Man in Space Theme Study
Federal Agency Nomination

Form No. 10-306 (Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY – NOMINATION FORM

FOR FEDERAL PROPERTIES

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DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC: Space Launch Complex 10

AND/OR COMMON: Missile Launch Complex 10

2 LOCATION

STREET & NUMBER: Vandenberg Air Force Base — _NOT FOR PUBLICATION

CITY, TOWN: Lompoc — _ VICINITY OF — CONGRESSIONAL DISTRICT

STATE	CODE	COUNTY	CODE
California	06	Santa Barbara	083

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
_DISTRICT	X PUBLIC	_OCCUPIED	_AGRICULTURE	_MUSEUM
_BUILDING(S)	_PRIVATE	_UNOCCUPIED	_COMMERCIAL	_PARK
X STRUCTURE	_BOTH	_WORK IN PROGRESS	_EDUCATIONAL	_PRIVATE RESIDENCE
X SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	_ENTERTAINMENT	_RELIGIOUS
_OBJECT	_IN PROCESS	X YES: RESTRICTED	X GOVERNMENT	X SCIENTIFIC
	_BEING CONSIDERED	_YES: UNRESTRICTED	_INDUSTRIAL	X TRANSPORTATION
		_NO	X MILITARY	X OTHER: Space Exploration

4 AGENCY

REGIONAL HEADQUARTERS: *(If applicable)*
United States Air Force

STREET & NUMBER
Vandenberg Air Force Base

CITY, TOWN: Lompoc — VICINITY OF — STATE: California

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.: Headquarters United States Air Force/LEER

STREET & NUMBER: Building 516, Bolling Air Force Base

CITY, TOWN: Washington — STATE: DC 20032

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
None

DATE — _FEDERAL _STATE _COUNTY _LOCAL

DEPOSITORY FOR SURVEY RECORDS

CITY, TOWN — STATE

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
_EXCELLENT	_DETERIORATED	_UNALTERED	X ORIGINAL SITE
X GOOD	_RUINS	X ALTERED	_MOVED DATE_____
_FAIR	_UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Space Launch Complex Ten (SLC-10) is located on Vandenberg Air Force Base and is part of the Headquarters Air Force Systems Command Western Space and Missile Center (WSMC). Vandenberg Air Force Base belongs to the Strategic Air Command (SAC), and WSMC is a tenant unit on this HQ SAC installation.

SLC-10 is one of two launch pads built by the Douglas Aircraft Company to support combat training launches of the SM-75 THOR Intermediate-Range Ballistic Missile (IRBM). The other complex built for this program were SLC-2. Initially designated Complex 75-2, construction of the launch site began in January 1958 and was completed shortly before its acceptance by the Air Force in October 1958. The original SLC-10 launch site consisted of three launch pads, and all were decommissioned and stripped after THOR IRBM launches were discontinued in June 1962. The site was reactivated in 1964 with two launch pads, later designated as SLC-10 East and SLC-10 West, but launches were restricted to SLC-10W. SLC-10E was used strictly for training following its reactivation. SLC-10W was originally designated as Pad 75-2-6 for THOR IRBM launches, and as 4300 B-6, then LE-6 after reactivation for space launches. The last launch from SLC-10E was 19 March 1962, and it was decommissioned and stripped shortly thereafter. The last launch from SLC-10W was 14 July 1980, and it was then decommissioned and kept in a caretaker status.

SLC-10 is composed of a Blockhouse and two launch pads. Only the concrete pad, the prefabricated shelter building (launch shed), and some support equipment are left at SLC-10E. At SLC-10W the Blockhouse and Pad with supporting structures retain their integrity.

Blockhouse

The Launch Control Blockhouse at SLC-10 was used to control launches from both the East and West Pads. The blockhouse is a self-contained reinforced concrete building capable of withstanding the dangers of catastrophic vehicle failure at lift-off. The control room houses numerous monitor consoles necessary to support the vehicle and spacecraft during testing and final countdown. Television monitors are mounted in the control room wall for viewing the vehicle and critical prelaunch functions from cameras at vantage points around the complex.[1] The cameras have been removed from the launch pad. A portion of the flooring in the second story is in poor condition, but the first floor is in good condition.

Support System

The missiles launched from this pad were liquid fueled. At SLC-10W, the fuel and liquid oxygen storage tanks, four nitrogen storage tanks, two high pressure storage tanks, and their associated pipes are still intact and in good condition. The launch vehicle erecting-launching mount and the launch shelter (prefabricated building) are still in place and in good condition. The trailer mounted launch vehicle system checkout station, the trailer-mounted missile launching countdown group, and the trailer-mounted air conditioner have all been removed. The trailer mounted hydro-pneumatic controller is still on the pad and in good condition. At SLC-10E, all liquid oxygen, fuel, and nitrogen storage tanks have been removed, except for one high pressure nitrogen tank. There is also some skid-mounted, propellant-handling equipment on the pad at SLC-10E.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
_PREHISTORIC	_ARCHEOLOGY-PREHISTORIC	_COMMUNITY PLANNING	_LANDSCAPE ARCHITECTURE	_RELIGION
_1400-1499	_ARCHEOLOGY-HISTORIC	_CONSERVATION	_LAW	_SCIENCE
_1500-1599	_AGRICULTURE	_ECONOMICS	_LITERATURE	_SCULPTURE
_1600-1699	_ARCHITECTURE	_EDUCATION	_MILITARY	_SOCIAL/HUMANITARIAN
_1700-1799	_ART	X ENGINEERING	_MUSIC	_THEATER
_1800-1899	_COMMERCE	_EXPLORATION/SETTLEMENT	_PHILOSOPHY	X TRANSPORTATION
X 1900-	_COMMUNICATIONS	_INDUSTRY	_POLITICS/GOVERNMENT	X OTHER (SPECIFY)
		_INVENTION		Space Exploration

SPECIFIC DATES 1958-1980 BUILDER/ARCHITECT US Air Force

STATEMENT OF SIGNIFICANCE

Space Launch Complex 10 was built for the Air Force in 1958 for their Intermediate Range Ballistic Missile (IRBM) Testing Program. The first launch from SLC-10E occurred on 16 June 1959 by the Royal Air Force (United Kingdom). The first launch from SLC-10W occurred on 14 August 1959, when a Royal Air Force crew launched a THOR DM-18A IRBM nicknamed "Short Skip" down the range.

In order to support the nuclear testing project at Johnston Island, the entire launch complex was dismantled and transported to that remote Pacific atoll between January and March 1962. It was designated as LE-1 (JI).

The desire of Headquarters USAF to proceed with the Burner I/Altair satellite program led to the decision to rebuild SLC-10W, which was at that time under the control of HQ SAC's 4300th Support Squadron and was designated as 4300 B-6. Construction began in May 1963, using equipment shipped from England where the 60 SM-75 IRBM sites were being dismantled, and was completed in October 1963.

After the pad was used for missile/launcher twist testing in its IRBM configuration over March-April 1964, it was partially torn down for modifications to support space launch operations. The pad was back in commission in October 1964, ready to support the Burner I/Altair series of satellite launches.

On 18 January 1965, the first THOR Burner I space booster was launched. The 4300th Support Squadron launched a total of six Burner I and two Burner II satellites from SLC-10W. On 1 April 1967, the Burner program was transferred to the Aerospace Defense Command (ADCOM) and was assigned to the 10th Aerospace Defense Group (AERODG). ADCOM crews then launched ten Burner II, eight Burner II-A, and four Block 5D-1 payloads from SLC-10W over the following 12 1/2 years.

On 1 November 1979, the ADCOM launch mission and crews were transferred to SAC's 394th ICBM Test Maintenance Squadron. Only eight and one-half months later, on 14 July 1980, the last LV-2F THOR Space Booster in existence became the 32nd THOR to lift off from Space Launch Complex Ten-West.

SLC-10W is the best surviving example of a launch complex built in the 1950s at the beginning of the American effort to explore space.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Western Test Range Operations Handbook. John F. Kennedy Space Center: Florida, 1968.

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY Approximately 138 acres

UTM REFERENCES See Continuation Sheet

	ZONE	EASTING	NORTHING		ZONE	EASTING	NORTHING
A				B			
C				D			

VERBAL BOUNDARY DESCRIPTION

The boundary of Space Launch Complex 10W is marked by a line connecting points "ABCDEFGA" on the accompanying map entitled "Vandenberg AFB, California Space Launch Complex 10 Boundaries".

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE

Captain Mark C. Mondl, Space Transportation System Environmental Program Manager

ORGANIZATION — DATE

Headquarters Space Division, Directorate of Acquisition Civil Engr — 3 January 1986

STREET & NUMBER — TELEPHONE

Building 130 — (213) 643-0933

CITY OR TOWN — STATE

Los Angeles Air Force Station — California

12 CERTIFICATION OF NOMINATION

STATE HISTORIC PRESERVATION OFFICER RECOMMENDATION

YES____ NO____ NONE____

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Historic Preservation Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The evaluated level of significance is ____National ____State ____Local.

FEDERAL REPRESENTATIVE SIGNATURE

TITLE — DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST: DATE

KEEPER OF THE NATIONAL REGISTER

GPO 899-214

Other Buildings/Structures

Building 1657 - Office and Administration Building.

Building 1658 - Electronic Equipment Building (EEB) -This structure has numerous electronic components in it that are environmentally sealed. This is electronic checkout equipment. There is also a hydraulic power unit in the building.

Building 1659 - Storage and Maintenance Building.

Building 1663 - Bench Stock and Tool Crib - There are assorted tool and bench stock still in this building and some safety equipment, including the original wet suits.

Building 1664 - Storage and Maintenance Building.

Equipment within SLC-10W Launch Shed

Nitrogen Purge Chart.

Launch Vehicle Erecting - Launching Mount (Upper and Lower Stage).

Missile Handling Trailer.

Reentry Vehicle Transportation Trailer (2).

Rocket Engine Transportation Trailer (3).

Equipment within SLC-10E Launch Shed

Launch Vehicle Erecting - Launching Mount (Upper Stage - 2, no Lower Stage).

Trailer Mounted Air Conditioning Units (2).

Mobile Work Stands (6).

Rocket Motor Alignment Kit.

Rocket Motor Storage Container Kit (2).

DEWAR Units - Portable Fuel Filters (2).

Footnotes

1. Western Test Range Operations Handbook (JFK Space Center, Jan 68), p. v-1.

The SLC-10 blockhouse, with its supporting electrical equipment, is intact. Only minimum modifications were made over the years. Although the complex had been dismantled and then rebuilt from the original equipment, as well as from other THOR launch pads, the equipment is all original equipment designed for the same mission. The blockhouse with its electronic equipment is today one of the best surviving example of working electronics used to support a space launch from this era. The only comparable example is the blockhouse at SLC-2W and the Launch Complex 26 at Cape Canaveral Air Force Station.

The equipment at Launch Complex 26 is not operational. It was reconstructed for visitor interpretation when Launch Complex 26 became part of the US Air Force Museum. The equipment at the Blockhouse for SLC-2W is operational but has been modified to support the NASA DELTA launch program. Although modifications were kept to a minimum at SLC-2W, SLC-10W was not modified to support this program. The equipment at the Blockhouse at SLC-10 has been mothballed, could be made operational, dates from the period of the 1950s, and is integral to the site. It is one of the best surviving examples of this technology.

In a similar manner the Launch Pad at SLC-10W is intact and survives from the 1950s with only minor modifications, primarily the changes were in removing the trailers and the fuel storage tanks from the site. SLC-10W has been decommissioned since 1980 with very little maintenance performed on site since that date. However, it is still in a good state of preservation.

SLC-10W with its blockhouse is a unique resource that represents the best surviving example of a working 1950s-era launch complex that propelled Americans into Space.

Launches From Space Launch Complex 10-East and West Pads

There were seven attempted launches from SLC-10E. Six of the launches were successful. All of the launches were conducted by the Royal Air Force.

Launches from SLC-10W:

Date	Missile Type	Cum By Booster	Program	Command*	Cum By Command	Pad Designation
14 AUG 59	THOR IRBM	1	IWST	RAF	3	75-2-6
18 JAN 65	THOR/ALTAIR**	1	Space	SAC	143	4300 B-6
17 MAR 65	THOR/ALTAIR	2	Space	SAC	156	4300 B-6
20 MAY 65	THOR/ALTAIR	3	Space	SAC	167	4300 B-6
9 SEP 65	THOR/ALTAIR	4	Space	SAC	183	4300 B-6
6 JAN 66	THOR/ALTAIR	5	Space	SAC	190	4300 B-6
30 MAR 66	THOR/ALTAIR	6	Space	SAC	202	4300 B-6

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Date	Missile Type	Cum By Booster	Program	Command	Cum By Command	Pad Designation
15 SEP 66	THOR/BURNER II	1	Space	SAC	230	4300 B-6
8 FEB 67	THOR/BURNER II	2	Space	SAC	248	4300 B-6
29 JUN 67	THOR/BURNER II	3	Space	ADCOM	1	LE-6
22 AUG 67	THOR/BURNER II	4	Space	ADCOM	2	LE-6
11 OCT 67	THOR/BURNER II	5	Space	ADCOM	3	LE-6
22 MAY 68	THOR/BURNER II	6	Space	ADCOM	4	SLC-10W
22 OCT 68	THOR/BURNER II	7	Space	ADCOM	5	SLC-10W
22 JUL 69	THOR/BURNER II	8	Space	ADCOM	6	SLC-10W
11 FEB 70	THOR/BURNER II	9	Space	ADCOM	7	SLC-10W
3 SEP 70	THOR/BURNER II	10	Space	ADCOM	8	SLC-10W
16 FEB 71	THOR/BURNER II	11	Space	ADCOM	9	SLC-10W
8 JUN 71	THOR/BURNER II	12	Space	ADCOM	10	SLC-10W
14 OCT 71	THOR/BURNER IIA	1	Space	ADCOM	11	SLC-10W
24 MAR 72	THOR/BURNER IIA	2	Space	ADCOM	12	SLC-10W
8 NOV 72	THOR/BURNER IIA	3	Space	ADCOM	13	SLC-10W
16 AUG 73	THOR/BURNER IIA	4	Space	ADCOM	14	SLC-10W
16 MAR 74	THOR/BURNER IIA	5	Space	ADCOM	15	SLC-10W
8 AUG 74	THOR/BURNER IIA	6	Space	ADCOM	16	SLC-10W
23 MAY 75	THOR/BURNER IIA	7	Space	ADCOM	17	SLC-10W
18 FEB 76	THOR/BURNER IIA	8	Space	ADCOM	18	SLC-10W
11 SEP 76	THOR/BLOCK 5D-1	1	Space	ADCOM	19	SLC-10W
4 JUN 77	THOR/BLOCK 5D-1	2	Space	ADCOM	20	SLC-10W
30 APR 78	THOR/BLOCK 5D-1	3	Space	ADCOM	21	SLC-10W
6 JUN 79	THOR/BLOCK 5D-1	4	Space	ADCOM	22	SLC-10W
14 JUL 80	THOR/BLOCK 5D-1	5	Space	AFSC/SAC	--	SLC-10W

* ADCOM - AEROSPACE DEFENSE COMMAND
AFSC - AIR FORCE SYSTEMS COMMAND
IWST - INTEGRATED WEAPON SYSTEM TRAINING (RAF/SAC)
RAF - ROYAL AIR FORCE (UNITED KINGDOM)
SAC - STRATEGIC AIR COMMAND

** THOR/ALTAIR was actually a THOR/BURNER I

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Geographical Data

UTM References for SLC-10 Boundary

A 10/718045/3849720

B 10/718200/3849160

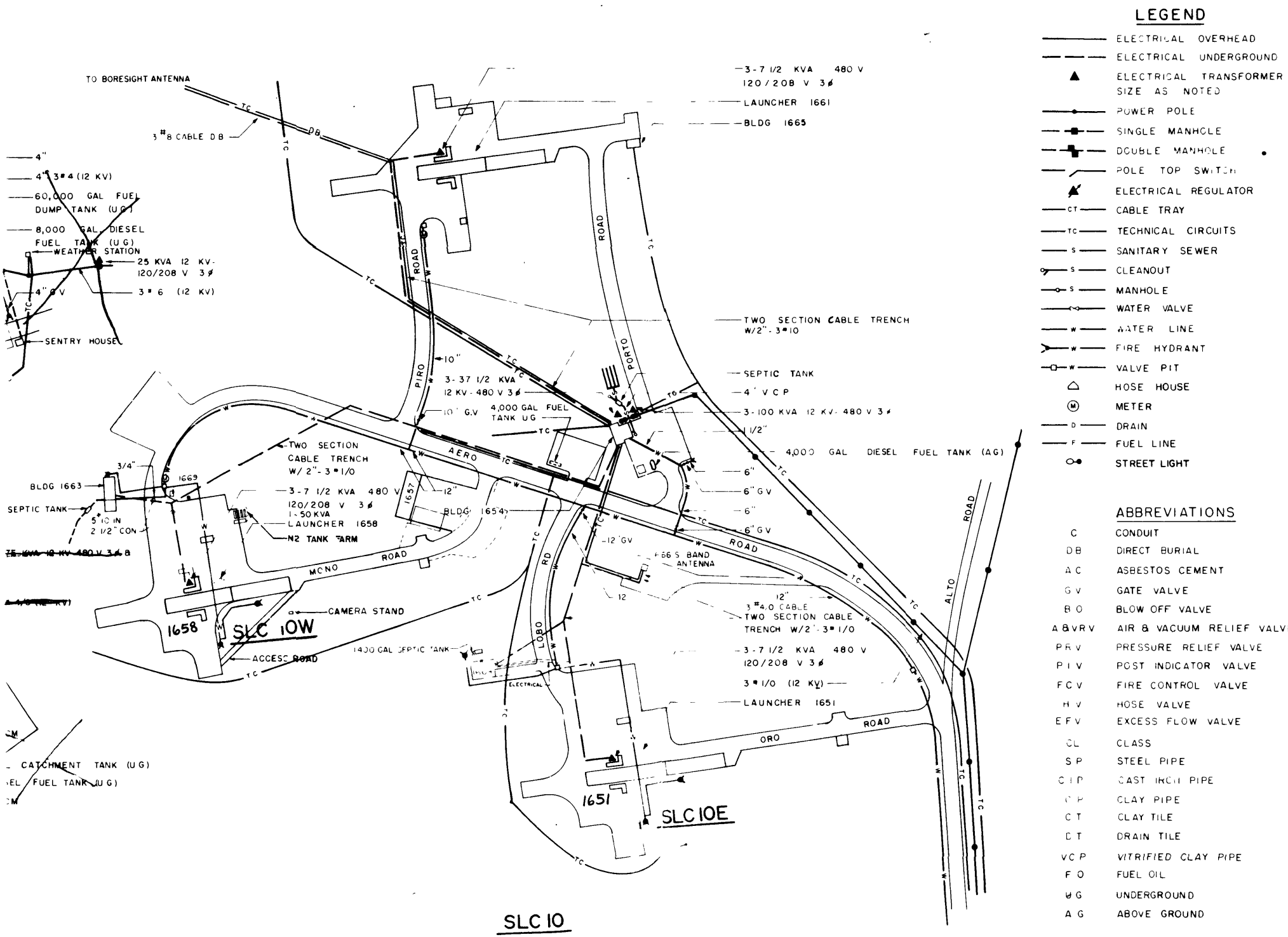
C 10/717630/3849000

D 10/717180/3849040

E 10/717040/3849190

F 10/717220/3849620

G 10/717460/3849820



SLC 10

SCALE 1" = 150'

LEGEND

- ELECTRICAL OVERHEAD
- ELECTRICAL UNDERGROUND
- ELECTRICAL TRANSFORMER SIZE AS NOTED
- POWER POLE
- SINGLE MANHOLE
- DOUBLE MANHOLE
- POLE TOP SWITCH
- ELECTRICAL REGULATOR
- CT — CABLE TRAY
- TC — TECHNICAL CIRCUITS
- S — SANITARY SEWER
- S — CLEANOUT
- S — MANHOLE
- WATER VALVE
- W — WATER LINE
- W — FIRE HYDRANT
- W — VALVE PIT
- HOSE HOUSE
- (M) METER
- D — DRAIN
- F — FUEL LINE
- STREET LIGHT

ABBREVIATIONS

C	CONDUIT
D B	DIRECT BURIAL
A C	ASBESTOS CEMENT
G V	GATE VALVE
B O	BLOW OFF VALVE
A & V R V	AIR & VACUUM RELIEF VALVE
P R V	PRESSURE RELIEF VALVE
P I V	POST INDICATOR VALVE
F C V	FIRE CONTROL VALVE
H V	HOSE VALVE
E F V	EXCESS FLOW VALVE
CL	CLASS
S P	STEEL PIPE
C I P	CAST IRON PIPE
C P	CLAY PIPE
C T	CLAY TILE
D T	DRAIN TILE
V C P	VITRIFIED CLAY PIPE
F O	FUEL OIL
U G	UNDERGROUND
A G	ABOVE GROUND

1. Space Launch Complex - Ten West.

2. Vandenberg Air Force Base, California.

3. Official US Air Force Photograph.

4. 1983.

5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.

6. Interior of Prefabricated Shelter Bldg (Launch Shed) showing Launch Vehicle Erecting-Launching Mount.

7. Photograph #3.

1. Space Launch Complex - Ten.

2. Vandenberg Air Force Base, California.

3. Official US Air Force Photograph.

4. 1983.

5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.

6. Launch Control Center, Bldg 1654.

7. Photograph #4.

1. Space Launch Complex - Ten.

2. Vandenberg Air Force Base, California.

3. Official US Air Force Photograph.

4. 1983.

5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.

6. Interior of Launch Control Center, Bldg 1654.

7. Photograph #5.

1. Space Launch Complex - Ten.

2. Vandenberg Air Force Base, California.

3. Official US Air Force Photograph.

4. 1983.

5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.

6. Interior of Launch Control Center, Bldg 1654.

7. Photograph #6.

1. Space Launch Complex - Ten West.

2. Vandenberg Air Force Base, California.

3. Official US Air Force Photograph.

4. 1983.

5. 1939 Audiovisual Squadron, Vandenberg AFB, CA.

6. SLC-10, Launch Pad, Prefrabricated Shelter Bldg (Launch Shed), Northeast Face.

7. Photograph #1.