

NAVAL ELECTRONIC SYSTEMS ENGINEERING CENTER PORTSMOUTH

PORTSMOUTH, VIRGINIA

BASE ELECTRONICS SYSTEM ENGINEERING PLAN (BESEP)

BESEP No.: 71005 FY: 89 REV No.: _____ REV DATE: _____

STATION & LOCATION: U.S. MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

PROJECT TITLE: COMBINED ARMS STAFF TRAINER (CAST) MCON P-872

Prepared by: TRACOR Applied Sciences under Contract N00189-83-D-0313

Reviewed by: _____ Date: _____
NAVELEXSYSENGCEN Portsmouth

Approved by: _____ Date: _____
NAVELEXSYSENGCEN Portsmouth

Satisfactory to:

Activity/Operating Command Approval (*)

SPAWAR Approval (*) Date: _____

(*) Provide letter serial number and date or message date time group providing approval.

DRAFT BESEP

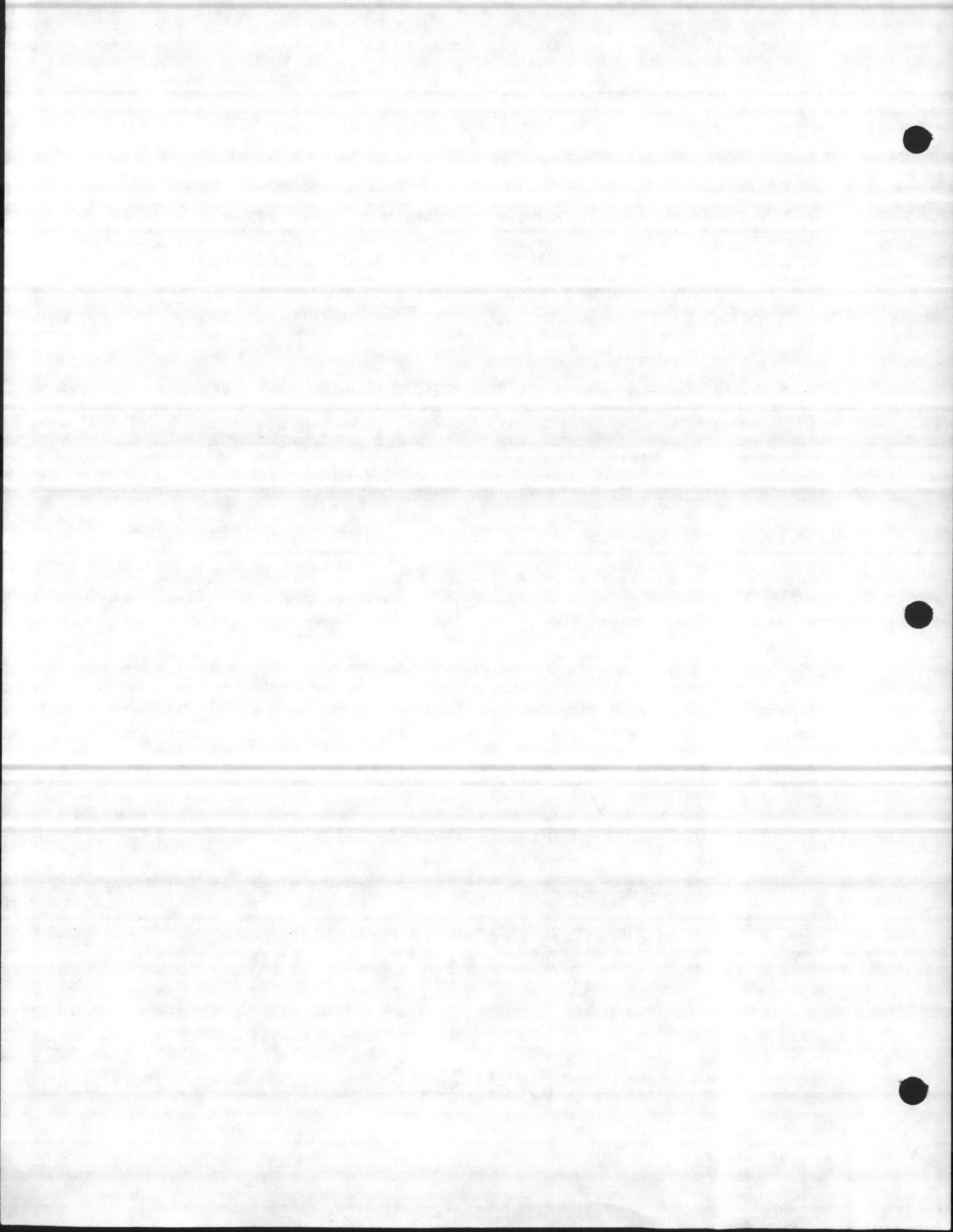


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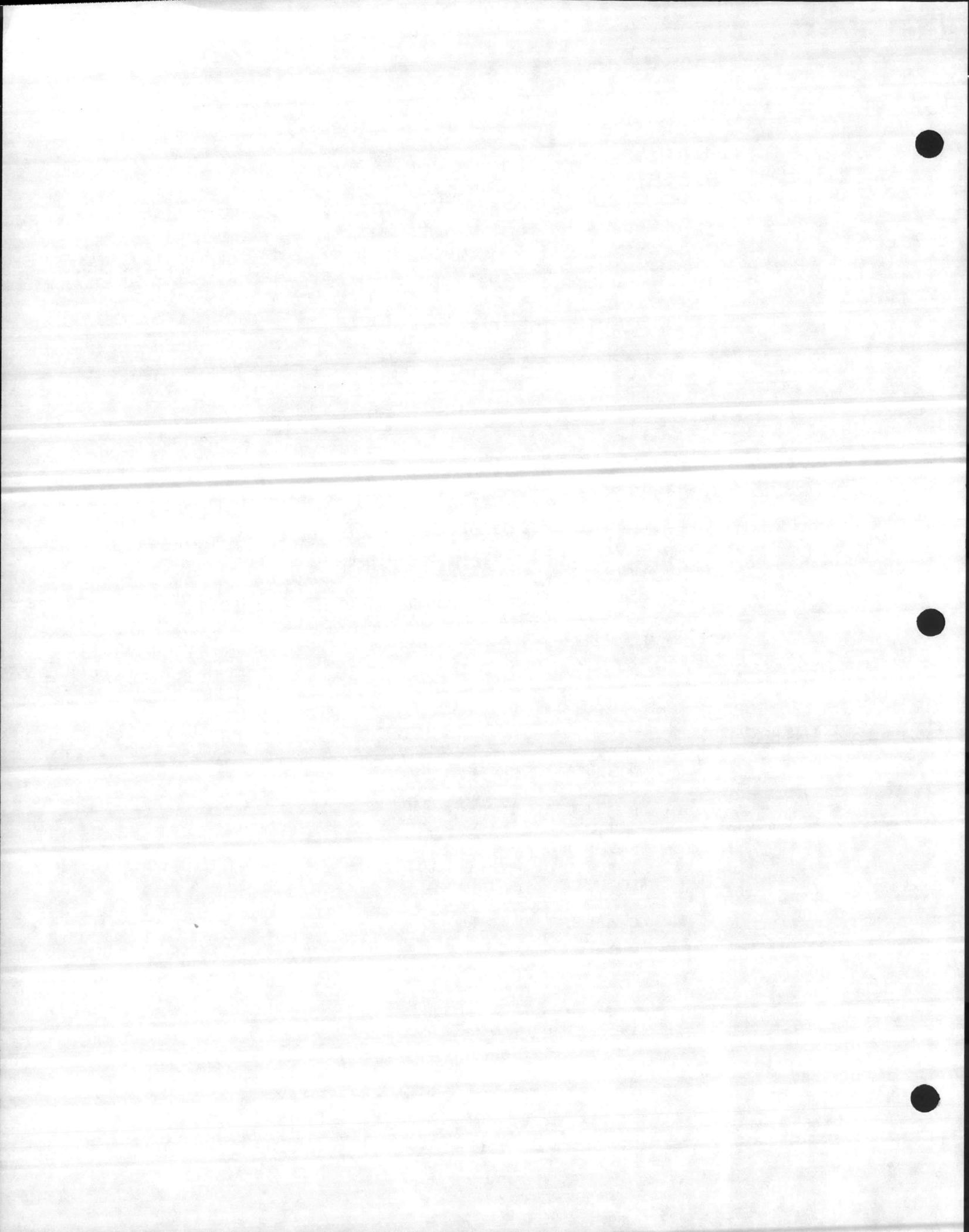
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SECTION 1

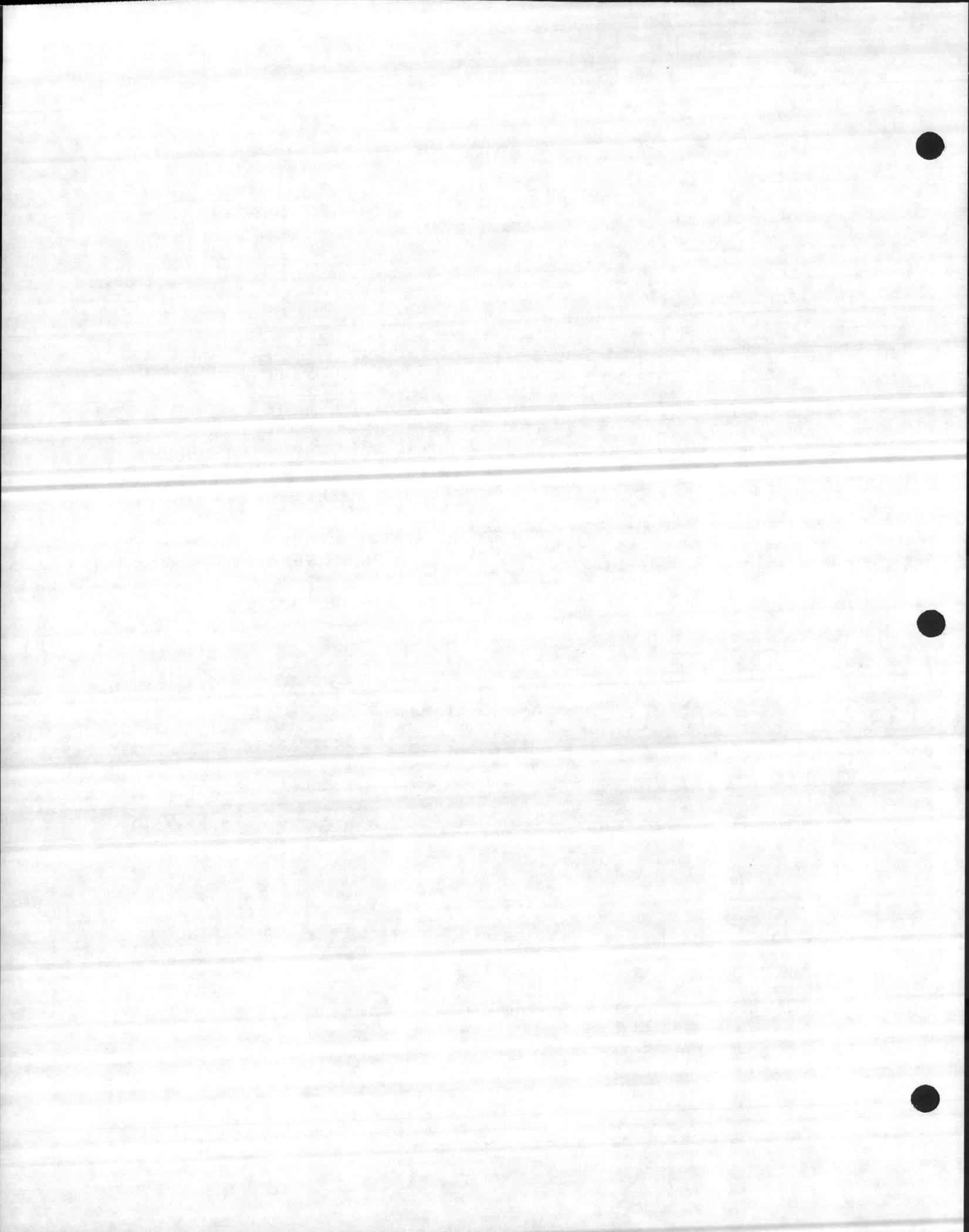
GENERAL REQUIREMENTS

1.1 HISTORICAL DATA

1.1.1 MISSION. The mission of the Combined Arms Staff Trainer Facility at the U.S. Marine Corps Base, Camp Lejeune, North Carolina is to allow the II MAF units to practice the coordinated employment of fire support assets in conjunction with a ground scheme of maneuver using simulated terrain surface, communication networks to replicate appropriate tactical communication nets, and an indirect fire making system to display the impacts of friendly and enemy fires. The facility will be the central location for combat simulation tactical decision making training from company to MAF level.

1.1.2 CURRENT SITUATION. A combination of command post exercises, field exercises, live fire exercises and war game base training systems are currently being used for this type of training. None of the above allow units to realistically exercise fire support coordination procedures in conjunction with a ground scheme of maneuver.

1.1.3 JUSTIFICATION. The proposed facility which will house the Combined Arms Staff Trainer (CAST) will provide for improvement in war fighting skills realistically, by exercising fire support coordination procedures in conjunction with a ground scheme of maneuver.



1.2 REFERENCES

1.2.1 Marine Corps Base Camp Lejeune, North Carolina DD-1391; FY1989 Military Construction Project Data; dtd 3 Nov 1986.

1.2.2 SPAWARINST 2804.1 dtd 15 Aug 1985: Base Electronic System Engineering Plan (BESEP) Preparation Guidelines.

1.2.3 OPNAVINST 5510.1G: Department of the Navy Information and Personnel Security Program Regulations.

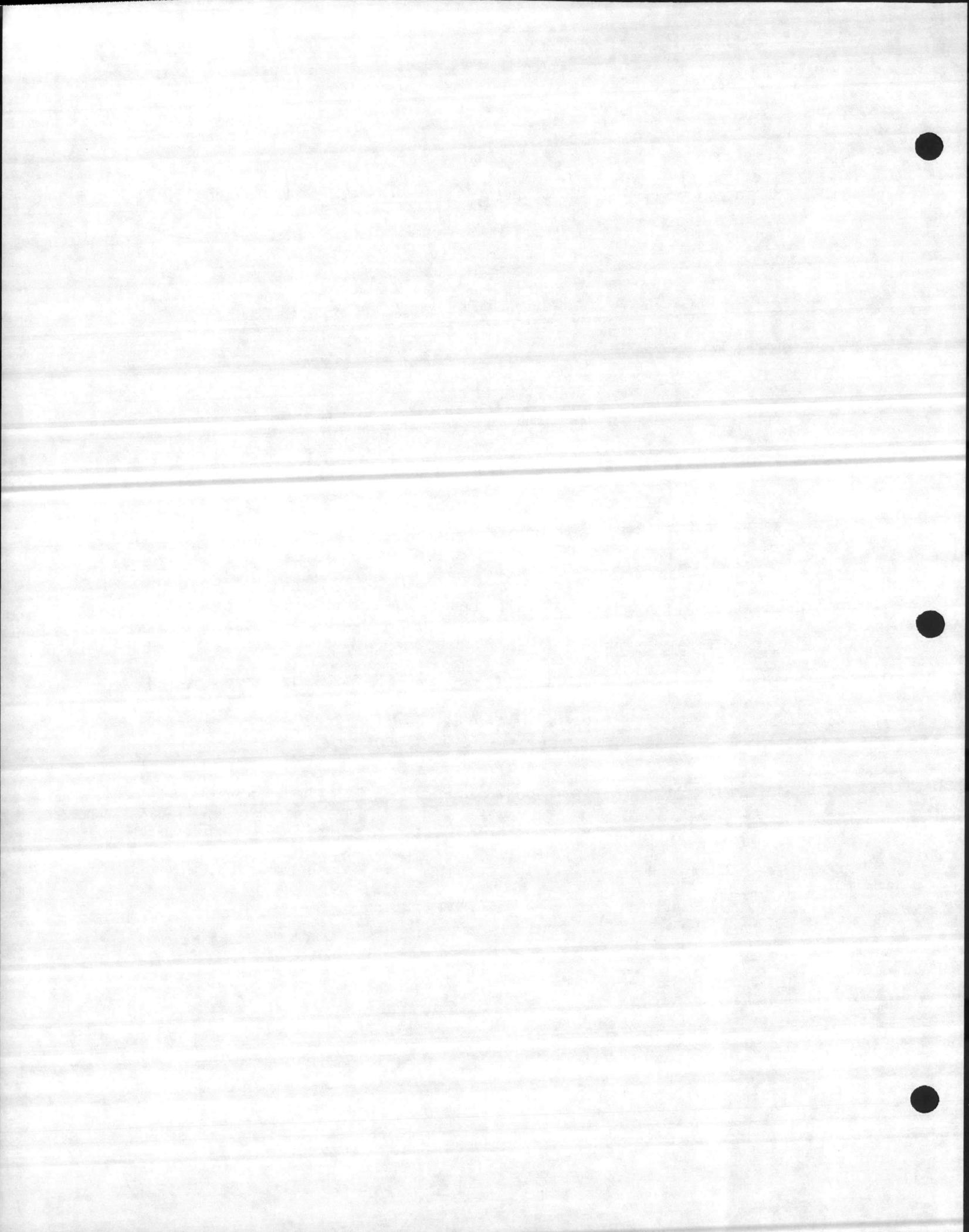
1.3 OBJECTIVE

The construction of this CAST will enable II MAF units to practice employment of fire support assets in conjunction with ground maneuver using simulated terrain surfaces, communication nets and indirect firemaking system to display the impacts of friendly and enemy fire.

1.3.1 IMPACT IF NOT PROVIDED. Tactical unit leaders will be deprived of the benefit of a topographically correct terrain board. Attempts to provide the training will continue, however, the training will be substandard and results can only be substandard if these conditions continue.

1.4 RELATED SYSTEMS/FACILITIES

There are no common support facilities at Camp Lejeune appropriate to this type of training facility.



1.5 INCREMENTAL IMPLEMENTATION

The new construction is required to be completed prior to the installation of the electronic equipment. In addition, where centralized terminations of cables and circuits are involved, such as main and intermediate distribution frames, station power supplies, and computer power cables, those facilities should be among the first items installed to provide central take-off and termination points for cabling.

1.6 CONTINUITY OF OPERATIONS

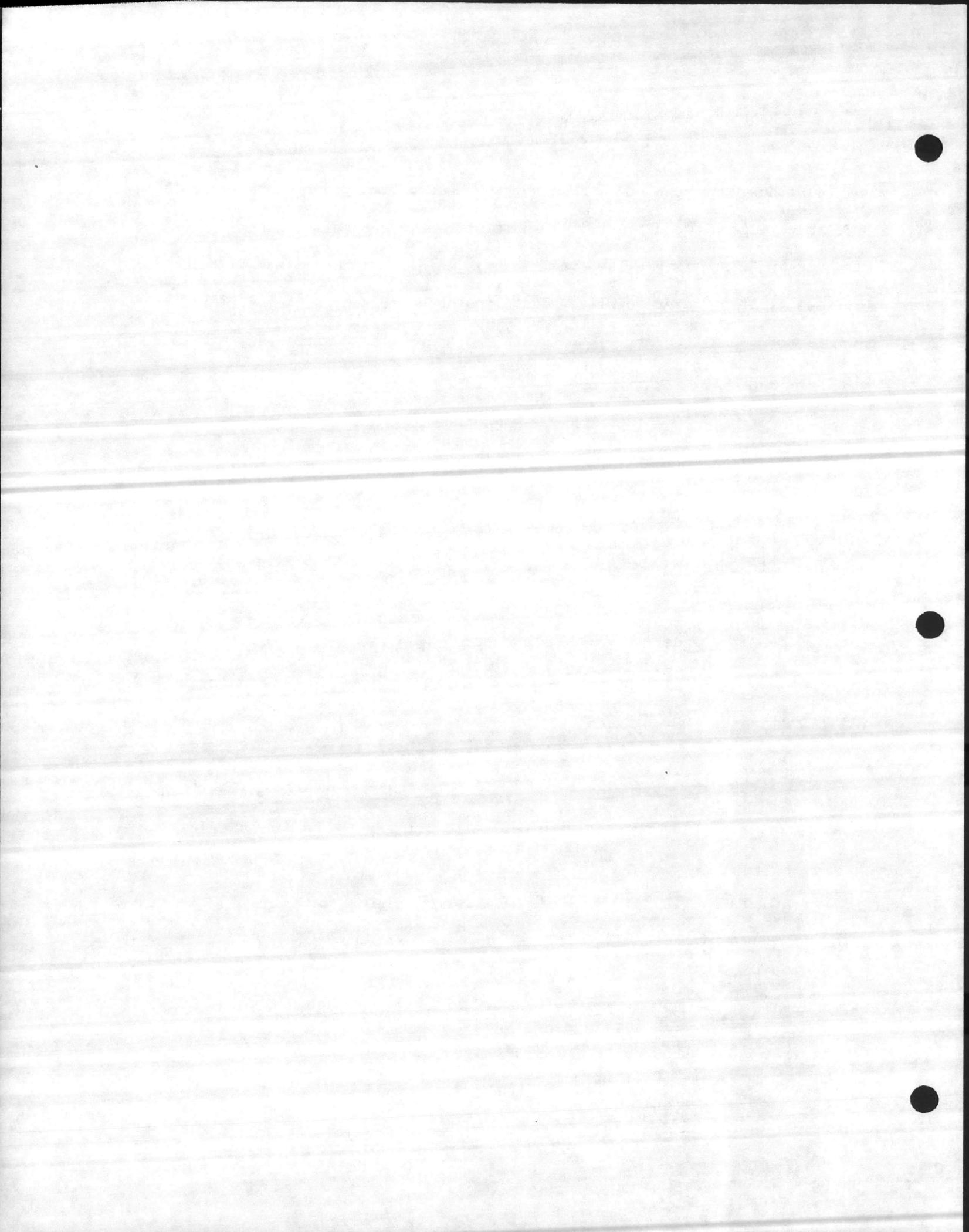
The electronics installation work to be accomplished must be coordinated with a site coordinator which will be designated by the using activity. This coordination is necessary to ensure that training can continue to the maximum degree feasible under the circumstances.

1.7 SPECIAL CLEARANCE CONSIDERATIONS

1.7.1 NOISE. The siting of this project will not require a waiver of the noise criteria in accordance with reference 3.1.4.16.

1.7.2 AIRSPACE UTILIZATION. Federal Aviation Administration (FAA) clearance in accordance with OPNAVINST 3770.2F will not be required.

1.7.3 AIRFIELD SAFETY. A waiver of airfield safety criteria in accordance with NAVAIR 00-100-503 will not be required.



1.7.4 ELECTROMAGNETIC RADIATION (EMR). The siting of this project will not result in a potential EMR hazard to ordnance, electronic material and components, fueling operations, or to personnel.

1.8 SITE SELECTION

1.8.1 FACILITY SITE. This facility will be sited in the Naval hospital area at Hospital Point near building H-14, (see Enclosures 1 and 2). The site was approved by the Commanding General, Marine Corps Base, Camp Lejeune on 7 May 1986, (see Enclosure 5).

1.8.2 ECONOMIC ANALYSIS. This facility is being constructed on a site adjacent to a developed area. Economic savings will be in nominal energy consumption savings to be realized from efficient operations.

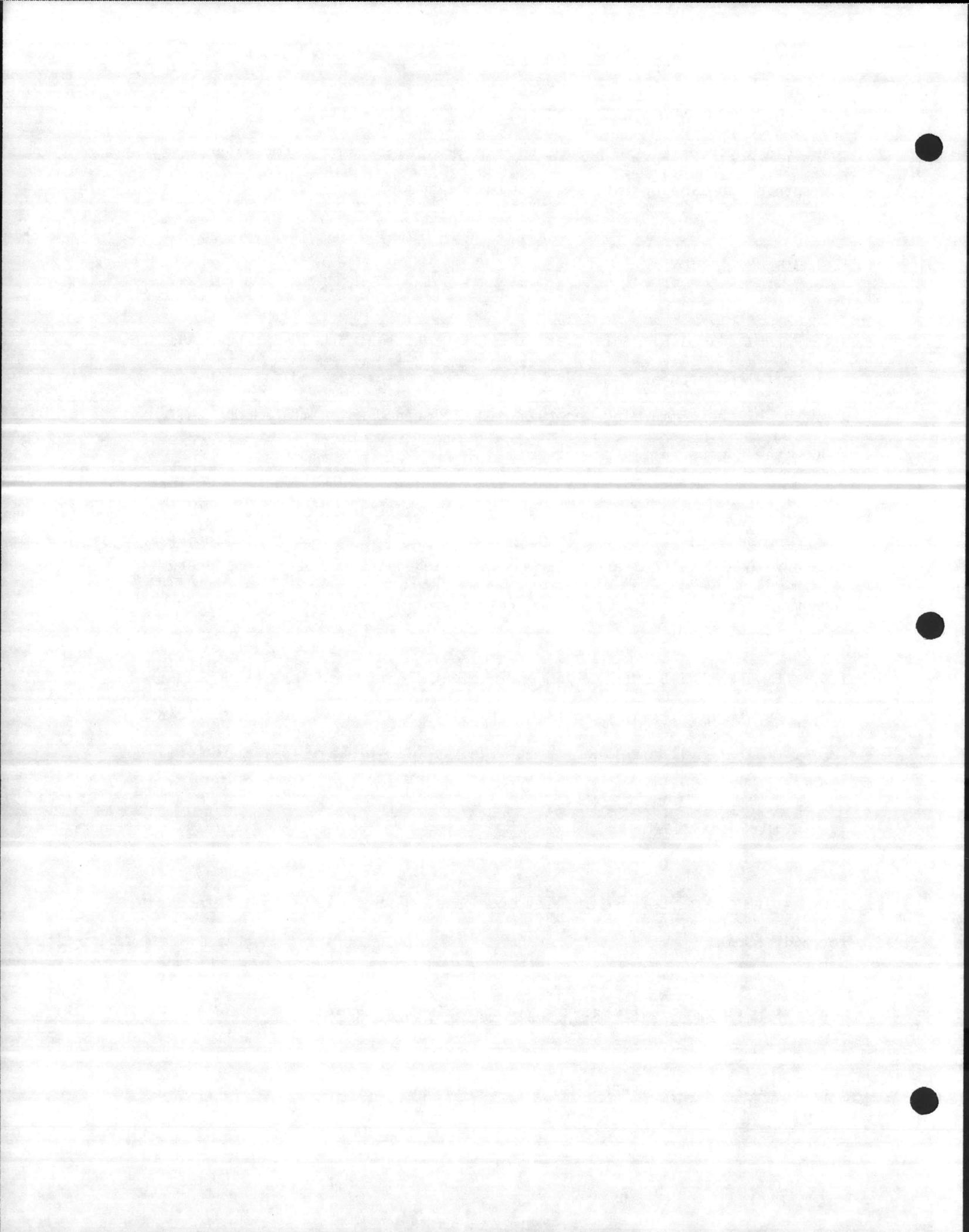
1.8.3 ENVIRONMENTAL IMPACT. An environmental assessment has been conducted and it has been determined that this facility will not cause a significant impact on the environment nor is it highly controversial, (see Enclosure 3).

1.9 GUIDANCE DOCUMENTS

1.9.1 DIAM 50-3: Defense Intelligence Manual, Physical Security Standards for SCIF Rooms.

1.9.2 NACSEM 5204: TEMPEST Guidelines for Shielded Enclosures.

1.9.3 NACSIM 5203: TEMPEST Guidelines for Facility Design and RED/BLACK Installation, Vols: I & II.



1.10 TEMPEST/PHYSICAL SECURITY CONSIDERATIONS

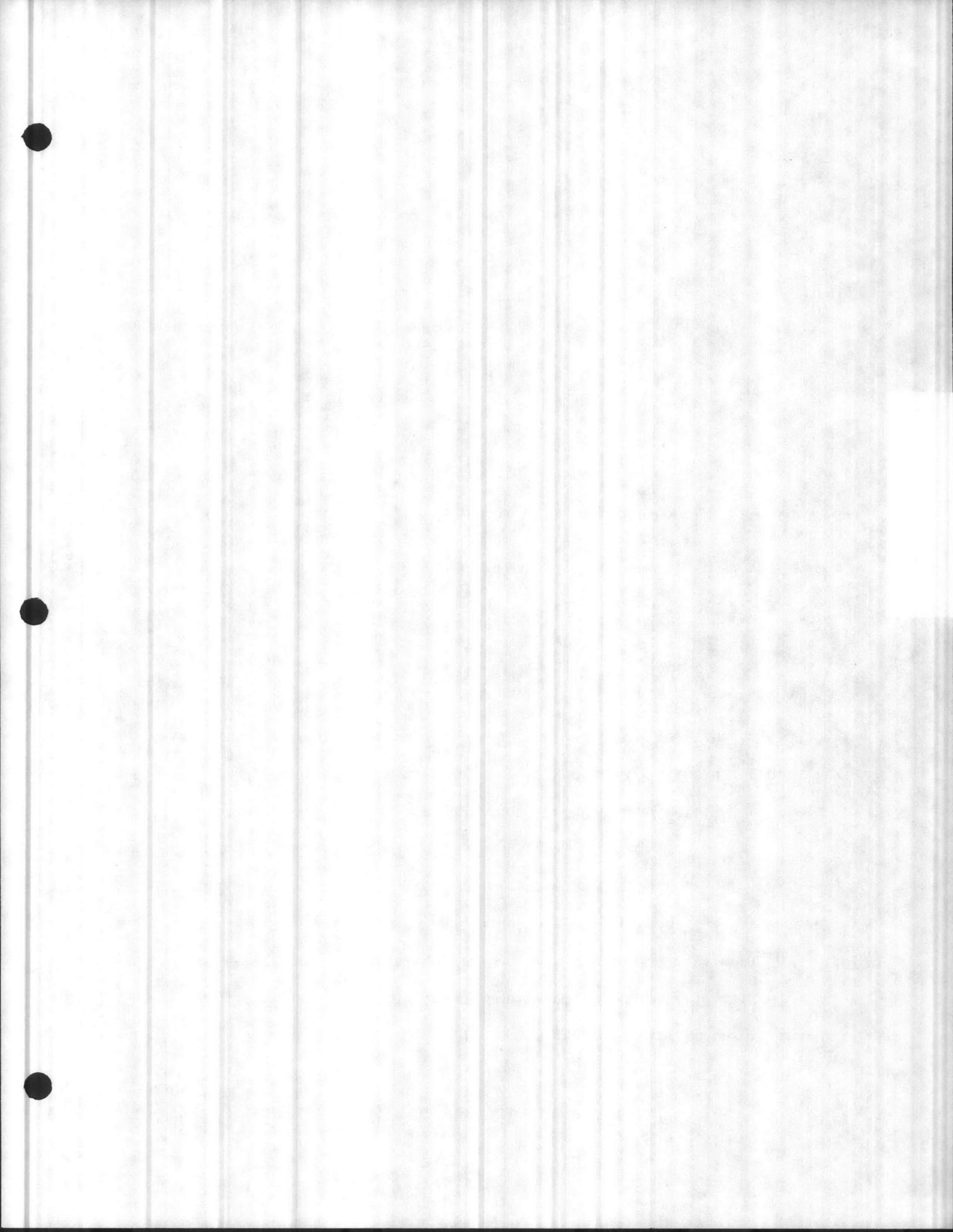
1.10.1 TEMPEST GENERAL. TEMPEST requirements are necessary to ensure that those installations that use electronic equipment to process classified information meet specific guidelines in facility design and equipment installation. In accordance with the guidelines of reference 3.1.4.6, there is no requirement for TEMPEST shielding for this project.

1.10.2 PHYSICAL SECURITY. Classified plans, OPORDERS and material are used within the CAST, however, this material is removed at COB. The using activity is tasked with determining if physical security devices (i.e., fences, intrusion detection system (IDS), vault, strongroom, etc.) are to be provided in accordance with references 1.2.3, 1.9.1, and 3.1.4.17.

1.11 INTEGRATED LOGISTICS SUPPORT (ILS).

1.11.1 FACILITY SUPPORT. The following is a list of personnel that may be contacted for support to this project

<u>NAME</u>	<u>COMMAND</u>	<u>CODE</u>	<u>PHONE NUMBERS</u>
Ms. Susan Gale, P.E.	LANTDIVNAVFACENCOM	09A2131	A/V: 564-9670 C/L: (804) 444-9670
Mr. Fred Estes	MCB Camp Lejeune	PWC	A/V: 484-9670 484-1833 C/L: (919) 451-1833



1.10 TEMPEST/PHYSICAL SECURITY CONSIDERATIONS

TEMPEST (115)

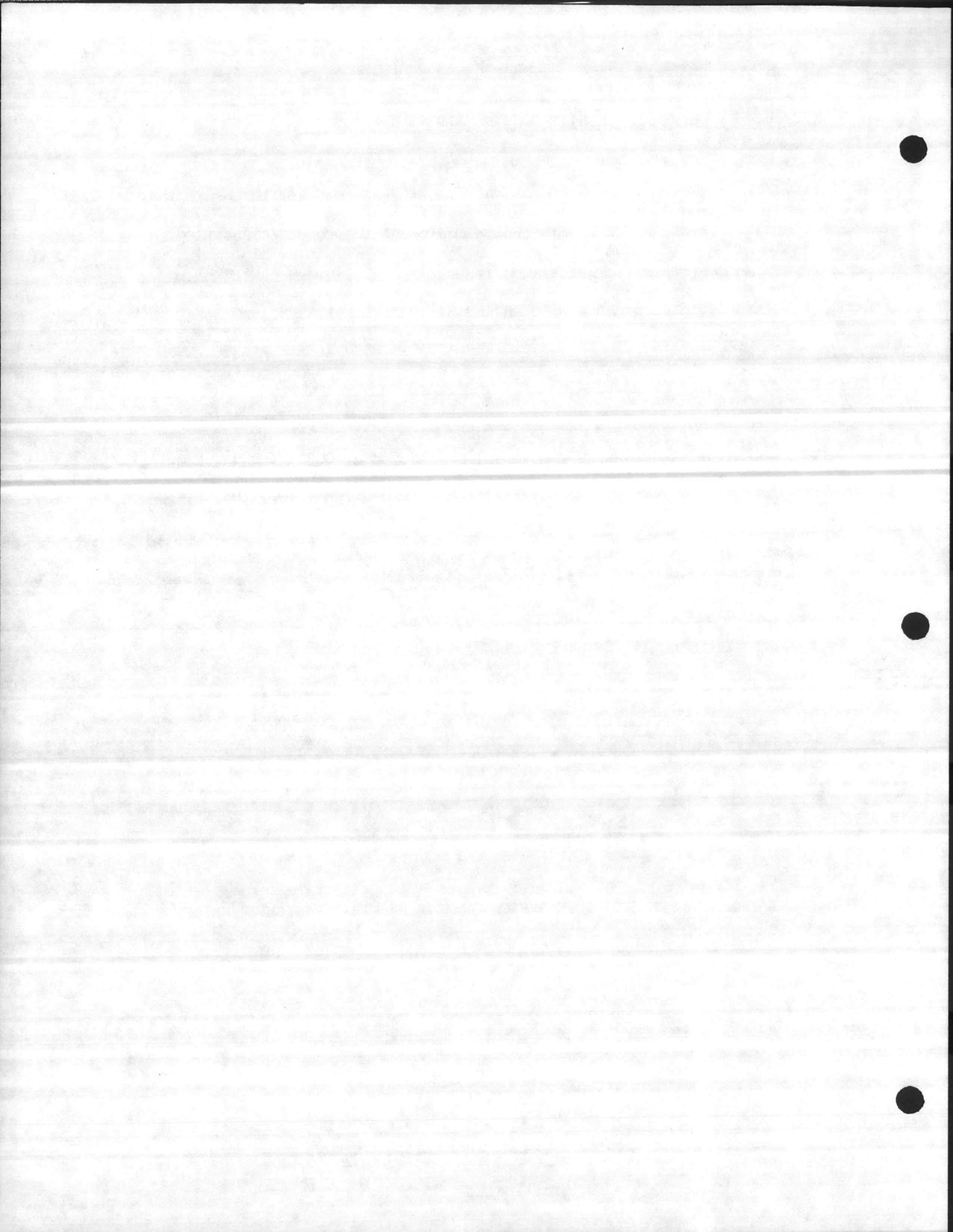
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Mr. Jeff O'Byrne	MCB Camp Lejeune	Training	A/V: 484-1833
		Director	C/L: (919) 451-1972/ 3733
Ms. Susie Rupert	NTSC Orlando		A/V: C/L: (305) 646-5298
Mr. Durwood Freer	NTSC Orlando		A/V: C/L: (305) 646-5244
Mr. Doug Martin	NAVELEXSYSENGCOM	C-105	A/V: 961-4789 C/L: (804) 396-4789

1.11.2 EQUIPMENT INSTALLATION SUPPORT. The services of a local contractor may be required to install the equipment in this facility. If applicable, the using activity will be responsible for contractor procurement from funds not supported by this MCON. If a local contractor is required to install the equipment, it shall also be the contractor's responsibility to conduct all required tests in accordance with standard test plans as prepared by the using activity.

1.11.3 SUPPLY SUPPORT. Supply support will be provided by the base supply department, Naval Supply Center (NSC) Norfolk, Ship's Parts Control Center (SPCC) Mechanicsburg, and any local procurement activities/firms.

1.11.4 BESEP SUPPORT. Support to the BESEP will be provided by Mr. S.D. Martin, Code 105, NAVELEXENGCEN Portsmouth, VA, (phone: COMC'L (804) 396-4789; A/V: 961-4789.

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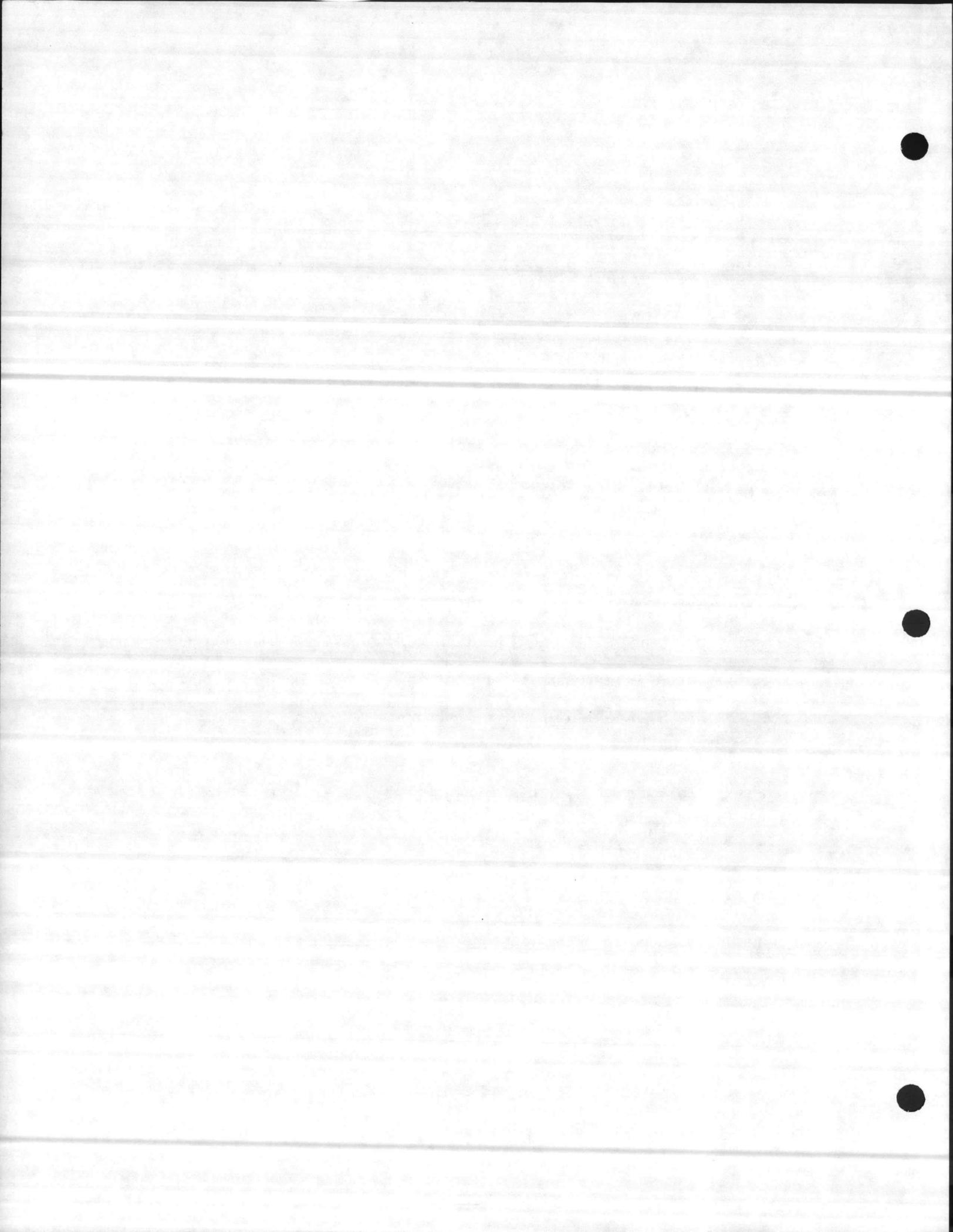


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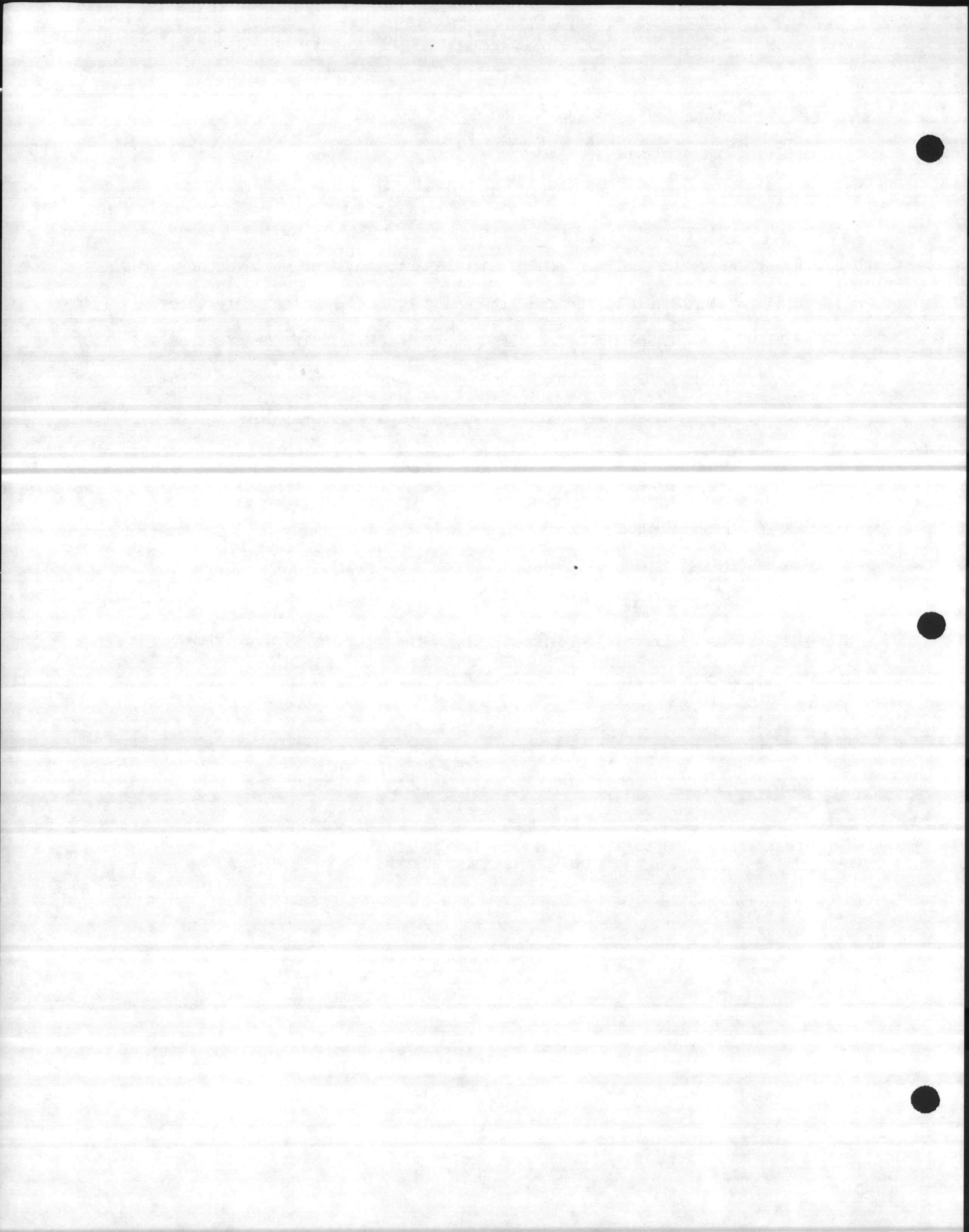
1.11.5 SYSTEM/EQUIPMENT PACKAGING AND HANDLING. The handling, packaging and transporting of electronic equipment shall be in accordance with MIL-STD-794. If electronic equipment is received in enclosed packages, all pieces that are inside the container must be inventoried. All electronic equipment that is Government Furnished Equipment (GFE) must be accounted for on inventory cards that will be maintained by the facility manager. All packing crates, boxes and packing material should be retained for future use. If the electronic equipment is transported by vehicle, the equipment will be protected from elements of the environment and insulated by shock absorbent material to prevent damage.

1.12 SPECIAL REQUIREMENTS

1.12.1 ELECTRICAL CONNECTIONS. Special electrical connectors are required for the various electronic equipment. The using activity will provide all data on these connectors.

1.12.2 ELECTRICAL DESIGN. The electrical design will take into consideration all GF/GI equipment.

1.12.3 BASE ENERGY MONITORING AND CONTROL SYSTEM. The building is to be connected to the Base Energy Monitoring and Control System (EMCS).



SECTION 2

SCOPE

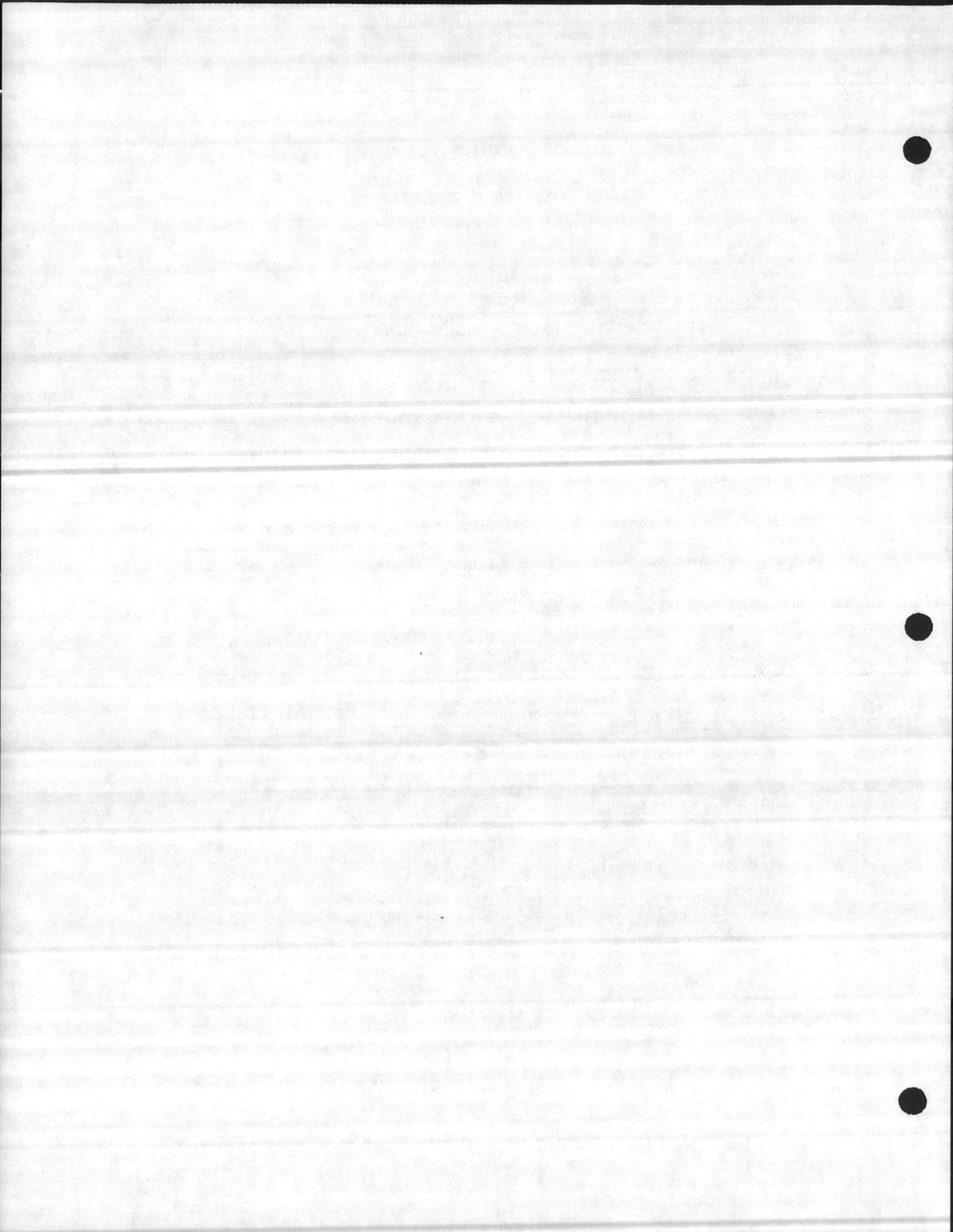
2.1 SYSTEM AND FACILITY REQUIREMENTS

2.1.1 SYSTEM REQUIREMENTS. The electronic equipment that comprise this project requires special electrical connections, interior and exterior utility connections, along with telephone switching and switching equipment.

2.1.2 FACILITY REQUIREMENTS. These facilities will contain TWSEAS terminals, a large sand table, war gaming capabilities training set fire observation, lecture/reading room, and computer assisted tactical skill training spaces.

2.1.3 LIMITS OF PLANNED CONSTRUCTION. This project will construct a 14,002 SF Operational Training Facility in accordance with NAVFAC P-870. The total space required is compatible with NAVFAC P-80, Facility Planning Criteria for Navy and Marine Corps Shore installations. This facility will be constructed with reinforced concrete with masonry construction, built-up roof over insulation, raised floor in the computer assisted tactical skill training spaces, and contain special electrical connections for the various equipment that will be installed.

2.1.3.1 ACCESS FLOORING. Raised flooring will be required in the CAST trainer facility (see Enclosure 4). This raised flooring shall be a minimum of 26 inches and constructed in accordance with NFGS 10270.



2.1.4 ALTERATION/DEMOLITION OF FACILITY. This is a new facility at Camp Lejeune and does not replace or alter any current facility. There is no proposed demolition for this project.

2.2 ELECTRONIC EQUIPMENT ATTRIBUTES

2.2.1 DESIGN. The electronic equipment for this facility is pre-designed and Government Furnished Equipment (GFE).

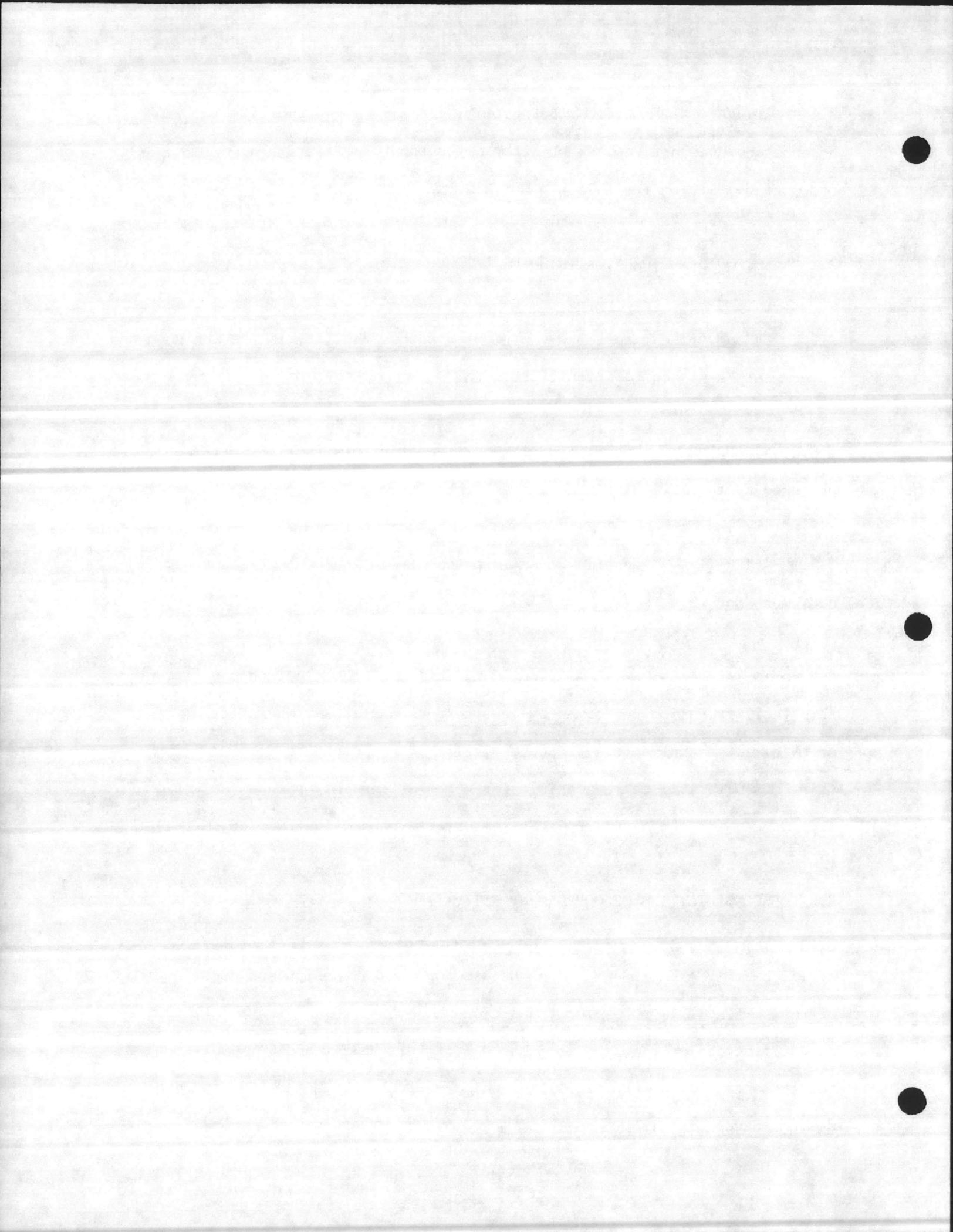
2.2.2 PROCUREMENT. The electronic equipment for this facility will be procured by the Naval Training System Center from other appropriations.

2.2.3 ALTERATION. There is no anticipated alteration of the electronic equipment for this facility.

2.2.4 INSTALLATION CRITERIA. The installation of the electronic equipment in this facility can be performed by on-site personnel, Navy/Marine technicians, or by civilian contractors. Should civilian contractors be required, the using activity will be responsible for negotiations and procurement actions in accordance with the Navy Supply System directives and instructions.

2.3 RESPONSIBILITIES OF GOVERNMENT ACTIVITIES

2.3.1 LANTDIVNAVFACENCOM. Responsible for the A&E design and construction of the new facility. Develop transition phase, design and installation of support facilities required in Section 6 of this BESEP, and any additional requirements for support facilities which evolve through the planning and design phases of this project.



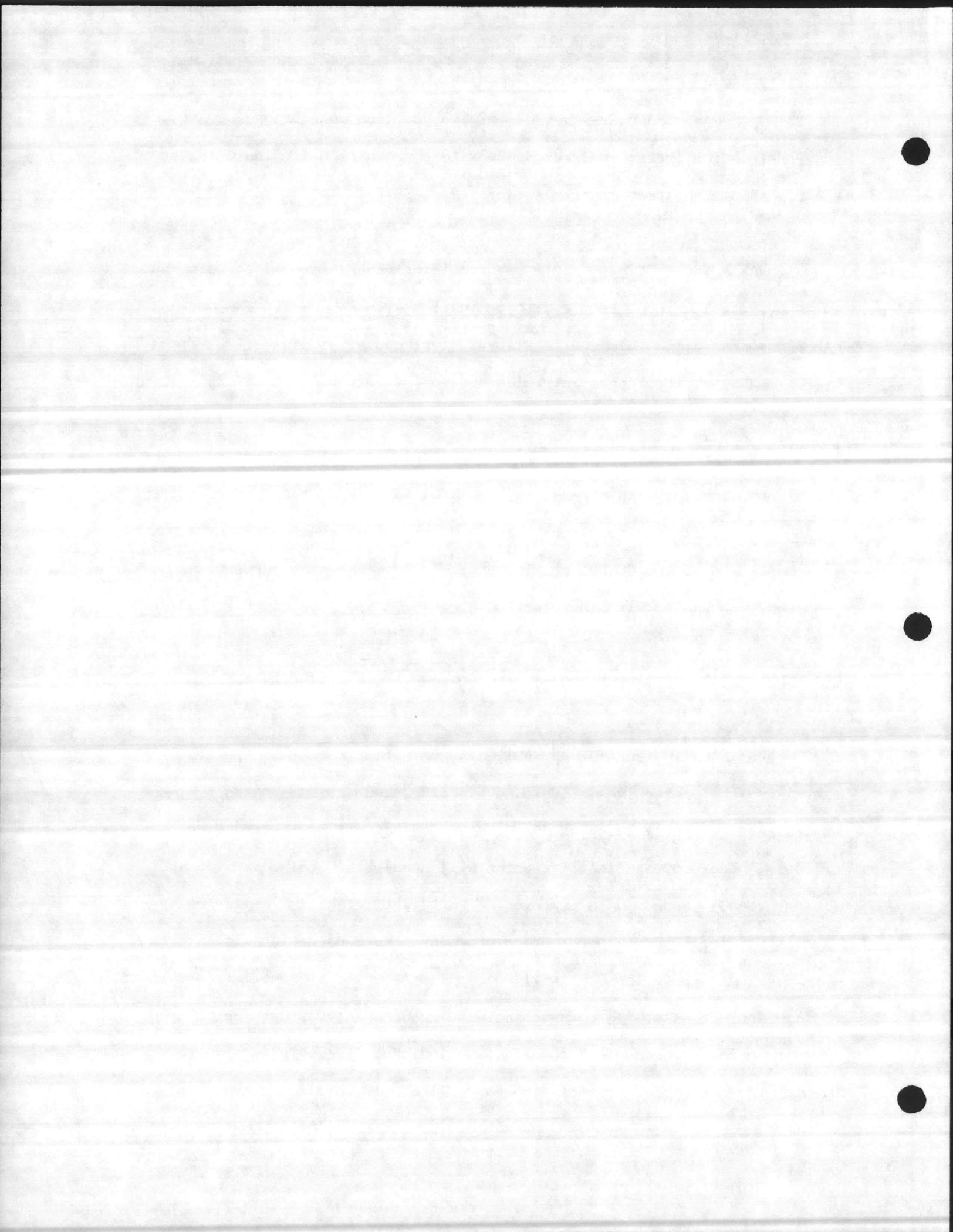
2.3.2 CGMCCB CAMP LEJEUNE. Provide on-site coordination during the A&E design and construction phase; and provide on-site coordination for installation of the electronic equipment for this facility.

2.3.3 SPAWARSSYSCOM. Responsible for providing BESEP approval; funding and engineering guidance as required; coordination with CNO, NAVFACENCOM, and other commands at the headquarters level; implementation of the BESEP; and the overall management of the electronics portion of this project.

2.3.4 NAVELEXSYSENGCEN PORTSMOUTH. Responsible for the preparation of the BESEP; coordination with SPAWARSSYSCOM, LANTDIVNAVFACENCOM, NSC Norfolk, SPCC Mechanicsburg, electronic contractors, and others as required in the implementation of the BESEP; provide engineering management support, as required, associated with the electronic equipment portion of this project.

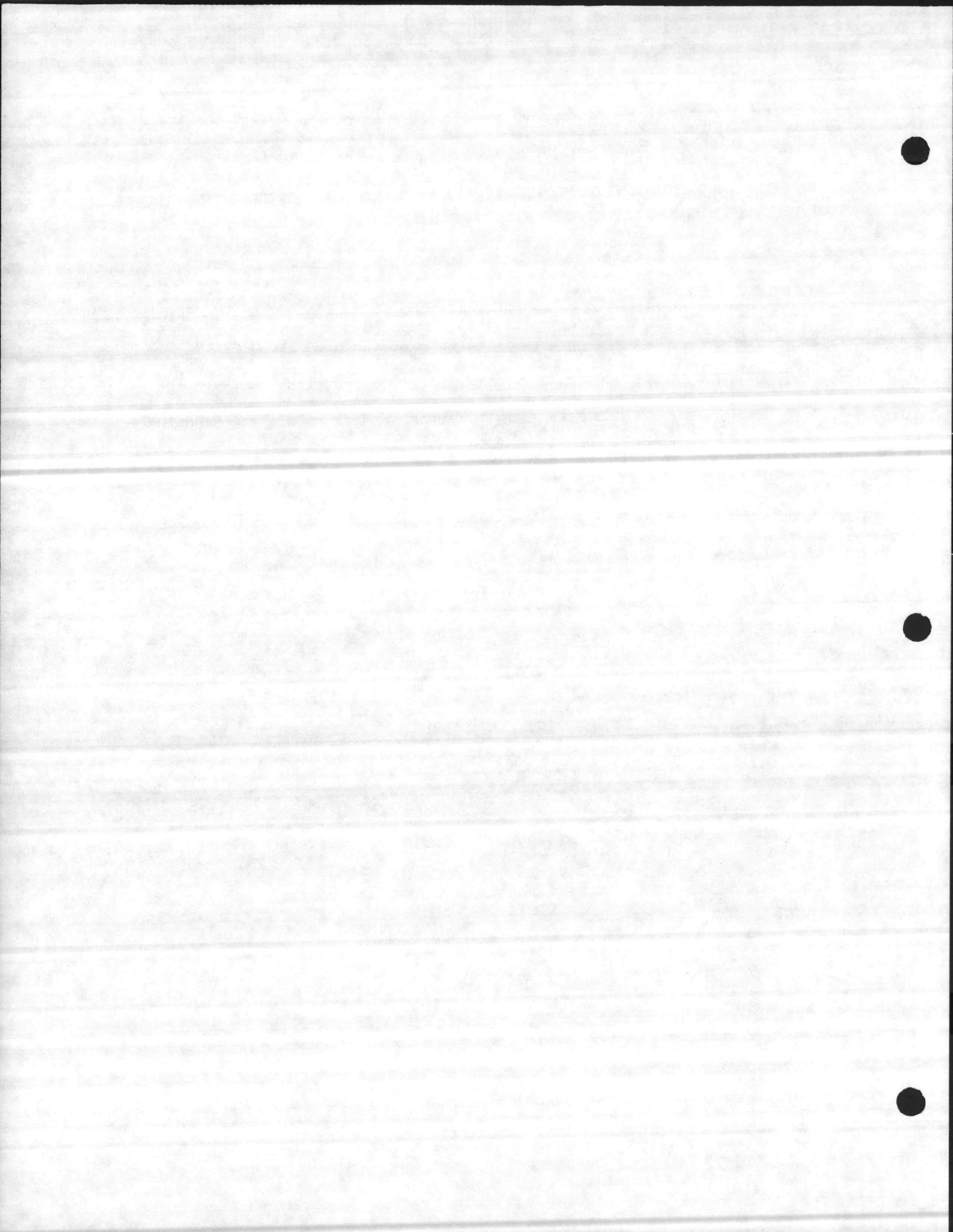
2.4 JUSTIFICATION FOR THE PROJECT AND FOR THE SCOPE OF THE PROJECT.

2.4.1 JUSTIFICATION FOR THE PROJECT. A combination of command post exercises, field exercises, live fire exercises and war game based training systems are currently being used as a means of satisfying the training criteria. The proposed facility which will house the Combined Arms Staff Trainer (CAST) is needed to improve the war fighting skills realistically, by exercising fire support coordination procedures in conjunction with a ground scheme of maneuver. The CAST will enable II MAF units to practice employment of fire support assets in conjunction with ground maneuver using simulated terrain surfaces, communication nets, and indirect firemaking system to display the impacts of friendly and enemy fire. If this facility is not



provided attempts to provide the training will continue, however, the training will be substandard and results can only be substandard. Tactical unit leaders will be deprived of the benefit of topographically correct terrain board.

2.4.2 JUSTIFICATION FOR SCOPE OF PROJECT. The project scope, 14002 SF, is the minimum total size for this facility to meet the prescribed space requirements to perform the necessary training for the II MAF units. The total space required is compatible with NAVFAC P-80, the Facility Planning Criteria for Navy and Marine Corps Shore installations.



SECTION 3

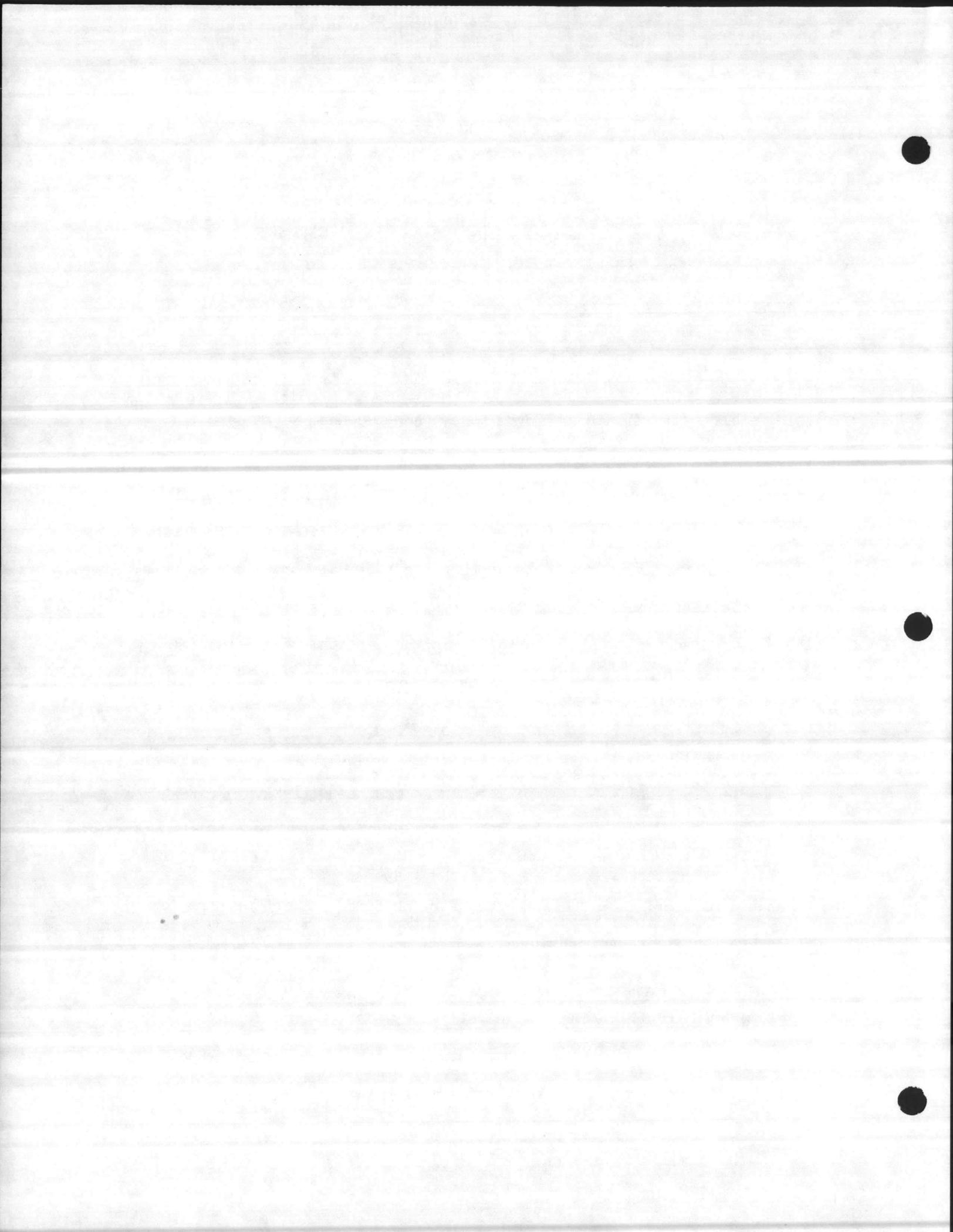
ELECTRONICS SYSTEM DESIGN AND INSTALLATION

3.1 GENERAL

3.1.1 PROJECT. MCON P-872 project, the construction of a Combined Arms Staff Training facility at the Marine Corps Base, Camp Lejeune, North Carolina, will provide a facility that will allow the II MAF units to practice the coordinated employment of fire support assets. This training will be in conjunction with a ground scheme of maneuver using simulated terrain surface, communication networks to replicate appropriate tactical communication nets, and an indirect fire making system to display the impacts of friendly and enemy fires. Computers will be installed in the tactical skill training spaces.

3.1.2 INSTALLATION CRITERIA. The installation design, checkout and acceptance testing shall be accomplished in accordance with NAVELEXSYSENGCEN standard test plans, equipment criteria, and installation desires of the using activity. Installation procedures, verification tests and system diagnostic tests should be provided by the manufacturer, or found in each electronic equipment respective technical manual.

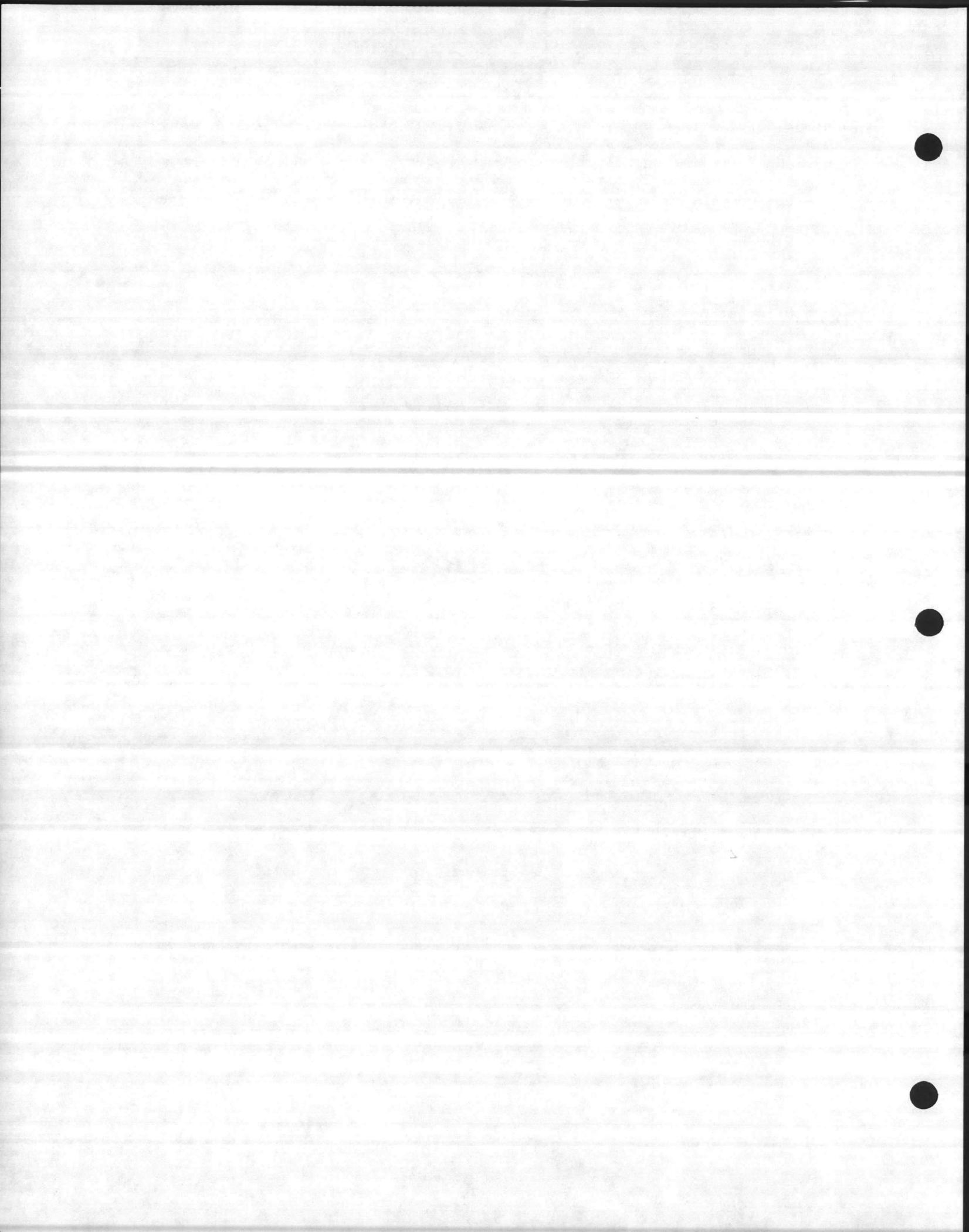
3.1.3 DESIGN PHILOSOPHY. The design philosophy shall ensure that the use of the most modern types of equipment are used by, or planned for, the CAST facility. It shall provide for electronic system versatility and adaptability,



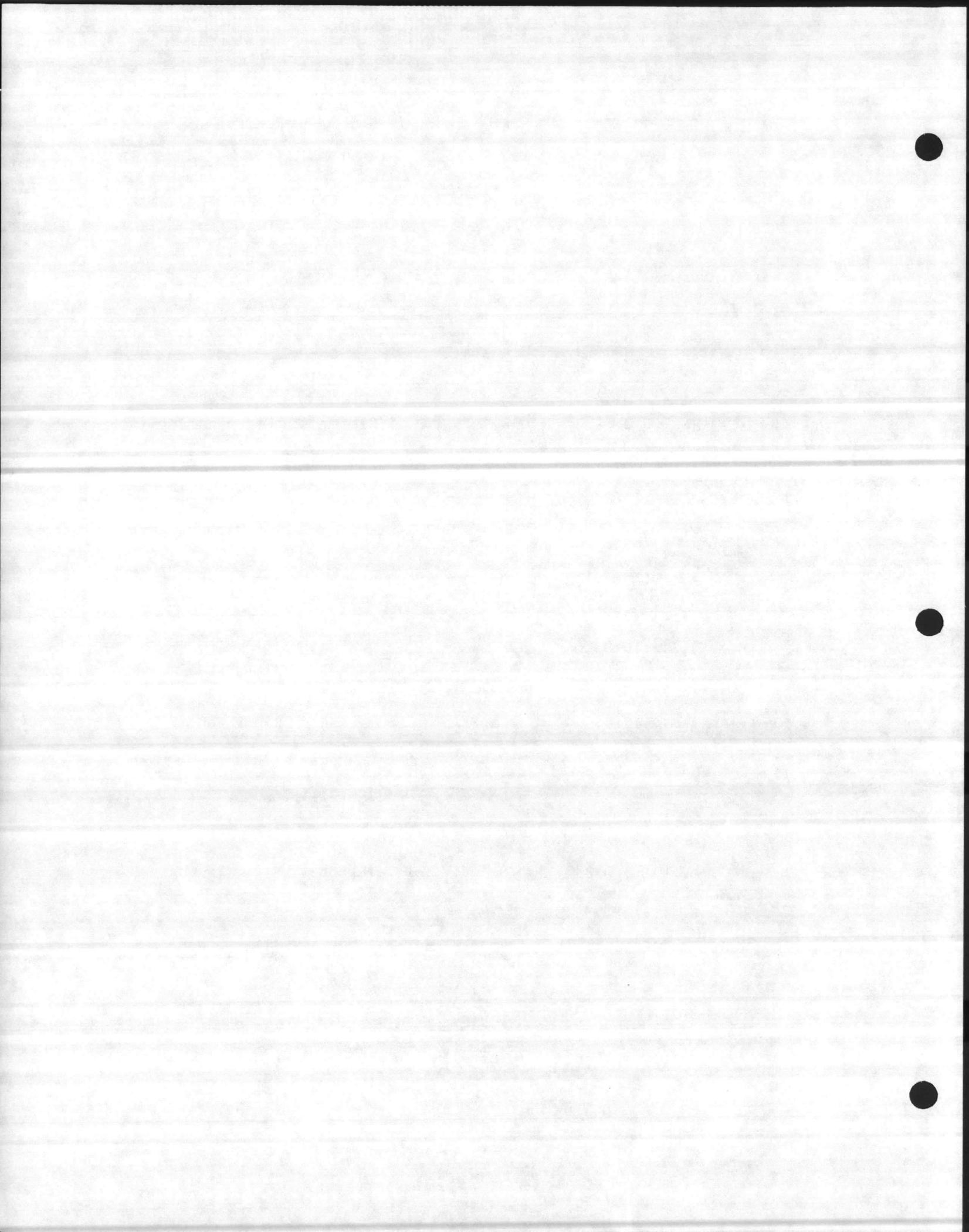
adaptability, expansion capabilities, equipment/system reliability, ease of equipment installation, maintenance, and operational evaluation under normal operating conditions. This includes both electronic and physical security of the equipment/systems. In addition, the design and installation concepts shall provide for ease of subsystem/system reconfiguration to allow updating and configuration of electronic equipment to coincide with, or precede, new systems and/or electronic equipment changes.

3.1.4 TECHNICAL REFERENCES

- 3.1.4.1 MIL-HDBK-232A: RED/BLACK Engineering Installation Guidelines
- 3.1.4.2 MIL-HDBK-235, Part 4: Electromagnetic (Radiated) Environment Considerations for Design and Procurement of Electrical and Electronic Equipment, Subsystems.
- 3.1.4.3 MIL-HDBK-235-2: Electromagnetic Radiation Environment from Friendly or Own Force Emitters.
- 3.1.4.4 MIL-HDBK-237A: Electromagnetic Compatibility Management Guide for Platforms, Systems and Equipments.



- 3.1.4.5 DOD-HDBK-263: Electrostatic Discharge Control Program for Electrical and Electronic Parts, Assemblies and Equipment.
- 3.1.4.6 MIL-HDBK-419A: Military Handbook, Grounding, Bonding, and Shielding for Electronic Equipment and Facilities, Volumes I and II.
- 3.1.4.7 OPNAVINST 5101.1: Resolution of Electromagnetic Radiation (EMR) Hazard Problems.
- 3.1.4.8 MIL-STD-1472B: Human Engineering Design Criteria for Military Systems, Equipment and Facilities.
- 3.1.4.9 OPNAVINST 11010.2: Navy Shore Facilities Programming Board.
- 3.1.4.10 OPNAVINST 11010.5: Facilities Projects for Minor Construction Repair and Maintenance of Real Property and Equipment Installation.
- 3.1.4.11 NAVSECGRUINST 52305.1: Security of Telephone Systems.
- 3.1.4.12 NAVLEX 0101,106: Electromagnetic Compatibility and Electromagnetic Radiation Hazards.
- 3.1.4.13 NAVLEX 0101,110A: Installation Standards and Practices.



3.1.4.14 NAVFAC DM-12.1: Electronic Facilities Engineering Design Manual.

3.1.4.15 MIL-HDBK-1008: Fire Protection Engineering.

3.1.4.16 DOD-4270.1-M: Department of Defense Construction Criteria.

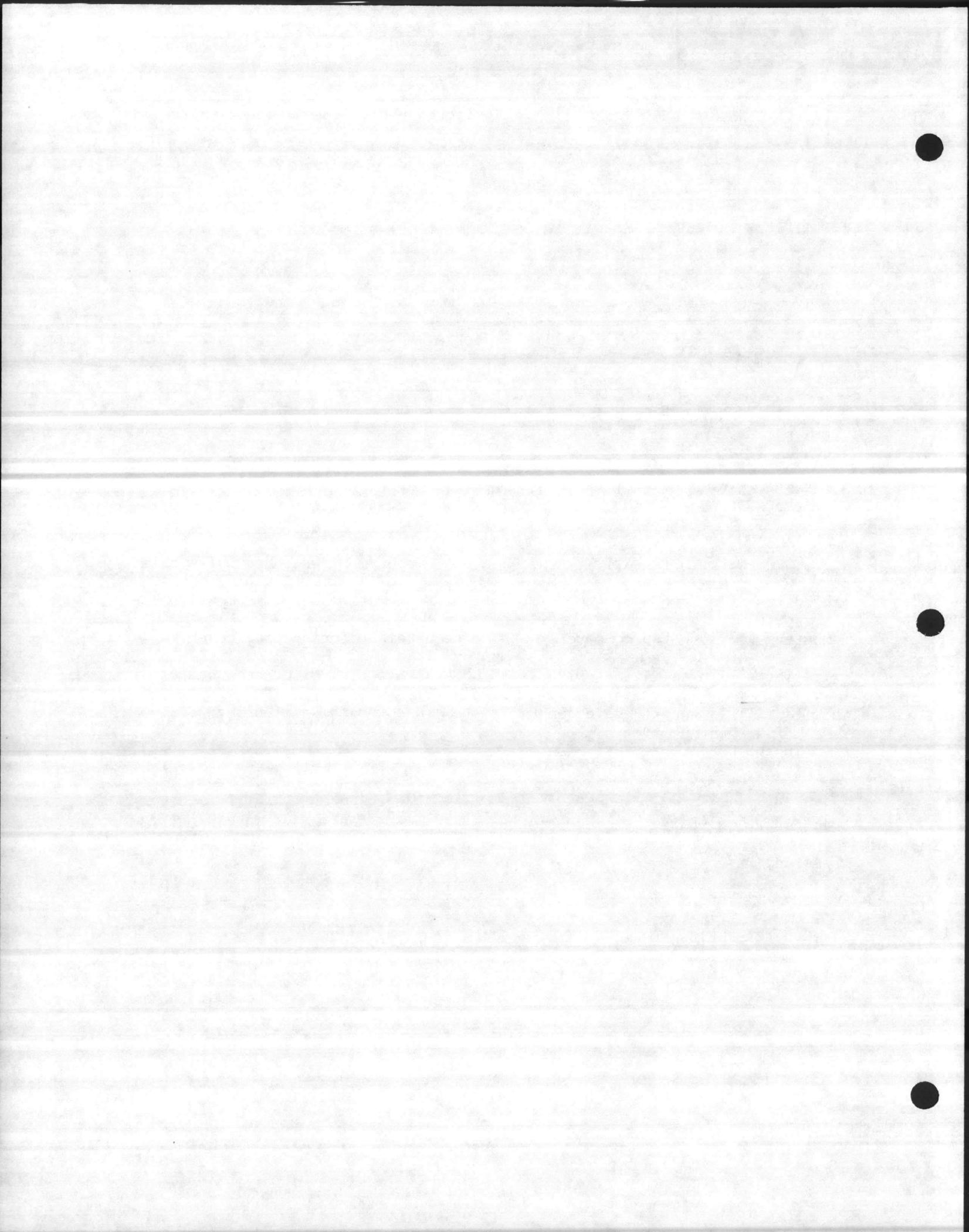
3.1.4.17 OPNAVINST 5510.45B Navy Physical Security Manual

3.1.4.18 NAVFAC DM 13.1 Physical Security

3.1.5 PROPOSED INSTALLATION. The electronic equipment which comprise this project is of discrete design which must meet operational requirements. The computers are desk top computers with no requirement for special power, filtering, or installation criteria. There are special electrical outlets for this facility. An extensive conduit system through access flooring will be used in the CAST rooms.

3.1.5.1 FLOOR PLANS. Enclosure 4 provides a proposed floor plan layout for this facility.

3.1.5.2 CABINETS AND RACKS. Not applicable.



3.1.5.3 SINGLE LINE SIGNAL FLOW DIAGRAM. There is no requirement for a single line signal flow diagram. There is a requirement to provide external communication coupling for the Command Post (CP) which will be located on the lawn.

3.1.6 PHYSICAL SECURITY

3.1.6.1 BUILDING SECURITY. Classified material is used inside the building but removed daily upon completion of the training evolution. The electronic equipment in this facility must be protected from theft, vandalism or other acts of individuals. Reference 3.1.4.18 provides physical security criteria.

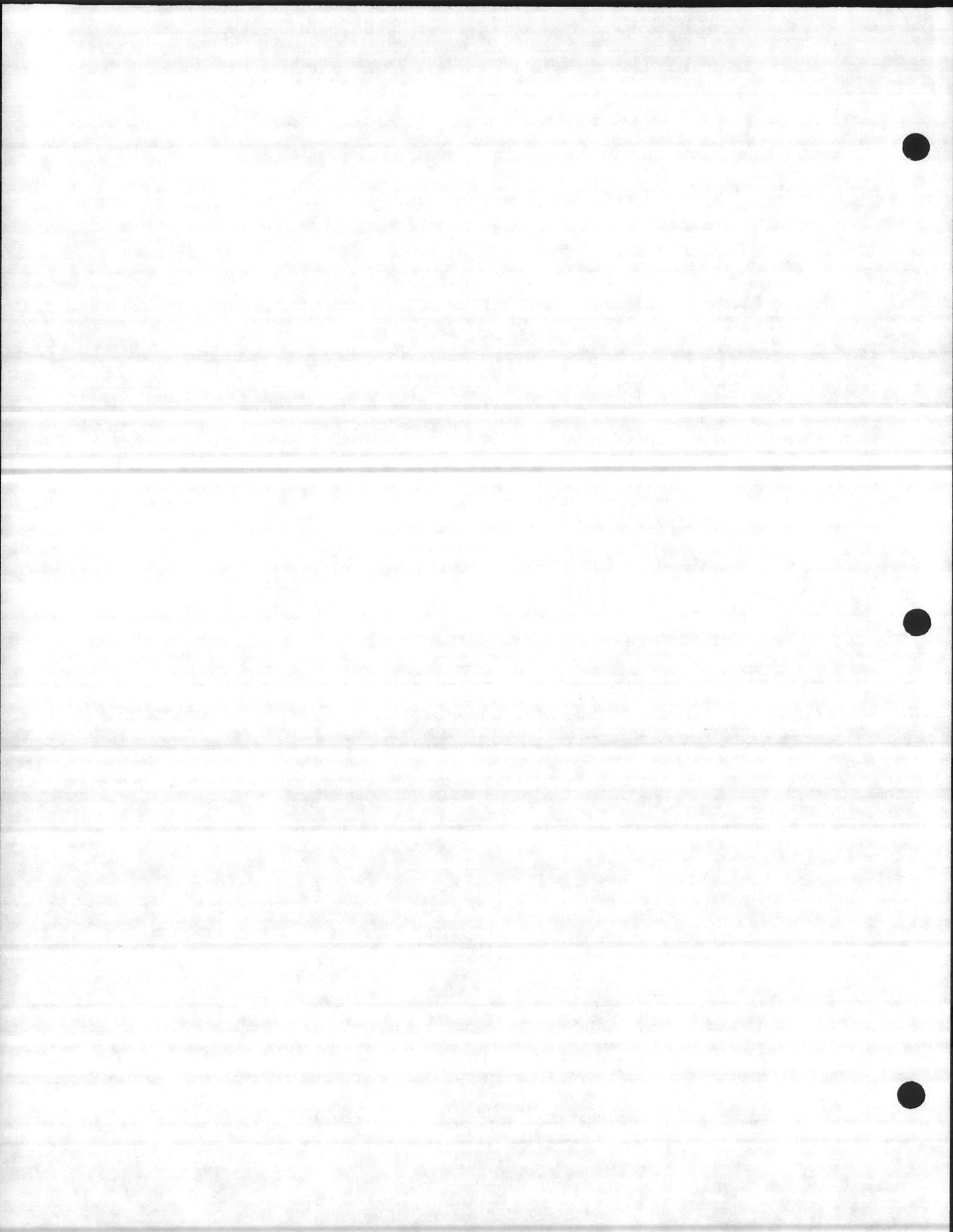
3.1.6.2 PERSONNEL/MATERIAL SECURITY. The classified material that is used during training evolutions shall be given appropriate security protection in accordance with reference 1.2.3.

3.1.7 TEMPEST REQUIREMENTS. TEMPEST requirements were covered in paragraph 1.10.1.

3.1.8 ENVIRONMENTAL REQUIREMENTS

3.1.8.1 ENVIRONMENTAL IMPACT. The construction of this facility will not cause a significant impact on the environment, nor is it highly controversial.

3.1.8.2 POLLUTION PREVENTION. This project will not cause additional air or water pollution.

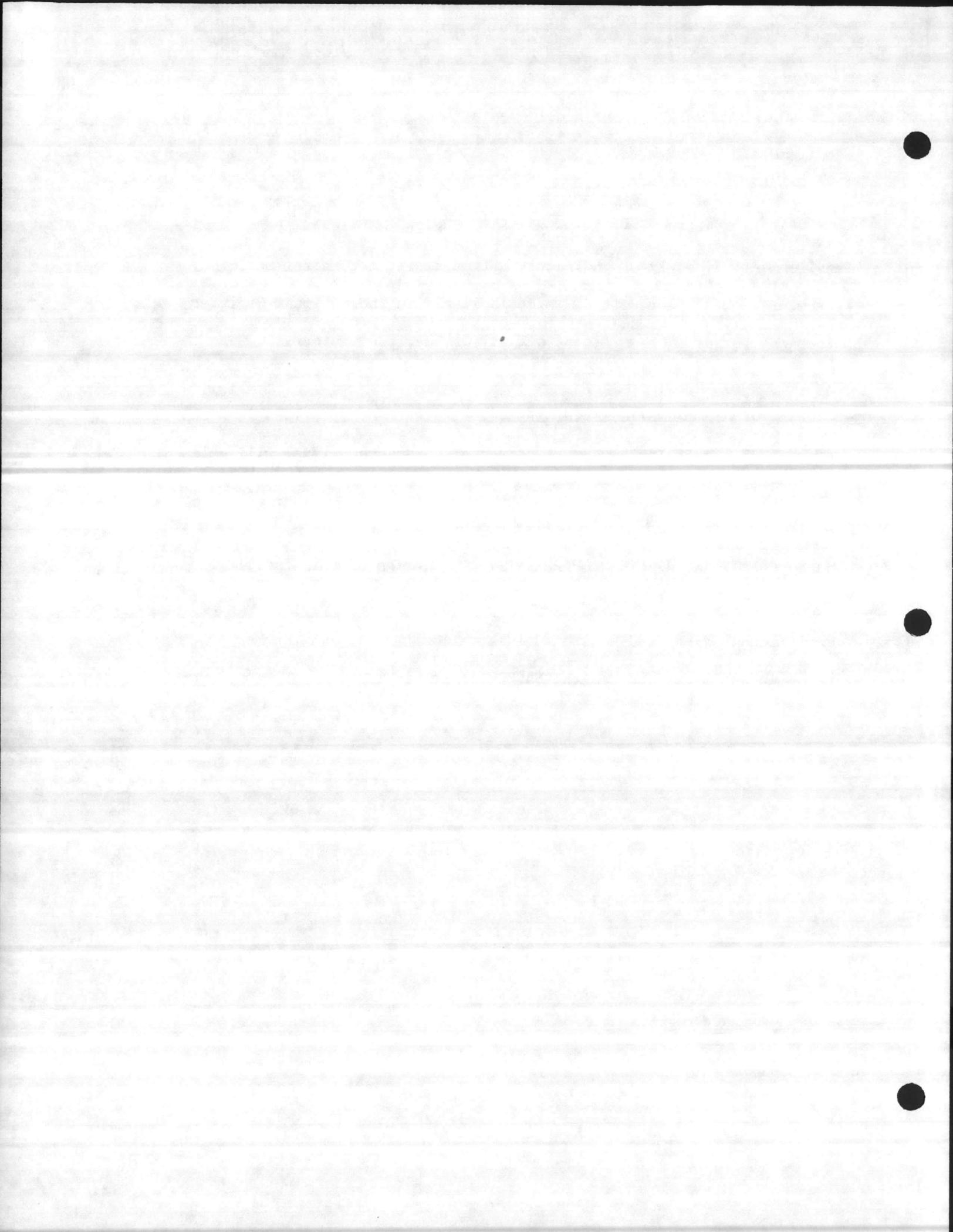


3.1.8.3 FLOOD HAZARD. The requirements of Executive Order 11296 are not applicable.

3.1.8.4 AREA ENVIRONMENT. The project facility does not affect the area environment; directly or indirectly affect a district, site, building, structure, object, or setting which is listed in the National Register, or otherwise possess a significant quality of American history.

3.1.8.5 ELECTROMAGNETIC ENVIRONMENT. Using guidance provided in technical reference 3.1.4.12, no hazard to personnel, ordnance or fuel will exist at this facility.

3.1.9 SAFETY AND HEALTH REQUIREMENTS. The design of this facility and installation of electronic equipment shall be in accordance with the Occupational Safety and Health Administration (OSHA), and the Navy Occupational Safety and Health (NAVOSH) criteria.



SECTION 4

ELECTRONIC EQUIPMENT

4.1 GENERAL

Table 4-1 provides a list of electronic equipment for this facility. Table 4-2 provides a list of electronic test equipment for this facility.

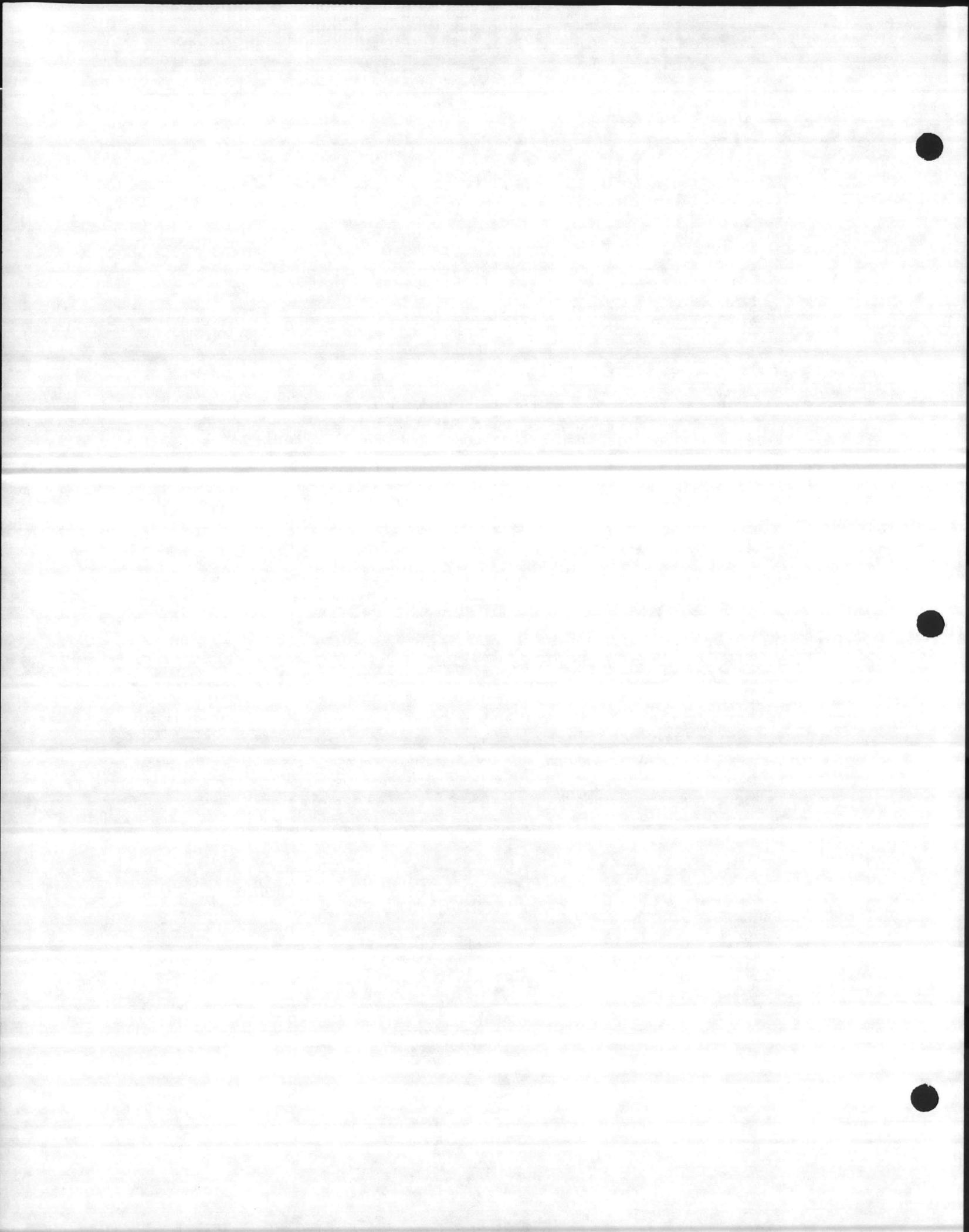


TABLE 4-1
ELECTRONIC EQUIPMENT PROCUREMENT

Item No.	Nomenclature Noun Name	Total Req'd	On Hand	Procurement Responsibility	Remarks
1.	Hewlett Packard (HP-47 or HP-91) CPU	1	0	NTSC Orlando, FL	
2.	Terminals	10	0	NTSC Orlando, FL	
3.	Interconnecting Cables and Interface Devices	As Req'd by User	0	NTSC Orlando, FL	

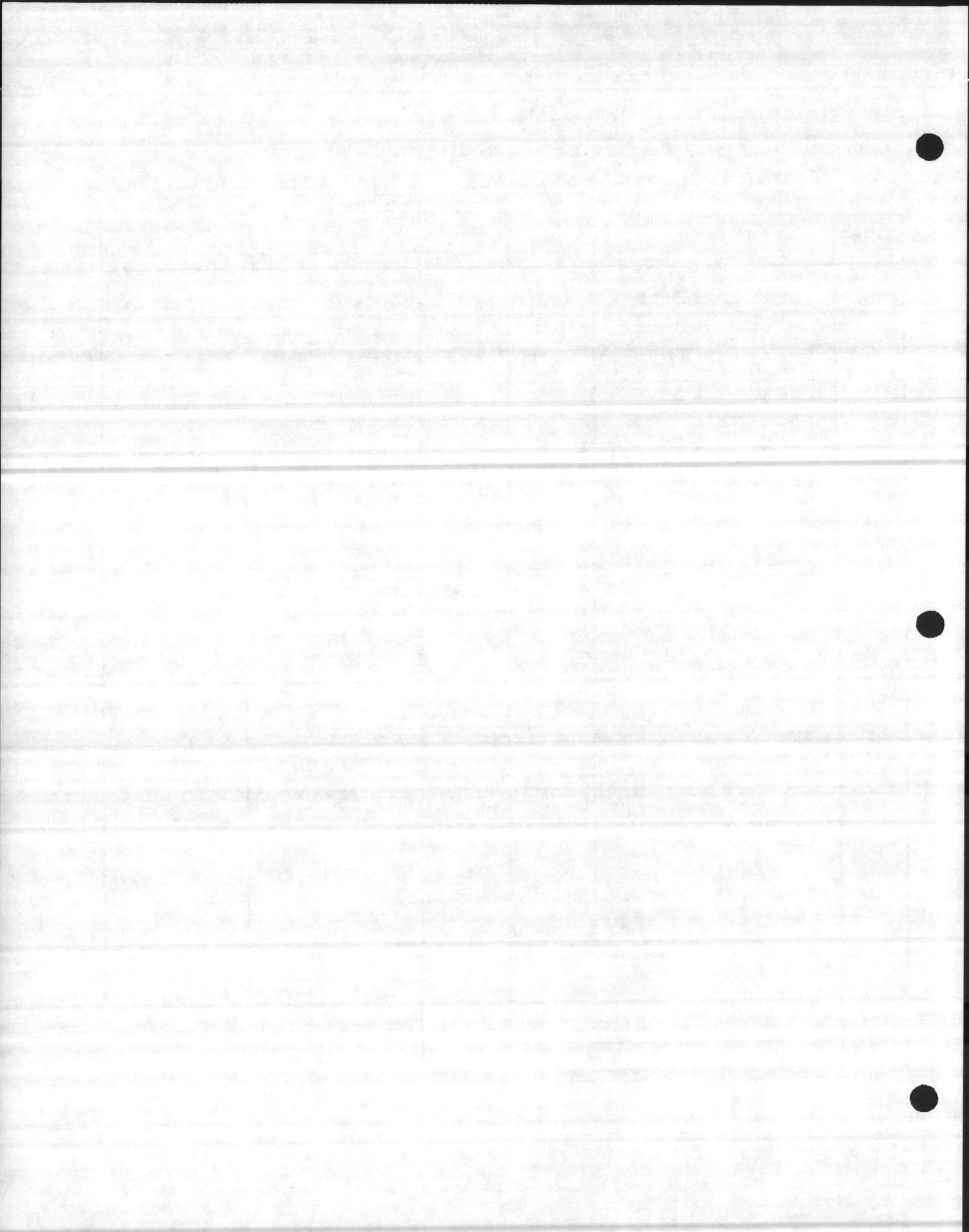
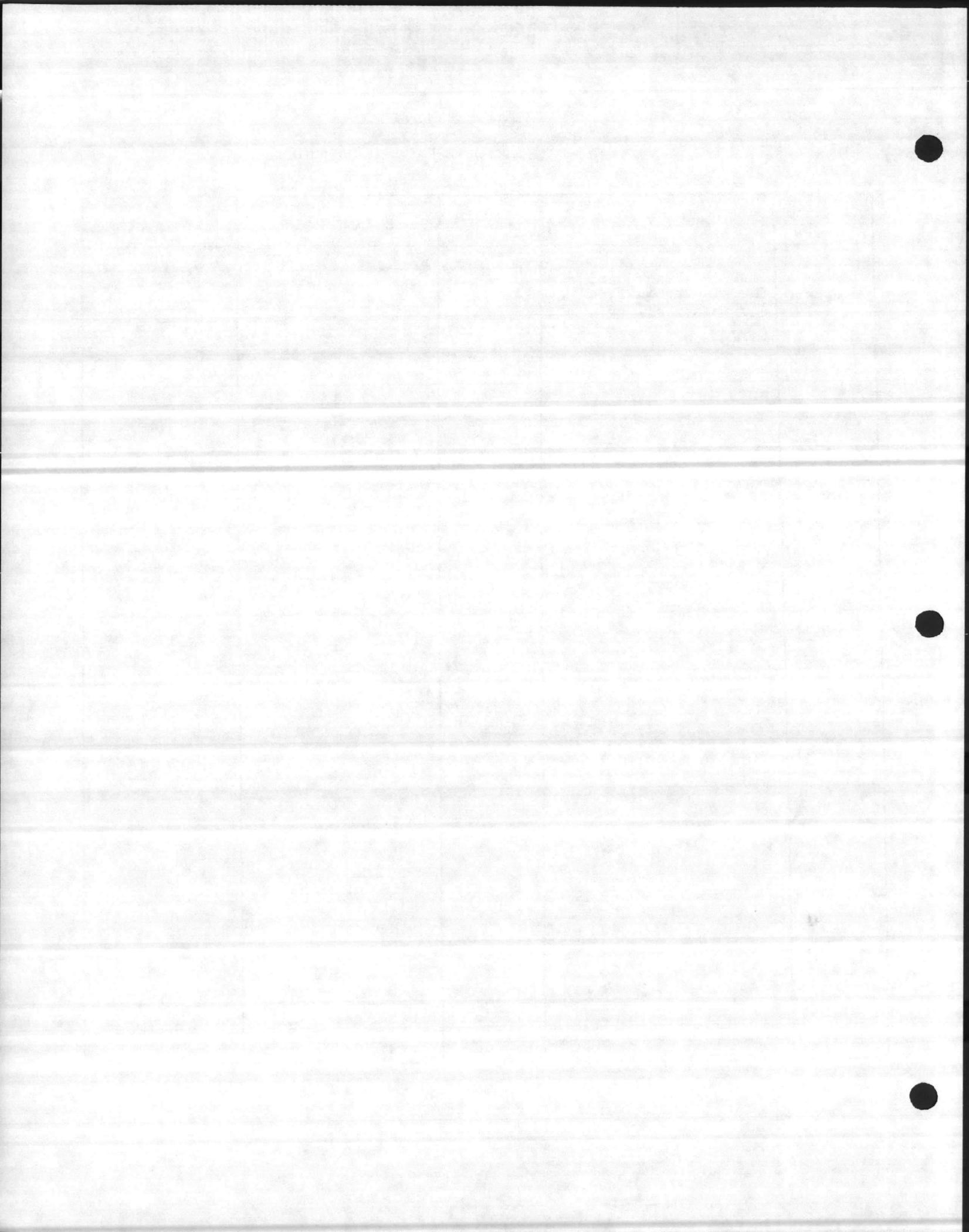


TABLE 4-2

ELECTRONIC TEST EQUIPMENT REQUIREMENT

Item No.	FSCM (*)/Model	Total Req'd	Noun Name	Remarks
	There is no requirement for Electronic Test Equip. for this facility.			

(*) Federal Supply Code for Manufacturers



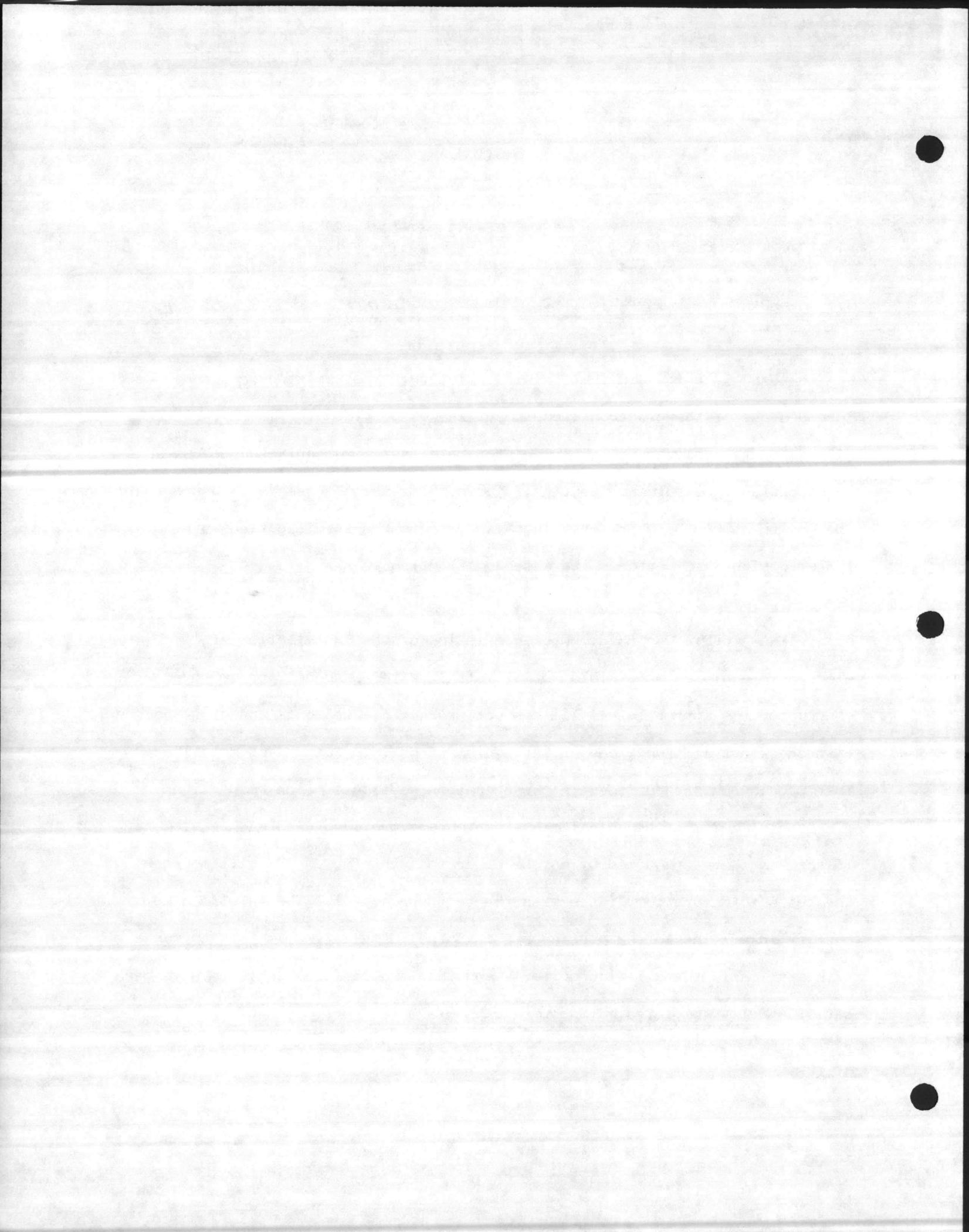
SECTION 5

SYSTEM CHECKOUT AND PERFORMANCE

5.1 GENERAL

The CAST is unique in that the installation, type, maintenance, and intended use of the electronic equipment is not provided for in any written directive. The electronic equipment for this facility requires checkout and pre-acceptance performance testing. These tests are necessary to ensure that the equipment has been properly installed, meets the specifications of the system design, and performs the intended functions.

5.1.1 PRE-ACCEPTANCE TESTS. Upon completion of the installation of electronic equipment the Field Activity (FA), site personnel, or approved contractor (as appropriate) will conduct pre-acceptance tests and/or standards that check-out all functions of the equipment or integrated systems. These test procedures are outlined in the operation section of each respective electronic equipment technical manual which are provided with each equipment. If the tests are conducted by anyone other than the FA, the FA will monitor the tests to ensure compliance with the test procedures. The FA will also certify in writing to the user agency that the installation is in accordance with applicable installation criteria and that the performance tests have been satisfactorily completed. (See paragraph 5.1.3 re: correction of deficiencies found)



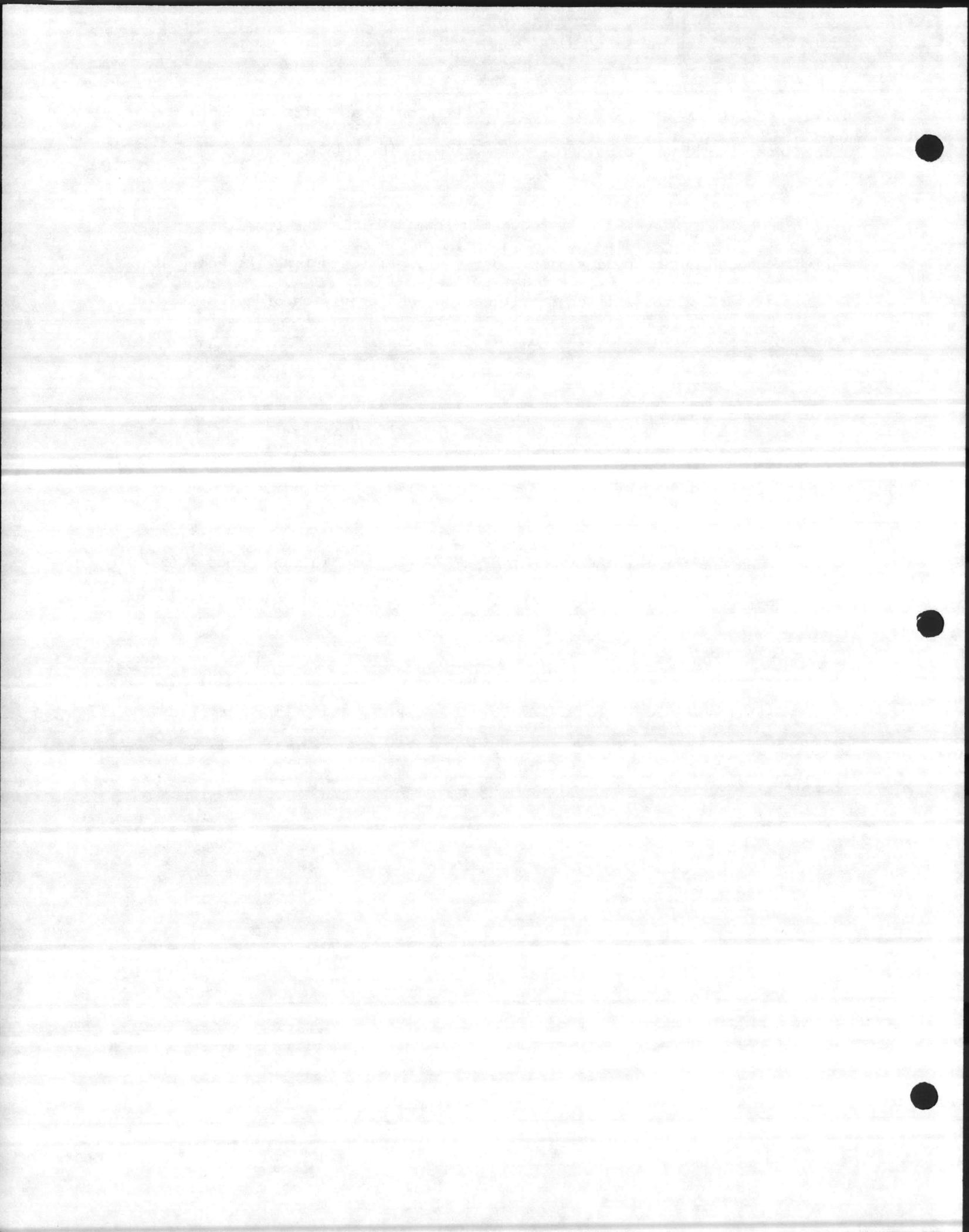
5.1.2 AS-BUILT DOCUMENTATION. The FA will provide as-built documentation in accordance with SPAWAR 0101,000 (Designers Planning Manual).

5.1.3 ACCEPTANCE. The FA will request written affirmation from the using activity of correction of any discrepancies identified during the acceptance tests, delivery of the written certification, and provision of as-built drawings.

5.1.4 TEMPEST VULNERABILITY ASSESSMENT REQUEST (TVAR). In accordance with the provisions of OPNAVINST C5510.93(D) of 16 July 1981, a TVAR will not be required for this project.

5.1.5 TECHNICAL SURVEILLANCE COUNTERMEASURES (TSCM). In accordance with the provisions of OPNAVINST 5500.46 series, a TSCM is not required for this project.

5.1.6 SAFETY AND HEALTH CERTIFICATION. The user activity (MCB Camp Lejeune) will provide safety and health professional personnel who will certify acceptability.



SECTION 6

PHYSICAL PLANT

6.1 GENERAL

6.1.1 TYPE OF CONSTRUCTION. MCON P-872 will construct a 14,002 SF facility that will be used as a Combined Arms Staff Trainer.

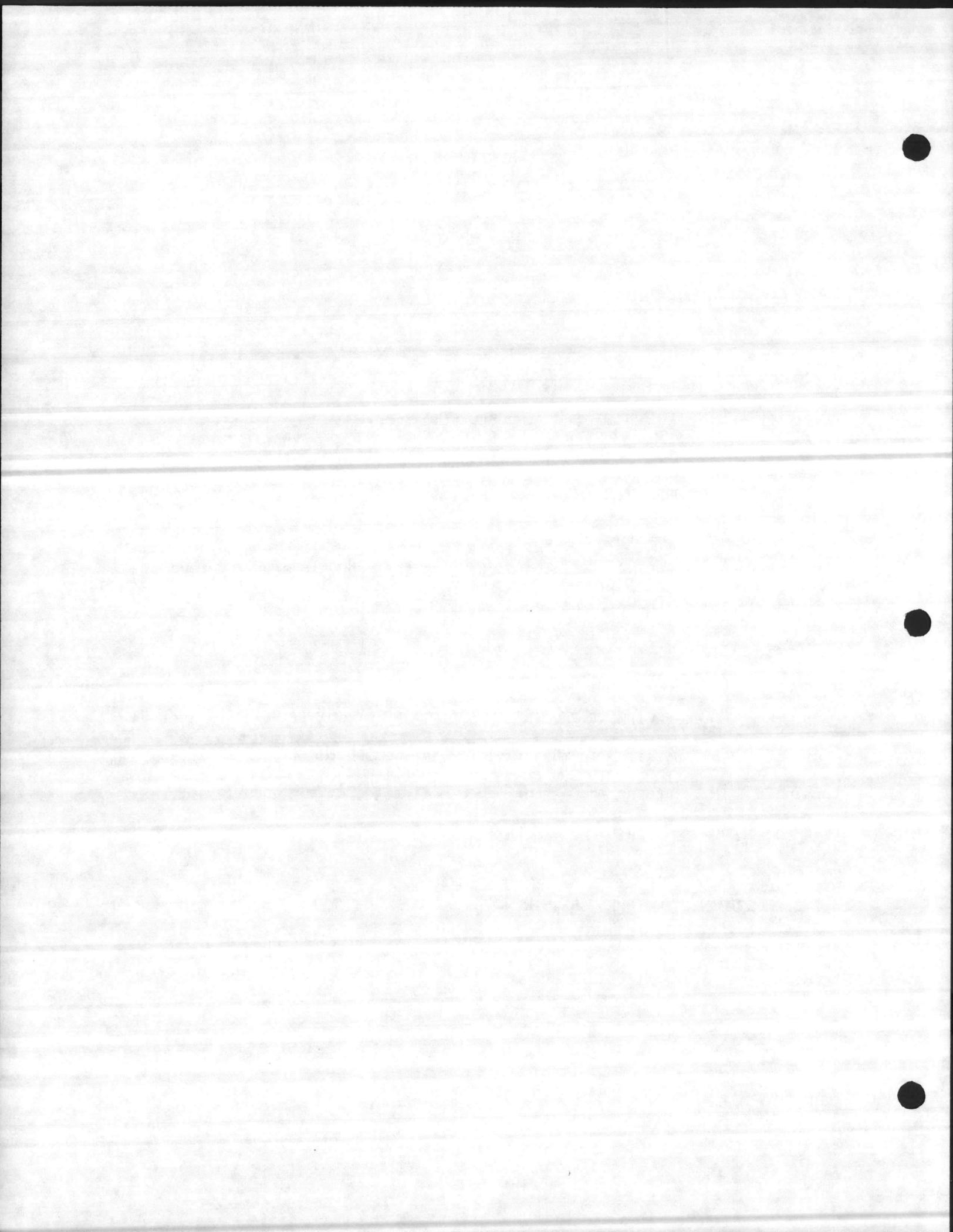
6.2 SPECIAL FEATURES OR LIMITATIONS.

6.2.1 TEMPEST SHIELDING. In accordance with the provisions of references 1.9.3 and 3.1.4.6, there is no requirement for TEMPEST or RF shielding for this facility.

6.2.2 ELECTRONIC EQUIPMENT REQUIREMENTS DICTATED BY QUANTITY. The electronic equipment to be installed at this facility is one CPU (HP-47 or HP-91) and ten terminals. There are no known requirements dictated by the quantity of electronic equipment installed in this facility.

6.2.3 ELECTRONIC EQUIPMENT REQUIREMENTS DICTATED BY TYPE. There are no known special requirements that are dictated by the type of electronic equipment being installed in this facility.

6.2.4 CLEARANCES. There are no special clearance requirements for the electronic equipment installed in this facility.



6.2.5 SITING. The electronic equipment for this facility are stand-alone, desk top computer and terminals. There are no special siting requirements.

6.2.6 ACCESS REQUIREMENTS. The requirements for access to this facility shall be controlled by the using activity. Reference 1.2.3 provides guidelines for personnel security requirements.

6.2.7 PHYSICAL SECURITY. There are no physical security requirements that would impact the design of this facility.

6.3 DRAWINGS

6.3.1 EQUIPMENT LAYOUT DRAWINGS. The electronic equipment for this facility are a stand-alone CPU and desk top terminals. The using activity will determine equipment locations.

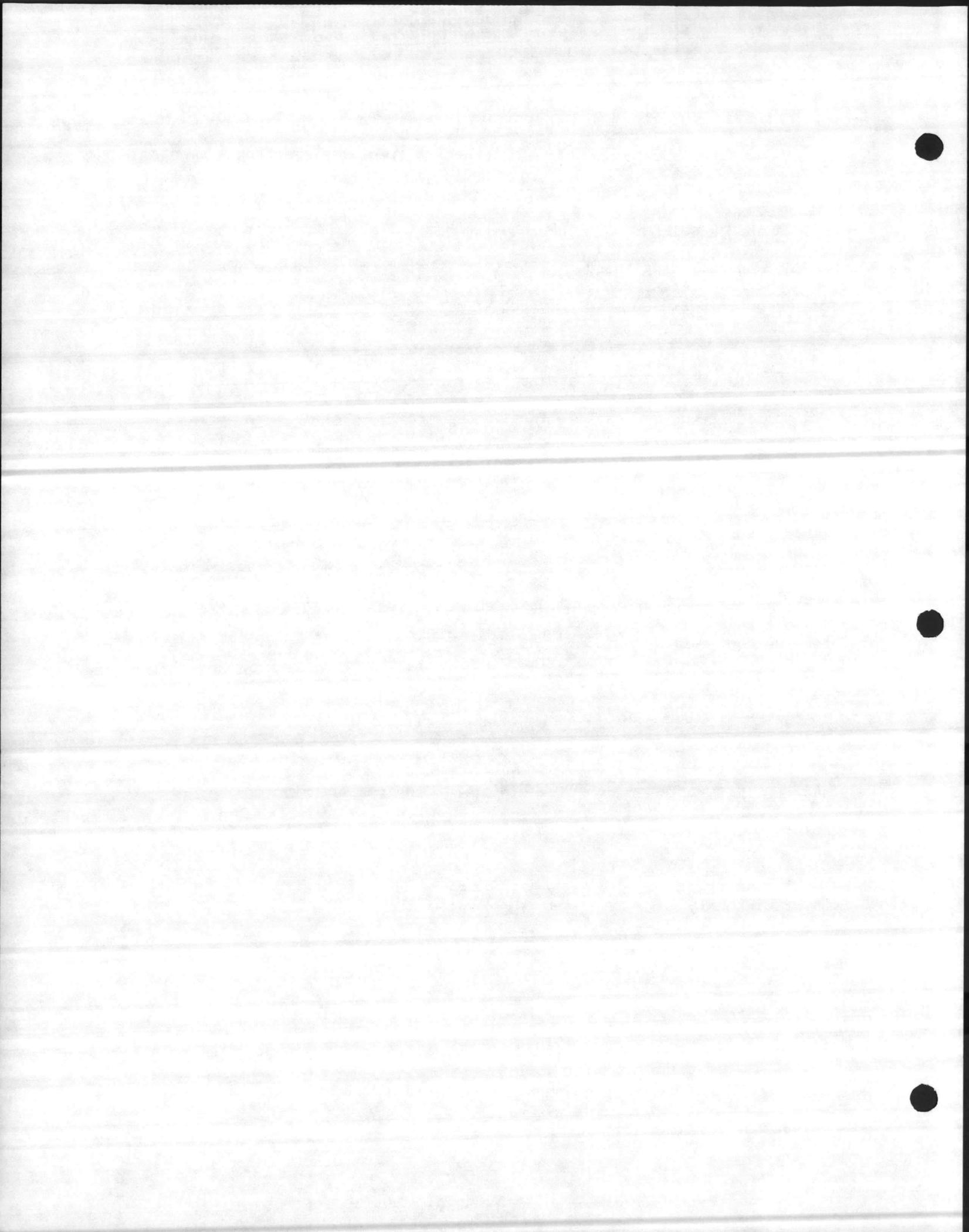
6.4 EQUIPMENT CHARACTERISTICS

6.4.1 EQUIPMENT TABULATION. The electronic equipment characteristic tabulation is provided in table 6-1.

6.5 REQUIREMENTS FOR AREAS OF INTEREST

6.5.1 FLOOR PLAN LAYOUTS. Enclosure 4 provides floor plan layout for this facility.

6.5.2 DOOR OPENINGS. There are no known special requirements for door openings for this facility.



6.5.3 RACEWAYS AND CABLE DUCTS. The power and signal cables for the CPU and terminals shall be contained in raceways and cable ducts.

6.5.4 POWER PANEL BOARD LOCATIONS. The power panel boards for the electronic equipment shall be located in proximity to the CAST for expeditious securing of power in the event of emergency.

6.5.5 RED/BLACK POWER REQUIREMENTS. There is no requirement for special RED/BLACK power boards.

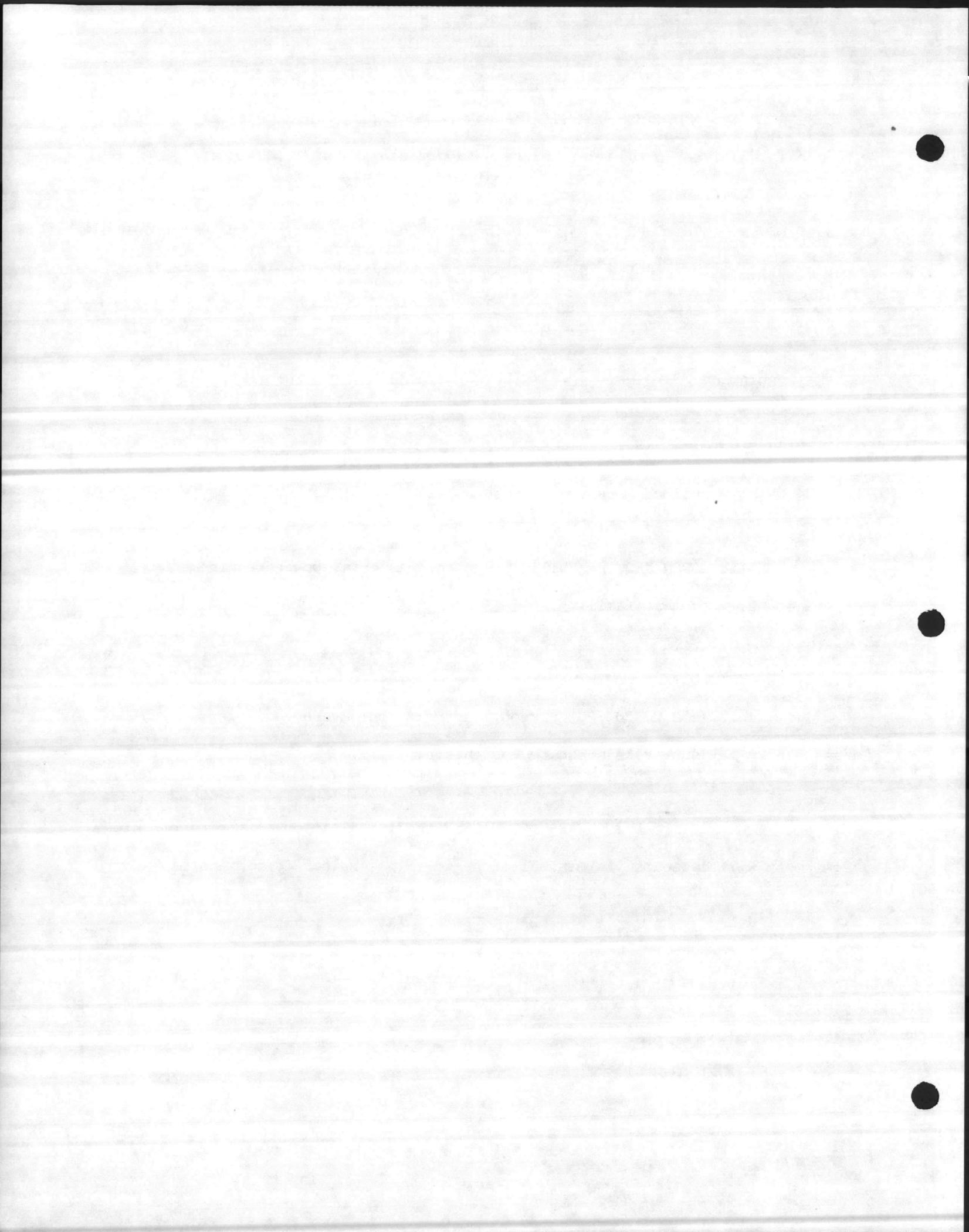
6.5.6 UNINTERRUPTIBLE POWER. There is no requirement for an UPS system.

6.5.7 SPECIAL POWER REQUIREMENTS. There is no special power requirements (i.e. 400hz), for this facility.

6.5.8 ELECTRIC POWER REQUIREMENTS. The electrical requirements for this facility is 120/208 V, 30, 60 hz supplied from local overhead feeders. The base electrical supply is adequate for this facility.

6.5.8.1 EQUIPMENT LOAD INCREASE/DECREASE. The installation of the electronic equipment will cause only a minimal increase in power load (approximately 1 kw).

6.5.9 EMERGENCY POWER. There is no requirement for emergency power for this facility.



6.5.10 HEAT LOAD GENERATED BY ELECTRONIC EQUIPMENT. The installation of the electronic equipment in this facility will not cause a significant increase in heat load. Approximately 35 tons of air conditioning for the building and personnel loading is considered adequate to handle the anticipated heat roll caused by the electronic equipment.

6.6 ENVIRONMENTAL CONTROL

6.6.1 CENTRAL HEATING. Central heating should provide an approximate temperature of 75 degrees \pm 5 degrees with a relative humidity of 50 percent in all electronic equipment and operating spaces.

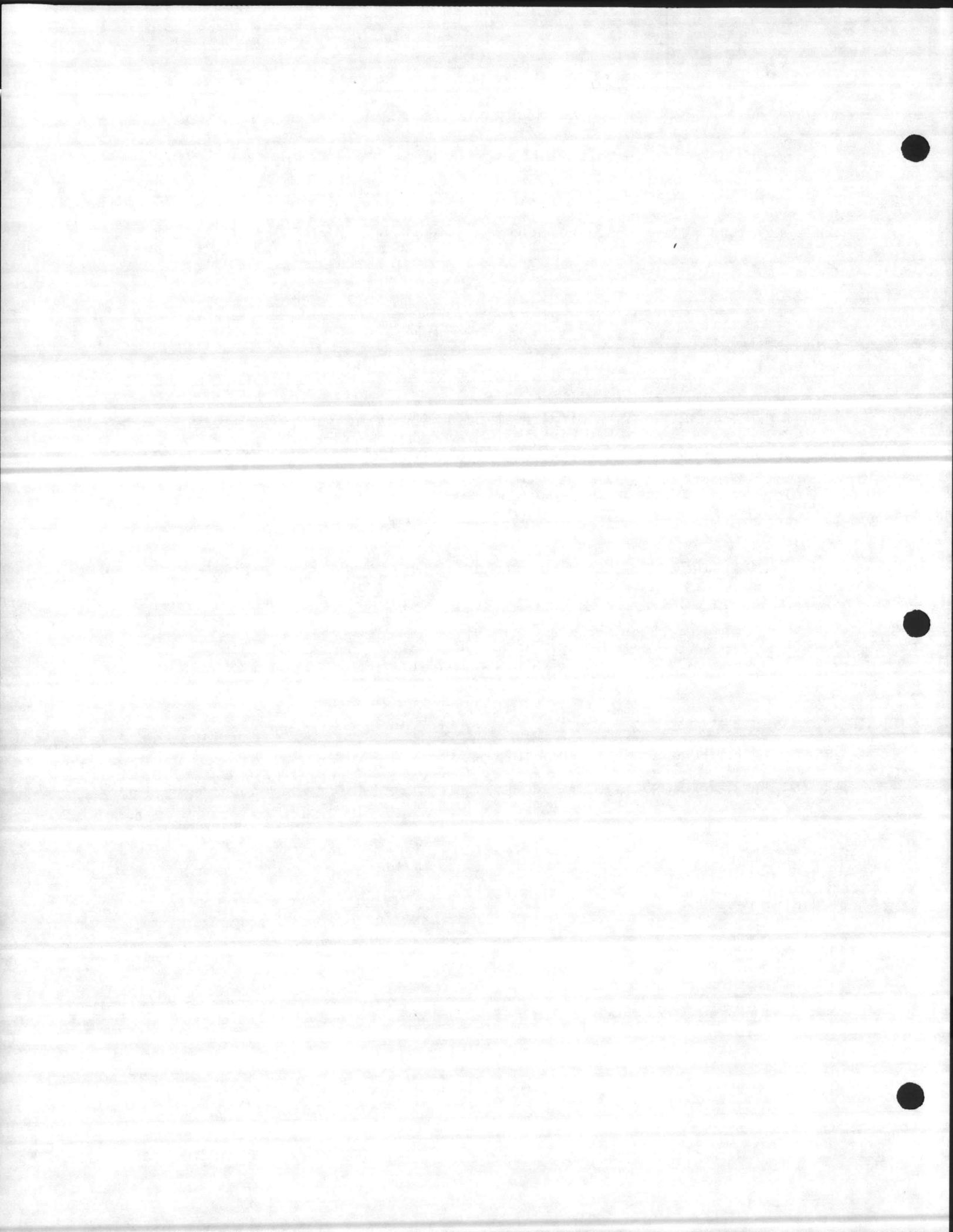
6.6.2 AIR CONDITIONING. Air conditioning should provide an approximate temperature of 70 degrees \pm 5 degrees with a relative humidity of 50 percent in all electronic equipment and operating spaces.

6.6.3 AIR FILTRATION. The filters of the heating and air conditioning systems shall have an efficiency rating of approximately 60 percent per NAVFAC DM-12.1 and ASHRAE 52-76.

6.6.4 PERSONNEL LOADING. This facility is unmanned except for scheduled training periods. During these training periods, it is estimated that a maximum of 644 personnel will man this facility.

676

6.6.5 FULL TIME EQUIPMENT OPERATIONS. All the equipment listed in table 6-1 is operational during scheduled training periods. The equipment is secured at all other times. Equipment will operate in excess of 3 hours/day during training periods.



6.6.6 COMPRESSED AIR. There is no requirement for compressed air at this facility.

6.7 FIRE PROTECTION

6.7.1 SYSTEM. The fire protection for this facility will be wet pipe sprinkler system. The system will be constructed in accordance with MIL-HDBK-1008. There will also be six HALON-1211, 91b, portable fire extinguishers located in the staff trainer. The design, equipment, materials, installation and workmanship shall be in strict compliance with the required and advisory provisions of NFPA 12A, 13, 70, 72A, 72B, 72E and 75.

6.7.2 FIRE ALARM SYSTEM. The status of the fire alarm system for this project will be radio transmitted to the base fire department.

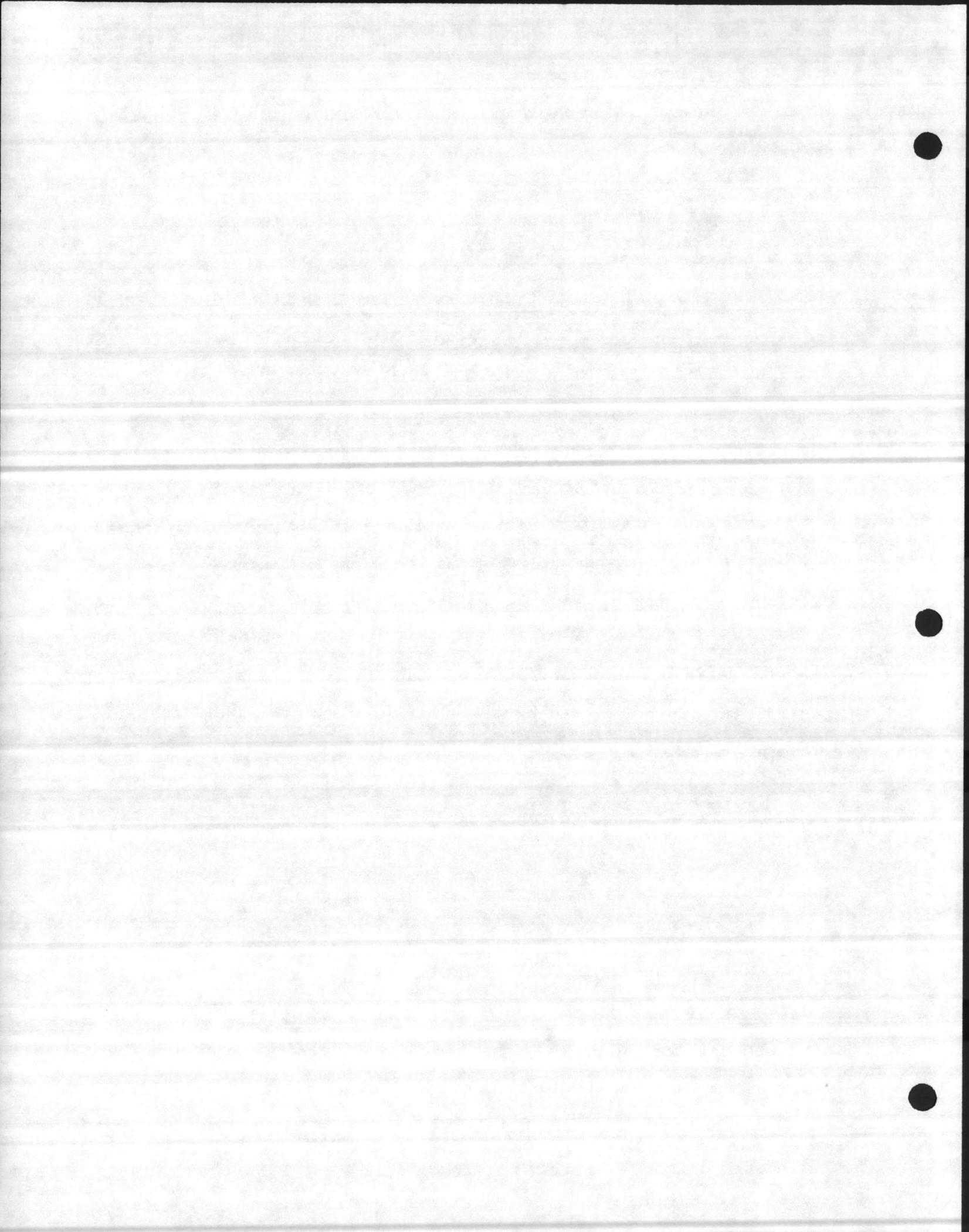
6.7.3 FIRE DETECTION. This facility shall contain appropriate smoke detectors. Detector spacing and location shall be in accordance with the requirements of NFPA 72E.

6.8 RED AREAS

6.8.1 IDENTIFICATION. There are no "RED" areas in this facility.

6.9 ADMINISTRATIVE TELEPHONES

6.9.1 CRITERIA. The telephones for this facility will be a 25 pair cable pulled from the local junction box.



6.10 RF SHIELDING

6.10.1 REQUIREMENTS. In accordance with the provisions of references 1.9.3 and 3.1.4.6, there is no requirement for RF shielding. This facility will not require special design criteria for TEMPEST radiation or electromagnetic interference.

6.11 GROUNDING AND BONDING

6.11.1 REQUIREMENTS. The electronic equipment for this facility shall be grounded and bonded in accordance with reference 3.1.4.6, and the National Electric Code (NEC).

6.12 INTERNAL SECURITY AND PERSONNEL CLEARANCES

6.12.1 CRITERIA. Internal security and personnel clearances are the responsibility of the using activity. Reference 1.2.3 provides the guidelines for security.

6.13 INTRUSION DETECTION SYSTEM (IDS)

6.13.1 REQUIREMENT. There is no requirement for an IDS for this facility.

6.14 OSHA REQUIREMENTS

6.14.1 SAFETY REQUIREMENTS. All OSHA and NAVOSH safety requirements shall be strictly complied with.

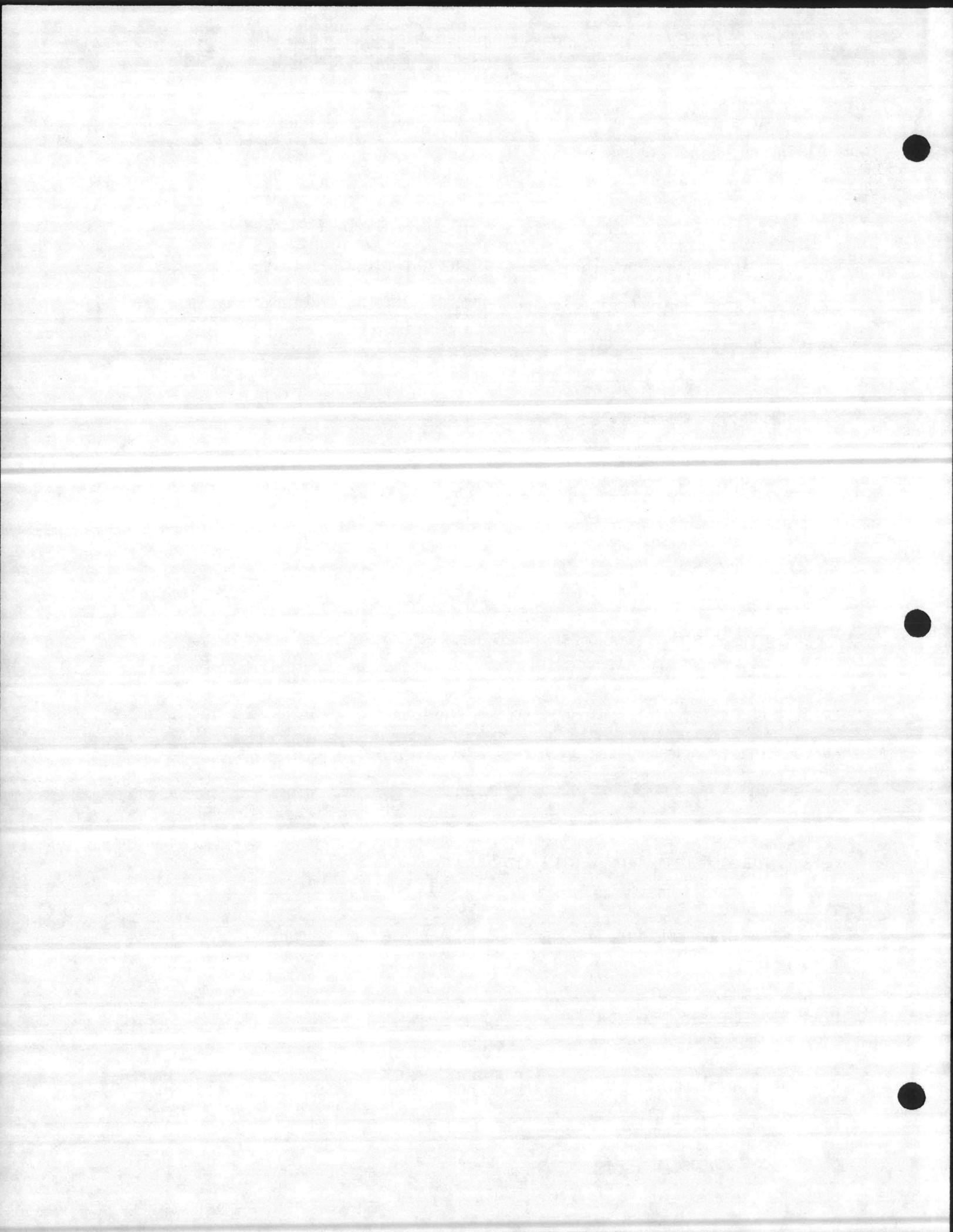


TABLE 6-1
EQUIPMENT CHARACTERISTICS TABULATION
(PER UNIT BASIS)

ITEM NO	EQUIPMENT NOMENCLATURE	EQUIPMENT DESCRIPTION	DIMENSIONS (INCHES)			WEIGHT (LB)	QUANTITY			INPUT POWER (WATT)	VOLT/CAT	HZ	PHASE	HEAT DRS BTU/HR	REMARKS
			HEIGHT	WIDTH	DEPTH		EXIST	NEW	TOTAL						
1	(Red+Green) Laser System								2						
2	(Clock) Monitor								32						
3		Exercise Control Computer							1						
4		Laser Control Computer							1						
5		Comments Control Computer							1						
6		Printer							3						
7		Computer Terminals							20						
8		Tape Recorder							2						TAYS0
9		Signal Generator							1						
10		Power Supplies							32						
11		Communication Equip Pack							1						
12		Communication Line Cont							400						
13		Intercom System							4						
14		Public Address System							1						
15		Wireless Radio							20						
16		HEADSETS							400						
17		HANDSETS							40						
18		Intercommunication ^{SPEAKER}							50						
19		Video Camera & Control System							1						
20		Video Record/Playback Unit							1						
21		25-Inch Video Monitor							3						

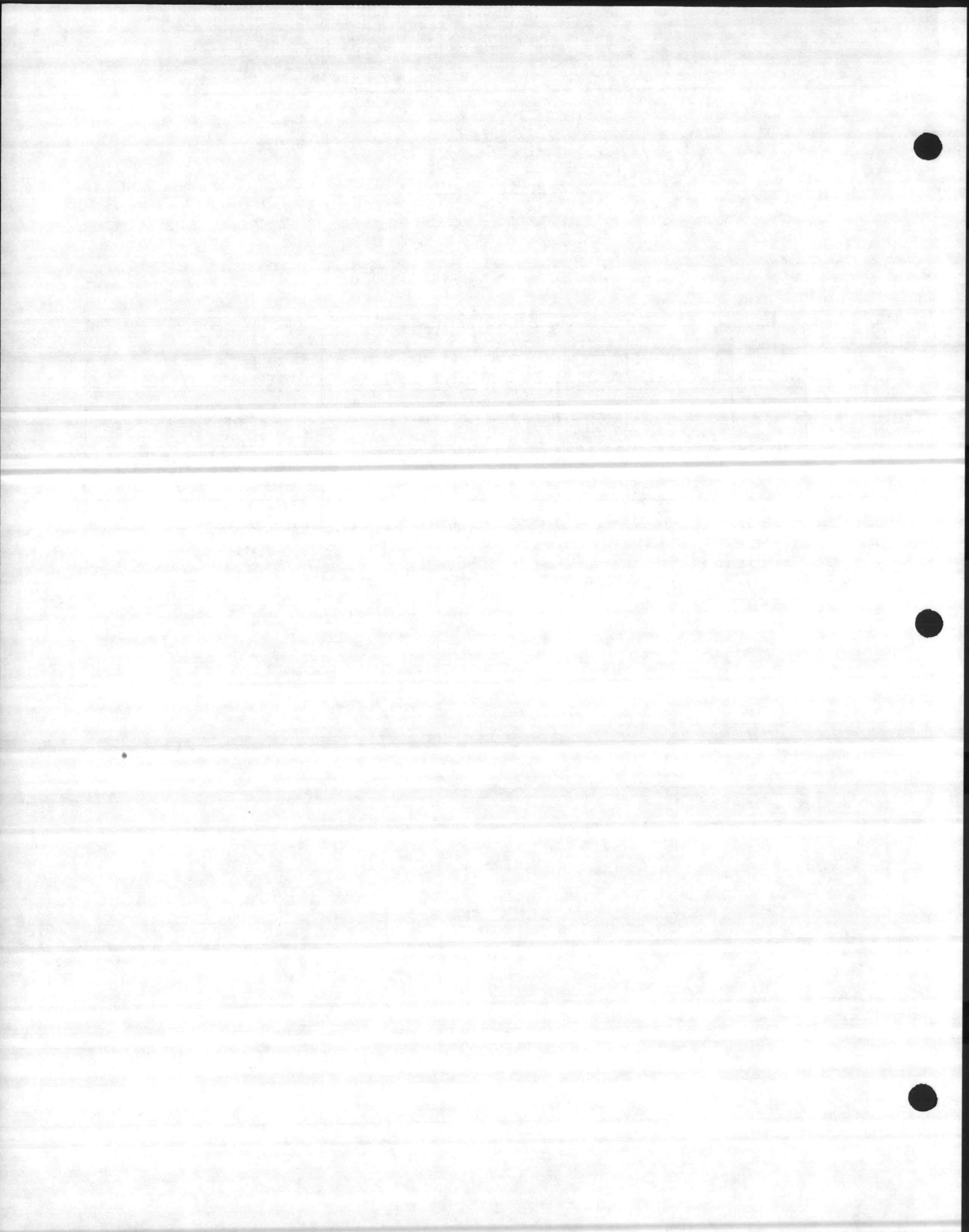


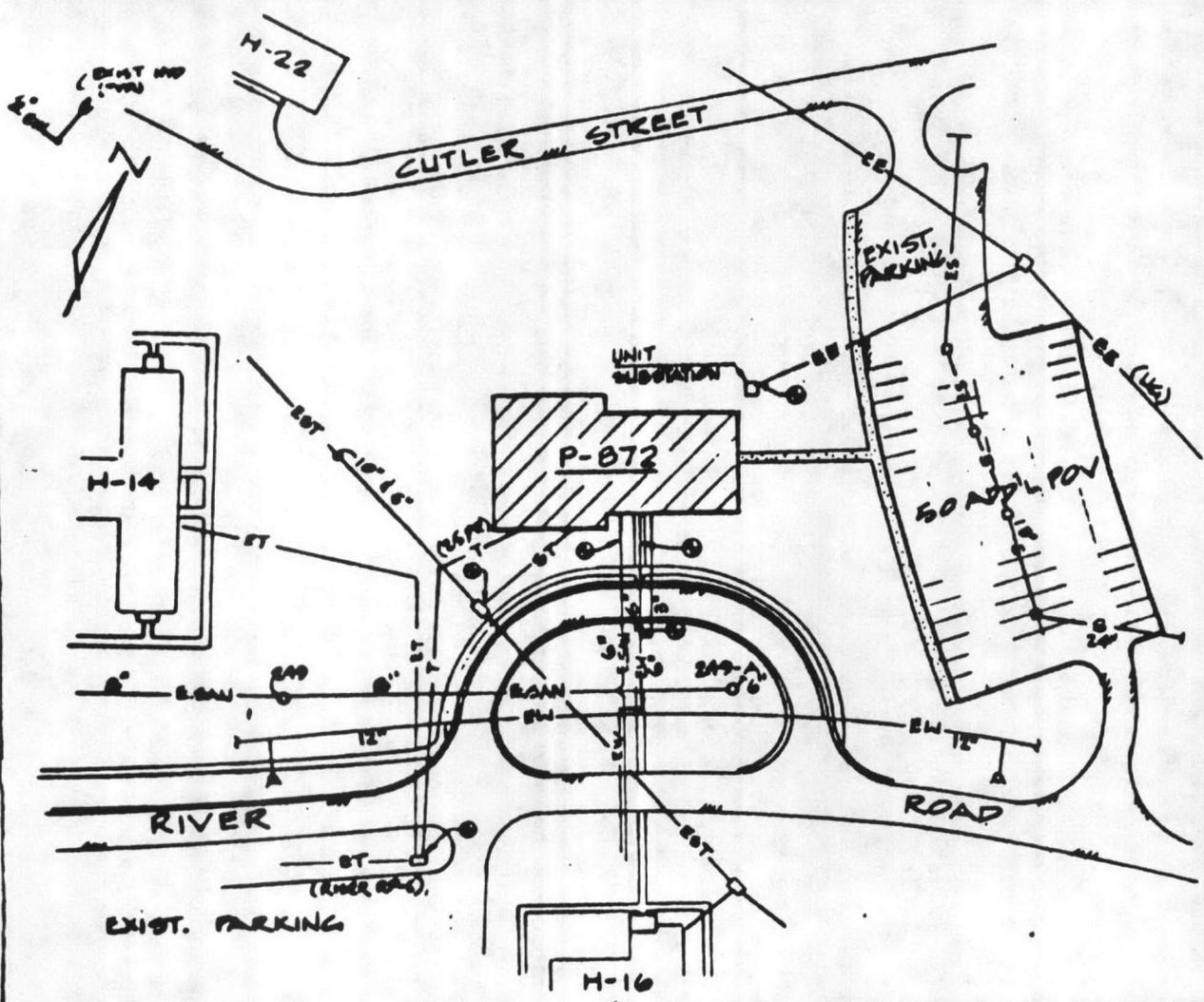
Table 6-2

POWER SUMMARY

	Bldg. No.	BASELINE				Remarks
		Existing	Addl	Delete	Final	
Hz (*)		0	60	0	60	
NCTL		0	172KW	0	172KW	
CTL		0	1KW	0	1KW	
NTL		0	0	0	0	
TL		0	173KW	0	173KW	

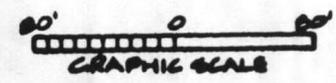
- (*) NCTL - Non-critical Technical Load
- CTL - Critical Technical Load
- NTL - Non-technical Load
- TL - Technical Load





EXIST	LEGEND	PROP
[Symbol]	BUILDING	[Symbol]
[Symbol]	SIDEWALK	[Symbol]
[Symbol]	ASP. PAVING	[Symbol]
[Symbol]	SAN. SEWER	[Symbol]
[Symbol]	MANHOLE	[Symbol]
[Symbol]	WATER LINE	[Symbol]
[Symbol]	CATCH BASIN	[Symbol]
[Symbol]	STORM DRAIN	[Symbol]
[Symbol]	PT. OF CONNECTION	[Symbol]
[Symbol]	STEAM LINE	[Symbol]
[Symbol]	ELECTRIC LINE	[Symbol]
[Symbol]	SAN. FOR MAIN	[Symbol]
[Symbol]	TELEPHONE	[Symbol]
[Symbol]	FENCE	[Symbol]

UG - UNDERGROUND
OH - OVERHEAD



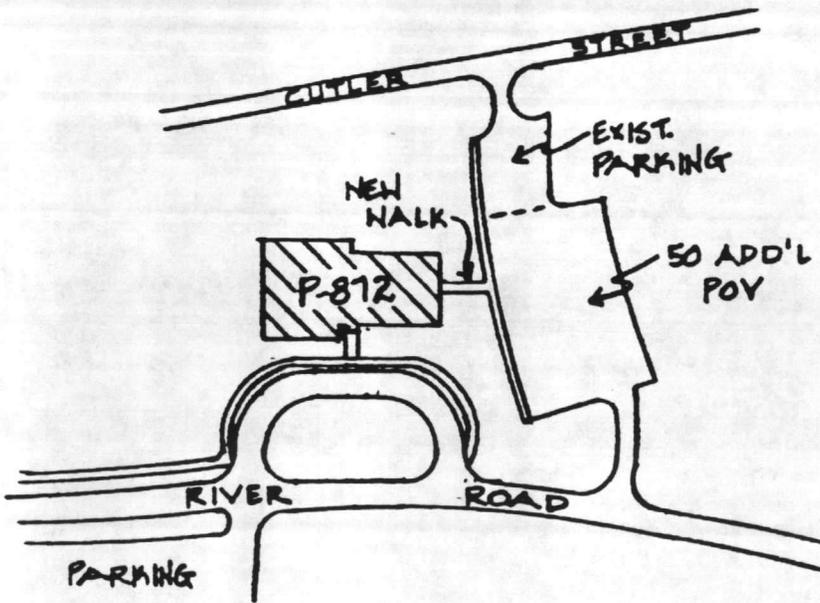
MARINE CORPS BASE
CAMP LEJEUNE, N.C.

COMBINED ARMS STAFF TRAINER
P-872
UTILITY SITE PLAN

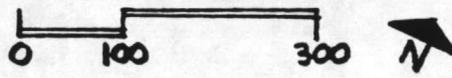
UNICOST INCORPORATED
8801 PEACHTREE BUNWOODY RD.
ATLANTA, GA. 30348

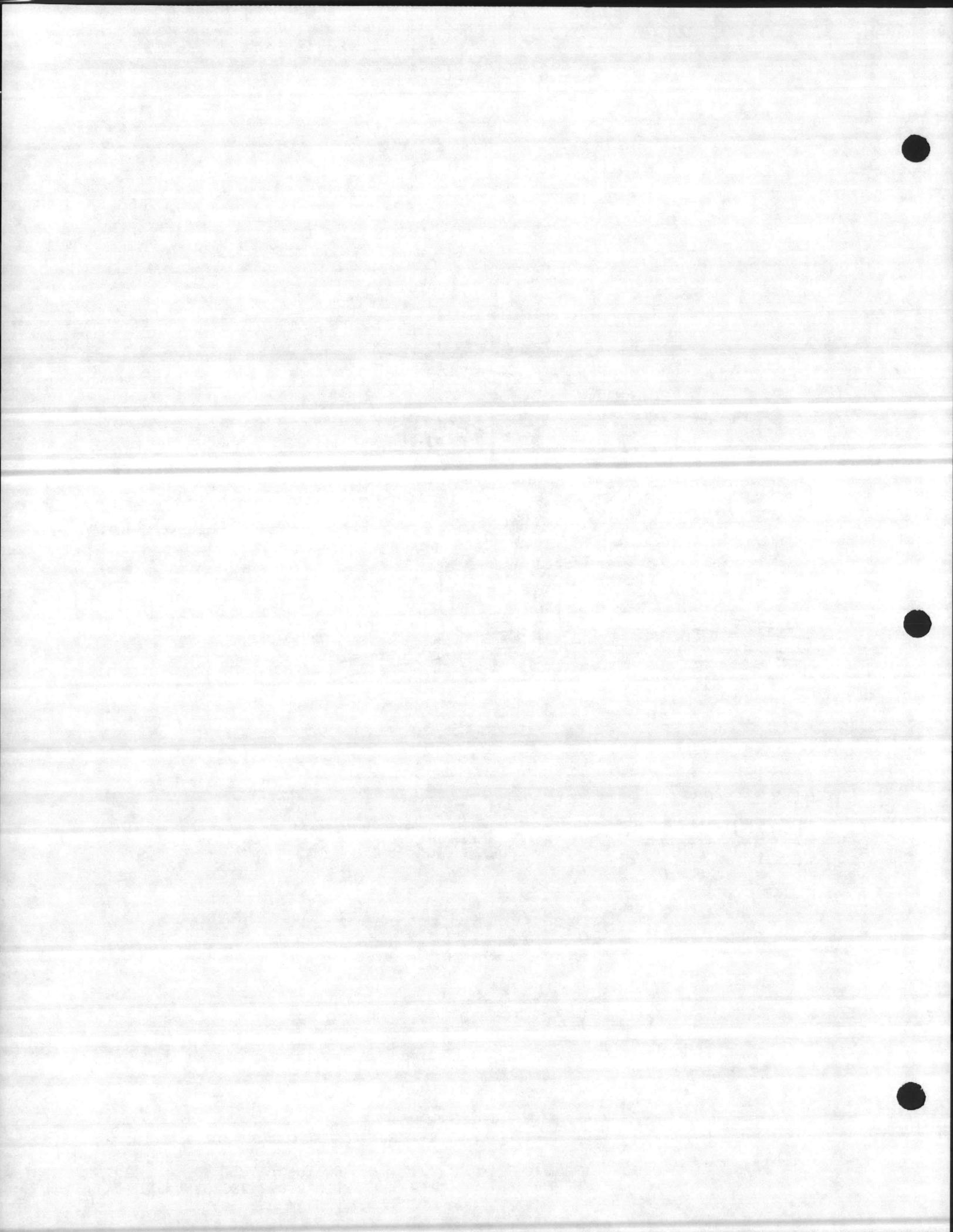
Enclosure (1)
MCON P-872 PROPOSED SITE LOCATION

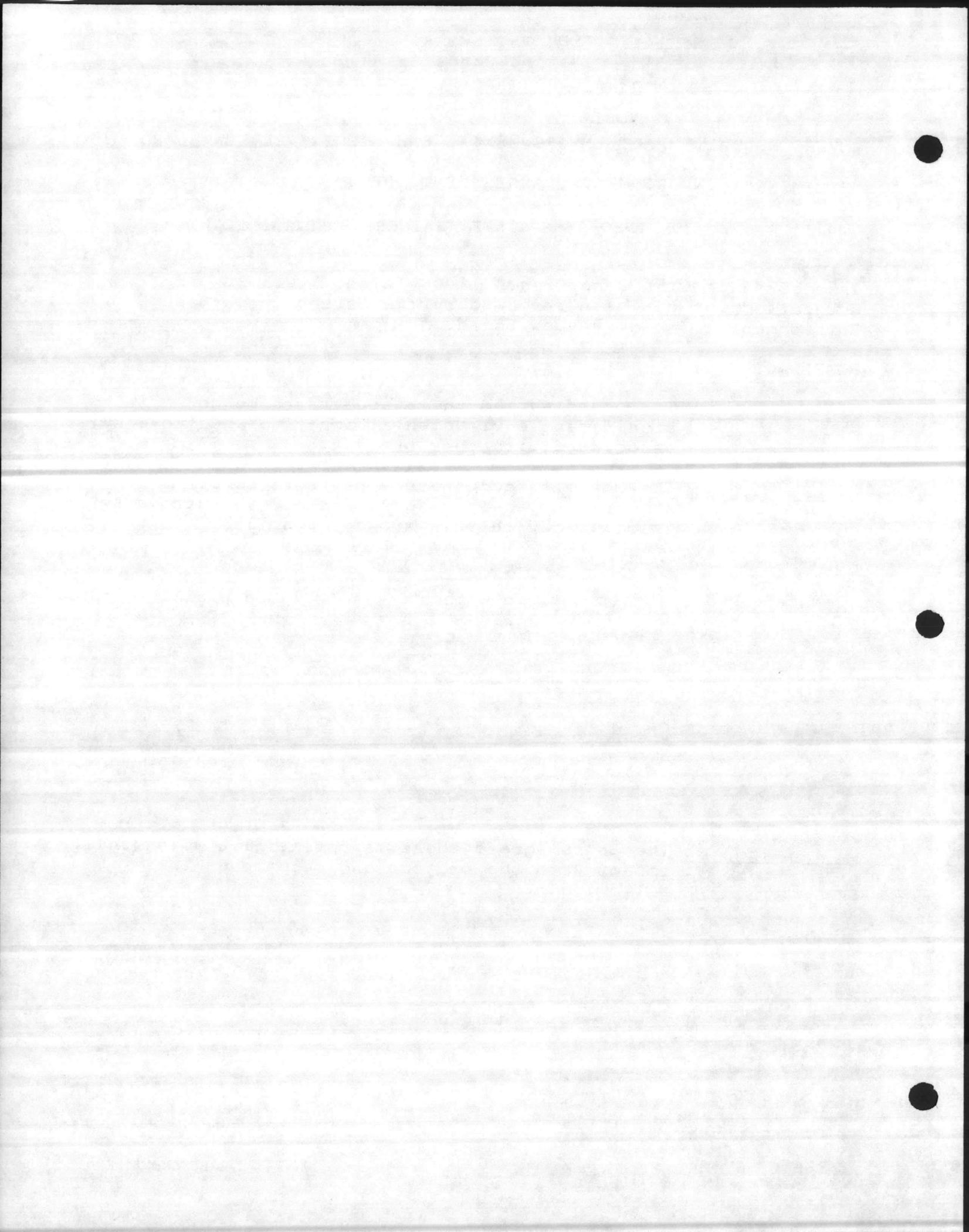


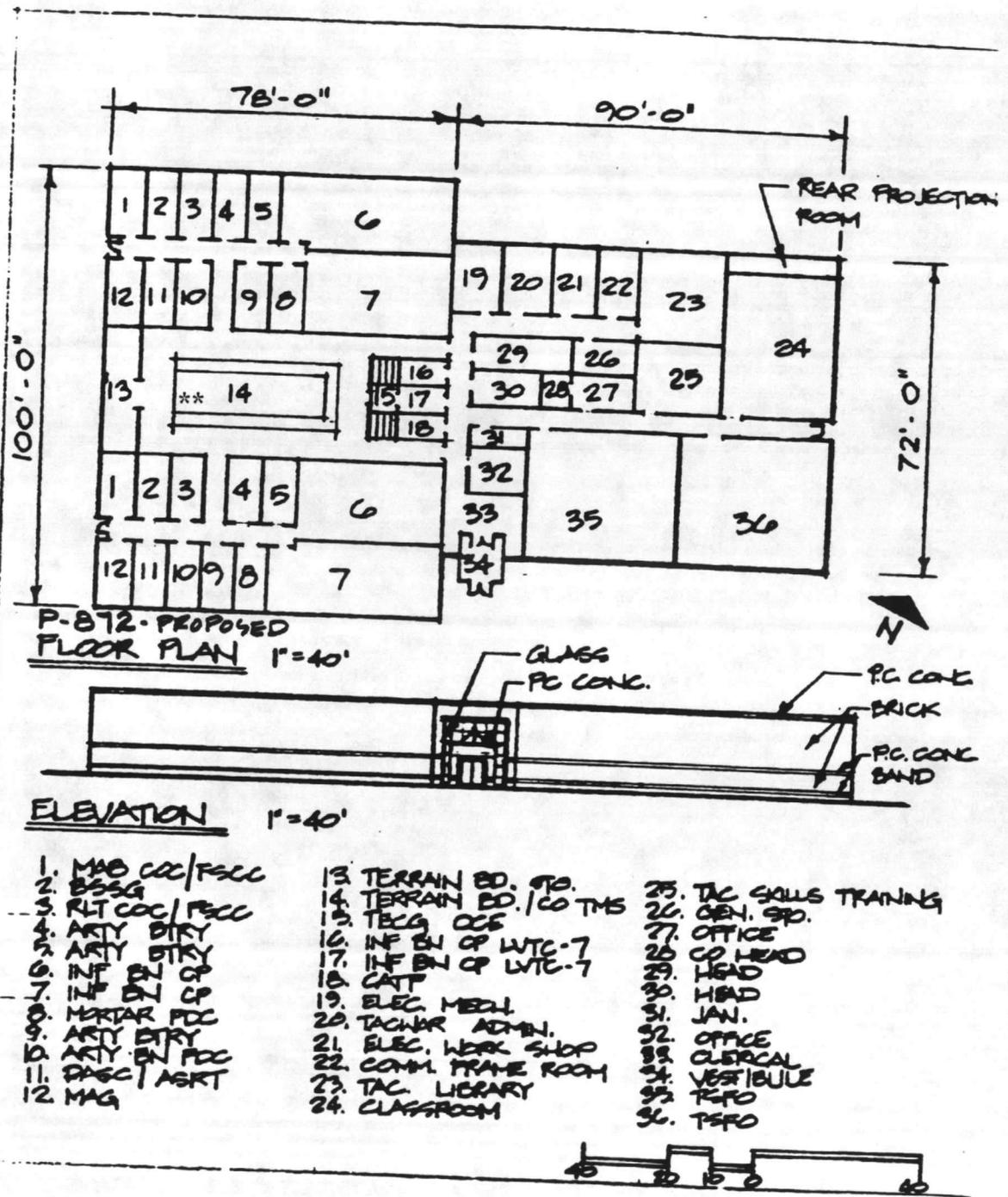


P-872
SITE PLAN
1"=200'

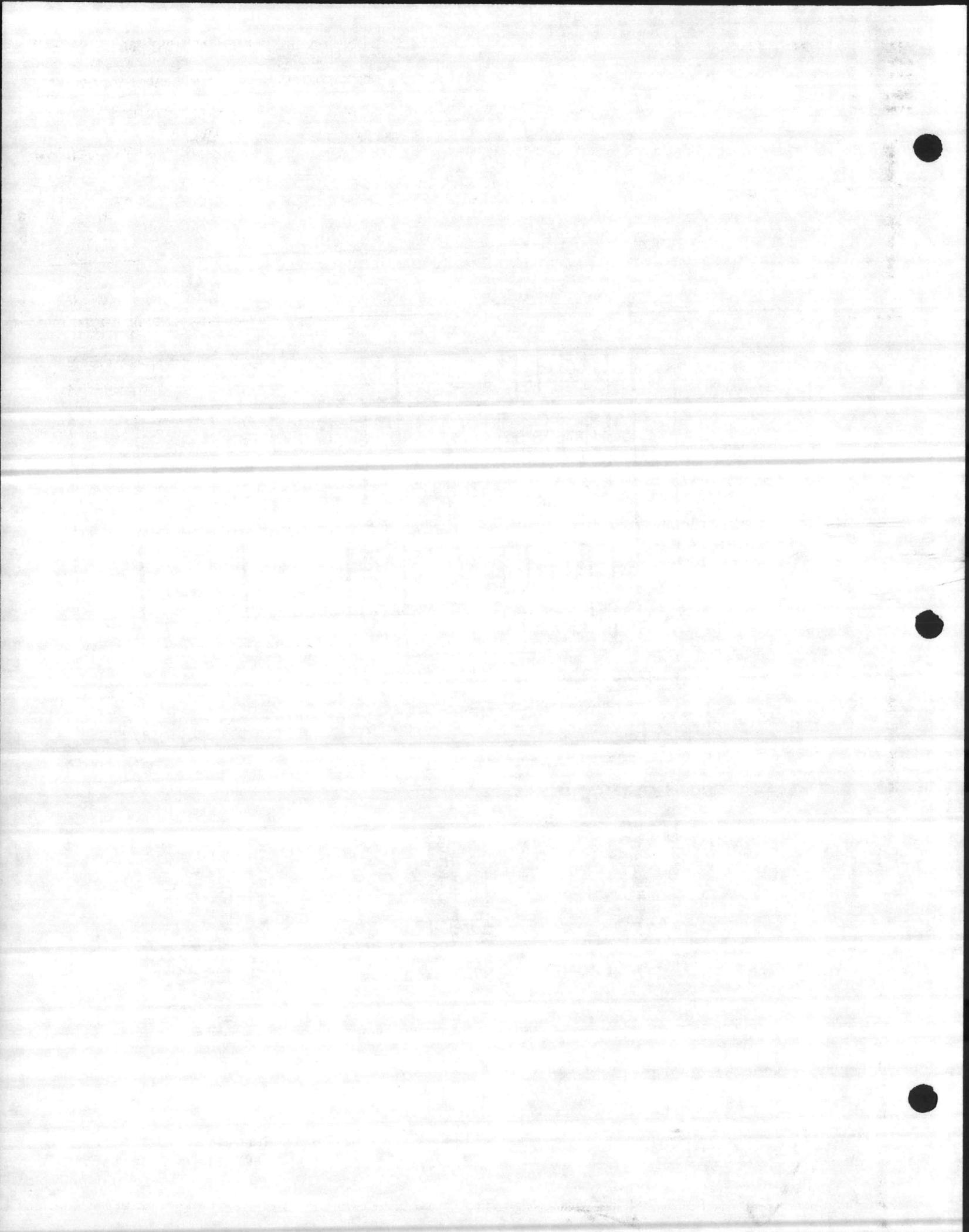








Legend: (**) Room 14 will contain access flooring.



REQUEST FOR PROJECT SITE APPROVAL

NAVMC 11069 (11-80)
SN 0000-00-006-7880 U/1 PADS OF 50

PROJECT NUMBER P-872	ACTIVITY UIC 67001
-------------------------	-----------------------

TO COMMANDANT OF THE MARINE CORPS (CODE LFF-1)

(4700)

SECTION A FOR USE BY REQUESTER	FROM Commanding General, Marine Corps Base, Camp Lejeune, North Carolina 28542				
	CATEGORY CODE AND PROJECT TITLE 171-35 COMBINED ARMS STAFF TRAINER FACILITY		TYPE OF FUNDING MCON	COST (\$000) 1,300	PROGRAM YEAR FY-89
	PROJECT DESCRIPTION Construct an Applied Instructional Facility of reinforced concrete with masonry and utility connections.		REMARKS At present, fire support exercises & ground maneuvers are conducted outdoors in an area bearing little resemblance to the actual terrain encountered in a combat situation.		
	TYPE OF MAP Site Location Map (encl 1)		DATE -	REQUESTED BY (Typed name and signature) F. W. ESTES, Jr.	

7 May 86

ANALYSIS (Place a check (✓) in box opposite each item. Y = Yes; N = No; NA = Not Applicable)							DATE RECEIVED				
Y	N	NA	PROJECT SITING CONSIDERATION			Y	N	NA	PROJECT SITING CONSIDERATION		
X			a. COMPATIBLE WITH ACTIVITY PLANNED DEVELOPMENT GOALS						d. COMPLIES WITH THE FOLLOWING CRITERIA		
X			b. DEMONSTRATES SOUND PLANNING PRINCIPLES					X	(1) AMMUNITION AND EXPLOSIVES		
X			c. MEETS MINIMUM PLANNING AND SITING CRITERIA					X	(2) ELECTROMAGNETIC RADIATION		
								X	(3) AIRFIELD SAFETY		
								X	(4) NOISE INTENSITY		
						X			(5) FIRE PROTECTION		
COMPATIBLE WITH ACTIVITY MASTER PLAN (Check appropriate box)											
<input type="checkbox"/> IDENTICAL			<input type="checkbox"/> NOT SHOWN BUT CONSISTENT			<input type="checkbox"/> *NOT SHOWN AND INCONSISTENT					
<input type="checkbox"/> DIFFERENT BUT CONSISTENT			<input type="checkbox"/> *DIFFERENT AND INCONSISTENT								
CRITERIA CERTIFICATION(S) REQUESTED (Check)										DATE	
<input type="checkbox"/> DDESB <input type="checkbox"/> CNO <input type="checkbox"/> NAVSEA <input type="checkbox"/> NAVELEX <input type="checkbox"/> NAVAIR <input type="checkbox"/> OTHER:											
DATE CERTIFICATION(S) RECEIVED											
DDESB		CNO		NAVSEA		NAVELEX		NAVAIR		OTHER	

SECTION B
HQMC REVIEW AND ANALYSIS

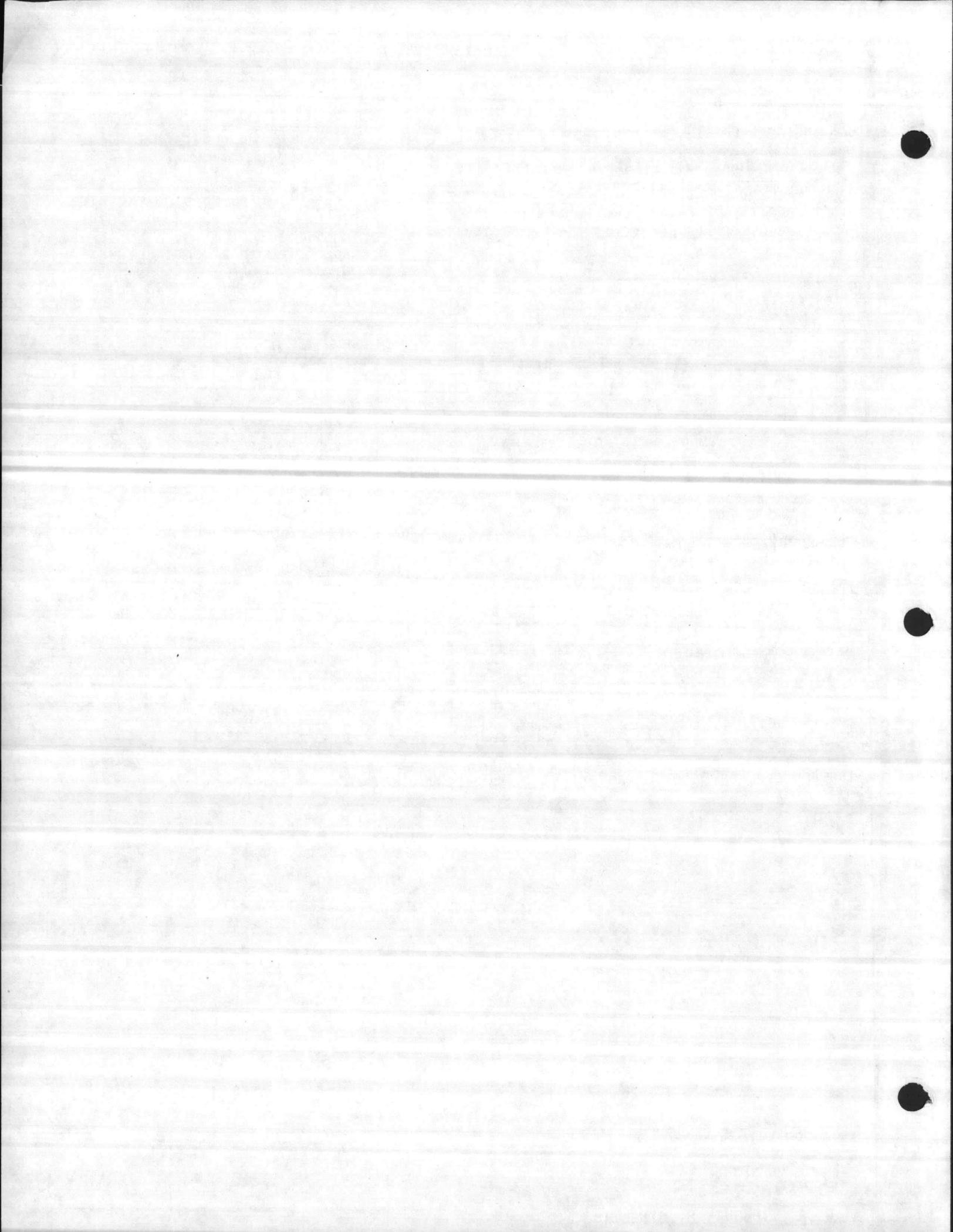
ACTION	<input type="checkbox"/> APPROVED	<input type="checkbox"/> DISAPPROVED	<input type="checkbox"/> DEFERRED
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REMARKS
Site approved by Base Commander under MCO P11000.12c.

Enclosure 5
SITE APPROVAL

APPROVING OFFICIAL (Typed name and signature) R.A. TIEROUT	DATE 7 MAY 1986
--	--------------------

*Requires approval of a major change to the master plan prior to site approval.



NAVAL ELECTRONIC SYSTEMS ENGINEERING CENTER PORTSMOUTH

PORTSMOUTH, VIRGINIA

BASE ELECTRONIC SYSTEM ENGINEERING PLAN (BESEP)

BESEP No.: 71005 FY: 89 REV No.: _____ REV DATE: _____

STATION & LOCATION: U.S. MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

PROJECT TITLE: COMBINED ARMS STAFF TRAINER (CAST) MOON P-872

Prepared by: TRACOR Applied Sciences under Contract N00189-83-D-0313

Reviewed by: Stephen D. Martin Date: 7/22/87
NAVELEXSYSENGCEN Portsmouth

Approved by: Stephen D. Martin Date: 7/22/87
NAVELEXSYSENGCEN Portsmouth

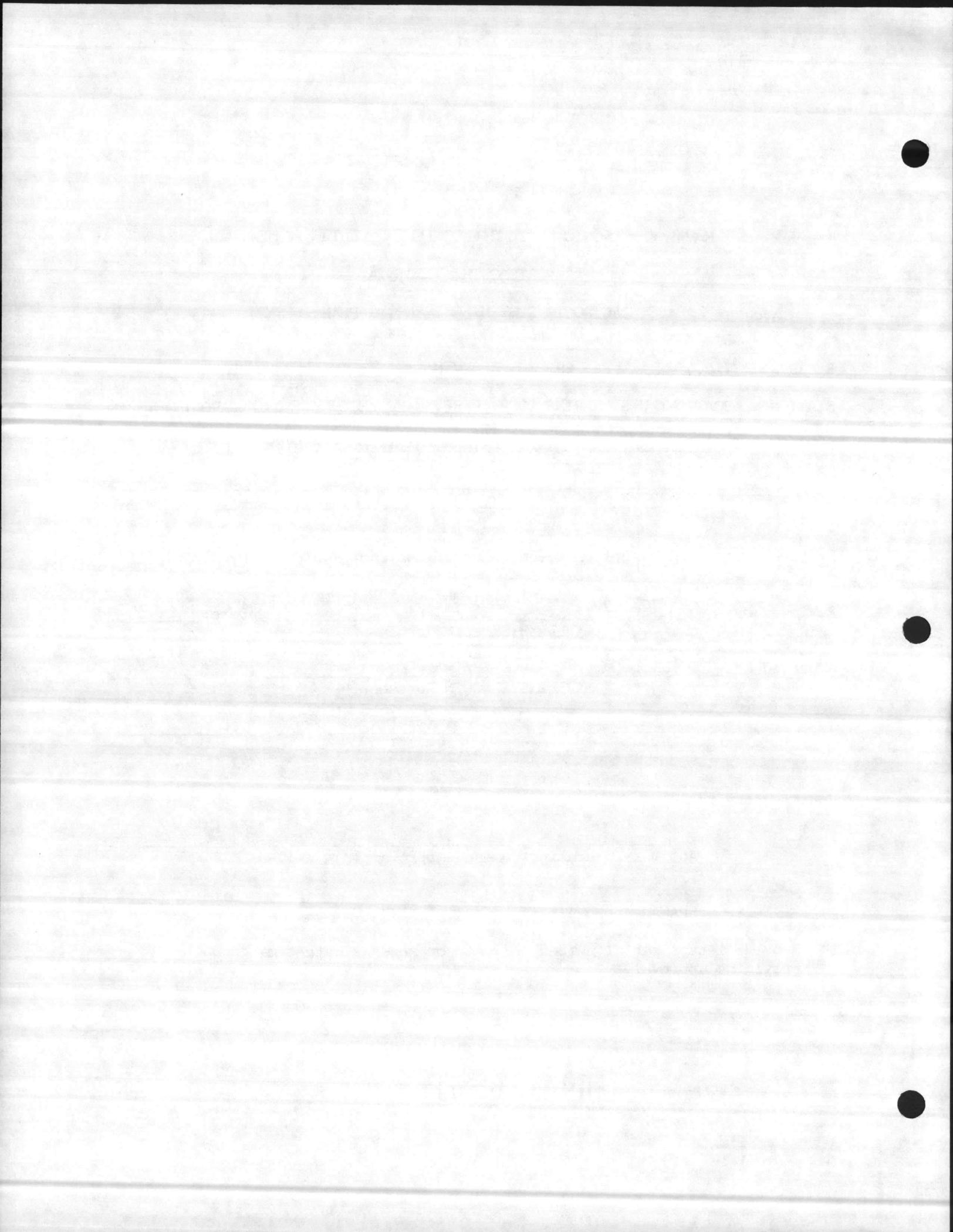
Satisfactory to:

Activity/Operating Command Approval (*)

SPAWAR Approval (*) Date: _____

(*) Provide letter serial number and date or message date time group providing approval.

FINAL BESEP





DEPARTMENT OF THE NAVY
 NAVAL ELECTRONIC SYSTEMS ENGINEERING CENTER
 PORTSMOUTH
 P. O. Box 55
 Portsmouth, Virginia 23705

Fred
 p-877

IN REPLY REFER TO
 C-105/67
 27 July 1987

Downgrade to _____ when enclosure(s) is/are detached.

TO: [Commanding General
 U.S. Marine Base
 (ATTN: Mr. F. Estes, PWC Dept)
 Camp Lejeune, NC 28542-5001]

FROM: COMMANDING OFFICER
 NAVAL ELECTRONIC SYSTEMS
 ENGINEERING CENTER
 PORTSMOUTH

(Instructions)

USE WINDOW ENVELOPE
 WHEN POSSIBLE, FOR
 UNCLASSIFIED MATERIAL

VIA _____

Endorsement on _____

SUBJECT FINAL BASE ELECTRONIC SYSTEM ENGINEERING PLAN (BESEP) FOR MCON P-872,
 COMBINED ARMS STAFF TRAINER, MARINE CORPS BASE, CAMP LEJEUNE

REFERENCE

SPAWARINST 2804.1 of 15 August 1986

(CHECK ONE BOX)

- | | |
|---|---|
| <input type="checkbox"/> BASIC CORRESPONDENCE IS FORWARDED AS INDICATED.
<i>(Applies only to endorsements)</i> | <input type="checkbox"/> MATERIAL LISTED IS REQUESTED AS INDICATED. |
| <input checked="" type="checkbox"/> ENCLOSURE X IS XX FORWARDED AS INDICATED. | <input type="checkbox"/> MATERIAL LISTED IS TRANSMITTED AS INDICATED. |

(Check applicable item(s))

- | | | |
|---|--|--|
| <input type="checkbox"/> FOR ACTION | <input type="checkbox"/> APPROVAL IS NOT RECOMMENDED | <input type="checkbox"/> PARTIAL FULFILLMENT OF ORDER -
BALANCE WILL BE FORWARDED
WHEN AVAILABLE |
| <input checked="" type="checkbox"/> FOR INFORMATION | <input type="checkbox"/> INADVERTENTLY FORWARDED
THIS COMMAND | <input type="checkbox"/> RETURN OF MATERIAL |
| <input type="checkbox"/> FOR COMMENT / RECOMMENDATION | <input type="checkbox"/> FORWARDED AS A MATTER UNDER
YOUR COGNIZANCE / JURISDICTION | <input type="checkbox"/> OTHER |
| <input type="checkbox"/> PER YOUR REQUEST | <input type="checkbox"/> APPLICABLE PLANS / SPECIFICATION(S) | |
| <input type="checkbox"/> APPROVAL IS RECOMMENDED | <input type="checkbox"/> CONCURRING IN RECOMMENDATIONS
MADE IN BASIC CORRESPONDENCE | |

REMARKS, ENCLOSURES, ETC. (Use plain continuation page, if more space is needed)

- In accordance with the reference, Enclosure (1) is the Final BESEP for MCON P-872.
- Point of contact for this command is Mr. S. D. Martin, Autovon: 564-4789.

Stephen D. Martin

COPY TO _____

SIGNATURE

S. D. MARTIN, By direction

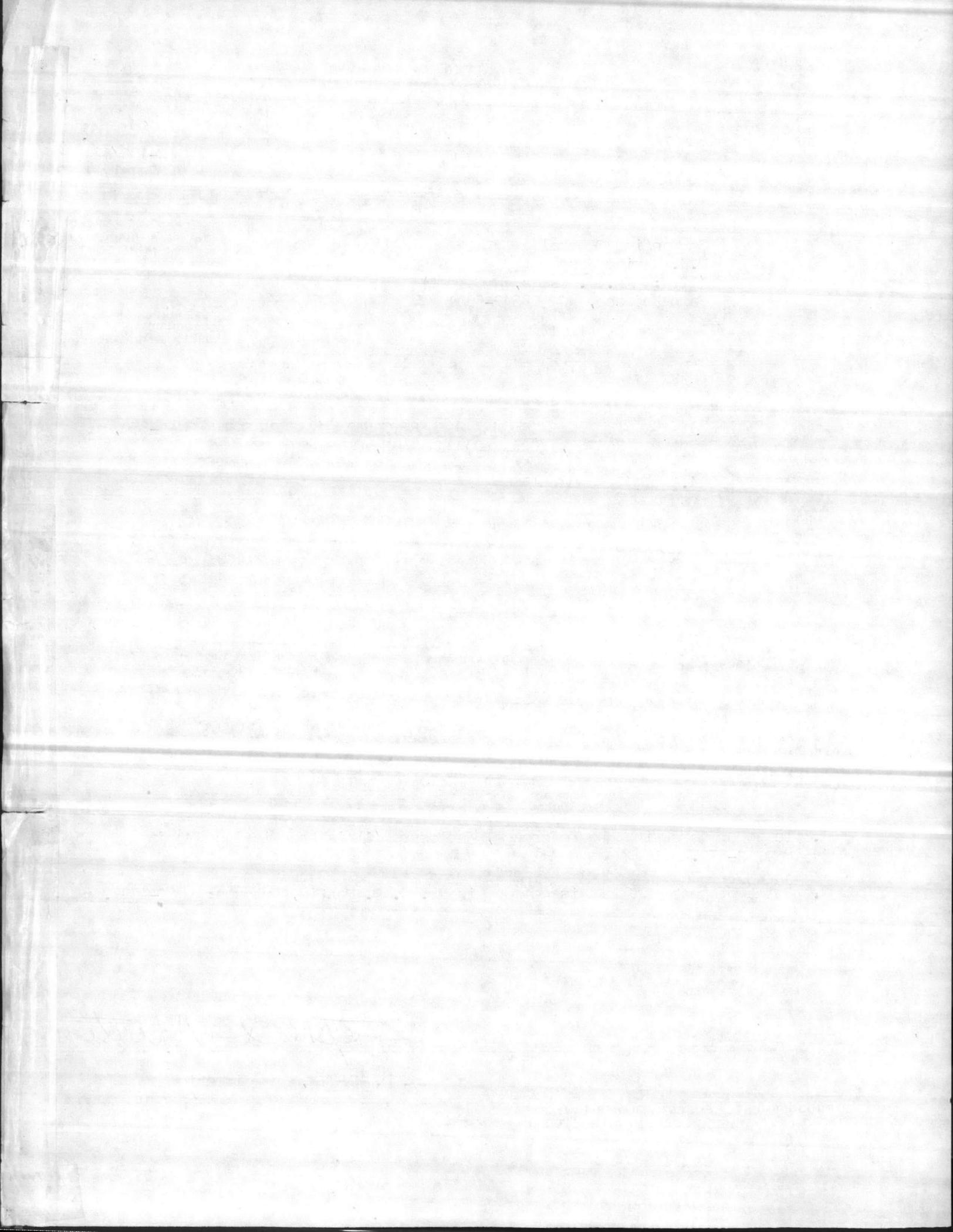


TABLE OF CONTENTS

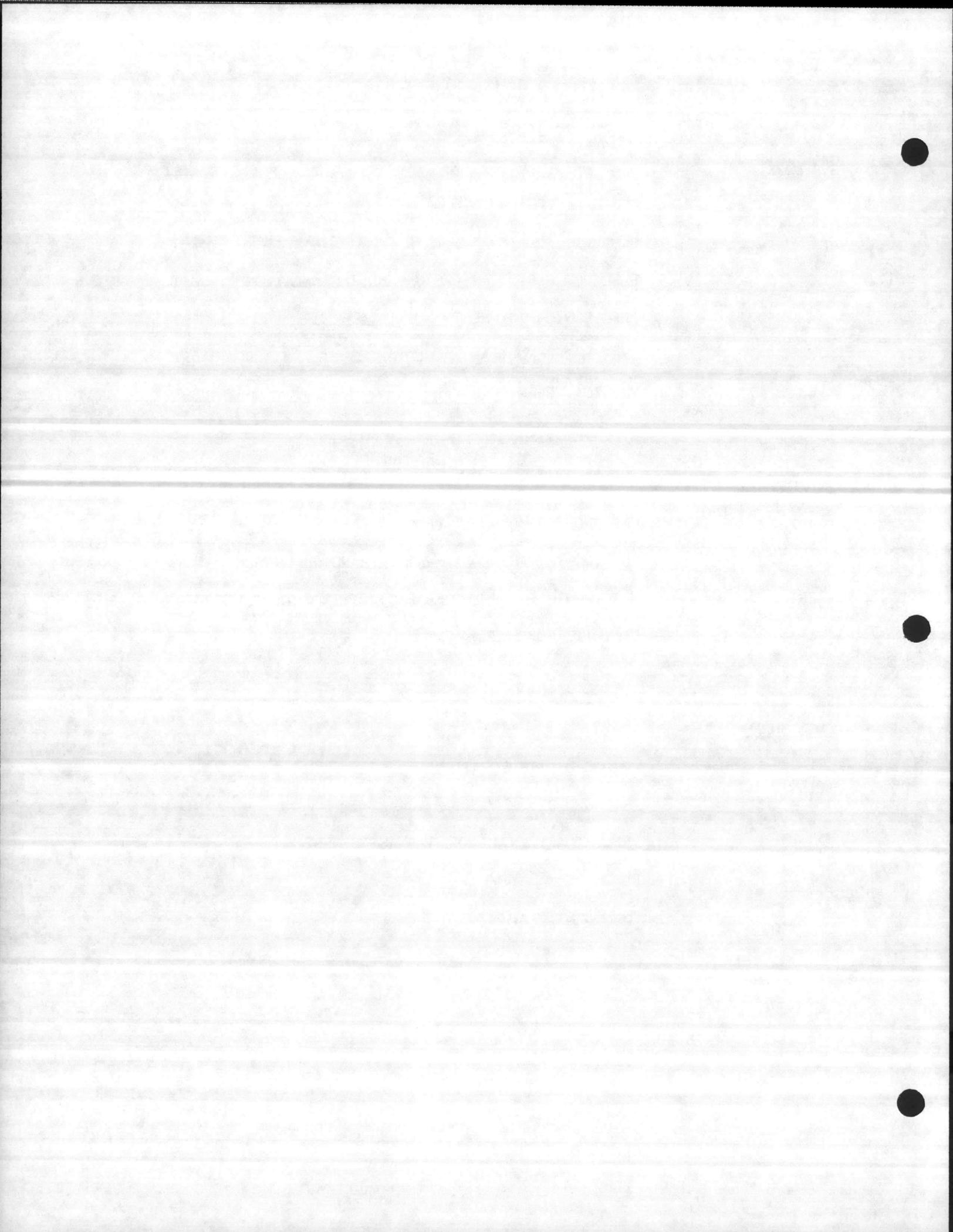
<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
1	GENERAL REQUIREMENTS	1-1
2	SCOPE	2-1
3	ELECTRONIC SYSTEMS DESIGN AND INSTALLATION	3-1
4	ELECTRONIC EQUIPMENT	4-1
5	SYSTEM CHECKOUT AND ACCEPTANCE	5-1
6	PHYSICAL PLANT	6-1

TABLES

4-1	ELECTRONIC EQUIPMENT PROCUREMENT
4-2	ELECTRONIC TEST EQUIPMENT ON-HAND
6-1	ELECTRONIC EQUIPMENT CHARACTERISTICS TABULATION
6-2	FACILITY POWER SUMMARY

ENCLOSURES

1	PROPOSED SITE LOCATION
2	PROPOSED SITE LOCATION
3	PRELIMINARY ENVIRONMENTAL ASSESSMENT
4	FLOOR PLAN LAYOUT
5	CG MCB SITE APPROVAL



SECTION 1

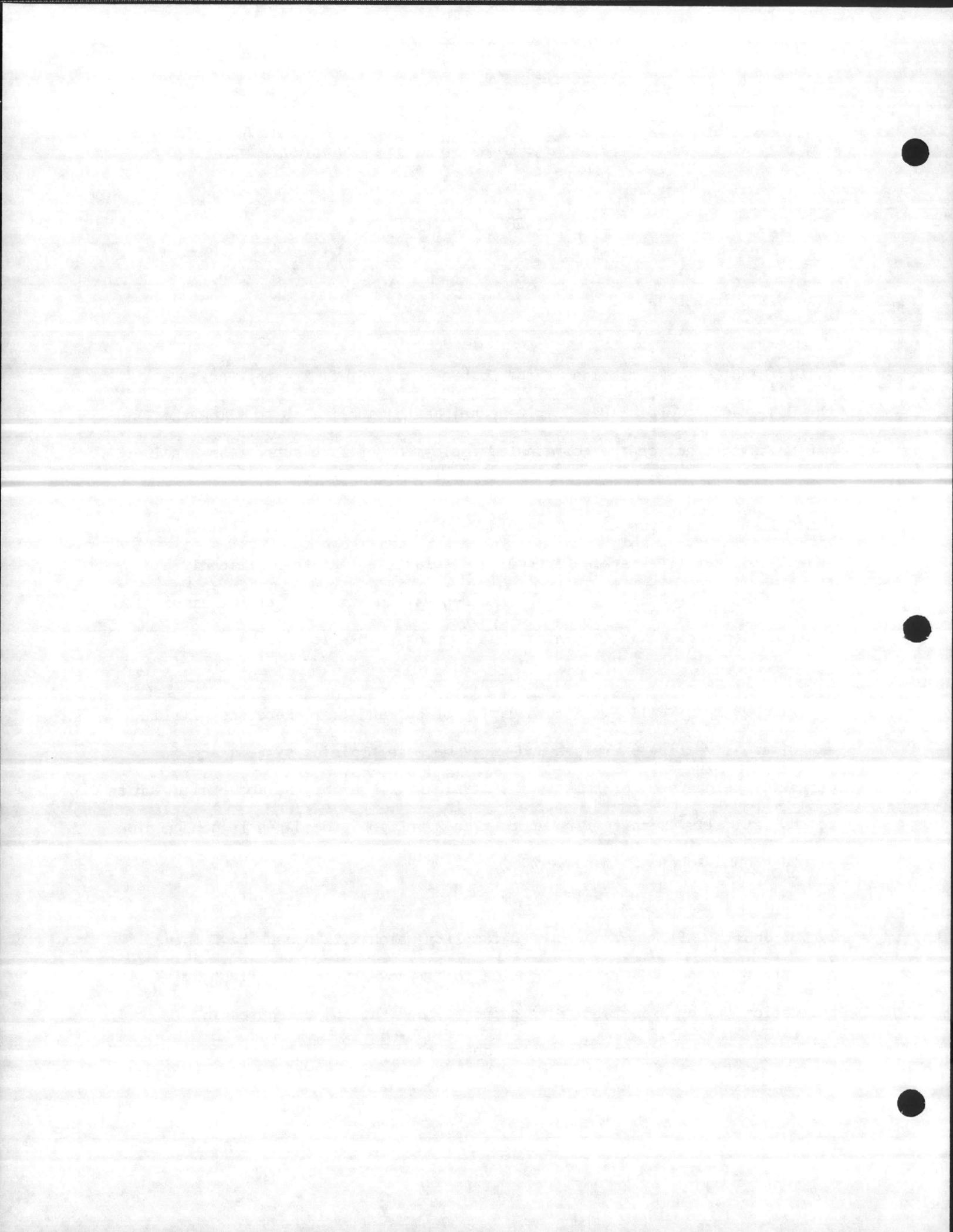
GENERAL REQUIREMENTS

1.1 HISTORICAL DATA

1.1.1 MISSION. The mission of the Combined Arms Staff Trainer Facility at the U.S. Marine Corps Base, Camp Lejeune, North Carolina is to allow the II MAF units to practice the coordinated employment of fire support assets in conjunction with a ground scheme of maneuver using simulated terrain surface, communication networks to replicate appropriate tactical communication nets, and an indirect fire marking system to display the impacts of friendly and enemy fires. The facility will be the central location for combat simulation tactical decision making training from company to MAF level.

1.1.2 CURRENT SITUATION. A combination of command post exercises, field exercises, live fire exercises and war game base training systems are currently being used for this type of training. None of the above allow units to realistically exercise fire support coordination procedures in conjunction with a ground scheme of maneuver.

1.1.3 JUSTIFICATION. The proposed facility which will house the Combined Arms Staff Trainer (CAST) will provide for improvement in war fighting skills realistically, by exercising fire support coordination procedures in conjunction with a ground scheme of maneuver.



1.2 REFERENCES

1.2.1 Marine Corps Base Camp Lejeune, North Carolina DD-1391; FY1989 Military Construction Project Data; dtd 3 Nov 1986.

1.2.2 SPAWARINST 2804.1 dtd 15 Aug 1985: Base Electronic System Engineering Plan (BESEP) Preparation Guidelines.

1.2.3 OPNAVINST 5510.1G: Department of the Navy Information and Personnel Security Program Regulations.

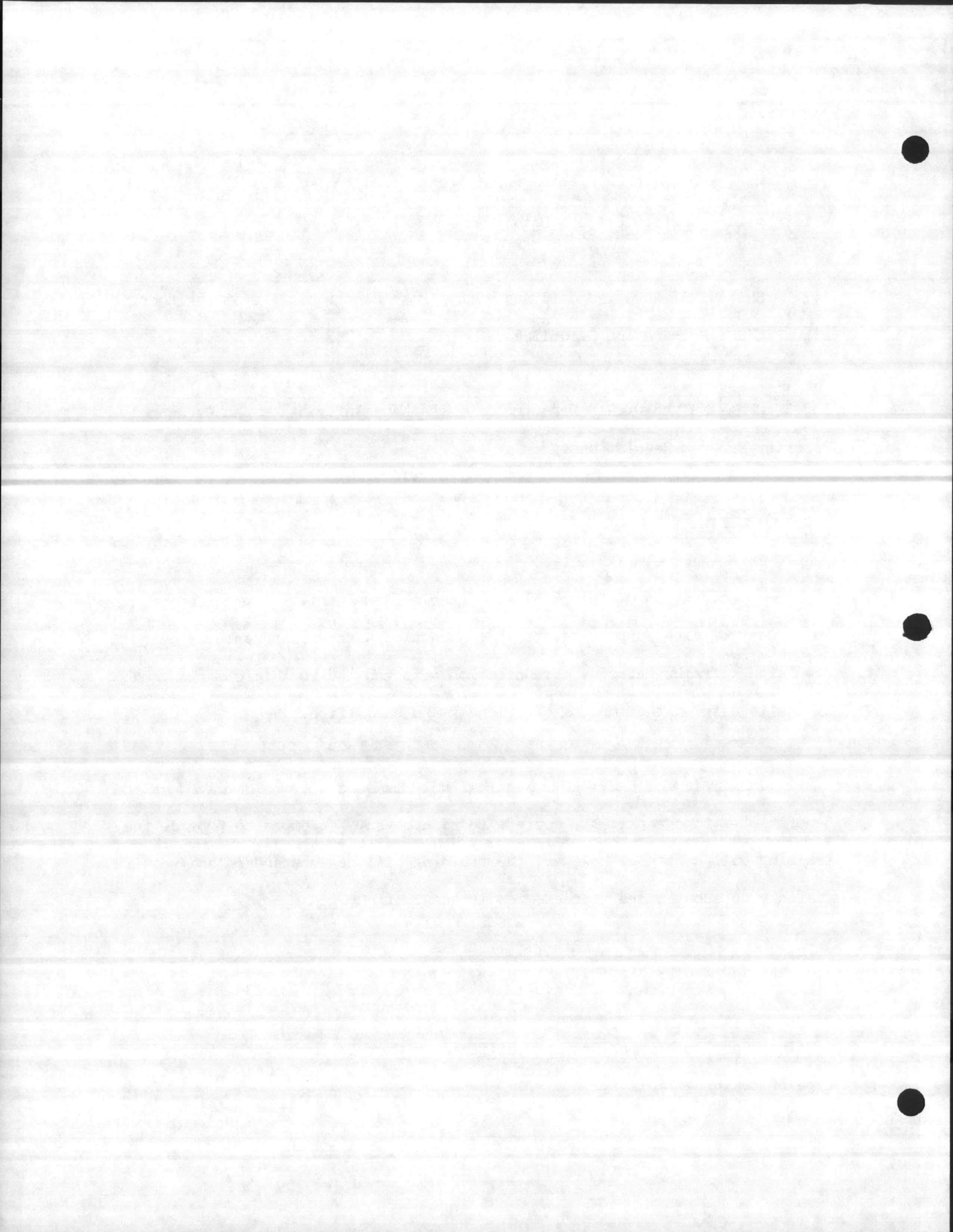
1.3 OBJECTIVE

The construction of this CAST will enable II MAF units to practice employment of fire support assets in conjunction with ground maneuver using simulated terrain surfaces, communication nets and indirect fire marking system to display the impacts of friendly and enemy fire.

1.3.1 IMPACT IF NOT PROVIDED. Tactical unit leaders will be deprived of the benefit of a topographically correct terrain board. Attempts to provide the training will continue, however, the training will be substandard and results can only be substandard if these conditions continue.

1.4 RELATED SYSTEMS/FACILITIES

There are no common support facilities at Camp Lejeune appropriate to this type of training facility.



1.5 INCREMENTAL IMPLEMENTATION

The new construction is required to be completed prior to the installation of the electronic equipment. In addition, where centralized terminations of cables and circuits are involved, such as main and intermediate distribution frames, station power supplies, and computer power cables, those facilities should be among the first items installed to provide central take-off and termination points for cabling.

1.6 CONTINUITY OF OPERATIONS

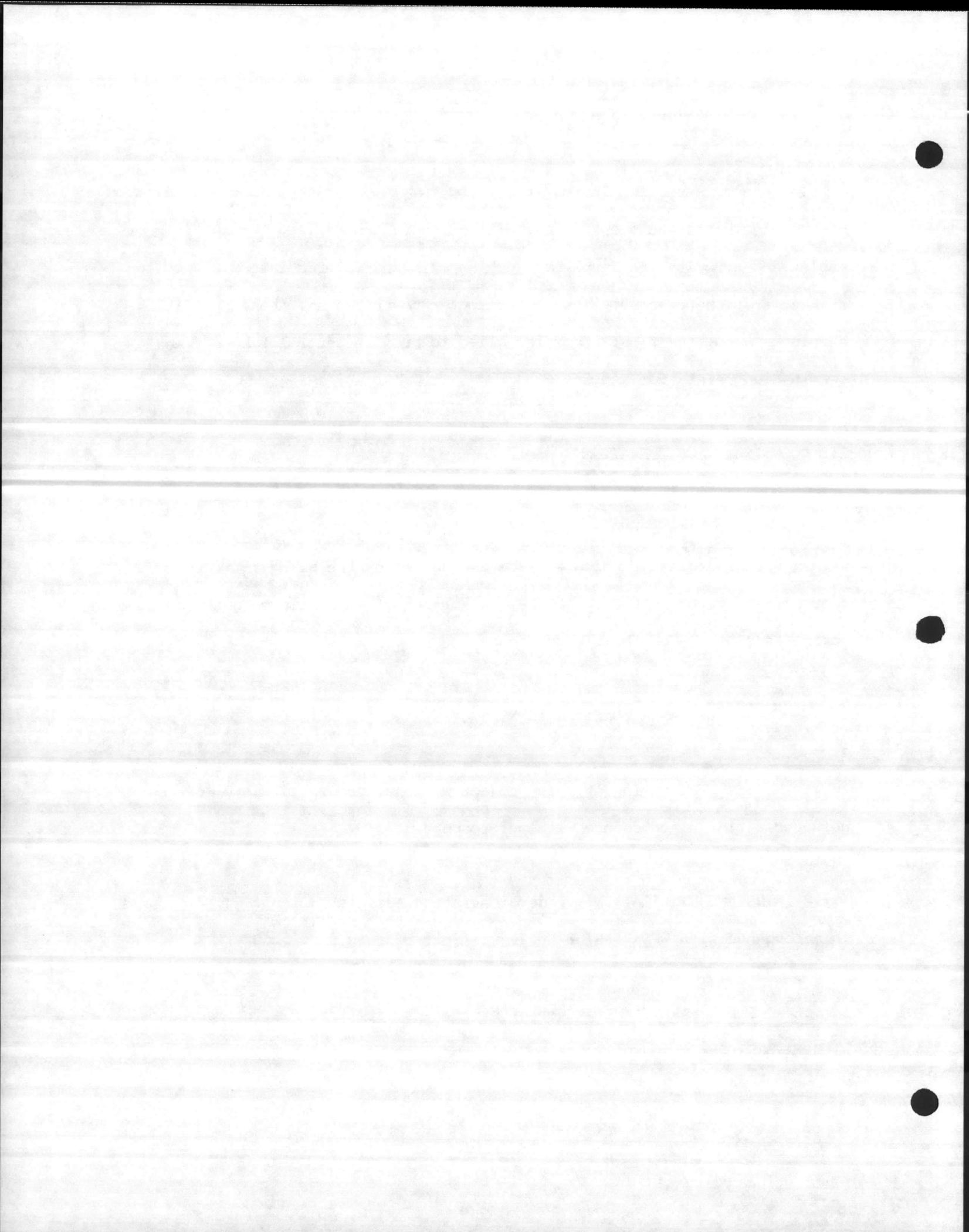
The electronics installation work to be accomplished must be coordinated with a site coordinator which will be designated by the using activity. This coordination is necessary to ensure that training can continue to the maximum degree feasible under the circumstances.

1.7 SPECIAL CLEARANCE CONSIDERATIONS

1.7.1 NOISE. The siting of this project will not require a waiver of the noise criteria in accordance with reference 3.1.4.16.

1.7.2 AIRSPACE UTILIZATION. Federal Aviation Administration (FAA) clearance in accordance with OPNAVINST 3770.2F will not be required.

1.7.3 AIRFIELD SAFETY. A waiver of airfield safety criteria in accordance with NAVAIR 00-100-503 will not be required.



1.7.4 ELECTROMAGNETIC RADIATION (EMR). The siting of this project will not result in a potential EMR hazard to ordnance, electronic material and components, fueling operations, or to personnel.

1.8 SITE SELECTION

1.8.1 FACILITY SITE. This facility will be sited in the Naval hospital area at Hospital Point near building H-14, (see Enclosures 1 and 2). The site was approved by the Commanding General, Marine Corps Base, Camp Lejeune on 7 May 1986, (see Enclosure 5).

1.8.2 ECONOMIC ANALYSIS. This facility is being constructed on a site adjacent to a developed area. Economic savings will be in nominal energy consumption savings to be realized from efficient operations.

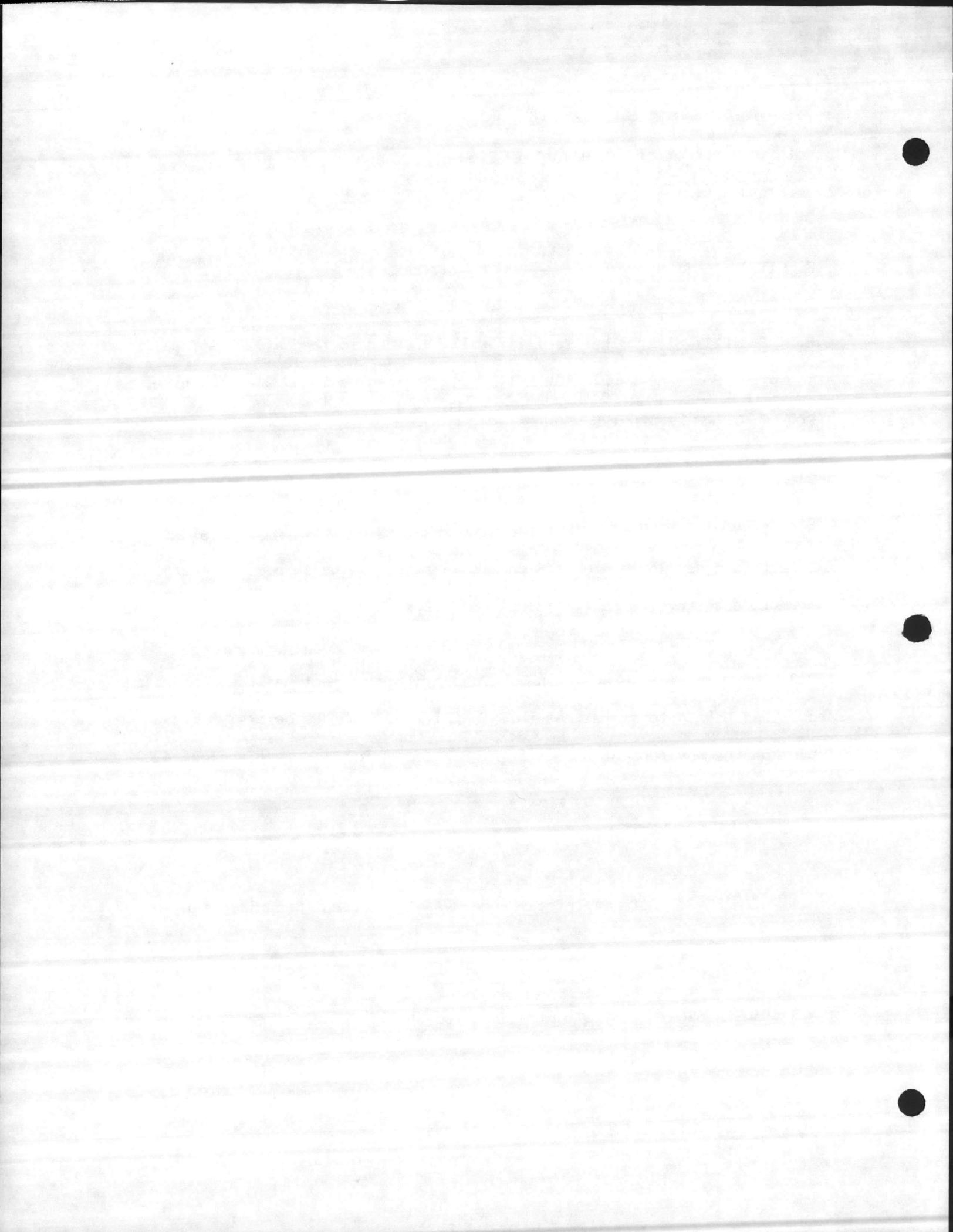
1.8.3 ENVIRONMENTAL IMPACT. An environmental assessment has been conducted and it has been determined that this facility will not cause a significant impact on the environment nor is it highly controversial, (see Enclosure 3).

1.9 GUIDANCE DOCUMENTS

1.9.1 DIAM 50-3: Defense Intelligence Manual, Physical Security Standards for SCIF Rooms.

1.9.2 NACSEM 5204: TEMPEST Guidelines for Shielded Enclosures.

1.9.3 NACSIM 5203: TEMPEST Guidelines for Facility Design and RED/BLACK Installation, Vols: I & II.



1.10 TEMPEST/PHYSICAL SECURITY CONSIDERATIONS

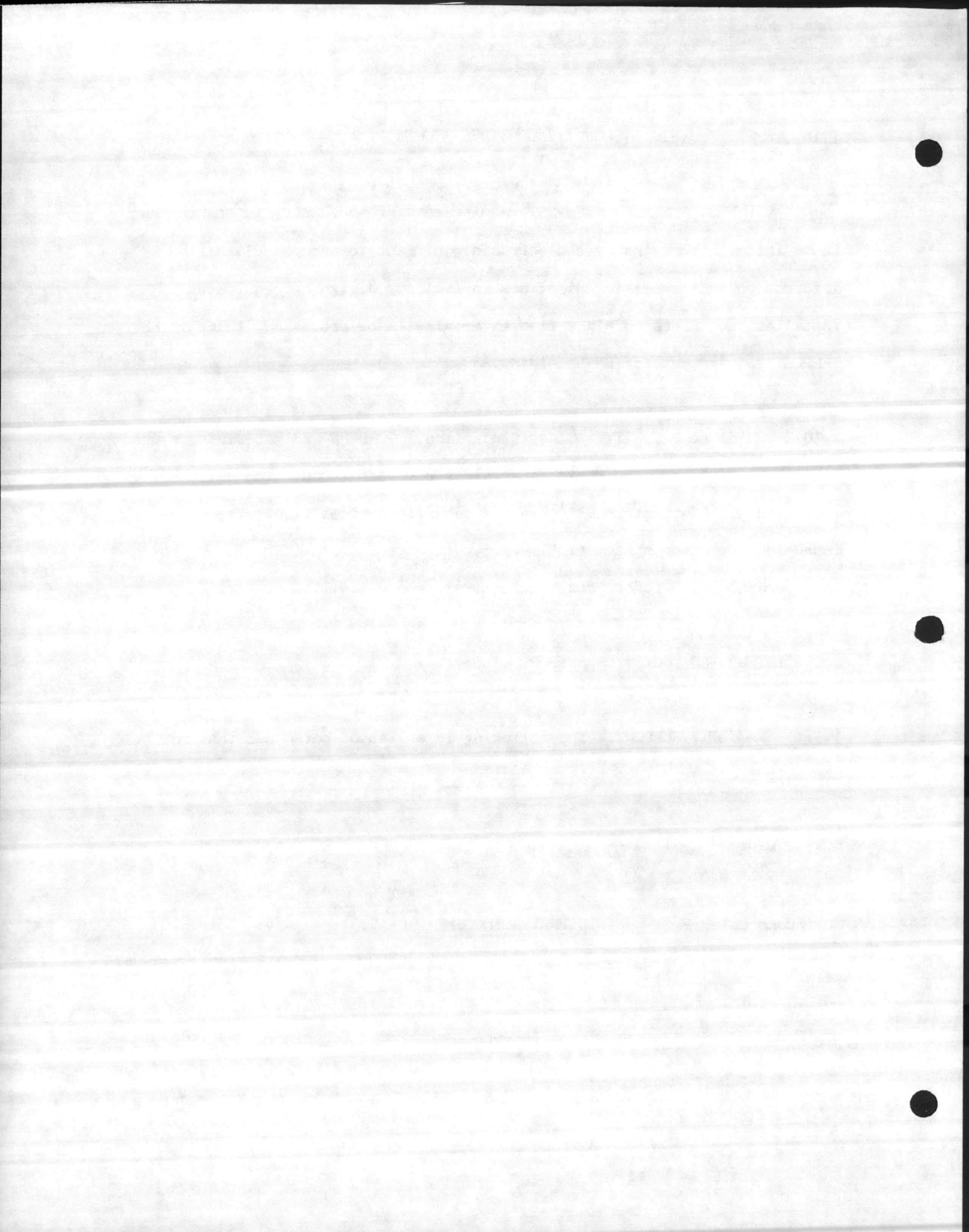
1.10.1 TEMPEST GENERAL. TEMPEST requirements are necessary to ensure that those installations that use electronic equipment to process classified information meet specific guidelines in facility design and equipment installation. Since no classified material will be processed, there is no TEMPEST requirement for RF shielding.

1.10.2 PHYSICAL SECURITY. Classified plans, OPORDERS and material are used within the CAST, however, this material is removed at COB. The using activity is tasked with determining if physical security devices (i.e., fences, intrusion detection system (IDS), vault, strongroom, etc.) are to be provided in accordance with references 1.2.3, 1.9.1, and 3.1.4.17.

1.11 INTEGRATED LOGISTICS SUPPORT (ILS).

1.11.1 FACILITY SUPPORT. The following is a list of personnel that may be contacted for support to this project

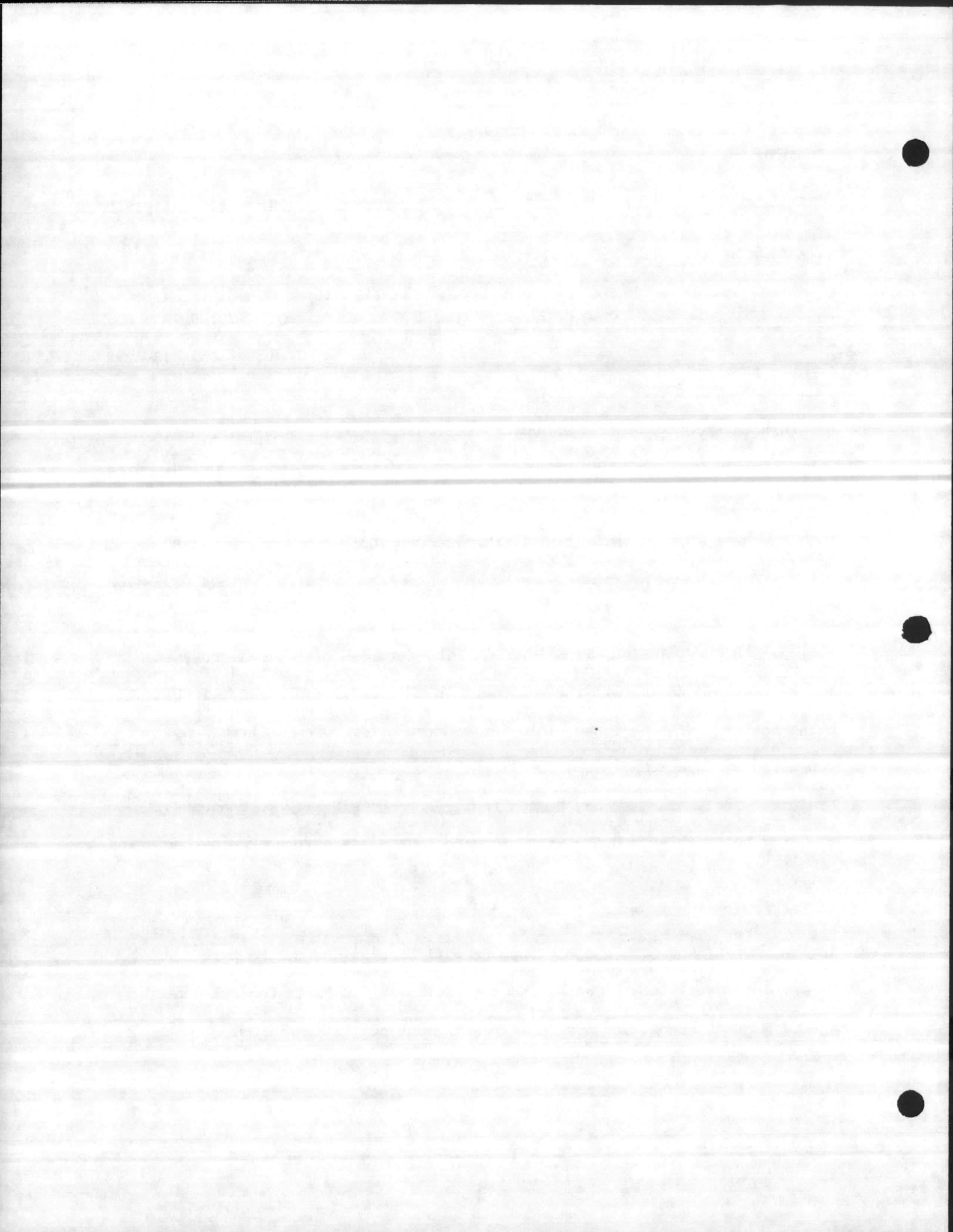
<u>NAME</u>	<u>COMMAND</u>	<u>CODE</u>	<u>PHONE NUMBERS</u>
Ms. Susan Gale, P.E.	LANTDIVNAVFACENCOM	09A2131	A/V: 564-9670 C/L: (804) 444-9670
Mr. Fred Estes	MCB Camp Lejeune	PWC	A/V: 484-1833 C/L: (919) 451-1833



Mr. Jeff O'Byrne	MCB Camp Lejeune	Training	A/V: 484-1972 484-3733
		Director	C/L: (919) 451-1972/ 3733
Ms. Susie Rupert	NTSC Orlando		A/V: 791-5298 C/L: (305) 646-5298
Mr. Durwood Freer	NTSC Orlando		A/V: 791-5244 C/L: (305) 646-5244
Mr. Doug Martin	NAVELEXSYSENGCEN	C-105	A/V: 961-4789 C/L: (804) 396-4789

1.11.2 EQUIPMENT INSTALLATION SUPPORT. The services of a local contractor may be required to install the equipment in this facility. If applicable, the using activity will be responsible for contractor procurement from funds not supported by this MCON. If a local contractor is required to install the equipment, it shall also be the contractor's responsibility to conduct all required tests in accordance with standard test plans as prepared by the using activity.

1.11.3 SUPPLY SUPPORT. Supply support will be provided by the base supply department, Naval Supply Center (NSC) Norfolk, Ship's Parts Control Center (SPCC) Mechanicsburg, and any local procurement activities/firms.



1.11.4 BESEP SUPPORT. Support to the BESEP will be provided by Mr. S.D. Martin, Code 105, NAVELEXENGECEN Portsmouth, VA, (phone: COMC'L (804) 396-4789; A/V: 961-4789.

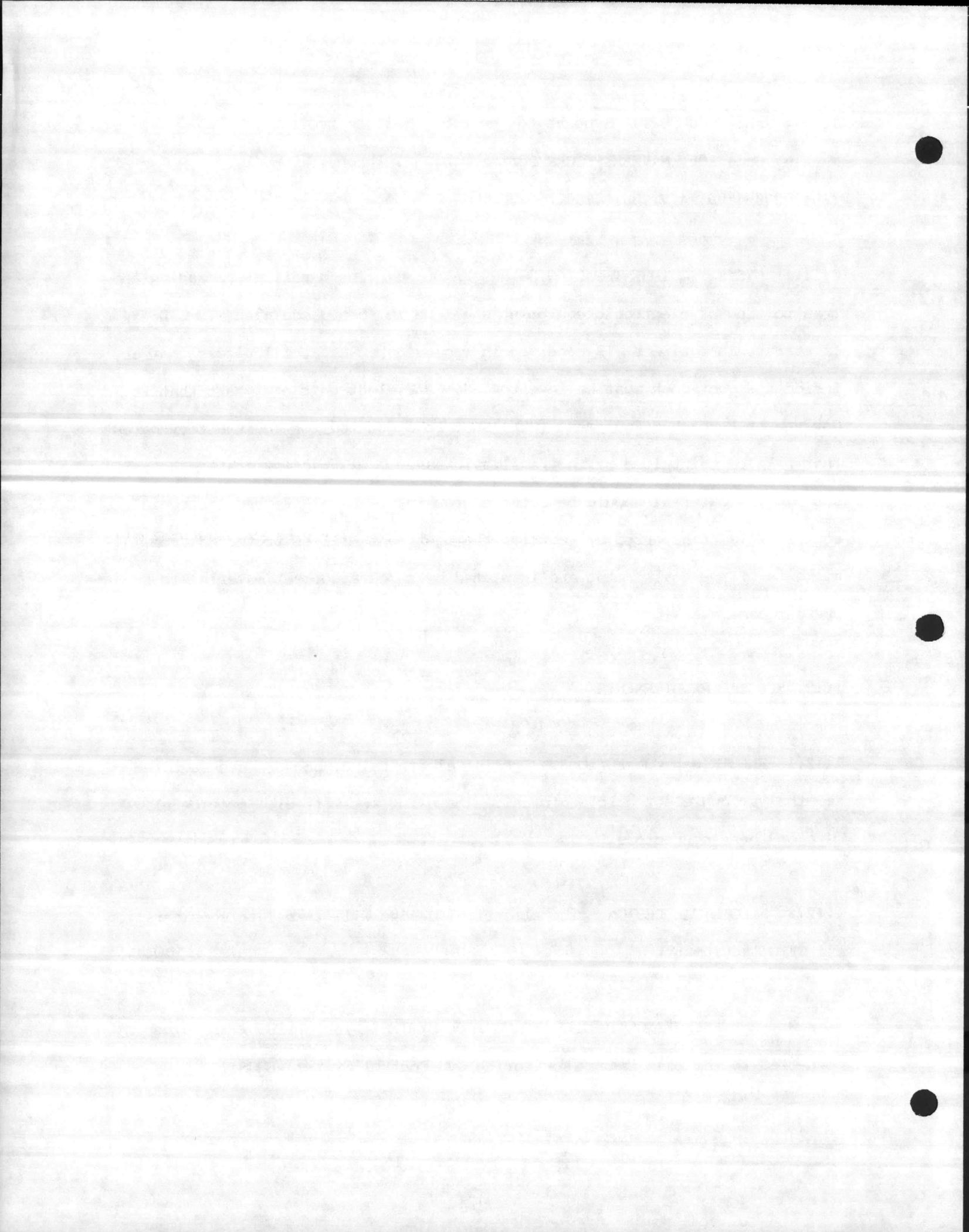
1.11.5 SYSTEM/EQUIPMENT PACKAGING AND HANDLING. The handling, packaging and transporting of electronic equipment shall be in accordance with MIL-STD-794. If electronic equipment is received in enclosed packages, all pieces that are inside the container must be inventoried. All electronic equipment that is Government Furnished Equipment (GFE) must be accounted for on inventory cards that will be maintained by the facility manager. All packing crates, boxes and packing material should be retained for future use. If the electronic equipment is transported by vehicle, the equipment will be protected from elements of the environment and insulated by shock absorbent material to prevent damage.

1.12 SPECIAL REQUIREMENTS

1.12.1 ELECTRICAL CONNECTIONS. Special electrical connectors are required for the various electronic equipment. The using activity will provide all data on these connectors.

1.12.2 ELECTRICAL DESIGN. The electrical design will take into consideration all GF/GI equipment.

1.12.3 BASE ENERGY MONITORING AND CONTROL SYSTEM. The building is to be connected to the Base Energy Monitoring and Control System (EMCS).



SECTION 2

SCOPE

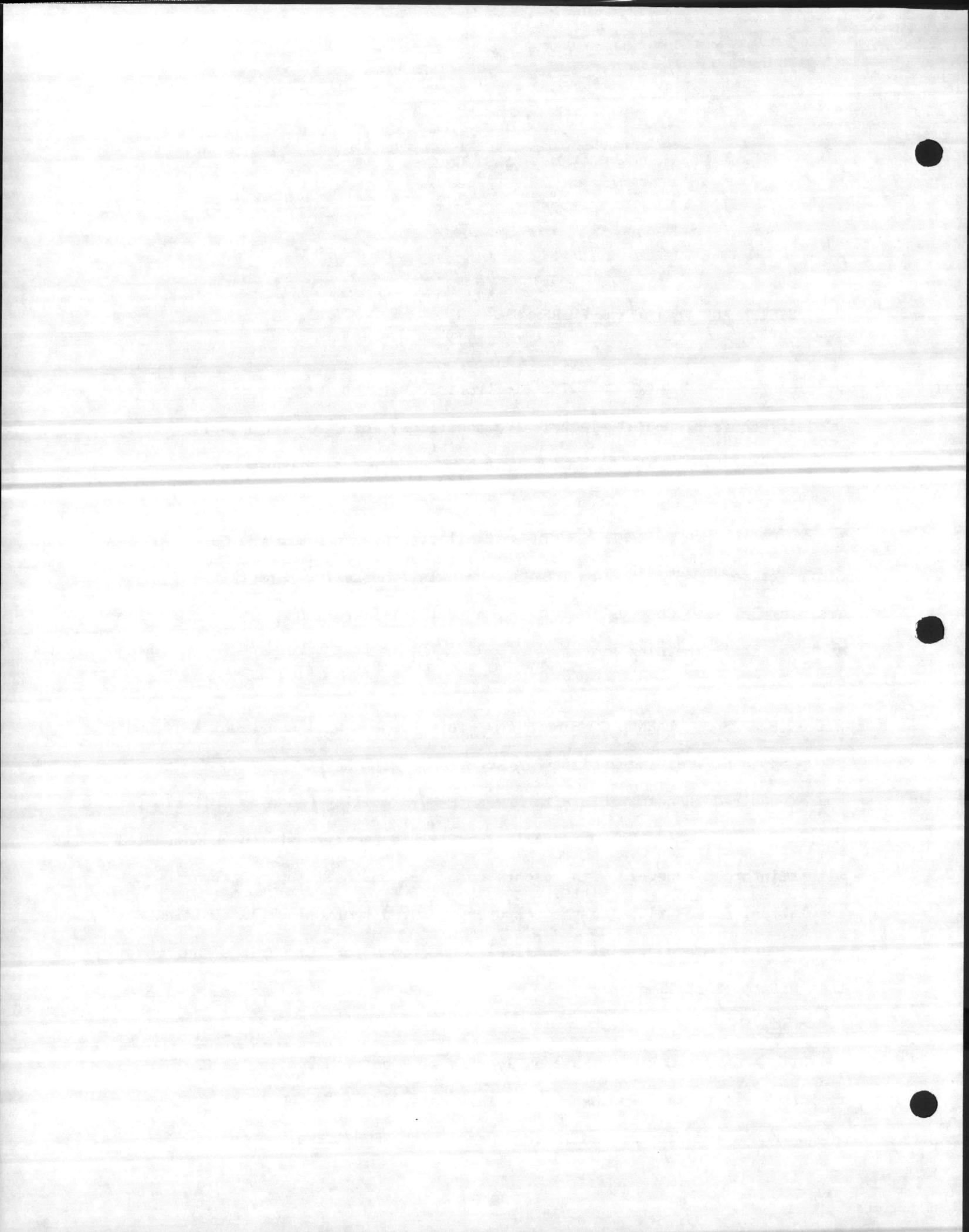
2.1 SYSTEM AND FACILITY REQUIREMENTS

2.1.1 SYSTEM REQUIREMENTS. The electronic equipment that comprise this project requires special electrical connections, interior and exterior utility connections, along with telephone switching and switching equipment.

2.1.2 FACILITY REQUIREMENTS. These facilities will contain the Combined Arms Staff Trainer (CAST), future TWSEAS terminals, war gaming capabilities, Training Set Fire Observation (TSFO), a tactical library and computer assisted tactical skill training spaces.

2.1.3 LIMITS OF PLANNED CONSTRUCTION. This project will construct a 14,002 SF Operational Training Facility in accordance with NAVFAC P-870. The total space required is compatible with NAVFAC P-80, Facility Planning Criteria for Navy and Marine Corps Shore installations. This facility will be constructed with reinforced concrete with masonry construction, built-up roof over insulation, raised floor in the computer assisted tactical skill training spaces, and contain special electrical connections for the various equipment that will be installed.

2.1.3.1 ACCESS FLOORING. Raised flooring will be required in the CAST trainer facility (see Enclosure 4). This raised flooring shall be a minimum of 12 inches and constructed in accordance with NFGS 10270.



2.1.4 ALTERATION/DEMOLITION OF FACILITY. This is a new facility at Camp Lejeune and does not replace or alter any current facility. There is no proposed demolition for this project.

2.2 ELECTRONIC EQUIPMENT ATTRIBUTES

2.2.1 DESIGN. The electronic equipment for this facility is pre-designed and Government Furnished Equipment (GFE).

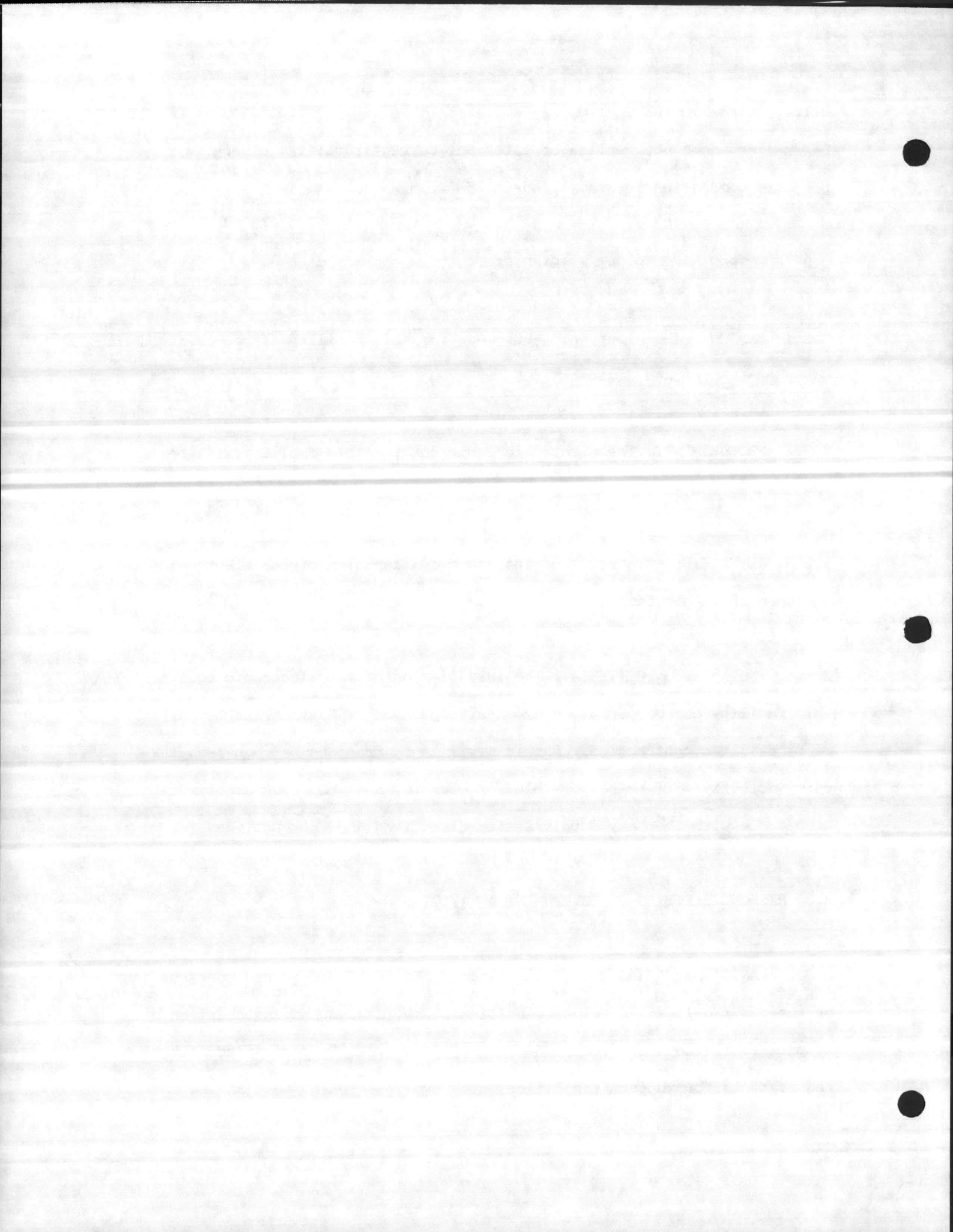
2.2.2 PROCUREMENT. The electronic equipment for this facility will be procured by the Naval Training System Center from other appropriations.

2.2.3 ALTERATION. There is no anticipated alteration of the electronic equipment for this facility.

2.2.4 INSTALLATION CRITERIA. The installation of the electronic equipment in this facility can be performed by on-site personnel, Navy/Marine technicians, or by civilian contractors. Should civilian contractors be required, the using activity will be responsible for negotiations and procurement actions in accordance with the Navy Supply System directives and instructions.

2.3 RESPONSIBILITIES OF GOVERNMENT ACTIVITIES

2.3.1 LANTDIVNAVFACENCOM. Responsible for the A&E design and construction of the new facility. Develop transition phase, design and installation of support facilities required in Section 6 of this BESEP, and any additional requirements for support facilities which evolve through the planning and design phases of this project.



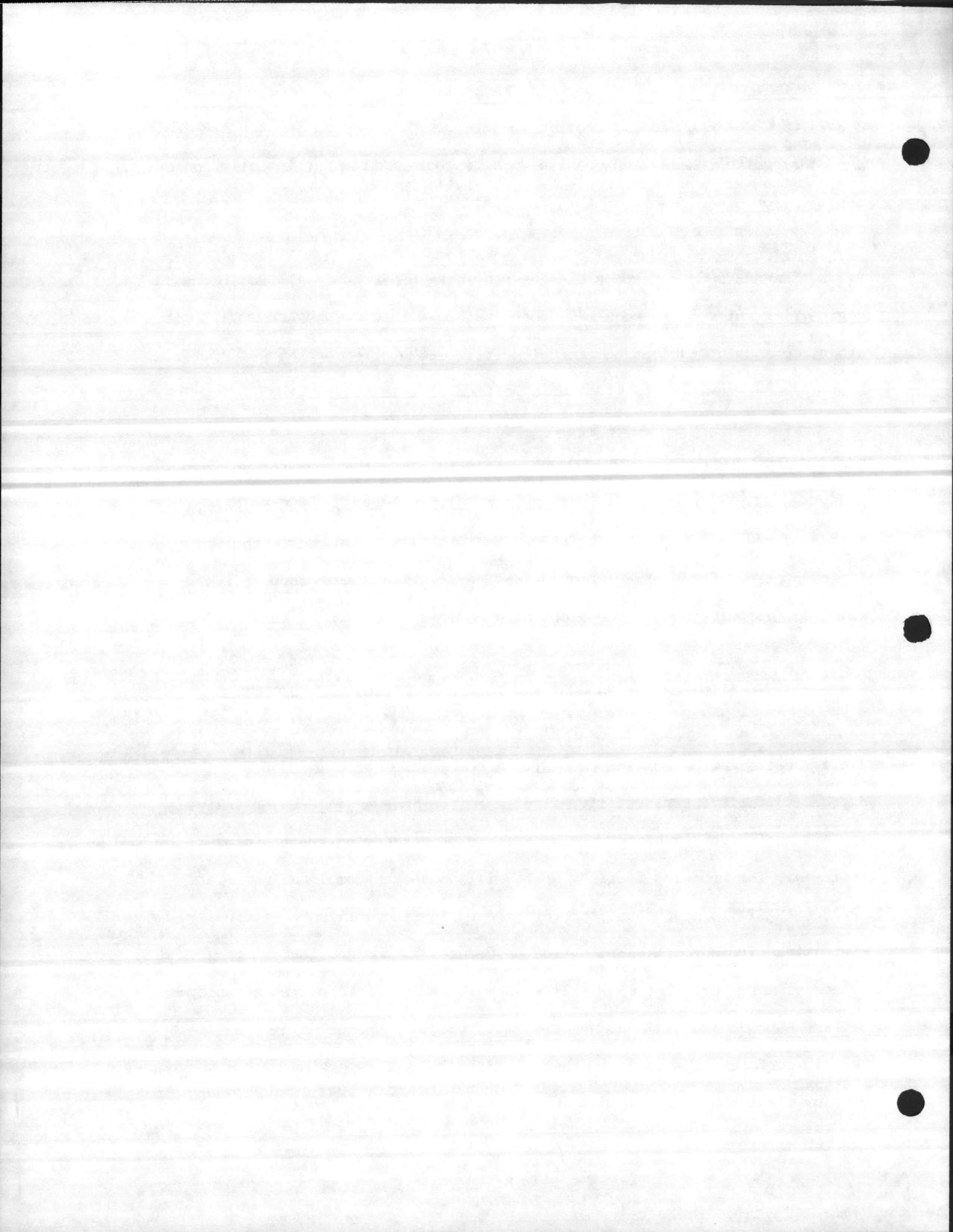
2.3.2 CGMCB CAMP LEJEUNE. Provide on-site coordination during the A&E design and construction phase; and provide on-site coordination for installation of the electronic equipment for this facility.

2.3.3 SPAWARSSYSCOM. Responsible for providing BESEP approval; funding and engineering guidance as required; coordination with CNO, NAVFACENGCOM, and other commands at the headquarters level; implementation of the BESEP; and the overall management of the electronic portion of this project.

2.3.4 NAVELEXSYSENGCEN PORTSMOUTH. Responsible for the preparation of the BESEP; coordination with SPAWARSSYSCOM, LANTDIVNAVFACENGCOM, NSC Norfolk, SPCC Mechanicsburg, electronic contractors, and others as required in the implementation of the BESEP; provide engineering management support, as required, associated with the electronic equipment portion of this project.

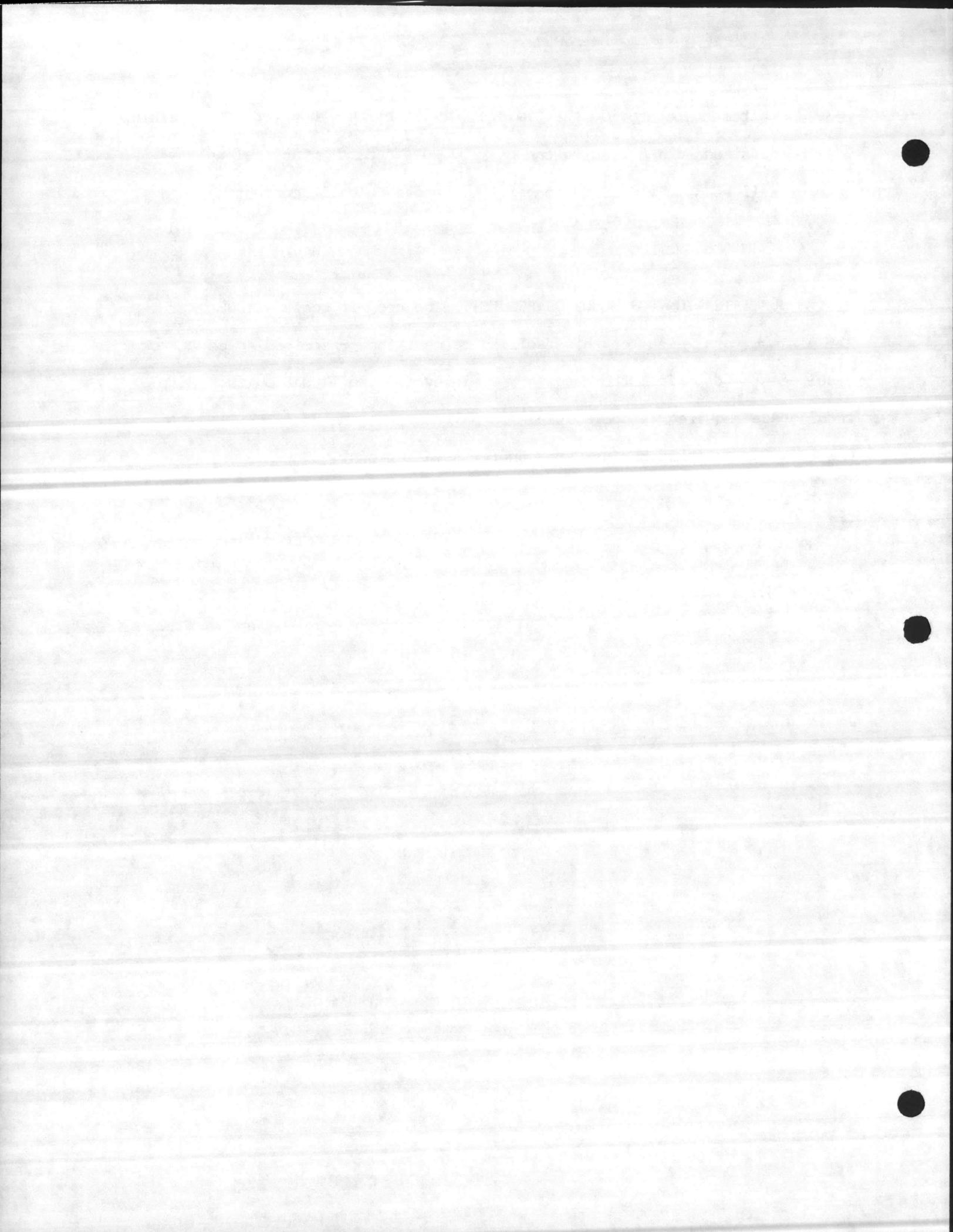
2.4 JUSTIFICATION FOR THE PROJECT AND FOR THE SCOPE OF THE PROJECT.

2.4.1 JUSTIFICATION FOR THE PROJECT. A combination of command post exercises, field exercises, live fire exercises and war game based training systems are currently being used as a means of satisfying the training criteria. The proposed facility which will house the Combined Arms Staff Trainer (CAST) is needed to improve the war fighting skills realistically, by exercising fire support coordination procedures in conjunction with a ground scheme of maneuver. The CAST will enable II MAF units to practice employment of fire support assets in conjunction with ground maneuver using simulated terrain surfaces, communication nets, and indirect firemarking system to display the impacts of friendly and enemy fire. If this facility is not



provided attempts to provide the training will continue, however, the training will be substandard and results can only be substandard. Tactical unit leaders will be deprived of the benefit of topographically correct terrain board.

2.4.2 JUSTIFICATION FOR SCOPE OF PROJECT. The project scope, 14002 SF, is the minimum total size for this facility to meet the prescribed space requirements to perform the necessary training for the II MAF units. The total space required is compatible with NAVFAC P-80, the Facility Planning Criteria for Navy and Marine Corps Shore installations.



SECTION 3

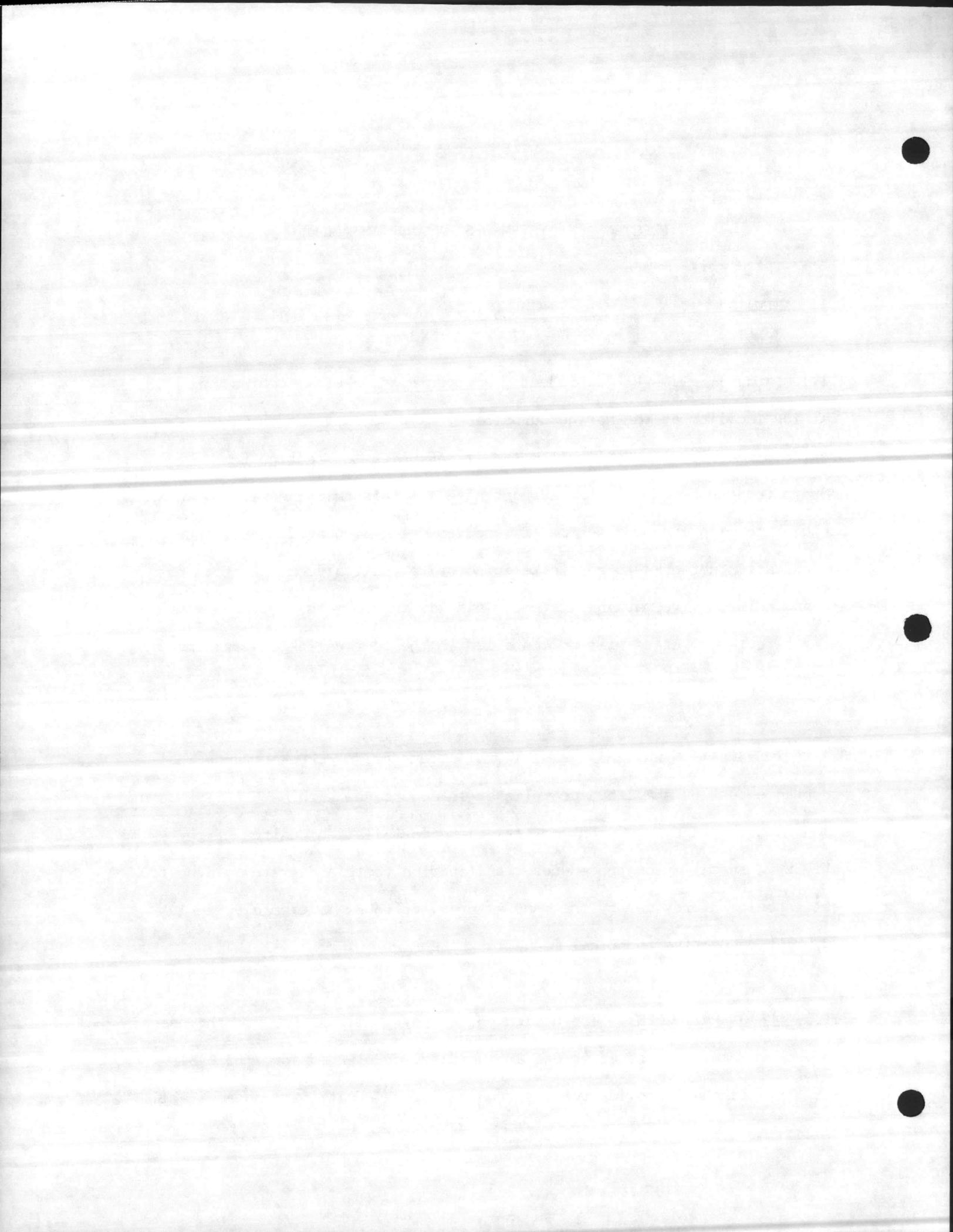
ELECTRONICS SYSTEM DESIGN AND INSTALLATION

3.1 GENERAL

3.1.1 PROJECT. MCON P-872 project, the construction of a Combined Arms Staff Training facility at the Marine Corps Base, Camp Lejeune, North Carolina, will provide a facility that will allow the II MAF units to practice the coordinated employment of fire support assets. This training will be in conjunction with a ground scheme of maneuver using simulated terrain surface, communication networks to replicate appropriate tactical communication nets, and an indirect fire marking system to display the impacts of friendly and enemy fires. Computers will be installed in the tactical skill training spaces.

3.1.2 INSTALLATION CRITERIA. The installation design, checkout and acceptance testing shall be accomplished in accordance with NAVELXSYSENGCEN standard test plans, equipment criteria, and installation desires of the using activity. Installation procedures, verification tests and system diagnostic tests should be provided by the manufacturer, or found in each electronic equipment respective technical manual.

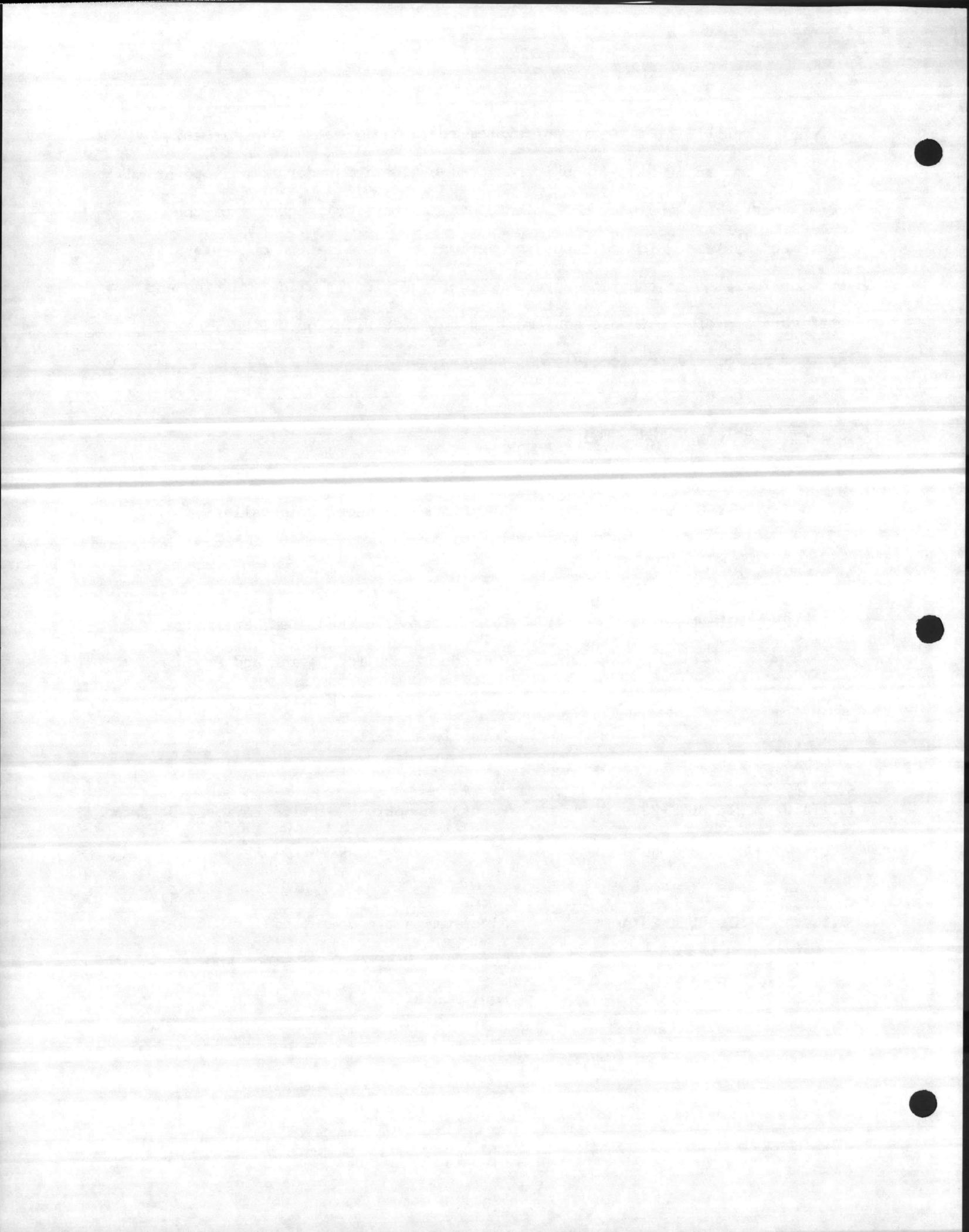
3.1.3 DESIGN PHILOSOPHY. The design philosophy shall ensure that the use of the most modern types of equipment are used by, or planned for, the CAST facility. It shall provide for electronic system versatility and adaptability,



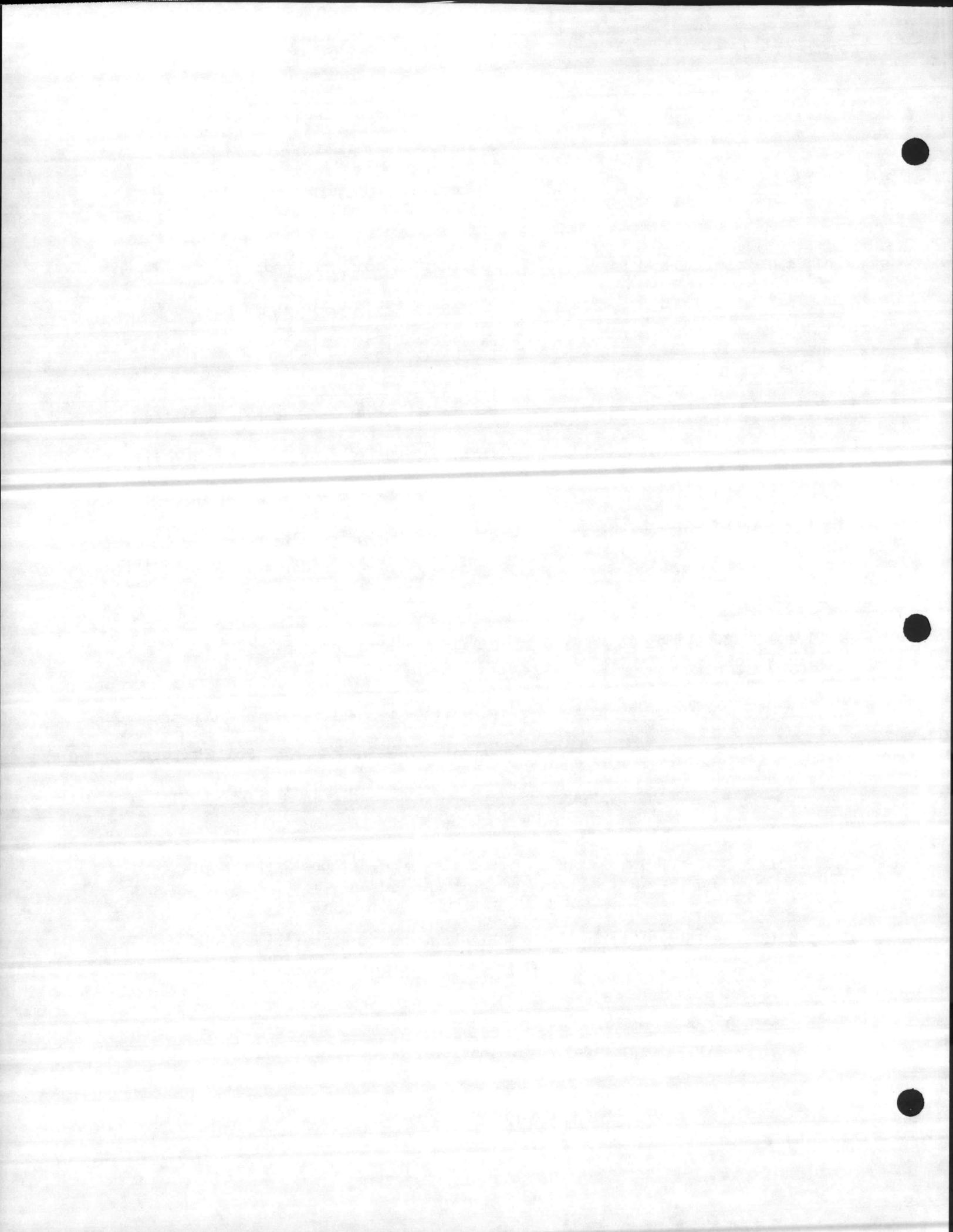
expansion capabilities, equipment/system reliability, ease of equipment installation, maintenance, and operational evaluation under normal operating conditions. This includes both electronic and physical security of the equipment/systems. In addition, the design and installation concepts shall provide for ease of subsystem/system reconfiguration to allow updating and configuration of electronic equipment to coincide with, or precede, new systems and/or electronic equipment changes.

3.1.4 TECHNICAL REFERENCES

- 3.1.4.1 MIL-HDBK-232A: RED/BLACK Engineering Installation Guidelines
- 3.1.4.2 MIL-HDBK-235, Part 4: Electromagnetic (Radiated) Environment Considerations for Design and Procurement of Electrical and Electronic Equipment, Subsystems.
- 3.1.4.3 MIL-HDBK-235-2: Electromagnetic Radiation Environment from Friendly or Own Force Emitters.
- 3.1.4.4 MIL-HDBK-237A: Electromagnetic Compatibility Management Guide for Platforms, Systems and Equipments.



- 3.1.4.5 DOD-HDBK-263: Electrostatic Discharge Control Program for Electrical and Electronic Parts, Assemblies and Equipment.
- 3.1.4.6 MIL-HDBK-419A: Military Handbook, Grounding, Bonding, and Shielding for Electronic Equipment and Facilities, Volumes I and II.
- 3.1.4.7 OPNAVINST 5101.1: Resolution of Electromagnetic Radiation (EMR) Hazard Problems.
- 3.1.4.8 MIL-STD-1472B: Human Engineering Design Criteria for Military Systems, Equipment and Facilities.
- 3.1.4.9 OPNAVINST 11010.2: Navy Shore Facilities Programming Board.
- 3.1.4.10 OPNAVINST 11010.5: Facilities Projects for Minor Construction Repair and Maintenance of Real Property and Equipment Installation.
- 3.1.4.11 NAVSECGRUINST 52305.1: Security of Telephone Systems.
- 3.1.4.12 NAVELEX 0101,106: Electromagnetic Compatibility and Electromagnetic Radiation Hazards.
- 3.1.4.13 NAVELEX 0101,110A: Installation Standards and Practices.

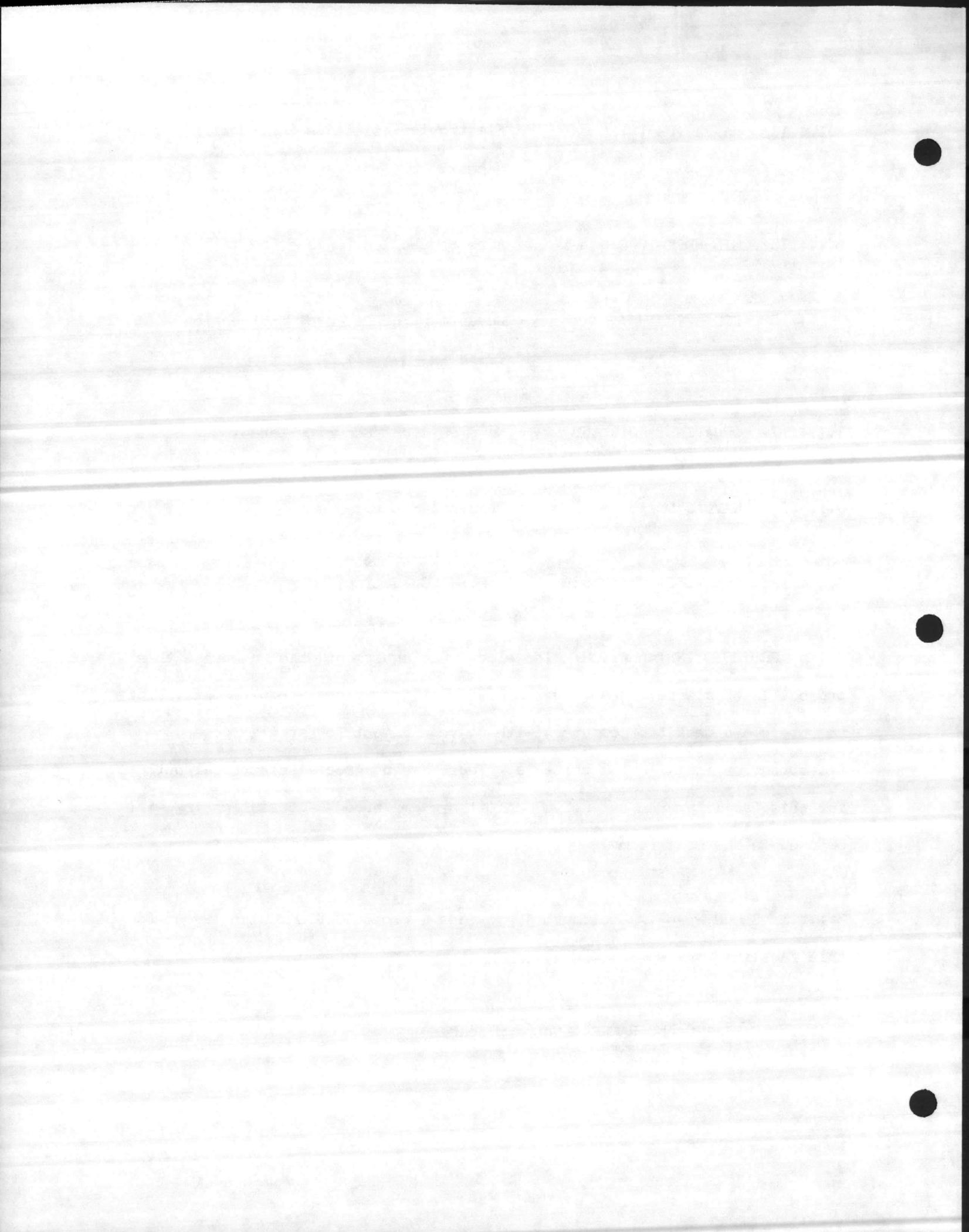


- 3.1.4.14 NAVFAC DM-12.1: Electronic Facilities Engineering Design Manual.
- 3.1.4.15 MIL-HDBK-1008: Fire Protection Engineering.
- 3.1.4.16 DOD-4270.1-M: Department of Defense Construction Criteria.
- 3.1.4.17 OPNAVINST 5510.45B Navy Physical Security Manual
- 3.1.4.18 NAVFAC DM 13.1 Physical Security
- 3.1.4.19 OPNAVINST C5510.93B TEMPEST Guidelines

3.1.5 PROPOSED INSTALLATION. The electronic equipment which comprise this project is of discrete design which must meet operational requirements. The computers are desk top computers with no requirement for special power, filtering, or installation criteria. There are no special electrical outlets for this facility. An extensive conduit system through access flooring will be used in the CAST rooms.

3.1.5.1 FLOOR PLANS. Enclosure 4 provides a proposed floor plan layout for this facility.

3.1.5.2 CABINETS AND RACKS. Not applicable.



3.1.5.3 SINGLE LINE SIGNAL FLOW DIAGRAM. There is no requirement for a single line signal flow diagram. There is a requirement to provide external communication coupling for the Command Post (CP) which will be located on the lawn.

3.1.6 PHYSICAL SECURITY

3.1.6.1 BUILDING SECURITY. Classified material is used inside the building but removed daily upon completion of the training evolution. The electronic equipment in this facility must be protected from theft, vandalism or other acts of individuals. Reference 3.1.4.18 provides physical security criteria.

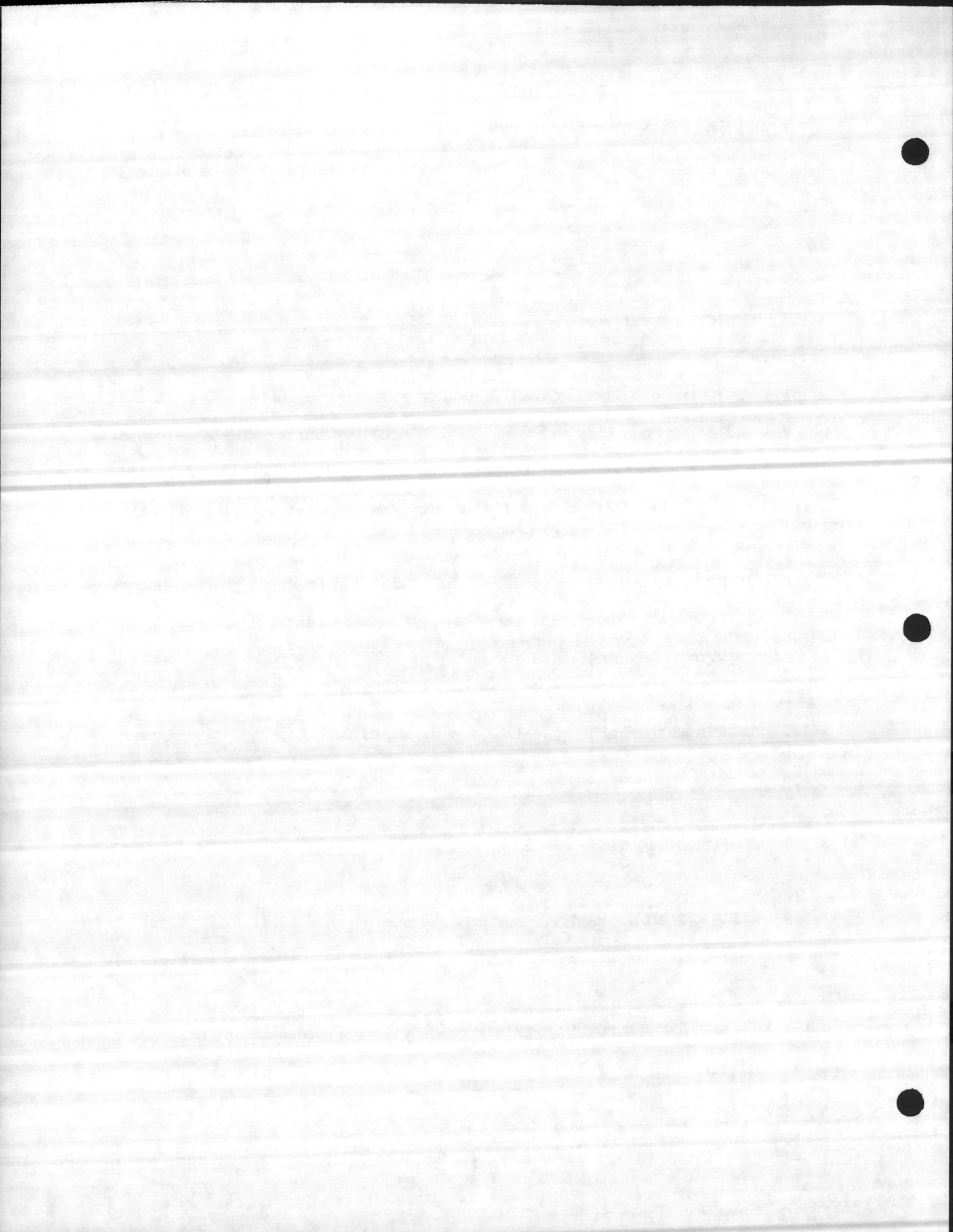
3.1.6.2 PERSONNEL/MATERIAL SECURITY. The classified material that is used during training evolutions shall be given appropriate security protection in accordance with reference 1.2.3.

3.1.7 TEMPEST REQUIREMENTS. TEMPEST requirements were covered in paragraph 1.10.1 and 5.1.4.

3.1.8 ENVIRONMENTAL REQUIREMENTS

3.1.8.1 ENVIRONMENTAL IMPACT. The construction of this facility will not cause a significant impact on the environment, nor is it highly controversial.

3.1.8.2 POLLUTION PREVENTION. This project will not cause additional air or water pollution.

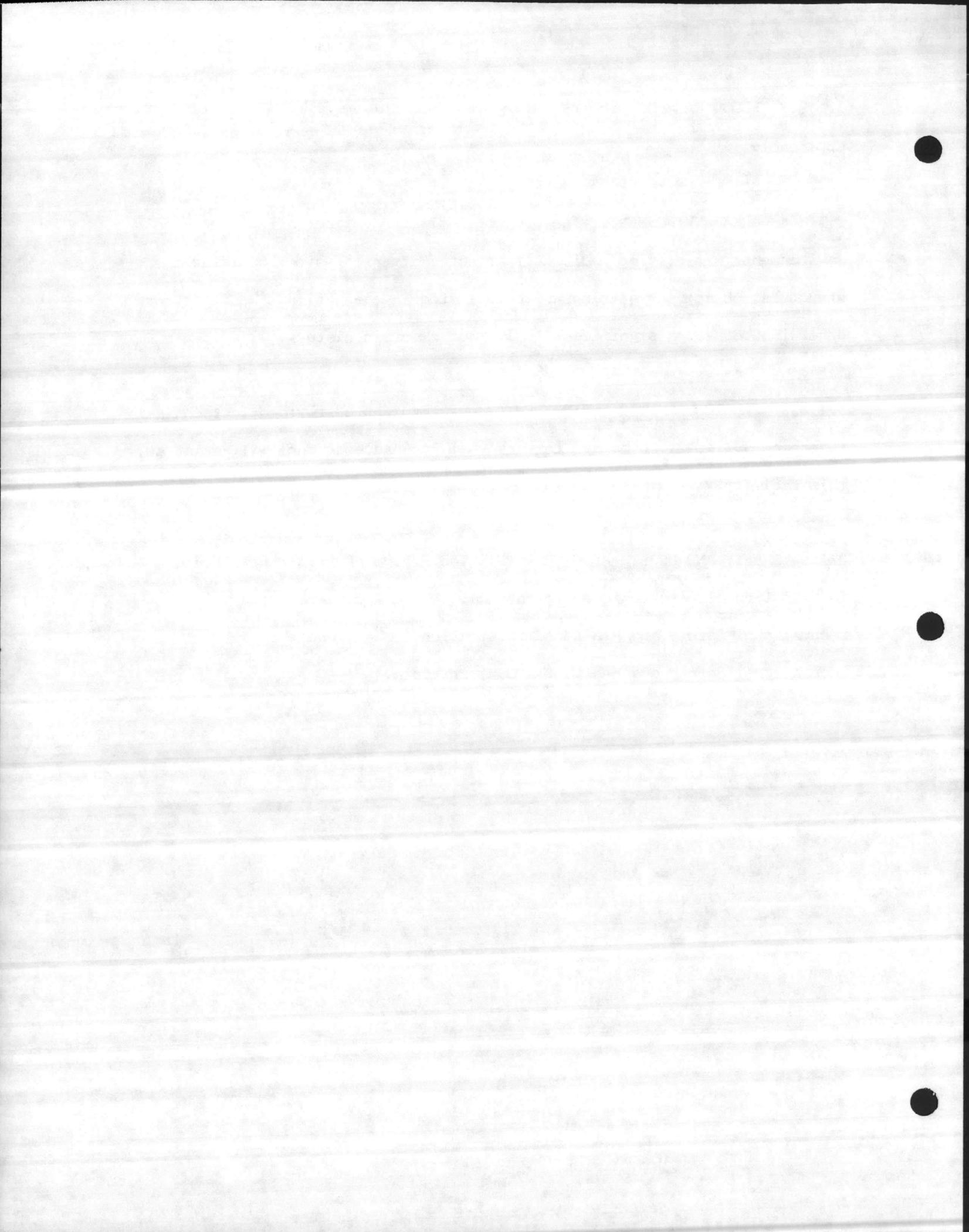


3.1.8.3 FLOOD HAZARD. The requirements of Executive Order 11296 are not applicable.

3.1.8.4 AREA ENVIRONMENT. The project facility does not affect the area environment; directly or indirectly affect a district, site, building, structure, object, or setting which is listed in the National Register, or otherwise possess a significant quality of American history.

3.1.8.5 ELECTROMAGNETIC ENVIRONMENT. Using guidance provided in technical reference 3.1.4.12, no hazard to personnel, ordnance or fuel will exist at this facility.

3.1.9 SAFETY AND HEALTH REQUIREMENTS. The design of this facility and installation of electronic equipment shall be in accordance with the Occupational Safety and Health Administration (OSHA), and the Navy Occupational Safety and Health (NAVOSH) criteria.



SECTION 4

ELECTRONIC EQUIPMENT

4.1 GENERAL

Table 4-1 provides a list of electronic equipment for this facility. Table 4-2 provides a list of electronic test equipment for this facility.

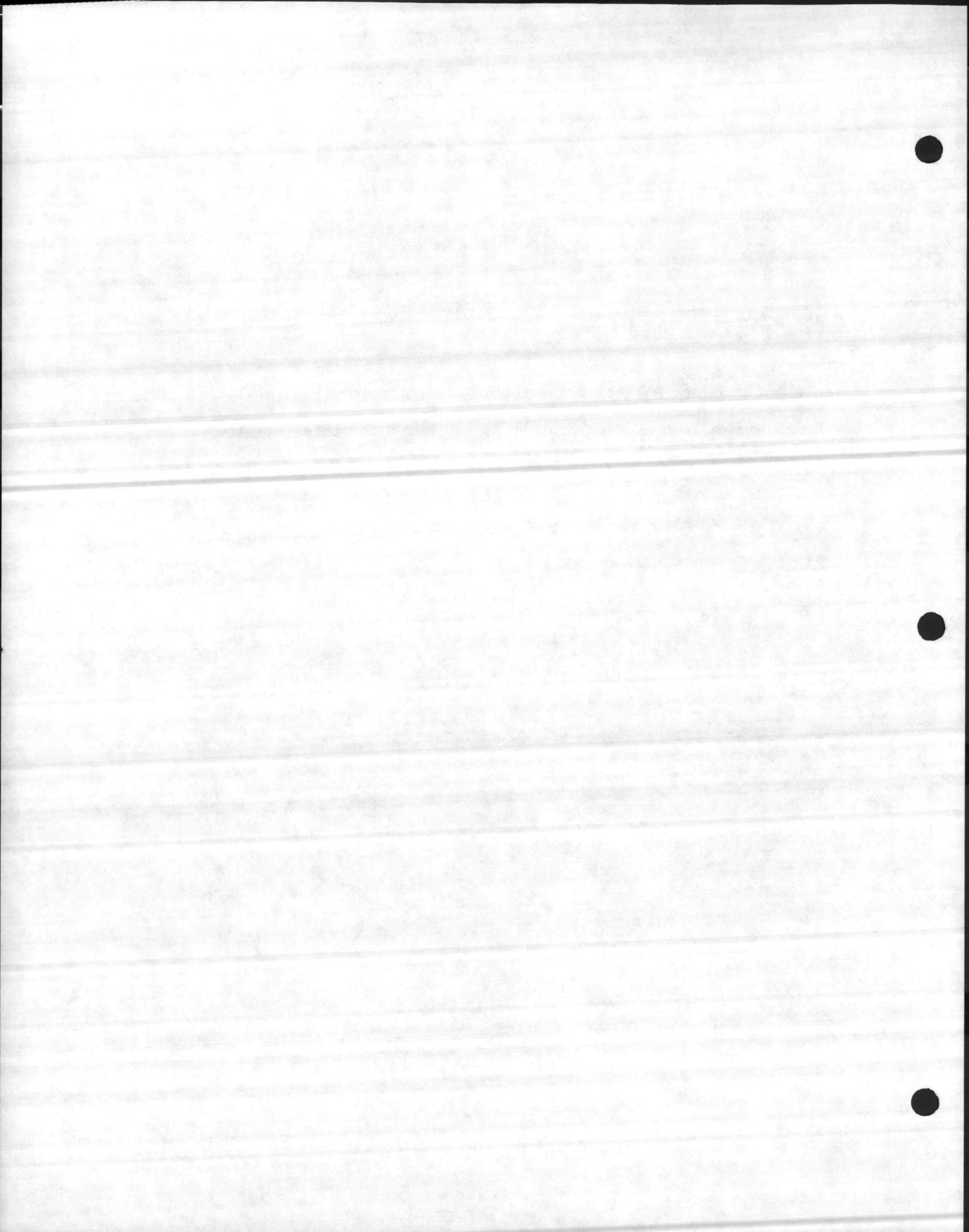


TABLE 4-1

ELECTRONIC EQUIPMENT PROCUREMENT

ITEM NO.	NOMENCLATURE NOUN NAME	TOTAL REQ'D	ON HAND	PROCUREMENT RESPONSIBILITY	REMARKS
1	Laser Systems (Red/Green Pair)	2	0	NTSC Orlando, FL	
2	Monitor (Clock)	32	0	NTSC Orlando, FL	
3	Exercise Control Computer	1	0	NTSC Orlando, FL	
4	Laser Control Computer	1	0	NTSC Orlando, FL	
5	Comments Control Computer	1	0	NTSC Orlando, FL	
6	Printer	3	0	NTSC Orlando, FL	
7	Computer Terminals	20	0	NTSC Orlando, FL	
8	Tape Recorder	2	0	NTSC Orlando, FL	
9	Signal Generator	1	0	NTSC Orlando, FL	
10	Power Supplies	32	0	NTSC Orlando, FL	
11	Communications Equipment Rack	1	0	NTSC Orlando, FL	
12	Communications Line Controller	400	0	NTSC Orlando, FL	
13	Intercom System	4	0	NTSC Orlando, FL	
14	Public Address System	1	0	NTSC Orlando, FL	
15	Wireless Radio	20	0	NTSC Orlando, FL	
16	Headsets	400	0	NTSC Orlando, FL	
17	Handsets	40	0	NTSC Orlando, FL	
18	Intercommunications Speaker	50	0	NTSC Orlando, FL	

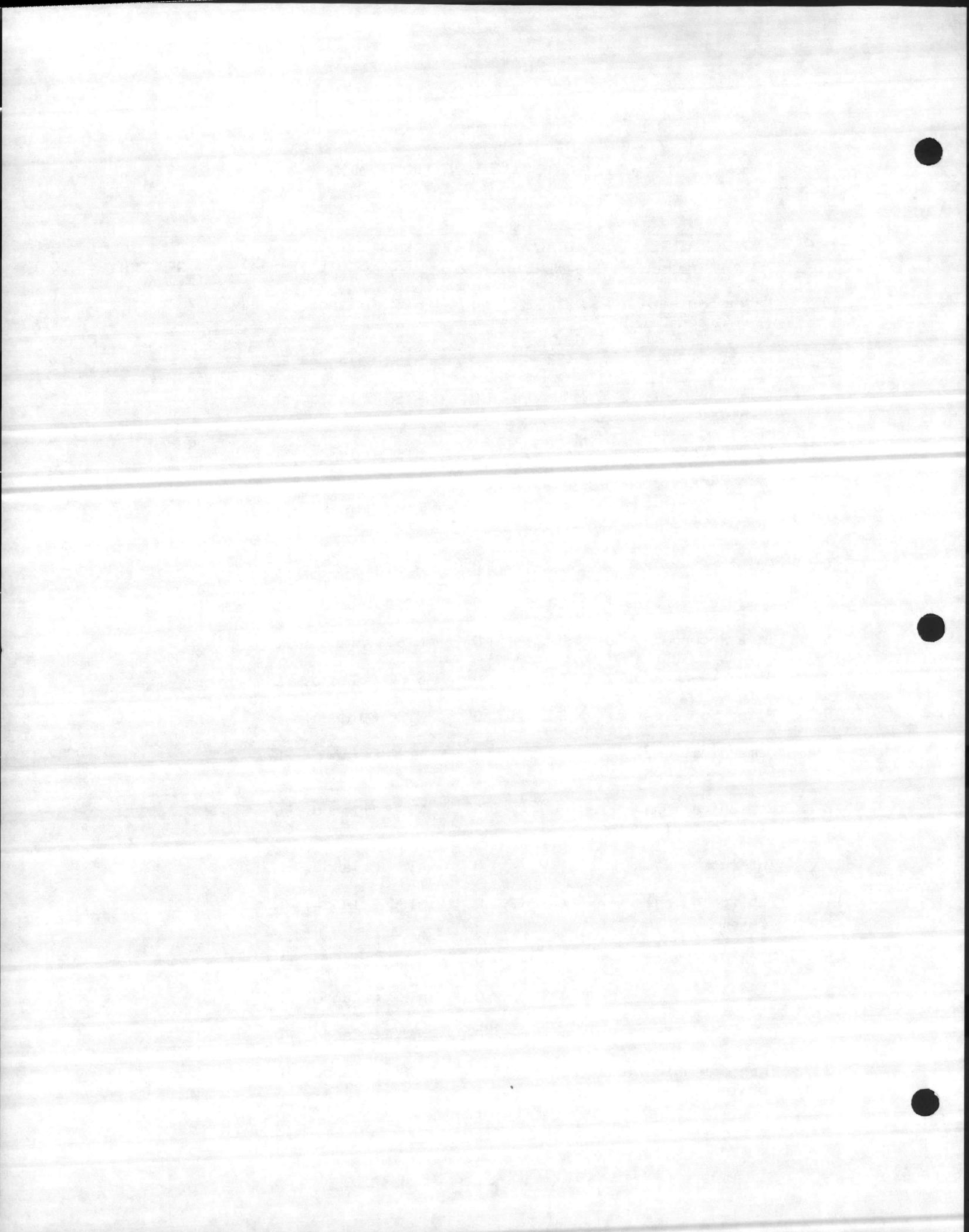


TABLE 4-1 (Cont)

ELECTRONIC EQUIPMENT PROCUREMENT

ITEM NO.	NOMENCLATURE NOUN NAME	TOTAL REQ'D	ON HAND	PROCUREMENT RESPONSIBILITY	REMARKS
19	Video Camera & Control System	1	0	NTSC Orlando, FL	
20	Video Record/ Playback Unit	1	0	NTSC Orlando, FL	
21	25-inch Video Monitor	3	0	NTSC Orlando, FL	

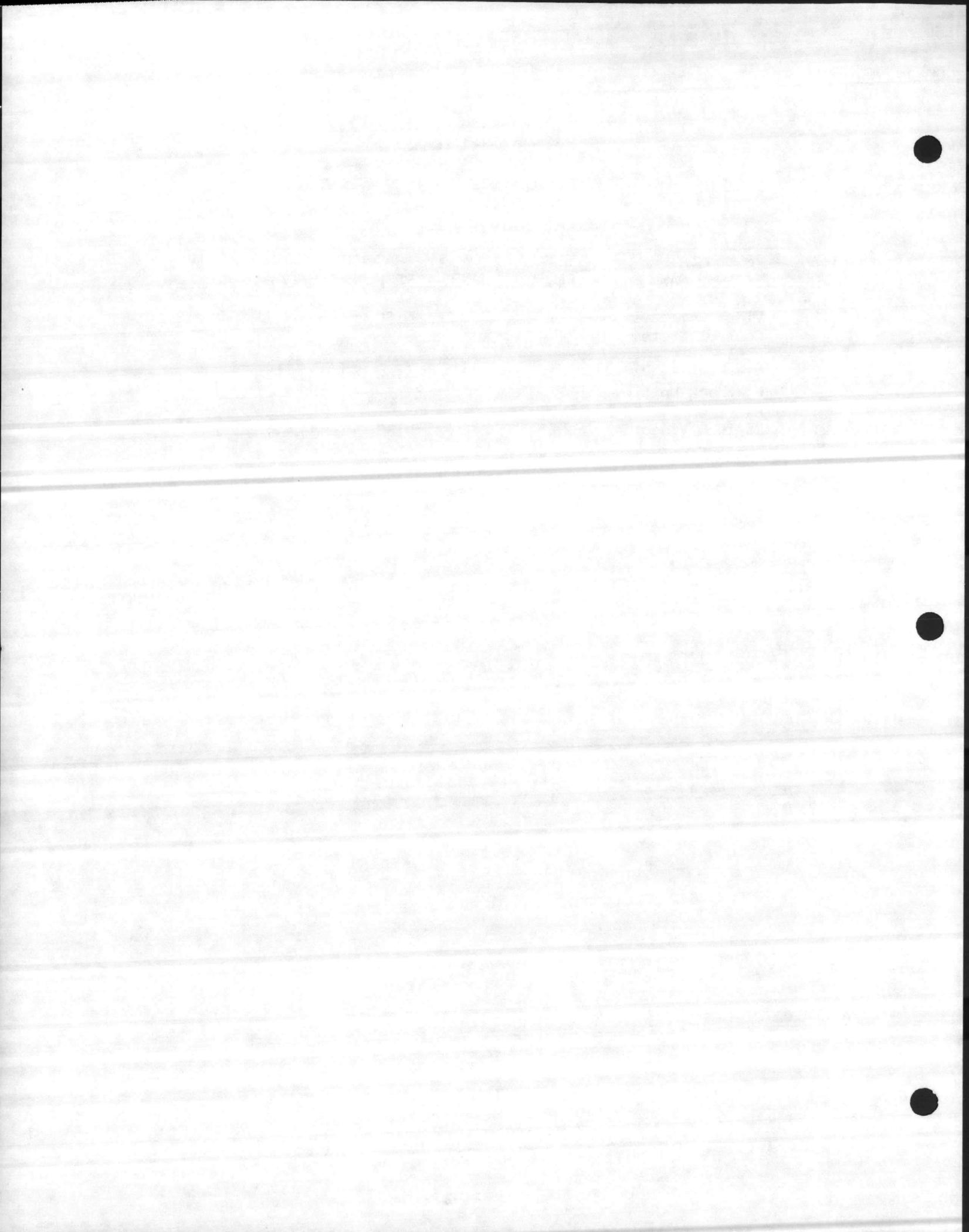
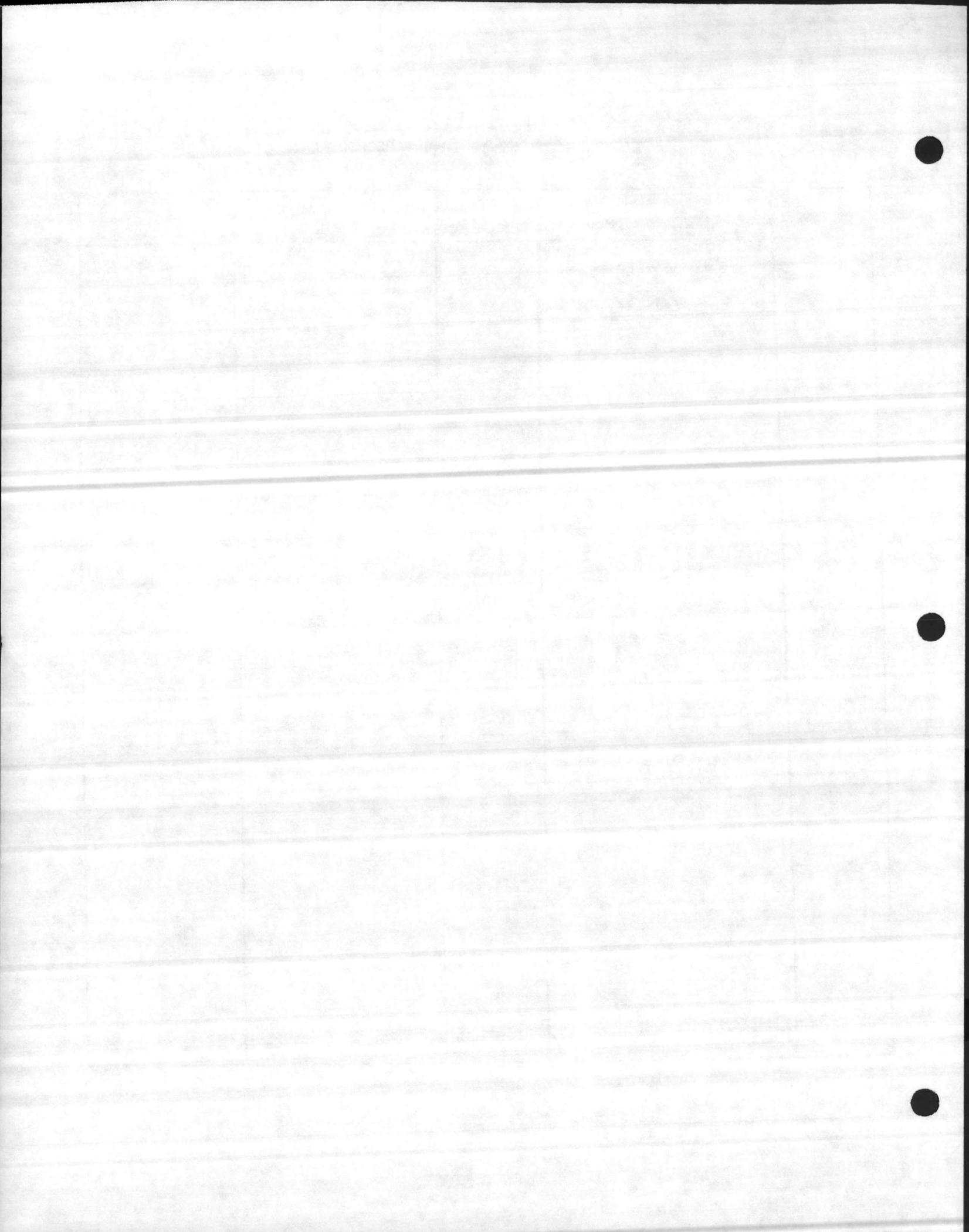


TABLE 4-2

ELECTRONIC TEST EQUIPMENT REQUIREMENT

Item No.	FSCM (*)/Model	Total Req'd	Noun Name	Remarks
	There is no requirement for Electronic Test Equip. for this facility.			

(*) Federal Supply Code for Manufacturers



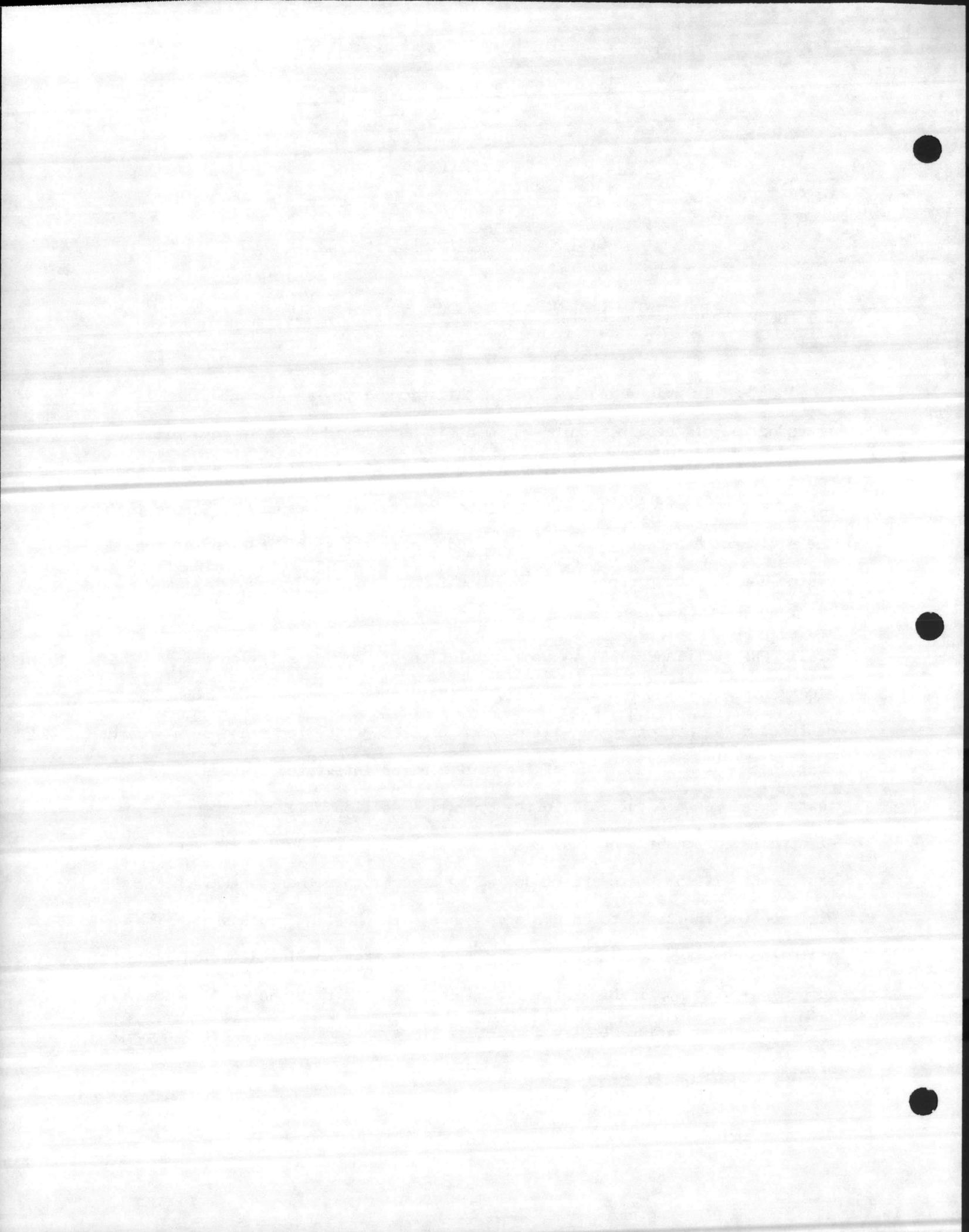
SECTION 5

SYSTEM CHECKOUT AND PERFORMANCE

5.1 GENERAL

The CAST is unique in that the installation, type, maintenance, and intended use of the electronic equipment is not provided for in any written directive. The electronic equipment for this facility requires checkout and pre-acceptance performance testing. These tests are necessary to ensure that the equipment has been properly installed, meets the specifications of the system design, and performs the intended functions.

5.1.1 PRE-ACCEPTANCE TESTS. Upon completion of the installation of electronic equipment the Field Activity (FA), site personnel, or approved contractor (as appropriate) will conduct pre-acceptance tests and/or standards that check-out all functions of the equipment or integrated systems. These test procedures are outlined in the operation section of each respective electronic equipment technical manual which should be provided with each equipment. If the tests are conducted by anyone other than the FA, the FA will monitor the tests to ensure compliance with the test procedures. The FA will also certify in writing to the user agency that the installation is in accordance with applicable installation criteria and that the performance tests have been satisfactorily completed. (See paragraph 5.1.3 re: correction of deficiencies found)



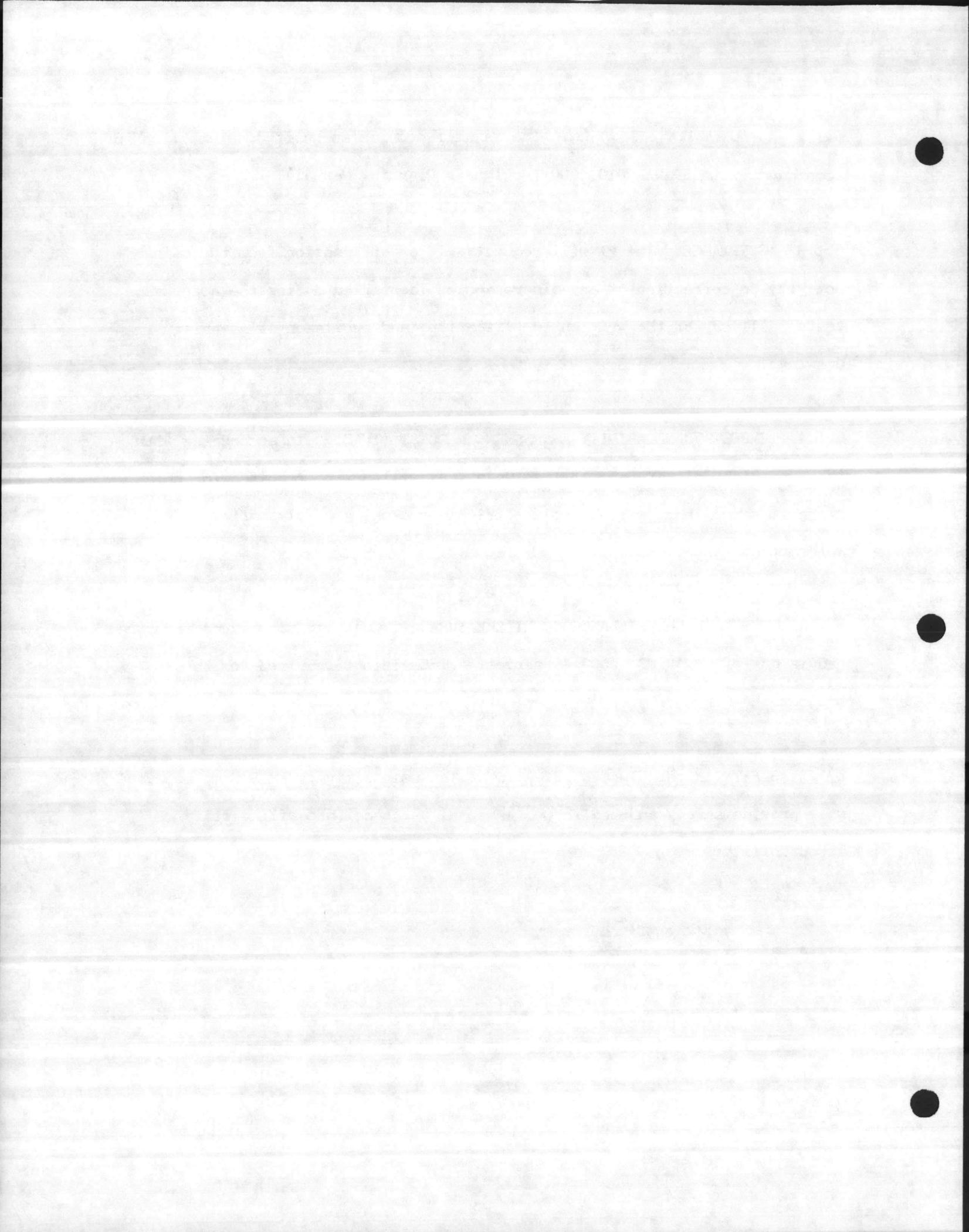
5.1.2 AS-BUILT DOCUMENTATION. The FA will provide as-built documentation in accordance with SPAWAR 0101,000 (Designers Planning Manual).

5.1.3 ACCEPTANCE. The FA will request written affirmation from the using activity on correction of any discrepancies identified during the acceptance tests, delivery of the written certification, and provision of as-built drawings.

5.1.4 TEMPEST VULNERABILITY ASSESSMENT REQUEST (TVAR). In accordance with the provisions of reference 3.1.4.19, a TVAR will not be required for this project, since there will be no electrical processing of classified information.

5.1.5 TECHNICAL SURVEILLANCE COUNTERMEASURES (TSCM). In accordance with the provisions of OPNAVINST 5500.46 series, a TSCM is not required for this project.

5.1.6 SAFETY AND HEALTH CERTIFICATION. The user activity (MCB Camp Lejeune) will provide safety and health professional personnel who will certify acceptability.



SECTION 6

PHYSICAL PLANT

6.1 GENERAL

6.1.1 TYPE OF CONSTRUCTION. MOON P-872 will construct a 14,002 SF facility that will be used as a Combined Arms Staff Trainer.

6.2 SPECIAL FEATURES OR LIMITATIONS.

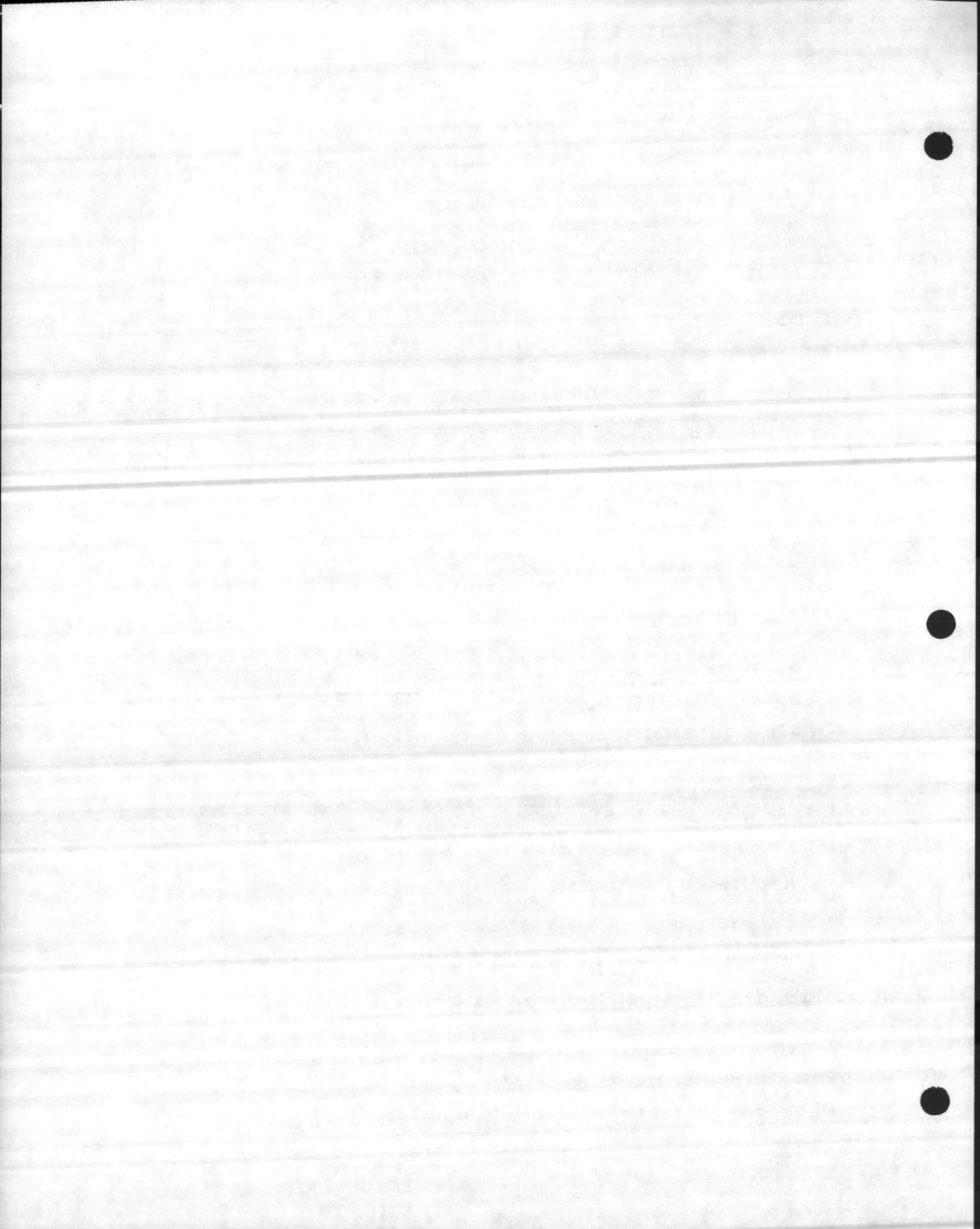
6.2.1 TEMPEST SHIELDING. As determined in paragraph 1.10.1, there is no requirement for TEMPEST RF shielding.

6.2.2 ELECTRONIC EQUIPMENT REQUIREMENTS DICTATED BY QUANTITY. The electronic equipment to be installed at this facility is listed in Table 4-1.

6.2.3 ELECTRONIC EQUIPMENT REQUIREMENTS DICTATED BY TYPE. There are no known special requirements that are dictated by the type of electronic equipment being installed in this facility.

6.2.4 CLEARANCES. There are no special clearance requirements for the electronic equipment installed in this facility.

6.2.5 SITING. The electronic equipment for this facility are stand-alone, desk top computer and terminals. There are no special siting requirements.



6.2.6 ACCESS REQUIREMENTS. The requirements for access to this facility shall be controlled by the using activity. Reference 1.2.3 provides guidelines for personnel security requirements.

6.2.7 PHYSICAL SECURITY. There are no physical security requirements that would impact the design of this facility.

6.3 DRAWINGS

6.3.1 EQUIPMENT LAYOUT DRAWINGS. The using activity will determine equipment locations.

6.4 EQUIPMENT CHARACTERISTICS

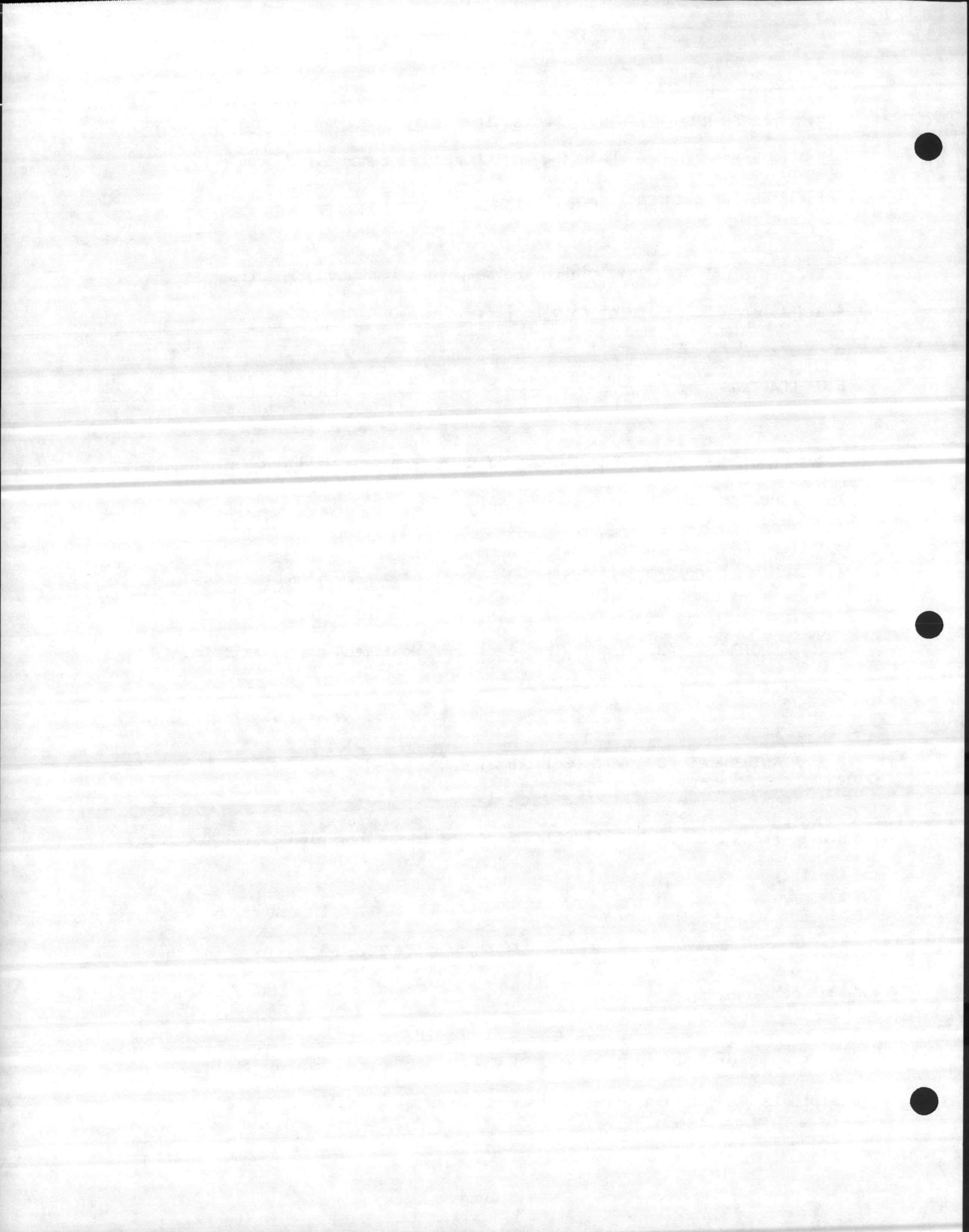
6.4.1 EQUIPMENT TABULATION. The electronic equipment characteristic tabulation is provided in table 6-1.

6.5 REQUIREMENTS FOR AREAS OF INTEREST

6.5.1 FLOOR PLAN LAYOUTS. Enclosure 4 provides floor plan layout for this facility.

6.5.2 DOOR OPENINGS. There are two 3'0"W X 7'6"H doors required for this facility.

6.5.3 RACEWAYS AND CABLE DUCTS. The power and signal cables for the CPU and terminals shall be contained in raceways and cable ducts.



6.5.4 POWER PANEL BOARD LOCATIONS. The power panel boards for the electronic equipment shall be located in proximity to the CAST for expeditious securing of power in the event of emergency.

6.5.5 RED/BLACK POWER REQUIREMENTS. There is no requirement for special RED/BLACK power boards.

6.5.6 UNINTERRUPTIBLE POWER. There is no requirement for an UPS system.

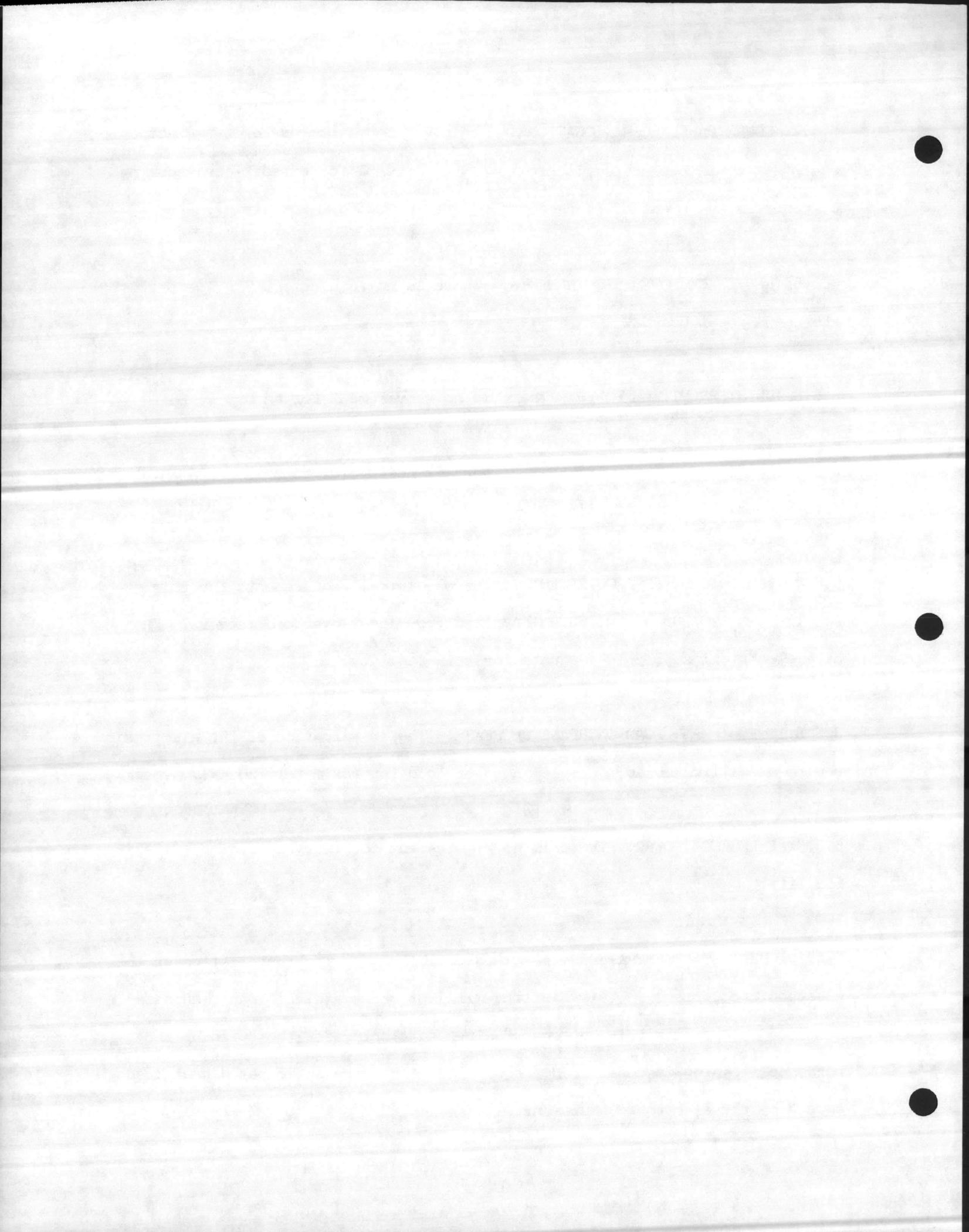
6.5.7 SPECIAL POWER REQUIREMENTS. There is no special power requirements (i.e. 400hz), for this facility.

6.5.8 ELECTRIC POWER REQUIREMENTS. The electrical requirements for this facility is 120/208 V, 30, 60 hz supplied from local overhead feeders. The base electrical supply is adequate for this facility.

6.5.8.1 EQUIPMENT LOAD INCREASE/DECREASE. The installation of the electronic equipment will cause an increase in power load (approximately 30 KW).

6.5.9 EMERGENCY POWER. There is no requirement for emergency power for this facility.

6.5.10 HEAT LOAD GENERATED BY ELECTRONIC EQUIPMENT. The installation of the electronic equipment in this facility will not cause a significant increase in heat load. Approximately 35 tons of air conditioning for the building and personnel loading is considered adequate to handle the anticipated heat load caused by the electronic equipment.



6.6 ENVIRONMENTAL CONTROL

6.6.1 CENTRAL HEATING. Central heating should provide an approximate temperature of 75 degrees F (± 5 degrees) with a relative humidity of 50 percent in all electronic equipment and operating spaces.

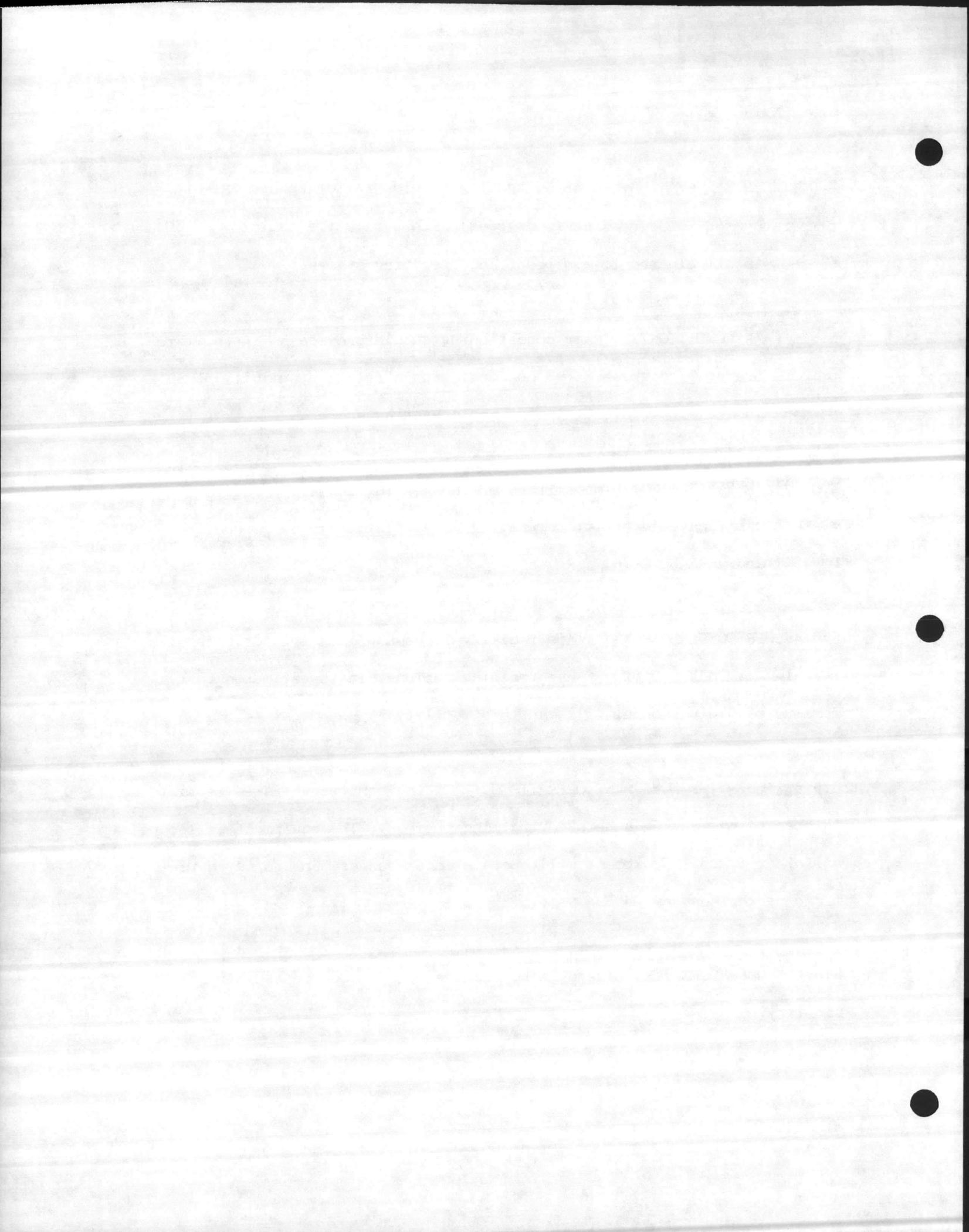
6.6.2 AIR CONDITIONING. Air conditioning should provide an approximate temperature of 70 degrees F (± 5 degrees) with a relative humidity of 50 percent in all electronic equipment and operating spaces.

6.6.3 AIR FILTRATION. The filters of the heating and air conditioning systems shall have an efficiency rating of approximately 60 percent per NAVFAC DM-12.1 and ASHRAE 52-76.

6.6.4 PERSONNEL LOADING. This facility is unmanned except for scheduled training periods. During these training periods, it is estimated that a maximum of 676 personnel will man this facility.

6.6.5 FULL TIME EQUIPMENT OPERATIONS. All the equipment listed in table 6-1 is operational during scheduled training periods. The equipment is secured at all other times. Equipment will operate in excess of 3 hours/day during training periods.

6.6.6 COMPRESSED AIR. There is no requirement for compressed air at this facility.



6.7 FIRE PROTECTION

6.7.1 SYSTEM. The fire protection for this facility will be wet pipe sprinkler system. The system will be constructed in accordance with MIL-HDBK-1008. There will also be six HALON-1211, 91b, portable fire extinguishers located in the staff trainer. The design, equipment, materials, installation and workmanship shall be in strict compliance with the required and advisory provisions of NFPA 12A, 13, 70, 72A, 72B, 72E and 75.

6.7.2 FIRE ALARM SYSTEM. The fire alarm system for this project will be radio transmitted to the base fire department.

6.7.3 FIRE DETECTION. This facility shall contain appropriate smoke detectors. Detector spacing and location shall be in accordance with the requirements of NFPA 72E.

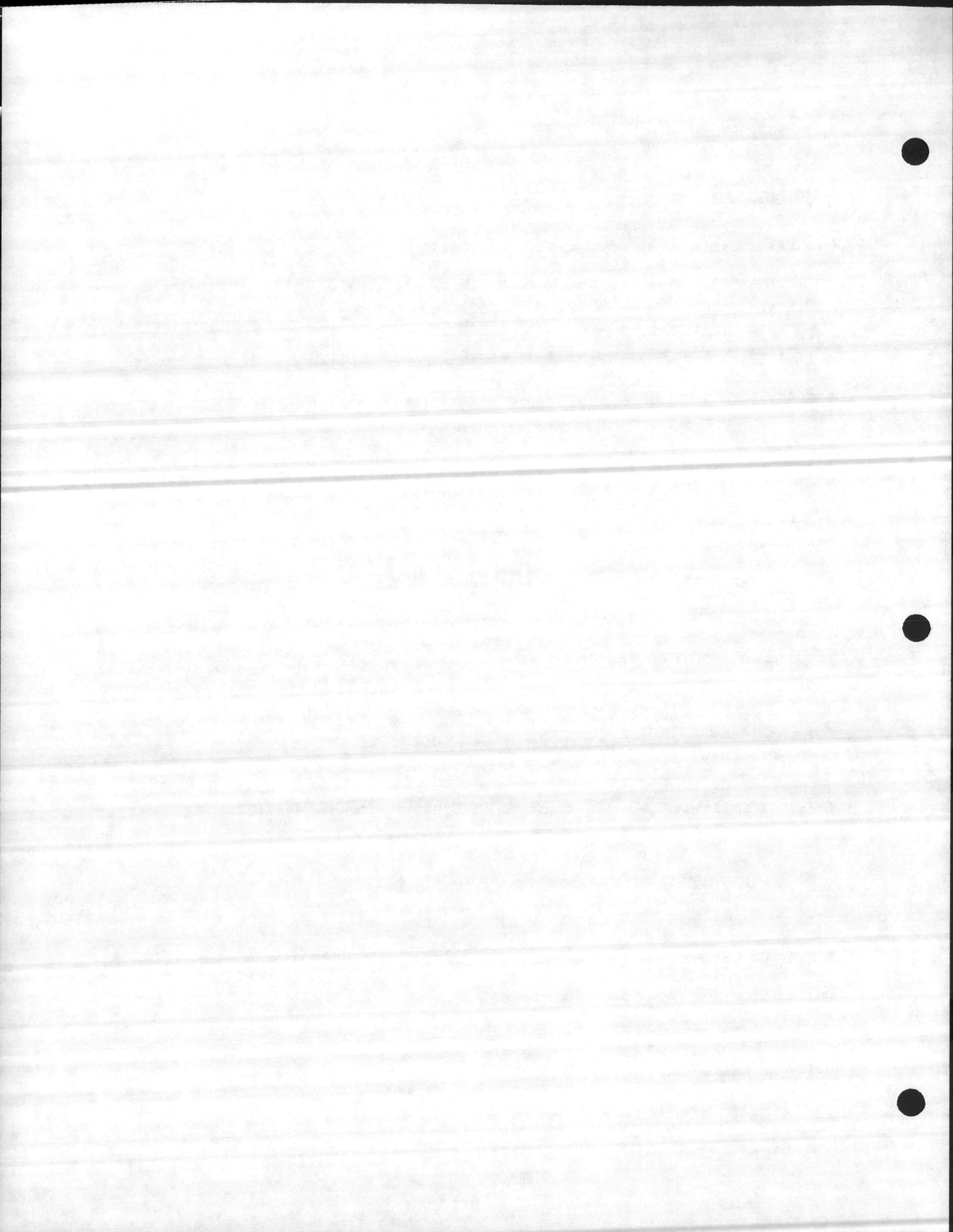
6.8 RED AREAS

6.8.1 IDENTIFICATION. There are no "RED" areas in this facility.

6.9 ADMINISTRATIVE TELEPHONES

6.9.1 CRITERIA. The telephones for this facility will be a 25 pair cable pulled from the local junction box.

6.10 RF SHIELDING



6.10.1 REQUIREMENTS. In accordance with the provisions of references 1.9.3 and 3.1.4.6, there is no requirement for RF shielding. This facility will not require special design criteria for TEMPEST radiation or electromagnetic interference.

6.11 GROUNDING AND BONDING

6.11.1 REQUIREMENTS. The electronic equipment for this facility shall be grounded and bonded in accordance with reference 3.1.4.6, and the National Electric Code (NEC).

6.12 INTERNAL SECURITY AND PERSONNEL CLEARANCES

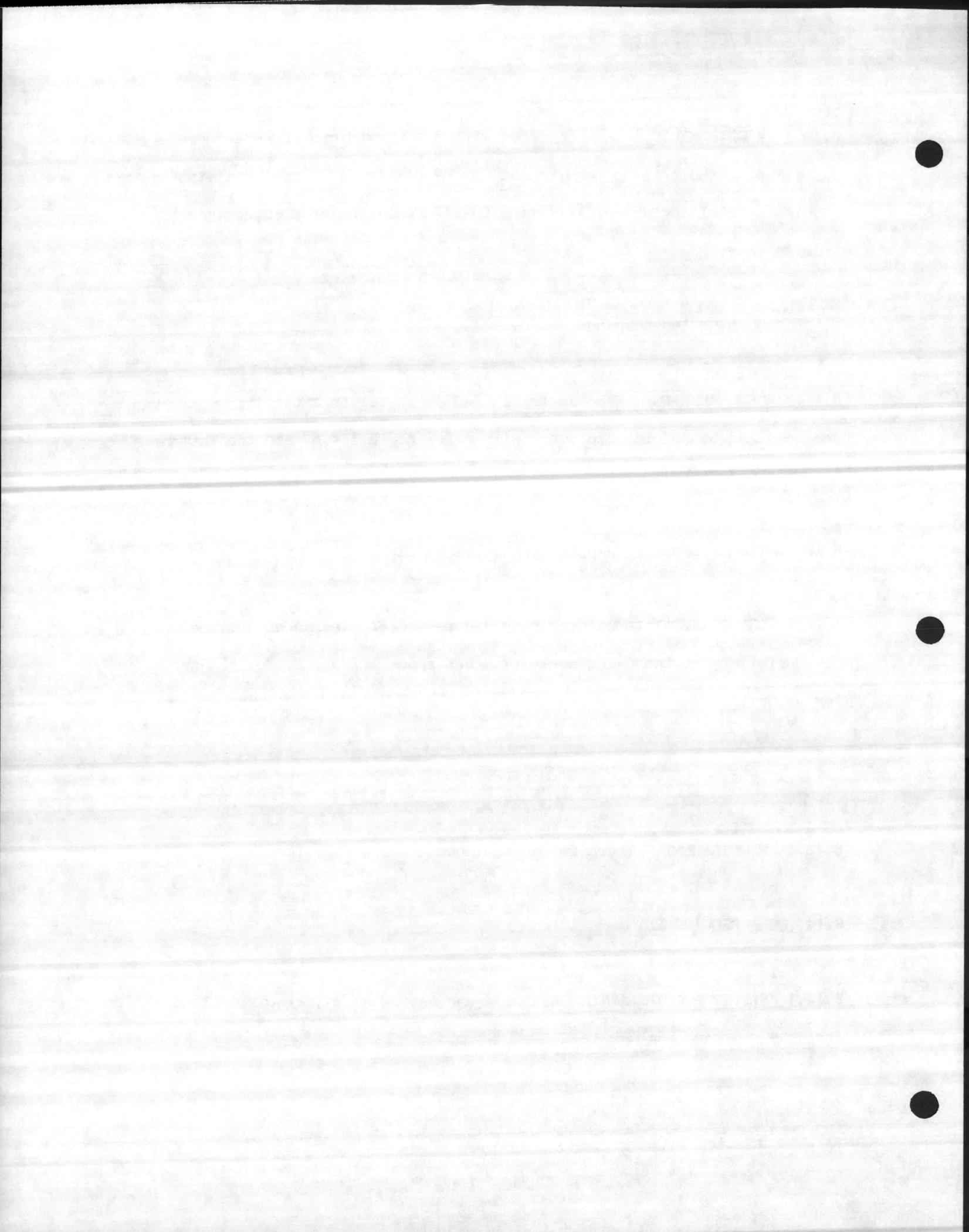
6.12.1 CRITERIA. Internal security and personnel clearances are the responsibility of the using activity. Reference 1.2.3 provides the guidelines for security.

6.13 INTRUSION DETECTION SYSTEM (IDS)

6.13.1 REQUIREMENT. There is no requirement for an IDS for this facility.

6.14 OSHA REQUIREMENTS

6.14.1 SAFETY REQUIREMENTS. All OSHA and NAVOSH safety requirements shall be strictly complied with.



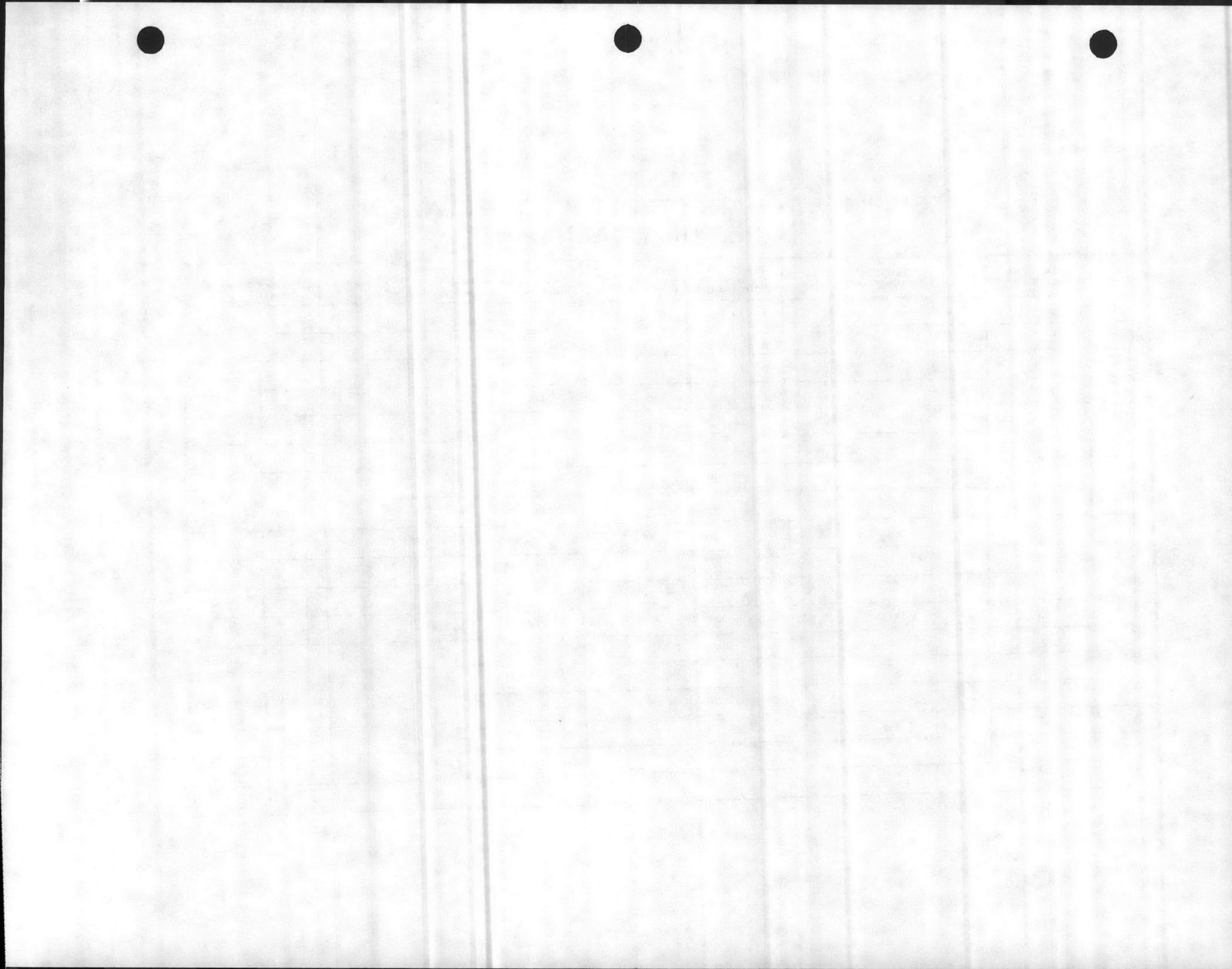
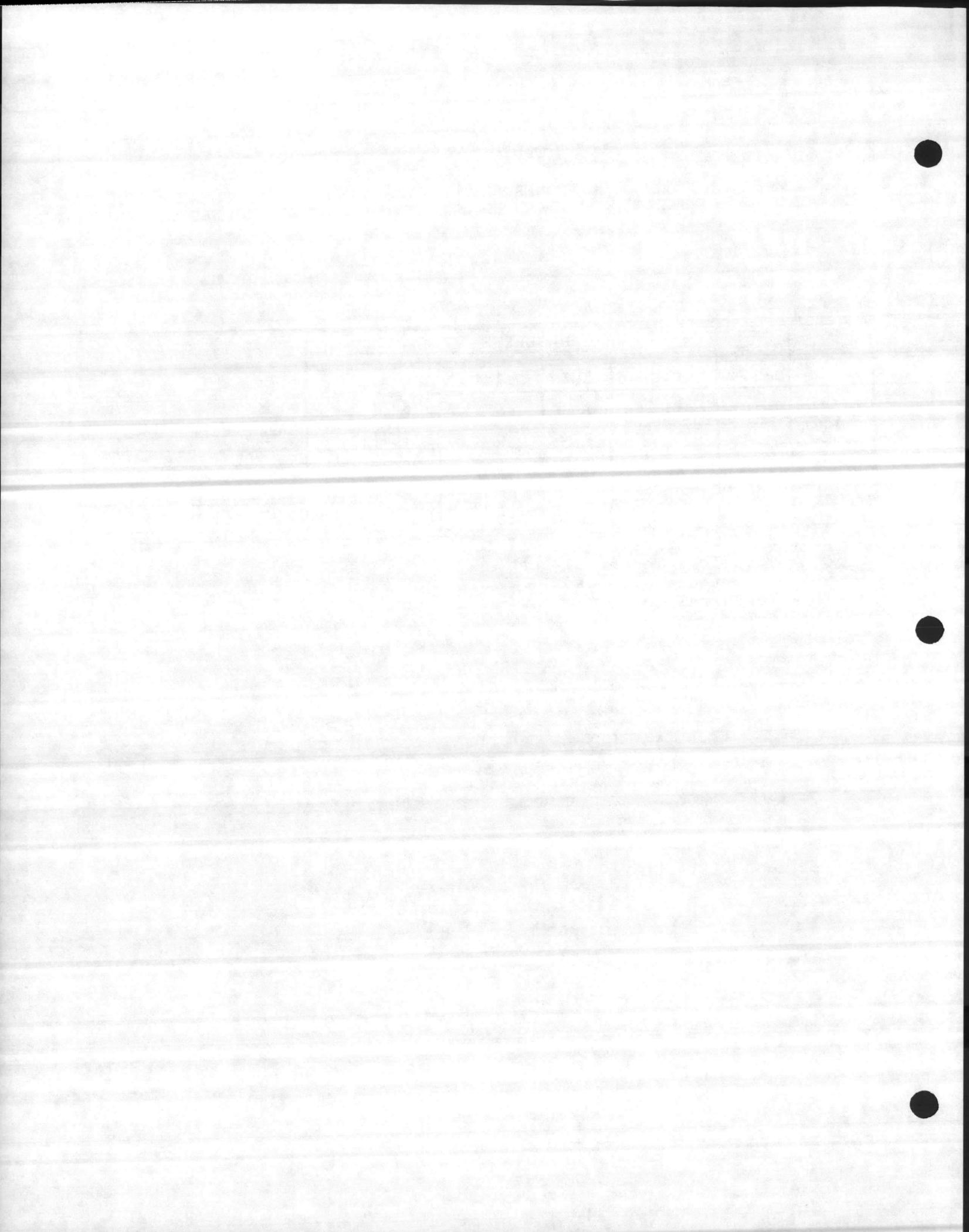


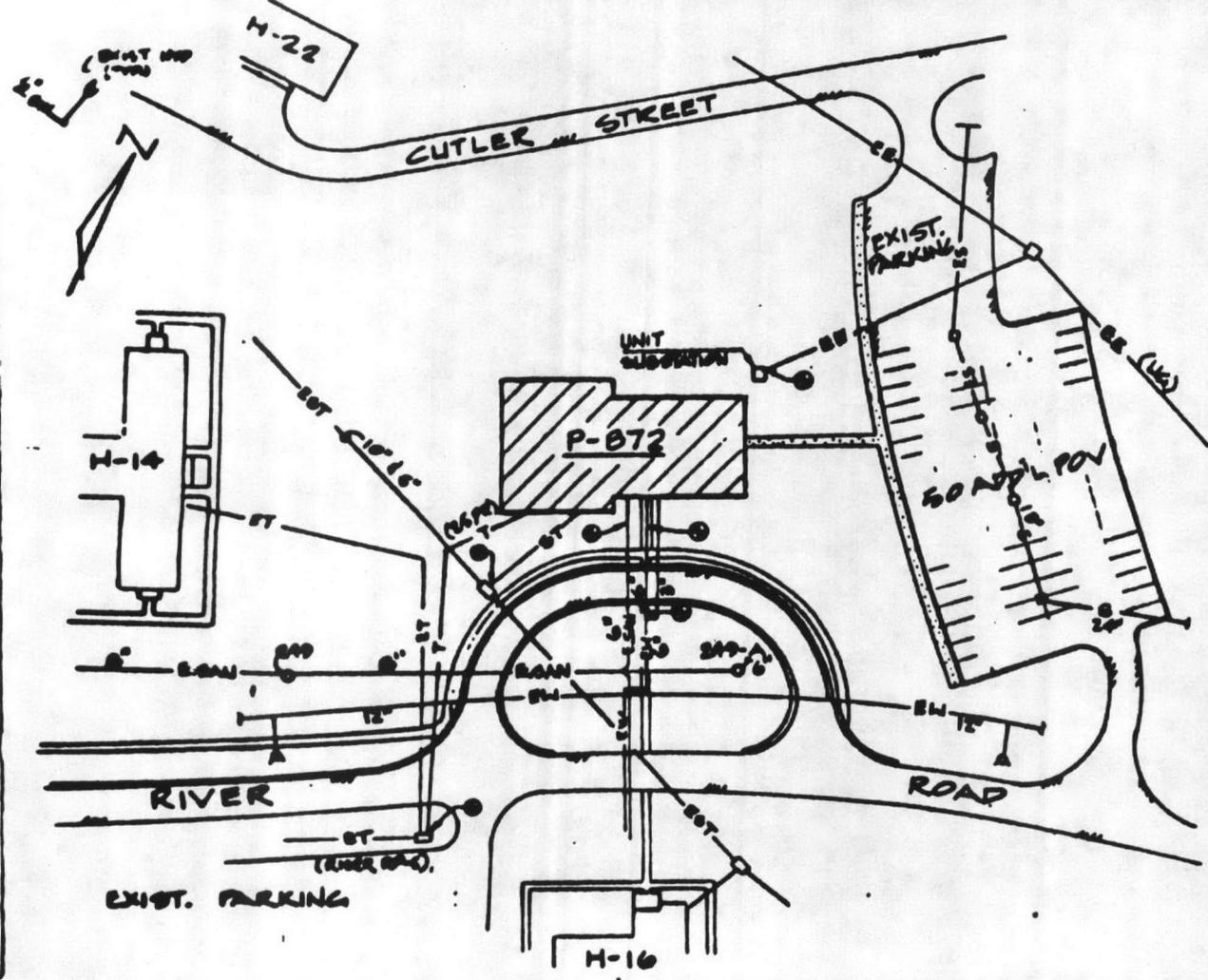
Table 6-2

POWER SUMMARY

	Bldg. No.	BASELINE				Remarks
		Existing	Addl	Delete	Final	
Hz (*)		60	60	0	60	
NCTL			2KW	0	2KW	
CTL			30KW	0	30KW	
NTL			1KW	0	1KW	
TL			32KW	0	32KW	

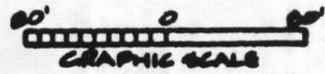
- (*) NCTL - Non-critical Technical Load
- CTL - Critical Technical Load
- NTL - Non-technical Load
- TL - Technical Load





LEGEND	
[Symbol]	BUILDING
[Symbol]	SIDEWALK
[Symbol]	ASP. PAVING
[Symbol]	SAN. SEWER
[Symbol]	MANHOLE
[Symbol]	WATER LINE
[Symbol]	CATCH BASIN
[Symbol]	STORM DRAIN
[Symbol]	PT. OF CONNECTION
[Symbol]	STEAM LINE
[Symbol]	ELECTRIC LINE
[Symbol]	SAN. FOR. MAIN
[Symbol]	TELEPHONE
[Symbol]	FENCE

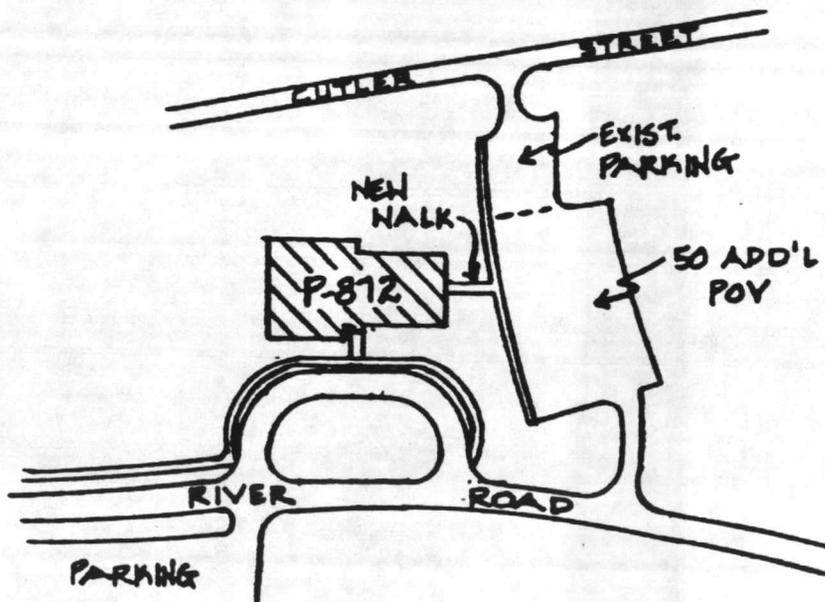
UG-UNDERGROUND
 OH-OVERHEAD



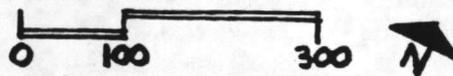
MARINE CORPS BASE
 CAMP LEJEUNE, N.C.
 COMBINED ARMS STAFF TRAINER
 P-872
 UTILITY SITE PLAN
 USCOY INCORPORATED
 6801 PEACHTREE BUNNWOOD RD.
 ATLANTA, GA. 30348

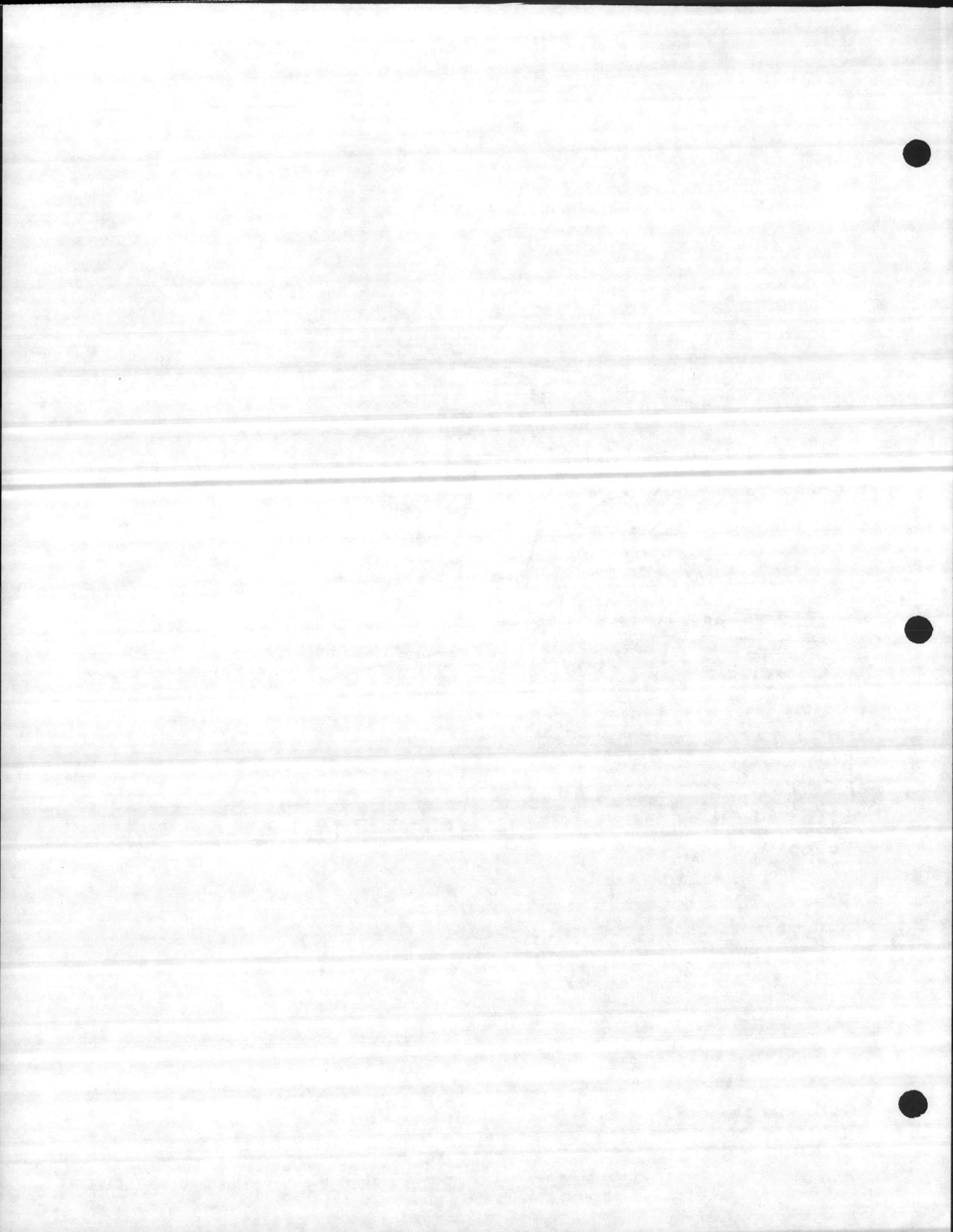
Enclosure (1)
 MCON P-872 PROPOSED SITE LOCATION





P-872
 SITE PLAN
 1" = 200'





26 Sep 86

ENVIRONMENTAL IMPACT/ENVIRONMENTAL ENHANCEMENT REVIEW BOARD

PRELIMINARY ENVIRONMENTAL ASSESSMENT (PEA)

SUBJ: P-872, COMBINED ARMS STAFF TRAINER, HOSPITAL POINT

In accordance with Base Orders 11000.1B and 11015.2G, the subject action has been reviewed by the Marine Corps Base Environmental Impact Review Board.

BOARD ACTION

XX *

_____ The board agreed there appears to be no significant environmental impact or controversy associated with this project.

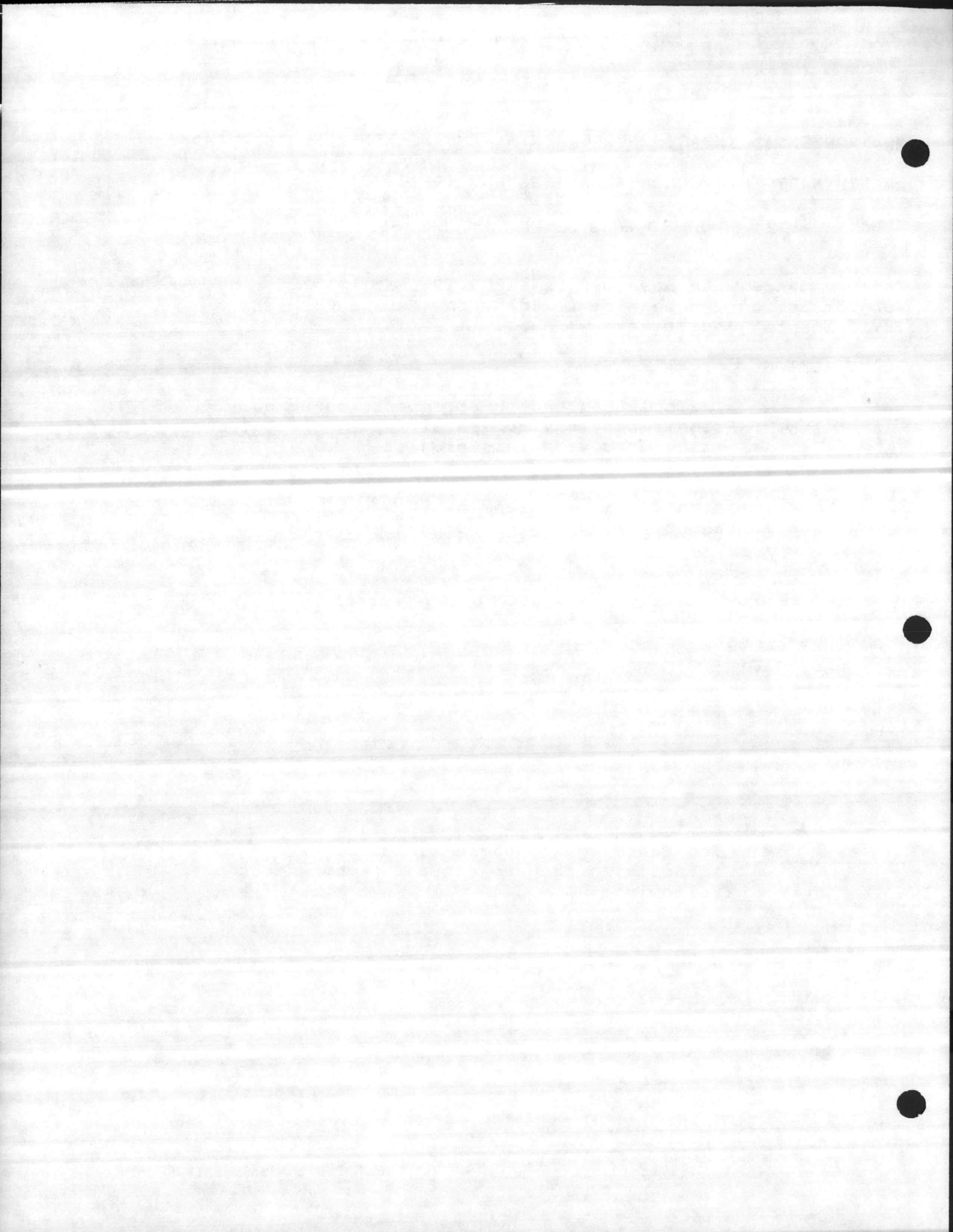
_____ The Board agreed there appears to be no significant environmental impact or controversy associated with this project provided:

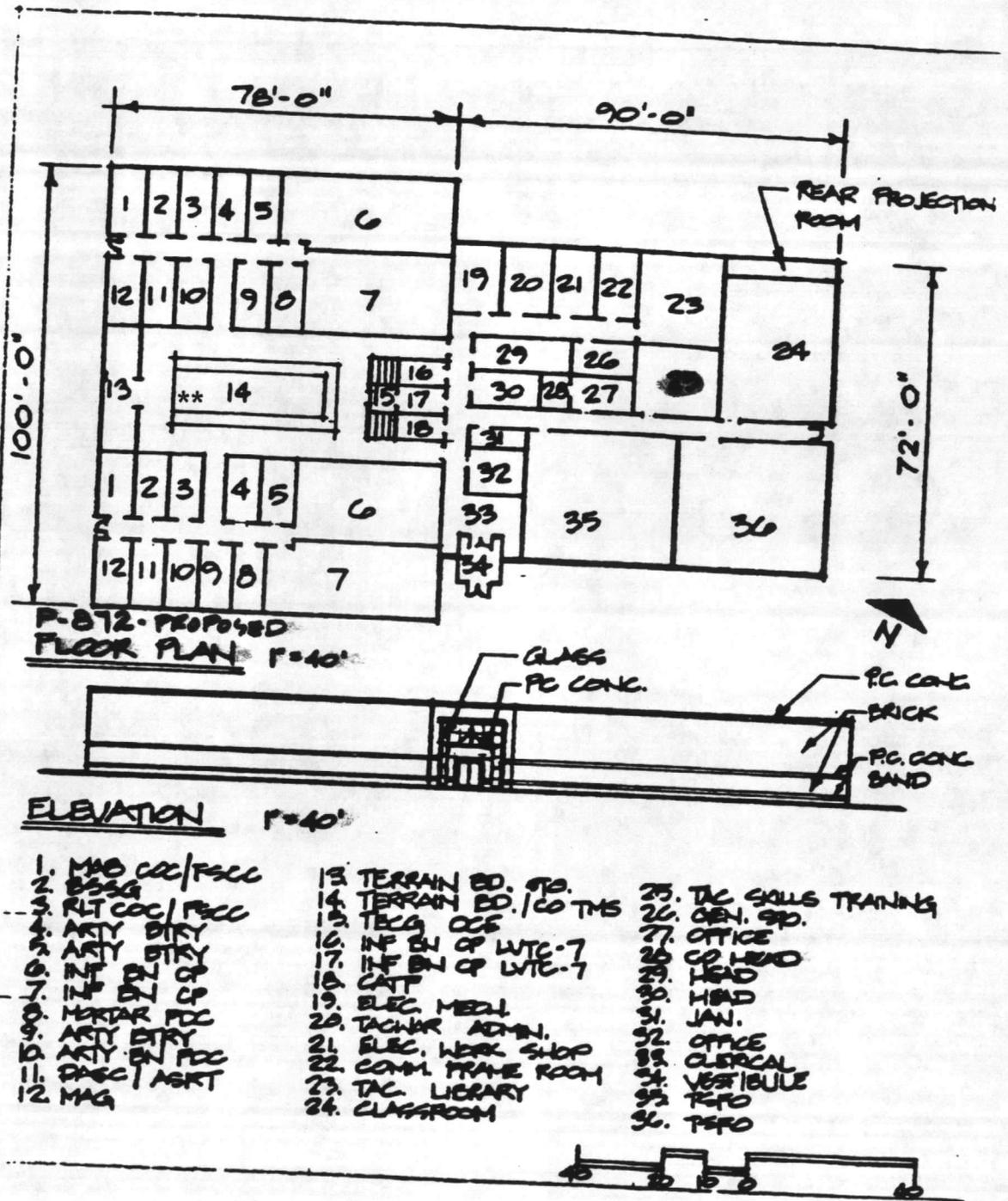
*Note: Project does not lie within 100-year flood plain.

_____ The Board agreed there is potential environmental impact with the project and recommends the following:

Enclosure (3)

MCON P-872 ASSESSMENT REPORT





Legend: (**) Room 14 will contain access flooring.

