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**Report No. 3746**

**Site Survey Report for an ACCAT Remote Site Module  
at the Naval Postgraduate School**

Revised October 1978

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Prepared for:  
Defense Advanced Research Projects Agency

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*REPORT*

SITE SURVEY FOR AN ACCAT REMOTE SITE MODULE  
AT THE NAVAL POSTGRADUATE SCHOOL

Revised October 1978

Submitted to:

Defense Advanced Research Projects Agency  
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REMOTE SITE MODULES  
NAVAL POSTGRADUATE SCHOOL

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## 1. Overview

→ This report was prepared as part of remote site planning activity for the joint ARPA/Navy Advanced Command Control Architectural Testbed (ACCAT) program. It deals with the site planning for the installation of an ACCAT remote site module (RSM) at the Naval Postgraduate School, Monterey California. ←

This RSM will have access to the ACCAT secure subnet of the ARPANET, hence a PLI and secured environment will be required.

The network connection will be through a TIP which will be installed in the Church Computer Center (building 135). The RSM will be located in Room 152, which will be secured to the level of Top Secret.

One advantage of the TIP/PLI connection will be its ability to allow non-secure access to the ARPANET, through the TIP Multi-line Controller, as well as secure access to the subnet through the RSM/PLI.

The various system components will be initially shipped to BBN to be integrated and tested. At this time, all equipment will go through an acceptance test to insure that all units are complete and reliably operational.

All interconnecting cables will be tested by BBN, with the exception of IMP and PLI cables which will be tested on the site.

When the hardware and software checkout is complete, the system will be shipped to NPS for reinstallation.

## 2. Equipment List RSM/NPS

## DEC Equipment

Item	Qty.	Model No.	Description
1	1	CM70CVA-LA	PACKAGED SYSTEM CONSISTING OF: . PDP-11/70 computer . 256K bytes parity core . 2K byte bipolar cache . Bootstrap/Dignostic Loader . Line Frequency Clock . DECwriter II terminal . Terminal Control . Two cabinets (one for CPU, one for memory) . RWP06-AA - 176M byte disk and control . TWE16 - 1600 bpi magtape and control
2	1	RP06-AA	Single access 176 Mbyte disk drive.
3	1	TE16-EE	Slave Drive, 9 track
4	1	FP11-C	Floating Point Unit
5	1	H960-DH	Cabinet with 9 SU expander box
6	1	DH11-AD	Complete programmable asynchronous multiplexer. EIA/CCITT does not include cables.
7	1	DZ11-E	16 line asynchronous multiplexer for EIA/CCITT terminals.
8	1	DD11-DK	Backpanel
9	1	IMP11-A	Special Interface
10	1	11/03	11/03 Processor (to control joystick input to Genesco unit).

## Genisco Equipment

11	3	GTC-3011	Programmable Graphics Processor
12	6	GTC-3026-8	MOS RAM refresh memory module
13	3	GTC-3041	Chassis and power supply
14	3	GTC-3030	Basic video control
15	3	GTC-3032-3	Monitor control
16	3	GTC-3038-X	Hardware char/vector generator
17	3	GTC-3052	DEC PDP11 Interface
18	3	GTC-3052A	10 foot unibus & terminator
19	3	GTC-3071	ASCII keyboard w/function keys
20	3	GTC-3073	Joystick (RS232)
21	3	GTC-3084	25" RGB Monitor (w/yoke studs)
22	9	GTC-3094-75	Video cable (75')
23	6	GTC-3096-75	RS232 cable

## Tektronik Equipment

24	1	Tektronik-4014-1	Display terminal, with complete ASCII upper and lower case character set plus TTY subset. Screen size 15" wide by 11" high including optional hard copy unit (4631).
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## Ann Arbor Equipment

25	6	Ann Arbor-K4080D	Terminal with dual baud rate option, switched baud rate option and bell control (7) option.
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Tally Equipment

26      2      Tally 1612              RO serial printers.

BBN Equipment

27      1      BBN-PLI                  Private line interface.

28      1      BBN-TIP                  Terminal IMP, with console TTY,  
and paper tape reader  
(optional).

Bell Equipment

29      1      Bell 303                  50 Kilo-bit MODEM

3. Physical Configuration

BAY 1	TWE 16 - EE TAPE DRIVE					
BAY 2	TWE 16 - EE TAPE DRIVE					
BAY 3		11/70 MEMORY				
BAY 4			11/70 CPU ● FP11C ● CONTROLLER RP06 TE16			
BAY 5				DH11 UNIT		
				IMP 11-A INTERFACE		
					DH11 DIST PANEL	
BAY 6					GENESCO PROCESSOR 1	
					GENESCO PROCESSOR 2	
					GENESCO PROCESSOR 3	
					11/03 CPU	

Figure I

Physical Configuration NPS/RSM

4. Floor Plan

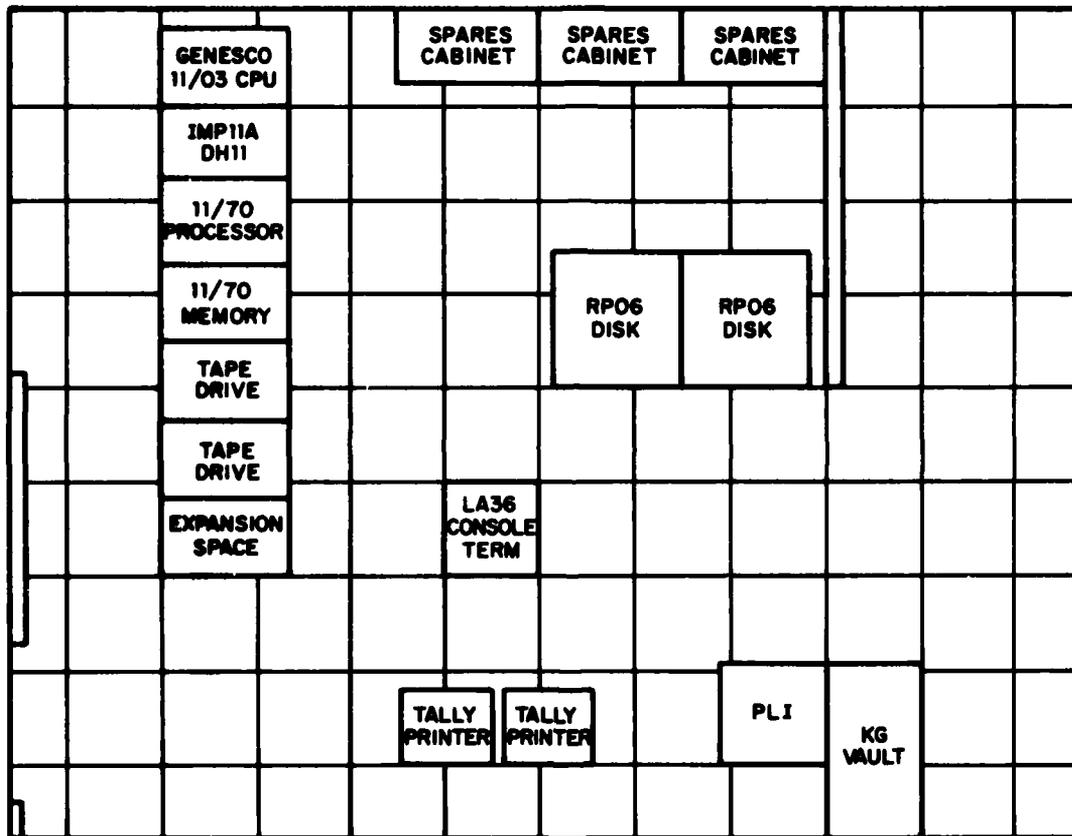


Figure II  
Floor Plan NPS/RSM

## 5. Inter-connecting Cable Specification

Cable Name	Mfg.	Part No.	Length
*Distant Host Cable	BBN	Dst. Hst. CBL	100 feet
*PLI to KG	BBN	FKGA	30 feet
*PLI to KG	BBN	4FBNC-B	30 feet
*PLI to KG	BBN	4FBNC-B	30 feet
TIP to Modem Cables	BBN	Modem Cable	25 feet
GCT - Monitor Coax	Genisco	GTC-3094	75 feet
GCT - Unibus Cable	Genisco	GTC-3052A	10 feet
DEC System Unibus	DEC	As required	As required

\* Cables must be enclosed in conduit for portion of run which is within secure area.

6. Power Requirements NPS/RSM

Equipment	Receptical	*Breaker	Voltage	**Phase	Normal Amps	Watts	BTU/hr
Bay 1	2610	30A	115	Single	8	1000	3400
Bay 2	2610	30A	115	Single	8	1000	3400
Bay 3	2810	30A	115/208	3-phase	3	900	3060
Bay 4	2810	30A	115/208	3-phase	5	1725	5865
Bay 5	2610	30A	115	Single	8	1000	3400
Bay 6	2610	30A	115	Single	25	2915	9911
RP06-1	2510	20A	115/208	3-phase	6	2100	7000
RP06-2	***		115/208	3-phase	6	2100	7000
Tally Printer-1	5262	10	115	Single	2	200	680
Tally Printer-2	5262	10	115	Single	2	200	680
Tektronix 4014	5262	10	115	Single	2	200	680
Ann Arbor-1	5262	10	115	Single	2	200	680
Ann Arbor-2	5262	10	115	Single	2	200	680
Ann Arbor-3	5262	10	115	Single	2	200	680
Ann Arbor-4	5262	10	115	Single	2	200	680
Ann Arbor-5	5262	10	115	Single	2	200	680
Ann Arbor-6	5262	10	115	Single	2	200	680
GTC Keyboard	***						
GTC Joystick	***						
PLI	5352	20	115	Single	6	2100	7140
316 TIP	3331G	30	115	Single	6	2100	7140
Concole TTY (TIP)	5262	10	115	Single	2	230	782
303 MODEM	5262	15	115	Single	2	575	1955
PTR (TIP)	5262	10	115	Single	2	230	782
KG34	5262	10	115	Single	1	110	143
CONRAC Monitor	5262	10	115	Single	1.5	180	612
CONRAC Monitor	5262	10	115	Single	1.5	180	612
CONRAC Monitor	5262	10	115	Single	1.5	180	612
						<u>20,425</u>	<u>69,445</u>

\* Breaker sizes are determined by the equipment manufacturer and in some cases may not closely relate to the amperage requirements of the specific device in its most basic form. Additional capacity is built into the power wiring to allow for future expansion of the device or cabinet.

\*\* All 3 phase circuits must be WYE connected.

\*\*\* Device powered from its controller, no receptical required.

## 7. Secure PLI Physical Characteristics (Prepared from BBN Report No. 1822)

The secure Private Line Interface is contained in a TEMPEST-approved rack, approx. 66H x 25W x 29D, as shown in Figure 3. The total weight of the system is between 600 and 700 lbs. The top half contains the Red portion and the bottom half contains the Black portion along with a paper tape reader. The reader can be used to load programs into either half (with the rack doors open). A horizontal bulkhead separates the two halves of the rack; a filter box containing optical isolators, feed through capacitors, and TEMPEST filters is provided in the bulkhead. Each half of the rack contains space to allow an additional Pluribus computer chassis; consequently the rack is considerably larger than the minimum required size for current configurations of the PLI.

A sealed symmetrical powerline filter in the base of the enclosure allows the PLI to operate from a single power source, either Red or Black, at the convenience of the installing site. The enclosure has been designed, tested, and certified for installation in either a TEMPEST-Red or TEMPEST-Black environment, provided that the appropriate signals are contained in conduit as specified below.

The PLI is designed to interface with an externally located KG-34, which must have the following options:

- (1) 110 Volt AC power
- (2) Low Speed
- (3) Message Indicator; no A/S
- (4) Data transition on positive clock transitions  
(See the KG-34 manuals for strap option on two KG cards.)
- (5) Eight bit MI pattern (two front panel switches).