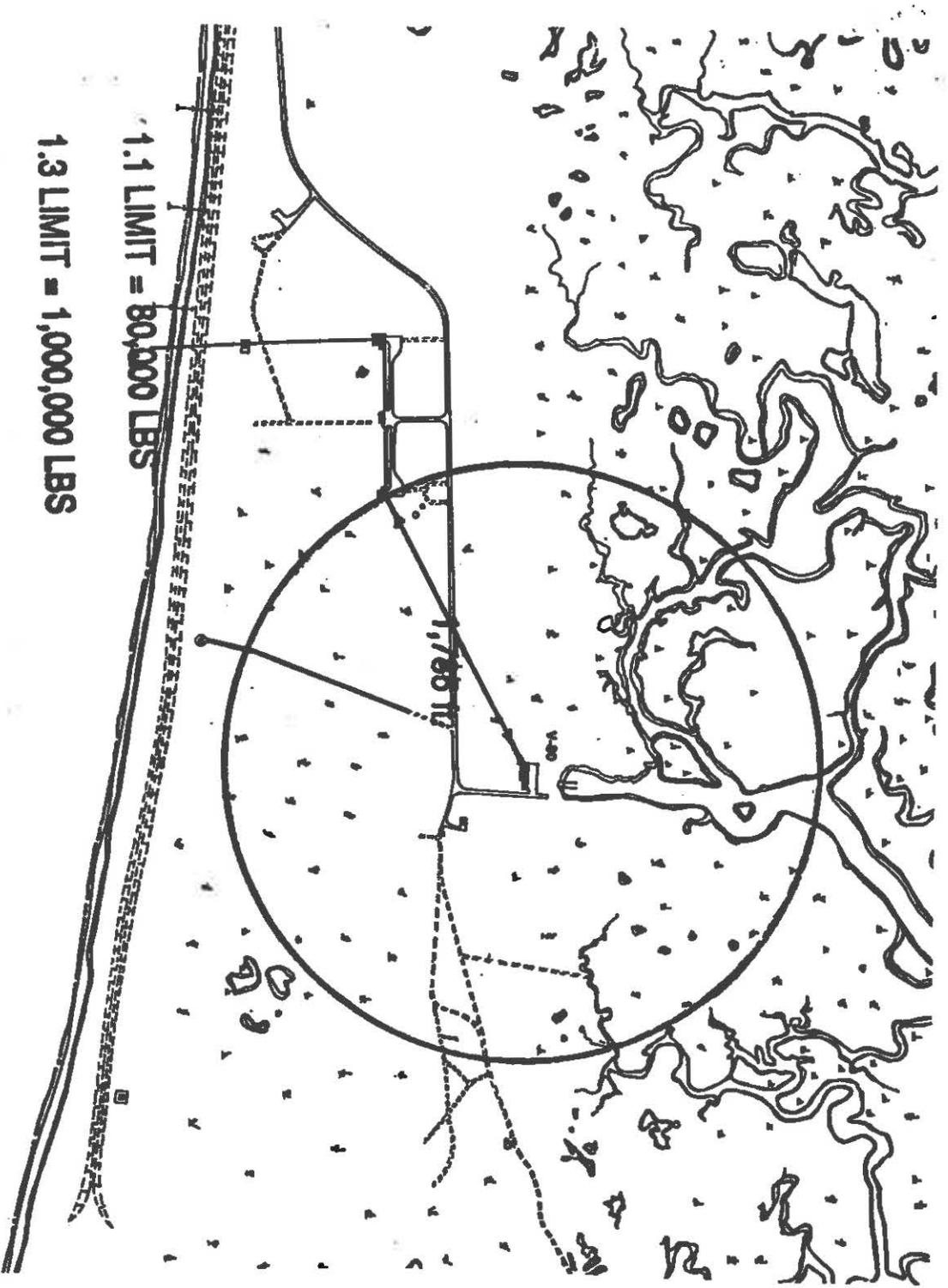


Figure 3.1.6-1
 QD FOR BUILDING V-80

endangered floral species occur in the GSFC/WFF vicinity. The only threatened or endangered faunal species listed (as of 1/92) and known to occur near the existing and proposed rocket motor storage building locations are the Piping Plover (*Charadrius melodus*), the Peregrine Falcon (*Falco peregrinus*), Wilson's Plover (*Charadrius wilsonia*), and the Gull-billed Tern (*Sterna nilotica*). The plovers and terns feed and breed along the beaches of Wallops Island. The peregrine falcon uses an established hacking tower located in the marsh system separating the Island from the Mainland. NASA has been working with the USFWS since 1986 to ensure protection of piping plovers during their nesting season. GSFC/WFF closes the southern end of Wallops Island as well as portions of the northern end of the island to vehicular or pedestrian traffic during the plover nesting season.

Federal and State biologist identified that certain areas of Wallops Island are essential to the Piping Plover's survival and recovery. Chincoteague National Wildlife Refuge and VDGIF biologists monitor Piping Plover nesting activities and advise GSFC/WFF on protection and management practices. Based on sightings, other threatened and endangered species such as the Wilson's Plover and gull-billed terns utilize the critical habitat area and benefit from the protected habitat.

3.3 SOCIAL AND ECONOMIC FACTORS

Social and economic factors categories discussed in this section include socioeconomic environment, cultural environment, and the regulatory environment.

3.3.1 Socioeconomic Environment

GSFC/WFF is one of the largest employers in the Eastern Shore of Virginia. Located in a sparsely populated, rural area of Virginia, the approximate annual budget of the facility (\$87 million for fiscal year 1990) significantly impacts the local economy. The 1993 ERD contains descriptions of the employee salary structure, civil service versus contractor distribution figures, and surrounding county employment distribution (Reference 12).

The entrance to Wallops Island is controlled by a 24-hour security force. Visitors to the Island must obtain special Island I.D. badges from the Main Base security station. The time and purpose of Island visits are recorded in a log book. The GSFC/WFF security force performs security patrols, building security checks, personnel identification checks, and carries on normal police duties on the GSFC/WFF grounds. The Accomack County Sheriff's Department patrols the areas surrounding GSFC/WFF properties.

Specific areas (particularly on the northern end) of Wallops Island are available on a controlled basis as a recreation resource area to NASA employees and contractors. Recreational uses include hunting, fishing, and swimming. The U.S. Fish and Wildlife Service (USFWS), which administers the nearby Chincoteague National Wildlife Refuge, conducts a program of research on wildlife resources found at Wallops Island on a secondary, non-interference basis. NASA has granted the USFWS permission to use the land and marsh areas not being used including buffer zones. USFWS activities include the research and management of ospreys, snow geese, peregrine falcons, and other wildlife species in need of protection. College and pre-college groups affiliated with the Marine

Science Consortium also use the undeveloped areas on the northern end of Wallops Island to conduct studies in marine science.

3.3.2 Cultural Environment

Wallops Island contains no sites currently listed on, or eligible for listing on, the National Register of Historic Places.

3.3.3 Regulatory Environment

The National Environmental Policy Act requires coordination of the proposed project with all other pertinent regulations. There are a variety of major Federal Regulations applicable to the NEPA process (Table 3.3.3-1). Also, the U.S. Department of Transportation's (USDOT) guidelines on the transport of rocket motors, the United States OSHA standards, and the U.S. DOD explosive safety standards are applicable to this project.

**TABLE 3.3.3-1
FEDERAL REGULATION COORDINATION FOR THE ROCKET MOTOR STORAGE BUILDING**

NEPA COORDINATION WITH OTHER FEDERAL REGULATIONS AND EXECUTIVE ORDERS	SUMMARY
The National Historic Preservation Act of 1966, 16 U.S.C. 470 et seq.	Identify any properties with historic, architectural, archaeological or cultural value in project area.
The Archaeological and Historic Preservation Act of 1974, 16 U.S.C. 469 et seq.	Assure that project site will not cause loss or destruction of significant scientific, prehistoric, historic, or archaeological data.
Executive Order 11593 - Protection and Enhancement of the Cultural Environment	Identify any property with historic, architectural, archaeological or cultural value in project area.
Executive Order 11990 - Protection of Wetlands	Avoid to the extent possible the adverse effects associated with the destruction or loss of wetlands. Avoid support of new construction in wetlands if a practicable alternative exists.
Executive Order 11988 - Floodplain Management	Avoid adverse effects associated with direct and indirect development of a floodplain.
Fish and Wildlife Coordination Act, 16 U.S.C. 661 et seq.	Requires protection of fish and wildlife resources for any federal action that controls or structurally modifies any stream or body of water.
Endangered Species Act, 16 U.S.C. 1531 et seq.	Prohibits jeopardizing threatened or endangered species or adversely modifying habitats essential to their survival.
The Clean Air Act, 42 U.S.C. 7476 (c)	Requires all federal projects, licenses, permits, plans, and financial assistance to conform with State Air Quality Implementation Plans (SIPS).
The Clean Air Water Act	Regulates discharges to surface waters (including wetlands) and groundwaters of the United States to protect public health and water quality.

SECTION 4.0 ENVIRONMENTAL CONSEQUENCES

The section describes the potential environmental consequences of implementing the proposed action and includes comparative environmental consequences of the no action alternative. Both direct and indirect impacts are addressed.

4.1 PHYSICAL FACTORS

The physical factors resource categories discussed in this section include: land use, soil, infrastructure, water resources, wetlands and floodplains, and health and safety.

4.1.1 Land Use

4.1.1.1 Proposed Action

The proposed rocket motor storage building location is consistent with existing zoning and land use plans for Wallops Island. The proposed storage facility site would be located in an old field and maritime forest habitat area on the northern end of Wallops Island. Site preparation activities include clearing and grubbing for slab on grade building construction, establishing the access road route, and trenching for utility line installation. The building would be constructed on packed fill material, thus requiring earth moving activities during the construction phase. Some trees within the limit of clearing would remain standing, however the majority would be removed. The nature of the building operations are passive, with the exception of the periodic transfer of rocket motors. Land resources are not expected to be disturbed by rocket motor transfer activities.

4.1.1.2 No Action Alternative

The no action alternative is not consistent with existing land use plans for Wallops Island. Building V-80 is located in an area designated for rocket assembly and test operations rather than rocket motor storage. The no action alternative also limits the land use of the boat dock and old Coast Guard Station. No construction or earth moving activities would be required for the no action alternative, therefore no land resources would be impacted.

4.1.2 Soils

4.1.2.1 Proposed Action

The proposed project would have a short-term, minor impact on soil resources of Wallops Island during the construction period. NASA would minimize loss of topsoil and accidental release of silt and sediments into surface waters by employing erosion and sediment control techniques consistent with Virginia Regulation (VR) 625-02-00, Erosion and Sediment Control Regulations. NASA would monitor the construction project to ensure use of erosion and sediment controls during the entire construction phase of the project. After construction, vegetation would be re-established on exposed earth surfaces.

4.1.2.2 No Action Alternative

No impacts to soils would be expected with the no action alternative since no earth moving or construction activities would be required.

4.1.3 Infrastructure

4.1.3.1 Proposed Action

Electrical utility lines would be installed in trenches between the proposed rocket motor storage building and a transformer pad near the old Coast Guard Station, following an upland route (Figure 4.1.3-1). Energy required to operate the proposed storage building is electricity for lighting, electrical outlets, and operating the heating and ventilation system and other electrical equipment such as an alarm system. The electrical service would accommodate a demand load equal to 1.4 percent of the 1991 Fiscal year Wallops Island electricity consumption (Reference 11). Since more than half of the design load accounts for future facility expansion and safety factors, the actual electrical consumption estimated for the facility is less than a one percent increase in Wallops Island total consumption. Therefore, no substantial energy impacts are expected from the proposed facility.

4.1.3.2 No Action Alternative

Energy consumption for the no action alternative would be similar to the proposed alternative. Electrical service for the no action alternative is already installed and accounted for in the total Wallops Island electrical consumption.

4.1.4 Water Resources

4.1.4.1 Proposed Action

The proposed storage facility would not substantially impact water resources. The facility would not have any potable water or wastewater utility services. Stormwater drainage is likely to percolate into the soil before it could follow natural drainage paths toward the surrounding marine environments. All chemical components of the solid rocket motor are contained inside a building and within sealed rocket motor casings. Therefore, no toxic chemicals would drain into stormwater from the facility. During construction there would be a potential to increase the silt and sediment load in the stormwater runoff. NASA would mitigate any sedimentation impacts by employing appropriate sediment and erosion control techniques consistent with VR 625-02-00, Erosion and Sediment Control Regulations, and the Erosion and Sediment Control Ordinance for Accomack County, Virginia. The building would be constructed on an elevated reinforced concrete slab to avoid any impacts to groundwater (which is shallow at the proposed site).

4.1.4.2 No Action Alternative

The no action alternative would not impact water resources. Building V-80 does not have any water or wastewater facilities. Stormwater from the facility currently drains toward Cat Creek, however no contamination of surface water runoff should occur from the operations at the building for the same reasons as described for the preferred alternative.

4.1.5 Wetlands and Floodplains

4.1.5.1 Proposed Action

The proposed rocket motor storage building would be constructed in a floodplain, since all of Wallops Island lies within the 100- or 500-year floodplain and thus no practicable alternative that avoids floodplains exists. The facility would be constructed to protect rocket motors from the 100-year flood. The construction of the rocket motor storage

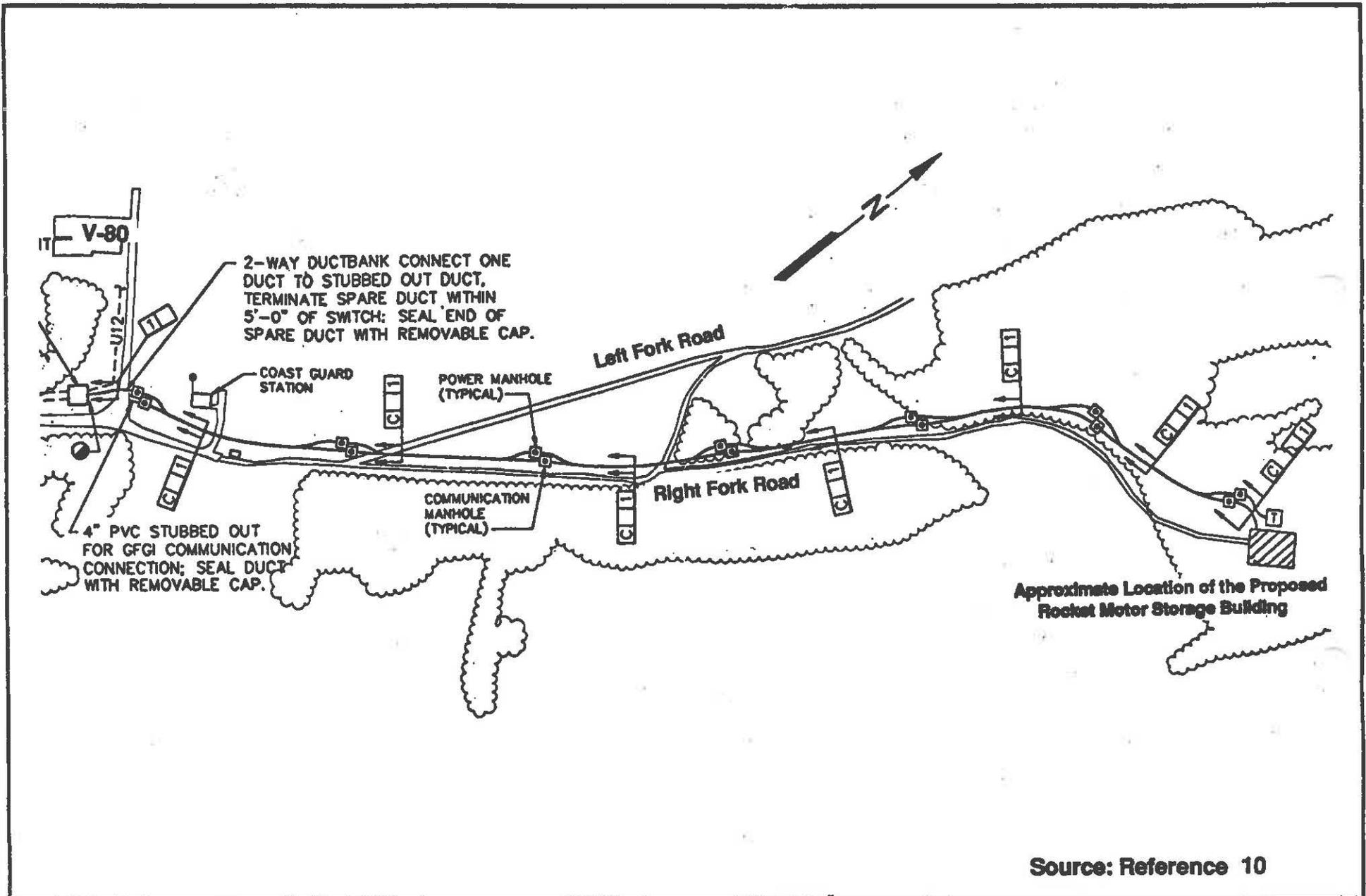


Figure 4.1.3-1
PROPOSED ELECTRIC UTILITY ROUTE

building would not impact wetlands.

4.1.5.2 No Action Alternative

No impacts to wetlands would occur with the no action alternative.

4.1.6 Health and Safety

4.1.6.1 Proposed Action

The QD distance for the proposed storage building (based on 165,000 pounds (74,830 kg) of Class 1.1 explosives) is 2,435 feet (742.2 meters) (Figure 4.1.6-1). Enforcement of the QD distance would not impact any permanent activities within the radial QD distance. Establishing the new QD distance may impact some previously allowed wildlife research and recreational activities, however, these activities are transient in nature and the allowance of them is secondary to operations in support of NASA's mission on Wallops Island. The socioeconomic section (4.3.1) includes a more detailed discussion of potential impacts to recreation and wildlife research activities.

Accidental detonation of the Class 1.1 rocket motors is very unlikely because of multiple preventative safety controls. NASA has never experienced an accidental detonation of rocket motors at GSFC/WFF during its history. Technicians trained and certified in handling explosive materials would perform all transport and handling activities. NASA does not install ignitors (normally needed to initiate an explosion) in rocket motors being transported or stored. Ignitors are routinely installed on the rocket launch pad before firing. The storage building would be fully enclosed and locked when unattended to prevent any unauthorized person from tampering with the contents. The building would have a lightning protection system designed in accordance with the Military Handbook for Lightning Protection (Reference 10) for explosive storage buildings. In the unlikely event that an accidental detonation occurred at the proposed building, enforcement of the QD would provide protection from the blast overpressure. Therefore, a remote location, allowing for easy control of activities within the QD is the best solution for minimizing health and safety risks.

4.1.6.2 No Action Alternative

The QD for Building V-80 after the Class 1.1 explosives are moved to the new storage building would be 300 feet (91.44 meters) (based on 100,000 pounds (45,352 kg) of Class 1.3 explosives). This reduction in QD for Building V-80 would allow NASA to regain use of Building V-65 and the nearby dock; therefore, implementing the proposed alternative would have an overall positive impact on the safety of human activity near the building. Building V-80 is more exposed to human activity than the proposed new rocket motor storage building because it is located off of the Island's primary paved road in a less remote location.

The no action alternative allows for continued storage of Class 1.1 rockets in a more populated location than the preferred alternative. Since human activities are more difficult to control, the health and safety risk of a detonation event in the no action alternative is higher. NASA has determined that the health and safety risks associated with long-term

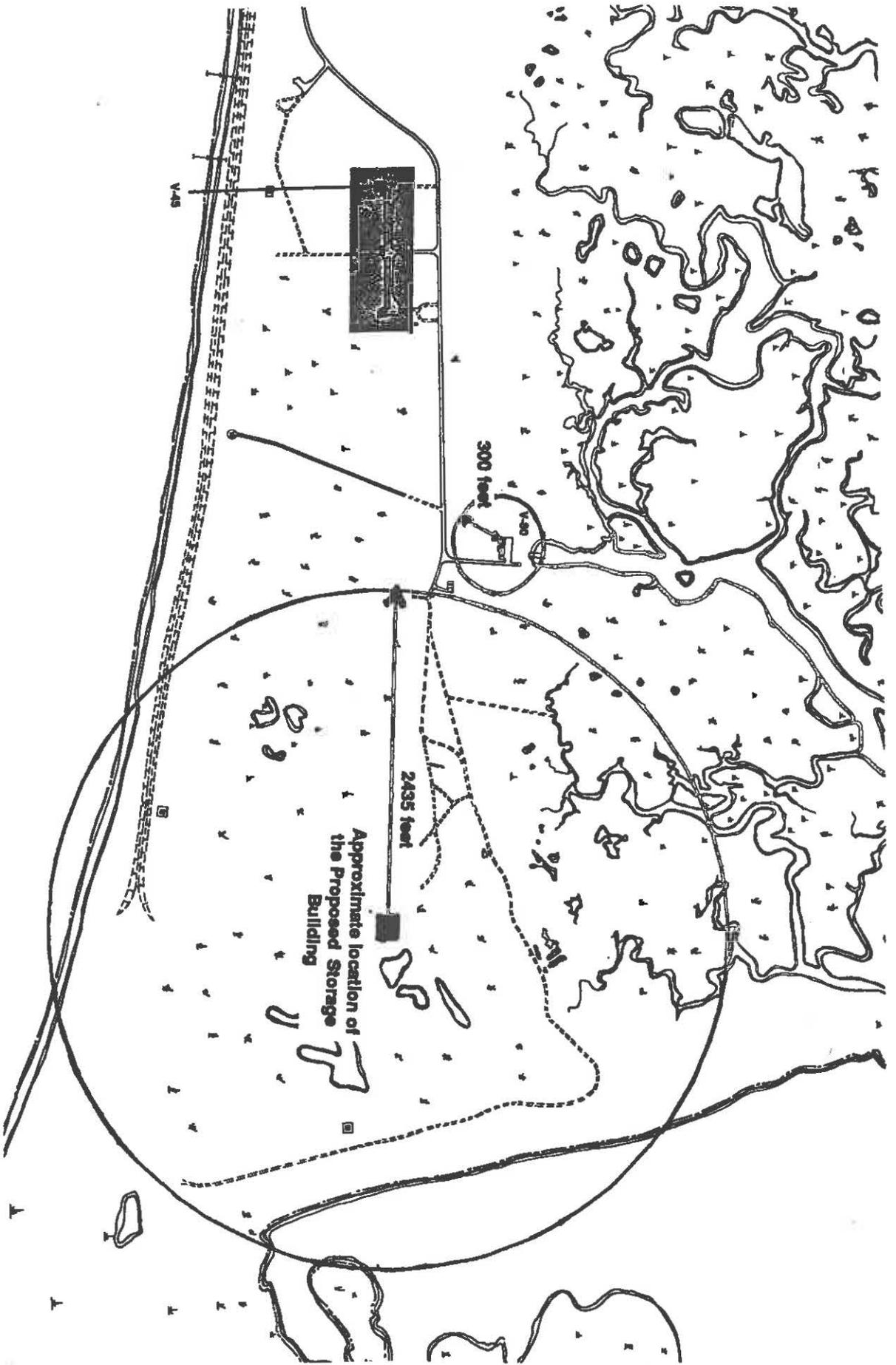


Figure 4.1.6-1
GD FOR THE PROPOSED ROCKET MOTOR STORAGE BUILDING AND
BUILDING V-80 STORING CLASS 1.3 EXPLOSIVES

storage of Class 1.1 explosives in Building V-80 (the no action alternative) are unacceptable.

4.2 BIOLOGICAL FACTORS

The biological factors resource category discussed in this section includes flora, fauna, and endangered species.

4.2.1 Flora

4.2.1.1 Proposed Action

Construction-related impacts of the proposed action on flora include the loss of established vegetation (characteristic of a maritime forest) at the building site. The proposed building would occupy 8,000 square feet (743.2 square meters) with a limit of clearing of approximately 0.45 acres/0.18 hectares. After construction, the contractor would establish and maintain vegetation through one planting season on cleared areas where there are exposed surfaces.

4.2.1.2 No Action Alternative

The no action alternative would not impact flora.

4.2.2 Fauna

4.2.2.1 Proposed Action

The passive operational nature of the proposed rocket motor storage facility would not disrupt wildlife activity near the building. Wildlife may experience short-term disturbances during the construction period due to heavy vehicle operations, increased noise levels, and the presence of man. These impacts would be considered short-term and temporary in nature.

4.2.2.2 No Action Alternative

The no action alternative would not impact wildlife.

4.2.3 Threatened and Endangered Species

4.2.3.1 Proposed Action

The regulatory agencies having jurisdiction over threatened and endangered species in the Commonwealth of Virginia have concurred with NASA's finding that the proposed action would not impact species or critical habitat protected under the Endangered Species Act (ESA). Correspondence from the Virginia Department of Agriculture and Consumer Services (VDACS), VDGIF AND USFWS can be found in Appendix A.

4.2.3.2 No Action Alternative

The no action alternative would not impact threatened and endangered species.

4.3 SOCIAL AND ECONOMIC FACTORS

The social and economic factors resource categories discussed in this section include socioeconomic environment, cultural environment, and regulatory environment.

4.3.1 Socioeconomic Environment

4.3.1.1 Proposed Action

The proposed rocket motor storage building would not impact the local economy. The existing security measures in place for Wallops Island, described in Section 3.3.1, would help maintain the operational safety of the proposed facility. There is the potential for some restrictions to wildlife research and recreational activities as a result of the proposed facility. The estimated QD distance of 2,435 feet (742.2 meters), would extend onto portions of the beach on the northern end of the Island that are currently available for NASA employee recreational purposes. Potential wildlife research areas would also fall within the estimated QD distance. Restrictions on land uses within the QD safety distance would be established by NASA's Range Safety Division.

4.3.1.2 No Action Alternative

The no action alternative would not impact the local economy or require additional security measures. Some wildlife research and recreational uses may be restricted by the no action alternative including use of the nearby boat dock.

4.3.2 Cultural Environment

4.3.2.1 Proposed Action

No structures currently eligible for or included on the National Register of Historic Places occur at the site proposed for construction of the rocket motor storage building on Wallops Island. The dynamic nature of the Mid-Atlantic barrier islands tends to preclude the potential for archeological sites on barrier islands. For these reasons, NASA concluded that the proposed action would not impact cultural resources on Wallops Island. NASA consulted with the Virginia Department of Historic Resources (VDHR) to fulfill the requirements of Section 106 of the National Historic Preservation Act (NHPA). The VDHR concurred with NASA's findings, indicating that the proposed action "*would not have an effect on historic properties.*" Refer to Appendix A for a copy of the NHPA Section 106 consultation correspondence.

4.3.2.2 No Action Alternative

The no action alternative would not have an effect on historic properties.

4.3.3 Regulatory Environment

4.3.3.1 Proposed Action

Table 4.3.3-1 describes how the proposed project meets the requirements of the Federal Regulations described in Table 3.3.3-1. NASA would adhere to all applicable explosive safety and transportation regulations (DOD and OSHA). Appropriate building and excavation permits would be obtained by the building contractor as required during the construction phase.

4.3.3.2 No Action Alternative

The no action alternative does not require construction and therefore does not need construction related permits. Building V-80 currently does not meet DOD and OSHA Standards for the Storage of Class 1.1 explosives, and therefore poses an unacceptable risk to GSFC/WFF.

**TABLE 4.3.3-1
HOW MAJOR FEDERAL REGULATIONS ARE MET FOR THE
ROCKET MOTOR STORAGE BUILDING**

NEPA COORDINATION WITH OTHER FEDERAL REGULATIONS AND EXECUTIVE ORDERS	DESCRIPTION OF HOW REGULATION IS MET FOR THE PROPOSED ROCKET MOTOR STORAGE FACILITY
The National Historic Preservation Act of 1966, 16 U.S.C. 470 et seq.	Refer to correspondence in Appendix A.
The Archaeological and Historic Preservation Act of 1974	Refer to correspondence in Appendix A.
Executive Order 11593 - Protection and Enhancement of the Cultural Environment	Refer to correspondence in Appendix A.
Executive Order 1190 - Protection of Wetlands	No impacts to wetlands are expected. The Army Corps of Engineers has determined that the proposed site is upland.
Executive Order 11988 - Floodplain Management	The proposed project will be constructed in a floodplain; however no practicable alternative exists since all of Wallops Island is located within the 100-year floodplain.
Coastal Zone Management Act	The proposed project is consistent with the Commonwealth of Virginia Coastal Zone Management Program which allows an exemption for activities necessary for defense. NASA's activities meet this exemption. No coastal primary sand dunes will be impacted.
Fish and Wildlife Coordination Act, 16 U.S.C. 661 et seq.	The proposed project will not impact any rivers or fish and wildlife in any rivers.
Endangered Species Act, 16 U.S.C. 1531 et seq.	Refer to correspondence in Appendix A.
The Clean Air Act, 42 U.S.C. 7476 (c)	The project is not expected to impact air quality. No air permit is required.
The Clean Water Act, 33 U.S.C. 1251 et seq.	The project is not expected to impact water quality.

4.4 SUMMARY OF IMPACTS

Table 4.4-1 presents a summary of the environmental consequences of the proposed and no action alternatives. A plus sign denotes potential beneficial environmental consequences and a minus sign denotes potential adverse environmental consequences.

TABLE 4.4-1. SUMMARY OF ENVIRONMENTAL CONSEQUENCES			
ENVIRONMENTAL FACTORS	PROPOSED ACTION	NO ACTION ALTERNATIVE	NOTES
PHYSICAL FACTORS			
Land Use	+	-	The no action alternative is not compatible with NASA land use designations. The preferred alternative is compatible with NASA land use designations.
Soils	(Short-term minimal)	None	Normal Construction Impacts Only
Infrastructure	None	None	
Water Resources	None	None	
Wetlands and Floodplains	None	None	
			The no action alternative does not meet OSHA and DOD requirements. The preferred alternative will improve existing health and safety conditions.
BIOLOGICAL FACTORS			
Flora	(Short-term minimal)	None	Normal Construction Impacts Only
Fauna	(Short-term minimal)	None	Normal Construction Impacts Only
Threatened and Endangered Species	None	None	
SOCIAL AND ECONOMIC FACTORS			
Socioeconomic	(Minimal)	(Minimal)	Both alternatives require recreational and research restrictions.
Cultural Resources	None	None	
Regulatory Environment	None	-	The no action alternative does not meet current regulatory requirements.

SECTION 5.0 REFERENCES

REFERENCE 1. Wallops, a Guide to the Facility.

REFERENCE 2. United States Department of Transportation publication no. DOTP5800.4, Guidebook for Initial Response to Hazardous Materials Incidents, 1987.

REFERENCE 3. Goddard Space Flight Center Facilities Master Plan, Volume 3, Wallops Flight Facility, June, 1988.

REFERENCE 4. Personal communication between Pamela Whitman and Ben Jackson, 11/29/93.

REFERENCE 5. Strategic Plan, Suborbital Projects and Operation Directorate, Goddard Space Flight Center, Wallops Flight Facility, January, 1992.

REFERENCE 6. Wallops Future Plans, prepared by the NASA GSFC/WFF, June, 1992.

REFERENCE 7. National Aeronautics and Space Administration Notice of Intent (NOI) to prepare a Draft Environmental Resources Document, NOI (91-1), 1991.

REFERENCE 8. United States Department of Defense, Military Handbook Lightning Protection, MIL-HDBK-1004/6, May, 1988.

REFERENCE 9. Design Plans, Clark, Nexsen, Barbieri, Gibson, 9/92.

REFERENCE 10. Memo describing a Preliminary Wetland Evaluation of Proposed Access Road, Wallops Island, to NASA Code 205 Associate Chief, Safety Environmental and Security Office from the Computer Sciences Corporation (CSC) Code 205.3 Project Manger, CSC Task 47.

REFERENCE 11. NASA Memo for Files, xerox Copy provided to Metcalf & Eddy in 1992 by Pamela Whitman of NASA (author's name does not appear on the document).

REFERENCE 12. Goddard Space Flight Center, Wallops Flight Facility, Environmental Resources Document, prepared by Metcalf & Eddy Inc., final version to be completed in 1993.

REFERENCE 13. Accomack County Comprehensive Plan, Accomack County Planning Commission, Accomac, VA, September, 1989.

REFERENCE 14. ATEC Associates, Inc., Geotechnical Soil Boring logs (B-1, B-2, B-3, B-4) for the construction of the Rocket Motor Storage Building on Wallops Island, August, 1992.

REFERENCE 15. "Wetlands Survey of Proposed Access Road for Proposed Rocket Motor Storage Facility, Wallops Island, 1993" prepared for GSFC/WFF by Computer Sciences Corporation Environmental Services. Document received by Metcalf & Eddy on July 12, 1993.

REFERENCE 16. NASA comments on the Draft Rocket Motor Storage Environmental Assessment.

REFERENCE 17. Environmental Assessment of the Proposed Launch of the Commercial Launch Vehicle, Conestoga, prepared by Reynolds, Smith, and Hills, Inc., July, 1992.

REFERENCE 18. National Aeronautics and Space Administration, "Environmental Resources Document, Wallops Flight Facility, Wallops Island, Virginia". NASA Technical Memorandum 100774, July, 1990.

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Virginia Marine Resources Commission, Habitat Management Division, P.O. Box 1143, Richmond, VA, 23230

Commonwealth of Virginia, Department of Environmental Quality, Water Division, P.O. Box 11143, Richmond, Virginia, 23230

Threatened and Endangered Species :

U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Mid-County Center, U.S. Route 17, P.O. Box 480, White Marsh, Virginia, 23183

Commonwealth of Virginia Department of Agriculture and Consumer Services, Division of Product and Industry Regulation, P.O. Box 1163, Richmond, Virginia, 23209

Commonwealth of Virginia Department of Game and Inland Fisheries, 4010 West Broad Street, P.O. Box 11104, Richmond, Virginia, 23230-1104

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**Mr. Ben Jackson, National Aeronautics and Space Administration, Wallops Flight Facility,
Wallops Island, Virginia, 23337**

*** Refer to Appendix A for copies of correspondence pertaining to wetlands, threatened
and endangered species, and cultural resources.**

APPENDIX A REGULATORY AGENCY CORRESPONDENCE



United States Department of the Interior



FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
MID-COUNTY CENTER, U.S. ROUTE 17
P.O. BOX 480
WHITE MARSH, VIRGINIA 23183

August 24, 1992

Mr. Terry M. Potterton
National Aeronautics and
Space Administration
Wallops Island Flight Facility
Wallops Island, Virginia 23337

Re: Pegasus Vehicle, Hazardous Waste
Staging, and Rocket Motor Storage,
Wallops Island, Virginia

Dear Mr. Potterton:

This responds to your June 8, 1992 request for information on the presence of species that are Federally listed or proposed for listing as endangered or threatened that may be impacted by the Pegasus small expendable launch vehicle, construction of a new hazardous waste staging facility and a new rocket motor storage building at Wallops Island, Accomack County, Virginia. Please note that your letter did not arrive at our office until July 9, 1992. Your letter indicated that four projects were to be reviewed, however only information on the three projects referenced above was provided. We have reviewed the information you enclosed and are providing comments in accordance with provisions of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

The Federally listed endangered and threatened species known to occur at Wallops Island are the peregrine falcon (Falco peregrinus) and piping plover (Charadrius melodus). The Pegasus small expendable launch vehicle is not likely to impact either of these species since actual launches will occur over the ocean and no new construction will be required. Construction of the new hazardous waste staging facility at Wallops Main Base will not impact either of these species since construction is not on the island. Construction of the new rocket motor storage building is unlikely to impact either species since it is located more than one-half mile from the peregrine nest and the beach area used by plovers.

Mr. Terry M. Potterton

Page 2

This response relates only to endangered species under our jurisdiction. It does not address other U.S. Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other legislation. If you have any questions or need further assistance, please contact Cindy Schulz of this office at (804) 693-6694.

Sincerely,



Karen L. Mayne

For Karen L. Mayne
Supervisor
Virginia Field Office



COMMONWEALTH of VIRGINIA

Department of Game and Inland Fisheries

September 11, 1992

Ms. Pamela Whitman
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, Virginia 23337

Re: Assessment of Environmental Impact for three
projects at Wallops Flight Facility (WFF)
Accomack County
ESSLOG # 4724

Dear Ms. Whitman:

We have reviewed the preliminary assessment of impacts upon endangered or threatened species of three proposed projects at Wallops Flight Facility. The following comments are submitted in accordance with provisions of the National Environmental Policy Act, and under authority of Title 29.1 (Game, Inland Fisheries and Boating) of the Code of Virginia. Based on our review of the material submitted, we do not anticipate significant adverse impacts upon endangered or threatened species to result from Project #1, Pegasus small expendable launch vehicle (SELV) project, or Project #2, construction of a new hazardous waste staging facility. Similarly, we do not anticipate significant impacts upon the peregrine falcon hacking tower and nest site, located approximately 1/2 mile from the proposed construction site, to result from Project #3, construction of a new rocket motor storage building. We do request that you continue to coordinate with the Department regarding the Project #3 construction schedule, so that we can avoid any potential impacts upon this federally endangered species. Thank you for the opportunity to comment on this preliminary environmental assessment. Please call me if we may be of further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read 'Raymond T. Fernald'.

Raymond T. Fernald, Manager
Environmental Services Section

RTF/mbm





CLINTON V. TURNER
COMMISSIONER

COMMONWEALTH of VIRGINIA

C. KERMIT SPRUILL, JR.
DIRECTOR

DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

Division of Product and Industry Regulation

P. O. Box 1163, Richmond, Virginia 23209

July 15, 1992

Terry M. Potterton
Associate Chief, Health, Safety
and Security Office
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

RE: Endangered and Threatened Species in the Vicinity of
Three Projects at Wallops Flight Facility

Dear Mr. Potterton:

This letter is in response to your request for information on state listed threatened or endangered plant or insect species in the vicinity of the three projects (SELV Project, Waste Staging Facility, Rocket Motor Storage Building) at the Wallops Flight Facility, Wallops Island, VA. To date, there are no known state listed endangered or threatened plant or insect species in the areas outlined on the maps that your submitted.

The Virginia Department of Agriculture and Consumer Services has jurisdiction over state listed plant and insect species only. Additional information on unique geologic formations, rare habitat and species, and candidates proposed for listing can be obtained from Mr. Chris Ludwig at the Division of Natural Heritage (804)786-7951. This information should be readily available from their database.

Thank you for your interest in the endangered or threatened plant and insect species in Virginia. If you have any questions or need any additional information, please contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "John R. Tate".

John R. Tate
Office of Plant Protection
Endangered Species Coordinator

cc: Chris Ludwig
Sarah Pugh



COMMONWEALTH of VIRGINIA

Hugh C. Miller, Director

Department of Historic Resources

221 Governor Street
Richmond, Virginia 23219

TDD: (804) 786-1934
Telephone (804) 786-3143
FAX: (804) 225-4261

August 18, 1992

Terry M. Potterton
Associate Chief, Health, Safety & Security Office
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

RE: New Rocket Storage Building, Wallops Island; VDHR # 92-1583-F
Pegasus Launch Vehicle (SELV), Wallops Island; VDHR # 92-1581-F

Dear Mr. Potterton:

Thank you for your letter of July 8, 1992 describing the above mentioned projects. Our staff has completed review of the project. Based on the information submitted, we have determined that the proposed undertaking will have no effect on historic properties.

Thank you for the opportunity to comment on this project. You have met the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended. If you have any questions regarding staff review of the undertaking, or if we can provide further assistance, please contact Mary Harding Sadler or Antony F. Opperman.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Larson".

Bruce J. Larson
Project Review Supervisor



U.S. Army Corps of Engineers
Norfolk District, Eastern Virginia Regulatory Section
General Delivery
Accomac, Virginia 23301

January 3, 1994

Project Number: 94-9500

Waterway: Atlantic Ocean

1. Property Owner:

NASA- GSFC-Wallops Flight Facility
ATTN: Terry M. Potterton
Safety, Environmental, and Security Office
Building/Code F-205
Wallops, Virginia 23337

2. Authorized Agent:

3. Address of Job Site:

Wallops Barrier Island

4. Project Description:

Relocation of Rocket Motor Storage Road to avoid vegetated wetlands.

5. Findings

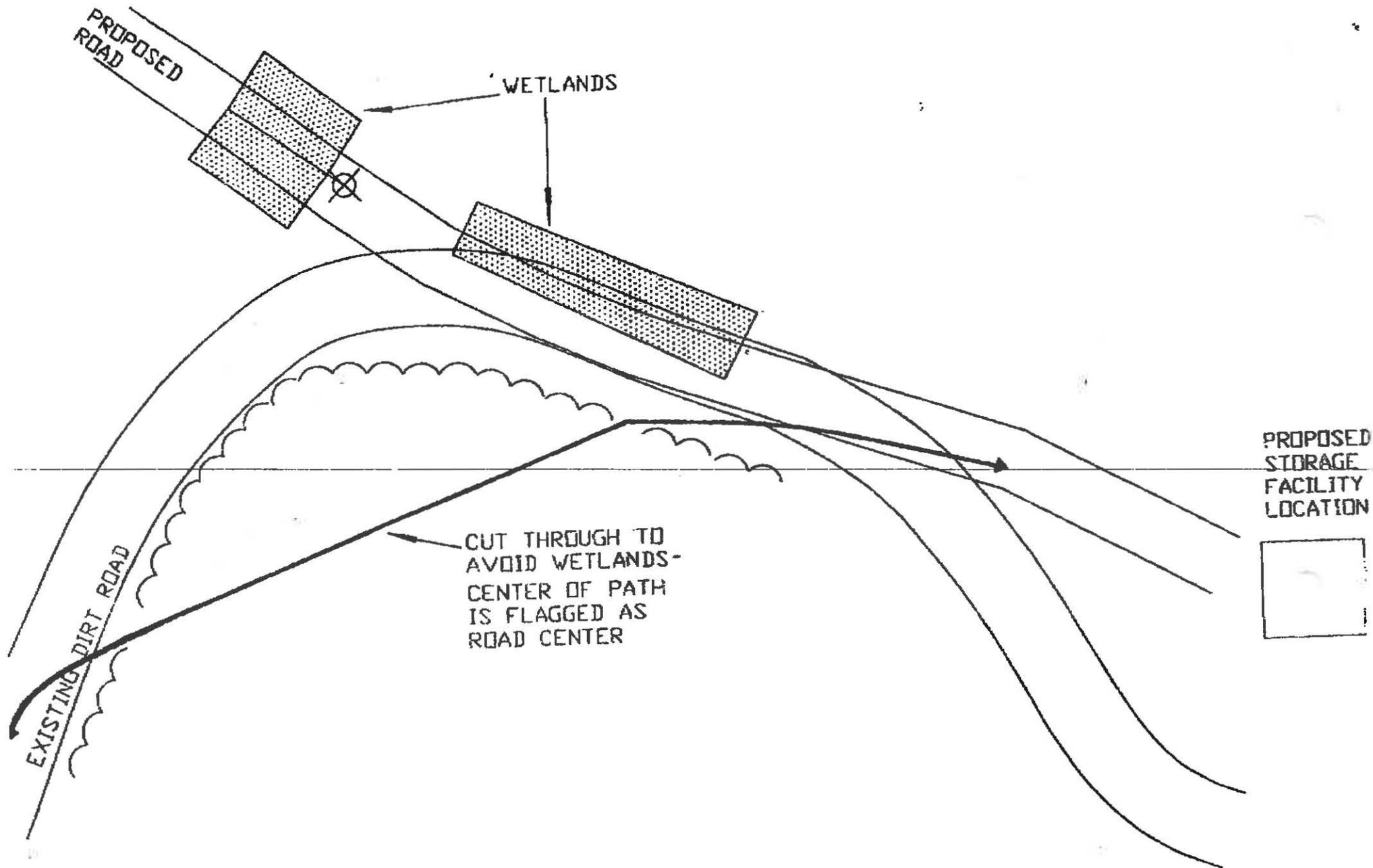
This is in reference to the jurisdictional determination you requested (fax dated Nov. 18, 1993) on the relocation of the proposed Rocket Motor Storage Road to avoid vegetated wetlands. The alignment shown on your drawing (enclosure) is over uplands and avoids the adjacent vegetated wetland areas. A Department of the Army permit will not be required to construct your proposed road over this revised alignment.

6. Corps Contact: Gerald D. Tracy (804) 787-3133



Nicholas L. Konchuba
Chief, Eastern Virginia Regulatory Section

NEW PROPOSAL FOR RUCKEL M.I.L. STORAGE ACCESS ROAD, 11/1993



DRAWING NOT TO SCALE



