



DEPARTMENT OF THE NAVY

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511-6287

TELEPHONE NO.

444-9670

IN REPLY REFER TO:

N62470-86-R-9260
09A2131

Larry WLB
Fred
Karen KMZ
F.T. JAS

07 DEC 1987

Gantt Huberman Architects
112 West 5th Street
Charlotte, North Carolina 28202

Re: A&E Contract N62470-86-R-9260, FY 89 MCON Project P-229 and FY 90
MCON Project P-679, Electronics Communications Maintenance
Facilities, Marine Corps Base, Camp Lejeune, North Carolina

Gentlemen:

It is our intention to change order the referenced contract to prepare plans, specifications, cost estimates, related studies and all associated engineering services for FY 90 MCON Project P-679, Electronics Communications Maintenance Facility, Marine Corps Base, Camp Lejeune, North Carolina. Enclosure (1) defines the scope of work and is forwarded to assist you in the preparation of a fee proposal. The Guide for Architect-Engineer Firms, which you presently hold, supplements enclosure (1) and outlines the procedures, instructions and responsibilities for firms providing services under contract. All facets of project administration, payment of fees, design, estimating, quality control and shop drawing review are discussed within the text of the Guide for Architect-Engineer Firms. IT IS ESSENTIAL THAT YOU BECOME ACQUAINTED WITH ALL PROCEDURES AND RESPONSIBILITIES PRIOR TO YOUR FEE PREPARATION.

Enclosure (2) provides the format of fee submission. Your fee proposal should be submitted within 21 calendar days after receipt of this letter and must be accompanied by the following:

- a. Supporting information you developed in preparing your fee proposal; i.e., the number of drawings anticipated per discipline; a description of the drawing and scale to be used; a breakdown of all direct costs (travel, reproduction, soil investigation, topographic surveys, energy analysis); a breakdown per discipline of field investigation efforts.
- b. In the event the total anticipated A&E contract change order (award and all options) cost exceeds \$100,000, your fee proposal must be accompanied by the Standard Form (SF) 1411 provided as enclosure (3).
- c. Enclosure (4), certificate of current cost or pricing data, should be SIGNED, dated and submitted UPON COMPLETION of fee negotiations for all fees in excess of \$100,000. Also submit enclosure (4) when the initial fee is less than \$100,000, but where the total A&E contract change order cost (including all options) will exceed \$100,000.

07 DEC 1987

W
1987-12-07

In submitting your proposal, milestones must be established for the preliminary (35%), prefinal and final (100%) submittals. Tentative milestones are outlined in enclosure (1). Your proposal should indicate concurrence with those milestones or propose those you consider more reasonable.

You will be expected to participate in a 35% review conference to be held at the Activity after which the prefinal submittal should be made in accordance with the established schedule.

For further information, please contact Ms. S. M. Gale, P. E., Atlantic Division, Naval Facilities Engineering Command, Norfolk, Virginia, telephone 804-444-9670.

This letter is not intended as a commitment by the Government, and any expense incurred in preparation of the fee proposal is your responsibility. A change order award will await successful completion of fee negotiations.

All information contained in this letter is for "Official Use Only" and must not be divulged to persons other than those having a definite "Need to Know" without prior approval in writing from this Command.

Sincerely,

D. R. RIDDLE, P.E.
Head, Section C, Stateside Branch
Acquisition Project Management Office
By direction of the Commander

Encl:

- (1) Appendix A dtd 7 December 1987
- (2) A&E Fee Proposal Submittal
- (3) SF Form 1411, Contracting Pricing Proposal Cover Sheet (5 copies)
- (4) Certificate of Current Cost or Pricing Data (5 copies)

Blind copy to:

MCB Camp Lejeune (PWO) (w/encl (1) only)

O. R. RIDGLE, P.E.
Head, Section C, Fair Side Branch
Agricultural Project Management Office
By direction of the Governor

1. A&E Contract No.: N62470-86-C-9261
 Construction Contract No.: N62470-__-__-__

Project Title/Location: FY 90 MCON Project P-679, Electronics Communications Maintenance Shop, Marine Corps Base, Camp Lejeune, North Carolina

Attachments:

- (a) DD Form 1391 dated 15 October 1987
- (b) Utility Site Plan, Building #1 (19,912 SF)
- (c) Proposed Floor Plan, Building #1 (19,912 SF)
- (d) Utility Site Plan, Building #2 (6,100 SF)
- (e) Proposed Floor Plan, Building #2, (6,100 SF)
- (f) Collateral Equipment List dated 1 May 1987
- (g) Enlarged Floor Plan, Building #1 (sep cover)
- (h) Enlarged Floor Plan, Building #2 (sep cover)

2. Project Budget: \$4,100,000 Construction Cost: \$3,678,000

In accordance with design contract terms, you are responsible to ensure that estimated construction costs remain within programmed funds. Approval from the Project Manager (PM) is required to continue design in excess of programmed funds. You are responsible to design to scope. Approval from the PM is required to continue design in excess of the authorized scope.

3. LANTNAVFACENCOM PM/Telephone:

Ms. S. M. (Susan) Gale, P. E., Code 09A2131/804-444-9670

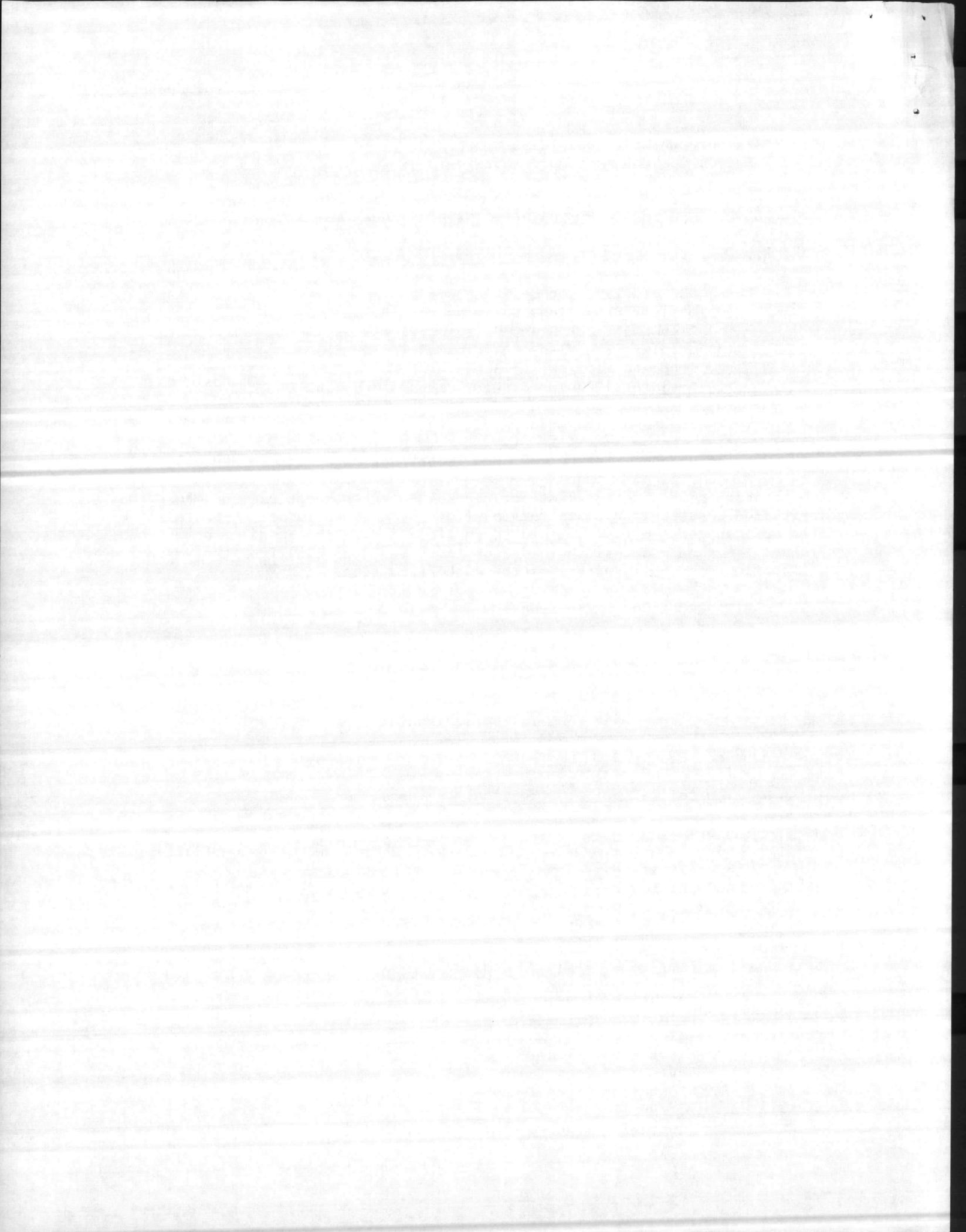
4. Activity Point of Contact/Telephone:

Mr. Larry Brant, Public Works Planning Branch/919-451-1833

5. Services Required:

- a. The following listed services are required:

| | |
|--------------------------------|---------------------------------------|
| PED | Travel and Subsistence |
| Plans | Shop Drawing Review (Option) |
| Specifications | As-Built Drawing Preparation (Option) |
| Cost Estimate | Construction Surveillance (Option) |
| Engineering Services: | Erosion Control Plan |
| Soil Borings (___LF) | |
| Survey/Plotting | |
| Field Investigation | |
| Asbestos Testing (___tests) | |
| Computer Energy Analysis | |
| Printing/Duplication | |
| Value Engineering Study | |
| Representation | |
| Review Meetings: | |
| Onboard 35% review/VE | |
| Resolution | |
| Activity Signature of Tracings | |



b. Project Engineering Documentation (PED): The PED requirements for the FY 90 MCON Program will require the following data by 3 November 1988:

- Exterior Site Plan
- Floor Plan and Elevations
- Final DD Form 1391
- Budget Estimate Summary Sheet
- Project Special Considerations

c. Energy Conservation: A computer energy analysis is required for buildings larger than 8,000 square feet (heating and cooling or cooling only) and buildings larger than 20,000 square feet (heating only). A computer energy analysis will not be required for Building #2 (6,100SF) Refer to the A&E Guide. LANTNAVFACENGCOM has a separate contract to generate the analysis. Instructions for its use may be obtained from the Project Manager (PM).

d. Bench mark datum shall be obtained from the Activity.

e. Value Engineering (VE): VE of project will be conducted through a separate contract. Your involvement in the VE Study is described in the A&E Guide. Data required for distribution directly to the VE Team is specifically outlined and this effort will be reimbursed under the heading of Engineering Services.

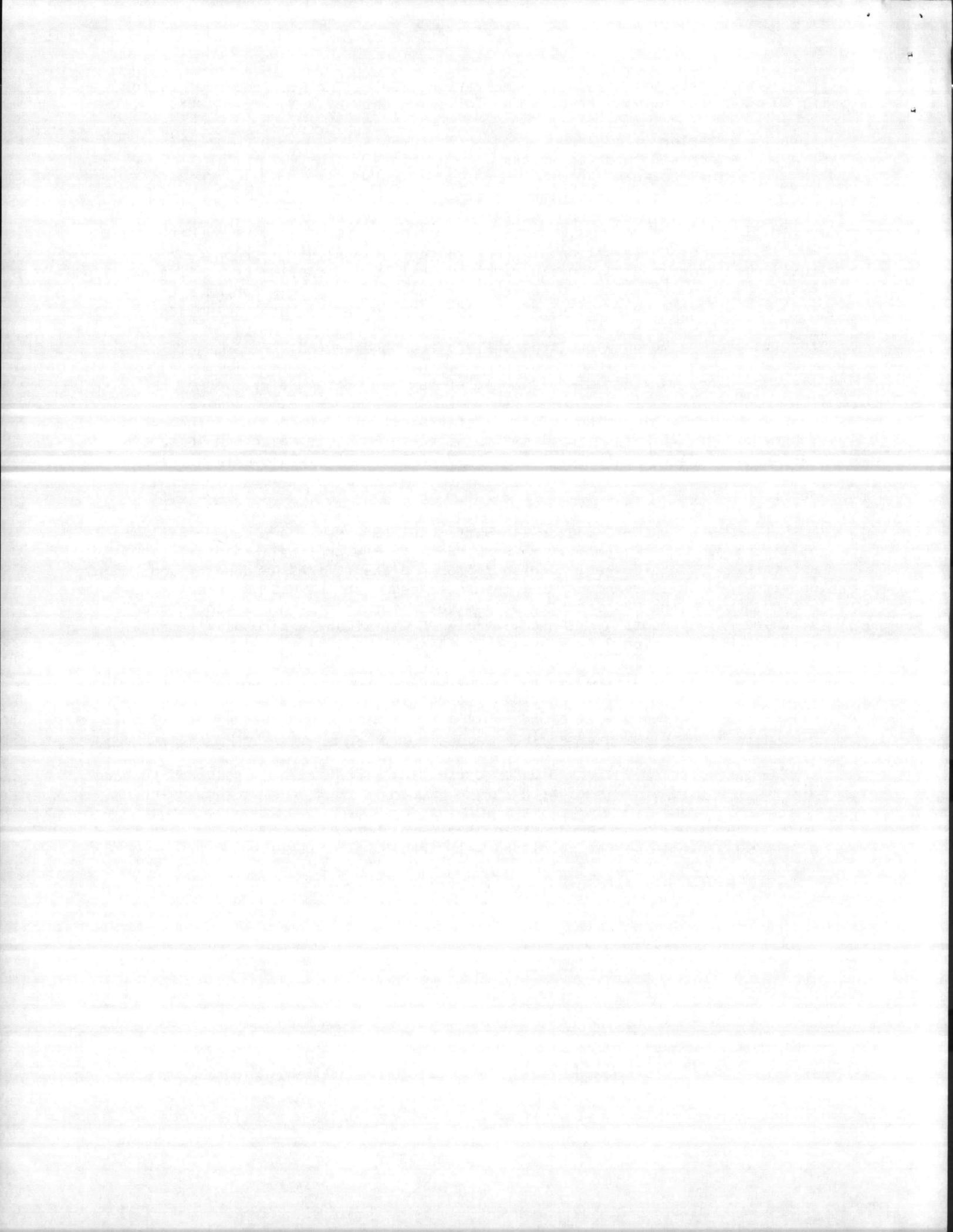
f. NAVFACENGCOM Computer Estimating System (CES): A computer estimate utilizing our CES system will be required with the prefinal and final (100%) submittals. The A&E shall furnish 7 floppy disks (5 1/4" D, doublesided, double density) and the Government will return loaded with the CES. A users manual and a hard copy of the CES database will also be furnished. Minimum hardware/software requirements are IBM compatible PC w/5 megabyte hard disk storage, printer, DOS (version 2.0 or greater), DBase 3.

A 1 day training class is conducted by Code 407 at LANTNAVFACENGCOM every 2 to 3 months. This provides instruction on preparation of load sheets and use of the microcomputer for CES estimates. Reservations may be made by calling Ms. Patty Brown at 804-444-9991.

The person responsible for estimating preparation is required to have attended the 1 day seminar at LANTNAVFACENGCOM for CES on a microcomputer.

A manually prepared cost estimate in the systems format or computer generated estimate may be submitted with the 35% submittal.

Review the A&E Guide, Section 7.2.3.



6. Fees and Options: (To be filled in at conclusion of negotiations on A&E contracts)

| | <u>AWARD</u> 0-35% | <u>35-100%/</u> <u>OPTION</u> | <u>OTHER</u> <u>OPTIONS</u> |
|--------------------------------------|-----------------------|----------------------------------|--------------------------------|
| Direct Design | _____ | _____ | _____ |
| Engineering Services | _____ | _____ | _____ |
| Travel and Subsistence | _____ | _____ | _____ |
| Shop Drawing Review | _____ | _____ | _____ |
| As-Built Drawing Preparation | _____ | _____ | _____ |
| Construction Surveillance | | | Unpriced |
| Unit Cost Additional Soil Borings | | | _____ (Profit Incl) |
| Unit Cost Additional Asbestos Survey | | | _____ (Profit Incl) |
| BASIC CHANGE ORDER AMOUNT: | _____ | | |
| TOTAL CHANGE ORDER VALUE: | _____ | _____ | _____ |

7. Proposed Design Milestones:

The designer of record shall begin work upon receipt of contract document and pursue the work diligently in accordance with the date schedule established therein. Your assessment of the schedule shall be provided monthly to the PM.

| | <u>CONTRACTOR</u> <u>SUBMITTAL DATES</u> | <u>A&E DESIGN</u> | <u>GOVT REV</u> | <u>CUMULATIVE</u> |
|------------------------------|---|-----------------------|-----------------|-------------------|
| A&E Award: | 0 | 0 | - | |
| 35%: | * | _____ | () | _____ |
| Prefinal: | ** | _____ | () | _____ |
| Final (100%): | ** | _____ | () | _____ |
| Advertise: | | | | _____ |
| Award Construction Contract: | | | | _____ |

*Specific date will be determined at time of negotiations
 **Specific dates will be established when 35-100% option is exercised.

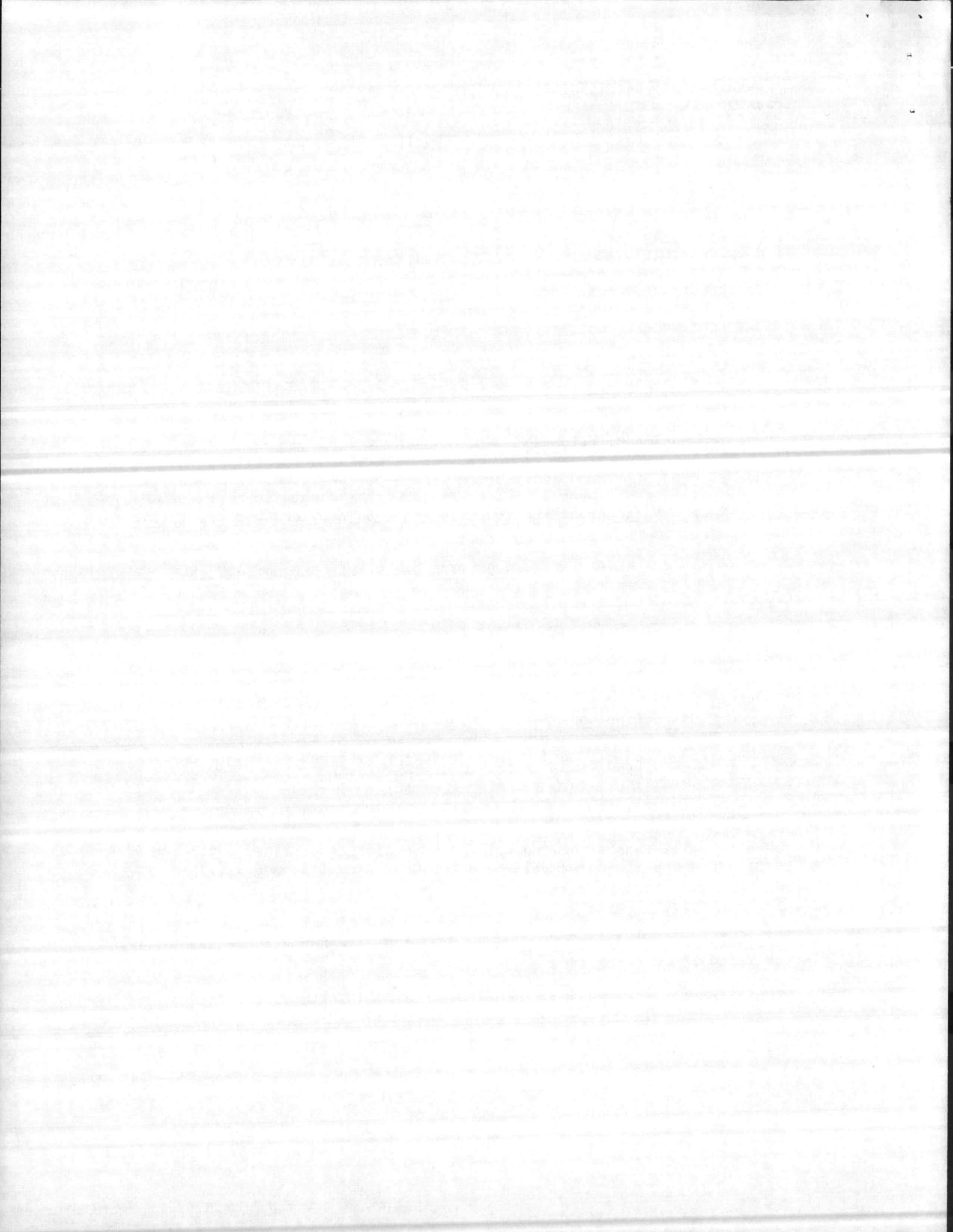
8. Scope Description:

Project will consist of two buildings on different sites. Building #1 will be 19,912 SF and Building #2 will be 6,100 SF. See attachments (a) through (h).

9. Site Approval Status:

Building #1: (19,912 SF) - Commander of Marine Corps (CMC) stamp approval letter dated 24 February 1986

Building #2: (6,100 SF) - CMC stamp approval letter dated 24 February 1986



10. Project Environmental Assessment (PEA): PEA made and approved for both buildings on 6 August 1981.

11. Intergovernmental Coordination Required by Designer with State or Federal Agencies Outside DOD: None

12. Tentative Floor Plan Concept:

a. Building #1 (19,912 SF) - See attachment (c).

Parking Requirements:

(1) 30 Operational Vehicles (HMMWV's)

(2) 10 Vans (10' X 20')

(3) 84 P.O.V. (i.e., 38% of largest shift (220) per DOD. 4270.1M)

b. Building #2 (6,100 SF) - See attachment (e).

Parking Requirements:

(1) 20 Operational Vehicles (HMMWV'S)

(2) 32 P.O.V. (i.e., 38% of largest shift (83) per DOD 4270.1M)

13. Special Building Systems: Attachments (g) and (h) give room by room special building systems requirements.

a. Building #1 (19,912 SF):

(1) Power Distribution System: 110 VAC, 60 Hz, throughout building

(2) R.F. Shielding: Shielding required in Radio Test Shop

(3) Compressed Air: Compressed air (90 p.s.i. with dryer) required in Technical Shops

(4) Cranes and Hoists: 5-ton Bridge Crane in Drive-in Vehicle Shop

(5) Telephone/Telecommunication Systems: Conduit with pull-wire and backboard with 110 VAC. Direct bury 50-pair cable from intersection of Main Service Road and Gonzalez Boulevard to project (approximately 2800').

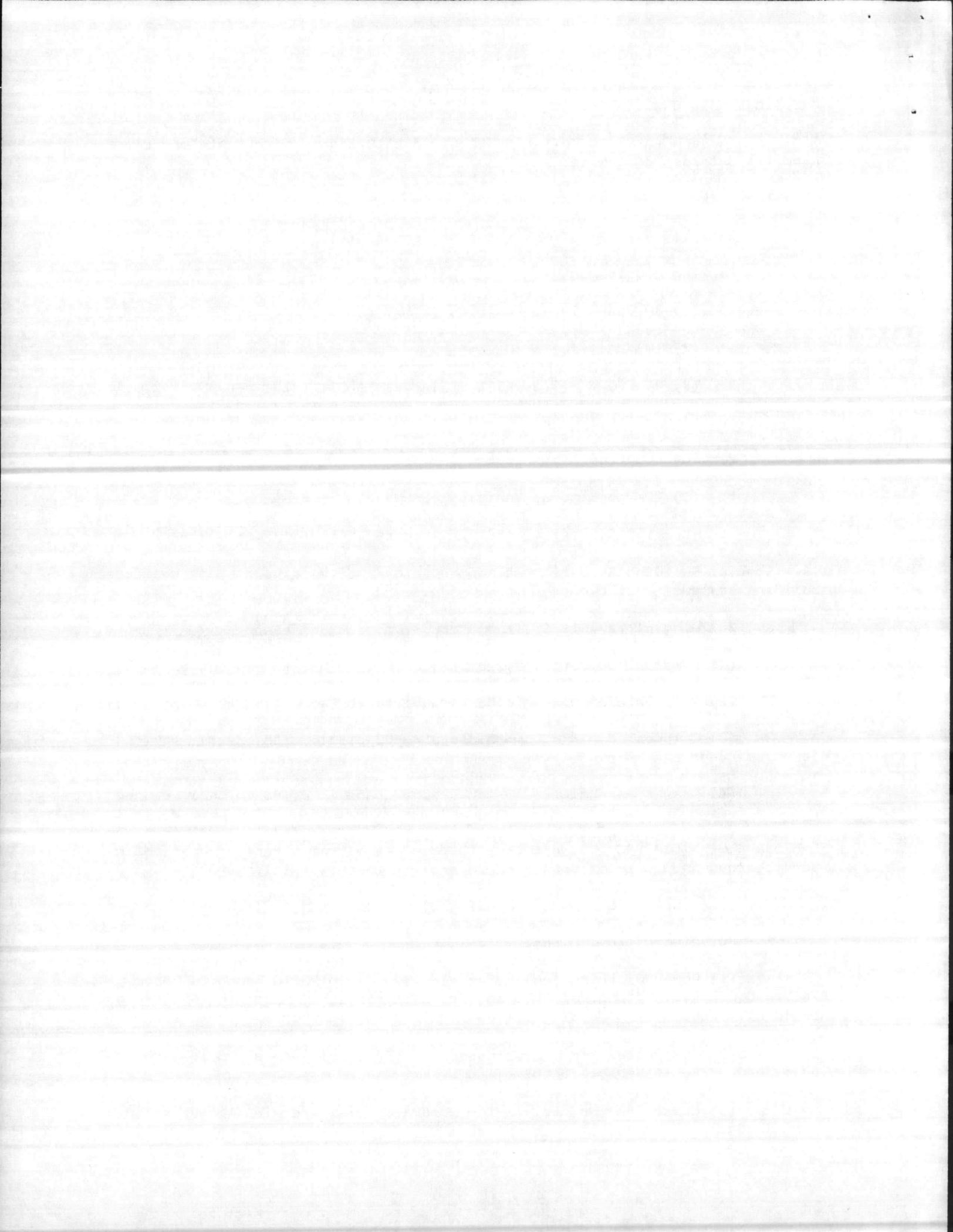
(6) Other: Equipment grounding system required in Technical Shops

b. Building #2 (6,100 SF):

(1) Power Distribution System(s): 400 Hz in Radio Technical Shop, 28 V.D.C. in Radio Technical Shop and Drive-in Vehicle Shops, 110 VAC throughout building. Equipment grounding system required in all shops.

(2) Compressed Air: Compressed air (90 p.s.i.) required in Technical Shops and Drive-in Vehicle Shops.

(3) Cranes and Hoists: 5-ton Monorail hoists required in Drive-in Vehicle Shops (3 total).



(4) Telephone/Telecommunication Systems: Conduit with pull-wire and backboard with 110 VAC. Provide 75-pair underground cable from existing Riser Point to end of proposed road and 25-pair cable into proposed building.

(5) Other: Equipment grounding system required in Technical Shops

14. System Safety and Hazard Analysis:

a. Building # 1 (19,912 SF):

(1) Hazards requiring consideration in design: Vehicles will be run in building.

(2) Personnel safety measures required as part of facility design:

(a) Emergency eyewash in Sonic Clean Area

(b) Handicap facilities are required - civilians will be working in the building.

b. Building #2 (6,100 SF)

(1) Hazards requiring consideration in design: Vehicles will be run in building.

(2) Personnel safety measures required as part of facility design:

(1) Emergency shower and eyewash in Battery Shops

(2) Handicap facilities are not required - no civilians will be working in the building.

15. Demolition Proposed: None

16. Easements, Air and Water Discharge Permits Required: A&E will be required to submit an erosion control plan to the State of North Carolina for both building sites at the time of the prefinal design.

17. Special Building System Security Requirements: Building # 1 (19,912 SF) - FLSCF and Crypto Areas require special security walls, ceilings, and vault door (security Class 5). An Intrusion Detection System (IDS) will also be required for these areas. A&E to provide conduit for IDS.

18. Significant Equipment from Other than MCON Appropriations: See attachment (f), Collateral Equipment List

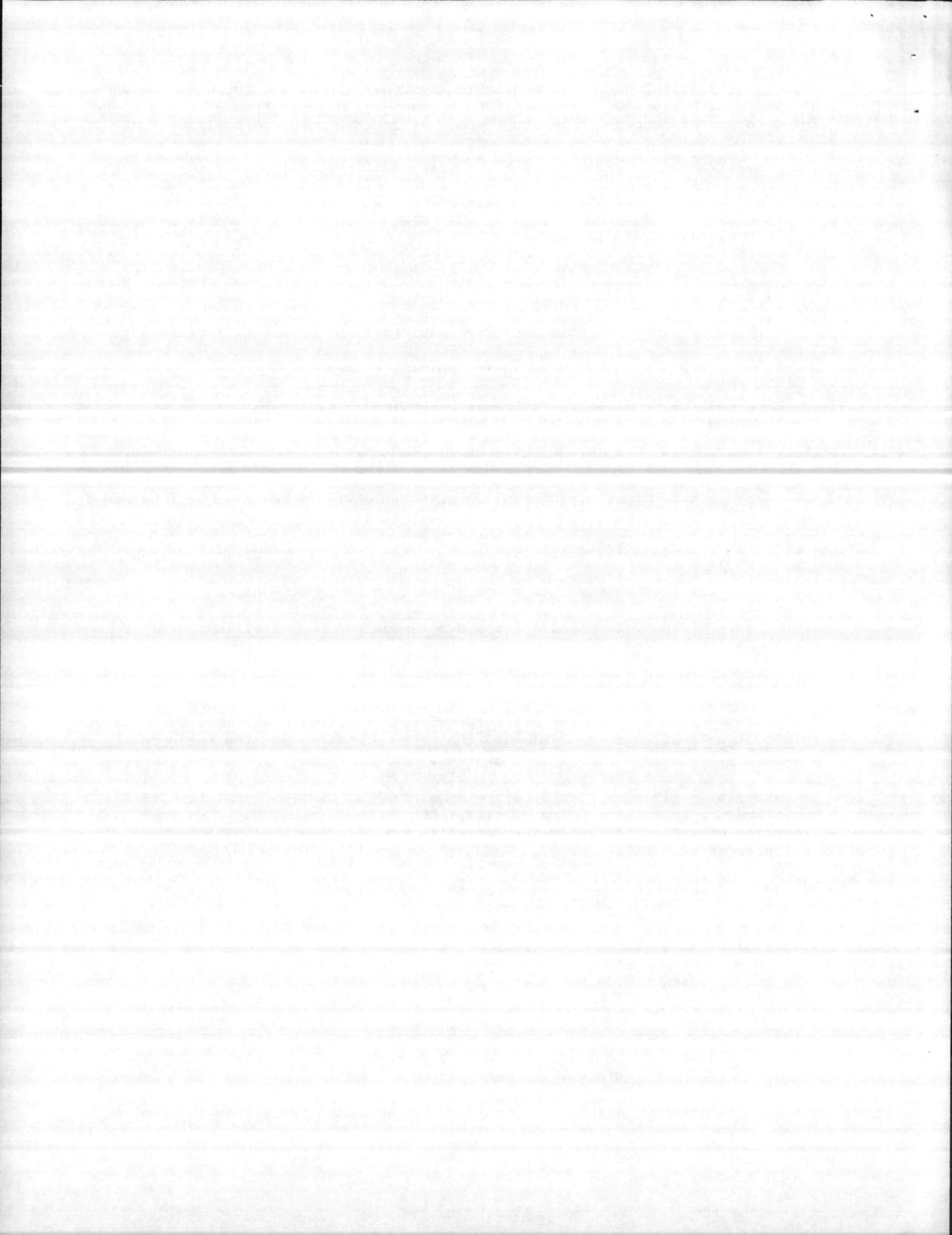
19. Utilities:

a. Building #1 (19,912 SF):

Points of Connection Proposed: (Subject to designer verification)

(1) Water: Existing 12" main near on Sneads Ferry Road in front of project

(2) Sewer: Existing sanitary M. H. on Sneads Ferry Road in front of Building FC-50



- (3) Power: Existing power pole S-84 across Sneads Ferry Road from project
- (4) Steam: Existing M. H. at southeast corner of intersection of Main Service Road and Gonzalez Boulevard
- (5) Telephone: Existing Riser Point at southwest corner of intersection of Main Service Road and Gonzalez Boulevard
- (6) Fire Alarm: Radio Transmitted

Also, see attachment (b).

b. Building #2 (6,100 SF):

Points of Connection Proposed: (Subject to designer verification)

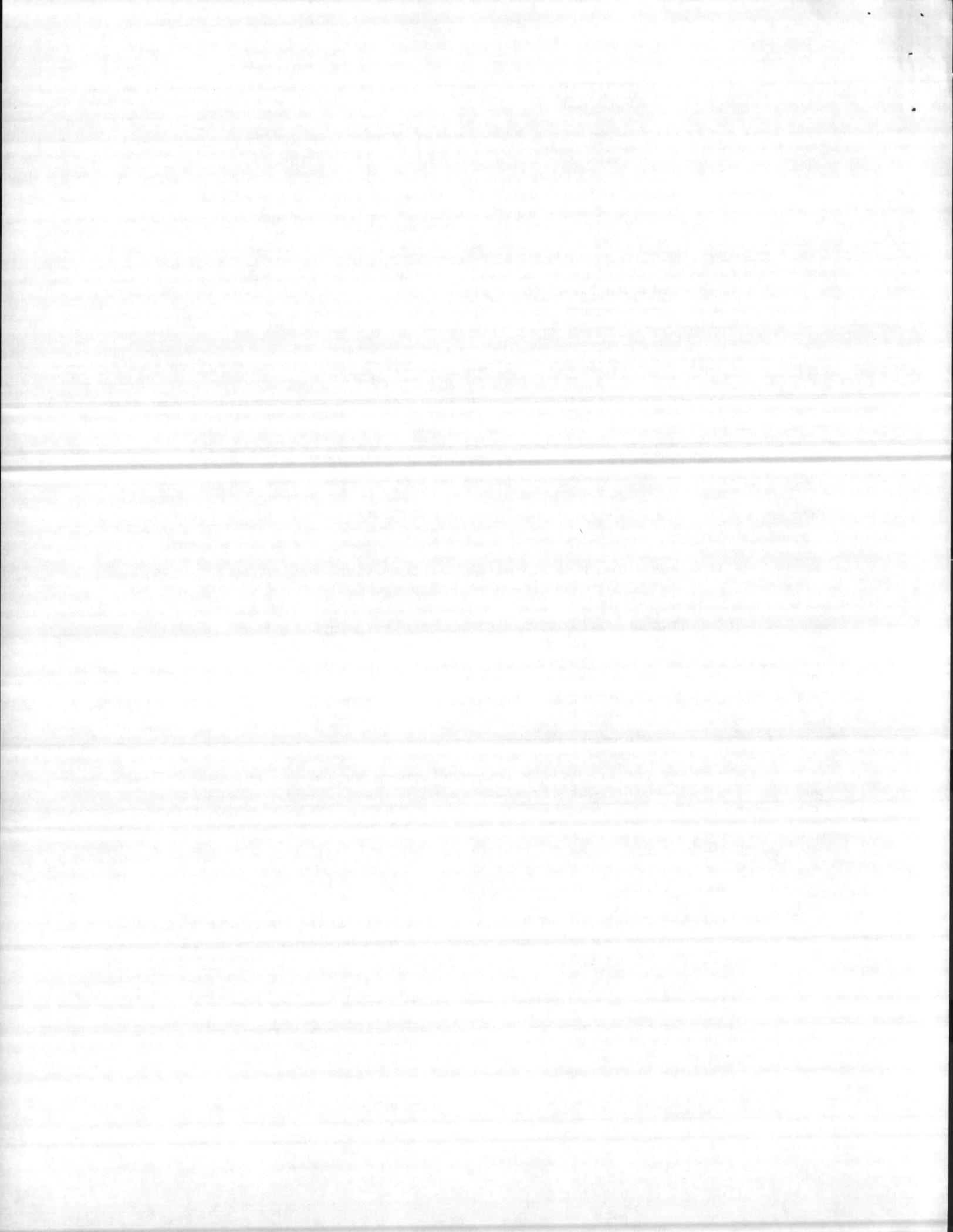
- (1) Water: Existing 12" main near intersection of Main Service Road and proposed road
- (2) Sewer: Existing pump station on Main Service Road near Building FC115
- (3) Power: Existing power pole near intersection of Main Service Road and proposed road
- (4) Steam: New M.H. in existing steam line near intersection of Main Service Road and proposed road
- (5) Telephone: Existing telephone riser point in front of Building FC115 (approximately 220 feet from intersection of Main Service Road and proposed road)
- (6) Fire Alarm: Radio Transmitted

Also, See attachment (d).

c. Restrictions on Utility Interruptions: No unusual restrictions are anticipated. Coordinate utility outages with the Officer in Charge of Construction.

20. Construction Procurement Strategy:

- a. Number of Construction Contracts: One (1)
- b. Proposed Construction Period: 17 months total. Designer should allow for an earlier BOD of Building #2 (6,100 SF) than Building #1 (19,912 SF). Coordinate construction schedule with Activity.
- c. Applicability of Standard Liquidated Damages: No deviation to standard
- d. Method of Procurement Proposed: Competitive Bid (Firm-Fixed-Price)
- e. Security Requirements of A&E Contract: None



f. Security Requirements of Construction Contracts: None

g. Contractor Laydown Area: No restrictions, A&E should verify.

21. Project Submittal Distribution:

| | LANTNAVFACENCOM | ACTIVITY | ROICC | TMD |
|-----|-----------------|----------|-------|-----|
| PED | 2 | | | |

Preliminary (35%)

| | | | | |
|-----------------------|-----------------|---|--|---|
| Plans | 3 | 3 | | 1 |
| Outline Specification | 2 | | | 1 |
| Cost Estimate | 2 | 1 | | |
| Basis of Design | 3 | 3 | | 1 |
| Geotechnical Data | 2 | | | |
| VE Package | TO VE TEAM ONLY | | | |

Prefinal

| | | | | |
|--------------------------------|---|---|---|---|
| Plans, Specifications | 4 | 3 | 1 | 1 |
| Cost Estimate | 2 | 1 | | |
| Interior Color/Finish Material | 1 | | | |
| Calculations, Environmental | | | | |
| Permits | 2 | | | |
| All Marked Preliminary | | | | |
| Submittal Data | X | | | |

Final

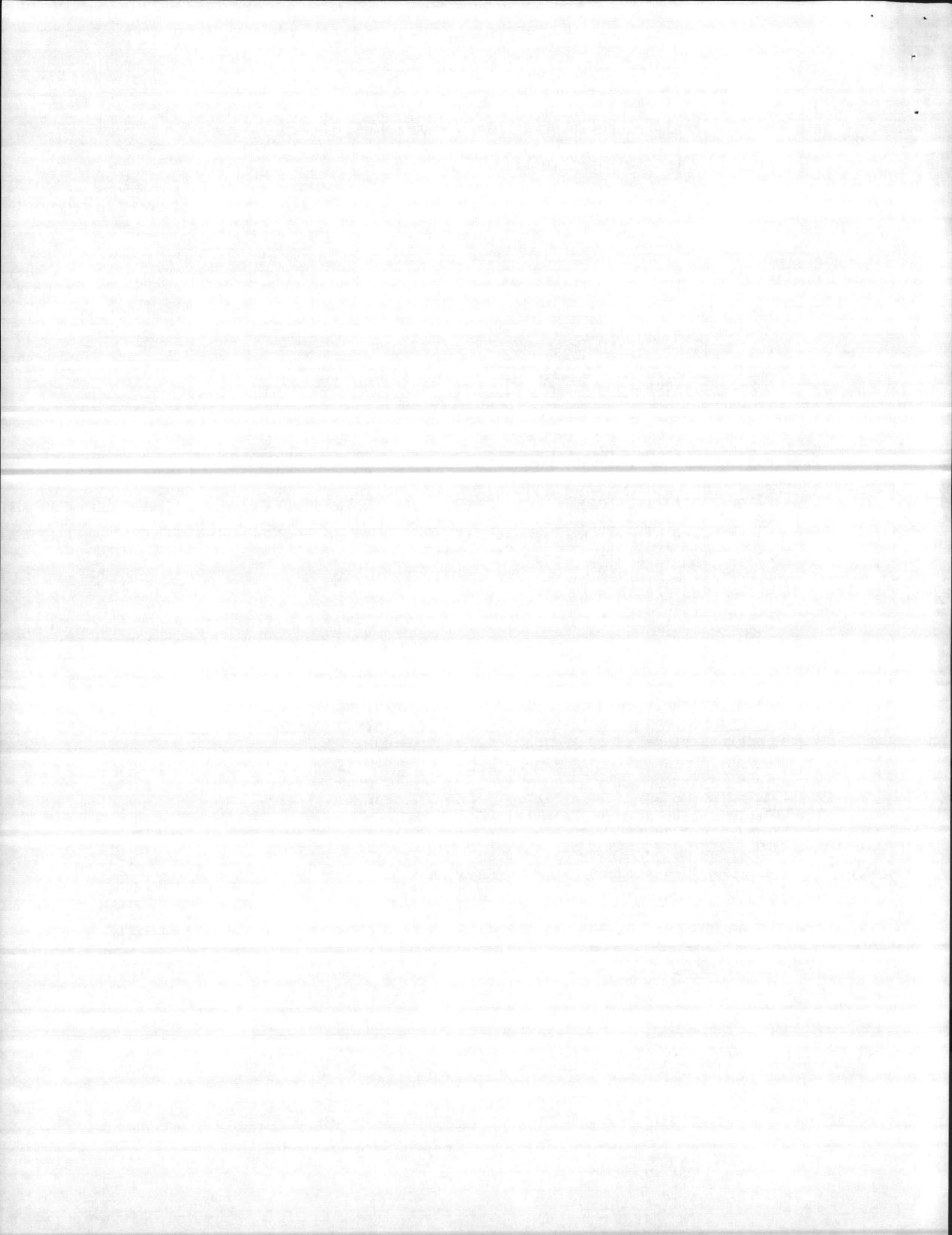
| | |
|--------------------------------------|-------------|
| Plans - Tracings | Original |
| Prints | 2 sets |
| Specifications | Bond |
| | 2 copies |
| Cost Estimate | 2 copies |
| Calculations | 1 copy |
| Field Notes, Reports, Studies, | |
| Permits | 1 copy each |
| Interior Color/Finish Materials | 1 set |
| All DMs furnished by LANTNAVFACENCOM | |

MAILING ADDRESSES: DIRECT DISTRIBUTION TO EACH ADDRESSEE BY A&E IS REQUIRED

LANTNAVFACENCOM

Commander
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

Attn: Code O9A2131, Ms. S. M. Gale, P. E.



ACTIVITY (MCB CAMP LEJEUNE)

Commanding General
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

Attn: Public Works Office

ROICC

Resident Officer in Charge of Construction
Jacksonville, North Carolina Area
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

Attn: Mr. John Cotton

TMD

Telecommunications Management Detachment East
138 East Little Creek Road, Suite 222
Norfolk, Virginia 23505-2551

22. Submittal of Invoices:

a. When to Invoice:

TO SIMPLIFY INVOICE PROCEDURES, WE PREFER THAT YOU INVOICE UPON COMPLETION OF REGULARLY SCHEDULED SUBMITTALS (35%, PREFINAL (90%), 100%).

b. How to Invoice:

Requests for payment consist of two parts, A and B, which should be forwarded as follows:

Part A (Invoice): (Refer to A&E Guide)

All invoices must contain the following:

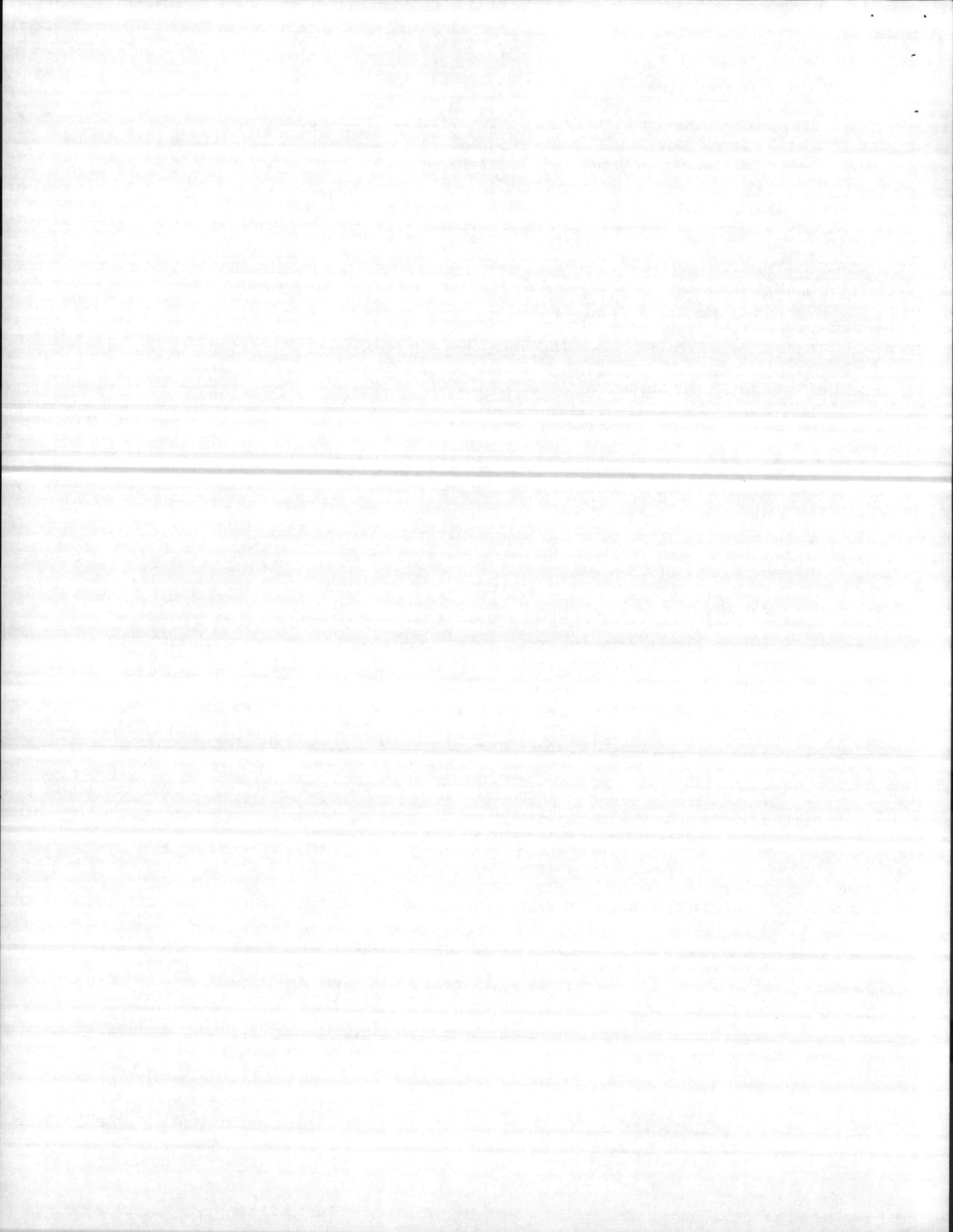
(1) Invoice (with original signature)

(2) Contract Performance Statement (1 copy)

(3) Affidavit (with original signature)

(a) Notary signature required for Virginia firms.

(b) Notary signature and notary stamp or raised seal required for firms located out of the State of Virginia



Submit all invoices to:

Commander (Code 09A24)
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

Part B (Supporting Documents): (Submit 10 days prior to Part A)

Supporting documents must contain the following:

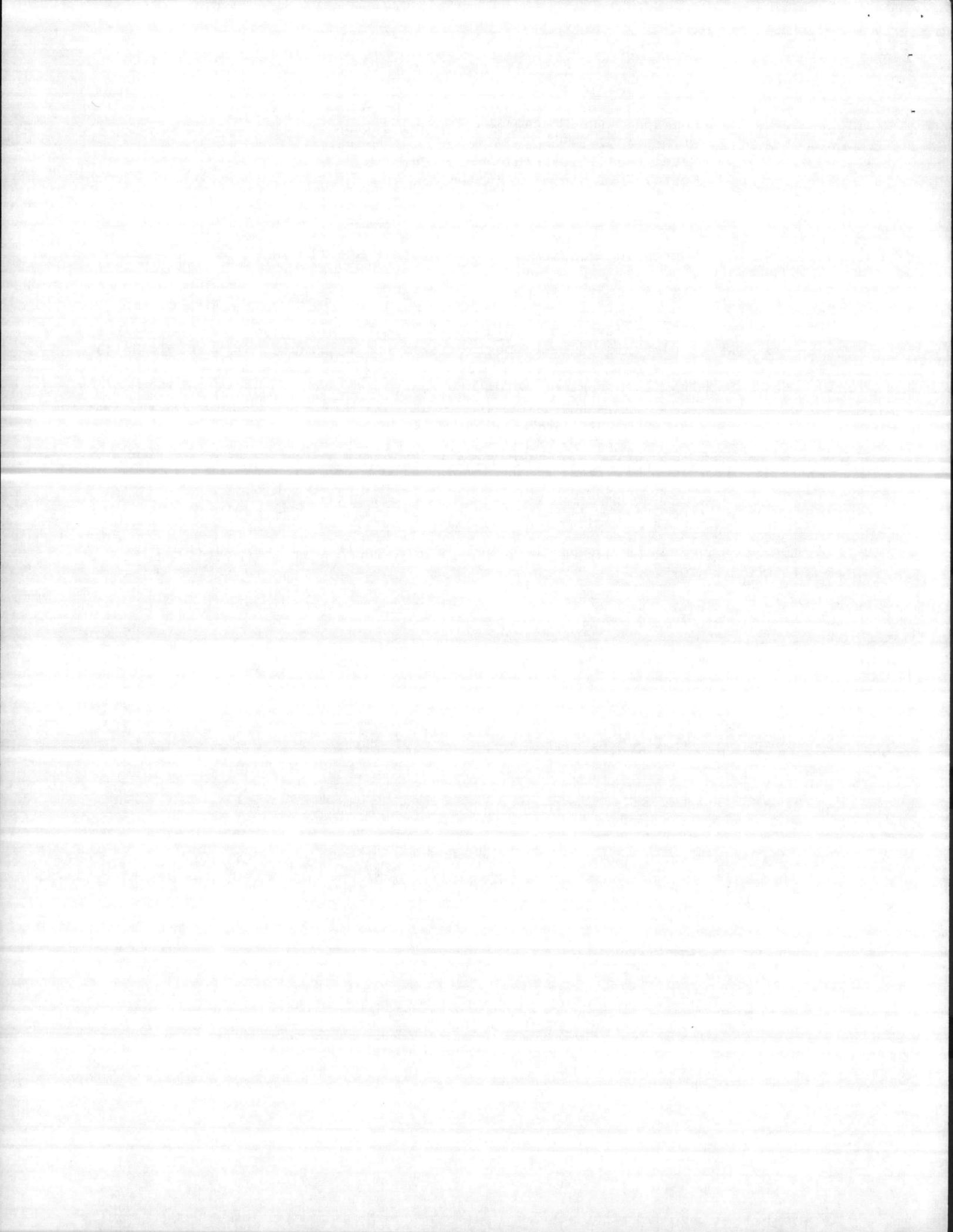
- (1) Contract Performance Statement (2 copies)
- (2) Progress submittals - evidence supporting your work completed (i.e., copy of plans, studies, reports, field notes, minutes of meetings held).

Submit all supporting documents to:

Commander (Code *)
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

*Call Project Manager for Designated Code.

c. REQUESTS FOR PAYMENT RECEIVED WITHOUT SUPPORTING DOCUMENTS WILL BE RETURNED UNPAID.



15 Oct 87

| | | | | | |
|---|--|--|--|---------------------------------------|--|
| 1. COMPONENT NAVY | | FY 19 ⁹⁰ MILITARY CONSTRUCTION PROJECT DATA | | 2. DATE MAY 01 1987 | |
| 3. INSTALLATION AND LOCATION MARINE CORPS BASE CAMP LEJEUNE, NC 28542 | | | 4. PROJECT TITLE ELECTRONICS/COMMUNICATIONS MAINTENANCE SHOP | | |
| 5. PROGRAM ELEMENT | | 6. CATEGORY CODE 217-30 | 7. PROJECT NUMBER P-679 | 8. PROJECT COST (\$000) 4,100 ✓ OK | |

Cost of

RE-1

7/30/87

| 9. COST ESTIMATES | | | | | |
|--|--------------------------------|-----|----------|-----------|--------------|
| ITEM | COST ESCALATED TO 1 APRIL 1990 | U/M | QUANTITY | UNIT COST | COST (\$000) |
| ELEC/COMM MAINTENANCE SHOP | | SF | 26,012 | 91.27 | 2,384 |
| Elec/Comm Fld Maint Shop #1 | | SF | 19,912 | 88.57 | (1,462) |
| Built-In Equipment #1 | | LS | - | 75.63 | 199 |
| Elec/Comm Fld Maint Shop #2 | | SF | 6,100 | 81.97 | (500) |
| Built-In Equipment | | LS | - | 84.43 | (92) |
| Operation & Maintenance Support Information | | LS | - | - | (51) |
| SUPPORTING FACILITIES | | LS | - | - | 1,267 |
| Electrical Utilities | | LS | - | - | (286) |
| Mechanical Utilities | | LS | - | - | (646) |
| Paving and Sidewalks | | SY | 12,987 | 19.10 | (241) |
| Site Improvements | | LS | - | - | (174) |
| SUBTOTAL | | | | | 3,571 |
| Contingency 5% | | | | | 179 |
| TOTAL CONTRACT COST | | | | | 3,750 |
| SIOH 5.5% | | | | | 206 |
| TOTAL REQUEST | | | | | 3,956 |
| TOTAL REQUEST ROUNDED | | | | | 3,950 |
| EQUIPMENT PROVIDED FROM OTHER APPROPRIATIONS (NON ADD) | | | | | 0 |
| (\$3,950 @ 4% escalation = \$4,100) | | | | | |

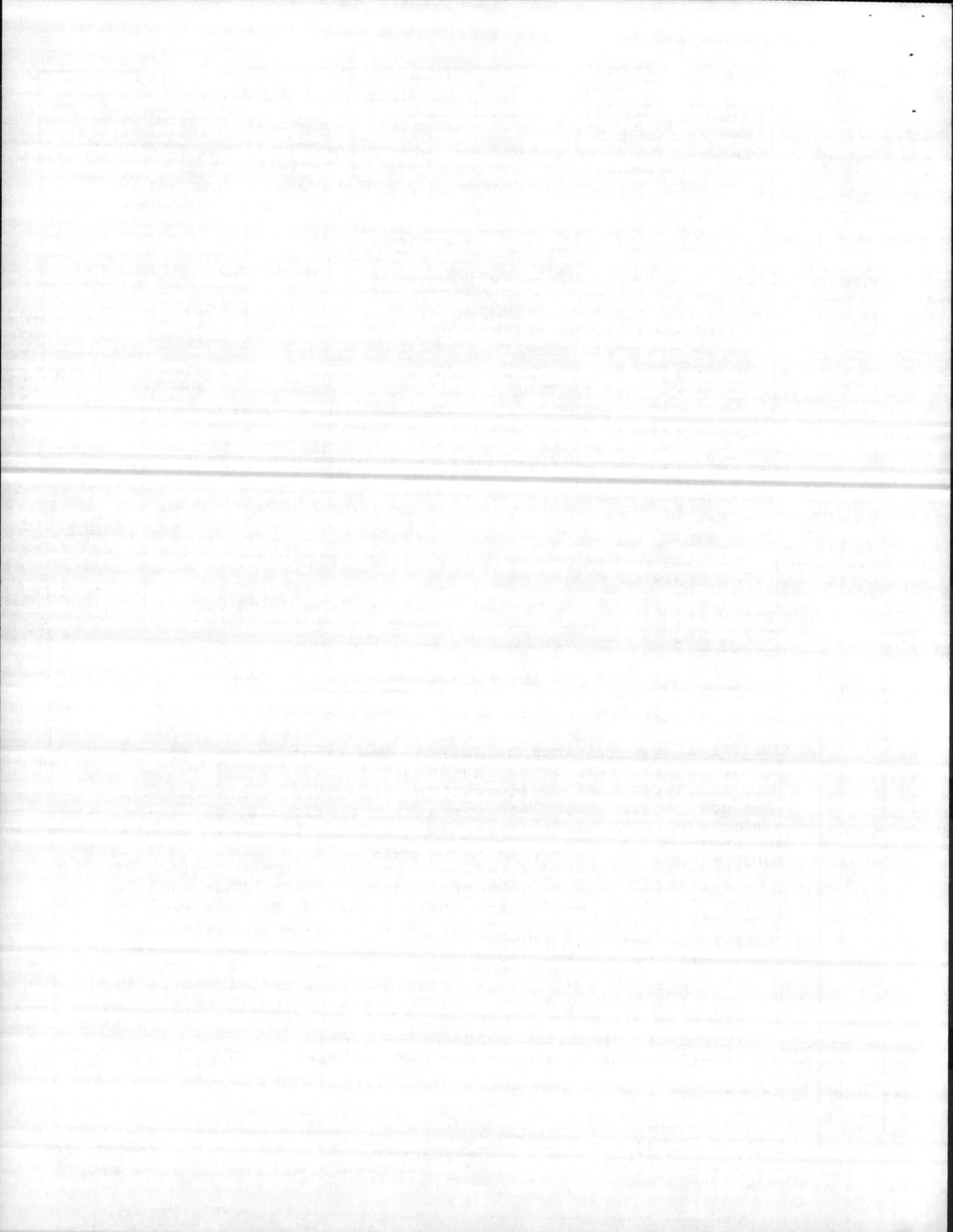
10. Description of Proposed Construction:

Construct two (2) shop buildings, one single-story, the other partial two-story. Buildings shall be steel frame structure and shallow foundation. Function of buildings to include repair shops, storage areas, classrooms, men's and women's toilets, and office/admin areas. Two 5-ton monorail hoists and a 5-ton bridge crane hoist are included. Office/admin areas, classrooms, Tech shops, and Lithium Battery Storage Areas will be air-conditioned. Other areas will be heated and ventilated only. Engine exhaust systems will be provided in all vehicle shops. The entire building will have fire alarm and sprinkler systems. 400 HZ and 28 VDC power will be provided in certain Tech Shops. 60 cycle power and grounding will be provided at exterior van parking. Equipment grounding system and Compressed air system will be provided in all shops. Supporting facilities will include site improvements, security lighting and fencing, utility connections, bituminous paved parking and concrete paved wash aprons.

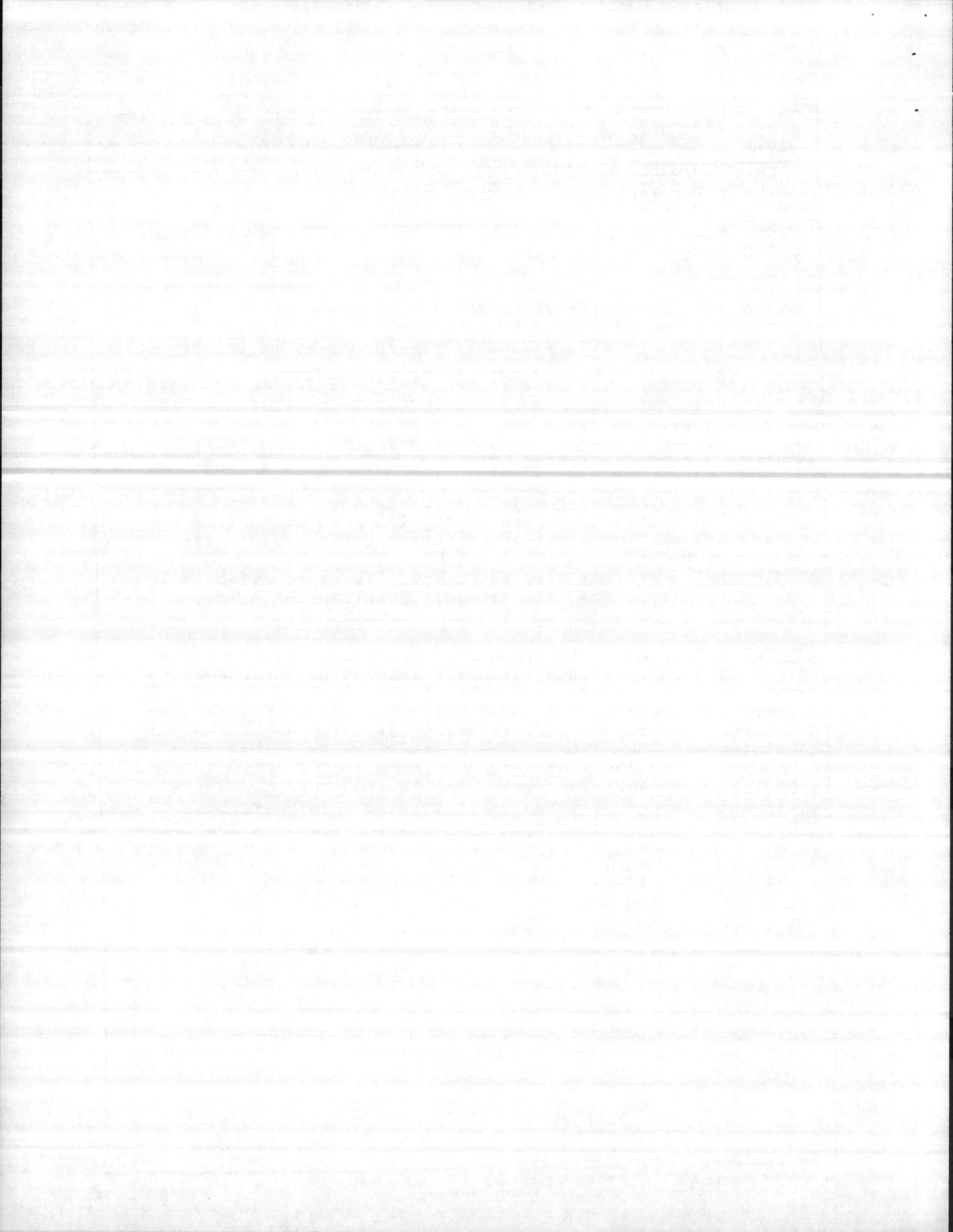
Air Conditioning: 40 Tons

CERTIFIED READY FOR DESIGN
 NOT READY FOR CMC PROJECT
 Wm. H. RUSSELL, P. E. CODE 09A2 DATE 10-15-87
 T. C. HORSCH, P. E. CODE 20 DATE

Attachment (a)



| | | |
|--|--|------------------------|
| 1. COMPONENT NAVY | FY 19 <u>90</u> MILITARY CONSTRUCTION PROJECT DATA | 2. DATE MAY 01 1967 |
| 3. INSTALLATION AND LOCATION MARINE CORPS BASE, CAMP LEJEUNE, NC 28542 | | |
| 4. PROJECT TITLE ELEC/COMM MAINTNEANCE SHOP | 5. PROJECT NUMBER P-679 | |
| <p>11. <u>REQUIREMENT:</u> (217-10) 52,285 SF Adequate: 11,370 SF Substandard: 0 SF (217-30) 26,312 SF Adequate: 13,662 SF* Substandard: 0 SF</p> <p>*Building FC-100 will be utilized until completion of P-564, then convert back to Category Code 214-51. Building FC-100 currently utilized 8,712 SF.</p> <p><u>PROJECT:</u> Construct two (2) Electronics/Communications Shops - one facility for the Landing Support Bn, 2dFSSG for 1st and 2nd echelon maintenance and one facility for the 2d Maintenance Battalion of the 2nd FSSG to perform 3rd and 4th echelon electronics/communication maintenance.</p> <p><u>REQUIREMENT:</u> Provide maintenance facilities to effectively execute the prescribed electronic/communications maintenance programs.</p> <p><u>CURRENT SITUATION:</u> Maintenance programs are being performed in substandard buildings which are inadequate for use in the maintenance of the modern, sophisticated electronics/communications equipment in use today. The buildings presently in use cannot be economically rehabilitated to meet these requirements.</p> <p><u>IMPACT IF NOT PROVIDED:</u> The deadline time for electronic equipment and combat vehicles will be adversely affected, and the maintenance capability and combat readiness will continue to be impaired.</p> | | |



BUILDING BUDGET ESTIMATE SUMMARY SHEET FOR P- 226

Title: ELEC/OPT MAINTENANCE SHOPS

Costs Escalated to: 1 APRIL 1989

Location: MARINE CORPS BASE, CAMP LEJEUNE, NC

Escalation: 9%

Prepared by: OLSEN ASSOC. INC.

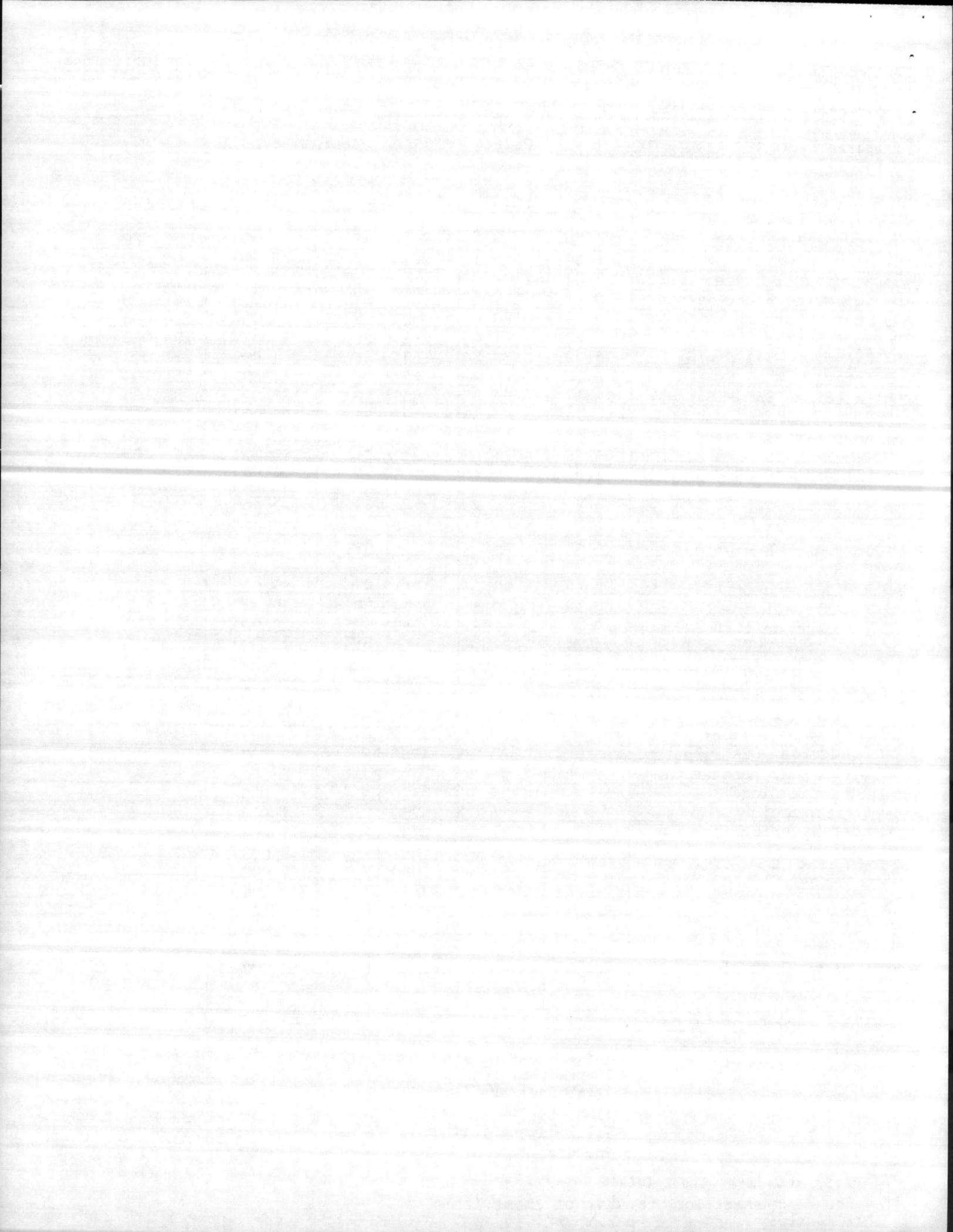
Date: 1 OCT 86

Contingency: 5%

| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-IN EQUIPME |
|---|-------|-----------|-----------|------------|------------|------------------|
| Building 28691 SF | | | 26,012 | | | |
| 01 Foundation System | 3.24 | 8.49 | 26199 SF | 85,000 | 85,000 | |
| 02 Slab on Grade | 1.64 | 5.11 | 26190 SF | 43,000 | 43,000 | |
| 03 Structural System | 3.83 | 110,000 | 1 SYS | 110,000 | 110,000 | |
| 04 Supported Floor System | 0.97 | 22,000 | 1 SYS | 22,000 | 22,000 | |
| 05 Stair System | 0.18 | 179,400 | 24 RISERS | 4,000 | 4,000 | |
| 06 Roof System | 7.40 | 14,460 | 26190 SF | 194,000 | 194,000 | |
| 07 Exterior Wall System | 15.39 | 32,840 | 16958 SF | 261,000 | 261,000 | |
| 08 Interior Wall System | 6.14 | 11,700 | 24571 SF | 151,000 | 151,000 | |
| 09 Interior Finish System | 3.07 | 8,790 | 28691 SF | 88,000 | 88,000 | |
| 10 Door & Window System | 4.74 | 78,330 | 3669 SF | 136,000 | 136,000 | |
| 11 Specialties System | 5.65 | 10,210 | 28691 SF | 162,000 | 162,000 | |
| 16 Plumbing ** | 5.54 | 6,021.68 | 04 EA | 159,000 | 159,000 | |
| 22 Cranes & Hoist | 1.81 | 1,0674.54 | 15 TN | 52,000 | | 52,000 |
| 23 Mechanical Interior ** | 13.34 | 1,4098.36 | 28691 SF | 383,000 | 306,000 | 77,000 |
| 30 Interior Fire Protect ** | 3.62 | 3,620 | 28691 SF | 42,000 | | 42,000 |
| 33 Interior Electrical ** | 8.91 | 1,155.81 | 28691 SF | 111,000 | 105,000 | 6,000 |
| 34 Intrusion Detection | 0.31 | 3,000 | 1 SYS | 3,000 | | 3,000 |
| 39 EMCS | 1.80 | 1,400 | 28 EA | 19,000 | | 19,000 |
| 40 Radio Frequency Shielding | 3.67 | 33.05 | 2512 SF | 83,000 | | 83,000 |
| 41 Telephone System | 0.48 | 0.50 | 28691 SF | 9,000 | | 9,000 |
| 42 InterCommunication System | 0.61 | 0.61 | 28691 SF | 9,000 | | 9,000 |
| 03 Shop Equipment | 1.26 | 15,000 | 1 SYS | 15,000 | | 15,000 |
| O&M Support Information | 4.77 | | | 51,000* | 51,000 | |
| Subtotal Building | 99.41 | | 26,012 SF | 2,192,000* | 1,826,000* | 291,000 |
| Note: Above building cost not adjusted for new numbers. | | 99.57 | 26,012 SF | 2,304,000 | 2,013,000 | 291,000 |
| | | | | 2,1373,000 | | |
| Supporting Facilities | | | | | | |
| 50 Electrical Distribution | | 123.00 | 1240 LF | 77,000 | | |
| 51 Electrical Substation | | 56.04 | 300 KVA | 8,000 | | |
| 52 Area Lighting | | 1,0935.88 | 20 EA | 110,000 | | |
| 54 Communications | | 5.00 | 4200 LF | 11,000 | | 206,000 |
| 58 Heat Distribution | | 301.40 | 3790 LF | 571,000 | | |
| 60 Sanitary Sewers | | 65.47 | 1562 LF | 48,000 | | |
| 62 Water Distribution | | 53.37 | 1060 LF | 27,000 | | 616,000 |
| 77 Paving | | 99.64 | 12897 SF | 217,000 | | |
| UA Wash Aprons | | | 1 IS | 24,000 | | 241,000 |
| WA Site Improvements | | | 1 IS | 149,000 | | |
| 85 Fencing | | 107.52 | 1015 LF | 19,000 | | |
| 05 Erosion Control | | | 1 IS | 6,000 | | 174,000 |
| Subtotal Supporting Facilities | | | | 1,267,000* | 1,305,000 | 1,267,000 |

Total Contract Cost w/o Contingency: \$ ~~3,459,000~~ 3,678,000
 Contingency 5% \$ 173,000 184,000
 Total Contract Cost \$ ~~3,632,000~~ 3,862,000
 SIOH 5.5% \$ ~~200,000~~ 212,000
 Total Budget Cost \$ ~~3,832,000~~ 4,074,000
 Rounded \$ ~~3,850,000~~ 4,100,000

*Asterisk indicates these totals on 1391s.
 ** - See next sheet for breakdown of these items.



BUILDING BUDGET ESTIMATE SUMMARY SHEET FOR P- 566

Title: ELEC/COIT MAINTENANCE SHOPS

Costs Escalated to: 1 APRIL 1989

Location: MARINE CORPS BASE, CAMP LEJEUNE, NC

Escalation: 9%

Prepared by: OLSEN ASSOC. INC.

Date: 1 OCT 86

Contingency: 5%

| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-IN EQUIPMENT |
|-----------------------------|-------|----------|----------|---------|----------|--------------------|
| Building | | | | | | |
| MG Plumbing | | | | | | |
| 12 Plumbing-Domestic | 2.68 | 2652.94 | 56 EA | 77,000 | 77,000 | |
| 13 Roof Drainage | 2.86 | 3368.74 | 38 FA | 82,000 | 82,000 | |
| Subtotal | 5.54 | 6021.68 | 94 EA | 159,000 | 159,000 | |
| 23 Mechanical Interior | | | | | | |
| 15 HVAC | 10.66 | 13209.54 | 40 T1 | 306,000 | 306,000 | |
| 18 Engine Exhaust | 0.24 | 10.70 | 1400 CFM | 7,000 | | 7,000 |
| 20 Compressed Air | 2.44 | 878.12 | 170 CFM | 70,000 | | 70,000 |
| Subtotal | 13.34 | 14098.36 | 28691 SF | 383,000 | 306,000 | 77,000 |
| 30 Interior Fire Protection | | | | | | |
| 26 Sprinkler System | 3.20 | 3.20 | 28691 SF | 36,000 | | 36,000 |
| 28 Fire Alarm System | 0.42 | 0.42 | 28691 SF | 6,000 | | 6,000 |
| Subtotal | 3.62 | 3.62 | 28691 SF | 42,000 | | 42,000 |
| 33 Interior Electrical | | | | | | |
| 31 Power System | 2.60 | 290.00 | 200 KW | 29,000 | 29,000 | |
| 32 Lighting System | 5.32 | 5.32 | 28691 SF | 76,000 | 76,000 | |
| 35 400 Hz | 0.33 | 56.17 | 35 KW | 2,000 | | 2,000 |
| 36 Direct Current | 0.66 | 806.30 | 5 KW | 4,000 | | 4,000 |
| Subtotal | 8.91 | 1155.87 | 28691 SF | 111,000 | 105,000 | 6,000 |
| Subtotal Building | | | | | | |

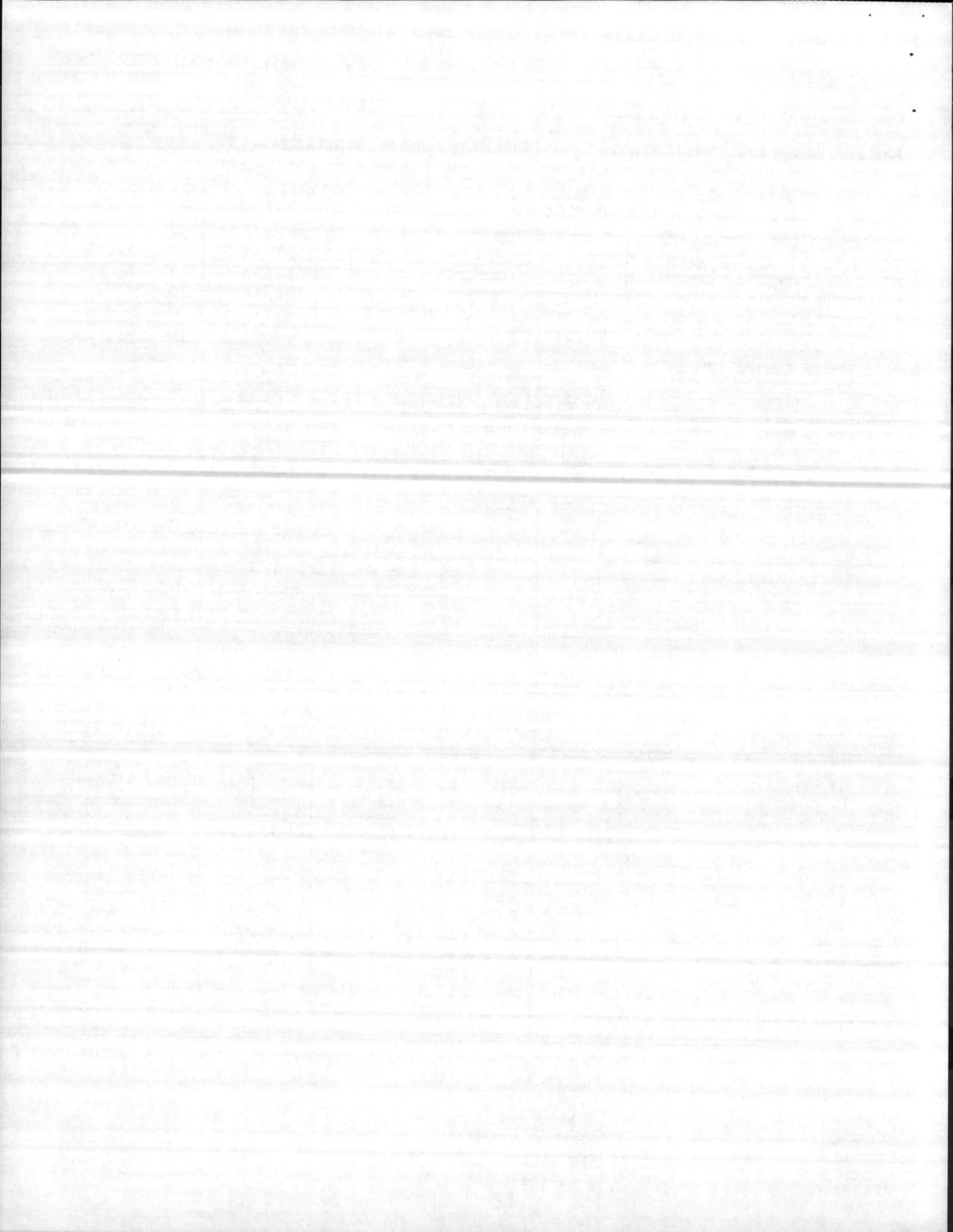
Supporting Facilities

| | | | | | | |
|---------------------|--|-------|----------|---------|--|--|
| 77 Paving | | | | | | |
| 73 Roads | | 16.54 | 1711 SY | 28,000 | | |
| 74 Parking | | 31.10 | 10767 SY | 178,000 | | |
| 75 Sidewalks | | 52.00 | 419 SY | 11,000 | | |
| Subtotal | | 99.64 | 12897 SY | 217,000 | | |
| WA Site Preparation | | | | | | |
| 78 Storm Drainage | | 80.40 | 340 LF | 15,000 | | |
| 79 Site Earthwork | | 7.22 | 21692 SY | 70,000 | | |
| 80 Berms | | 0.40 | 1880 CV | 16,000 | | |
| 81 Topsoil, Seed | | 3.00 | 5885 SY | 9,000 | | |
| Subtotal | | | 1 LS | 149,000 | | |

Subtotal Supporting Facilities

Total Contract Cost w/o Contingency: \$
 Contingency 5% \$
 Total Contract Cost \$
 SIOH 5.5% \$
 Total Budget Cost \$
 Rounded \$

*Asterisk indicates these totals on 1391s.



1012: FLEC/COMM MAINTENANCE SHOP

Costs Escalated to: 1 APRIL 89

Location: MARINE CORPS BASE, CAMP LEJEUNE, N. C.

Escalation: 9%

Prepared by: OLSEN ASSOCIATES, INC. Date: 1 OCT 86

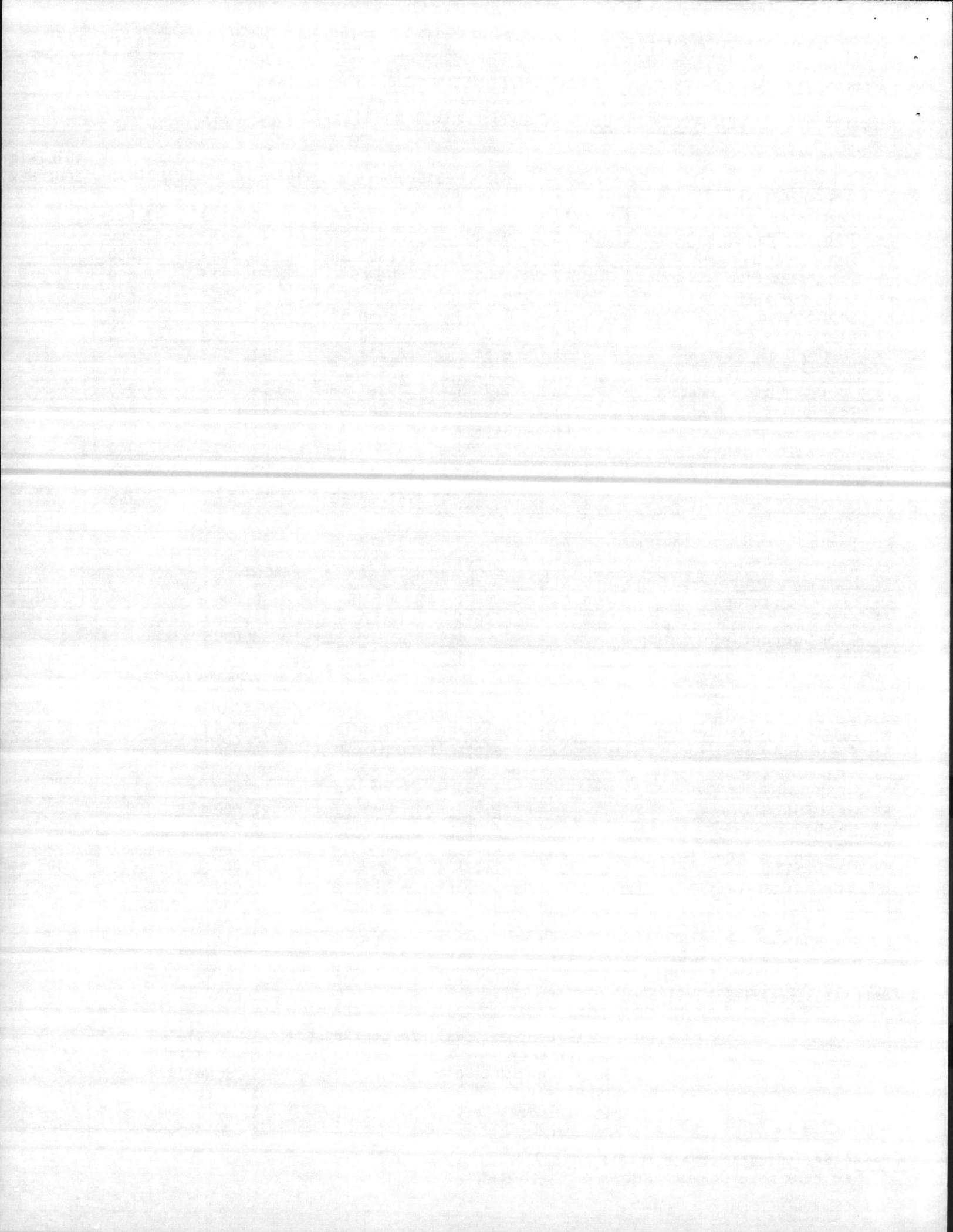
Contingency: 5%

| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-IN EQUIPMENTS |
|--------------------------------|-------|---------|-----------|------------|------------|---------------------|
| Building 22591 SF | | | 19,912 SF | | | |
| 01 Foundation System | 2.12 | 2.37 | 20,090 SF | 48,000 | 48,000 | |
| 02 Slab on Grade | 0.75 | 0.84 | 20,090 SF | 17,000 | 17,000 | |
| 03 Structural System | 3.53 | 3.53 | 22,591 SF | 80,000 | 80,000 | |
| 04 Supported Floor System | 0.97 | 22,000 | 1 SYS | 22,000 | 22,000 | |
| 05 Stair System | 0.18 | 179.40 | 24 Fiser | 4,000 | 4,000 | |
| 06 Roof System | 6.73 | 7.59 | 20,090 SF | 152,000 | 152,000 | |
| 07 Exterior Wall System | 8.23 | 14.37 | 12,922 SF | 186,000 | 186,000 | |
| 08 Interior Wall System | 4.91 | 6.64 | 16,731 SF | 111,000 | 111,000 | |
| 09 Interior Finishes System | 2.08 | 2.06 | 22,591 SF | 47,000 | 47,000 | |
| 10 Door & Window System | 3.32 | 31.71 | 2,363 SF | 75,000 | 75,000 | |
| 11 Specialties System | 6.07 | 6.07 | 22,591 SF | 137,000 | 137,000 | |
| 16 Plumbing** | 5.66 | 4436.63 | 60 EA | 128,000 | 128,000 | |
| 22 Cranes & Hoists | 1.19 | 5337.27 | 5 TN | 27,000 | 27,000 | |
| 23 Mechanical Interior ** | 13.46 | 8973.21 | 22,591 SF | 304,000 | 261,000 | 43.00 |
| 30 Interior Fire Protection** | 1.22 | 1.22 | 22,591 SF | 28,000 | | 28.00 |
| 33 Interior Electrical ** | 3.45 | 183.86 | 22,591 SF | 78,000 | 78,000 | |
| 34 Intrusion Detection | 0.13 | 3,000 | 1 SYS | 3,000 | | 3,00 |
| 40 Radio Frequency Shielding | 3.67 | 33.05 | 2,512 SF | 83,000 | | 83,00 |
| 41 Telephone System | 0.35 | 0.37 | 22,591 SF | 8,000 | | 8,00 |
| 42 Intercommunications Sys | 0.31 | 0.30 | 22,591 SF | 7,000 | | 7,00 |
| 08 Shop Equipment | 0.44 | 10,000 | 1 SYS | 10,000 | | 10,00 |
| 39 FAICS | 0.49 | 700 | 16 EA | 11,000 | | 11,00 |
| O&M Support Information | 1.33 | | | 30,000* | | |
| Subtotal building | 70.59 | | 22,591 SF | 1,596,000* | 1,373,000* | 193.00 |
| SEE NOTE FRONT SHEET | 73.42 | | 19,912 SF | 1,641,000 | 1,492,000 | 199.00 |
| | | | | 1,741,000 | | |
| Supporting Facilities | | | | | | |
| 50 Electrical Distribution | | 61.50 | 240 LF | 15,000 | | |
| 51 Electrical Substation | | 28.02 | 150 KVA | 4,000 | | |
| 52 Area Lighting | | 5467.94 | 8 EA | 44,000 | | |
| 54 Communication | | 2.50 | 3050 LF | 8,000 | | |
| 58 Heat Distribution | | 150.70 | 2800 LF | 422,000 | | |
| 60 Sanitary Sewer | | 36.96 | 460 LF | 17,000 | | |
| 62 Water Distribution | | 28.57 | 140 LF | 4,000 | | 514.00 |
| 77 Paving** | | 42.27 | 6275 SY | 105,000 | | 105,00 |
| WA Site Preparation** | | | 1 LS | 50,000 | | |
| 85 Fencing | | 86.00 | 680 LF | 12,000 | | |
| 95 Erosion Control | | | 1 LS | 1,000 | | |
| LA Wash Apron | | | 1 LS | 9,000 | | 72.00 |
| Subtotal Supporting Facilities | | | | 691,000 | 712,000 | 691,00 |

| | | | |
|--------------------------------------|----|----------------------|-----------|
| Total Contract Cost w/o Contingency: | \$ | 2,287,000 | 2,453,000 |
| Contingency 5% | \$ | 114,400 | 123,000 |
| Total Contract Cost | \$ | 2,401,000 | 2,576,000 |
| SIOH 5.5% | \$ | 120,000 | 142,000 |
| Total Budget Cost | \$ | 2,521,000 | 2,718,000 |
| Rounded | \$ | 2,500,000 | 2,750,000 |

*Asterisk indicates these totals on 1391s.

** See next sheet for breakdown of these items.



BUILDING BUDGET ESTIMATE SUMMARY SHEET FOR

Title: ELEC/COMM MAINTENANCE SHOP
 Location: MARINE CORPS BASE, CAMP LEJEUNE, N.C.
 Prepared by: OLSEN ASSOCIATES, INC.

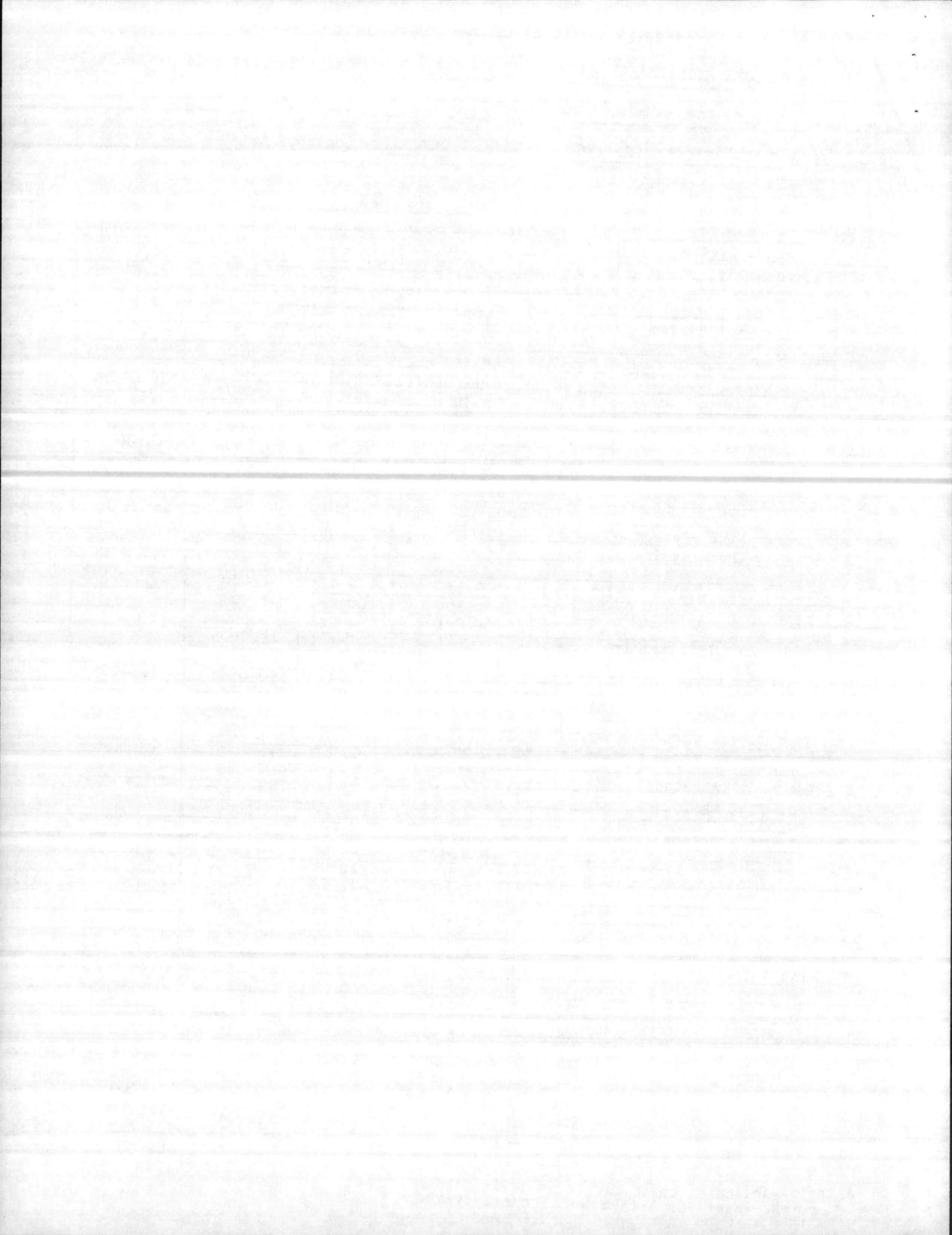
Costs Escalated to: 1 APRIL 1989
 Escalation: 9%
 Contingency: 5%

| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-EQUIPME |
|-------------------------------|------------------|---------|----------|---------------------|--------------------|---------------|
| Building 6,100 SF | | | | | | |
| 01 Foundation System | 6.12 | 6.12 | 6,100 SF | 37,000 | 37,000 | |
| 02 Slab on Grade | 4.27 | 4.27 | 6,100 SF | 26,000 | 26,000 | |
| 03 Structural Frame | 4.92 | 18.53 | 16 TN | 30,000 | 30,000 | |
| 06 Roof System | 6.87 | 6.87 | 6,100 SF | 42,000 | 42,000 | |
| 07 Exterior Wall System | 12.29 | 18.47 | 4,036 SF | 75,000 | 75,000 | |
| 08 Interior Wall System | 6.56 | 5.06 | 7,840 SF | 40,000 | 40,000 | |
| 09 Interior Finishes System | 6.72 | 6.72 | 6,100 SF | 41,000 | 41,000 | |
| 10 Door & Window Systems | 10.00 | 46.62 | 1,306 SF | 61,000 | 61,000 | |
| 11 Specialties System | 4.14 | 4.14 | 6,100 SF | 25,000 | 25,000 | |
| 12 Plumbing - Domestic | 4.10 | 1130.55 | 22 FX | 25,000 | 25,000 | |
| 13 Roof Drainage | 0.98 | 454.50 | 12 EA | 6,000 | 6,000 | |
| 15 HVAC | 7.38 | 4500.00 | 10 TN | 45,000 | 45,000 | |
| 18 Engine Exhaust System | 0.49 | 5.35 | 600 CFM | 3,000 | | 3,000 |
| 20 Compressed Air System | 5.08 | 619.75 | 50 CFM | 31,000 | | 31,000 |
| 22 Cranes & Hoists | 4.10 | 5337.27 | 10 TN | 25,000 | | 25,000 |
| **30 Interior Fire Protection | 2.40 | 2.40 | 6,100 SF | 14,000 | | 14,000 |
| **33 Interior Electrical | 5.41 | 971.95 | 6,100 SF | 33,000 | 27,000 | 6,000 |
| 39 EMCS | 1.31 | 700.00 | 12 EA | 8,000 | | 8,000 |
| 41 Telephone System | 0.13 | 0.13 | 6,100 SF | 1,000 | | 1,000 |
| 42 Intercommunication Sys. | 0.30 | 0.30 | 6,100 SF | 2,000 | | 2,000 |
| 03 Shop Equipment | 0.82 | 5000.00 | 1 SYS | 5,000 | | 5,000 |
| O&M Support Information | 3.44 | | | 21,000* | | |
| Subtotal Building | 37.03 | | 6,100 SF | 596,000* | 480,000 | 95 |
| SEE NOTE FRONT SHEET. | 81.97 | | | 619,000 | 521,000 | 92 |
| | | | | 632,000 | | |

| Supporting Facilities | | | | | | |
|--------------------------------|--|---------|----------|----------|---------|-----|
| 50 Electrical Distribution | | 61.50 | 1,000 LF | 62,000 | | |
| 51 Electrical Substation | | 28.02 | 150 KVA | 4,000 | | |
| 52 Area Lighting | | 5467.94 | 12 EA | 66,000 | | |
| 54 Communications | | 2.50 | 1,150 LF | 3,000 | | |
| 58 Heat Distribution | | 150.70 | 990 LF | 149,000 | | |
| 60 Sanitary Savers | | 28.51 | 1,102 LF | 31,000 | | |
| 62 Water Distribution | | 24.80 | 920 LF | 23,000 | | 338 |
| 77 Paving ** | | 59.37 | 6,622 SY | 112,000 | | 112 |
| WA Site Preparation ** | | | 1 LS | 99,000 | | |
| 85 Fencing | | 21.52 | 335 LF | 7,000 | | |
| 95 Erosion Control | | | 1 LS | 5,000 | | |
| UA Wash Aprons | | | 1 LS | 15,000 | | 126 |
| Subtotal Supporting Facilities | | | | 576,000* | 593,000 | 576 |

Total Contract Cost w/o Contingency: \$ ~~1,172,000~~ 1,225,000
 Contingency 5% \$ 59,000 61,000
 Total Contract Cost \$ 1,231,000 1,286,000
 SIOH 5.5% \$ 68,000 71,000
 Total Budget Cost \$ 1,299,000 1,357,000
 Rounded \$ 1,300,000 1,350,000

*Asterisk indicates these totals on 1391s.
 ** See next sheet for breakdown of these items.



BUILDING BUDGET ESTIMATE SUMMARY SHEET FOR P- 244

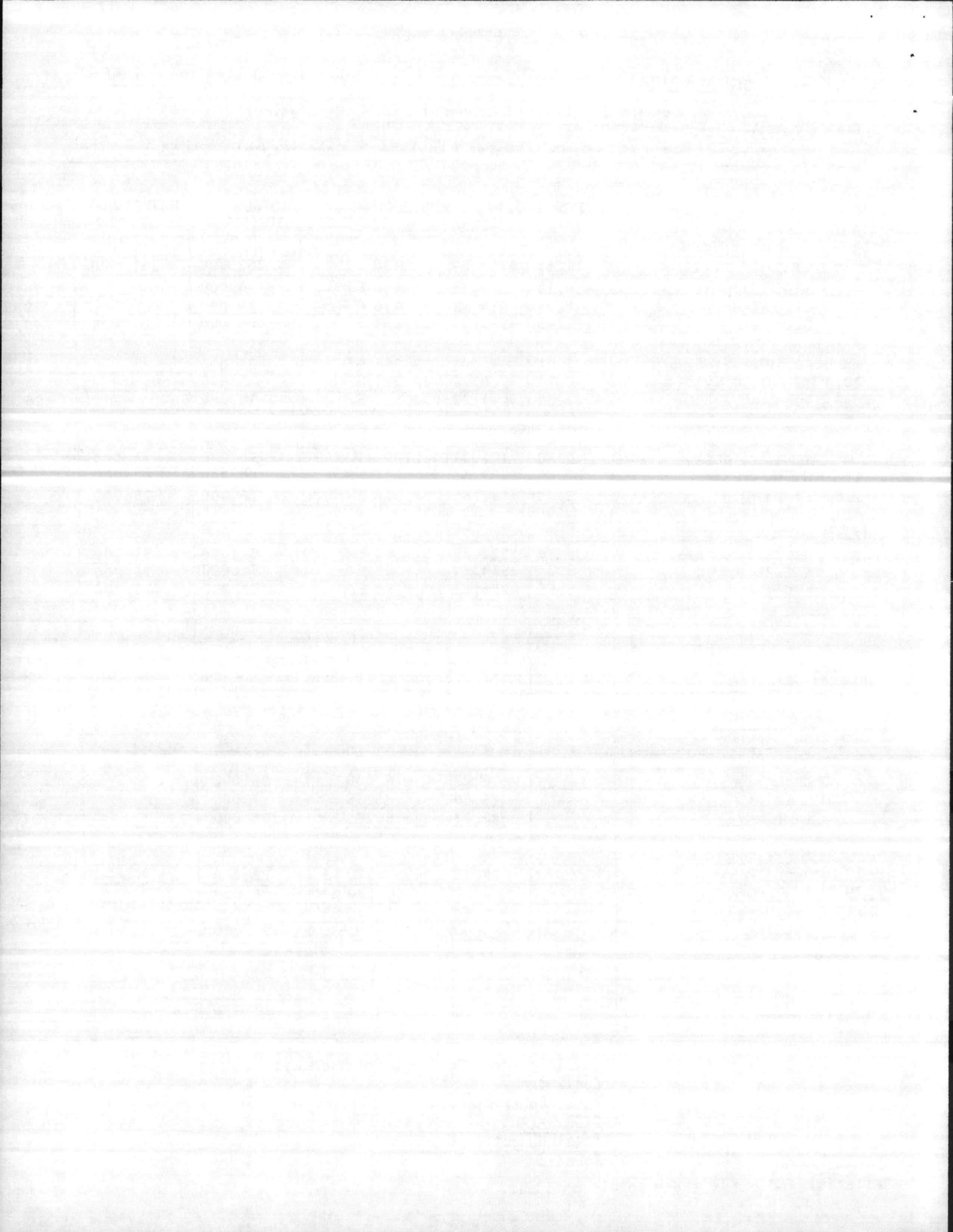
Name: ELEC/COM MAINTENANCE SHOP
 Location: MARINE CORPS BASE, CAMP LEJEUNE, N. C.
 Prepared by: OLSEN ASSOCIATES, INC. Date: 1 OCT 86

Costs Escalated to: 1 APRIL 89
 Escalation: 9%
 Contingency: 5%

| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-EQUIPM |
|---------------------------------------|-------|---------|-----------|---------|----------|--------------|
| Building | | | | | | |
| 23 Mechanical Interior | | | | | | |
| 15 HVAC | 11.55 | 8709.54 | 30 TN | 261,000 | 261,000 | |
| 18 Engine Exhaust | 0.18 | 5.35 | 800 CFM | 4,000 | | 4,000 |
| 20 Compressed Air | 1.73 | 258.32 | 120 CFM | 39,000 | | 39,000 |
| Subtotal | 13.46 | 8973.21 | 22,591 SF | 304,000 | 261,000 | 43,000 |
| 30 Interior Fire Protection | | | | | | |
| 26 Sprinkler System | 1.01 | 1.01 | 22,591 SF | 23,000 | | 23,000 |
| 28 Fire Alarm System | 0.21 | 0.21 | 22,591 SF | 5,000 | | 5,000 |
| Subtotal | 1.22 | 1.22 | 22,591 SF | 28,000 | | 28,000 |
| 33 Interior Electrical | | | | | | |
| 31 Power System | 0.80 | 181.21 | 100 KW | 18,000 | 18,000 | |
| 32 Lighting System | 2.65 | 2.65 | 22,591 SF | 60,000 | 60,000 | |
| Subtotal | 3.45 | 183.86 | 22,591 SF | 78,000 | 78,000 | |
| M6 Plumbing | | | | | | |
| 12 Plumbing Domestic | 2.30 | 1522.39 | 34 EA | 52,000 | 52,000 | |
| 13 Roof Drainage | 3.36 | 2914.24 | 26 EA | 76,000 | 76,000 | |
| Subtotal | 5.66 | 4436.63 | 60 EA | 128,000 | 128,000 | |
| Subtotal Building | | | | | | |
| Supporting Facilities | | | | | | |
| 77 Paving | | | | | | |
| 74 Parking | | 16.27 | 6,000 SY | 98,000 | | |
| 75 Sidewalks | | 26.00 | 275 SY | 7,000 | | |
| Subtotal | | 42.27 | 6,275 SY | 105,000 | | |
| WA Site Preparation | | | | | | |
| 78 Storm Drainage | | 27.56 | 120 LF | 3,000 | | |
| 79 Site Earthwork | | 4.08 | 10,670 SY | 44,000 | | |
| 81 Topsoil Seed | | 1.50 | 2,160 SY | 3,000 | | |
| Subtotal | | | 1 LS | 50,000 | | |
| Subtotal Supporting Facilities | | | | | | |

Total Contract Cost w/o Contingency: \$
 Contingency _____ % \$
 Total Contract Cost \$
 SIOH 5.5% \$
 Total Budget Cost \$
 Rounded \$

*Asterisk indicates these totals on 1391s.



Title: ELEC/COMM MAINTENANCE SHOP

Costs Escalated to: 1 APRIL 1989

Location: MARINE CORPS BASE, CAMP LEJEUNE, NC

Escalation: 9%

Prepared by: OLSEN ASSOC. INC.

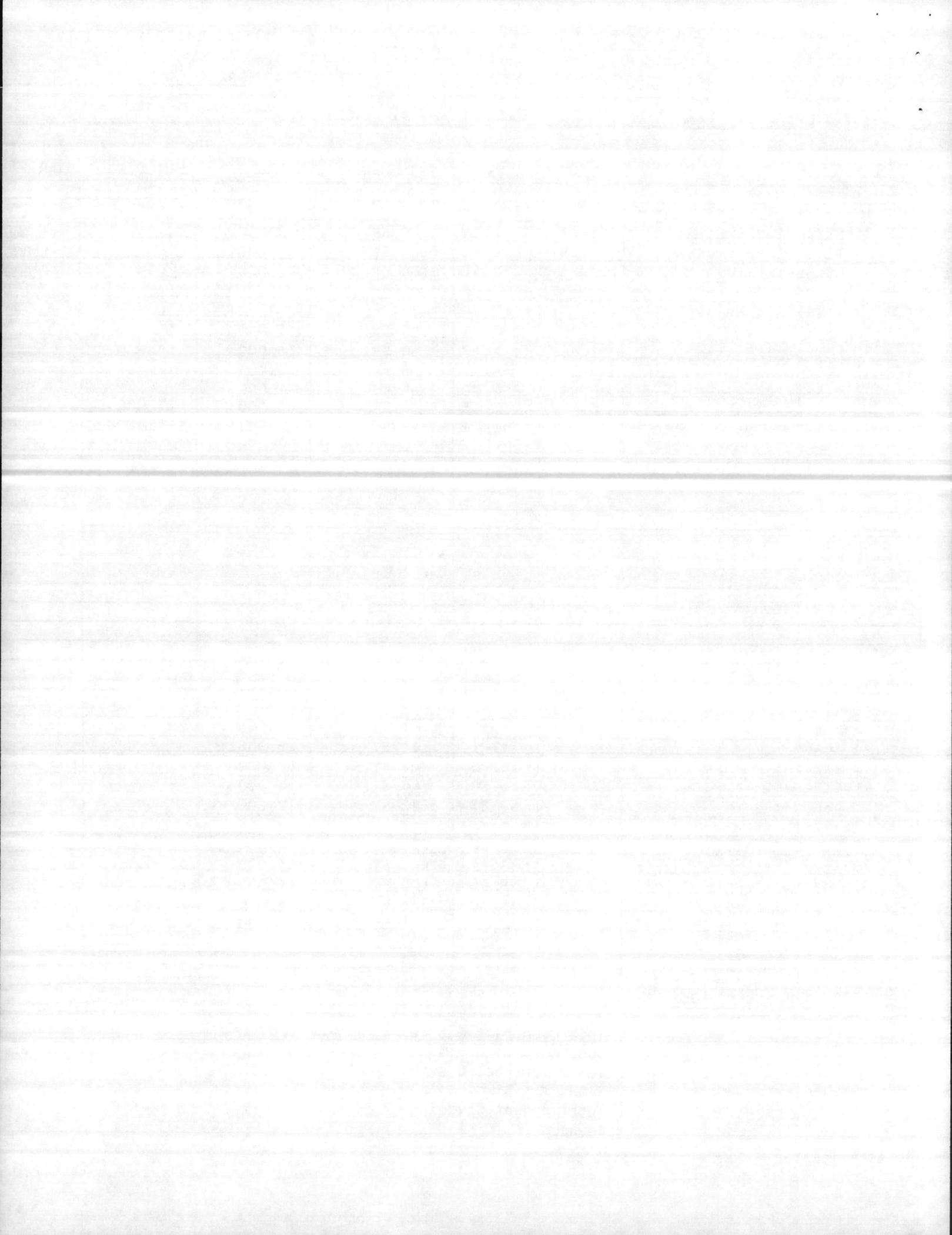
Date: 1 OCT 86

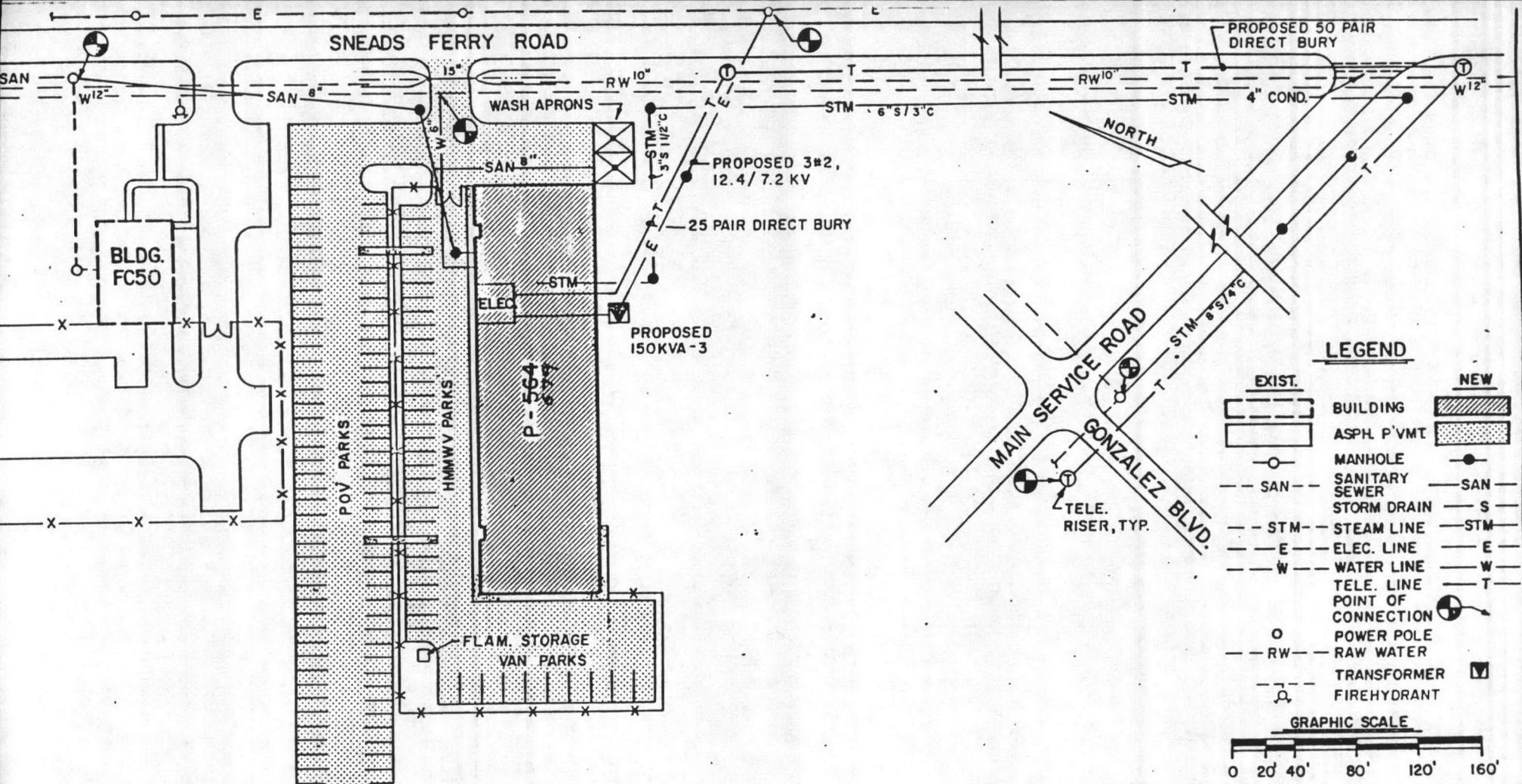
Contingency: 5%

| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-IN EQUIPME |
|------------------------------------|-------|--------|----------|---------|----------|------------------|
| Building 6100 SF | | | | | | |
| 30 Interior Fire Protection | | | | | | |
| 26 Sprinkler System | 2.19 | 2.19 | 6100 SF | 13,000 | | 13,000 |
| 28 Fire Alarm System | 0.21 | 0.21 | 6100 SF | 1,000 | | 1,000 |
| Subtotal | 2.40 | 2.40 | 6100 SF | 14,000 | | 14,000 |
| 33 Interior Electrical | | | | | | |
| 31 Power System | 1.80 | 108.81 | 100 KW | 11,000 | 11,000 | |
| 32 Lighting System | 2.62 | 2.67 | 6100 SF | 16,000 | 16,000 | |
| 35 400 Hz | 0.33 | 56.17 | 35 KW | 2,000 | | 2,000 |
| 36 Direct Current | 0.66 | 804.30 | 5 KW | 4,000 | | 4,000 |
| Subtotal | 5.41 | 971.75 | 6100 SF | 33,000 | 27,000 | 6,000 |
| Subtotal building | | | | | | |
| Supporting Facilities | | | | | | |
| 77 Paving | | | | | | |
| 73 Roads | | 16.54 | 1711 SY | 28,000 | | |
| 74 Parking | | 16.83 | 4767 SY | 80,000 | | |
| 75 Sidewalks | | 26.00 | 144 SY | 4,000 | | |
| Subtotal | | 59.37 | 6622 SY | 112,000 | | |
| WA Site Preparation | | | | | | |
| 78 Storm Drainage | | 52.86 | 220 LF | 12,000 | | |
| 79 Site Earthwork | | 3.14 | 11022 SY | 35,000 | | |
| 80 Borrow | | 0.40 | 4880 CY | 46,000 | | |
| 81 Topsoil, Seed | | 1.50 | 3725 SY | 6,000 | | |
| Subtotal | | | 1 TS | 99,000 | | |
| Subtotal Supporting Facilities | | | | | | |

Total Contract Cost w/o Contingency: \$
 Contingency 5% \$
 Total Contract Cost \$
 SIOH 5.5% \$
 Total Budget Cost \$
 Rounded \$

*Asterisk indicates these totals on 1391s.





LEGEND

| EXIST. | | NEW |
|-----------------|--------------------------------|-----------------|
| | BUILDING | |
| | ASPH. P'VMT | |
| | MANHOLE | |
| - - - SAN - - - | SANITARY SEWER | - - - SAN - - - |
| - - - STM - - - | STORM DRAIN | - - - S - - - |
| - - - E - - - | STEAM LINE | - - - STM - - - |
| - - - W - - - | ELEC. LINE | - - - E - - - |
| - - - T - - - | WATER LINE | - - - W - - - |
| | TELE. LINE POINT OF CONNECTION | - - - T - - - |
| O | POWER POLE | |
| - - - RW - - - | RAW WATER | |
| | TRANSFORMER | |
| | FIREHYDRANT | |

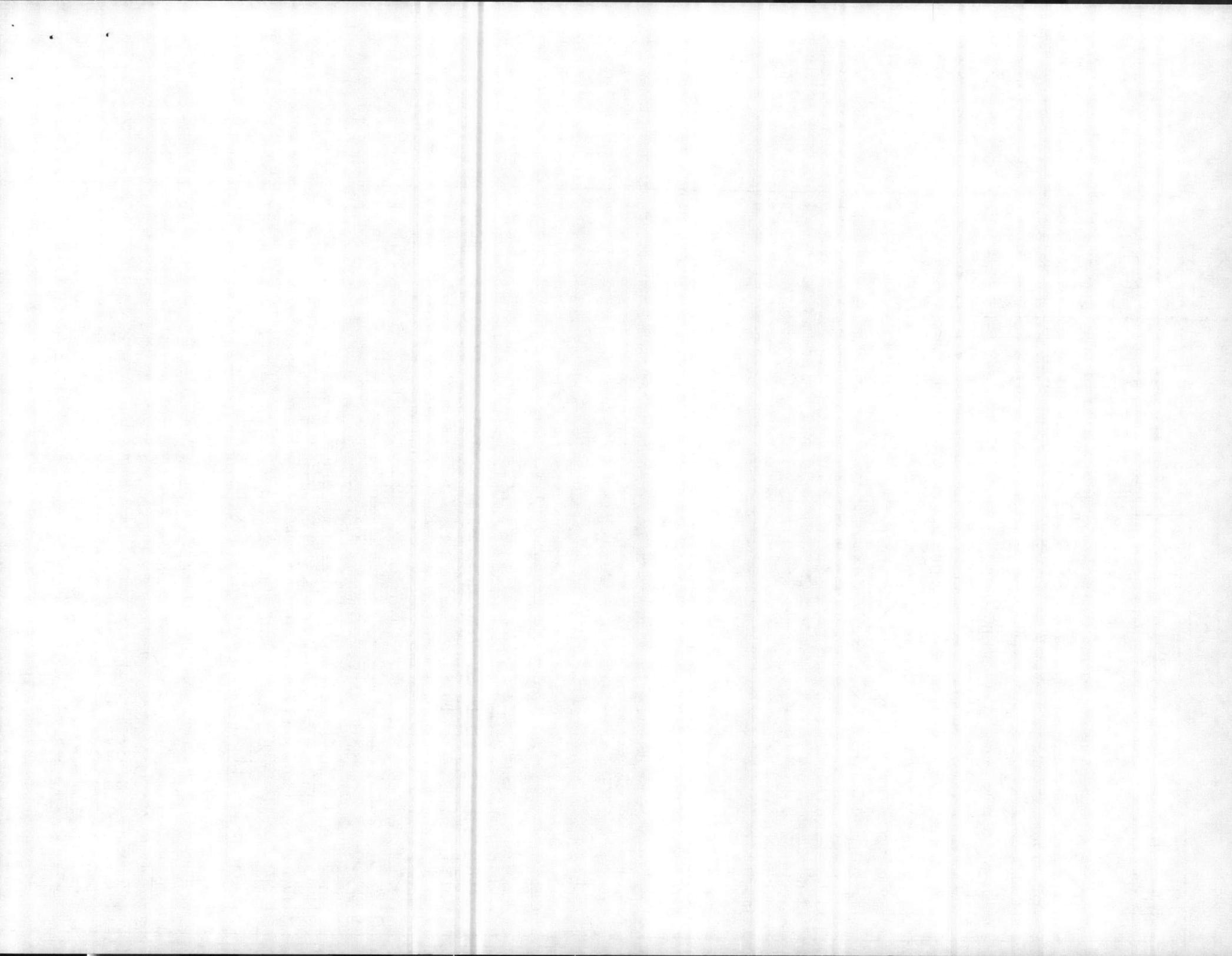
GRAPHIC SCALE

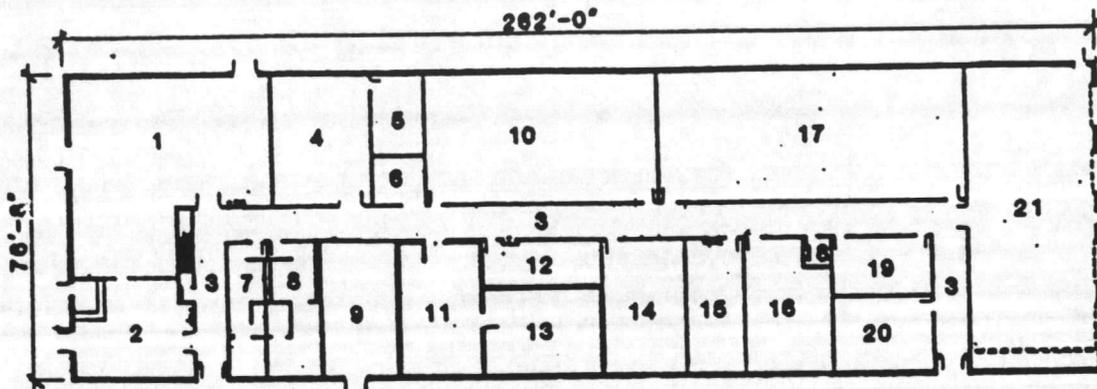
0 20' 40' 80' 120' 160'

MCB, CAMP LEJEUNE N.C.

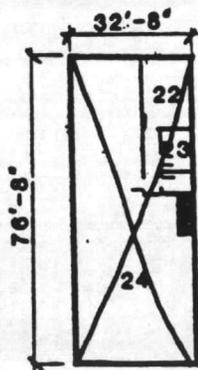
ELEC/COMM MAINTENANCE SHOP
 (P-584) 679
 Bldg # 1 (22,591) (19,912)
 OLSEN ASSOCIATES, INC.
 P.O. BOX 10666
 RALEIGH, N.C. 27605

Attachment (b)





FIRST FLOOR



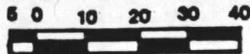
SECOND FLOOR

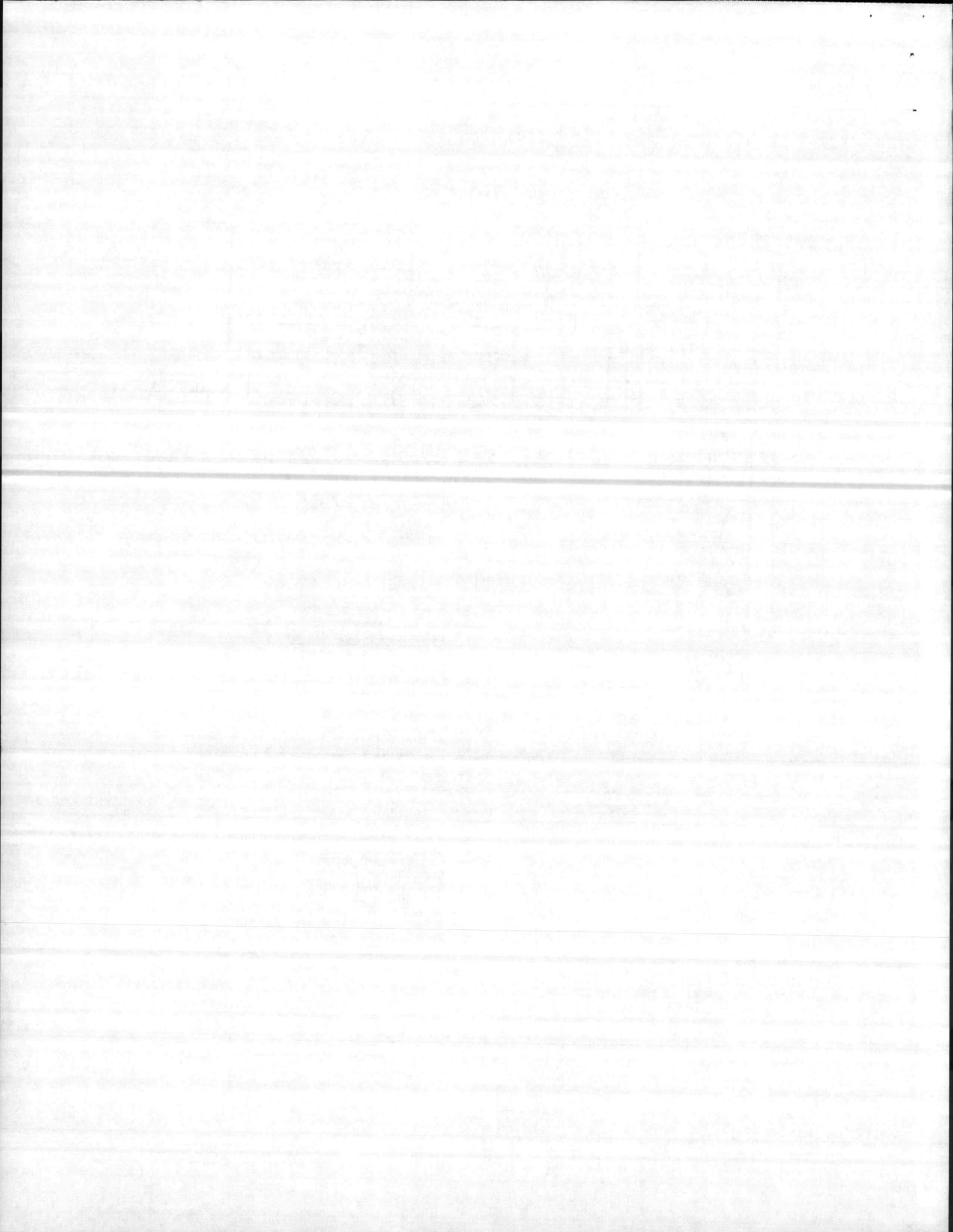
FLOOR PLAN

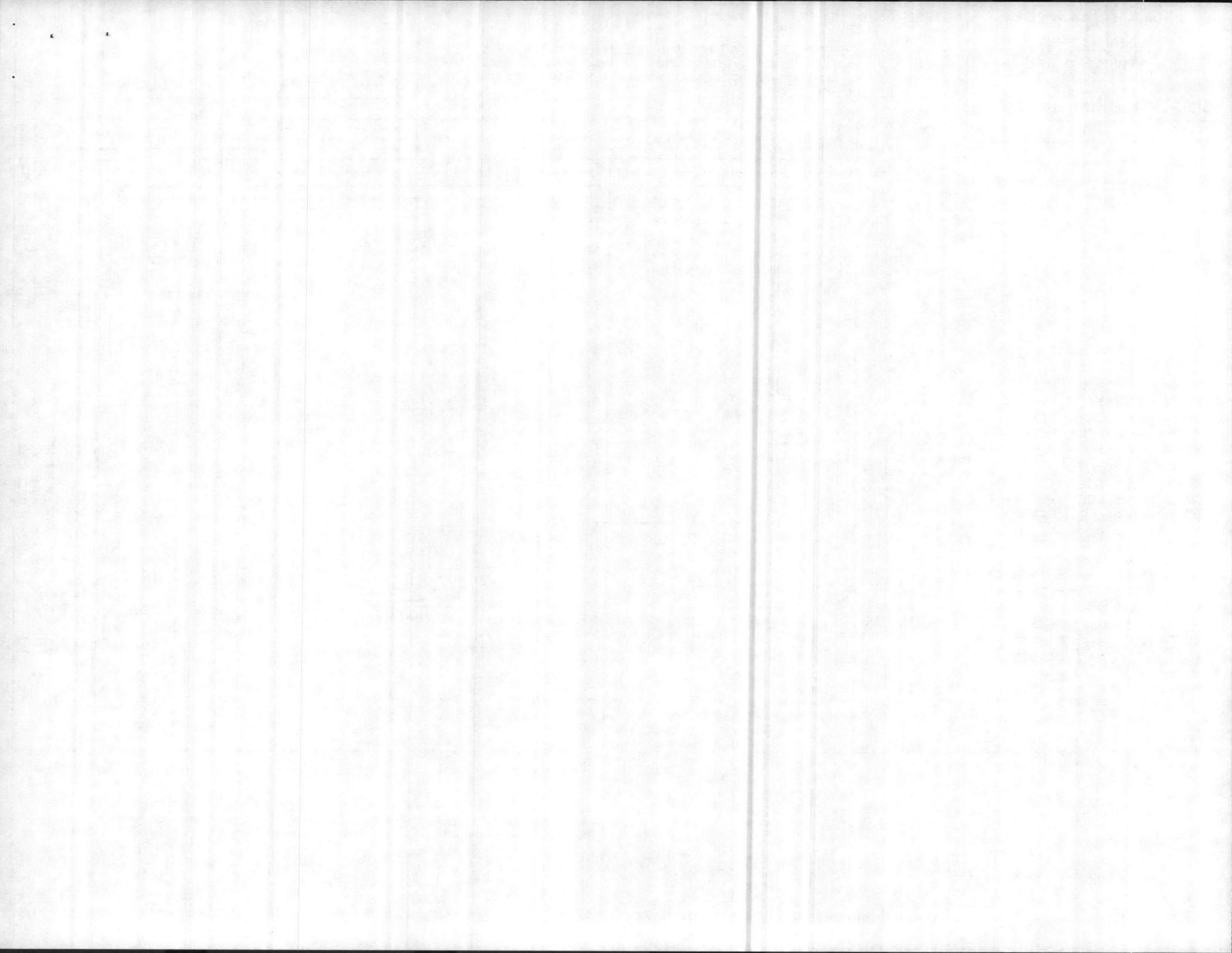
Bldg. #1
(19,912 SF)

ROOM LEGEND

- 1 AWAITING PARTS
- 2 SHIPPING & RECEIVING
- 3 CORRIDOR
- 4 RADIO TEST SHOP
- 5 SONIC CLEAN
- 6 VENDING
- 7 WOMEN
- 8 MEN
- 9 MECHANICAL/ELECTRICAL
- 10 TELEPHONE & TELETYPE REPAIR
- 11 FLSCF
- 12 TOOL ROOM
- 13 CRYPTO ORF
- 14 ADMIN ORGANIC
- 15 TECHNICAL LIBRARY
- 16 ADMIN - KEYPUNCH
- 17 H.F./VHF/PRC/MUX RADIO REPAIR
- 18 GEAR ROOM
- 19 MAINTENANCE MGMT
- 20 CLASSROOM
- 21 DRIVE IN VAN SHOP
- 22 OFFICE
- 23 TOILET
- 24 ~~MICRO-COMPUTER PARTS REPAIR~~

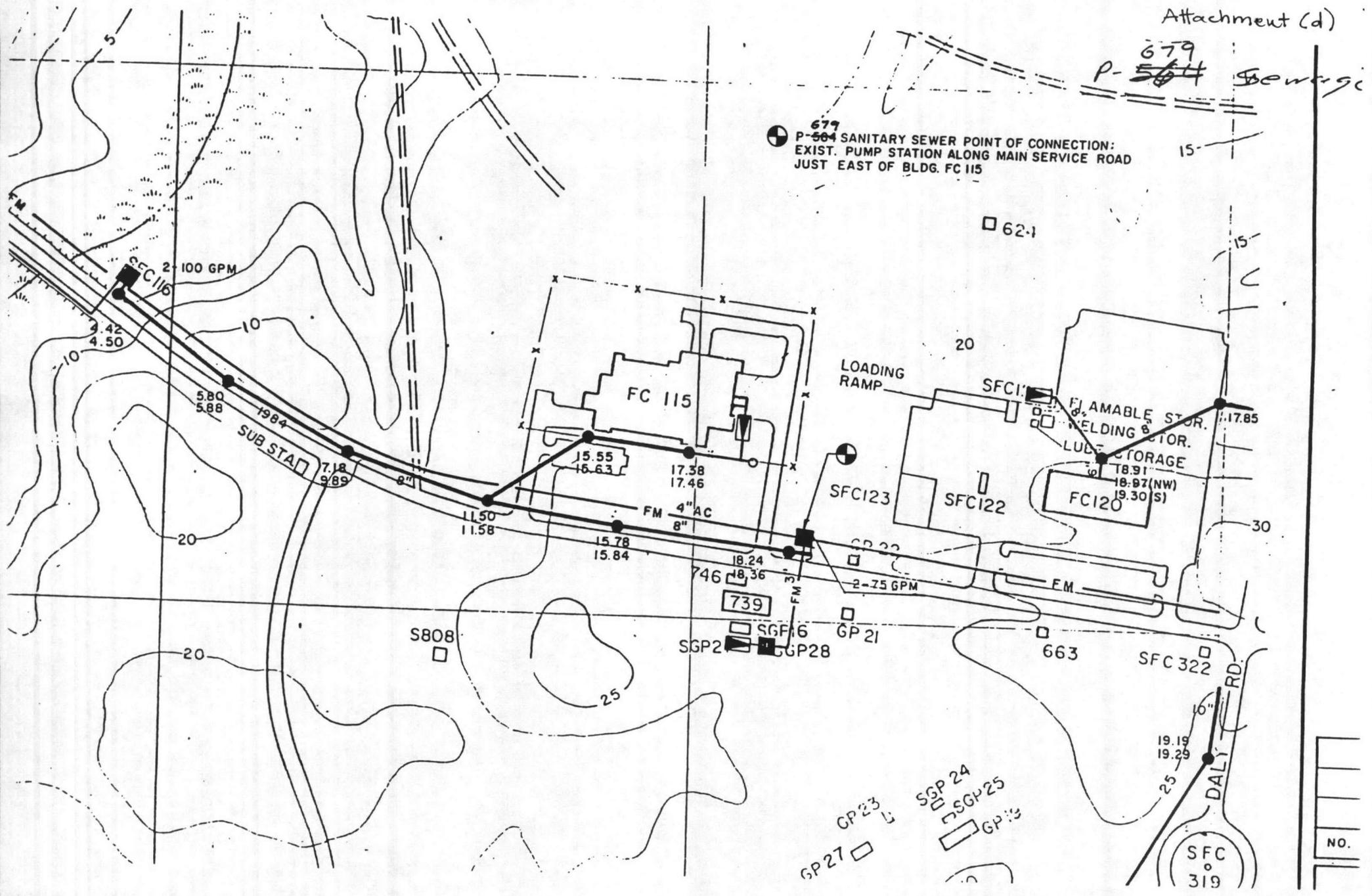


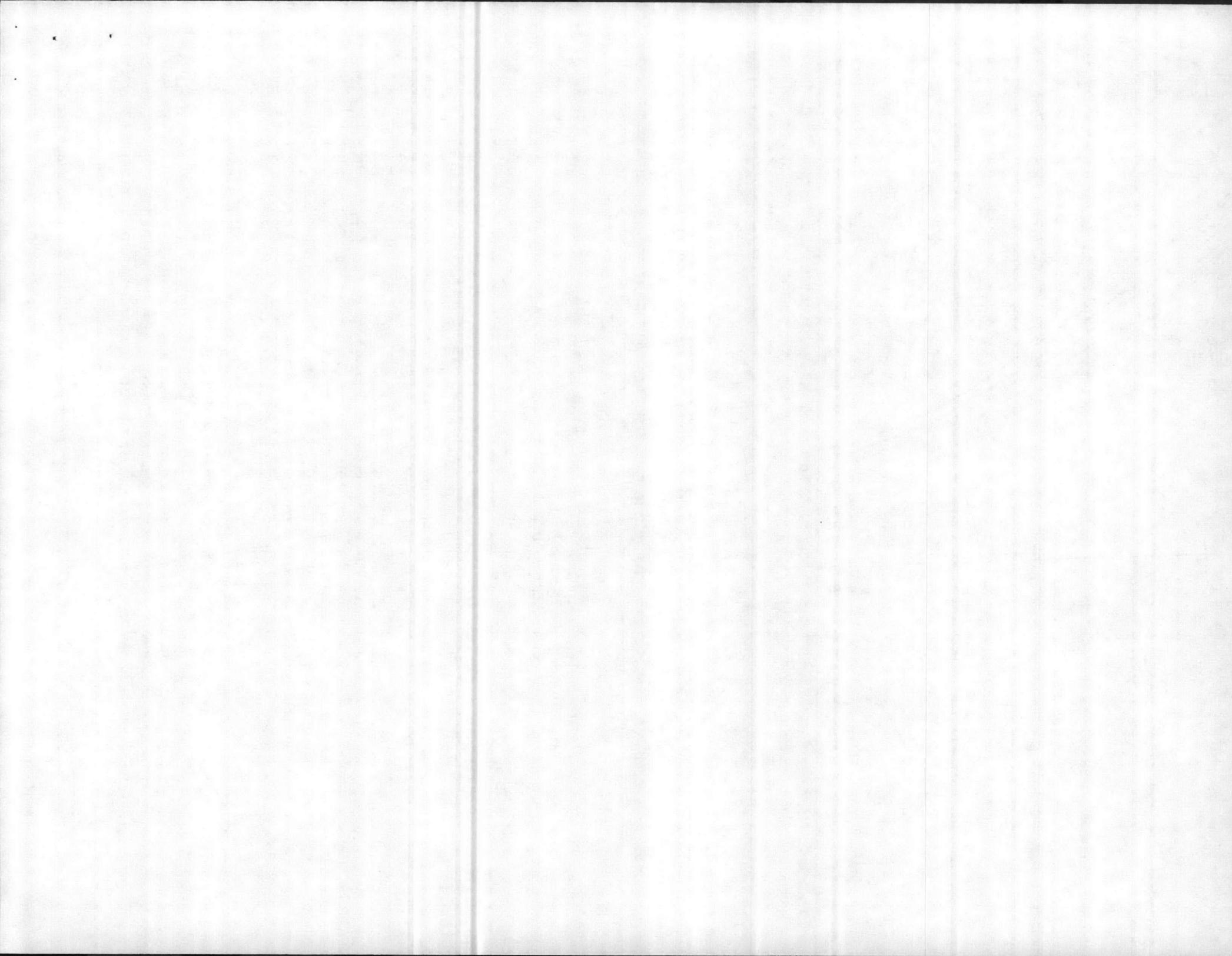


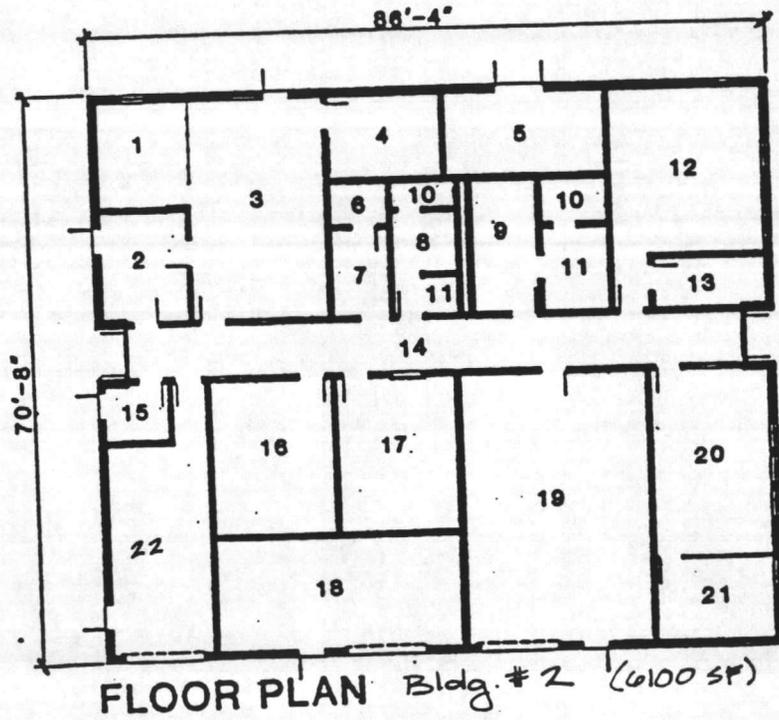


679
P-564 Sewerage

679
P-564 SANITARY SEWER POINT OF CONNECTION:
EXIST. PUMP STATION ALONG MAIN SERVICE ROAD
JUST EAST OF BLDG. FC 115

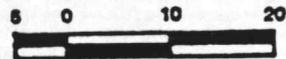


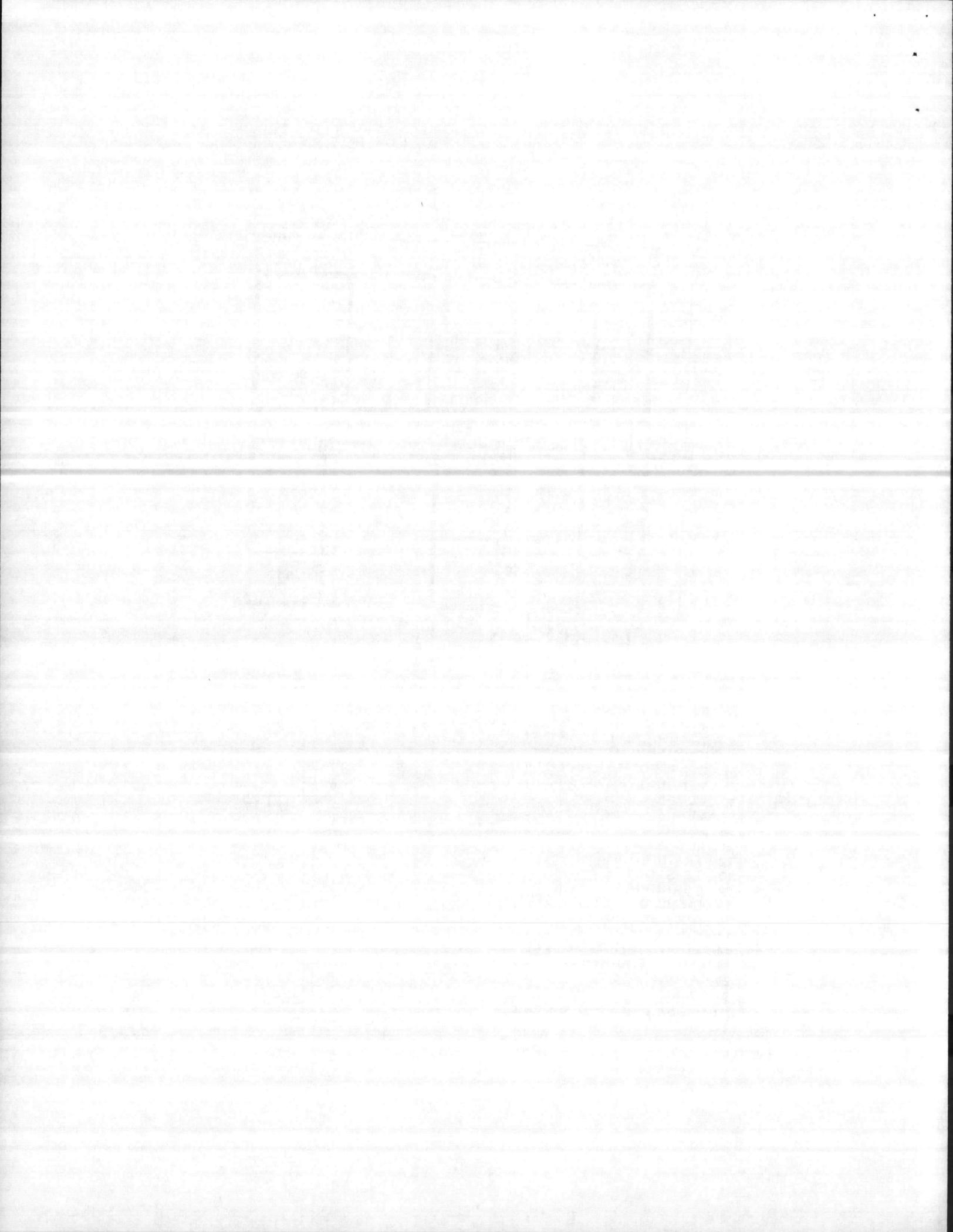




ROOM LEGEND

- 1 PARTS HOLDING
- 2 BATTERY SHOP
- 3 RADIO TECH SHOP
- 4 TECHNICAL LIBRARY
- 5 MECHANICAL ROOM
- 6 GEAR ROOM
- 7 VENDING
- 8 WOMEN
- 9 MEN
- 10 SHOWER
- 11 LOCKERS
- 12 TRAINING ROOM
- 13 TA STORAGE
- 14 CORRIDOR
- 15 LITHIUM BATTERY STORAGE
- 16 WIRE SECTION
- 17 COMM SUPPLY
- 18 MOUNT OUT STORAGE
- 19 RADIO EQUIPMENT STORAGE & WORK AREA
- 20 ADMIN
- 21 OFFICE
- 22 MOBILE RADIO REPAIR



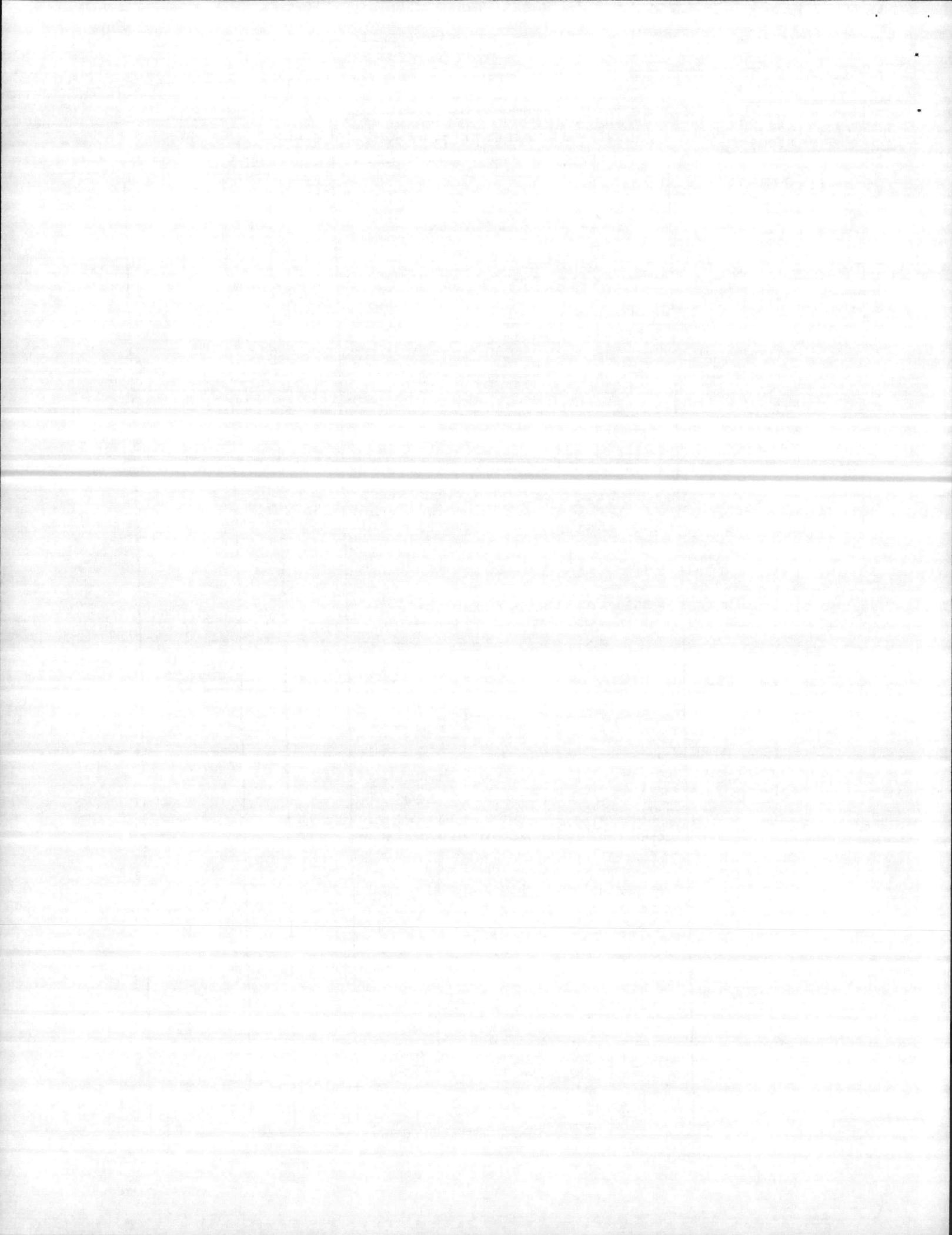


1. ACTIVITY (Name and Location)
MARINE CORPS BASE, CAMP LEJEUNE, NC 28542

2. PROJECT TITLE
ELEC/COMM MAINTENANCE SHIP FY-90

Bldg.# 2
P. NO P-679

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| 1. Built In Eqpt to be MCON Funded: | *Compressed Air System (90 PSI) | | sys | | |
| | *Sprinkler System | | sys | | |
| | *Telephone, Fire Alarm & intercom systems | | sys | | |
| | *Lockers, wall mounted | | ea | | |
| | *Exhaust System, under/over ground sys | | sys | | |
| | *Grounding system, electronic 60/400 cycle elect. system w/ AC/DC power bus bar and transformer | | sys | | |
| | *Used oil system | | sys | | |
| | *Vehicle Fueling System | | sys | | |
| | *Tire changer, elec-air Bish- man Co., 150 PSI, compair | | ea | | |
| | *Air hose reel, 150 PSI, HD w/hose stop (ceiling, wall or pedestal mounted), provide water separator | | ea | | |
| | *Elec extension cord reel, HD w/cord stop (ceiling, wall or pedestal mounted) 120V, 1Phase | | ea | | |
| | *Water hose reel, HD w/hose control valve & hose stop (ceiling, wall/pedestal mtd) CW | | ea | | |
| | *Hose reels assembly, w/control valves, HD, overhead, automatic hose stops & meters, 150 PSI comp air, 1 chassis lube, 1 hyd. oil, provide water separator | | ea | | |



MAY 01 1987

1. ACTIVITY (Base and Location)

NAVY CORPS BASE, CAMP LEJEUNE, NC 28542

2. PROJECT TITLE

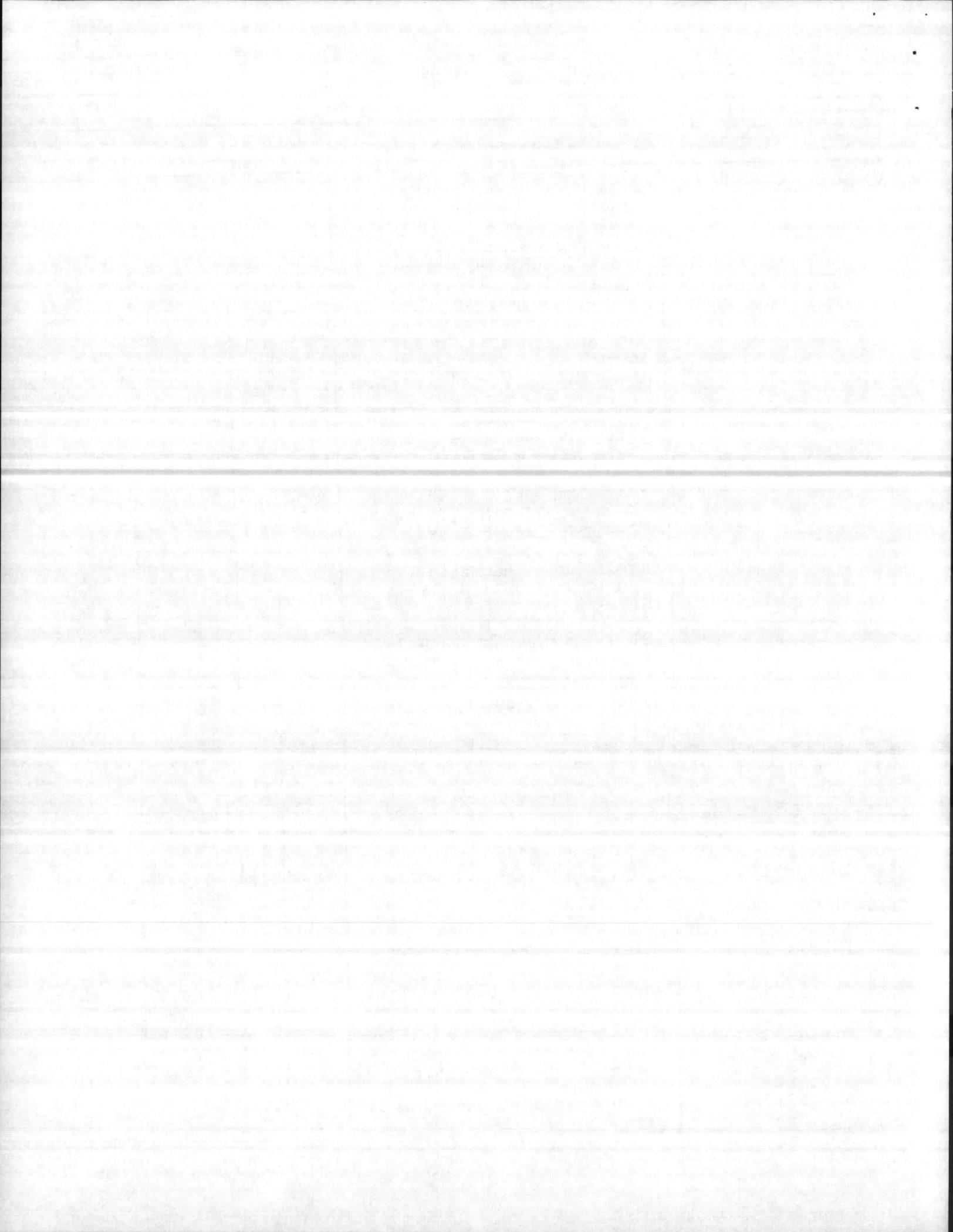
ELEC/COMM MAINTENANCE SHOP

Bldg. #2

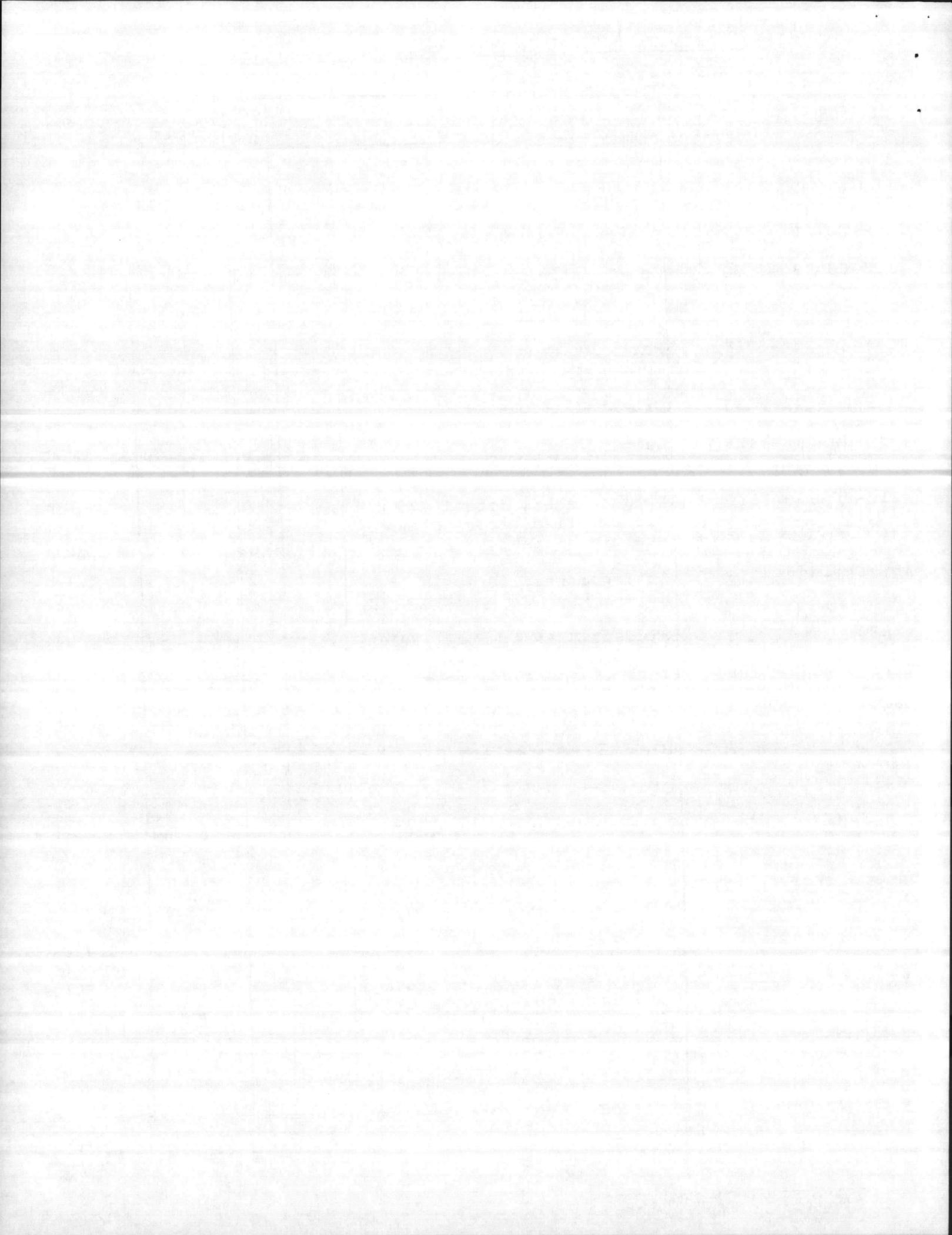
P. NO

D-679

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| | *Exhaust system, overhead, fractional HP, 220V, 3-phase | | ea | | |
| | *Lube dispensing eqpt w/ access (couplers, valves, regulators etc.) | | ea | | |
| | *Air pumps, 400 lb drums for oil (chassis, gear, motor oil, transmission & hydraulic fluid), as req'd | | ea | | |
| | *Twin post pneumatic lifts, 1 HD, 24,000 lb cap, 150 PSI comp air | | ea | | |
| | *Air Compressor, 150 PSI, 2-stage 32 CFM), 3 phase, 3-WIRE, 220v, L5 HP | | ea | | |
| | *Twin post pneumatic lift, LD 11,000 lb cap., 150 PSI comp air | | ea | | |
| | *5 Ton overhead monorail, 1-1/4 HP, 220V, 3-phase, 60-cycle 120V power to controls & switches | | ea | | |
| Equipment with associated installation cost. | | | | | |
| 2. <u>Expense Items:</u> | | | | | |
| 7110-00-149-1630 | Desk, flat top, dbl ped | 1 | ea | 234.23 | 234 |
| 7110-00-149-1628 | Desk, flat top, single ped | 2 | ea | 180.09 | 360 |
| 7110-01-016-6580 | Attachment for above desk | 2 | ea | 132.93 | 266 |
| 7110-00-082-6229 | Chair, rotary, tilting seat | 4 | ea | 66.31 | 265 |
| 7110-00-958-8044 | Chair, secretarial rotary | 2 | ea | 64.60 | 129 |
| 7110-00-685-5534 | Stand, typewriter, drop leaf | 3 | ea | 85.60 | 257 |
| 7110-00-497-2012 | Filing cabinet, 5 dwr, legal size, parchment | 2 | ea | 146.20 | 292 |



| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| ..end | | | | | |
| 7125-00-764-6129 | Cabinet, storage, dbl dr. | 4 | ea | 132.78 | 531 |
| 7110-00-601-9822 | Bookcase, 2 shelves, parch. | 12 | ea | 82.92 | 995 |
| 7110-00-782-3503 | Chair, straight, w/o arms | 20 | ea | 38.34 | 767 |
| 7195-00-004-6716 | Rack, wearing apparel, con- temporary 6 mtl hangers | 4 | ea | 49.39 | 198 |
| 7240-00-643-0133 | Trashcan 15 gal. #8160 | 12 | ea | 80.85 | 970 |
| 6230-00-682-3423 | Lamp, desk | 6 | ea | 39.00 | 234 |
| 4210-00-720-1815 | Extinguisher, fire 2-1/2 gal air expelled water, Class A stainless steel | 4 | ea | 25.98 | 104 |
| 4210-01-089-0875 | Extinguisher, fire, 20 lb Halon | 4 | ea | 74.11 | 296 |
| VIRCO | Student chairs, model 7020 | 20 | ea | 30.35 | 607 |
| 7110-00-143-0821 | Table, general purpose | 3 | ea | 164.00 | 492 |
| OP | Draperies & Hardware | 3 | pr | 90.00 | 270 |
| " | Blackout draperies | 3 | pr | 90.00 | 270 |
| 6645-00-514-3523 | Clock, wall | 12 | ea | 8.20 | 98 |
| 7195-00-242-3503 | Costumer, wearing apparel 4 dbl hooks | 6 | ea | 55.00 | 330 |
| Federal Prison System | | | | | |
| 26-S-32850-258 | Shelving 24"x36"x87", type A | 30 | ea | 93.05 | 2,792 |
| 7125-331-8401 | Shelving 18"x108"x87" Class 3 | 26 | ea | 93.45 | 2,430 |
| 20-S-32879-152 | Doors, security, for storage shelving, w/locks & handles | 10 | ea | 38.10 | 381 |
| OP MONROE | Adding Machine | 2 | ea | 400.00 | 800 |
| OP IBM | Selectric, dual pitch | 2 | ea | 800.00 | 1,600 |



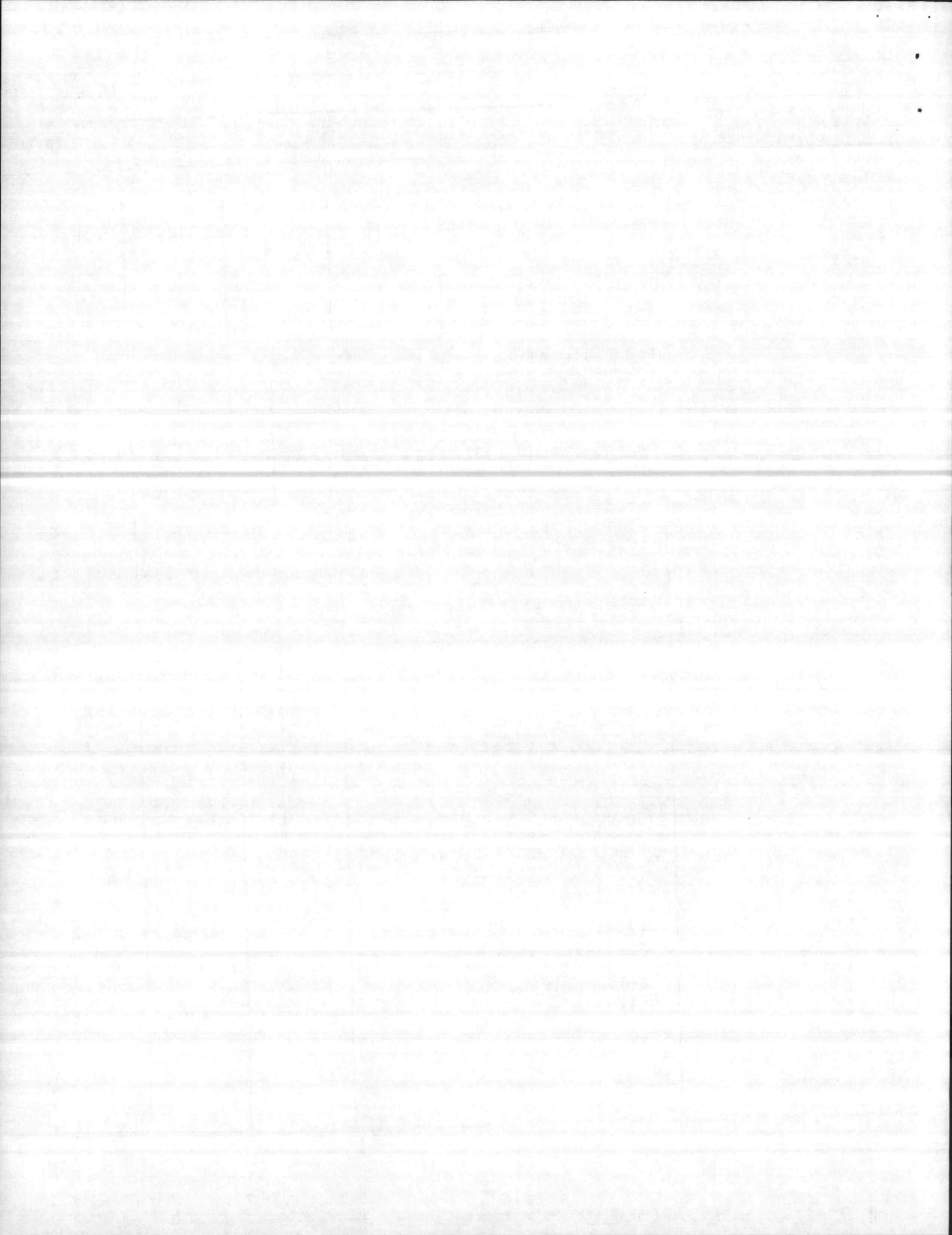
1. ACTIVITY (Name and Location)
MARINE CORPS BASE, CAMP LEJEUNE, NC 28542

2. PROJECT TITLE
ELEC/COMM MAINTENANCE SHOP

Bldg.#2

P. NO P-679

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|---|--|---------------|---------------------|---------------|---------------|
| McMaster Carr Supply Co POB 440, New Brunswick, NJ | Parts Bin, adj. shelving 14x24" deep, 54 openings. Cat 90, model 4641T39 pg 135 | 6 | ea | 282.98 | 1,698 |
| " | Benches, work, stationary steel top, 28"x34"x60", std #9054T12 Cat 90, pg 147 | 2 | ea | 106.65 | 213 |
| " | Revolving steel storage bins 42-1/8"H, 10 tiers, #4649T41 pg 135, Cat 90 | 6 | ea | 276.27 | 1,658 |
| " | Battery charger 12-24-36V Selenium model 7318K12, pg 1284 | 2 | ea | 473.45 | 947 |
| " | Cabinet, storage parts, 18 dwr welded 11"x5 1/2"x205.8" adj. cross dividers, #5150T14 pg 119 | 2 | ea | 101.75 | 204 |
| " | Porta Bull parts storage cabinet for storage of mechanics tool boxes, 21 adj bins #4668T11, pg 115 | 2 | ea | 581.15 | 1,162 |
| AKRO MILS, Akron, Ohio | Storage-go-round parts bin, 31"x31"x60", 45 dwr storage 98-444 w/18-909 bins | 3 | ea | 900.00 | 2,700 |
| Pressteel Co. | 438 EN-10LP bench 96"x36"x 35-1/2" #10 top 5 dwr, rt & lt lock w/ key, wired 18 AWG 400 HZ, 60 HZ, & 28 VOC on 20A circuit breakers w/pilot indicator | 3 | ea | 1484.00 | 4,452 |
| McMaster-Carr Co | Grinder, bench, 7" w/buffer #4452A70, page 1602 | 1 | ea | 462.46 | 462 |
| OP | Easel, chalkboard #5663T1 pg 622 | 2 | ea | 173.00 | 346 |



1. ACTIVITY (Base and Location)

MARINE CORPS BASE, CAMP LEJEUNE, NC 28542

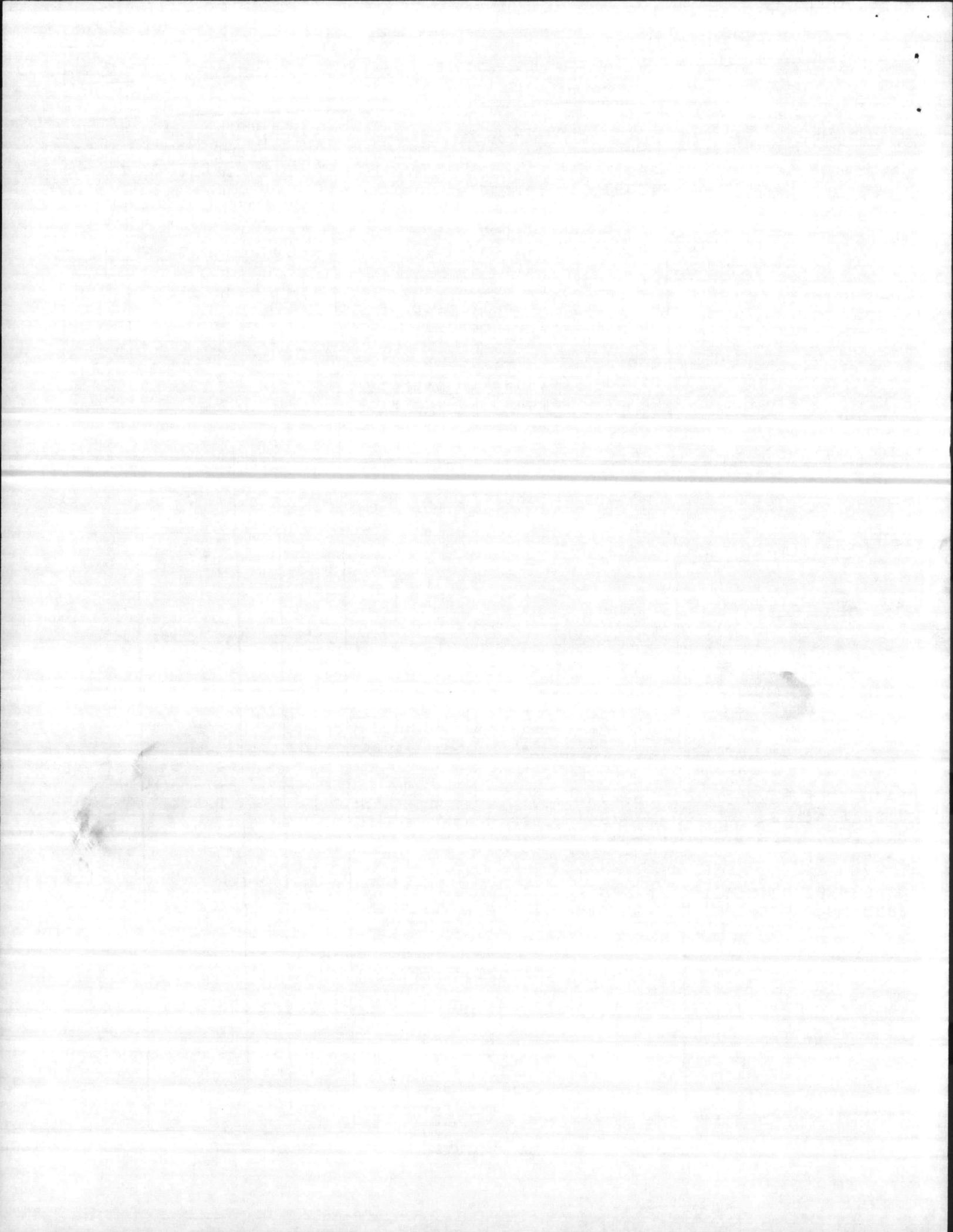
2. PROJECT TITLE

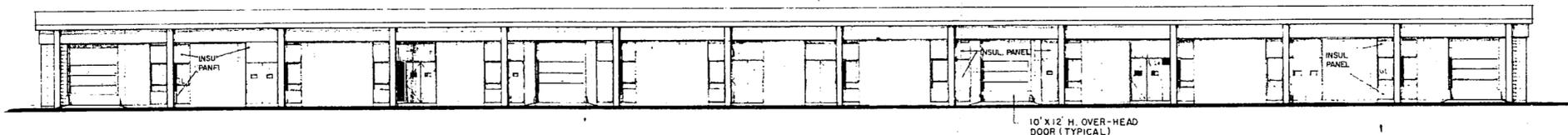
ELEC/COMM MAINTENANCE SHOP

Bldg.#2

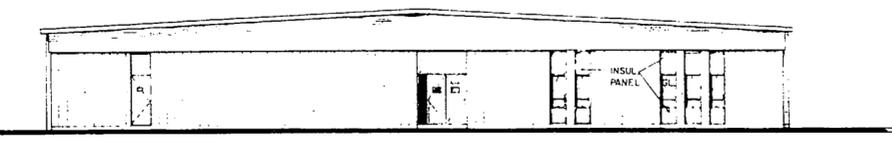
P. NO. P-679

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| McMaster Carr | Sectional shelving 36"W #5097T34, pg 127 | 1 | ea | 295.06 | 295 |
| " | Add on units for above shelv- ing #5097T44, pg 127 | 10 | ea | 274.97 | 2,750 |
| " | 12" shelving w/adj std, 6 shelves, 24 shelf clips, 36"w #4586T11, pg 126 | 10 | ea | 53.13 | 531 |
| " | Cabinet 31"H tray top acid storage for use in battery or acid areas. Acid resis- tant w/o eye wash #9765T3, pg 117 | 3 | ea | 493.13 | 1,480 |
| TOTAL EXPENSE ITEMS | | | | | 33,882 |
| 3. <u>Investment Items:</u> | None. | | | | |
| 4. <u>APA Eqpt:</u> | None. | | | | |
| 5. <u>Training Eqpt.</u> | (to be locally funded) | | | | |
| 6730-00-423-9992 | Projector, movie, Bell & Howell 16mm, real sound, Tungsten Halogen 1.2" lens focal length | 1 | ea | 467.54 | 468 |
| DA-LITE Screen Co. 3100 State Rd Box 137, Warsaw IN 46580 | Screen, movie, picture king 84"x84" glass beaded | 1 | ea | 126.42 | 126 |
| GS-03S-81003 Model 389B | Projector, overhead Specialist, model 389B | 1 | ea | 203.00 | 203 |
| Total Training Equipment: | | | | | 797 |

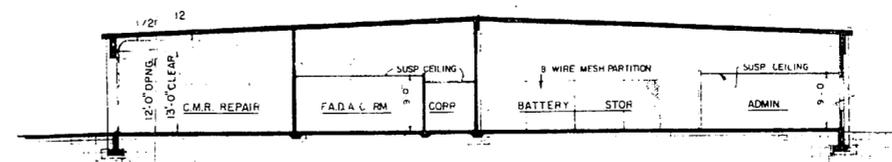




ELEVATION - 1
SCALE 3/32" = 1'-0"



ELEVATION - 2
SCALE 3/32" = 1'-0"



SECTION - A-A
SCALE 3/32" = 1'-0"

PLUMBING REQUIREMENTS

COLD WATER: (PROBABLE MAXIMUM FLOW RATE IN GPM) 100

HOT WATER:
STORAGE IN GALLONS (CONVERTERS) 182
HOT WATER RECOVERY (GPH) 146

NOTE: ABOVE FLOW RATE DOES NOT INCLUDE REQUIREMENTS FOR FIRE PROTECTION (AND AIR CONDITIONING)

MECHANICAL REQUIREMENTS

HEATING: (IN MBTU/HR): 70°F

INSIDE DESIGN TEMPERATURE -5°F -5°F +E 7 -25°F

OUTSIDE DESIGN TEMPERATURE 14.06 13.17 13.3 12.24

AIR CONDITIONING: (TONS OF REFRIGERATION): (MAXIMUM)

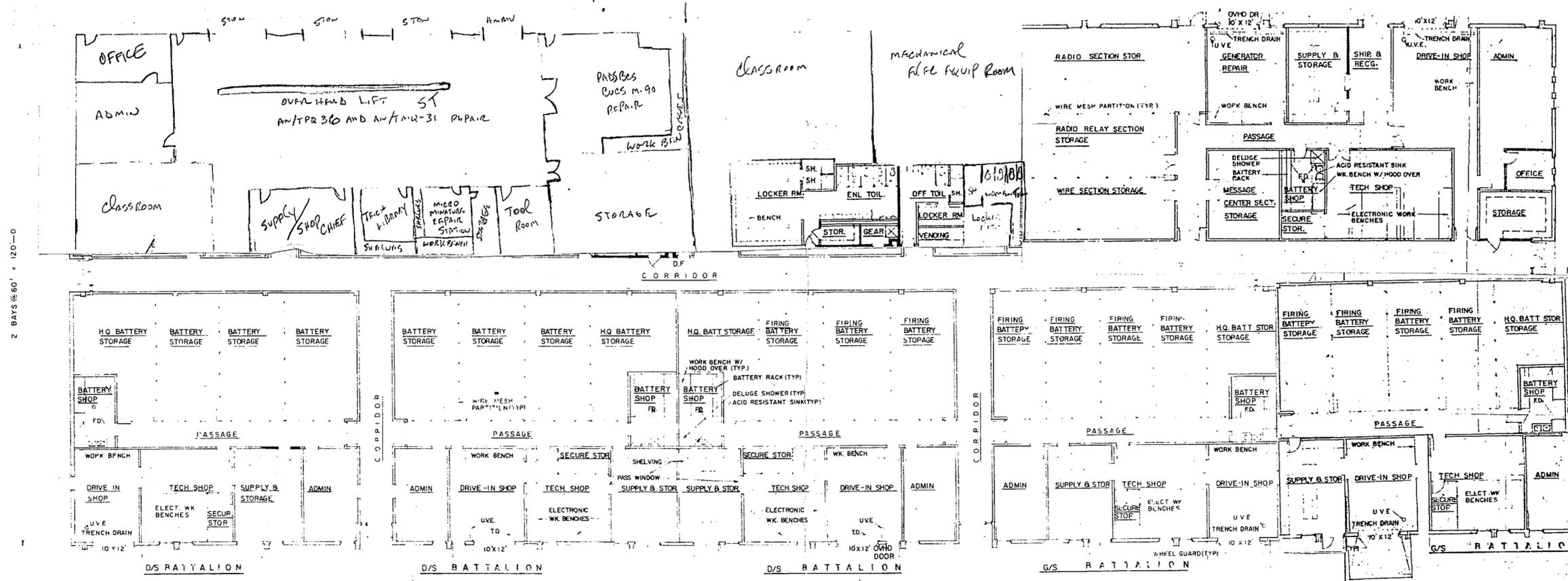
INSIDE DESIGN TEMPERATURE 74-78°F DB-50% RH

OUTSIDE DESIGN TEMPERATURE 74-78°F DB-78°F FWB

12

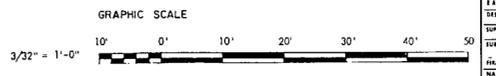
NOTE:
MECHANICAL VENTILATION SHALL BE PROVIDED FOR BATTERY SHOPS

MAXIMUM AIR CONDITIONING REQUIREMENTS APPROXIMATE ACTUAL SPACES TO BE AIR CONDITIONED AND REQUIREMENTS SHALL BE BASED ON DOD CONSTRUCTION CRITERIA MANUAL NO. 4270-1-M



FLOOR PLAN
SCALE 3/32" = 1'-0"

NOTE: FLOOR SLAB TO DRAINS
CONC APRON (TYP) SLOPE TO GRADE



WITHOUT AC

74

55

142

123

(IMATE ACTUAL SPACES
E BASED ON DOD CON-

4.50

16.50

10.50

USE ONLY.
BE PROVIDED IN
ION CRITERIA MANUAL

ARIABLE DEPENDING
MET'S

EMENT AND
ONSTRUCTION
CHANGE IS
CORPS.
Y WHEN NEEDED
ON AND

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND

DEFINITIVE DRAWING
E/C MAINTENANCE SHOP
ARTILLERY REGT/BN
U.S.M.C.

NO. 80091

DATE 12/3/55

SCALE AS NOTED

217-10-A



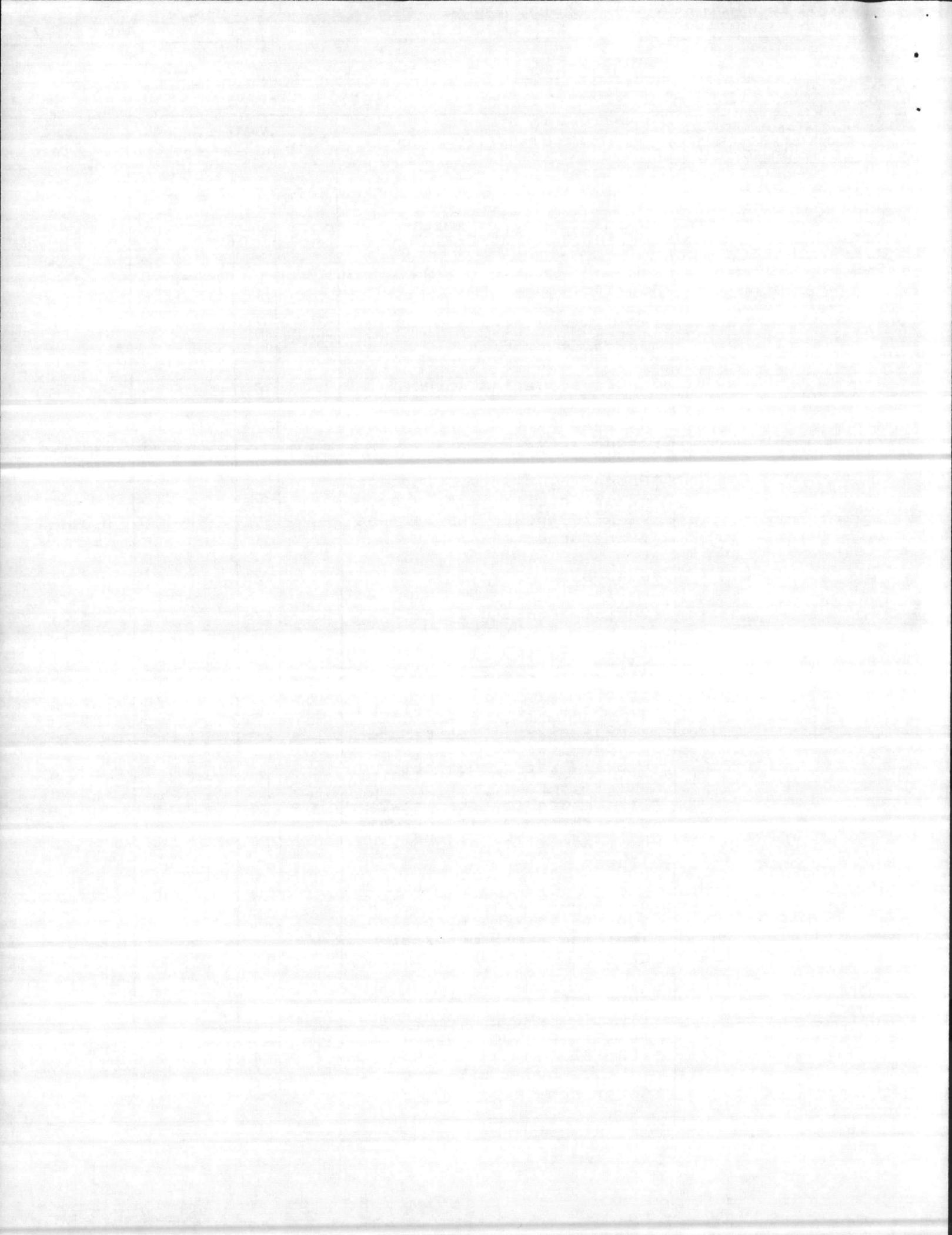
1. ACTIVITY (Name and Location)
 MARINE CORPS BASE, CAMP LEJEUNE, NC 28542

Bldg.#1

2. PROJECT TITLE
 ELEC/COMM MAINTENANCE SHOP (Combined P-679/564)

P. NO. p-~~564~~
 679

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QTY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|---|-----|--|---------------|---------------|
| 1. Built In Eqpt to be MCON Funded: | <p style="text-align: center;">Bldg. #1</p> <ul style="list-style-type: none"> *Compressed Air System (90 PSI) *Sprinkler System *Telephone, Fire Alarm & intercom systems *Lockers, wall mounted *Exhaust System, under/over ground sys *Grounding system, electronic 60/400 cycle elect. system w/ AC/DC power bus bar and transformer *Used oil system *Vehicle Fueling System *Tire changer, elec-air Bish- man Co., 150 PSI, compair *Air hose reel, 150 PSI, HD w/hose stop (ceiling, wall or pedestal mounted), provide water separator *Elec extension cord reel, HD w/cord stop (ceiling, wall or pedestal mounted) 120V, 1Phase *Water hose reel, HD w/hose control valve & hose stop (ceiling, wall/pedestal mtd) CW *Hose reels assembly, w/con- trol valves, HD, overhead, automatic hose stops & meters, 150 PSI comp air, 1 chassis lube, 1 hyd. oil, provide water separator | | <ul style="list-style-type: none"> sys sys sys ea sys sys sys ea ea ea ea ea ea ea | | |



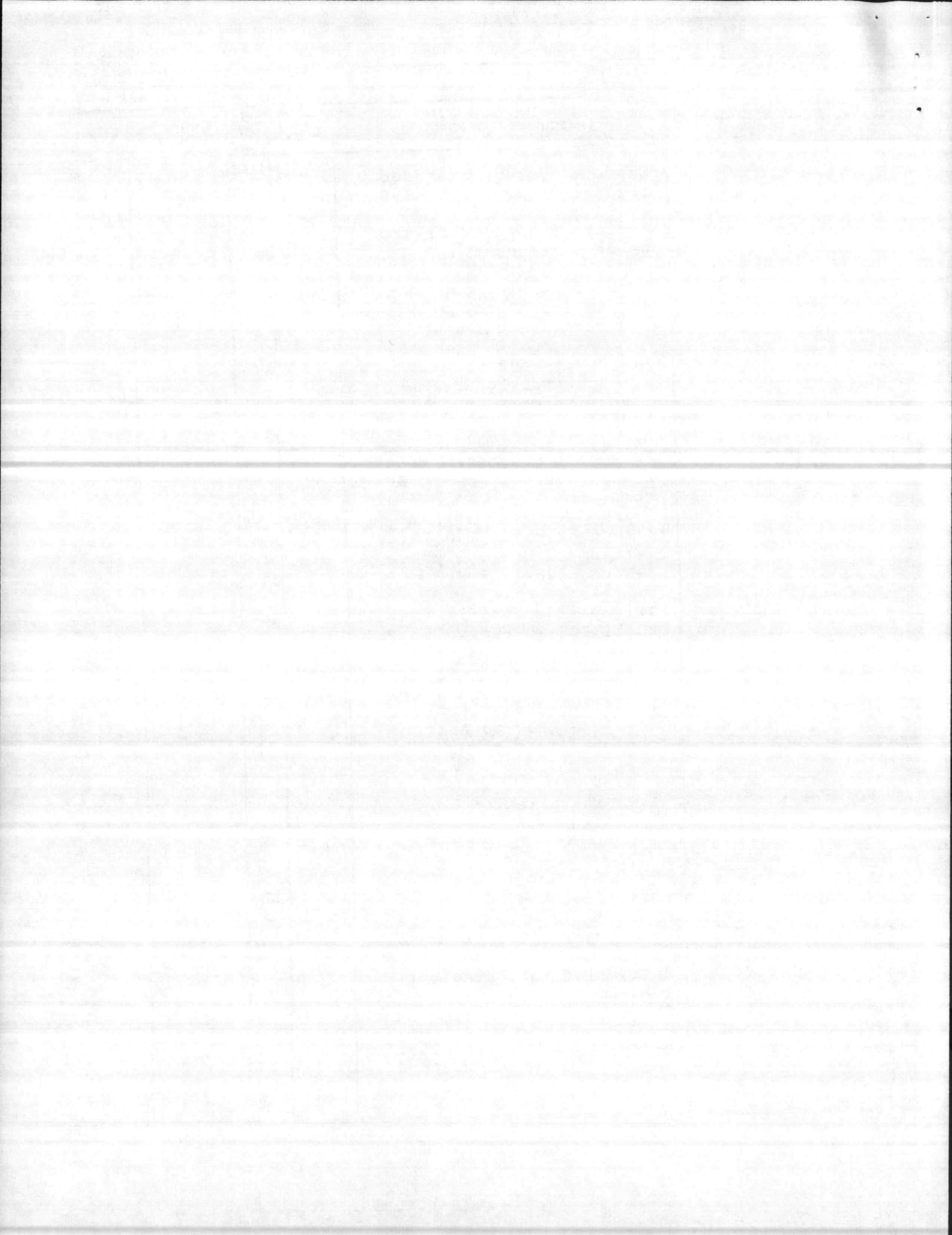
1. ACTIVITY (Name and Location)
MARINE CORPS BASE, CAMP LEJEUNE, NC 28542

2. PROJECT TITLE
ELEC/COMM MAINTENANCE SHOP

Bldg. #1

P. NO. E-~~670~~
670

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| | *Exhaust system, overhead, fractional HP, 220V, 3-PH | | ea | | |
| | *Outlets for portable arc welder (grounded) | | ea | | |
| | *Lube dispensing eqpt w/ access (couplers, valves, regulators etc.) | | ea | | |
| | *Air pumps, 400 lb drums for oil (chassis, gear, motor oil, transmission & hydraulic fluid), as req'd | | ea | | |
| | *Twin post pneumatic lifts, 1 HD, 24,000 lb cap, 150 PSI comp air | | ea | | |
| | *Air Compressor, 150 PSI, 2-stage 32 CFM), 3 phase, 3-WIRE, 220v, L5 HP | | ea | | |
| | *Twin post pneumatic lift, LD 11,000 lb cap., 150 PSI comp air | | ea | | |
| | *1 Ton overhead monorail, 1-1/4 HP, 220V, 3-phase, 60-cycle 120V power to controls & switches | | ea | | |
| Equipment with associated installation cost. | | | | | |
| 2. <u>Expense Items:</u> | | | | | |
| 7110-00-149-1630 | Desk, flat top, dbl ped | 2 | ea | 234.23 | 468 |
| 7110-01-016-6580 | attachment for desk below | 6 | ea | 132.93 | 798 |
| 7110-00-149-1628 | Desk, flat top, single ped | 6 | ea | 180.09 | 1,081 |
| 7110-00-082-6229 | Chair, rotary, tilting seat | 6 | ea | 66.31 | 398 |
| 7110-00-958-8044 | Chair, secretarial rotary | 6 | ea | 64.60 | 388 |
| 7110-00-685-5534 | Stand, typewriter, drop leaf | 4 | ea | 85.60 | 342 |



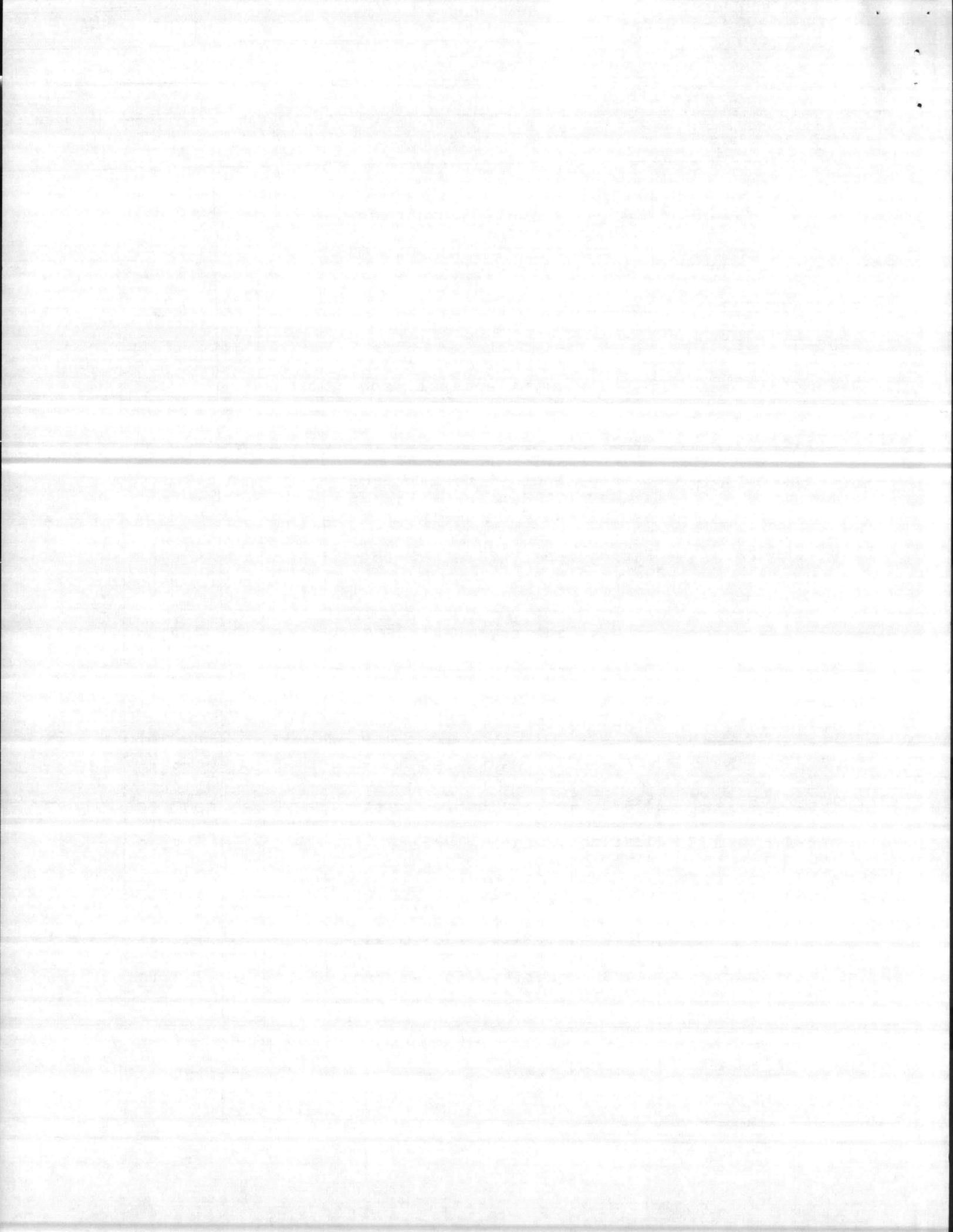
1. ACTIVITY (Name and Location)
 MARINE CORPS BASE, CAMP LEJEUNE, NC 28542

2. PROJECT TITLE
 ELEC/COMM MAINTENANCE SHOP

Bldg. #1

P. NO. P-~~679~~
 679

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| 7110-00-497-2012 | Filing cabinet, 5 dwr, legal size, parchment | 6 | ea | 146.20 | 877 |
| 7125-00-764-6129 | Cabinet, storage, dbl dr. | 8 | ea | 132.78 | 1,062 |
| 7110-00-601-9822 | Bookcase, 2 shelves, parch. | 12 | ea | 82.92 | 995 |
| 7110-00-782-3503 | Chair, straight, w/o arms | 28 | ea | 38.34 | 1,073 |
| 7195-00-004-6716 | Rack, wearing apparel, con-temporary 6 mtl hangers | 6 | ea | 49.39 | 296 |
| 7520-00-285-5416 | Wastebasket | 18 | ea | 2.85 | 51 |
| 4210-00-720-1815 | Extinguisher, fire 2-1/2 gal air expelled water, Class A stainless | 8 | ea | 25.98 | 208 |
| 4210-01-089-0875 | Extinguisher, fire, 20 lb Halon | 8 | ea | 74.11 | 593 |
| VIRCO | Student chairs, model 7020 | 30 | ea | 30.35 | 911 |
| 7110-00-143-0821 | Table, general purpose | 4 | ea | 164.00 | 656 |
| 6645-00-514-3523 | Clock, wall | 12 | ea | 8.20 | 98 |
| 7195-00-926-5939 | Bench, work portable | 8 | ea | 159.59 | 1,277 |
| 4910-00-543-7771 | Bench, work portable, auto | 6 | ea | 332.00 | 1,992 |
| 7195-00-242-3503 | Costumer, wearing apparel 4 dbl hooks | 9 | ea | 55.00 | 495 |
| Federal Prison System 26-S-32850-258 | Shelving 24"x36"x87", type A | 30 | ea | 93.05 | 2,792 |
| 7125-331-8401 | Shelving 18"x108"x87" Class 3 | 26 | ea | 93.45 | 2,430 |
| 20-S-32879-152 | Doors, security, for storage shelving, w/locks & handles | 10 | ea | 38.10 | 381 |
| OP MONROE | Adding Machine | 4 | ea | 400.00 | 1,600 |
| 7910-00-680-8296 | Floor Polisher | 2 | ea | 209.90 | 420 |



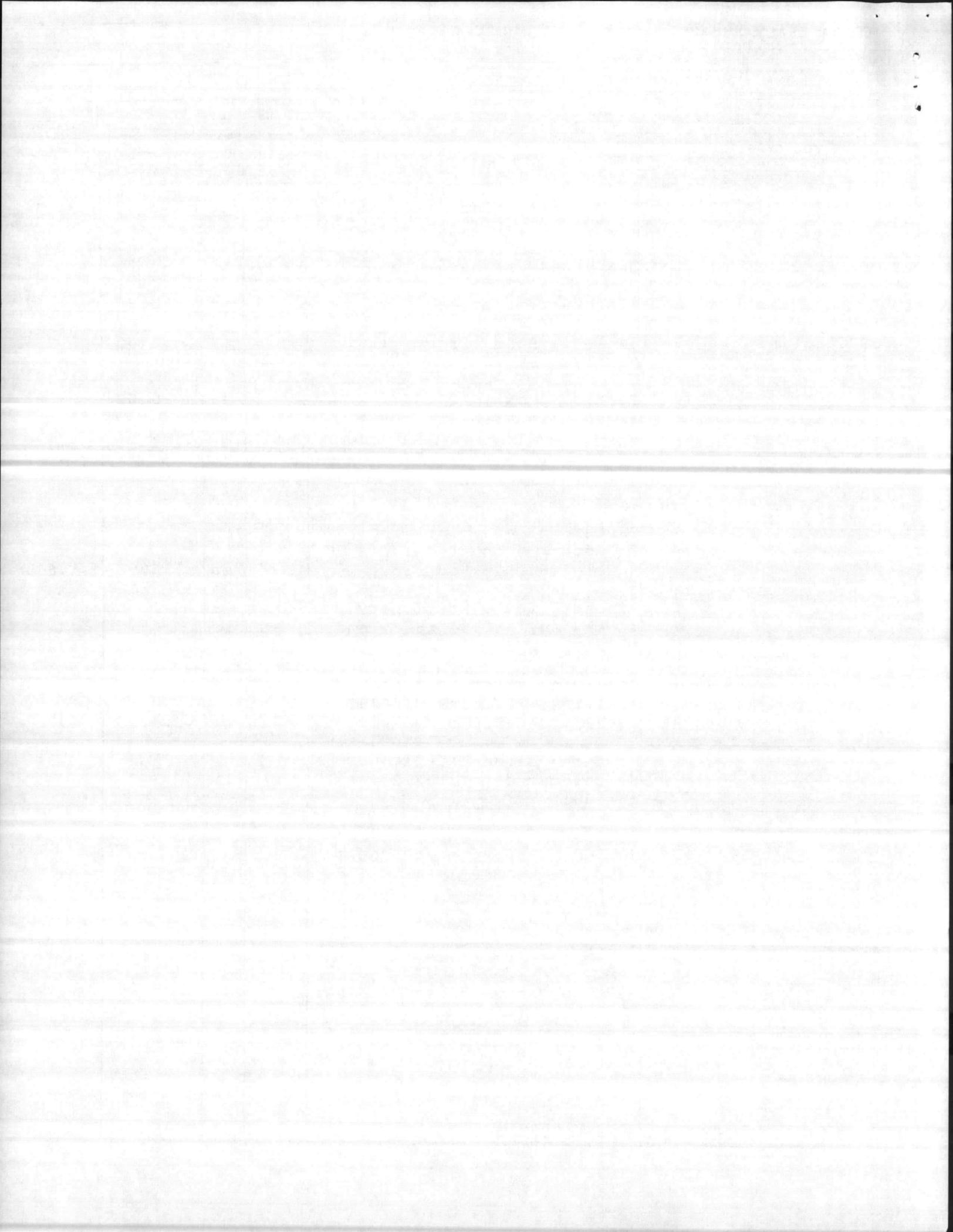
1. ACTIVITY (Name and Location)
 MARINE CORPS BASE, CAMP LEJEUNE, NC 28542

Bldg. #1

2. PROJECT TITLE
 ELEC/COMM MAINTENANCE SHOP

P. NO
 P-679

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|---|---|---------------|---------------------|---------------|---------------|
| OP IBM | Typewriter, elec. selectric II, dual pitch, correctable | 4 | ea | 850.00 | 3,400 |
| OP | Draperies and hardware | 4 | pr | 90.00 | 360 |
| " | Blackout draperies | 4 | pr | 90.00 | 360 |
| OP Carolina Ofc supply | Bulletin Board, cork, alum frame, cork | 6 | ea | 46.00 | 276 |
| " | Portable easel, 29x40" expandable #T-5-80E | 2 | ea | 96.00 | 192 |
| McMaster Carr Supply Co POB 440, New Brunswick, NJ | Parts Bin, adj. shelving 14"x 24" deep 54 openings, Cat 90 Model #4641T39, pg 135 | 6 | ea | 282.98 | 1,698 |
| " | Benches, work, stationary steel top, 28"x34"x60", std #9054T12 Cat 90, pg 147 | 12 | ea | 106.86 | 1,282 |
| " | Revolving steel storage bins 42-1/8"H, 10 tiers, #4649T41 pg 135, Cat 90 | 8 | ea | 276.27 | 2,210 |
| " | Battery charger 12-24-36V Selenium model 7318K12, pg 1284 | 2 | ea | 473.45 | 947 |
| " | Cabinet, storage parts, 18 dwr welded 11"x5 1/2"x205.8" adj. cross dividers, #5150T14 pg 119 | 2 | ea | 101.75 | 204 |
| AKRO MILS, Akron, Ohio | Storage-go-round parts bin, 31"x31"x60", 45 dwr storage 98-444 w/18-909 bins | 2 | ea | 900.00 | 1,800 |



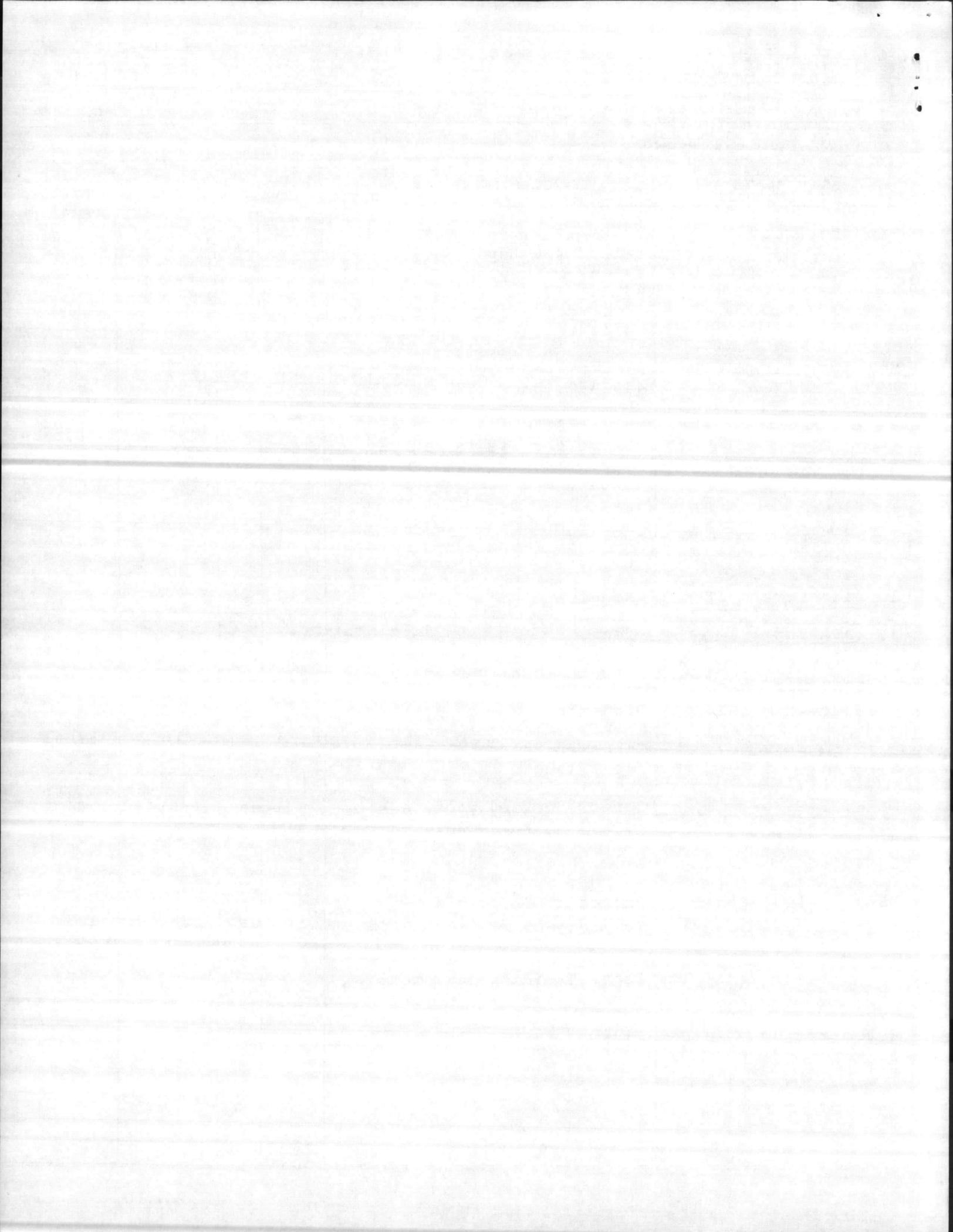
1. ACTIVITY (Name and Location)
 MARINE CORPS BASE, CAMP LEJEUNE, NC 28542

Bldg. #1

2. PROJECT TITLE
 ELEC/COMM MAINTENANCE SHOP

P. NO. P-670

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| Pressteel Co. | 438 EN-10LP bench 96"x36"x 35-1/2" #10 top 5 dwr, rt & lt lock w/ key, wired 18 AWG 400 HZ, 60 HZ, & 28 VOC on 20A circuit breakers w/pilot indicator | 6 | ea | 1484.00 | 8,904 |
| McMaster-Carr | Grinder, bench, 7" w/buffer #4452A70, page 1602 | 1 | ea | 462.46 | 462 |
| " | Cabinet 31"H tray top acid storage for use in battery or acid areas. Acid resis- tant w/o eye wash #9765T3, pg 117. | 2 | ea | 493.13 | 986 |
| TOTAL EXPENSE ITEMS: | | | | | 44,763 |
| 3. <u>Investment Items:</u> | None. | | | | |
| 4. <u>APA Eqpt:</u> | None. | | | | |
| 5. <u>Training Eqpt.</u> | (to be locally funded) | | | | |
| 6730-00-423-9992 | Projector, movie, Bell & Howell 16mm, real sound, Tungsten Halogen 1.2" lens focal length | 1 | ea | 467.54 | 468 |
| DA-LITE Screen Co. 3100 State Rd Box 137, Warsaw IN 46580 | Screen, movie, picture king 84"x84" glass beaded | 1 | ea | 126.42 | 126 |
| GS-03S-81003 Model 389B | Projector, overhead Specialist, model 389B | 1 | ea | 203.00 | 203 |
| Total Training Equipment: | | | | | 797 |
| Estimated BOD: August 1990 | | | | | |



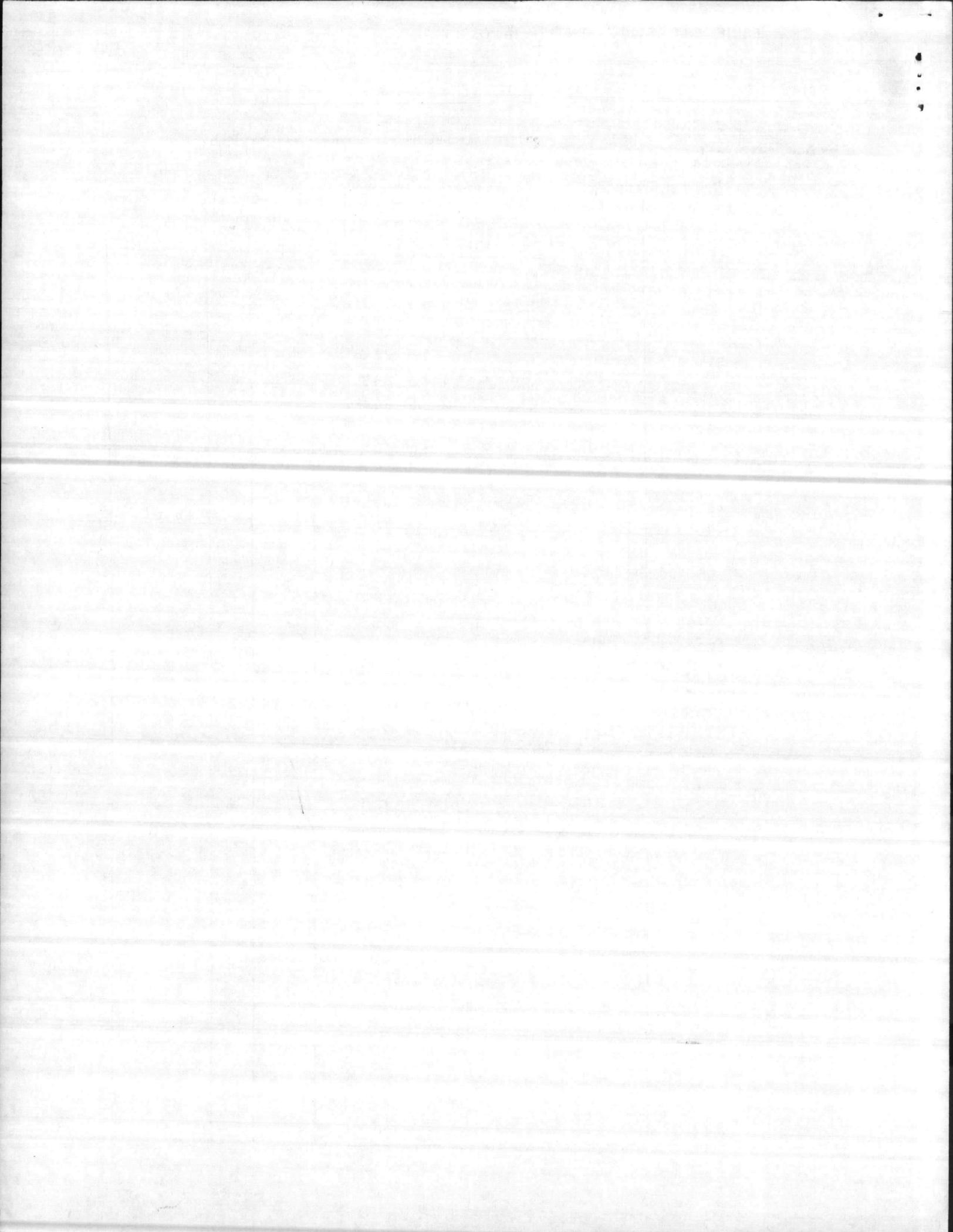
1. ACTIVITY (Name and Location)
 MARINE CORPS BASE, CAMP LEJEUNE, NC 28542

Bldg. #1

2. PROJECT TITLE
 ELEC/COMM MAINTENANCE SHOP (Combined P-564/679)

P. NO. 679
 P-564

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|----------------|
| | RECAP FOR ELEC/COMM MAINTENANCE SHOP (P-679 and P-564 | | | | - |
| | Expense Items: P-679 | | | | 33,882 |
| | P-564 | | | | 44,763 |
| | | | | | <u>78,645</u> |
| | Training Expense: P-679 | | | | 797 |
| | P-564 | | | | 797 |
| | | | | | <u>1,594</u> |
| SUMMARY | TOTAL EXPENSE ITEMS P-679 | | | | 33,882 |
| | CONTINGENCY | | | | 1,694 |
| | COST ACCELERATION | | | | 8,471 |
| | TOTAL | | | | <u>44,047</u> |
| | TOTAL EXPENSE ITEMS P-564 | | | | 44,763 |
| | CONTINGENCY | | | | 2,238 |
| | COST ACCELERATION | | | | 11,191 |
| | TOTAL | | | | <u>58,192</u> |
| | COMBINED TOTAL BOTH PROJECTS | | | | <u>102,239</u> |





DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

81-1639
TELEPHONE NO.

444-9670

IN REPLY REFER TO:

09A21B3:MLB:car
11010/MARCORB

CAMP LEJEUNE

3 January 1983

From: Commander, Atlantic Division, Naval Facilities Engineering Command
To: Commander, Naval Facilities Engineering Command (Code 05)

Subj: FY 1984 Project Engineering Documentation (PED) for Project P-240,
Combat Vehicle Maintenance Shops, Marine Corps Base, Camp Lejeune, North
Carolina

Ref: (a) NAVFACENGCOM ltr 0512A1/AGT of 23 Jun 1981
(b) NAVFACENGCOM ltr 0512A1/AGT of 13 Jul 1982
(c) NAVFACINST 11010.14M
(d) NAVFACINST 11010.44D

Encl: (1) Subject PED (10 copies)
(2) Detailed Engineering Cost Estimate Sheets
(3) Witness Data Sketch (2 copies)

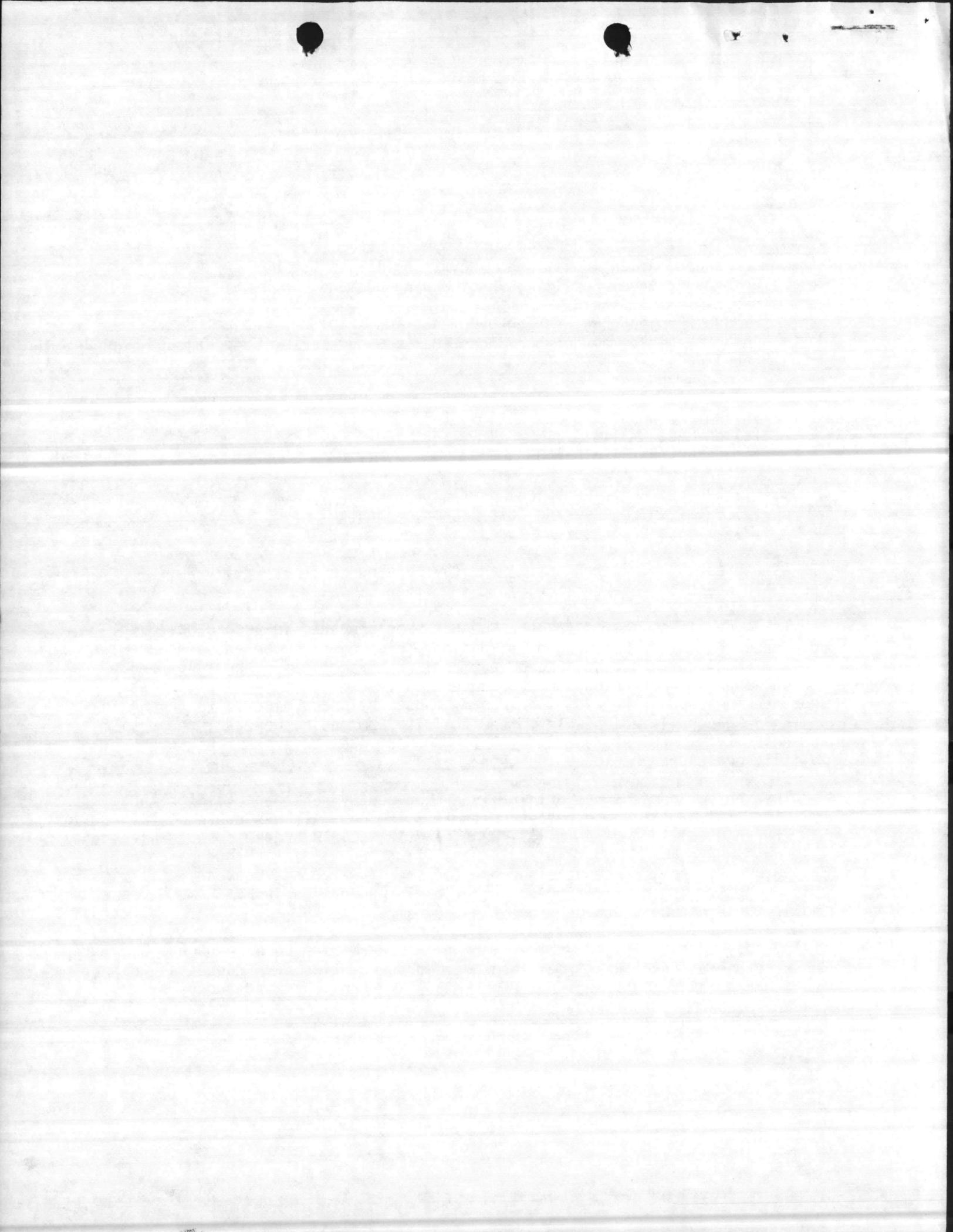
1. As requested by references (a) and (b), enclosures (1), (2), and (3), prepared in accordance with reference (b), are submitted.
2. It is certified that: (a) the PED has been prepared in accordance with reference (b) and is based upon 35% design; (b) project scope and cost are the minimum required to satisfy the operational requirements and are supported by current SFPS documentation in accordance with reference (c); (c) utilities are adequate to support the additional load imposed by the project; (d) the facility design is generally acceptable to the Activity Commanding General, and satisfies the Activity's requirements; and (e) the DD Form 1391 has been reviewed by both the Activity and LANTNAVFACENGCOM.
3. The subject project was originally authorized by reference (a) for three buildings (31,330 SF) at a budget cost of \$3,150,000. It was subsequently modified by reference (b) to a scope of 33,480 SF and \$5,950,000 budget cost. This scope has been increased as shown in enclosures (1) through (3) to a budget cost of \$7,100,000 to provide adequate support for steam, water and sanitary utilities for this project. These utilities were previously programmed in FY 85 MCON Project P-054, which has been dropped from the program.
4. By copy of this letter, the Commandant of the Marine Corps; and the Commanding General, Marine Corps Base, Camp Lejeune, North Carolina; are requested to provide any comments directly to NAVFACENGCOM (Attention Code 05) with a copy to LANTNAVFACENGCOM (attention Code 09A2). If no comments are submitted within 30 days, concurrence will be assumed.

E. W. ATKINSON, P. E.
By direction

Copy to: (w/2 copies encl (1))

CMC

→ MARCORB CAMP LEJEUNE



FOR OFFICIAL USE ONLY

DATE: 15 DEC 1982

DEPARTMENT OF THE NAVY

PROJECT ENGINEERING DOCUMENTATION

COMBAT VEHICLE
MAINTENANCE SHOPS

(P-240)

FY 1984 MCON

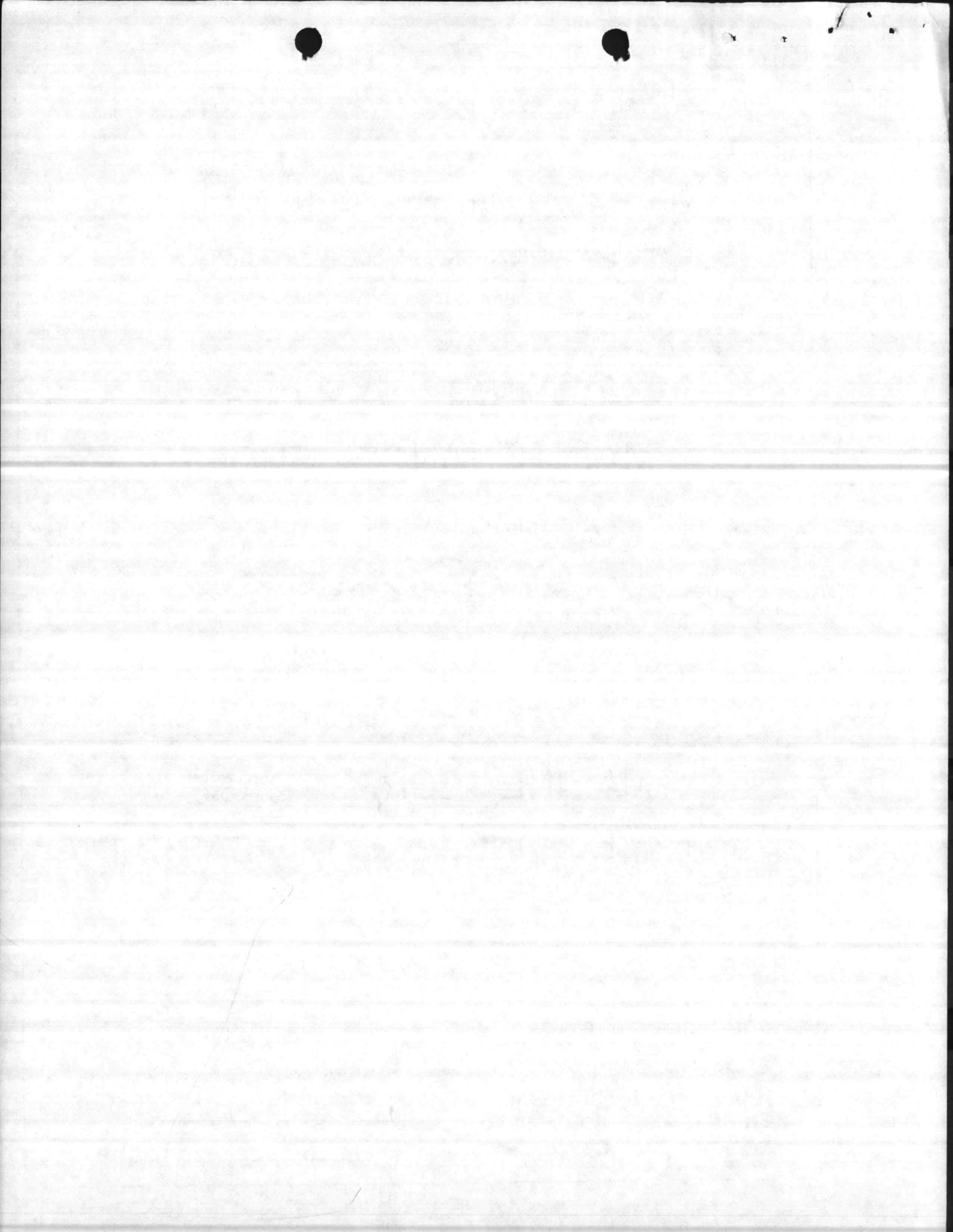
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

ADMINISTERED BY:

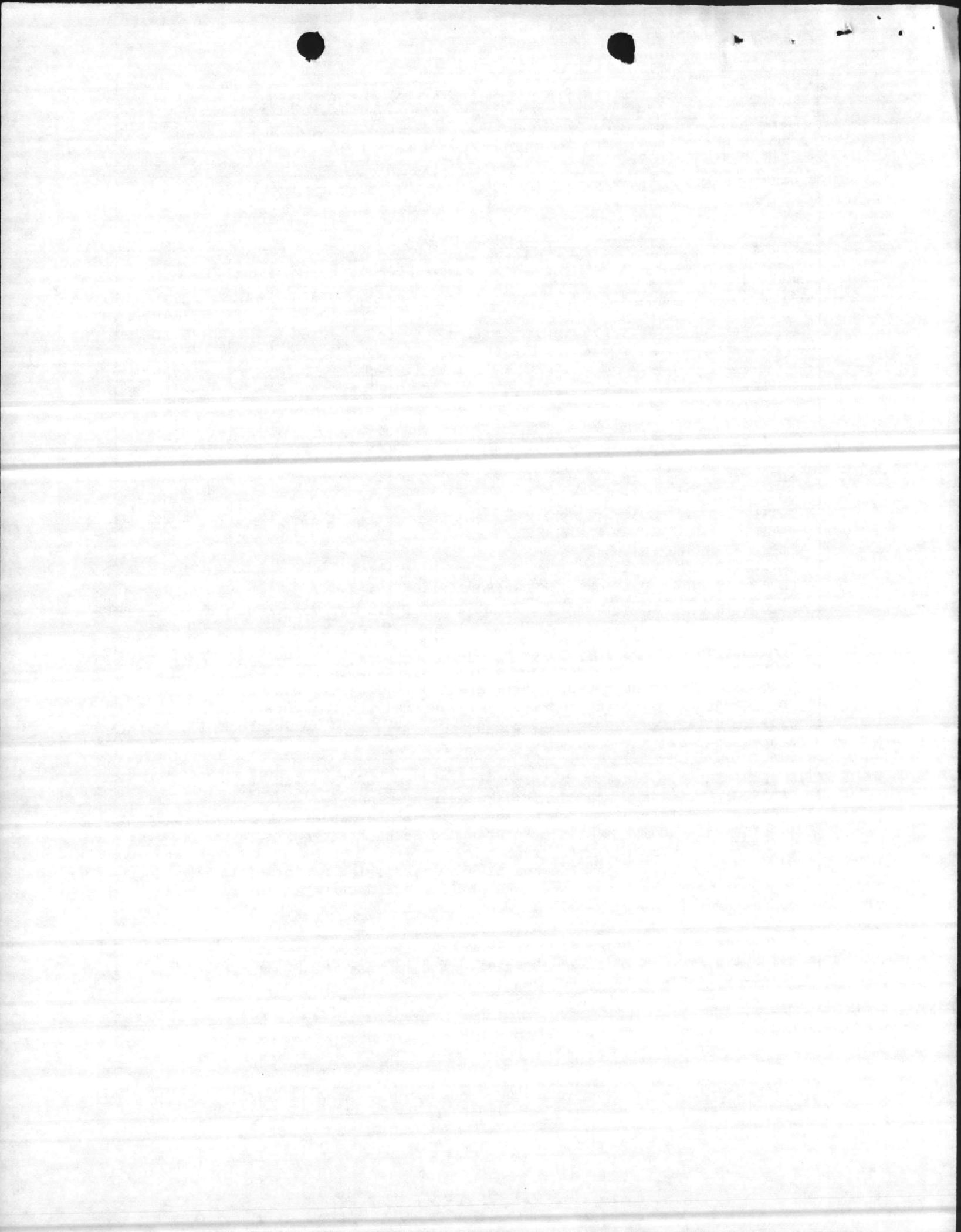
ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND
NORFOLK, VA. 23511

PREPARED BY:

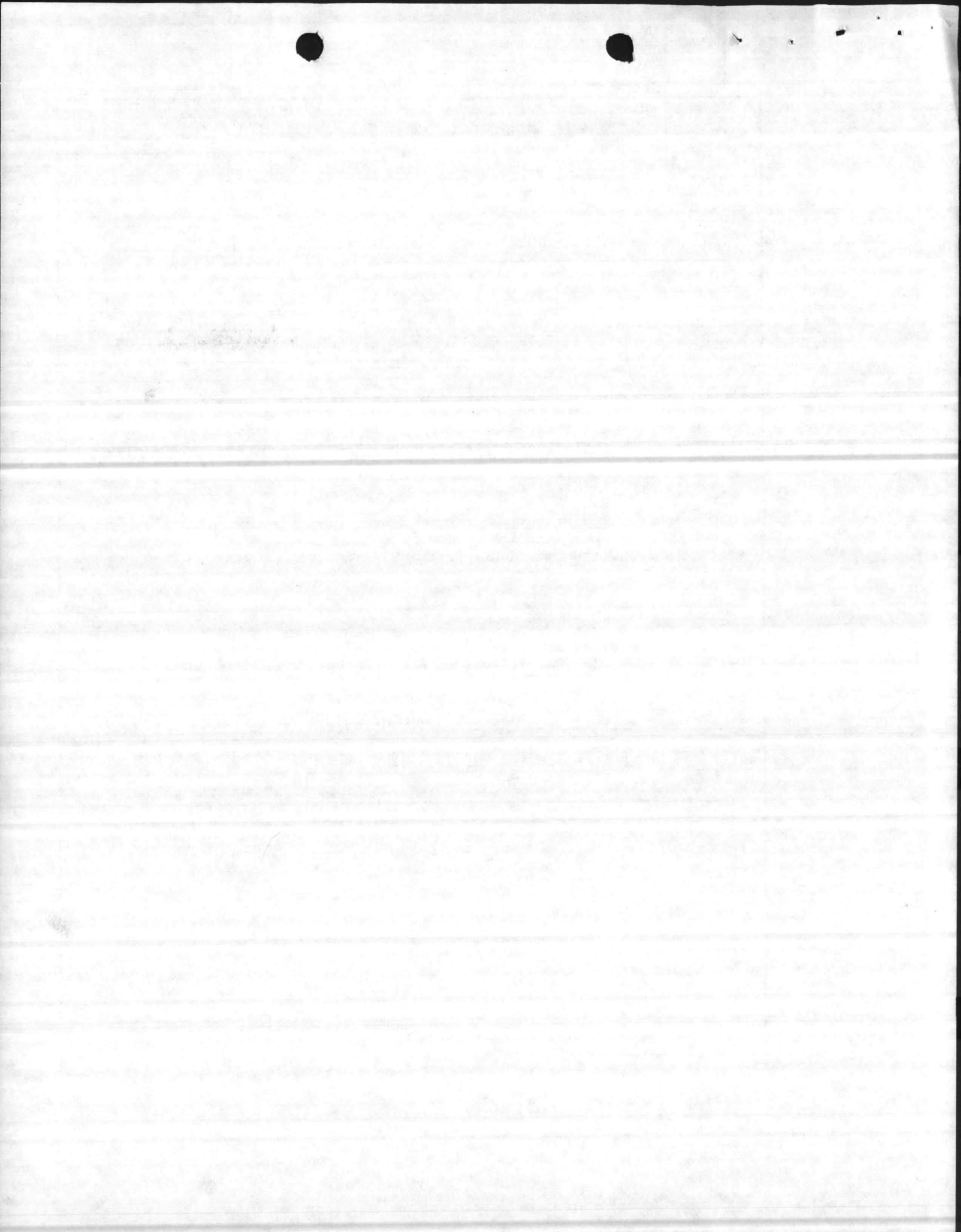
TOWNSEND ARCHITECTURAL
PLANNING GROUP
P. O. BOX 3917
GREENVILLE, S. C. 29608



| | | | | | | | |
|--|--|--|--|--|----------|----------------------------------|--------------|
| 1. COMPONENT NAVY | | FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA | | | | 2. DATE 15 DEC 1982 | |
| 3. INSTALLATION AND LOCATION MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA | | | | 4. PROJECT TITLE COMBAT VEHICLE MAINTENANCE SHOPS | | | |
| 5. PROGRAM ELEMENT | | 6. CATEGORY CODE 214-51 | | 7. PROJECT NUMBER P-240 | | 8. PROJECT COST (\$000) 7,100 | |
| 9. COST ESTIMATES | | | | | | | |
| ESCALATION 9% | | ITEM BID OPENING DATE 1 APRIL 1984 | | U/M | QUANTITY | UNIT COST | COST (\$000) |
| COMBAT VEHICLE MAINTENANCE SHOPS | | | | SF | 33480 | 69.27 | 2319 |
| Maintenance Shop - Supply Battalion | | | | SF | 10650 | 53.24 | (567) |
| Maintenance Shop - Maint. Battalion | | | | SF | 12180 | 50.16 | (611) |
| Maintenance Shop - Medical Battalion | | | | SF | 10650 | 54.84 | (584) |
| Built-in Equipment | | | | LS | - | - | (557) |
| SUPPORTING FACILITIES | | | | LS | - | - | 4049 |
| Utilities | | | | LS | - | - | (2879) |
| Roads, Parking, Sidewalks | | | | LS | - | - | (558) |
| Site Improvements | | | | LS | - | - | (612) |
| SUBTOTAL | | | | - | - | - | 6368 |
| CONTINGENCY (5%) | | | | - | - | - | 318 |
| TOTAL CONTRACT COST | | | | - | - | - | 6686 |
| SUPERVISION, INSPECTION, & OVERHEAD (5.5%) | | | | - | - | - | 368 |
| TOTAL REQUEST | | | | - | - | - | 7054 |
| TOTAL REQUEST (ROUNDED) | | | | - | - | - | 7100 |
| EQUIPMENT PROVIDED FROM OTHER APPROPRIATIONS | | | | - | - | - | 119 |
| 10. DESCRIPTION OF PROPOSED CONSTRUCTION Two-story maintenance facilities with high bays of steelframe on spread footing, masonry walls, concrete floors, and built-up roof. Overhead doors in bay areas, fire protection and alarm systems, energy conservation and pollution abatement features are included in project. Wash aprons, pavements, security fencing and lighting, and utility connections are included. Upgrade utilities (water, steam and sanitary sewer) to French Creek Industrial Area. (Air Conditioning: 15 tons) | | | | | | | |
| 11. REQUIREMENT: <u>178,827 SF ADEQUATE: 35,160 SF SUBSTANDARD: 5,066 SF</u> PROJECT: Provide Combat Vehicle Maintenance Shop for 2d Supply, 2d Maintenance, and 2d Medical Battalions of the 2d Force Service Support Group. REQUIREMENT: Combat Vehicle Maintenance Shops are required to carry out the prescribed maintenance program. CURRENT SITUATION: Maintenance programs are being performed in sub-standard WW-II buildings and metal buildings constructed in 1952 which do not the standards required to maintain the modern, sophisticated equipment used today and which cannot be economically rehabilitated. IMPACT IF NOT PROVIDED: The 2d Supply, 2d Maintenance, and 2d Medical Battalion vehicle will remain adversely affected, and maintenance capability and combat readiness will continue to be impaired. | | | | | | | |



| | | |
|--|--|------------------------|
| 1. COMPONENT NAVY | FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA | 2. DATE 15 DEC 1982 |
| 3. INSTALLATION AND LOCATION MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA | | |
| 4. PROJECT TITLE COMBAT VEHICLE MAINTENANCE SHOPS | 5. PROJECT NUMBER P-240 | |
| <p><u>ENVIRONMENTAL IMPACT</u></p> <p>The project Preliminary Environmental Assessment has been reviewed, and where required, the design concepts give consideration to eliminating adverse environmental effects consistent with applicable directives.</p> <p><u>PRESERVATION OF HISTORICAL SITES AND STRUCTURES</u></p> <p>The project facilities do not directly or indirectly affect a district, site, building, structure, object or setting which is listed in the National Register or otherwise possesses a significant quality of American history.</p> <p><u>FALLOUT SHELTER CONSTRUCTION</u></p> <p>Fallout shelter excluded - Activity deficiency programmed in other projects.</p> <p><u>FLOOD HAZARDS EVALUATION</u></p> <p>Requirements of Executive Order No. 11988 (Floodplain Management) and Executive Order No. 11990 (Protection of Wetlands) are not applicable.</p> <p><u>POLLUTION, PREVENTION, ABATEMENT AND CONTROL</u></p> <p>This project will not cause additional air or water pollution.</p> <p><u>DESIGN FOR ACCESSIBILITY OF PHYSICALLY HANDICAPPED PERSONNEL</u></p> <p>Provisions for physically handicapped personnel not required in this facility. Use is restricted to able-bodied military personnel.</p> | | |



BUDGET ESTIMATE SUMMARY SHEET FOR P-24

Title: COMBAT VEHICLE MAINTENANCE SHOPS

Costs Escalated to: 1 APR 84

Location: MCB, CAMP LEJEUNE, NC

Escalation: 9%

Prepared by: TOWNSEND ARCHITECTURAL
PLANNING GROUP

Date: 15 DEC 82

Contingency: 5%

| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-IN EQUIPMENT |
|---------------------------|--------------|----------|----------|--------------------|------------------|--------------------|
| 3 BUILDINGS TOTAL | 33480 | SF | | | | |
| Building | | | | | | |
| 1 Foundation | 2.84 | 3.64 | 26130 SF | 95000 | 95000 | 0 |
| 2 Slab on Grade | 3.61 | 4.63 | 26130 SF | 121000 | 121000 | 0 |
| 3 Structural Frame | 6.96 | 6.96 | 33480 SF | 233000 | 233000 | 0 |
| 4 Supported Floor | 0.54 | 2.54 | 7350 SF | 18000 | 18000 | 0 |
| 5 Roof | 5.44 | 7.00 | 26000 SF | 182000 | 182000 | 0 |
| 6 Exterior Walls | 6.51 | 8.27 | 26350 SF | 218000 | 218000 | 0 |
| 7 Interior Walls | 3.41 | 5.07 | 22480 SF | 114000 | 114000 | 0 |
| 8 Interior Finishes | 4.06 | 4.06 | 33480 SF | 136000 | 136000 | 0 |
| 9 Doors and Windows | 4.81 | 4.81 | 33480 SF | 161000 | 155000 | 6000 |
| 10 Specialties | 0.81 | 0.81 | 33480 SF | 27000 | 3000 | 24000 |
| 10A Special Equipment | 6.84 | 6.84 | 33480 SF | 229000 | 0 | 229000 |
| 11 Plumbing | 3.26 | 1211.11 | 90 FIX | 109000 | 103000 | 6000 |
| 13 HV & AC | 4.75 | 8153.85 | 19.5TON | 159000 | 159000 | 0 |
| 17 Sprinkler System | 2.93 | 2.93 | 33480 SF | 98000 | 0 | 98000 |
| 19 Compressed Air | 0.99 | 0.99 | 33480 SF | 33000 | 0 | 33000 |
| 25 Electrical | 7.77 | 7.77 | 33480 SF | 260000 | 225000 | 35000 |
| 59 Fuel Dispensing | 2.95 | 99000.00 | 1 LS | 99000 | 0 | 99000 |
| 60 Waste Oil System | 0.81 | 27000.00 | 1 LS | 27000 | 0 | 27000 |
| Sub-Total Building | 69.27 | | | * \$2319000 | \$1762000 | \$557000* |

Supporting Facilities

| | | | | | | |
|--|--|-----------|----------|-------------------|---------|---------|
| 50 Electrical Distribution | | 52.13 | 1899 SF | 99000 | 99000 | 0 |
| 52 Telephone Distribution | | 23.91 | 2300 LF | 55000 | 55000 | 0 |
| 53 Fire Alarm Distribution | | 2.17 | 2300 LF | 5000 | 5000 | 0 |
| 54 Area Lighting | | | | | | 0 |
| 56 Heat Distribution | | 111000.00 | 1 LS | 111000 | 111000 | 0 |
| 61 Sanitary Sewer | | 176.11 | 8705 LF | 1533000 | 1533000 | 0 |
| 62 Lift Station | | 31.65 | 16840 LF | 533000 | 533000 | 0 |
| 64 Water Distribution | | 308000.00 | 1 LS | 308000 | 308000 | 0 |
| 75 & 76 Roads & Parking | | 29.21 | 8045 LF | 235000 | 235000 | *2879 0 |
| 78 Storm Sewer | | 12.03 | 46390 SY | 558000 | 558000 | *558 0 |
| 79 Grading | | 37.23 | 1880 LF | 70000 | 70000 | 0 |
| 80 Topsoil & Seeding | | 6.24 | 59000 SY | 368000 | 368000 | 0 |
| 82 Site Improvements | | 1.61 | 24800 SY | 40000 | 40000 | 0 |
| | | 134000.00 | 1 LS | 134000 | 134000 | *612 0 |
| Sub-Total Supporting Facilities | | | | *\$4049000 | | |

Total Estimated Contract Cost: 1 APR 84 \$6,368,000

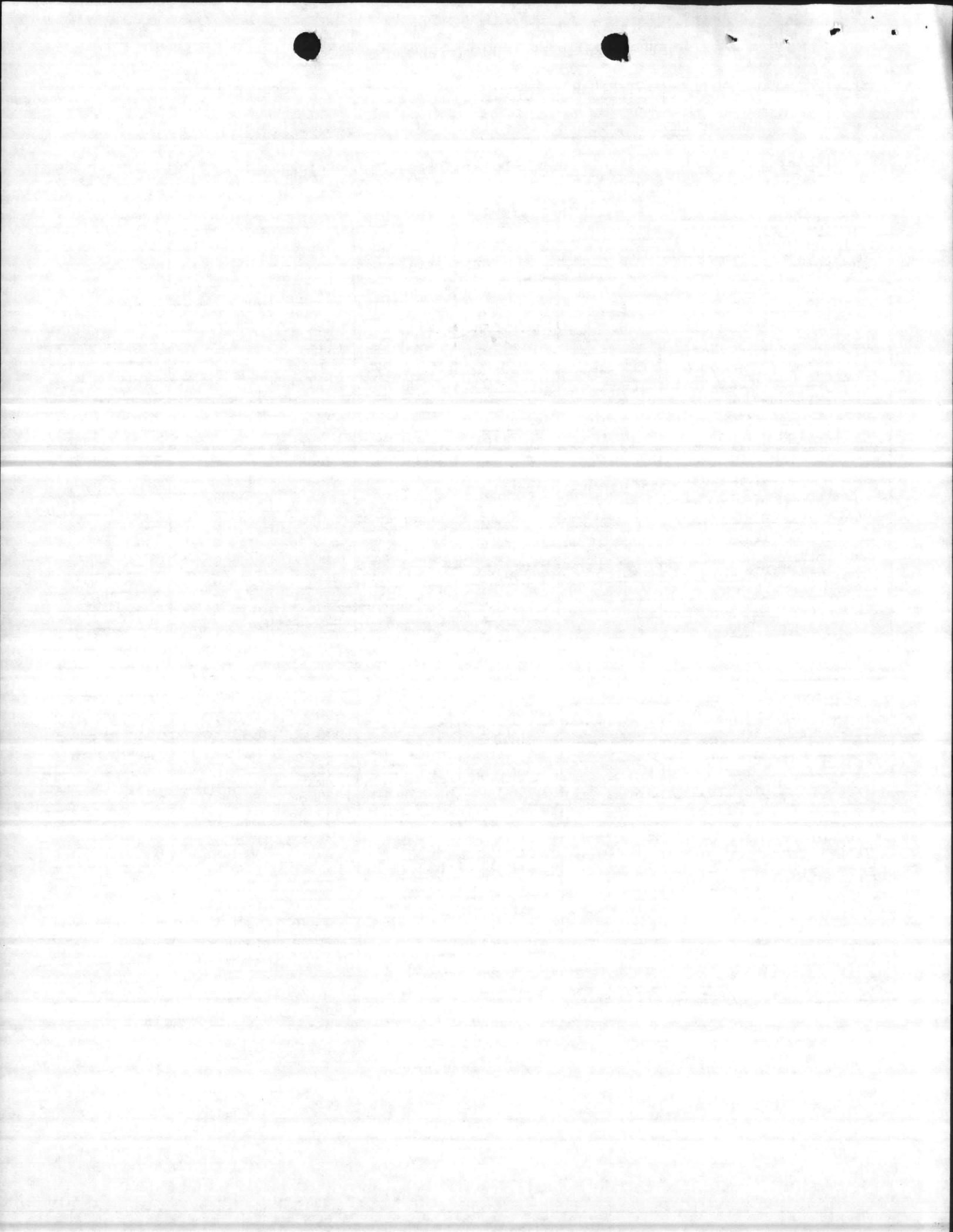
Contingency 5% \$ 318,000

SIOH 5.5% \$ 368,000

Total Budget Cost \$7,054,000

Rounded \$7,100,000

*Asteric indicates these totals on 1391.



BUDGET ESTIMATE SUMMARY SHEET FOR P-24

Title: COMBAT VEHICLE MAINTENANCE SHOPS

Costs Escalated to: 1 APR 84

Location: MCB, CAMP LEJEUNE, NC

Escalation: 9%

Prepared by: TOWNSEND ARCHITECTURAL
PLANNING GROUP

Date: 15 DEC 82

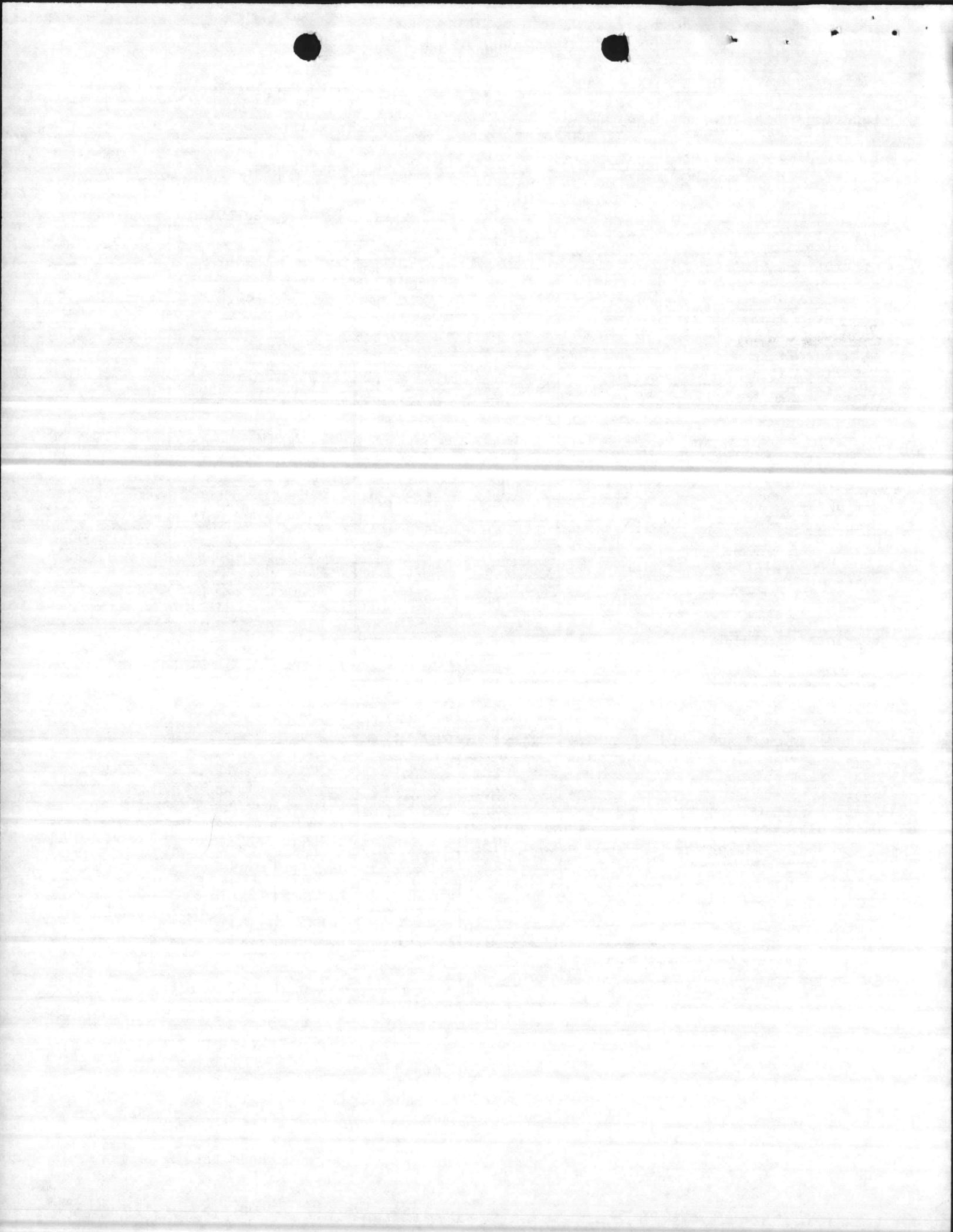
Contingency: 5%

| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-IN EQUIPMENT |
|---------------------------|--------------|----------|----------|-----------------|------------------|--------------------|
| 2d SUPPLY BATTALION | 10650 | SF | | | | |
| Building | | | | | | |
| 1 Foundation | 2.91 | 3.78 | 8200 SF | 31000 | 31000 | 0 |
| 2 Slab on Grade | 3.57 | 4.63 | 8200 SF | 38000 | 38000 | 0 |
| 3 Structural Frame | 6.95 | 6.95 | 10650 SF | 74000 | 74000 | 0 |
| 4 Supported Floor | 0.56 | 2.45 | 2450 SF | 6000 | 6000 | 0 |
| 5 Roof | 5.45 | 7.07 | 8200 SF | 58000 | 58000 | 0 |
| 6 Exterior Walls | 6.67 | 8.26 | 8590 SF | 71000 | 71000 | 0 |
| 7 Interior Walls | 3.29 | 4.89 | 7160 SF | 35000 | 35000 | 0 |
| 8 Interior Finishes | 4.04 | 4.04 | 10650 SF | 43000 | 43000 | 0 |
| 9 Doors and Windows | 4.69 | 4.69 | 10650 SF | 50000 | 48000 | 2000 |
| 10 Specialties | 0.85 | 0.85 | 10650 SF | 9000 | 1000 | 8000 |
| 10A Special Equipment | 6.76 | 6.76 | 10650 SF | 72000 | 0 | 72000 |
| 11 Plumbing | 3.38 | 1200.00 | 30 FIX | 36000 | 34000 | 2000 |
| 13 HV & AC | 4.98 | 8135.85 | 6.5 TONS | 53000 | 53000 | 0 |
| 17 Sprinkler System | 3.00 | 3.00 | 10650 SF | 32000 | 0 | 32000 |
| 19 Compressed Air | 1.03 | 1.03 | 10650 SF | 11000 | 0 | 11000 |
| 25 Electrical | 8.08 | 8.08 | 10650 SF | 86000 | 75000 | 11000 |
| 59 Fuel Dispensing | 3.10 | 33000.00 | 1 LS | 33000 | 0 | 33000 |
| 60 Waste Oil System | 0.85 | 9000.00 | 1 LS | 9000 | 0 | 9000 |
| Sub-Total Building | 70.14 | | | \$747000 | \$567000* | \$ 180,000 |

| Supporting Facilities | | | | | | |
|--|--|----------|----------|------------------|----------------|----------|
| 50 Electrical Distribution | | 52.13 | 633 LF | 33000 | 33000 | 0 |
| 52 Telephone Distribution | | 10.00 | 100 LF | 1000 | 1000 | 0 |
| 53 Fire Alarm Distribution | | 10.00 | 100 LF | 1000 | 1000 | 0 |
| 54 Area Lighting | | 37000.00 | 1 LS | 37000 | 37000 | 0 |
| 56 Heat Distribution | | 66.67 | 225 LF | 15000 | 15000 | 0 |
| 61 Sanitary Sewer | | 32.81 | 640 LF | 21000 | 21000 | 0 |
| 62 Lift Station | | 0 | 0 | 0 | 0 | 0 |
| 64 Water Distribution | | 25.00 | 240 LF | 6000 | 6000 | 0 |
| 75 & 76 Roads & Parking | | 12.00 | 10420 SY | 125000 | 125000 | 0 |
| 78 Storm Sewer | | 27.91 | 430 LF | 12000 | 12000 | 0 |
| 79 Grading | | 5.88 | 17000 SY | 100000 | 100000 | 0 |
| 80 Topsoil & Seeding | | 1.67 | 6000 SY | 10000 | 10000 | 0 |
| 82 Site Improvements | | 48000.00 | 1 LS | 48000 | 48000 | 0 |
| Sub-Total Supporting Facilities | | | | \$409,000 | 409,000 | 0 |

| | |
|--|-------------------|
| Total Estimated Contract Cost: 1 APR 84 | \$ 1156000 |
| Contingency 5% | \$ 58000 |
| SIOH 5.5% | \$ 67000 |
| Total Budget Cost | \$ 1281000 |
| Rounded | \$ 1300000 |

*Asteric indicates these totals on 1391.



BUDGET ESTIMATE SUMMARY SHEET FOR P-2

Title: COMBAT VEHICLE MAINTENANCE SHOPS

Costs Escalated to: 1 APR 84

Location: MCB, CAMP LEJEUNE, NC

Escalation: 9%

Prepared by: TOWNSEND ARCHITECTURAL
PLANNING GROUP

Date: 15 DEC 82

Contingency: 5%

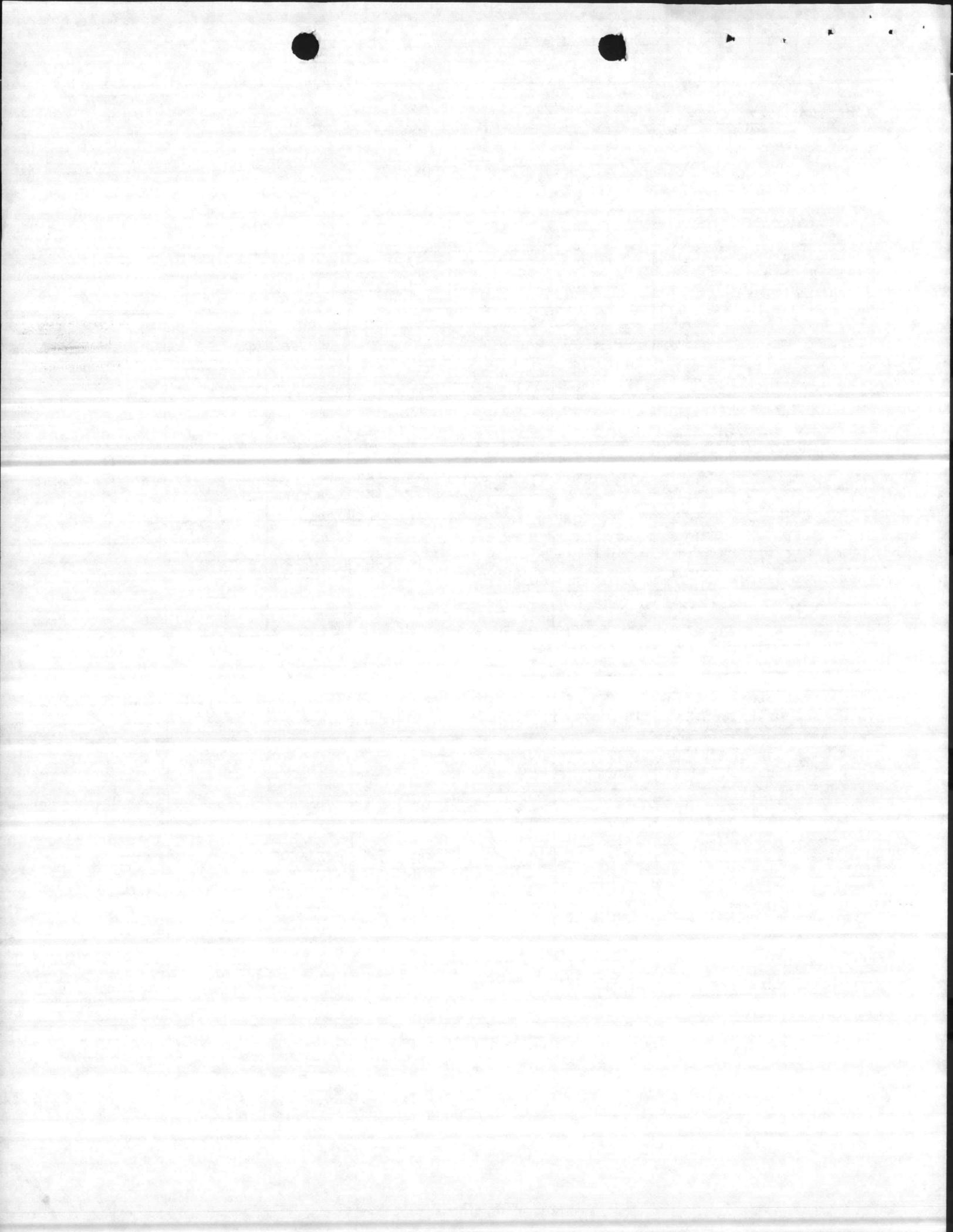
| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-IN EQUIPMENT |
|---------------------------|--------------|----------|----------|------------------|-------------------|--------------------|
| 2d Maintenance Battalion | 12180 SF | | | | | |
| Building | | | | | | |
| Foundation | 2.71 | 3.39 | 9730 SF | 33000 | 33000 | 0 |
| Slab on Grade | 3.61 | 4.52 | 9730 SF | 44000 | 44000 | 0 |
| Structural Frame | 6.98 | 6.98 | 12180 SF | 85000 | 85000 | 0 |
| Supported Floor | 0.49 | 2.45 | 2450 SF | 6000 | 6000 | 0 |
| Roof | 5.42 | 6.88 | 9600 SF | 66000 | 66000 | 0 |
| Exterior Walls | 6.24 | 8.29 | 9170 SF | 76000 | 76000 | 0 |
| Interior Walls | 2.96 | 4.99 | 7220 SF | 36000 | 36000 | 0 |
| Interior Finishes | 3.78 | 3.78 | 12180 SF | 46000 | 46000 | 0 |
| Doors and Windows | 5.00 | 5.00 | 12180 SF | 56000 | 54000 | 2000 |
| Specialties | 0.74 | 0.74 | 12180 SF | 9000 | 1000 | 8000 |
| Special Equipment | 6.65 | 6.65 | 12180 SF | 81000 | 0 | 81000 |
| Plumbing | 3.04 | 1233.33 | 30 FIX | 37000 | 35000 | 2000 |
| HV & AC | 4.35 | 8153.85 | 6.5 TON | 53000 | 53000 | 0 |
| Sprinkler System | 2.79 | 2.79 | 12180 SF | 34000 | 0 | 0 |
| Compressed Air | 0.90 | 0.90 | 12180 SF | 11000 | 0 | 11000 |
| Electrical | 7.22 | 7.22 | 12180 SF | 88000 | 76000 | 12000 |
| Fuel Dispensing | 2.71 | 33000.00 | 1 LS | 33000 | 0 | 33000 |
| Waste Oil System | 0.74 | 9000.00 | 1 LS | 9000 | 0 | 9000 |
| Sub-Total Building | 65.93 | | | \$ 803000 | \$ 611000* | \$ 192000 |

| Supporting Facilities | | | | | | |
|--|--|----------|----------|------------------|---------------|----------|
| Electrical Distribution | | 52.13 | 633 LF | 33000 | 33000 | 0 |
| Telephone Distribution | | 10.00 | 100 LF | 1000 | 1000 | 0 |
| Fire Alarm Distribution | | 10.00 | 100 LF | 1000 | 1000 | 0 |
| Area Lighting | | 37000.00 | 1 LS | 37000 | 37000 | 0 |
| Heat Distribution | | 66.67 | 225 LF | 15000 | 15000 | 0 |
| Sanitary Sewer | | | 1000 LF | 29000 | 29000 | 0 |
| Lift Station | | | | 0 | 0 | 0 |
| Water Distribution | | | 240 LF | 6000 | 6000 | 0 |
| & 76 Roads & Parking | | | 25550 SY | 266000 | 266000 | 0 |
| Storm Sewer | | | 1020 LF | 34000 | 34000 | 0 |
| Grading | | | 25000 SY | 161000 | 161000 | 0 |
| Topsoil & Seeding | | | 12800 SY | 21000 | 21000 | 0 |
| Site Improvements | | | 1 LS | 55000 | 55000 | 0 |
| Sub-Total Supporting Facilities | | | | \$ 659000 | 659000 | 0 |

Total Estimated Contract Cost: 1 APR 84 \$ 1462000

Contingency 5% \$ 73000
 SIOH 5.5% \$ 84000
 Total Budget Cost \$ 1619000
 Rounded \$ 1600000

*Asteric indicates these totals on 1391.



BUDGET ESTIMATE SUMMARY SHEET FOR P-24

Title: COMBAT VEHICLE MAINTENANCE SHOPS

Costs Escalated to: 1 APR 84

Location: MCB, CAMP LEJEUNE, NC

Escalation: 9%

Prepared by: TOWNSEND ARCHITECTURAL
PLANNING GROUP

Date: 15 DEC 82

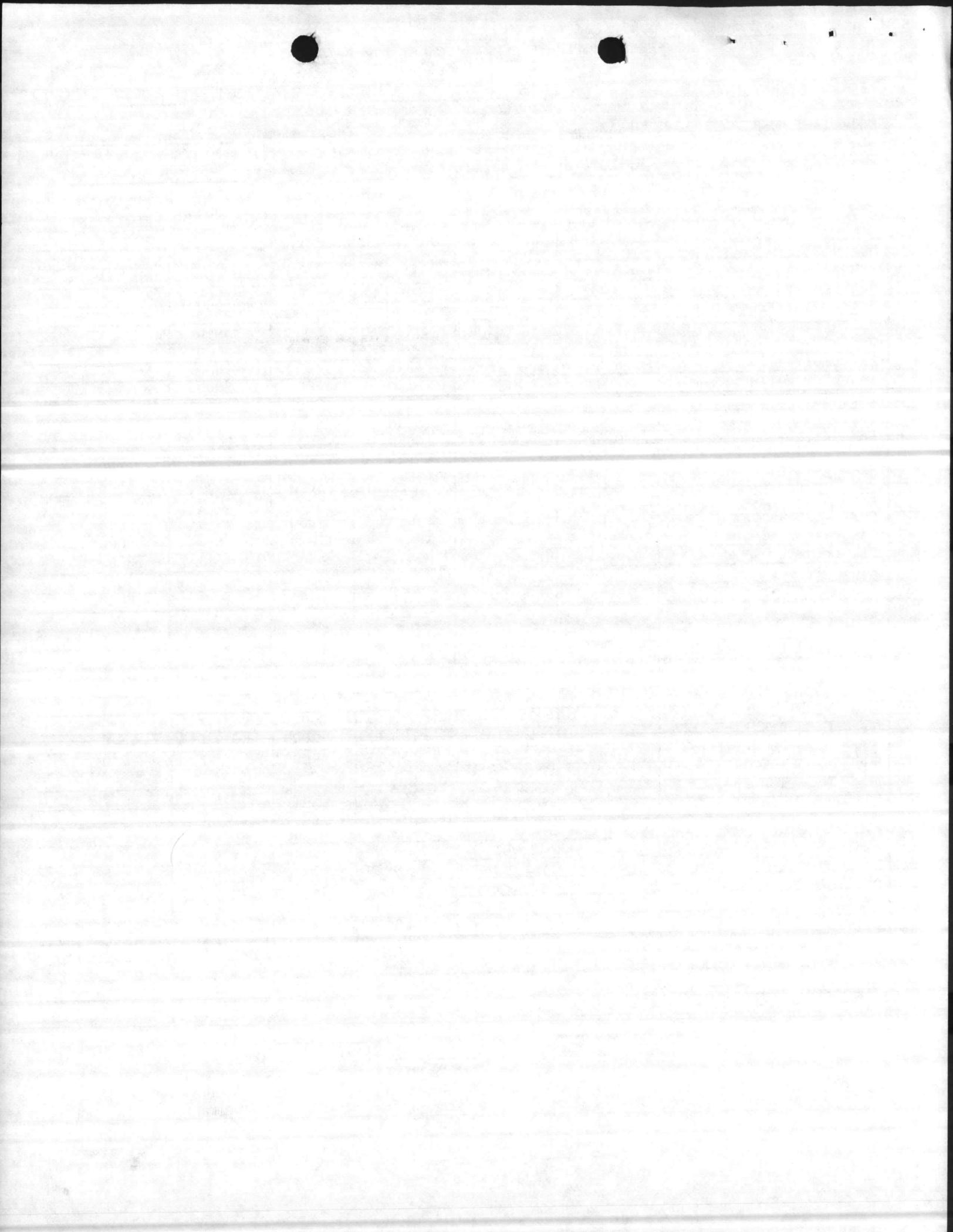
Contingency: 5%

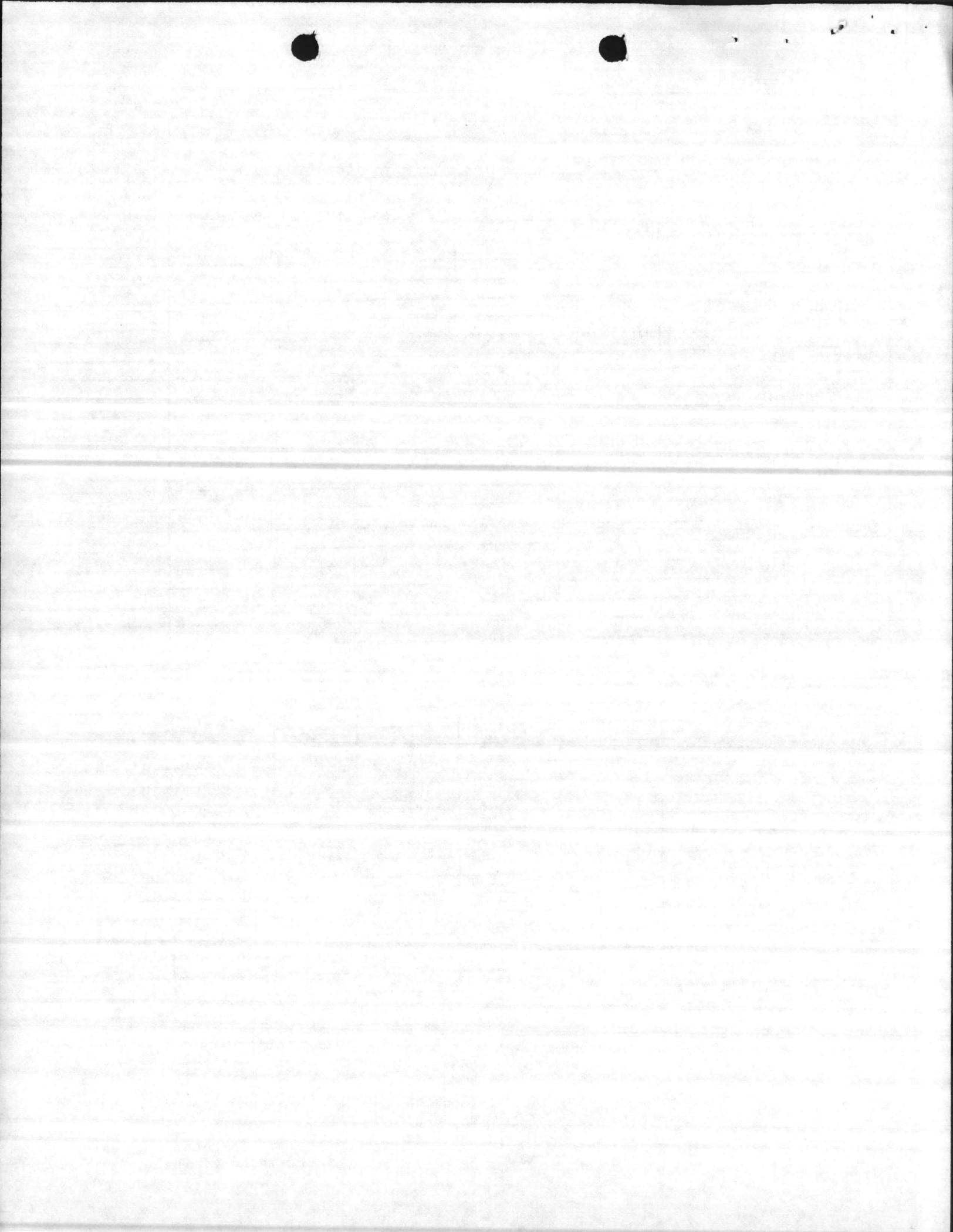
| | \$/SF | \$/SYS | SYS QUAN | TOTAL | BUILDING | BUILT-IN EQUIPMENT |
|---------------------------|--------------|----------|----------|-----------------|-------------------|--------------------|
| 2d MEDICAL BATTALION | 10650 SF | | | | | |
| Building | | | | | | |
| 1 Foundation | 2.91 | 3.78 | 8200 SF | 31000 | 31000 | 0 |
| 2 Slab on Grade | 3.66 | 4.63 | 8200 SF | 39000 | 39000 | 0 |
| 3 Structural Frame | 6.95 | 6.95 | 10650 SF | 74000 | 74000 | 0 |
| 4 Supported Floor | 0.56 | 2.45 | 2450 SF | 6000 | 6000 | 0 |
| 5 Roof | 5.45 | 7.07 | 8200 SF | 58000 | 58000 | 0 |
| 6 Exterior Walls | 6.67 | 8.26 | 8590 SF | 71000 | 71000 | 0 |
| 7 Interior Walls | 4.04 | 5.30 | 8100 SF | 43000 | 43000 | 0 |
| 8 Interior Finishes | 4.41 | 4.41 | 10650 SF | 47000 | 47000 | 0 |
| 9 Doors and Windows | 5.16 | 5.16 | 10650 SF | 55000 | 53000 | 2000 |
| 10 Specialties | 0.85 | 0.85 | 10650 SF | 9000 | 1000 | 8000 |
| 10A Special Equipment | 7.14 | 7.14 | 10650 SF | 76000 | 0 | 76000 |
| 11 Plumbing | 3.38 | 1200.00 | 30 FLX | 36000 | 34000 | 2000 |
| 13 HV & AC | 4.98 | 8153.85 | 6.5 TON | 53000 | 53000 | 0 |
| 17 Sprinkler System | 3.00 | 3.00 | 10650 SF | 32000 | 0 | 32000 |
| 19 Compressed Air | 1.03 | 1.03 | 10650 SF | 11000 | 0 | 11000 |
| 25 Electrical | 8.08 | 8.08 | 10650 SF | 86000 | 74000 | 12000 |
| 59 Fuel Dispensing | 3.10 | 33000.00 | 1 LS | 33000 | 0 | 33000 |
| 60 Waste Oil System | 0.85 | 9000.00 | 1 LS | 9000 | 0 | 9000 |
| Sub-Total Building | 72.21 | | | \$769000 | \$584000 * | \$185000 |

| Supporting Facilities | | | | | | |
|--|--|----------|----------|-----------------|---------------|---|
| 50 Electrical Distribution | | 52.13 | 633 LF | 33000 | 33000 | 0 |
| 52 Telephone Distribution | | 10.00 | 100 LF | 1000 | 1000 | 0 |
| 53 Fire Alarm Distribution | | 10.00 | 100 LF | 1000 | 1000 | 0 |
| 54 Area Lighting | | 37000.00 | 1 LS | 37000 | 37000 | 0 |
| 56 Heat Distribution | | 66.67 | 225 LF | 15000 | 15000 | 0 |
| 61 Sanitary Sewer | | 28.13 | 640 LF | 18000 | 18000 | 0 |
| 62 Lift Station | | 0 | 0 | 0 | 0 | 0 |
| 64 Water Distribution | | 25.00 | 240 LF | 6000 | 6000 | 0 |
| 75 & 76 Roads & Parking | | 16.03 | 10420 SY | 167000 | 167000 | 0 |
| 78 Storm Sewer | | 55.81 | 430 LF | 24000 | 24000 | 0 |
| 79 Grading | | 6.29 | 17000 SY | 107000 | 107000 | 0 |
| 80 Topsoil & Seeding | | 1.50 | 6000 SY | 9000 | 9000 | 0 |
| 82 Site Improvements | | 31000.00 | 1 LS | 31000 | 31000 | 0 |
| Sub-Total Supporting Facilities | | | | \$449000 | 449000 | |

| | |
|--|------------------|
| Total Estimated Contract Cost: 1 APR 84 | \$1218000 |
| Contingency 5% | \$61000 |
| SIQH 5.5% | \$70000 |
| Total Budget Cost | \$1349000 |
| Rounded | \$1300000 |

*Asteric indicates these totals on 1391.





DESIGN CONCEPTS

Activity and Location: MARINE CORPS BASE, CAMP LEJEUNE, N.C.

Project Title: COMBAT VEHICLE MAINTENANCE SHOPS (P-240)

Date: 15 Dec 82

USE OF DEFINITIVES AND PREVIOUS DESIGNS

Standard Marine Corps definitive designs will be used for the 3 maintenance shops in this project.

SPECIAL DESIGN CHARACTERISTICS

Master utility systems, including water, sanitary sewer, and steam, are sized to serve future development in the French Creek Industrial Area.

ENERGY CONSERVATION

a. Recommended Measures

| Item | Initial Investment | Life Cycle Cost | Total Budget Variation % |
|---------------------------------|--------------------|-----------------|--------------------------|
| 1. Dx Cooling Unit w/ H.W. heat | - | 24,653 | - |

Total energy saving over 1975 energy consumption including current design = 24.4%. Energy savings are low due to industrial type building.

b. Interim DOD Design Energy Budget

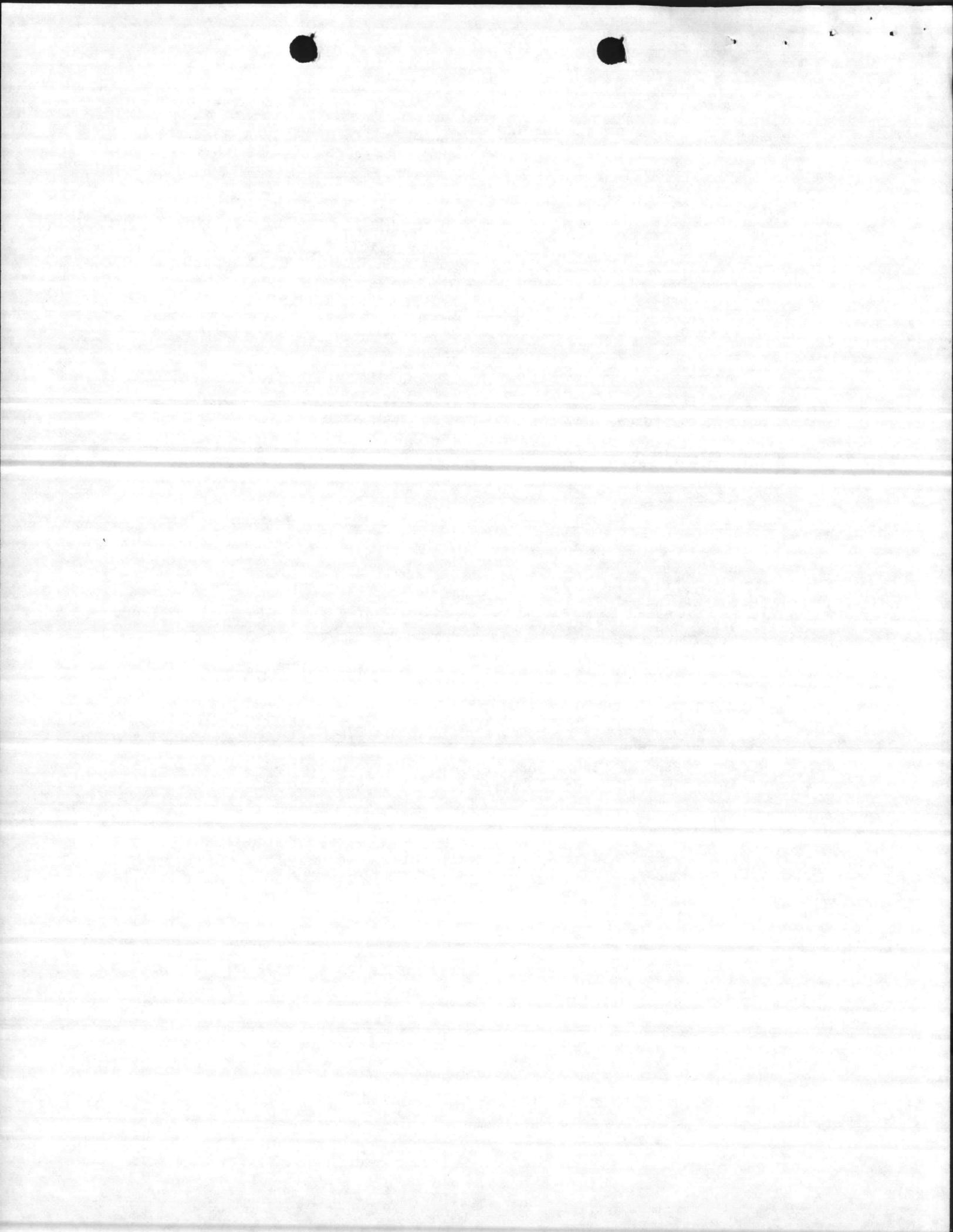
| | | |
|-------------------------------|---|----------------------------|
| Building Category Code No. | - | 214 |
| Climatic Zone | - | 4 |
| Energy Budget Figure Required | - | 85,000 BTU/Ft ² |
| Energy Budget Figure Achieved | - | 88,968 BTU/Ft ² |

c. Solar Results

Per the enclosed solar study, the solar domestic hot water system is not considered feasible for this project based on Life Cycle Cost Analysis.

d. EMCS Feasibility

This project does not include EMCS interface due to no available system to connect to.



POLLUTION ABATEMENT ASPECTS OF DESIGN

Erosion control will be required during construction of this facility. Water/oil separator structures will be susceptible to oil pollution.

SITE APPROVAL

The site has been approved per NAVMC 11069, Request for Site Approval, executed on 16 November 81.

ECONOMIC ANALYSIS

Economic analyses were prepared and are included for the following:

Package roof-top DX Cooling unit vs. Package roof-top heat pump unit with each utilizing hot water coils for heating.

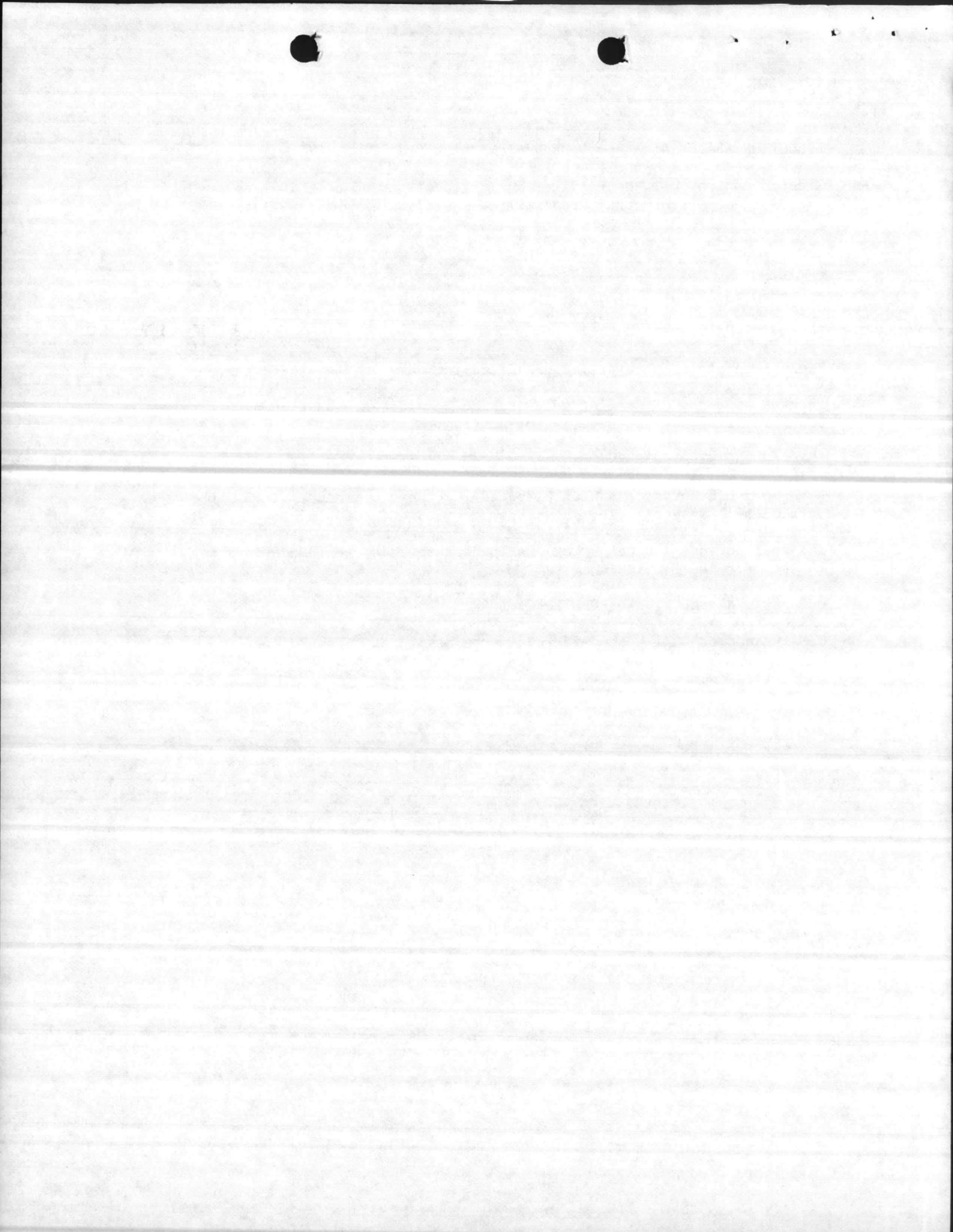
SPECIAL ENGINEERING SERVICES

A topographic survey has been prepared for the 3 buildings sites. Sub-surface soil investigations have been carried out through out the 3 sites.

The soil borings indicate that shallow spread concrete foundations may be used for the 3 buildings.

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

OSHA Standards will be considered in the design of this project.



SUMMARY OF ENERGY CONSERVATION ANALYSIS

Activity and Location: MCB, CLNC

COMBAT VEHICLE
Project Title: MAINTENANCE SHOPS (P-240)

Date: 15 DECEMBER 82

E75 = 3,880,509,000 BTUs per year (Total annual energy consumption if constructed in 1975)

E Current = 800,714,000 BTUs per year (Total annual energy consumption incorporating current criteria)

R = (1 - (E Current/E75)) 100 = 79.4 % (Percent reduction in energy consumption current year vs. 1975)

ECC = \$ 19,365 (Estimated construction cost for current criteria)

Barrels of Oil Equivalent (B.O.E.) = 528.68 *(Barrels of Fuel Oil Saved, Current Design vs 1975)
5,825,400 BTU/B.O.E.

| (1) Priority | (2) Description of Measure | (3) 10 ⁶ BTUs Saved/Yr | (4) Life Cycle Cost (\$1000) Expressed as present worth | (5) = (3)/(4) | (6) 10 ⁶ BTUs Consumption/ Yr E | (7) % Energy Reduction of Measure R | (8) (6) Annual Consumption Bldg. Square Footage BTU/SF/yr | (9) Cumul- ative % Reduc- tion | (10) First Cost of Measure (\$1000) | (11) Total Construc- tion Cost (10) + EC (\$1000) |
|-----------------|----------------------------------|---|--|------------------|--|--|--|---|---|--|
|-----------------|----------------------------------|---|--|------------------|--|--|--|---|---|--|

Current Design (Including Mandatory Measures)

| | | | | | | | | | | |
|----|--|---|---|---|---------|------|--------|------|---|------|
| R. | | X | X | X | 800.714 | 79.4 | 88.968 | 79.4 | X | 19.4 |
|----|--|---|---|---|---------|------|--------|------|---|------|

Other Cost Effective Measures Included

| | | | | | | | | | | |
|-----|----------------------------------|-----|--------|------|--------|-----|-------|------|-------|---|
| R1. | PKG. HEAT PUMP WITH H.W. HEAT | 8.6 | 34.985 | 0.25 | 41.333 | 0.5 | 19.68 | 0.50 | 0.600 | X |
| R2. | | | | | | | | | | |

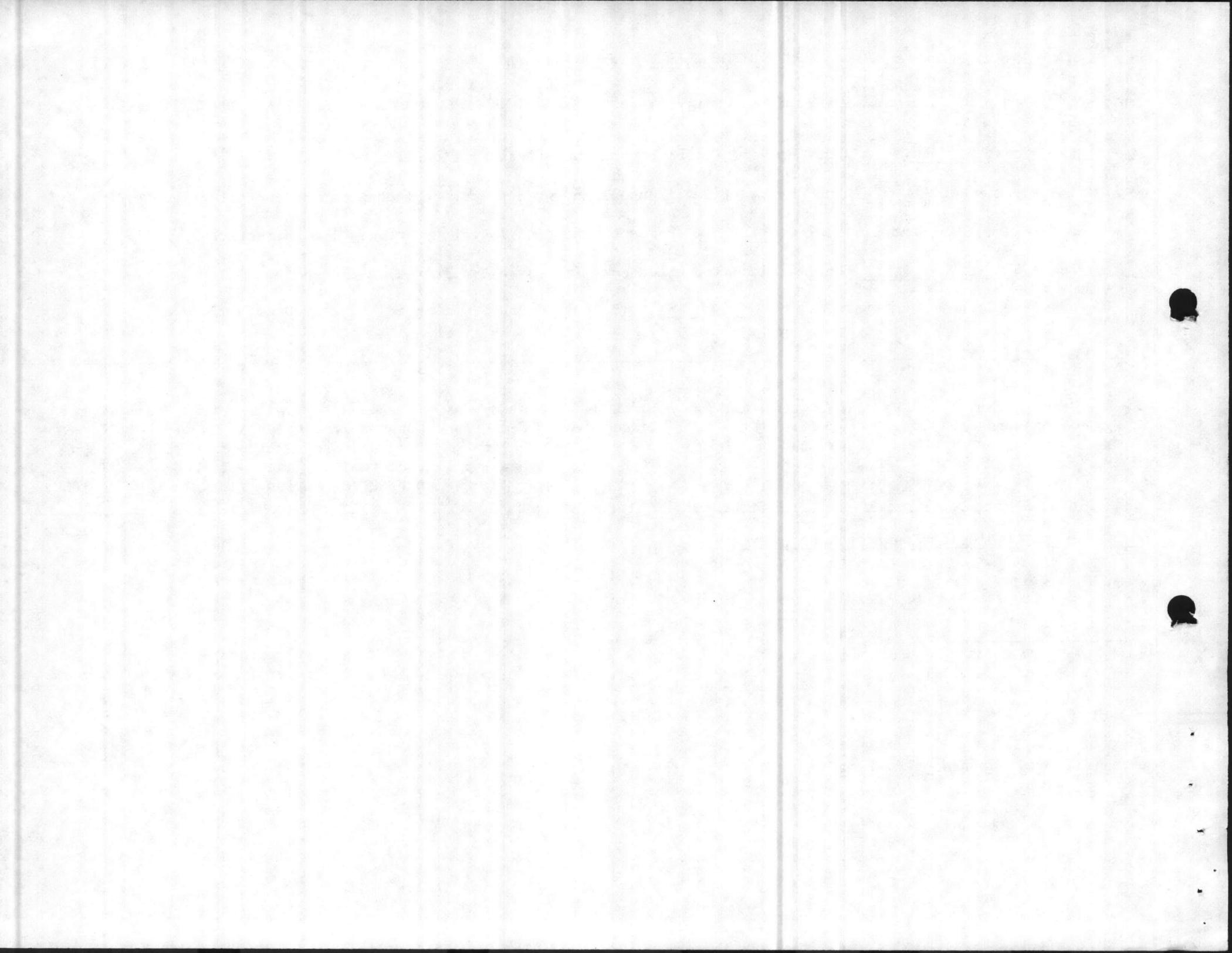
R3.

Non-Cost Effective Measures Evaluated

R1.

R2.

R3.



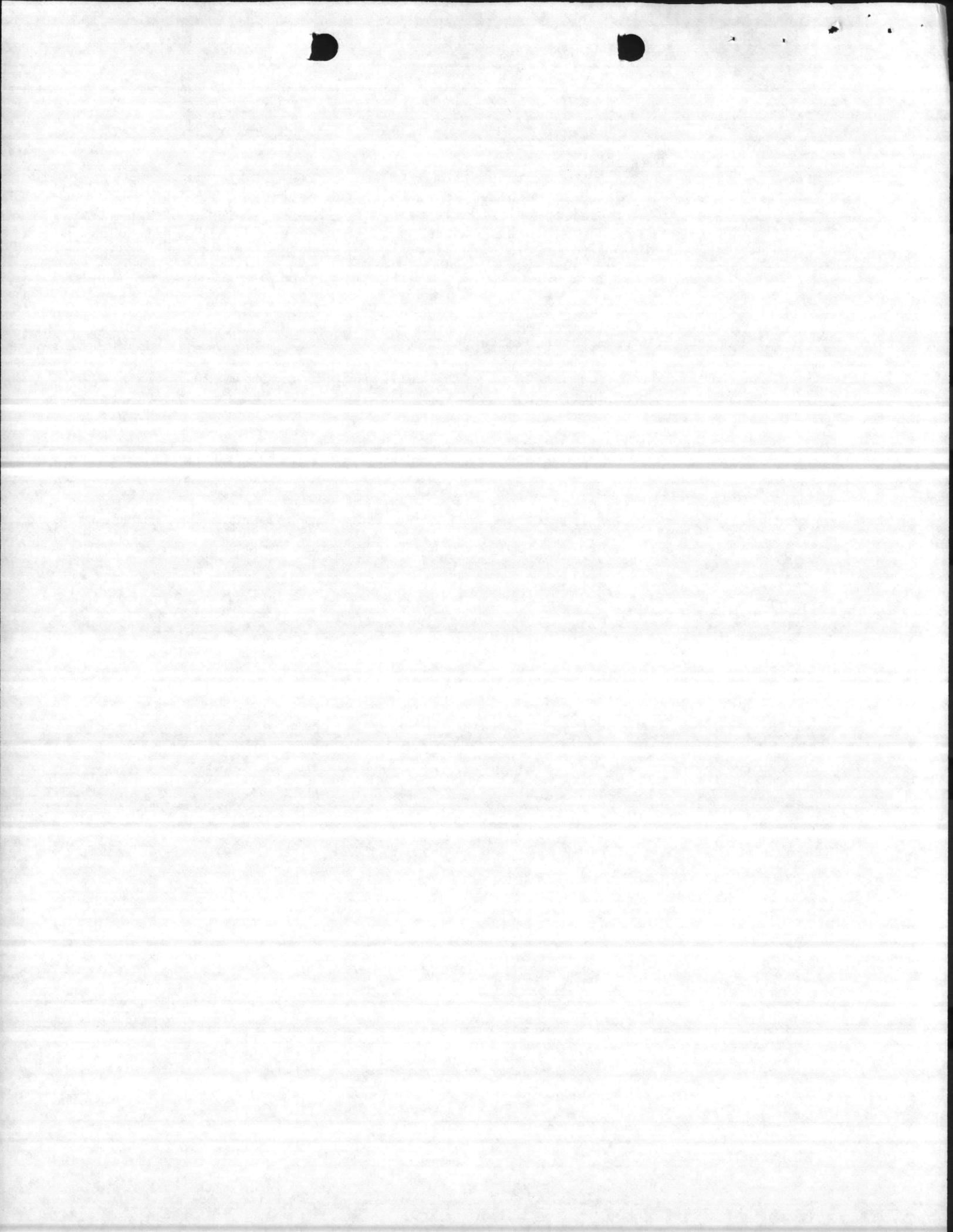
1. NARRATIVE

The design criteria required steam to be the primary source of energy. With the above criteria being set, the remaining decision was the type of central cooling units to be considered for air conditioned areas, along with utilizing steam-to-water heating for primary heating.

2. SYSTEMS CONSIDERED

Packaged rooftop DX cooling unit, utilizing hot water heating with duct or unit mounted heating coils.

Packaged rooftop heat pump unit, utilizing supplemental hot water heating with duct or unit mounted heating coils.



DATE 15 December 1982

ACTIVITY (Name and Location)
MCB, CAMP LEJEUNE, N.C.

PROJECT TITLE
COMBAT VEHICLE MAINTENANCE SHOPS

P NO.
P-240

DESCRIPTION OF ALTERNATIVES

Alternate No. A: Provide Packaged Roof Top "DX" Cooling Units with Hot Water Coil Heating.

Alternate No. B: Provide Packaged Roof Top Heat Pump Units, with Supplemental Hot Water Coil Heating.

PROJECT COST PROJECTIONS BY ALTERNATIVES

ALTERNATIVE A Packaged "DX" Cooling Unit/W/H.W. ECONOMIC LIFE 25 YRS.

| DESCRIPTION AND YEAR | COSTS (\$) | | DISCOUNT FACTOR | PRESENT VALUE (\$) |
|----------------------|------------|-----------|-----------------|--------------------|
| | ONE TIME | RECURRING | | |
| INVESTMENT | 24,653.00 | | | 24,653.00 |
| OPERATIONS (Elec.) | | 298.42 | 18.80 | 5,610.34 |
| (Steam) | | 75.36 | 17.00 | 1,281.34 |
| MAINTENANCE | | 350.00 | 10.00 | 3,526.92 |
| PERSONNEL | | | | |
| TERMINAL VALUE | | | | |
| OTHER: | | | | |

TOTAL PRESENT VALUE ALTERNATIVE A - \$ 35,071.60 ÷ DISCOUNT FACTOR 10% = UNIFORM ANNUAL COST 3,507.16

ALTERNATIVE B Packaged Heat Pump Units/W/H.W. Heat ECONOMIC LIFE 25 YRS.

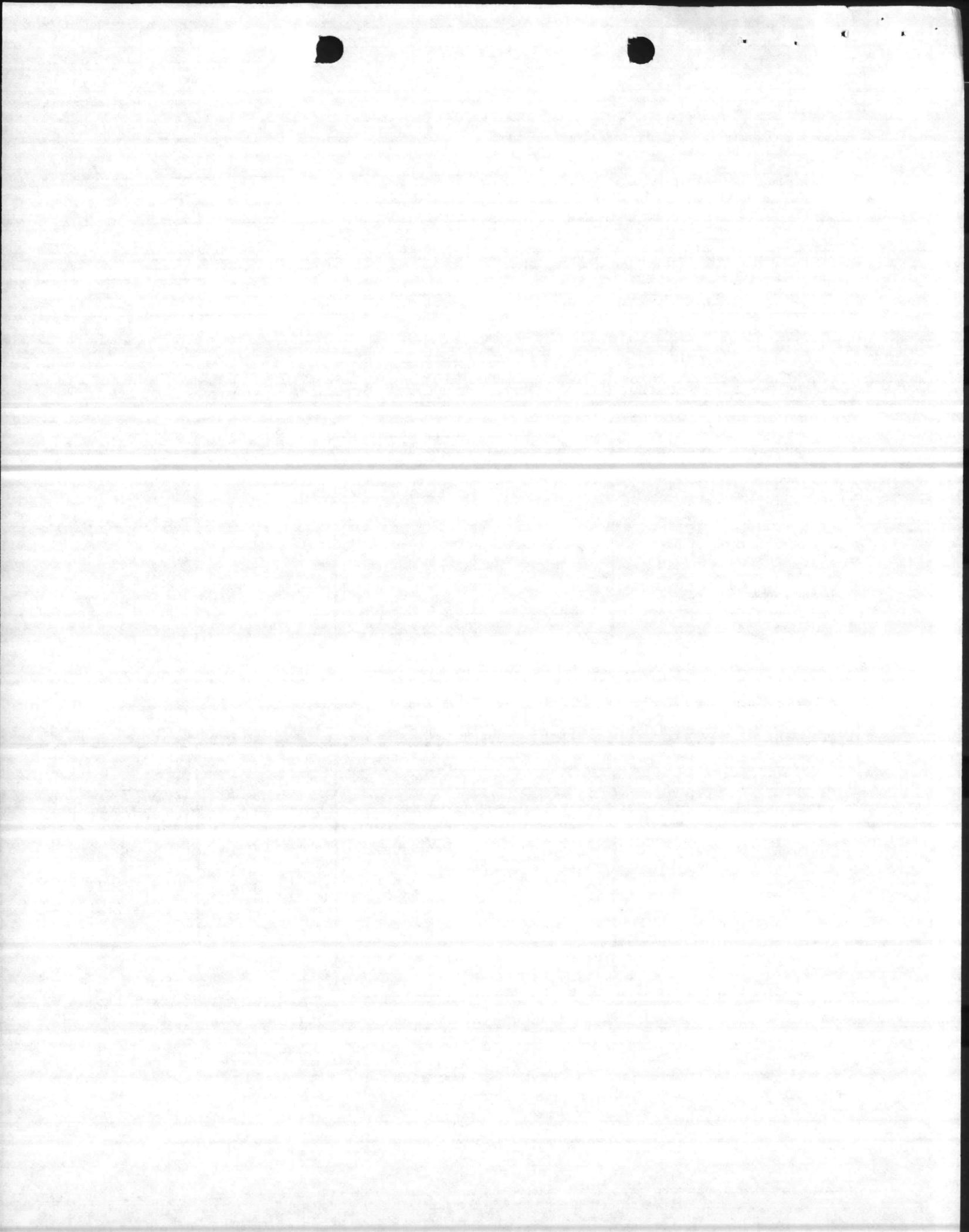
| DESCRIPTION AND YEAR | COSTS (\$) | | DISCOUNT FACTOR | PRESENT VALUE (\$) |
|----------------------|------------|-----------|-----------------|--------------------|
| | ONE TIME | RECURRING | | |
| INVESTMENT | 25,250.00 | | | 25,250.00 |
| OPERATIONS (Elec.) | | 330.23 | 18.80 | 6,208.38 |
| (Steam) | | | | |
| MAINTENANCE | | 350.00 | 10.00 | 3,526.92 |
| PERSONNEL | | | | |
| TERMINAL VALUE | | | | |
| OTHER: | | | | |

TOTAL PRESENT VALUE ALTERNATIVE B - \$ 34,985.30 ÷ DISCOUNT FACTOR 10.00 = UNIFORM ANNUAL COST 3,498.53

REMARKS

The accuracy of analysis is at best 10%, therefore use Alternative A since building will have hot water heating.

(Attach separate sheet showing derivation of cost entries)



A. INVESTMENT

Alternative "A": New Construction Cost of \$20,031.43 by escalating cost as shown to 1 JAN 84

$$\begin{aligned} & \text{FY-82} \quad \text{FY-83} \quad \text{FY-84} \\ & \$20,031.43 \times 1.064 \times 1.079 \times 1.072 \\ & = \$24,653.00 \text{ initial 1st cost} \end{aligned}$$

Alternative "B": New Construction Cost of \$20,516.51 by escalating cost as shown to 1 JAN 84.

$$\begin{aligned} & \text{FY-82} \quad \text{FY-83} \quad \text{FY-84} \\ & \$20,516.51 \times 1.064 \times 1.079 \times 1.072 \\ & = \$25,250.00 \text{ initial 1st cost} \end{aligned}$$

B. ENERGY RATES: From LANTDIV Code 403

Elec. Cost MCB, Camp Lejeune = \$0.02726/kwh (6-30-82)

$$\text{For FY-84} = \$0.02726 \frac{(6-30-82)}{1 + .07 (6/12)} = 0.02821 \times 1.07$$

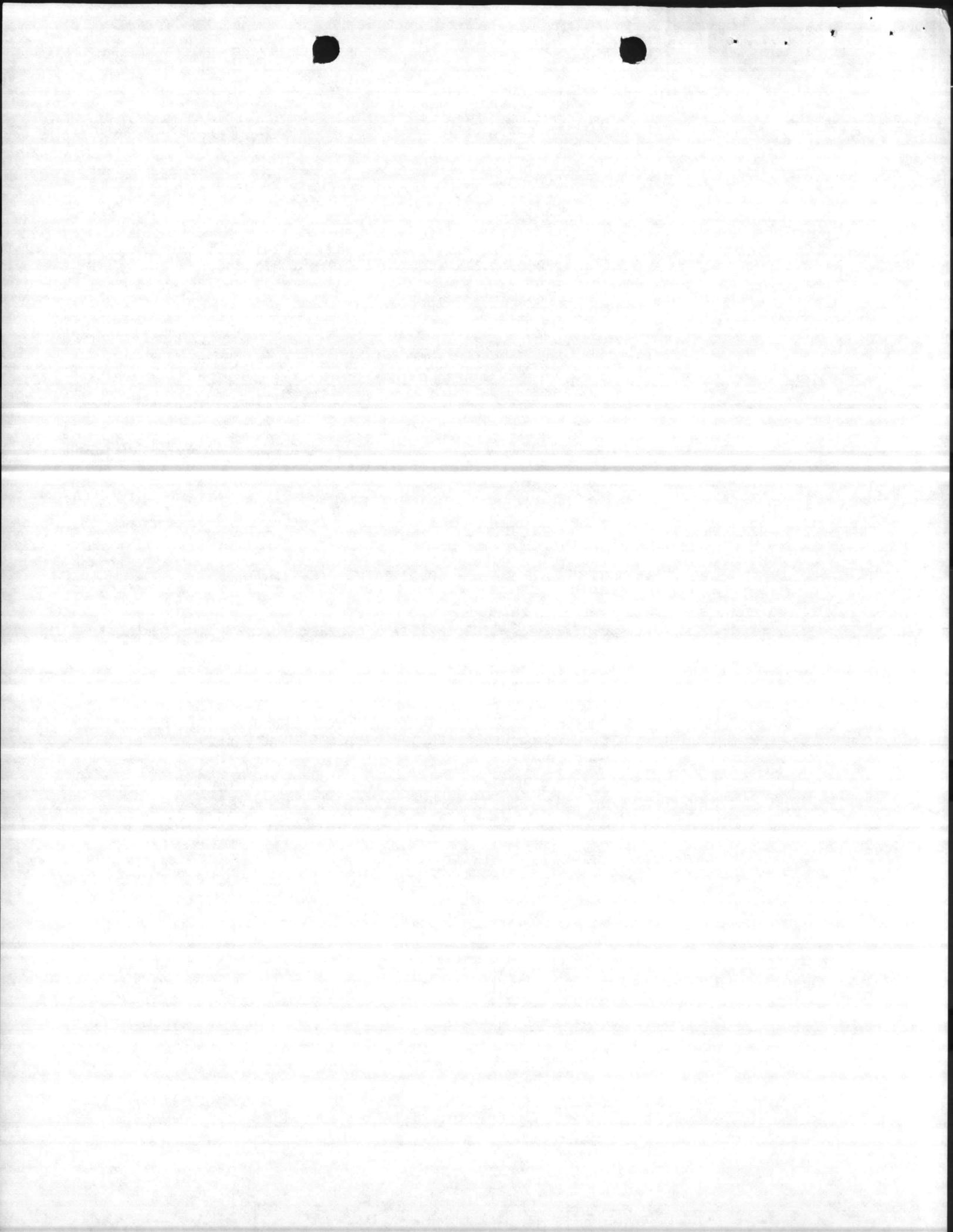
$$\begin{aligned} & \text{FY-83} \quad \text{FY-84} \\ & = 0.03019 \times 1.07 = 0.03230 \end{aligned}$$

Steam Cost MCB, Camp Lejeune = \$5.99/10⁶BTU (6-30-82)

(Based on 30/70 oil and coal)

$$\text{For FY-86} = \$5.99 \frac{(6-30-82)}{1 + .06 (6/12)} = 6.17 \times 1.06 = 6.54 \times 1.06$$

$$\begin{aligned} & \text{FY-84} \\ & = 6.93 = \$6.93 \end{aligned}$$



C. OPERATING EXPENSES: From "Carrier Corp." - Operating Cost Analysis

Alternative "A":

Electric = \$298.42

Steam = \$75.36

Alternative "B":

Electric = \$330.23

Steam = \$0.00

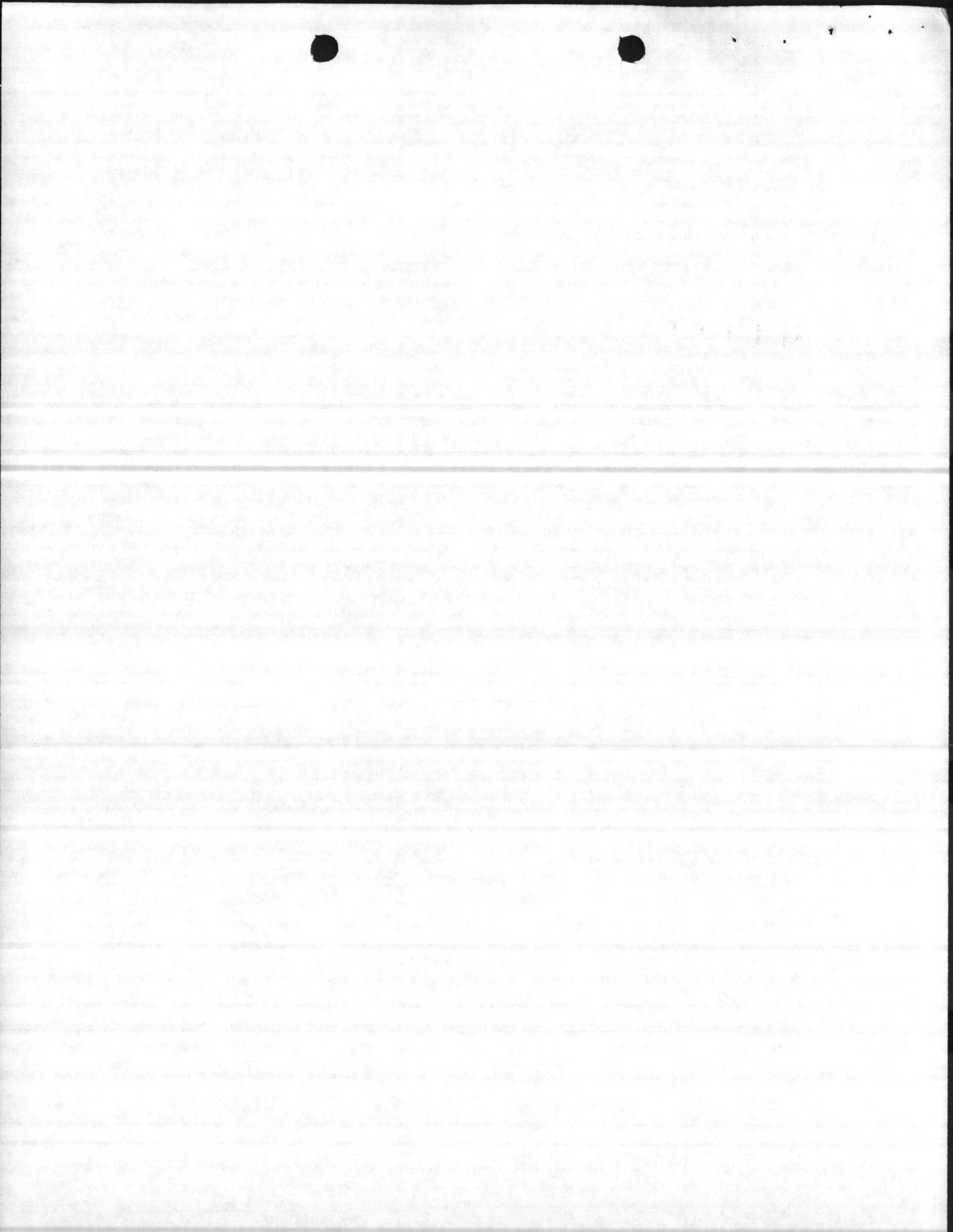
D. MAINTENANCE:

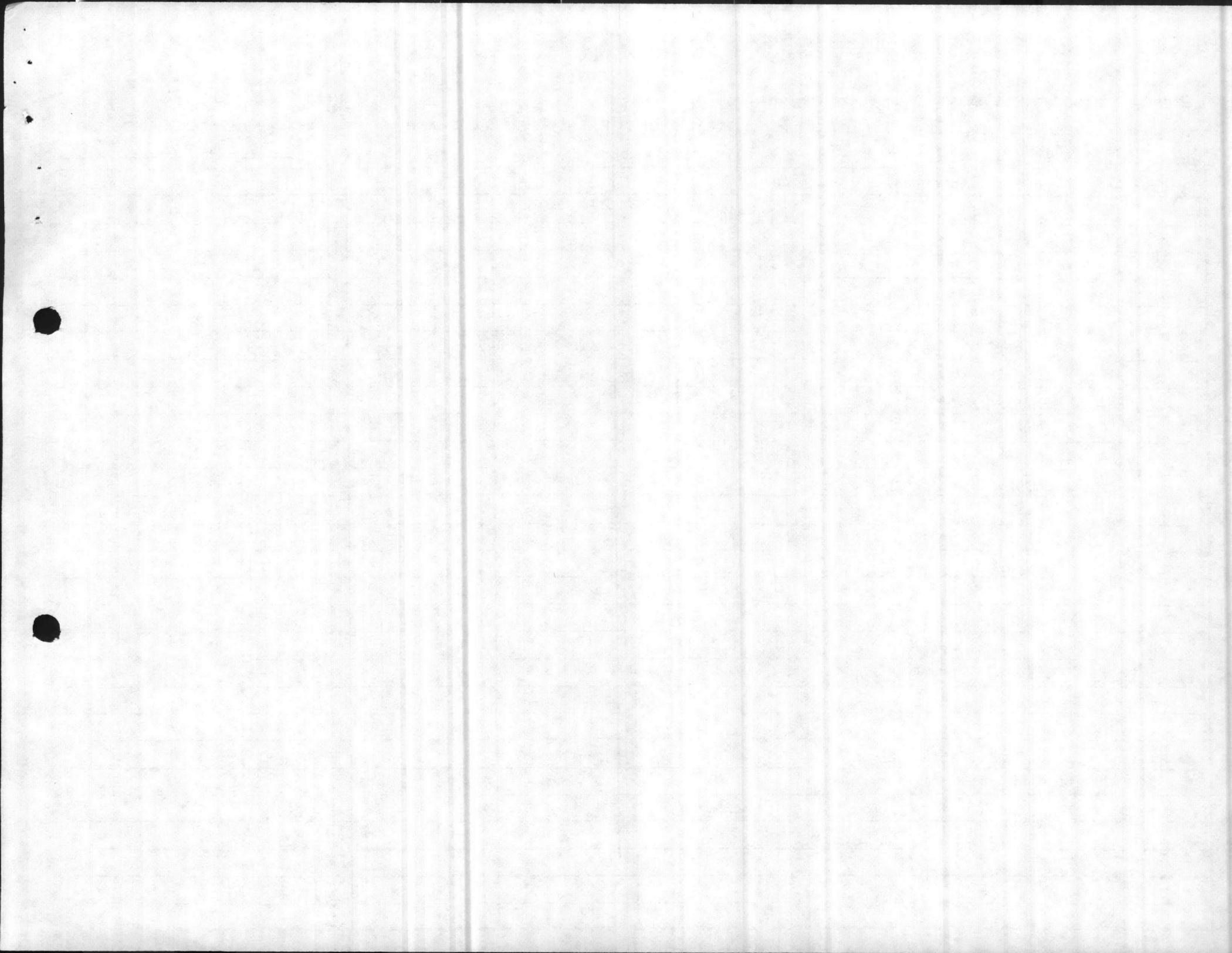
Alternative "A": (From "Carrier Corp.", first year = \$350.00 and each continued year)

No escalated costs for maintenance per LANTDIV criteria for economic analysis schedules.

Alternative "B": (From "Carrier Corp.", first year = \$350.00 and each continued year)

No escalated costs for maintenance per LANTDIV criteria for economic analysis schedules.





MATERIAL & LABOR COST ESTIMATE

LANTDIV NORVA. 4-11012/5 (REV. 12/80)

SHEET 1 of 1

PREPARED BY JJC

ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND

Const. Contr. No. N62470-81-C-3893

FUNDS AVAIL. \$7,116,000

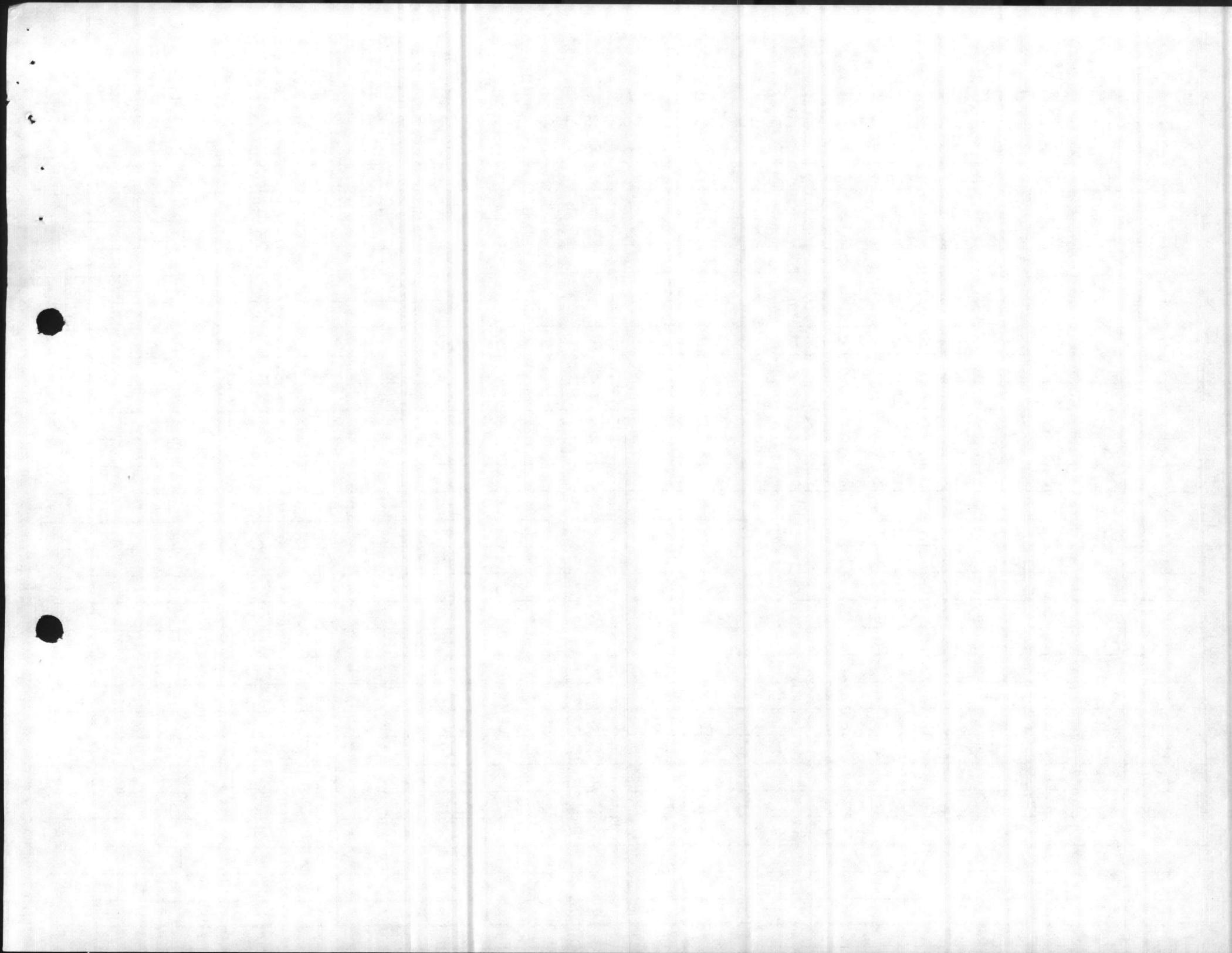
NORFOLK, VIRGINIA

DATE 27 August 1982

PROJECT Combat Vehicle Maintenance Shops P-240 LOCATION MCB, Camp Lejeune, N.C. PRELIM. FINAL

| ITEMS | QUANTITY | UNIT | MATERIAL COST | | LABOR COST | | TOTAL COST | REMARKS |
|--|----------|------|---------------|---------|------------|-------|------------|---------|
| | | | UNIT | TOTAL | UNIT | TOTAL | | |
| <u>COST ESTIMATE FOR ECONOMIC ANALYSIS: 2d MAINT. BLDG.</u> | | | | | | | | |
| <u>ALTERNATE "B":</u> | | | | | | | | |
| 1- PACKAGED HEAT PUMP UNITS WITH ROOFTOP ACCESSORIES (3 + 2 TON SYSTEMS) | 1 | EA | 3300 | 3300 | 1000 | 1000 | 4300.00 | |
| 2- HOT WATER SYSTEM W/HT. EXCHGR., PIPING ETC. TO SUPPORT DX UNIT SYS. FOR HEATING | 1 | EA | 2781.51 | 2781.51 | 800 | 800 | 3581.51 | |
| A) COILS - | 2 | EA. | 300 | 600 | 150 | 300 | 900 | |
| B) STM. PIPING (2") | 25 | LF | 35.00 | 875 | 20 | 500 | 1,375 | |
| C) HW PIPING (1 1/2") | 120 | LF | 2.25 | 270 | 2.43 | 300 | 570 | |
| (1") | 25 | LF | 1.59 | 40 | 2.04 | 50 | 90 | |
| (3/4") | 100 | LF | 1.15 | 115 | 1.76 | 176 | 300 | |
| D) PIPING INSULATION | LS | - | - | - | - | - | 800 | |
| 3- HEAT EXCHANGER & CONTROLS ACCESSORIES | LS | EA. | 2500 | 2500 | 1500 | 1500 | 4,000 | |
| 4- CONDENSATE PUMP & CONTROLS | LS | EA | 1200 | 1200 | 400 | 400 | 1,600 | |
| 5- DUCTWORK & ACCESSORIES | LS | EA. | 3000 | 3000 | - | - | 3000 | |
| EVALUATED TO PY-B4 (FACTOR 1.230716) | | | | | | | 20,516.51 | |
| TOTAL | | | | | | | 25,250.00 | |

ALT. "B"



ECONOMIC ANALYSIS OF SHORE FACILITY

DATE
15 December 1982

SOLAR STUDY No. 31

ACTIVITY (Name and Location)
MCB, CAMP LEJEUNE, N.C.

PROJECT TITLE
COMBAT VEHICLE MAINTENANCE SHOPS

P NO.
P-240

DESCRIPTION OF ALTERNATIVES

Alternate A: 500 S.F. of flat plate collectors with 1000 gal. storage tank for domestic hot water.

Alternate B: Existing system unaltered.

PROJECT COST PROJECTIONS BY ALTERNATIVES

ALTERNATIVE A 500 S.F. of solar collector ECONOMIC LIFE 25 YRS.

| DESCRIPTION AND YEAR | COSTS (\$) | | DISCOUNT FACTOR | PRESENT VALUE (\$) |
|----------------------|------------|-----------|-----------------|--------------------|
| | ONE TIME | RECURRING | | |
| INVESTMENT | 48917 | | | 48917 |
| OPERATIONS | | 6623 | 28.15 | 186439 |
| MAINTENANCE | | 1317 | 12.06 | 15889 |
| PERSONNEL | | | | |
| TERMINAL VALUE | | | | |
| OTHER: | | | | |

TOTAL PRESENT VALUE ALTERNATIVE A - \$ 251245 ÷ DISCOUNT FACTOR = UNIFORM ANNUAL COST

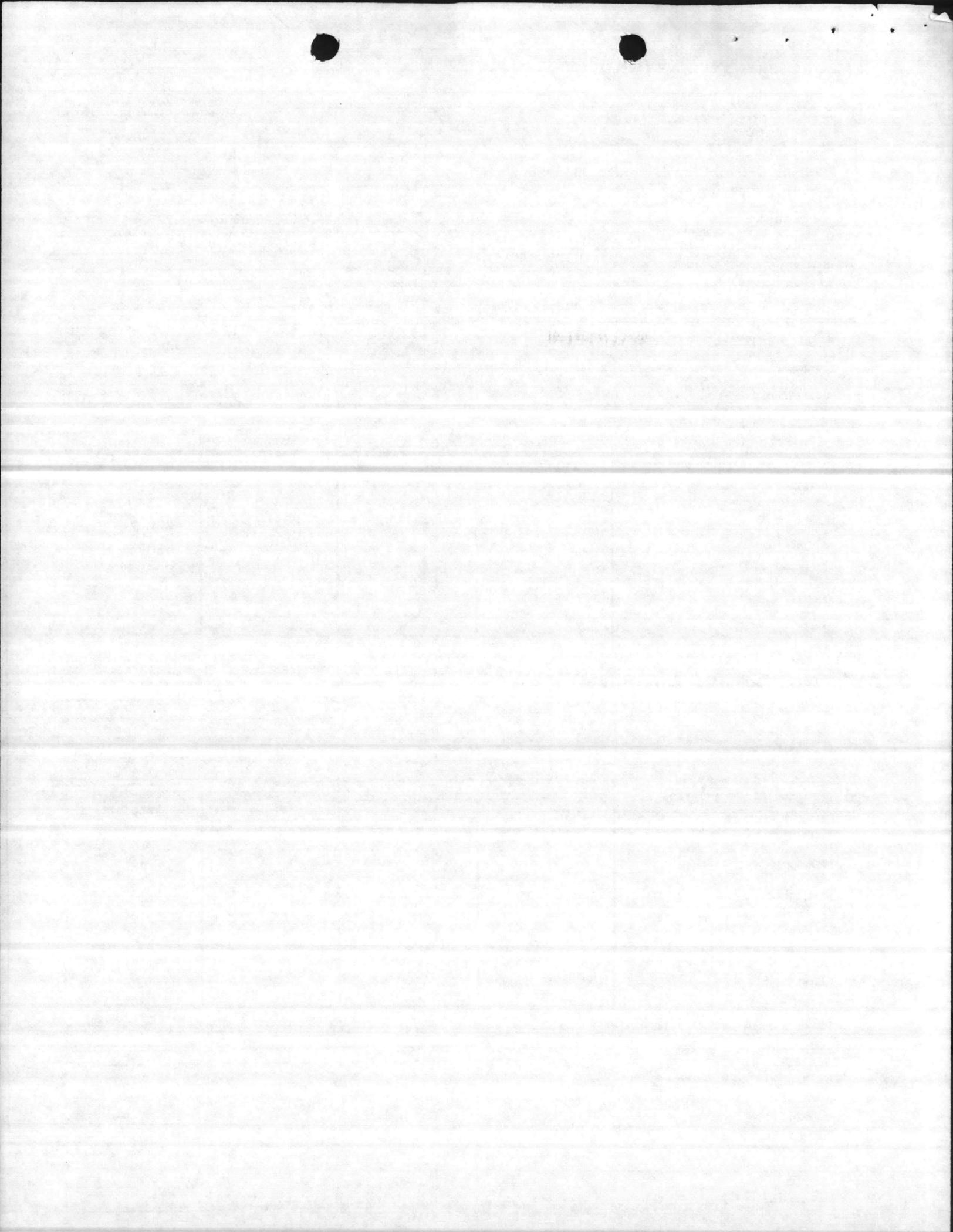
ALTERNATIVE B Existing system ECONOMIC LIFE 25 YRS.

| DESCRIPTION AND YEAR | COSTS (\$) | | DISCOUNT FACTOR | PRESENT VALUE (\$) |
|----------------------|------------|-----------|-----------------|--------------------|
| | ONE TIME | RECURRING | | |
| INVESTMENT | | | | |
| OPERATIONS, Oil | | 8601 | 28.15 | 242125 |
| MAINTENANCE | | | | |
| PERSONNEL | | | | |
| TERMINAL VALUE | | | | |
| OTHER: | | | | |

TOTAL PRESENT VALUE ALTERNATIVE B - \$ 42125 ÷ DISCOUNT FACTOR = UNIFORM ANNUAL COST

REMARKS

(Attach separate sheet showing derivation of cost entries)



ECONOMIC ANALYSIS OF SHORE FACILITY

DATE
15 December 1982

SOLAR STUDY No.31

ACTIVITY (Name and Location)
MCB, CAMP LEJEUNE, N.C.

PROJECT TITLE
COMBAT VEHICLE MAINTENANCE SHOPS

P NO.
P-240

DESCRIPTION OF ALTERNATIVES

Alternative C: 100 S. F. of flat plate collectors with 200 gal. storage tank for domestic hot water.

Alternative D: 1000 S. F. of flat plate collectors with 2000 gal. storage tank for domestic hot water.

PROJECT COST PROJECTIONS BY ALTERNATIVES

ALTERNATIVE C 100 S. F. of solar collector

ECONOMIC LIFE 25 YRS.

| DESCRIPTION AND YEAR | COSTS (\$) | | DISCOUNT FACTOR | PRESENT VALUE (\$) |
|----------------------|------------|-----------|-----------------|--------------------|
| | ONE TIME | RECURRING | | |
| INVESTMENT 11510 | | | | 11510 |
| OPERATIONS Oil | | 8171 | 28.15 | 230020 |
| MAINTENANCE | | 310 | 12.06 | 6528 |
| PERSONNEL | | | | |
| TERMINAL VALUE | | | | |
| OTHER: | | | | |

TOTAL PRESENT VALUE ALTERNATIVE A - \$ 248058 ÷ DISCOUNT FACTOR = UNIFORM ANNUAL COST

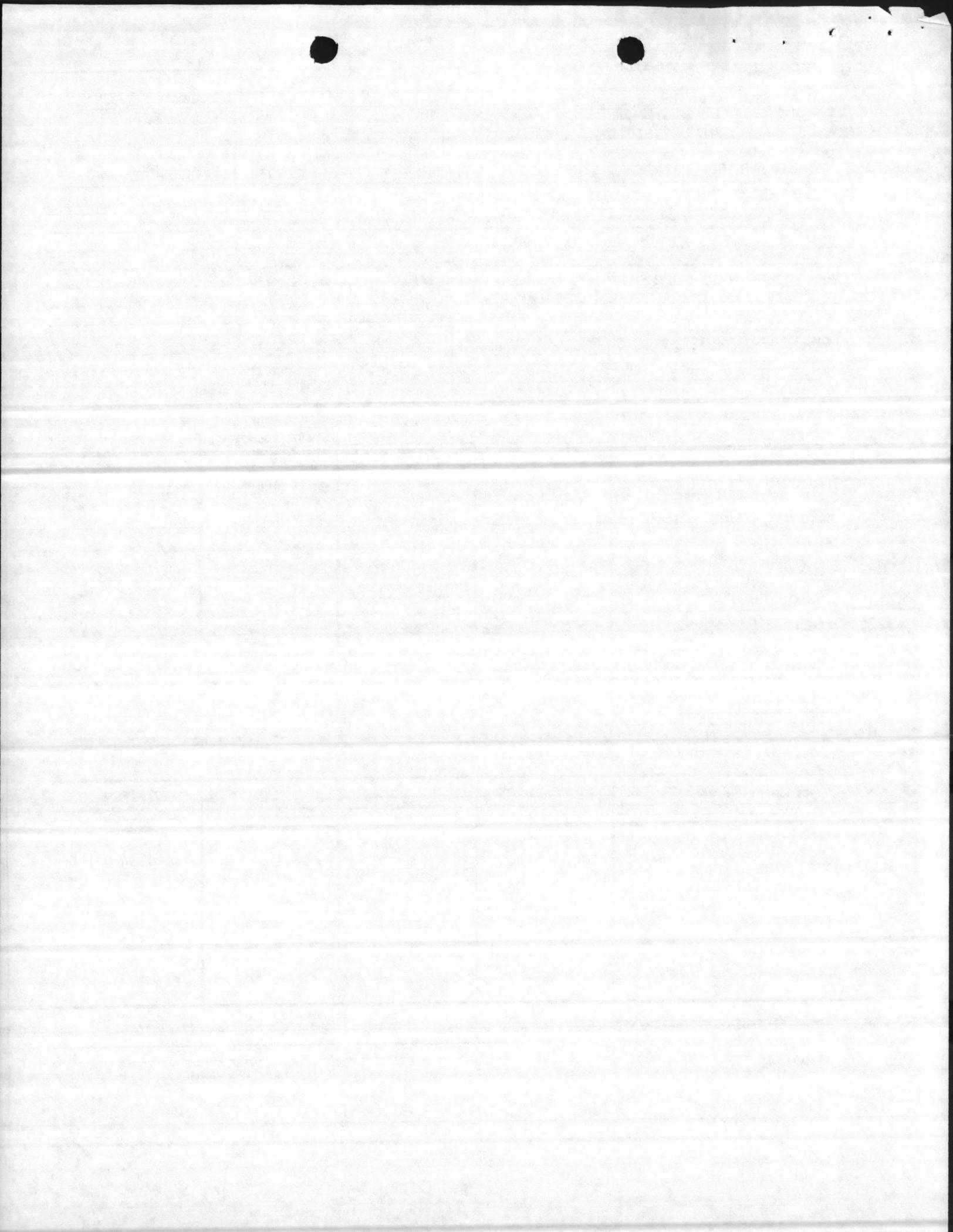
ALTERNATIVE D 1000 S. F. of solar collector

ECONOMIC LIFE 25 YRS.

| DESCRIPTION AND YEAR | COSTS (\$) | | DISCOUNT FACTOR | PRESENT VALUE (\$) |
|----------------------|------------|-----------|-----------------|--------------------|
| | ONE TIME | RECURRING | | |
| INVESTMENT | 92080 | | | 92080 |
| OPERATIONS Oil | | 4988 | 28.15 | 140434 |
| MAINTENANCE | | 2480 | 12.06 | 29908 |
| PERSONNEL | | | | |
| TERMINAL VALUE | | | | |
| OTHER: | | | | |

TOTAL PRESENT VALUE ALTERNATIVE B - \$ 262422 ÷ DISCOUNT FACTOR = UNIFORM ANNUAL COST

REMARKS



ECONOMIC ANALYSIS OF SHORE FACILITY

DATE
15 December 1982

SOLAR STUDY No.31

ACTIVITY (Name and Location)
MCB, CAMP LEJUENE, N.C.

PROJECT TITLE
COMBAT VEHICLE SHOPS

P NO.
P-240

DESCRIPTION OF ALTERNATIVES

Alternate E: Investment and maintenance of 500 S. F. of flat plate solar collectors with 1000 gal. storage tank for domestic hot water.

Alternate F: Energy cost savings of 500 S. F. of flat plate solar collectors with 1000 gal. storage tank for domestic hot water.

PROJECT COST PROJECTIONS BY ALTERNATIVES

ALTERNATIVE E Investment and maintenance ECONOMIC LIFE 25 YRS.

| DESCRIPTION AND YEAR | COSTS (\$) | | DISCOUNT FACTOR | PRESENT VALUE (\$) |
|----------------------|------------|-----------|-----------------|--------------------|
| | ONE TIME | RECURRING | | |
| INVESTMENT | 48917 | | | 48917 |
| OPERATIONS | | | | |
| MAINTENANCE | | 1317 | 12.06 | 15889 |
| PERSONNEL | | | | |
| TERMINAL VALUE | | | | |
| OTHER: | | | | |

TOTAL PRESENT VALUE ALTERNATIVE A - \$ 64806 ÷ DISCOUNT FACTOR = UNIFORM ANNUAL COST

ALTERNATIVE F Energy cost savings ECONOMIC LIFE 25 YRS.

| DESCRIPTION AND YEAR | COSTS (\$) | | DISCOUNT FACTOR | PRESENT VALUE (\$) |
|----------------------|------------|-----------|-----------------|--------------------|
| | ONE TIME | RECURRING | | |
| INVESTMENT | | | | |
| OPERATIONS Oil | | 1978 | 28.15 | 55688 |
| MAINTENANCE | | | | |
| PERSONNEL | | | | |
| TERMINAL VALUE | | | | |
| OTHER: | | | | |

TOTAL PRESENT VALUE ALTERNATIVE B - \$ 55688 ÷ DISCOUNT FACTOR = UNIFORM ANNUAL COST

REMARKS

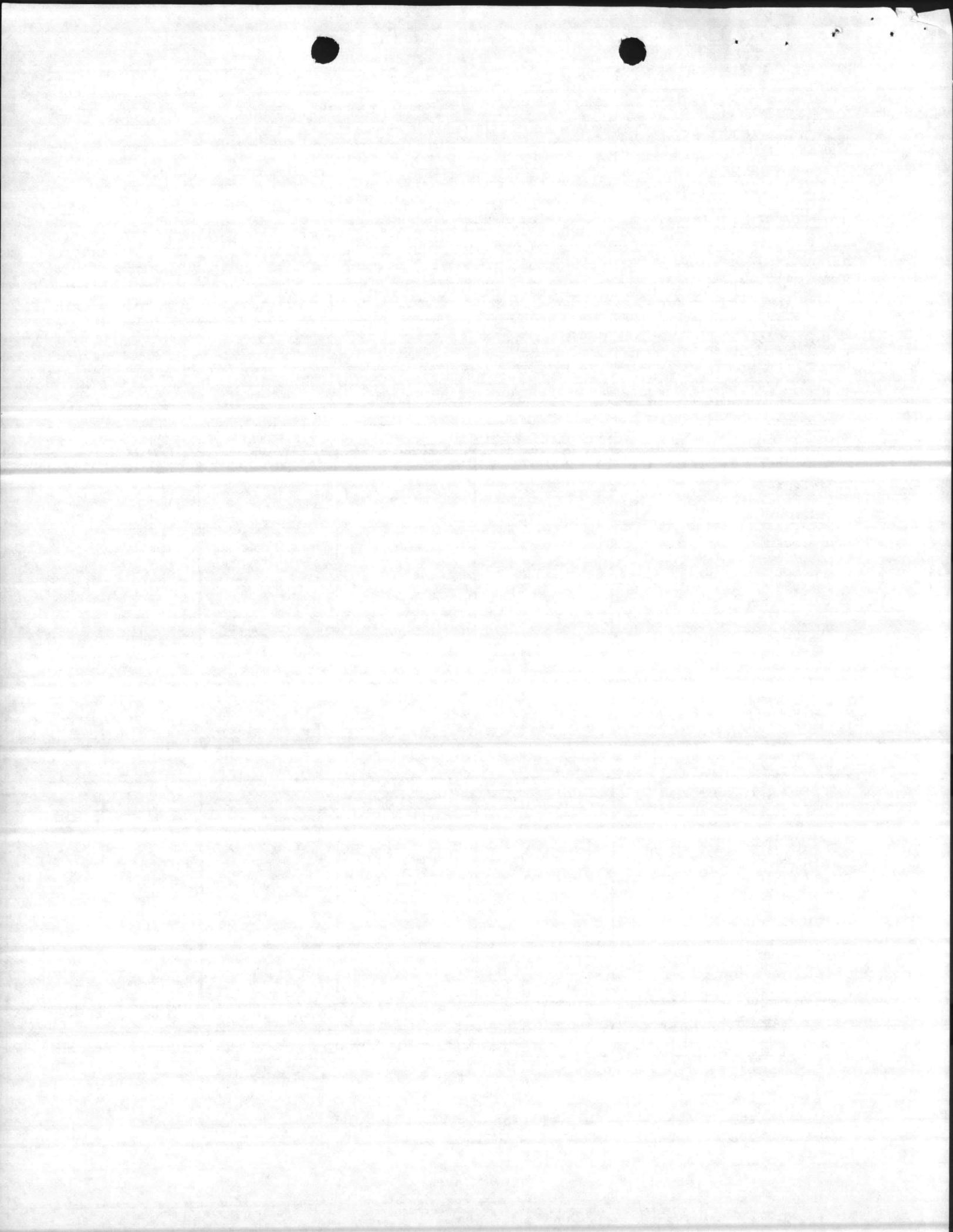
Do not include solar heated domestic hot water in project, due to higher life cycle cost.

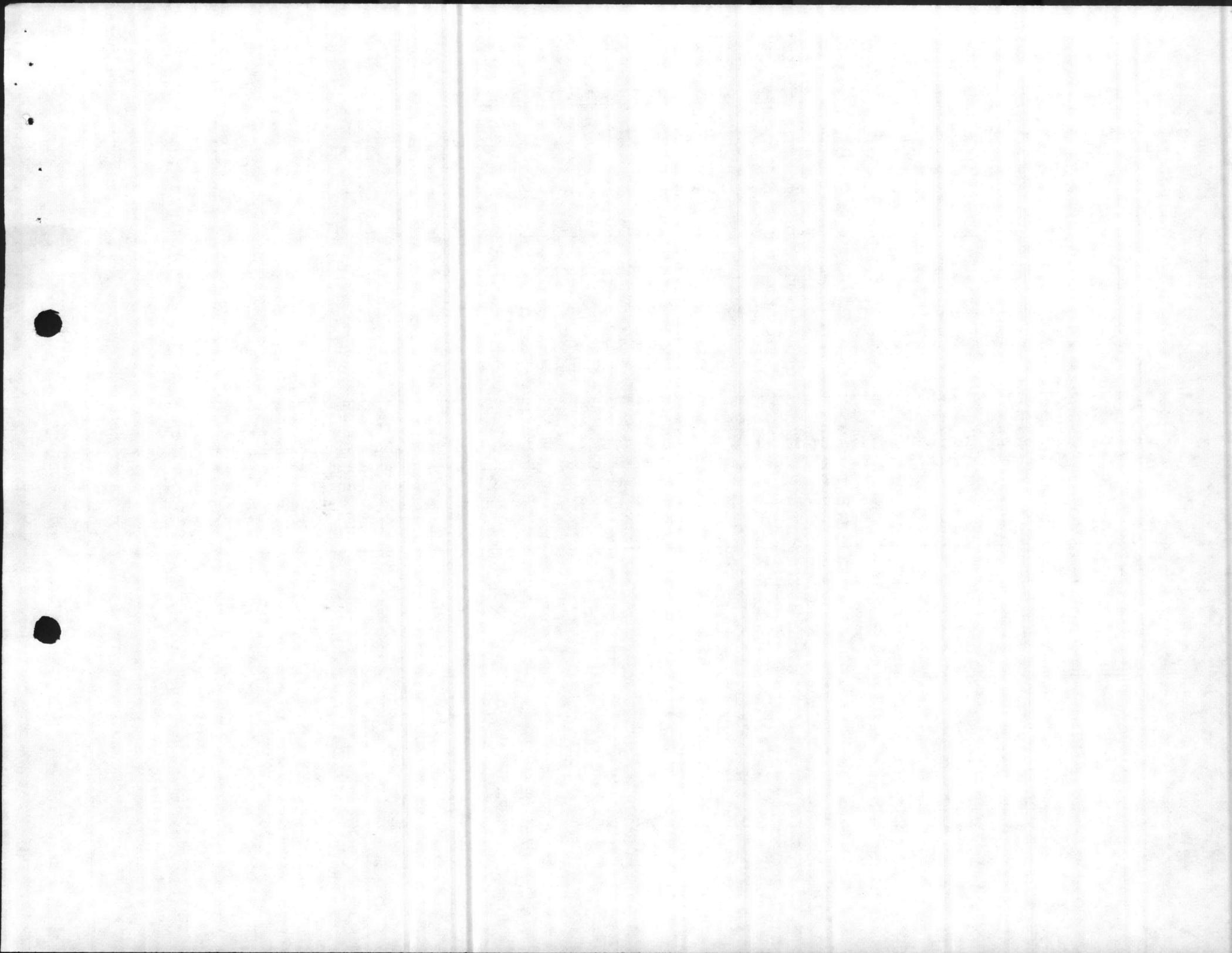
Alternative E 64806 SIR = $\frac{55688-15889}{48917} = .81$

Alternative F -55688

9118 LCC = +9.1

(Attach separate sheet showing derivation of cost entries)





COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE
 15 Dec 1982

1. ACTIVITY (Name and Location)

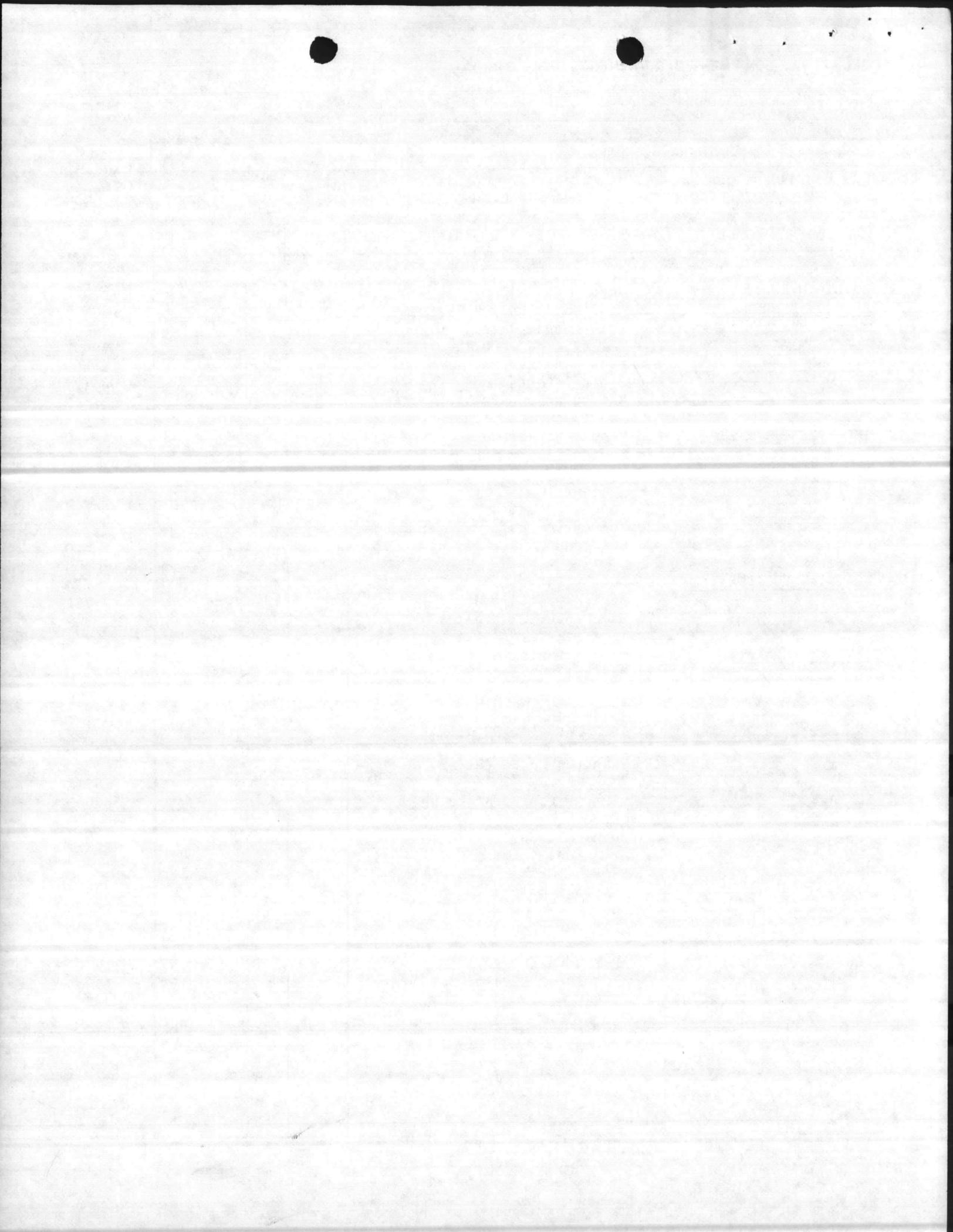
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P-NO
 P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|---|---------------|---------------------|---------------|------------------|
| 3 BUILDINGS GRAND TOTAL | *Equipment with associated installation cost. | | | | |
| 1. <u>BUILT-IN EQUIPMENT TO BE MCON FUNDED:</u> | 2d Supply Battalion | | | | * 180314 |
| | 2d Medical Battalion | | | | * 184594 |
| | 2d Maintenance Battalion | | | | * 191606 |
| 2. <u>EXPENSE ITEMS:</u> | 2d Supply Battalion | | | | 34439 |
| | 2d Medical Battalion | | | | 46127 |
| | 2d Maintenance Battalion | | | | 36507 |
| 3. <u>INVESTMENT ITEMS:</u> | 2d Supply Battalion | | | | 0 |
| | 2d Medical Battalion | | | | 0 |
| | 2d Maintenance Battalion | | | | 0 |
| 4. <u>APA EQUIPMENT:</u> | 2d Supply Battalion | | | | 0 |
| | 2d Medical Battalion | | | | 0 |
| | 2d Maintenance Battalion | | | | 0 |
| 5. <u>TRAINING EQUIPMENT:</u> | 2d Supply Battalion | | | | 784 |
| | 2d Medical Battalion | | | | 784 |
| | 2d Maintenance Battalion | | | | 784 |
| 6. <u>OTHER EXPENSES:</u> | 2d Supply Battalion | | | | 0 |
| | 2d Medical Battalion | | | | 0 |
| | 2d Maintenance Battalion | | | | 0 |
| 7. <u>EQUIPMENT ON HAND:</u> | 2d Supply Battalion | | | | 0 |
| | 2d Medical Battalion | | | | 0 |
| | 2d Maintenance Battalion | | | | 0 |
| 8. <u>SUMMARY</u> | 1. Built in Equipment to be MCON funded | | | SAY | 556514 557000 |
| | 2. Expense items | | | | 117073 |
| | 3. Investment items | | | | 0 |
| | 4. APA Equipment | | | | 0 |
| | 5. Training Equipment | | | | 2352 |
| | 6. Other Expenses | | | | 0 |
| | 7. Equipment on hand | | | | 0 |
| | TOTAL EQUIPMENT PROVIDED | | | | 119425 |
| | FROM OTHER APPROPRIATIONS | | | SAY | 119000 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE
 15 Dec 1982

1. ACTIVITY (Name and Location)

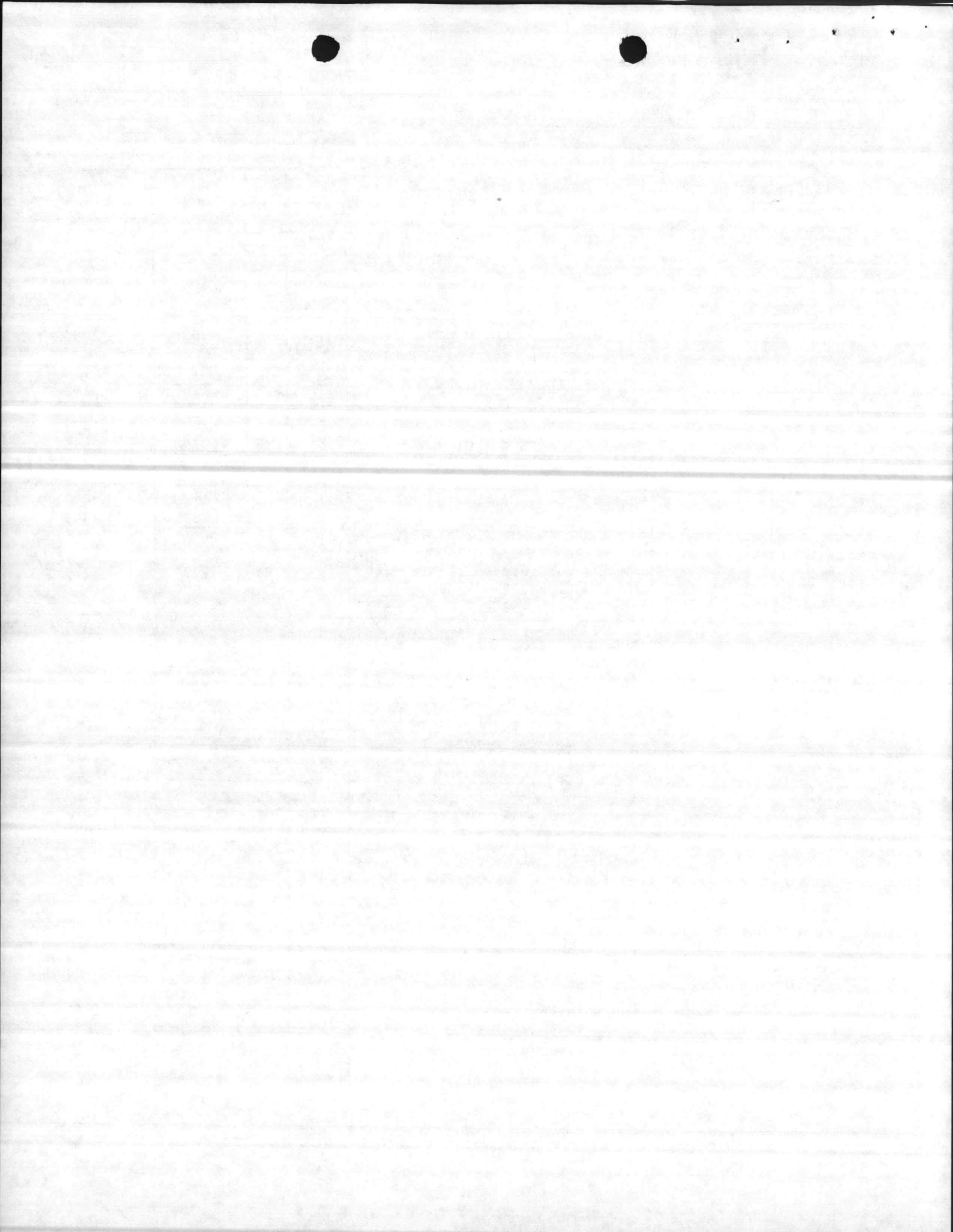
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P^{NO}
 P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|---|---------------|---------------------|---------------|---------------|
| 2D SUPPLY BATTALION MAINTENANCE SHOP | | | | | |
| <u>1. BUILT-IN EQUIPMENT TO BE MCON FUNDED:</u> | | | | | |
| | *Venetian blinds and window screens | 1 | SYS | 2557 | 2557 |
| | *Compressed air system | 1 | SYS | 5730 | 5730 |
| | *Used oil system | 1 | SYS | 9100 | 9100 |
| | *Vehicle fueling system | 1 | SYS | 33300 | 33300 |
| | *Sprinkler system | 1 | SYS | 31993 | 31993 |
| | *Telephone, fire alarm, and intercom systems | 1 | SYS | 10808 | 10808 |
| | *Drinking water coolers | 2 | EA | 559 | 1118 |
| | *Lockers | 30 | EA | 128 | 3840 |
| | *Chalkboards | 1 | EA | 399 | 399 |
| | *Engine starting outlets; 12,24 & 36 volts | 22 | EA | 60 | 1320 |
| | *Tire changer, elec-air, Bishman Com, fractional HP, 280V, 3-phase, 3-wire,150 PSI, comp air | 1 | EA | 7279 | 7279 |
| | *Air hose reel, 150 PSI, HD, w/hose stop (ceiling, wall, or pedestal mounted), provide water separator | 10 | EA | 951 | 9510 |
| | *Elec extension cord reel, HD, w/cord stop (ceiling, wall, or pedestal mtd), 120V, 1-phase | 8 | EA | 169 | 1352 |
| | *Water hose reel, HD, w/hose control valve & hose stop (ceiling, wall, or pedestal mtd), CW | 2 | EA | 957 | 1914 |
| | *Hose reels assembly, w/control valves, HD, over-head, automatic hose stops & meters, 150 PSI comp air, 1 chassis lube, 1 hydraulic oil, 2 mtr oil, 1 gear oil, provide water separator | 2 | EA | 7218 | 14436 |
| | *Exhaust system, door mounted | 6 | EA | 107 | 642 |
| | *Deluge shower, w/eye wash, CW | 1 | EA | 665 | 665 |
| | *Outlets for portable arc welder (grounded) | 1 | EA | 24 | 24 |
| | *Acid resistance sink, w/bench | 1 | EA | 1241 | 1241 |
| | *Exhaust hood (over), fractional HP, 110V, 1-phase | 1 | EA | 3039 | 3039 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE
15 Dec 1982

1. ACTIVITY (Name and Location)

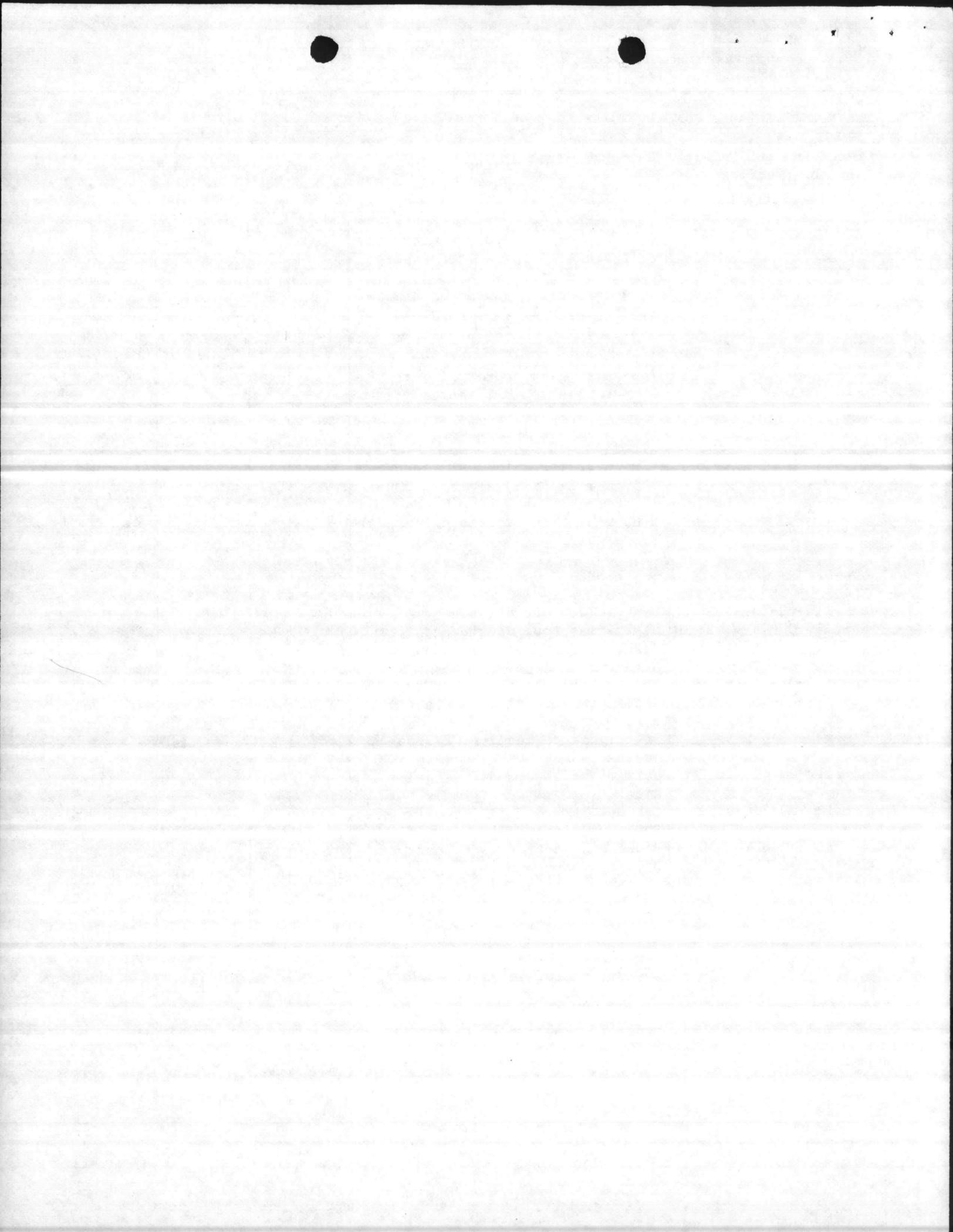
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P. NO.
P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|---|---------------|---------------------|---------------|---------------|
| | *Pass window, 4' wide w/counter & "B" label roll-down shutter (w/fusible link), if required | 1 | EA | 909 | 909 |
| | *Counter, dispatcher's | 1 | EA | 1006 | 1006 |
| | *Lube dispensing equipment w/access (couplers, valves, regulators, etc.) | 5 | EA | 2139 | 10695 |
| | *Air pumps, 400 lb drums for oil (chassis, gear, motor oil, trans & hydraulic fluid), as required | 5 | EA | 2189 | 10945 |
| | *Twin post pneumatic lift, HD, 24,000 lb cap, 150 PSI comp air | 1 | EA | 11496 | 11496 |
| | *Air compressor, 150 PSI (2-stage, 32 CFM), 3-phase, 3-wire, 220V, 15 HP | 1 | EA | 4996 | 4996 |
| | *Equipment with associated install- ation cost. | | | | |
| | TOTAL BUILT IN EQUIPMENT TO BE MCON FUNDED | | | | 180314 |
| 2. EXPENSE ITEMS: | | | | | |
| GSA-7110-00-149-1630 | Desk, flat top, dbl ped | 6 | EA | 255.00 | 1,530 |
| GSA-7110-00-149-1628 | Desk, flat top, single ped | 4 | EA | 186.00 | 744 |
| GSA-7110-01-015-1361 | Desk, single ped; for below attachment | 4 | EA | 192.00 | 768 |
| GSA-7110-01-016-6580 | Desk attachment for above desk | 4 | EA | 140.00 | 560 |
| GSA-7110-00-082-6229 | Chair, rotary, tilting seat and back with arms | 10 | EA | 58.00 | 580 |
| GSA-7110-00-685-5534 | Stand, office machine, 2 drop leaves | 4 | EA | 78.00 | 312 |
| GSA-7110-00-497-2012 | Cabinet, filing, 5-dwr, legal size | 6 | EA | 190.00 | 1,140 |
| GSA-7125-00-764-6129 | Cabinet, storage, dbl door | 6 | EA | 146.00 | 876 |
| GSA-7110-00-112-0045 | Bookcase, base | 14 | EA | 25.00 | 350 |
| GSA-7110-00-831-7430 | Bookcase, section, w/o doors | 42 | EA | 20.00 | 865 |
| GSA-7110-00-471-4039 | Bookcase, top | 14 | EA | 5.90 | 83 |
| GSA-7110-00-782-3503 | Chair, straight, w/o arms | 18 | EA | 32.00 | 576 |
| GSA-7195-00-242-3503 | Costumer, wearing apparel, 4 dbl hooks | 18 | EA | 31.50 | 567 |
| GSA-7195-00-004-6716 | Rack, wearing apparel. 6 meta; hangers | 6 | EA | 37.50 | 225 |
| GSA-7520-00-285-5416 | Basket, waste, 24 gauge steel | 18 | EA | 2.70 | 49 |
| OP | Drapes and hardware | 5 | PR | 90.66 | 453 |
| GSA-7240-00-634-0133 | Trashcan, 15-gal plastic, push- type lid, Rubbermaid, Marshall #8160 | 16 | EA | 52.00 | 832 |
| NSN-6230-00-682-3423 | Lamp, desk | 14 | EA | 38.00 | 532 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE
15 Dec 1982

1. ACTIVITY (Name and Location)

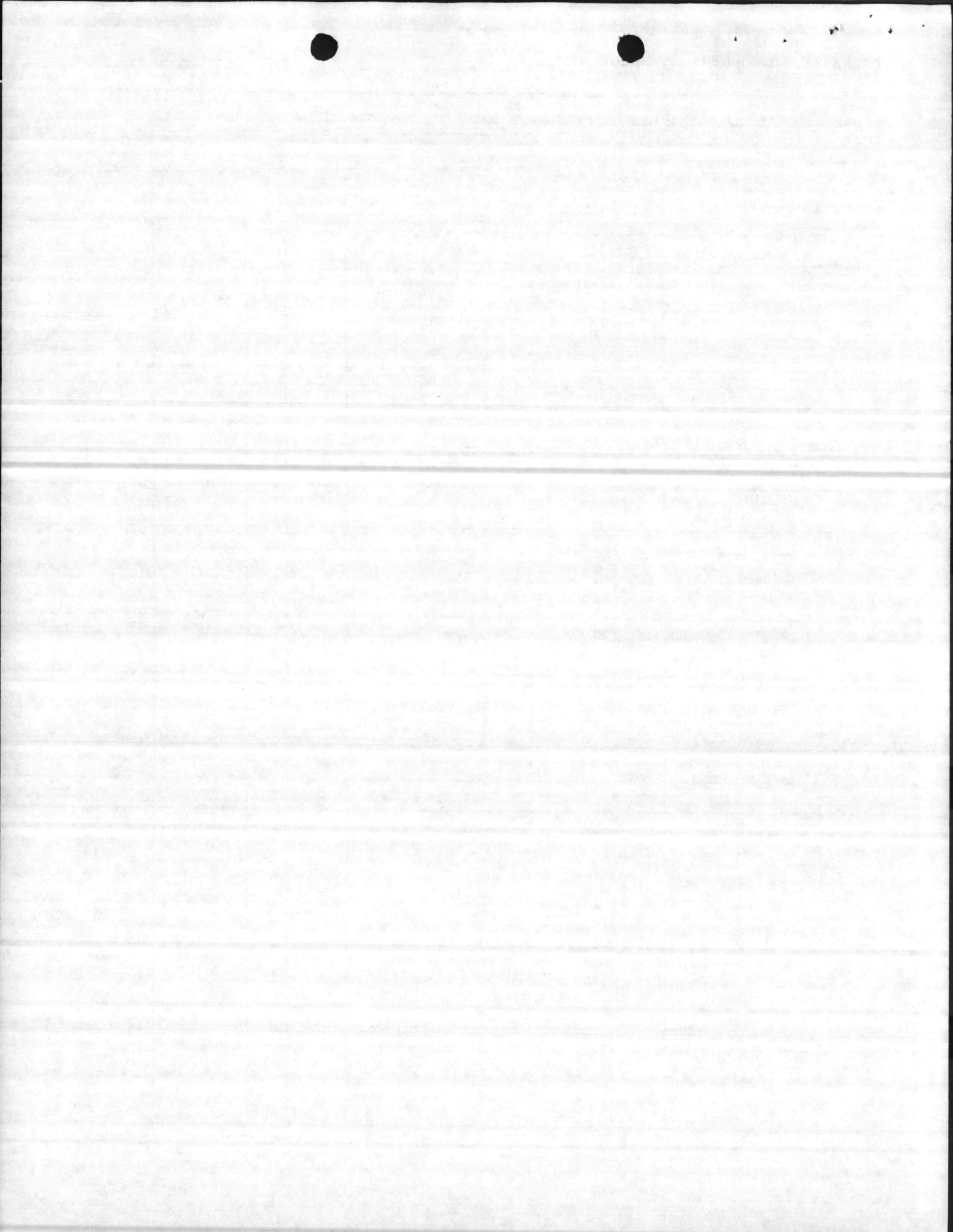
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P. NO.
P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| OP-McMaster-Carr | Welding kit, portable, Model No. 7823A11 | 2 | EA | 305.65 | 611 |
| OP-McMaster-Carr | Cart, welding, 2-wheel, for above welding kit, Model No. 7823A12 | 2 | EA | 32.92 | 66 |
| OP-McMaster-Carr | Shelving, wide span, 96"Lx87"H, 5 shelves, Model No. 5051T14 | 1 | EA | 388.94 | <u>389</u> |
| | TOTAL EXPENSE ITEMS: | | | | 31,309 |
| | Transportation, crating, packing, handling, storage & installation | 10% | | | 3,130 |
| 3. <u>INVESTMENT ITEMS:</u> | NONE | | | | |
| 4. <u>APA EQUIPMENT:</u> | NONE | | | | |
| 5. <u>TRAINING EQUIPMENT:</u> | | | | | |
| 6910-LL-C00-2033 | Projector, movie, 16mm | 1 | EA | 316.00 | 316 |
| -6730-LL-C00-6138 | Screen, movie, portable, 60"x60" | 1 | EA | 31.00 | 31 |
| -6730-LL-Coo-6108 | Projector, overhead, 3-M Model No. 2/3AKD | 1 | EA | 366.00 | <u>366</u> |
| | TOTAL TRAINING EQUIPMINT: | | | | 713 |
| | Transportation, crating, packing handling, storage & installation | 10% | | | 71 |
| 6. <u>OTHER EXPENSES:</u> | NONE | | | | |
| 7. <u>EQUIPMENT ON HAND:</u> | NONE | | | | |
| 8. <u>SUMMARY</u> | | | | | |
| | 1. BUILT-IN EQUIPMENT TO BE MCON FUNDED | | | | 180314 |
| 2d SUPPLY BATTALION MAINTENANCE SHOP | 2. EXPENSE ITEMS | | | | 34439 |
| | 3. INVESTMENT ITEMS | | | | 0 |
| | 4. APA EQUIPMENT | | | | 0 |
| | 5. TRAINING EQUIPMENT | | | | 784 |
| | 6. OTHER EXPENSES | | | | 0 |
| | 7. EQUIPMENT ON HAND | | | | 0 |
| | TOTAL EQUIPMENT PROVIDED FROM OTHER APPROPRIATIONS | | | | 35223 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE
15 Dec 1982

1. ACTIVITY (Name and Location)

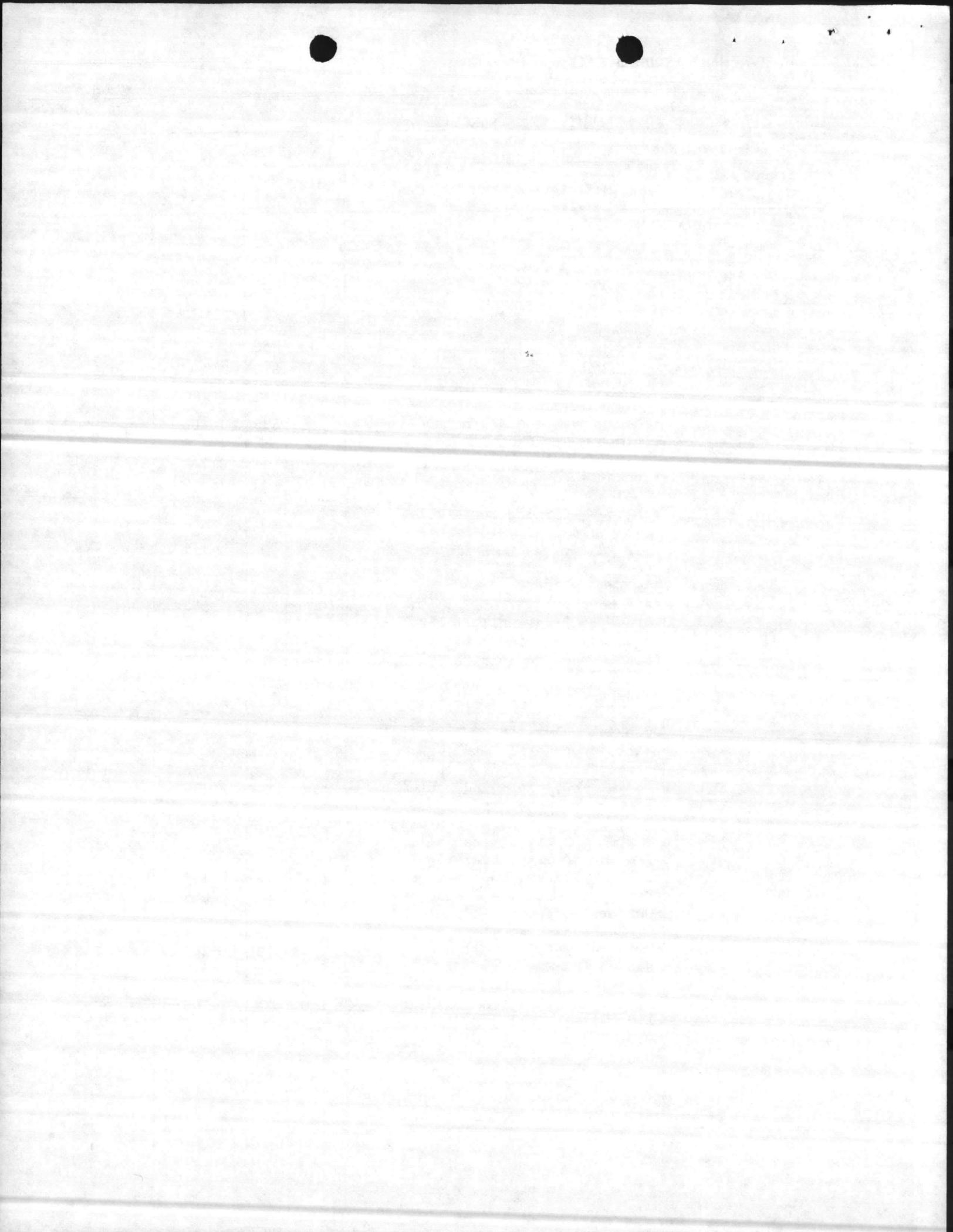
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P. NO
P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|---|---------------|---------------------|---------------|---------------|
| 2d MEDICAL BATTALION MAINTENANCE SHOP | | | | | |
| <u>1. BUILT-IN EQUIPMENT TO BE MCON FUNDED:</u> | | | | | |
| | *Venetian blinds and window screens | 1 | SYS | 2557 | 2557 |
| | *Compressed air system | 1 | SYS | 5730 | 5730 |
| | *Used oil system | 1 | SYS | 9100 | 9100 |
| | *Vehicle fueling system | 1 | SYS | 33300 | 33300 |
| | *Sprinkler system | 1 | SYS | 31993 | 31993 |
| | *Telephone, fire alarm, and intercom systems | 1 | SYS | 10808 | 10808 |
| | *Drinking water coolers | 2 | EA | 559 | 1118 |
| | *Lockers | 30 | EA | 128 | 3840 |
| | *Chalkboards | 1 | EA | 399 | 399 |
| | *Engines starting outlets; 12, 24, & 36 volts | 22 | EA | 60 | 1320 |
| | *Tire changer, elec-air, Bishman Co., fractional HP, 280V, 3-phase, 3-wire, 150 PSI, comp air | | | 7279 | 7279 |
| | *Air hose reel, 150 PSI, HD, w/hose stop (ceiling, wall or pedestal mounted), provide water separator | 10 | EA | 951 | 9510 |
| | *Elec extension cord reel, HD, w/cord stop (ceiling, wall, or pedestal mtd), 120V, 1-phase | 8 | EA | 169 | 1352 |
| | *Water hose reel, HD, w/hose control valve & hose stop (ceiling wall, or pedestal mtd), CW | 2 | EA | 957 | 1914 |
| | *Hose reels assembly, w/control valves, HD, over-head, automatic hose stops & meters, 150 PSI comp air, 1 chassis lube, 1 hydraulic oil, 2 mtr oil, 1 gear oil, provide water separator | 2 | EA | 7218 | 14436 |
| | *Exhaust system, door mounted | 6 | EA | 107 | 642 |
| | *Deluge shower, w/eye wash, CW | 1 | EA | 665 | 665 |
| | *Outlets for portable arc welder (grounded) | 1 | EA | 24 | 24 |
| | *Acid resistant sink, w/bench | 2 | EA | 1241 | 2482 |
| | *Exhaust hood (over), fractional HP, 110V, 1-phase | 2 | EA | 3039 | 6078 |
| | *Pass window, 4' wide w/counter & "B" label roll-down shutter (w/fusible link), if required | 1 | EA | 909 | 909 |
| | *Counter dispatcher's | 1 | EA | 1006 | 1006 |
| | *Lube dispensing equipment w/access (couplers, valves, regulators, etc.) | 5 | EA | 2139 | 10695 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE
 15 Dec 1982

1. ACTIVITY (Name and Location)

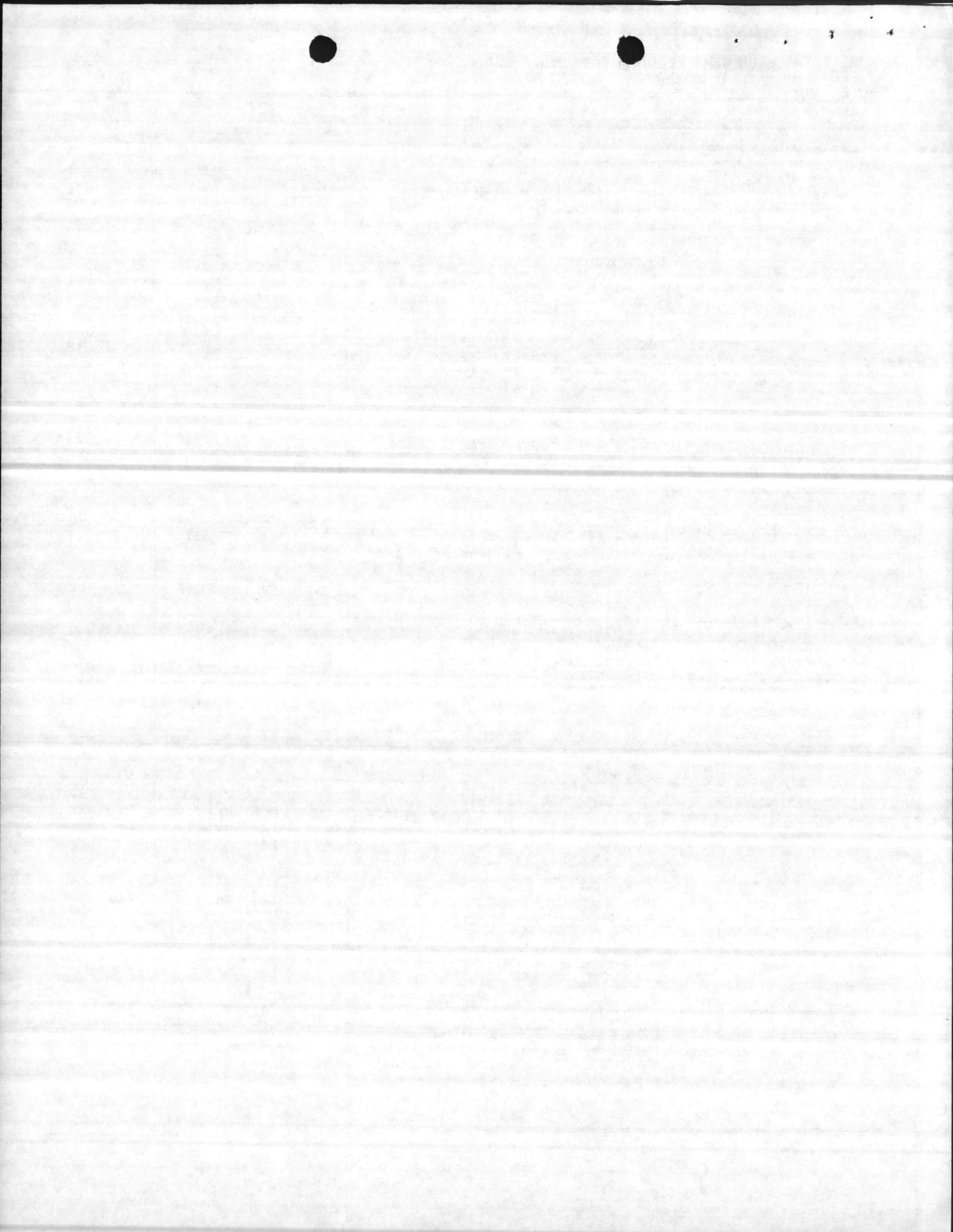
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P. NO.
 P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| | *Air pumps, 400 lb drums for oil (chassis, gear, motor oil, trans & hydraulic fluid), as required | 5 | EA | 2189 | 10945 |
| | *Twin post pneumatic lifts, HD, 24,000 lb cap, 150 OSI comp air | 1 | EA | 11496 | 11496 |
| | *Air compressor, 150 PSI (2-stage, 32 CFM), 3-phase, 3-wire, 220V, 15 HP | 1 | EA | 4996 | 4996 |
| | *Equipment with associated installation cost. | | | | 184594 |
| | TOTAL BUILT-IN EQUIPMENT TO BE MCON FUNDED | | | | |
| 2. EXPENSE ITEMS: | | | | | |
| GSA 7110-00-149-1630 | Desk, flat top, dbl ped | 4 | EA | 255.00 | 1,020 |
| GSA 7110-00-149-1628 | Desk, flat top, single ped | 12 | EA | 186.00 | 2,232 |
| GSA 7110-00-082-6229 | Chair, rotary, tilting seat and back, w/arms | 16 | EA | 58.00 | 928 |
| GSA 7110-00-685-5534 | Stand, office machine, 2 drop leaves | 5 | EA | 78.00 | 390 |
| GSA 7110-00-497-2012 | Cabinet, filing, 5-dwr, legal size | 8 | EA | 190.00 | 1,520 |
| GSA 7125-00-764-6129 | Cabinet, storage, dbl door | 6 | EA | 146.00 | 876 |
| GSA 7110-00-112-0045 | Bookcase, base | 15 | EA | 25.00 | 375 |
| GSA 7110-00-831-7430 | Bookcase, section, w/o doors | 30 | EA | 20.60 | 618 |
| GSA 7110-00-471-4039 | Bookcase, top | 15 | EA | 5.90 | 89 |
| GSA 7110-00-958-8145 | Chair, side, w/arms | 16 | EA | 43.50 | 696 |
| GSA 7195-00-004-6716 | Rack, wearing apparel, 6 metal hangers | 16 | EA | 37.50 | 600 |
| GSA 7520-00-285-5416 | Basket, waste, 24 gauge steel | 16 | EA | 2.70 | 43 |
| GSA 7240-00-634-0133 | Receptacle, waste, w/cover | 12 | EA | 52.00 | 624 |
| OP - Unitex | Draperies and hardware | 10 | PR | 90.00 | 900 |
| NSN 6230-00-682-3423 | Lamp, desk | 16 | EA | 38.00 | 608 |
| OP | Board, bulletproof 48" x 72" cork | 6 | EA | 46.00 | 276 |
| GSA 7110-00-143-0821 | Table, general purpose | 4 | EA | 101.00 | 404 |
| OP- Carolina Office Supply | Easel, portable, 29" x 40" expandable, Mod. No. T5-80E | 2 | EA | 96.00 | 192 |
| NSN 4210-00-965-1111 | Extinguisher, fore, dry chemical, class B/C, CO ₂ gas cartridge operated, 20 lb capacity, Ansul brand | 9 | EA | 91.81 | 826 |
| NSN4210-00-202-7858 | Extinguisher, fire, 15 lb. capacity, CO ₂ cartridge operated class B/C | 10 | EA | 100.74 | 1,007 |
| 4210-00-720-1815 | Extinguisher, fire, 2½ gal. air-expelled water, Class A, stainless steel | 17 | EA | 27.00 | 459 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE
15 Dec 1982

1. ACTIVITY (Name and Location)

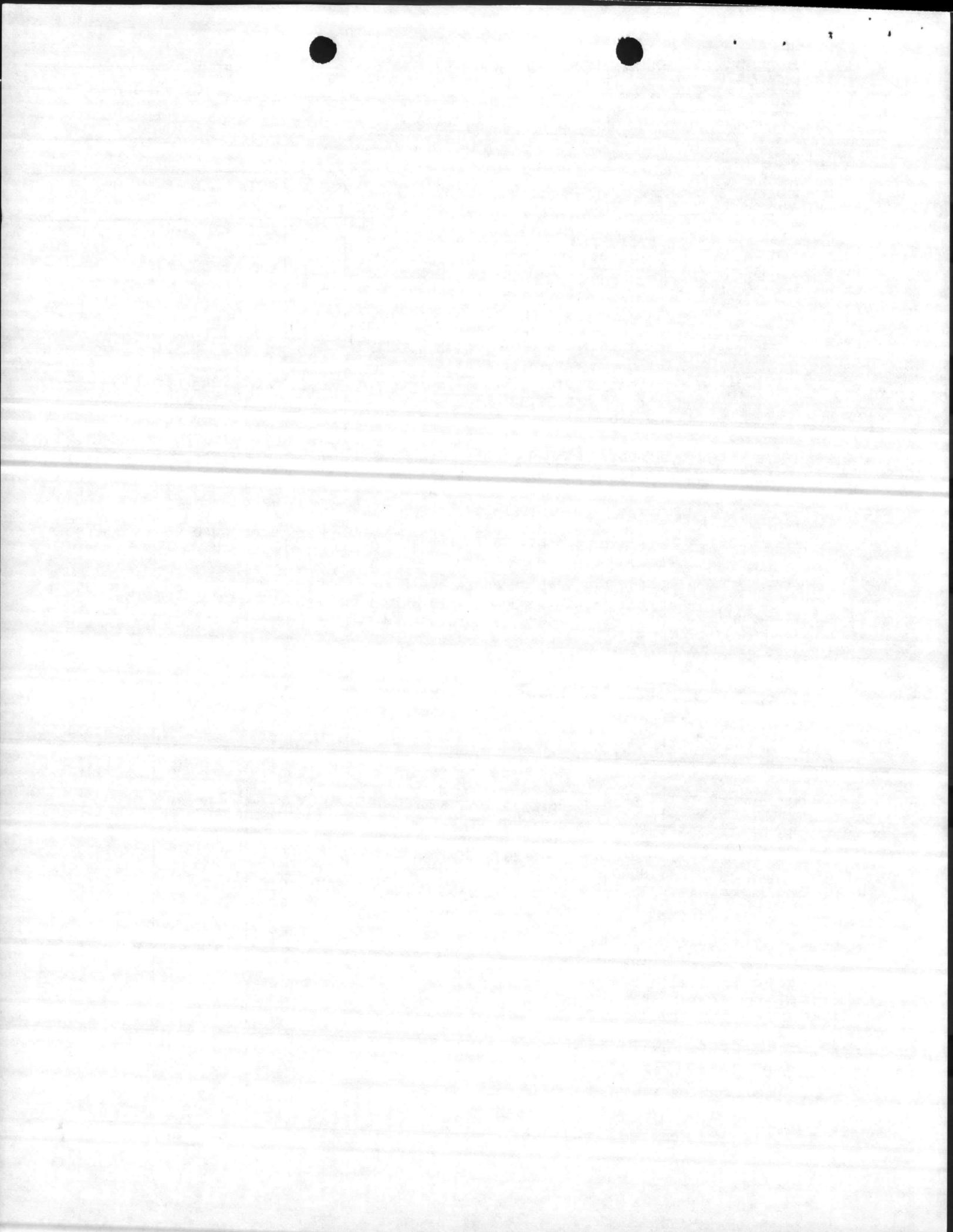
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P. NO.
P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|---|---------------|---------------------|---------------|---------------|
| OP-McMaster-Carr Supply Company P.O. Box 4355 Chicago, Ill. 60680 Area Code 312/833- 0300 | Workbench, electronic, 60"L, dwr cabinet both ends, Mod. No. 4778T32 | 2 | EA | 1,165.62 | 2,331 |
| OP-McMaster-Carr | Workbench, wheeled, 41"L x 24"W x 34"H, Mod. No. 4856T14 | 2 | EA | 596.52 | 1,193 |
| OP-McMaster-Carr | Chair, posture, swivel seat, Mod. No. 9057T18 | 6 | EA | 53.62 | 322 |
| OP-McMaster-Carr | Economy storage bin, combination unit, Mod. No. 4641T21 | 7 | EA | 172.89 | 1,210 |
| OP-McMaster-Carr | Double swinging doors for above unit, Mod. No. 4641T26 | 7 | EA | 88.78 | 621 |
| OP-McMaster-Carr | Bin, storage, steel, floor-island type, 100 bins, Mod. No. 4646T17 | 1 | EA | 337.27 | 337 |
| OP-McMaster-Carr | Workbench, extra heavy duty steel, Mod. No. 4878T45, 35-3/8"H x 72" x 30" | 11 | EA | 540.91 | 5,950 |
| OP-McMaster-Carr | Multiple battery charger, 12 Amps DC, 115/230V, Mod. No. 7318K12 | 3 | EA | 318.82 | 956 |
| OP-McMaster-Carr | Battery jumpers for above battery Mod. No. 7318K14 | 3 | SET | 2.07 | 6 |
| OP-McMaster-Carr | Superla steel storage cabinet, Mod. No. 4587T48 | 8 | EA | 208.05 | 1,664 |
| OP-McMaster-Carr | Long John heavy duty rack, Mod. No. 7670T44, 84"H | 2 | EA | 502.77 | 1,006 |
| OP-McMaster-Carr | Add on unit for above rack, Mod. No. 4670T50 | 12 | EA | 444.11 | 5,329 |
| OP-McMaster-Carr | Extra shelves for above, 30"D Mod. No. 4670T54 | 12 | EA | 128.48 | 1,542 |
| OP-McMaster-Carr | Aluminum carry-all truck, 800 lb. capacity, Mod. No. 2870T1 | 1 | EA | 202.91 | 203 |
| OP-McMaster-Carr | Fan, heavy duty industrial, pedestal-type, 30" Dia, Mod. No. 1906K3 | 8 | EA | 290.74 | 2,326 |
| OP-McMaster-Carr | Electrically conducive matting, rubber, 1/4" thick Model No. 6265T18, full roll | 1 | EA | 19.41 | 19 |
| OP-McMaster-Carr | Long John Heavy duty racks, 96"H Mod. No. 4670T45 | 45 | EA | 510.69 | 1,021 |
| OP-Lyon Metal Products, c/o The Wlater M. Ballard Co., 7705 Georgia Ave, NW Washington, DC A/C 202/829/1181 | Tire Rack, 3-tier, Mod. No. 7505, 72"W x 16-1/8"D x 84"H | 2 | EA | 80.05 | 160 |
| OP-Lyon Metal Products | Truck tire rack, 2-tier, Mod. No. 7525, 96"W x 16-1/8"D x 84"H | 1 | EA | 72.25 | 72 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

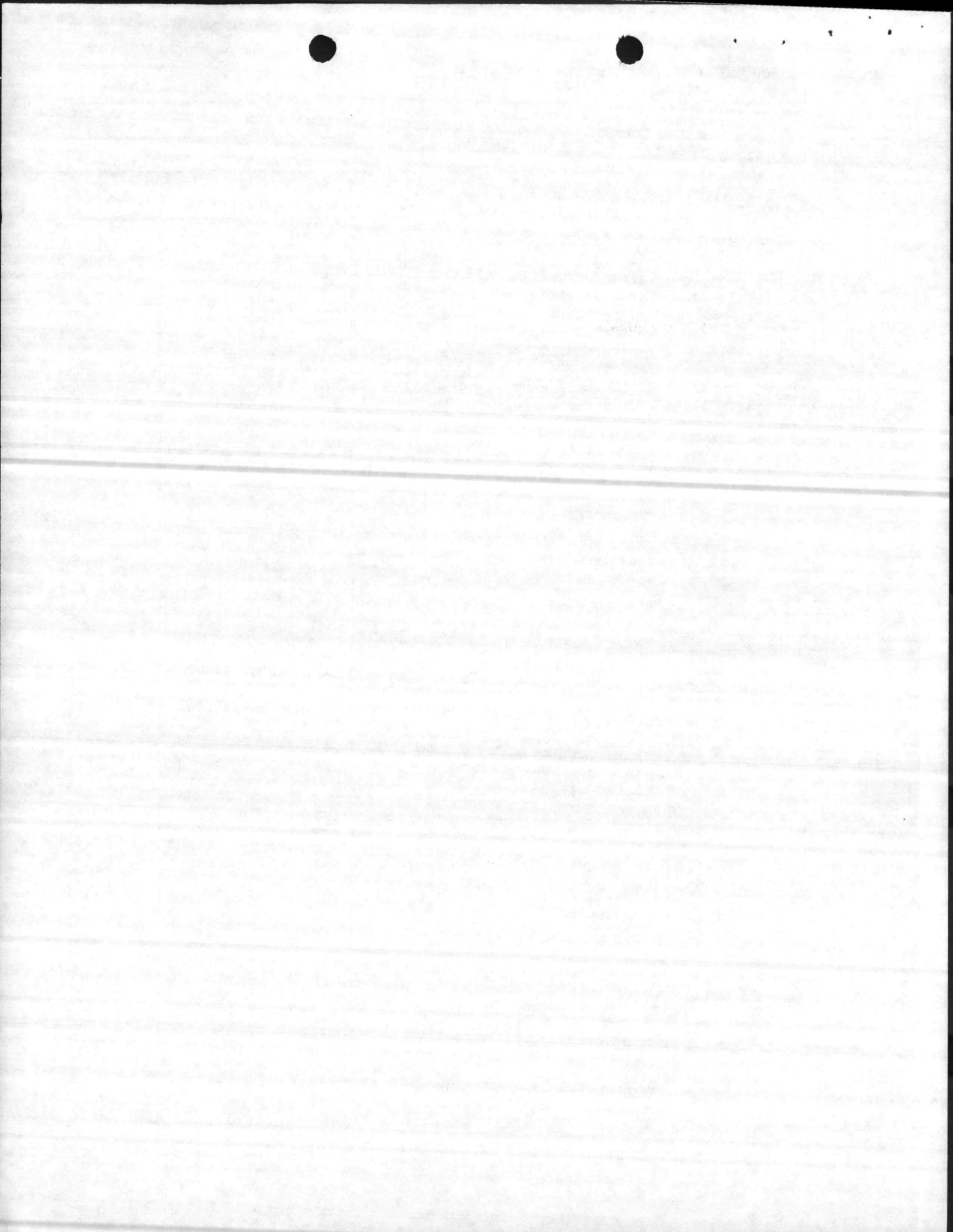
DATE 15 Dec 1982

1. ACTIVITY (Name and Location)
 MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

2. PROJECT TITLE
 COMBAT VEHICLE MAINTENANCE SHOPS

P. NO.
 P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| OP-Lyon Metal Products | Upright assembly for the above tire racks, Mod. No. 7531, 84"H | 3 | EA | 20.65 | 62 |
| NSN 7195-00-484-4376 | Partition, 4'x5', blue-green | 5 | EA | 87.00 | 435 |
| NSN 7195-00-484-4952 | Partition, 5'x5', blue-green | 4 | EA | 97.45 | 390 |
| NSN 7195-00-118-8993 | 2-directional vertical leg with horizontal base | 13 | EA | 6.70 | 87 |
| NSN 7195-00-119-3030 | 2-directional joining cap | 5 | EA | 1.75 | 9 |
| NSN 7195-00-484-4376 | Partition, 4' x 5', blue-green | 5 | EA | 87.00 | 435 |
| NSN 7195-00-484-4952 | Partition, 5' x 5', blue-green | 4 | EA | 97.45 | 390 |
| N 7195-00-118-8993 | 2-directional vertical leg with horizontal base | 13 | EA | 6.70 | 87 |
| N 7195-00-119-3030 | 2-directional joining cap | 5 | EA | 1.75 | 9 |
| | TOTAL EXPENSE ITEMS: | | | | 41,934 |
| | Transportation, crating, packing handling, storage, & installation- | 10% | | | 4,193 |
| 3. <u>INVESTMENT ITEMS:</u> | None | | | | |
| 4. <u>APA EQUIPMENT:</u> | None | | | | |
| 5. <u>TRAINING EQUIPMENT:</u> | | | | | |
| NSN-6910-LL-C00-2033 | Projector, movie, 16mm | 1 | EA | 316.00 | 316 |
| NSN-6730-LL-C00-6138 | Screen, movie, portable, 60"x60" | 1 | EA | 31.00 | 31 |
| NSN-6730-LL-C00-6107 | Projector, overhead, 3-M Model No. 2/3AKD | 1 | EA | 366.00 | 366 |
| | TOTAL TRAINING EQUIPMENT: | | | | 713 |
| | Transportation, crating, packing, handling, storage & installation- | 10% | | | 71 |
| 6. <u>OTHER EXPENSES:</u> | None | | | | |
| 7. <u>EQUIPMENT ON HAND:</u> | None | | | | |
| 8. <u>SUMMARY:</u> | | | | | |
| | 1. Built in equipment to be MCON funded | | | | 184,594 |
| 2d MEDICAL BATTALION MAINTENANCE SHOP | 2. Expense items | | | | 46,127 |
| | 3. Investment items | | | | 0 |
| | 4. APA Equipment | | | | 0 |
| | 5. Training Equipment | | | | 784 |
| | 6. Other Expenses | | | | 0 |
| | 7. Equipment on Hand | | | | 0 |
| | TOTAL EQUIPMENT PROVIDED FROM OTHER APPROPRIATIONS | | | | 46,911 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE
 15 Dec 1982

1. ACTIVITY (Name and Location)

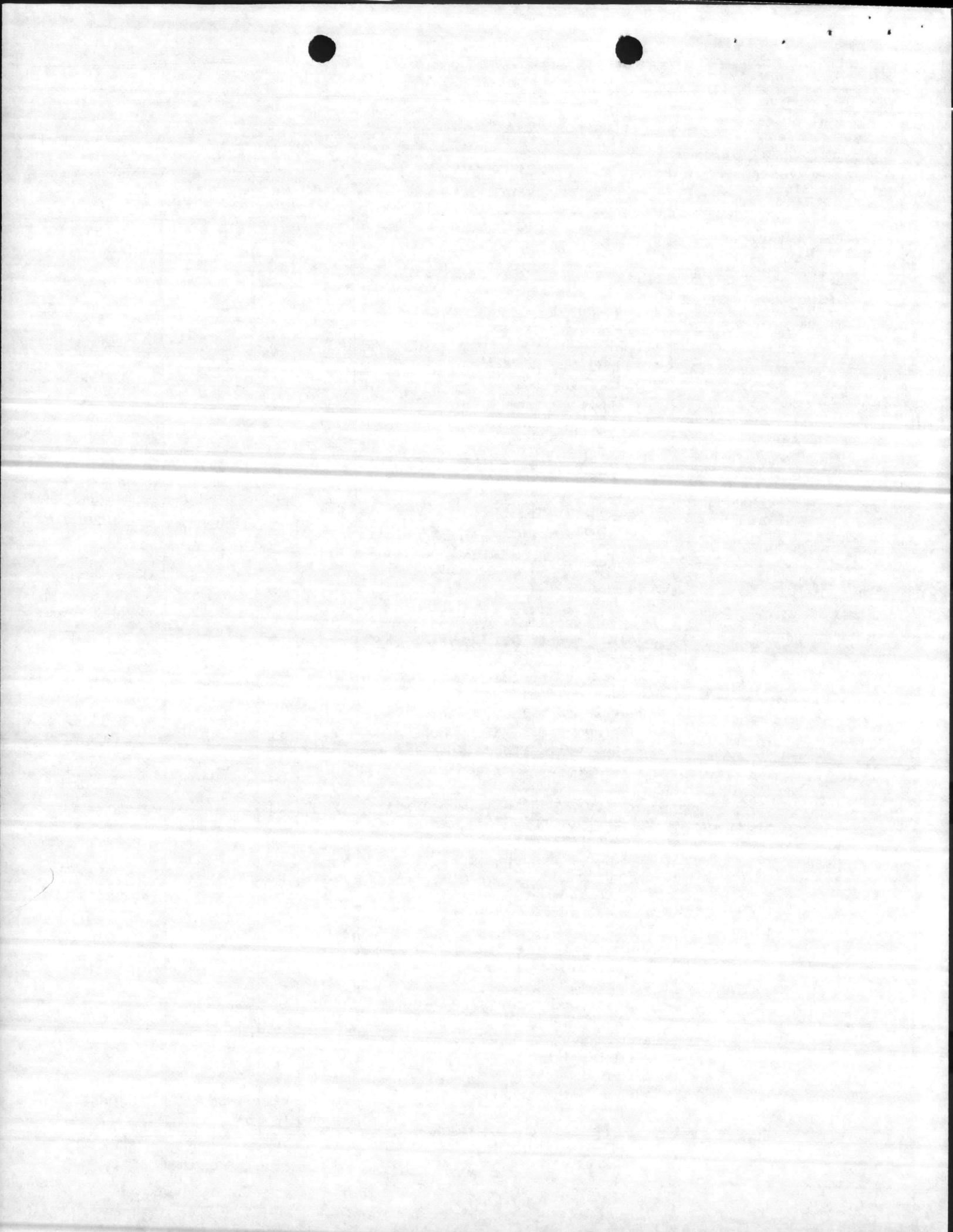
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P. NO.
 P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| 2d MAINTENANCE BATTALION MAINTENANCE SHOP | | | | | |
| 1. BUILT-IN EQUIPMENT TO BE MCON FUNDED: | *Venetian blinds and window screens | 1 | SYS | 2557 | 2557 |
| | *Compressed air system | 1 | SYS | 5892 | 5892 |
| | *Used oil system | 1 | SYS | 9100 | 9100 |
| | *Vehicle fueling system | 1 | SYS | 33300 | 33300 |
| | *Sprinkler system | 1 | SYS | 34267 | 34267 |
| | *Telephone, fire alarm, and intercom systems | 1 | SYS | 10808 | 10808 |
| | *Drinking water coolers | 2 | EA | 559 | 1118 |
| | *Lockers | 30 | EA | 128 | 3840 |
| | *Chalkboards | 1 | EA | 399 | 399 |
| | *Engine starting outlets; 12, 24 & 36 volts | 22 | EA | 60 | 1320 |
| | *Tire changer, elec-air, Bishman Co., fractional HP, 280V, 3- phase, 3-wire, 150 PSI, comp ar | 1 | EA | 7279 | 7279 |
| | *Air hose reel, 150 PSI, HD, w/hose stop (ceiling, wall, or pedestal mounted), provide water separator | 12 | EA | 951 | 11412 |
| | *Elec extension cord reel, HD w/cord stop (ceiling, wall, or pedestal mtd), 120V, 1-phase | 10 | EA | 169 | 1690 |
| | *Water hose reel, HS, w/hose control valve & hose stop (Ceiling, wall, or pedestal mtd.), CW | 2 | EA | 957 | 1914 |
| | *Hose reels assembly, w/control valves, HD, over-head, automatic hose stops & meters, 150 PSI comp air, 1 chassis lube, 1 hydraulic oil, 2 mtr oil, 1 gear oil, provide water separator | 2 | EA | 7218 | 14436 |
| | *Exhaust system, door mtd. | 8 | EA | 107 | 856 |
| | *Deluge shower, w/eye wash, CW | 1 | EA | 655 | 655 |
| | *Outlets for portable arc welder (grounded) | 1 | EA | 24 | 24 |
| | *Acid resistant sink, w/bench | 1 | EA | 1241 | 1241 |
| | *Exhaust hood (over), fractional HP, 110V, 1-phase | 1 | EA | 3039 | 3039 |
| | *Pass window, 4' wide w/counter & "B" label roll-down shutter (w/fusible link), if required | 1 | EA | 909 | 909 |
| | *Counter, dispatcher's | 1 | EA | 1006 | 1006 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev. 11/81)

DATE
 15 Dec 1982

1. ACTIVITY (Name and Location)

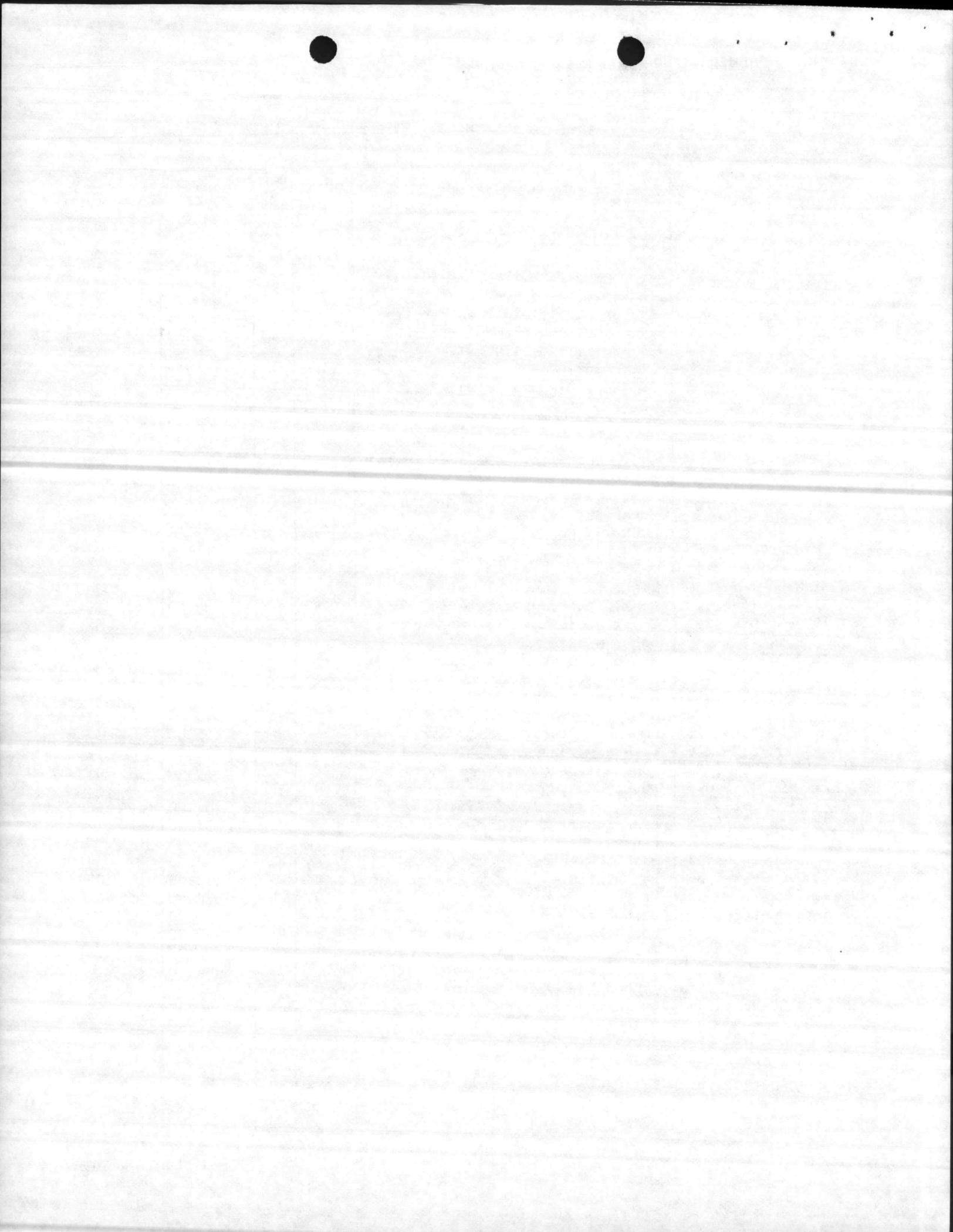
MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|---|---------------|---------------------|---------------|---------------|
| | *Lube dispensing equipment w/access (couplers, valves, regulators, etc.) | 5 | EA | 2139 | 10695 |
| | *Air pumps, 400 lb drums for oil (chassis, gear, motor oil, trans & hydraulic fluid), as required | 5 | EA | 2189 | 10945 |
| | *Twin post pneumatic lifts, HD, 24,000 lb cap, 150 PSI comp air | 1 | EA | 11496 | 11496 |
| | *Air compressor, 150 PSI (2-stage, 32 CFM), 3-phase, 3-wire, 220V, 15 HP | 1 | EA | 4996 | 4996 |
| | *Twin post pneumatic lift, LD, 11,000 lb cap, 150 PSI comp air | 1 | EA | 6412 | 6412 |
| | *Equipment with associated install- ation cost. | | | | |
| | TOTAL BUILT-IN EQUIPMENT TO BE MCON FUNDED | | | | 191606 |
| 2. EXPENSE ITEMS: | | | | | |
| GSA 7110-00-149-1690 | Desk, flat top, dbl ped | 6 | EA | 255.00 | 1,530 |
| GSA 7110-00-149-1628 | Desk, flat top, single ped | 4 | EA | 186.00 | 744 |
| GSA 7110-00-082-6229 | Chair, rotary, tilting seat and back, w/arms | 10 | EA | 58.00 | 580 |
| GSA 7110-00-685-5534 | Stand, office machine, 2 drop leaves | 3 | EA | 78.00 | 234 |
| GSA 7110-00-497-2012 | Cabinet, filing, 5-dwr, legal size | 6 | EA | 190.00 | 1,140 |
| GSA 7125-00-764-6129 | Cabinet, storage, dbl door | 6 | EA | 146.00 | 876 |
| GSA 7110-00-112-0045 | Bookcase, base | 5 | EA | 25.00 | 125 |
| GSA 7110-00-831-7430 | Bookcase, section, w/o doors | 20 | EA | 20.60 | 412 |
| GSA 7110-00-471-4039 | Bookcase, top | 5 | EA | 5.90 | 30 |
| GSA 7110-00-781-3505 | Chair, straight, w/o arms | 30 | EA | 32.00 | 960 |
| GSA 7195-00-004-6716 | Rack, wearing apparel, 6 metal hangers | 4 | EA | 37.50 | 150 |
| GSA 7520-00-285-5416 | Basket, waste, 24 gauge steel | 8 | EA | 2.70 | 49 |
| GSA 7240-00-634-0133 | Receptacle, waste, w/cover | 16 | EA | 52.00 | 832 |
| OP - Unitex | Draperies and hardware | 10 | PR | 90.00 | 900 |
| NSN 6230-00-682-3423 | Lamp, desk | 6 | EA | 38.00 | 228 |
| OP | Board, bulletin, 48" x 72" cork | 6 | EA | 46.00 | 276 |
| GSA 7110-00-143-0821 | Table, general purpose | 1 | EA | 101.00 | 101 |
| OP - Carolina Office Supply | Easel, portable, 29" x 40" expandable, Mod. No. T5-80E | 2 | EA | 96.00 | 192 |
| NSN 4210-00-965-1111 | Extinguisher, fire, dry chemical, class B/C, CO ₂ gas cartridge operated, 20 lb capacity, Ansul Brand | 9 | EA | 91.81 | 826 |
| NSN- 4210-00-202-7858 | Extinguisher, fire, 15 lb. capacity, CO ₂ cartridge operated Class B/C | 10 | EA | 100.74 | 1,007 |



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE 15 Dec 1982

1. ACTIVITY (Name and Location)

MARINE CORPS BASE, CAMP LE JEUNE, NORTH CAROLINA 28542

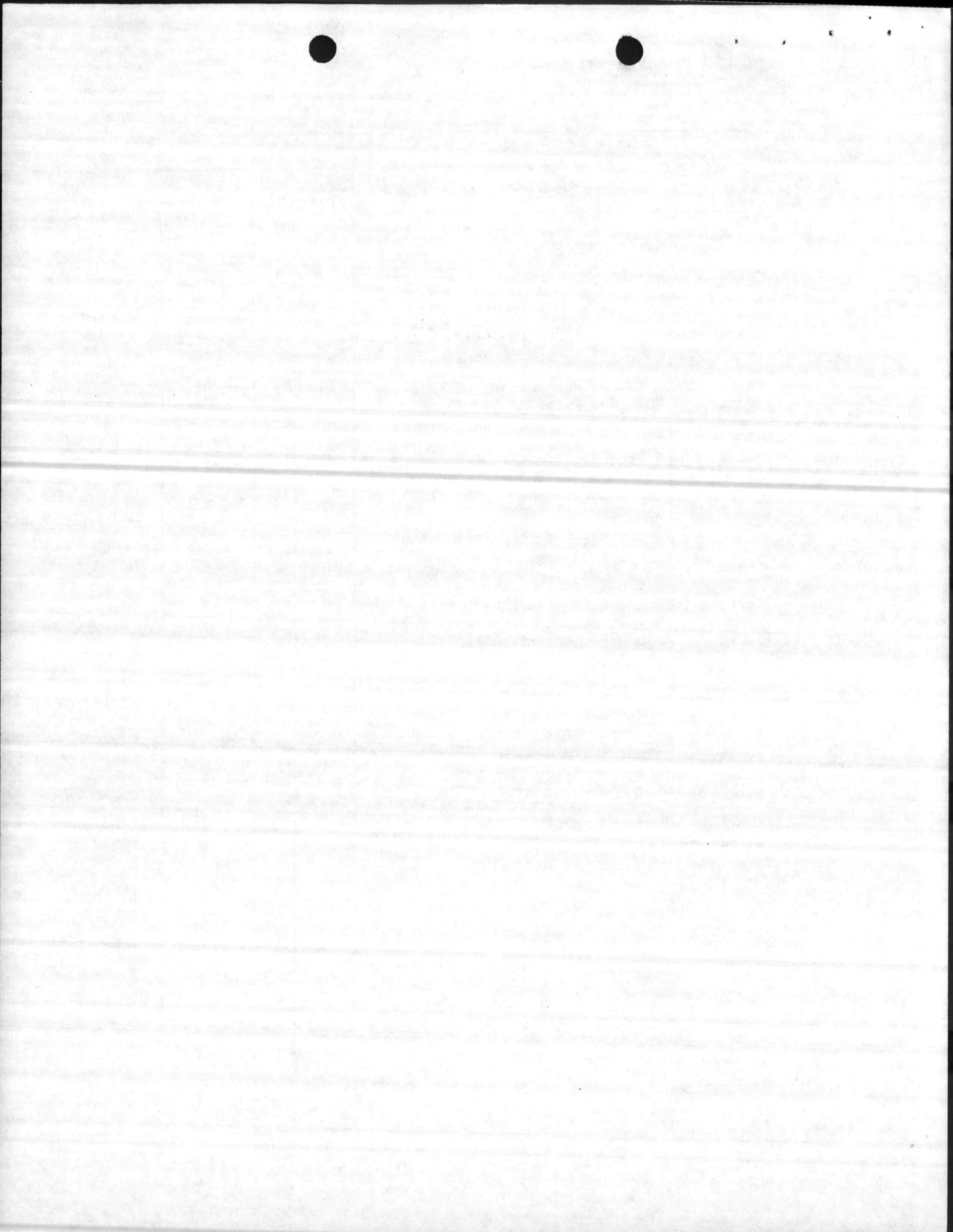
2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

P. NO.
P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|---|---------------|---------------------|---------------|---------------|
| NSN 4210-00-720-1815 | Extinguisher, fire, 2½ gal. air- expelled water, class A, stainless steel | 17 | EA | 27.00 | 459 |
| QP-McMaster-Carr Supply Co. P.O. Box 4355 Chicago, Ill. 60680 Area Code 312/ 833-0300 | Workbench, enclosed, steel, Mod. No. 4880T11 | 8 | EA | 381.82 | 3,055 |
| OP-McMaster-Carr | Workbench w/cabinet, portable, Mod. No. 4624T23 | 10 | EA | 441.78 | 4,418 |
| OP-McMaster-Carr | Workbench w/shelf cabinet, Mod. No.4763T2, 6' | 1 | EA | 298.27 | 298 |
| OP-McMaster-Carr | Storage bin, combination unit, Mod. No. 4641T25, 18" deep | 6 | EA | 242.41 | 1,454 |
| OP-McMaster-Carr | Shelf unit, closed, Mod. No. 4586T25 | 12 | EA | 99.70 | 1,196 |
| OP-McMaster-Carr | Shelving, wide span, 96" long Mod. No. 5051T14 | 12 | EA | 388.94 | 4,667 |
| OP-McMaster-Carr | Acetylene cutting outfit, Mod. No.7843A11 | 1 | EA | 84.00 | 184 |
| OP-McMaster-Carr | Cutting tip for above outfit, Mod. No. 7843A21 | 1 | EA | 9.00 | 9 |
| OP-McMaster-Carr | Battery charger, multiple, Mod. No. 7318K12 | 2 | EA | 318.82 | 638 |
| OP-McMaster-Carr | Jumpers for above battery charger, Mod. No. 7318K14 | 12 | EA | 2.07 | 25 |
| OP-McMaster-Carr | Fan, heavy duty industrial, pedestal-type, 30" dia., Mod. No. 1906K3 | 12 | EA | 290.74 | 3,489 |
| OP-McMaster-Carr | Drum truck, 2 wheel Mod. No. 2647T1 | 1 | EA | 287.64 | 288 |
| OP-Lyon Metal Products c/o Walter M. Ballard Co., 7705 Georgia Ave., .N.W. ashington, D.C. Area Code 202/ 829-1181 | Truk, tire rack, 3-tier, 96" W. Mod. No. 7527 | 3 | EA | 119.15 | 357 |
| NSN 7110-00-143-0820 | Table, office, size 3, 36" x 24" | 20 | EA | 73.00 | 1,460 |
| | TOTAL EXPENSE ITEMS: | | | | 33,189 |
| | Transportation, crating, packing, handling, storage, and installation - 10% | | | | 3,318 |
| 3. INVESTMENT ITEMS: | NONE | | | | |

31



COLLATERAL EQUIPMENT REQUIREMENTS (Initial Outfitting)
 LANTDIV NORVA 4-11010/6 (Rev.11/81)

DATE 15 Dec 1982

1. ACTIVITY (Name and Location)

MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

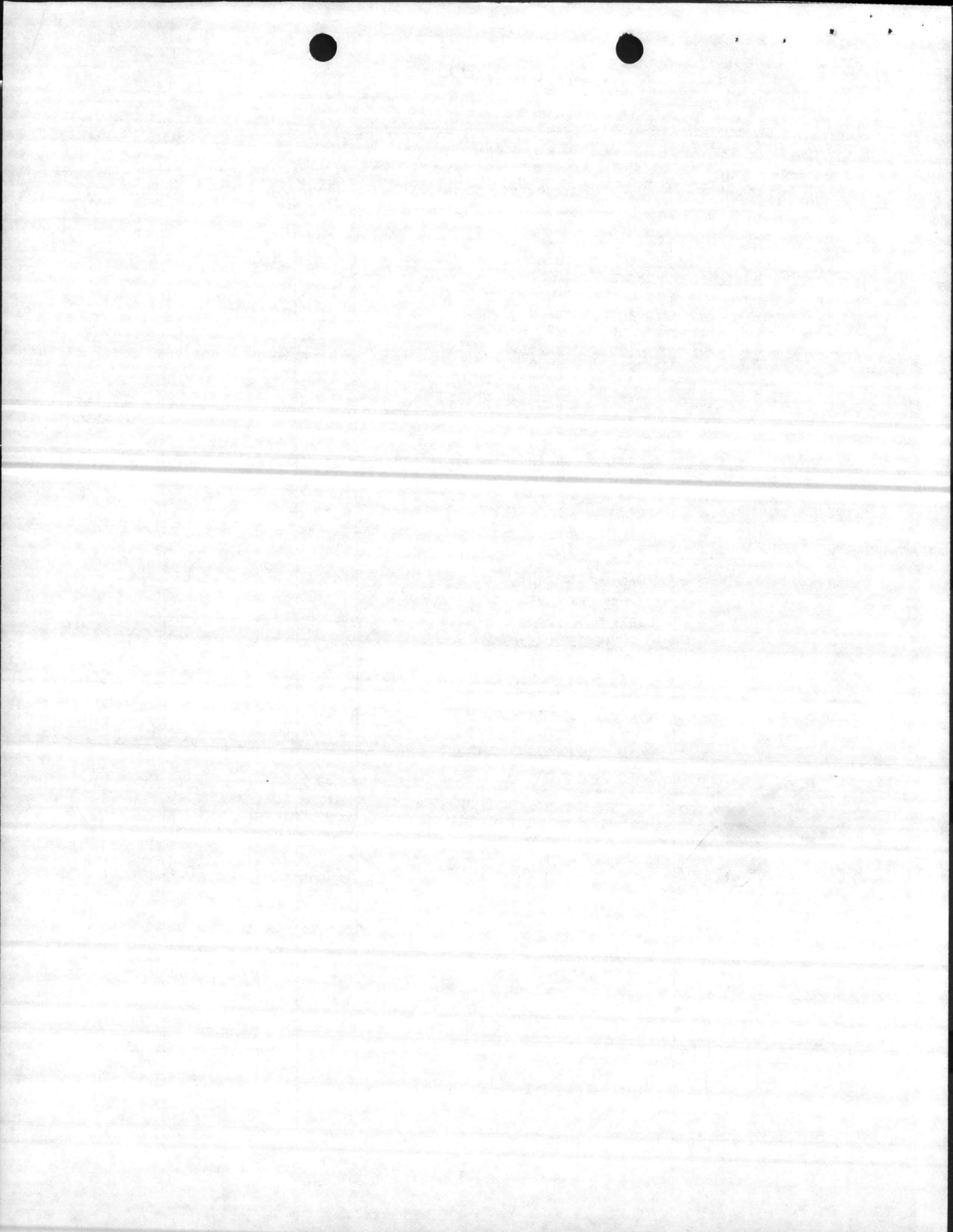
2. PROJECT TITLE

COMBAT VEHICLE MAINTENANCE SHOPS

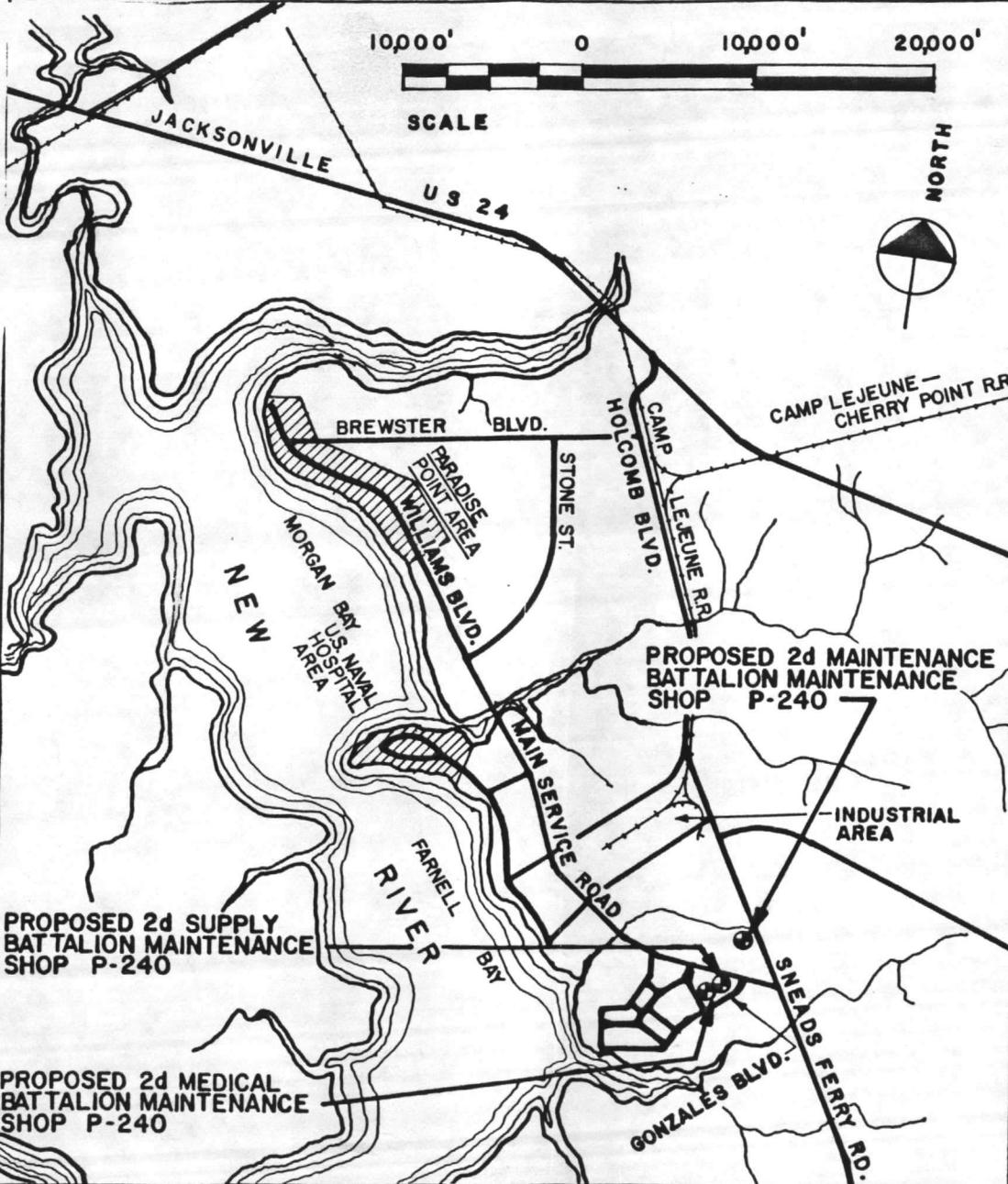
P. NO.

P-240

| COG. SYMBOL AND FED. STOCK NO. OR OTHER SOURCE | ITEM/EQUIPMENT DESCRIPTION | QUAN- TITY | UNIT OF ISSUE | UNIT PRICE | TOTAL COST |
|--|--|---------------|---------------------|---------------|---------------|
| 4. <u>APA EQUIPMENT:</u> | NONE | | | | |
| 5. <u>TRAINING EQUIPMENT:</u> | | | | | |
| NSN-6910-LL-C00-2033 | Projector, movie, 16mm | 1 | EA | 316.00 | 316 |
| NSN-6730-LL-C00-6138 | Screen, movie, portable, 60" x 60" | 1 | EA | 31.00 | 31 |
| NSN-6730-LL-C00-6107 | Projector, overhead, 3-M Model No. 2/3AKD | 1 | EA | 366.00 | 366 |
| | TOTAL TRAINING EQUIPMENT: | | | | 713 |
| | Transportation, crating, packing, handling, storage & installation - 10% | | | | 71 |
| 6. <u>OTHER EXPENSES:</u> | NONE | | | | |
| 7. <u>EQUIPMENT ON HAND:</u> | NONE | | | | |
| 8. <u>SUMMARY:</u> | | | | | |
| | 1. BUILT IN EQUIPMENT TO BE MCON FUNDED | | | | 191606 |
| | 2. EXPENSE ITEMS | | | | 36507 |
| | 3. INVESTMENT ITEMS | | | | 0 |
| | 4. APA EQUIPMENT | | | | 0 |
| | 5. TRAINING EQUIPMENT | | | | 784 |
| | 6. OTHER EXPENSES | | | | 0 |
| | 7. EQUIPMENT ON HAND | | | | 0 |
| | TOTAL EQUIPMENT PROVIDED FROM OTHER APPROPRIATIONS | | | | 37291 |



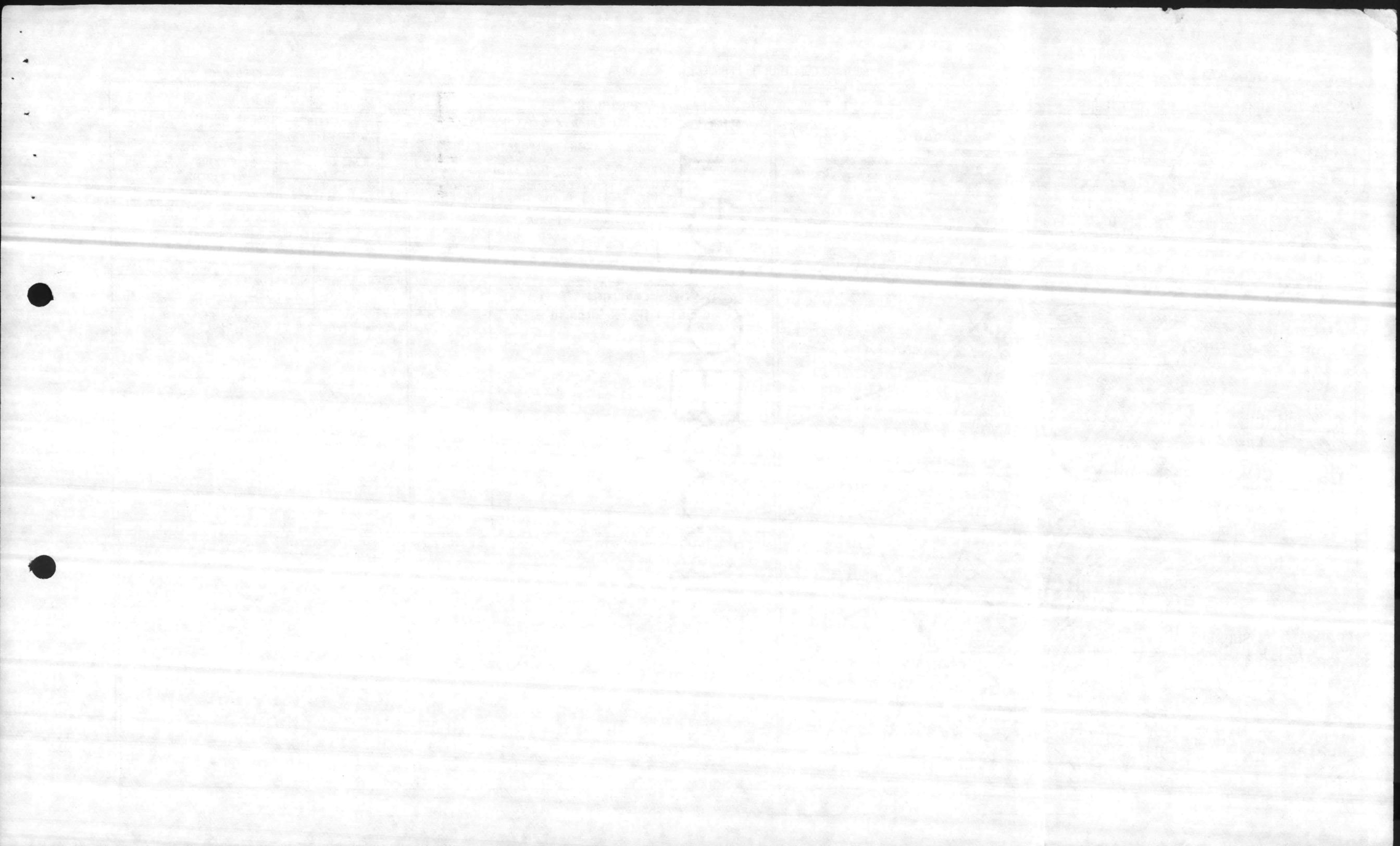
| | | | |
|---|---|-------|-------------------|
| INSTALLATION MARINE CORPS BASE, CAMP LEJEUNE, N.C. | PROJECT TITLE COMBAT VEHICLE MAINTENANCE SHOPS | P-240 | DATE 15 Dec 82 |
|---|---|-------|-------------------|



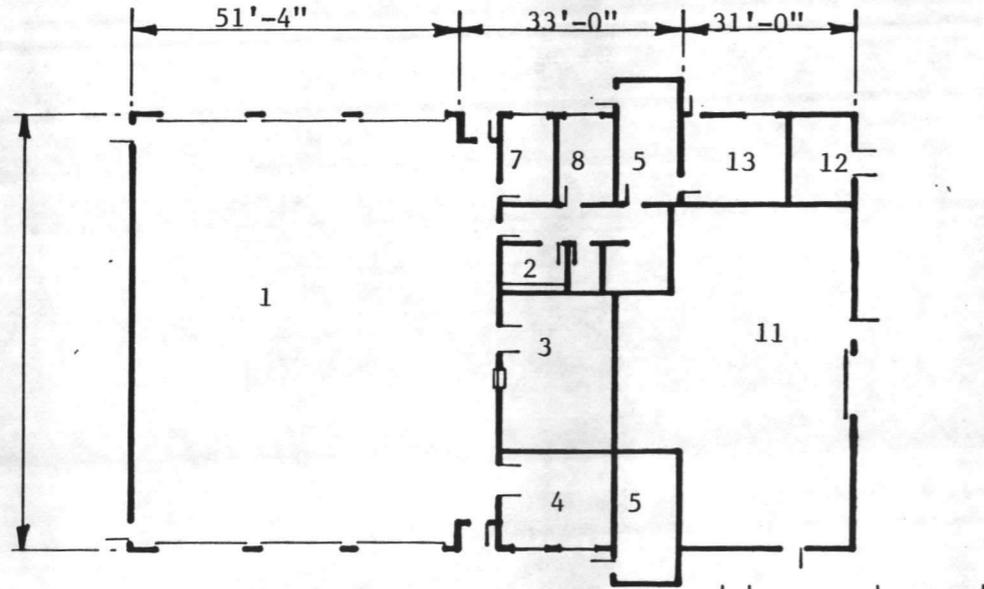
| A&E/GF | PLANS AND SPECIFICATIONS | CONSTR | DESIGN PROGRESS INFO PROVIDED CONGRESS |
|---|---|---|---|
| NAME AND LOCATION | TOWNSEND ARCHITECTURAL-PLANNING GROUP GREENVILLE, SOUTH CAROLINA | AWARD DATE (Est.) MAY 84 MONTHS 18 | START DATE: _____ COMPLETION DATE: _____ COMPLETE 1 JAN: _____ % COMPLETE 1 OCT: _____ % |
| DATES | AWARD JULY 82 35% COMPLETION NOV 82 100% COMPLETION AUG 83 | BOD NOV 85 | |
| COMPARATIVE COST DATA | | ENGINEERING DATA | |
| H | OK | L | AREA FACTOR: |
| | | | UNIT COST (\$) |
| UNIT COST FOR THIS PROJECT ON DD 1391 | | | |
| DOD COST REVIEW GUIDE (ADJUSTED) | | | |
| OTHER PROJECTS IN THIS PROGRAM (ADJUSTED) | | | |
| | | DD 1391 COST PROJECTION DATA | |
| | | INCREASE - TOTAL | |
| | | INCREASE MONTH | |
| | | PROJECTION DATES (From - To) | |
| | | INDEX SOURCE | |
| SITE CONDITION, SPECIAL DESIGN CONSIDERATIONS, TECHNICAL PROBLEMS, ETC. OTHER THAN SHOWN ON DD 1391 | | | |

BUILT-IN EQUIPMENT; FEC DATA; SPECIAL OVERSEAS OVERHEAD COSTS; EXPLANATION OF DEMOLITION

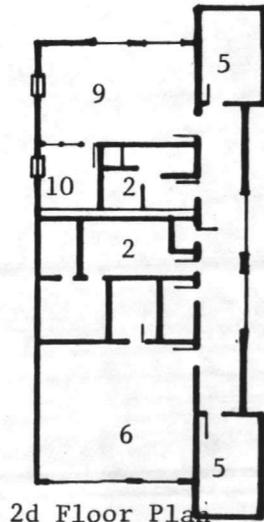
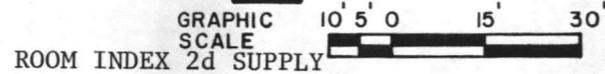
33



| | | | |
|---|---|-------|-------------------|
| INSTALLATION MARINE CORPS BASE, CAMP LEJEUNE, N.C. | PROJECT TITLE COMBAT VEHICLE MAINTENANCE SHOPS | P-240 | DATE 15 Dec 82 |
|---|---|-------|-------------------|



1st Floor Plan

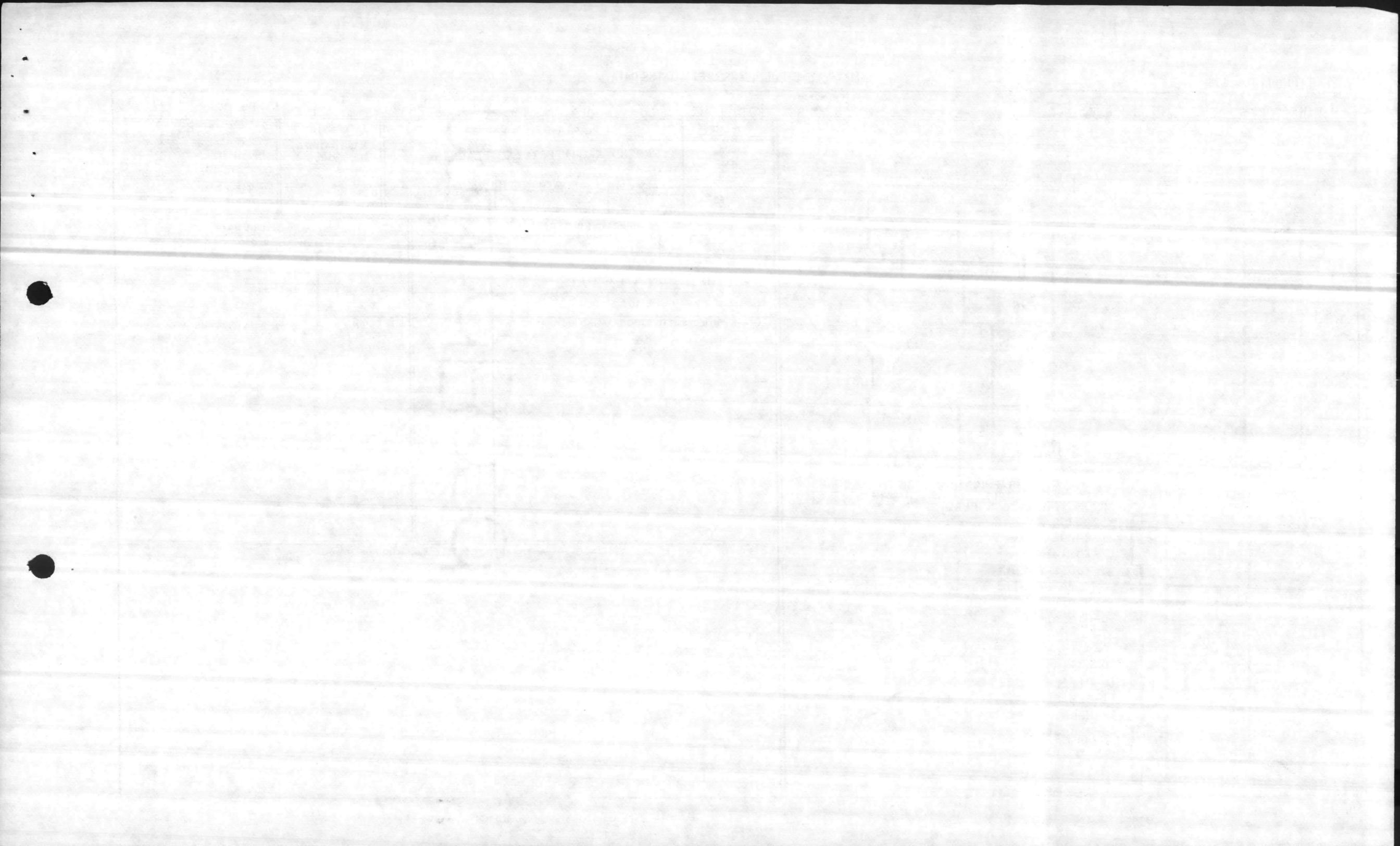


2d Floor Plan

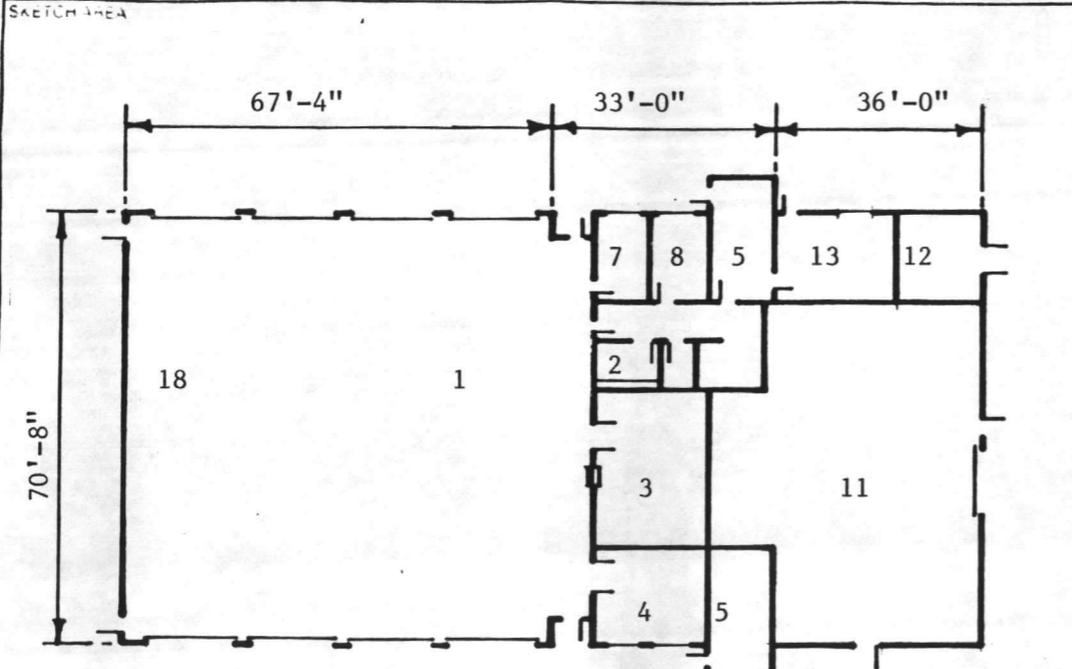
- 1-Repair Bays
- 2-Toilet
- 3-Tools & Parts
- 4-Tire Repair
- 5-Stair
- 6-Classroom
- 7-Lube
- 8-Battery
- 9-Admin.
- 10-Office
- 11-OEM Stor.
- 12-Mech.
- 13-Dispatcher

| A&E/GF | PLANS AND SPECIFICATIONS | CONSTR | DESIGN PROGRESS INFO PROVIDED CONGRESS |
|---|--|------------------------------|--|
| NAME AND LOCATION | TOWNSEND ARCHITECTURAL-PLANNING GROUP GREENVILLE, SOUTH CAROLINA | AWARD DATE (Est.) MAY 84 | START DATE: _____ |
| DATES | AWARD: JULY 82 35% COMPLETION: NOV 82 100% COMPLETION: AUG '83 | MONTHS 18 | COMPLETION DATE: _____ |
| | | BOD NOV 85 | COMPLETE 1 JAN: _____ % COMPLETE 1 OCT: _____ % |
| COMPARATIVE COST DATA | | ENGINEERING DATA | |
| H | OK | L | AREA FACTOR: |
| | | | UNIT COST (\$) |
| UNIT COST FOR THIS PROJECT ON DD 1391 | | | |
| DOD COST REVIEW GUIDE (ADJUSTED) | | | |
| OTHER PROJECTS IN THIS PROGRAM (ADJUSTED) | | | |
| | | DD 1391 COST PROJECTION DATA | |
| | | INCREASE-- TOTAL | |
| | | PROJECTION DATES (From - To) | |
| | | INCREASE MONTH | |
| | | INDEX SOURCE | |
| SITE CONDITION, SPECIAL DESIGN CONSIDERATIONS, TECHNICAL PROBLEMS, ETC. OTHER THAN SHOWN ON DD 1391 | | | |

BUILT-IN EQUIPMENT; FEC DATA; SPECIAL OVERSEAS OVERHEAD COSTS; EXPLANATION OF DEMOLITION



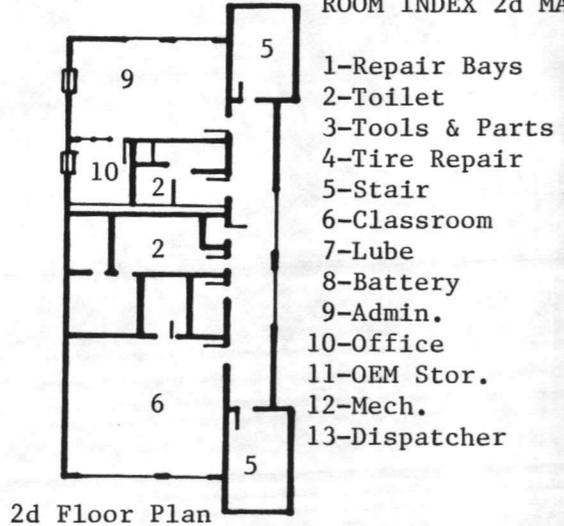
| | | | |
|---|---|-------|-------------------|
| INSTALLATION MARINE CORPS BASE, CAMP LEJEUNE, N.C. | PROJECT TITLE COMBAT VEHICLE MAINTENANCE SHOPS | P-240 | DATE 15 Dec 82 |
|---|---|-------|-------------------|



1st Floor Plan

GRAPHIC SCALE 10' 5' 0 15' 30'

ROOM INDEX 2d MAINTENANCE

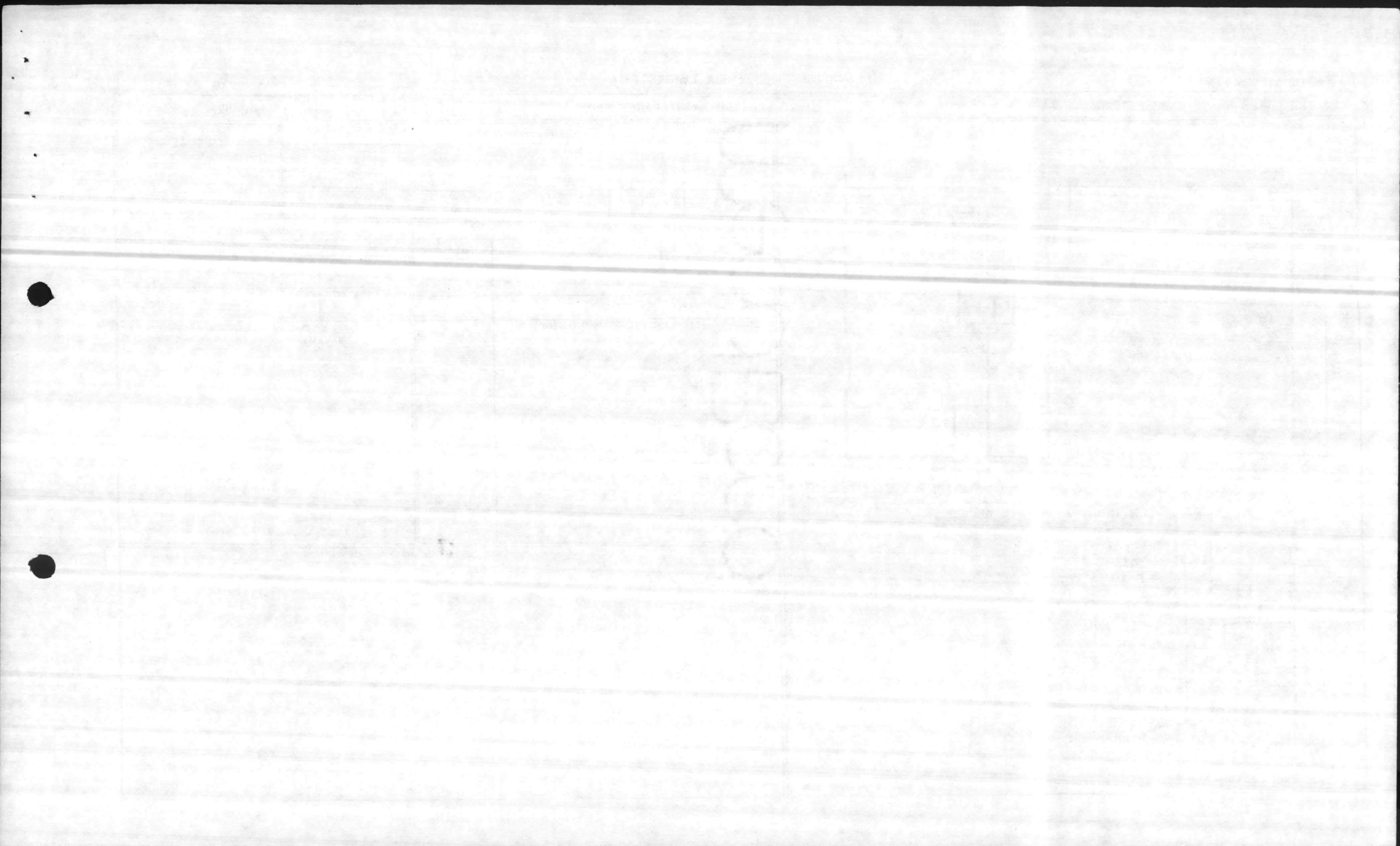


2d Floor Plan

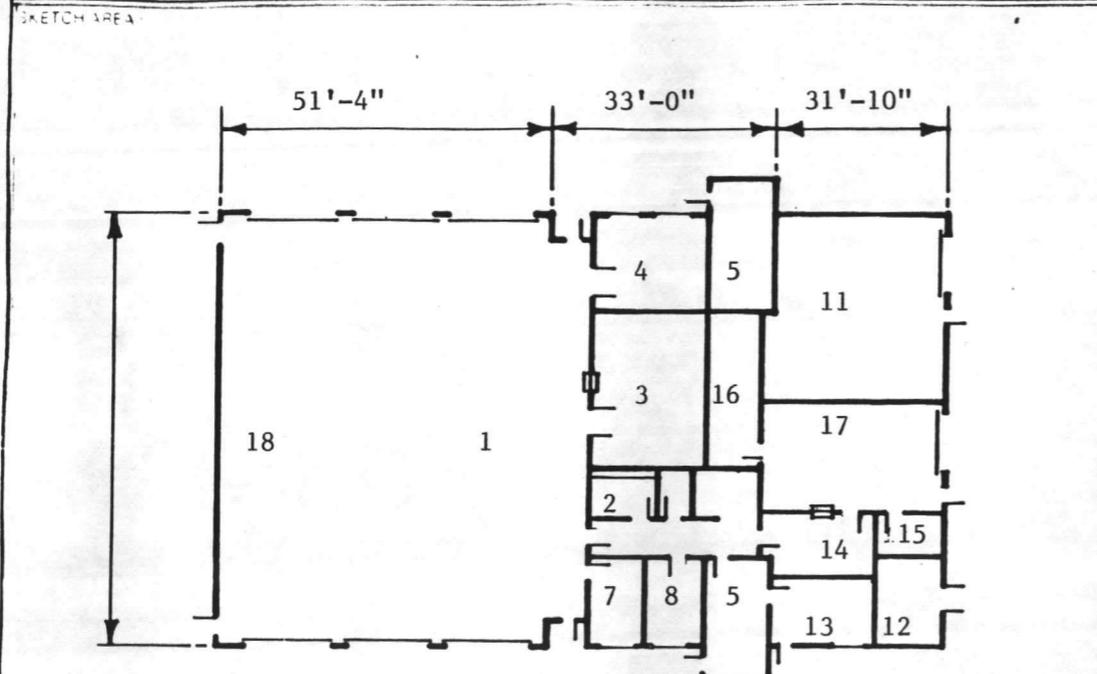
- 1-Repair Bays
- 2-Toilet
- 3-Tools & Parts
- 4-Tire Repair
- 5-Stair
- 6-Classroom
- 7-Lube
- 8-Battery
- 9-Admin.
- 10-Office
- 11-OEM Stor.
- 12-Mech.
- 13-Dispatcher

| AGE/GF | PLANS AND SPECIFICATIONS | CONSTR | DESIGN PROGRESS INFO PROVIDED CONGRESS |
|---|---|---|---|
| NAME AND LOCATION | TOWNSEND ARCHITECTURAL-PLANNING GROUP GREENVILLE, SOUTH CAROLINA | AWARD DATE (Est.) MAY 84 MONTHS 18 | START DATE: _____ COMPLETION DATE: _____ COMPLETE 1 JAN: _____ % COMPLETE 1 OCT: _____ % |
| DATES | AWARD JULY 82 35% COMPLETION NOV 82 100% COMPLETION AUG 83 | BOD NOV 85 | |
| COMPARATIVE COST DATA | | ENGINEERING DATA | |
| H | OK | L | AREA FACTOR: |
| UNIT COST FOR THIS PROJECT ON DD 1391 | | UNIT COST (\$) | |
| DOD COST REVIEW GUIDE (ADJUSTED) | | DD 1391 COST PROJECTION DATA | |
| OTHER PROJECTS IN THIS PROGRAM (ADJUSTED) | | INCREASE - TOTAL | |
| | | INCREASE MONTH | |
| | | PROJECTION DATES (From - To) | |
| | | INDEX SOURCE | |
| | | SITE CONDITION, SPECIAL DESIGN CONSIDERATIONS, TECHNICAL PROBLEMS, ETC. OTHER THAN SHOWN ON DD 1391 | |

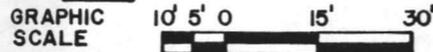
BUILT-IN EQUIPMENT; FCC DATA; SPECIAL OVERSEAS OVERHEAD COSTS; EXPLANATION OF DEMOLITION



| | | | |
|---|---|-------|-------------------|
| INSTALLATION MARINE CORPS BASE, CAMP LEJEUNE, N.C. | PROJECT TITLE COMBAT VEHICLE MAINTENANCE SHOPS | P-240 | DATE 15 Dec 82 |
|---|---|-------|-------------------|



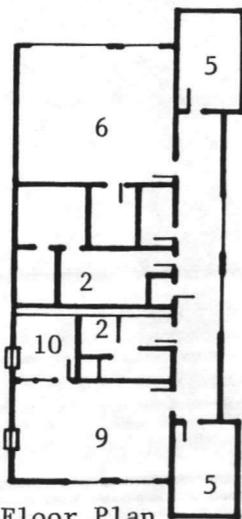
1st Floor Plan



ROOM INDEX

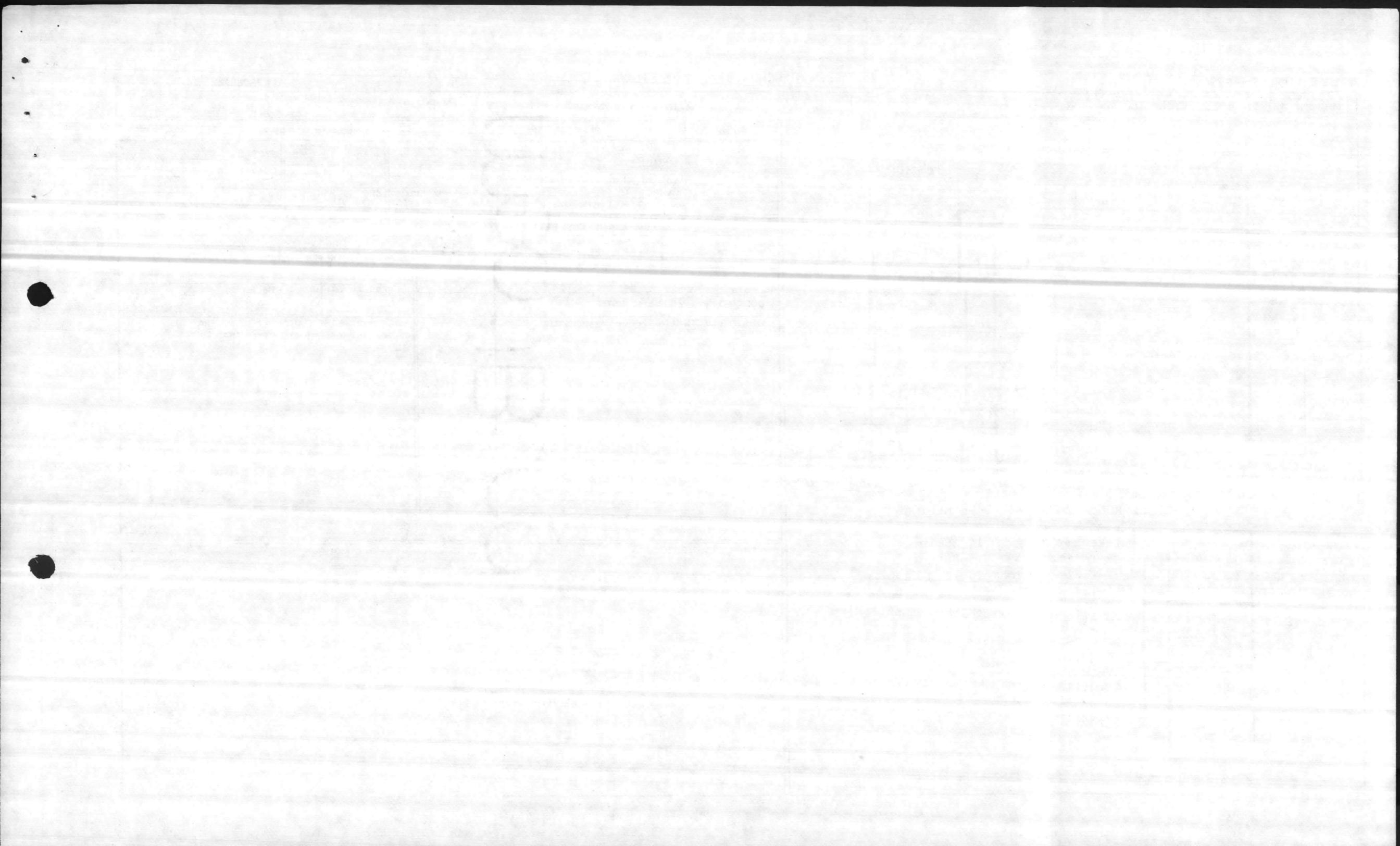
- | | |
|-----------------|---------------------|
| 1-Repair Bays | 14-Admin. |
| 2-Toilet | 15-Battery |
| 3-Tools & Parts | 16-Tech Shop |
| 4-Tire Repair | 17-Repair Bay |
| 5-Stair | 18-Eng. & Utilities |
| 6-Classroom | |
| 7-Lube | |
| 8-Battery | |
| 9-Admin. | |
| 10-Office | |
| 11-OEM Stor. | |
| 12-Mech. | |
| 13-Dispatcher | |

2d Floor Plan



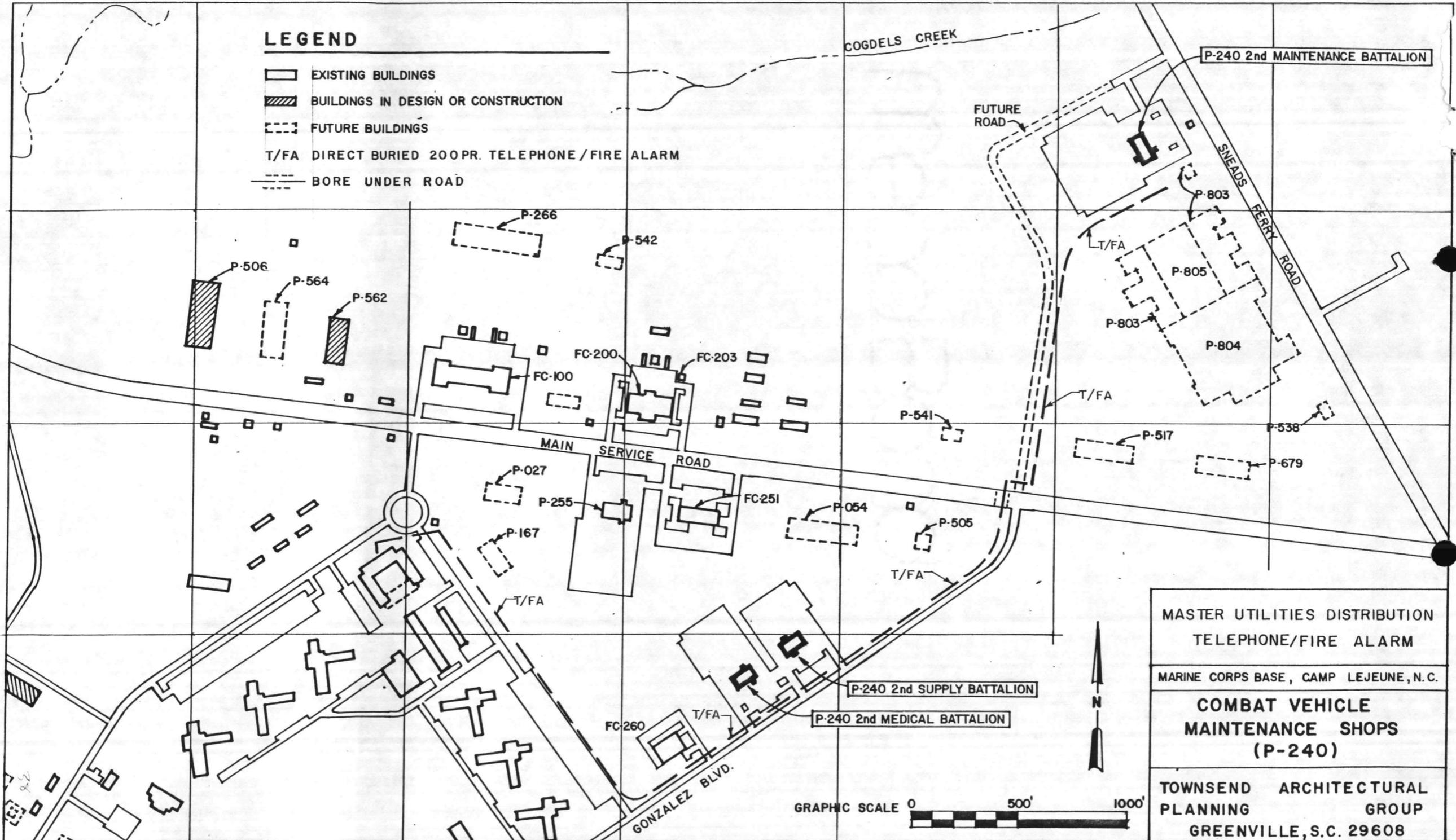
| A&E/GF | PLANS AND SPECIFICATIONS | | | CONSTR | DESIGN PROGRESS INFO PROVIDED CONGRESS |
|-----------------------|---|--------------------------|---------------------------|-----------------------------|---|
| NAME AND LOCATION | TOWNSEND ARCHITECTURAL-PLANNING GROUP GREENVILLE, SOUTH CAROLINA | | | AWARD DATE (Est.) MAY 84 | START DATE: _____ |
| | | | | MONTHS 18 | COMPLETION DATE: _____ |
| DATES | AWARD JULY 82 | 35% COMPLETION NOV 82 | 100% COMPLETION AUG 83 | BOD NOV 85 | COMPLETE 1 JAN: _____% |
| COMPARATIVE COST DATA | | | | ENGINEERING DATA | |
| H | OK | L | AREA FACTOR: | UNIT COST (\$) | DD 1391 COST PROJECTION DATA |
| | | | | | INCREASE - TOTAL % |
| | | | | | INCREASE MONTH % |
| | | | | | PROJECTION DATES (From - To) |
| | | | | | INDEX SOURCE |
| | | | | | SITE CONDITION, SPECIAL DESIGN CONSIDERATIONS, TECHNICAL PROBLEMS, ETC. OTHER THAN SHOWN ON DD 1391 |

BUILT-IN EQUIPMENT; FCC DATA; SPECIAL OVERSEAS OVERHEAD COSTS; EXPLANATION OF DEMOLITION



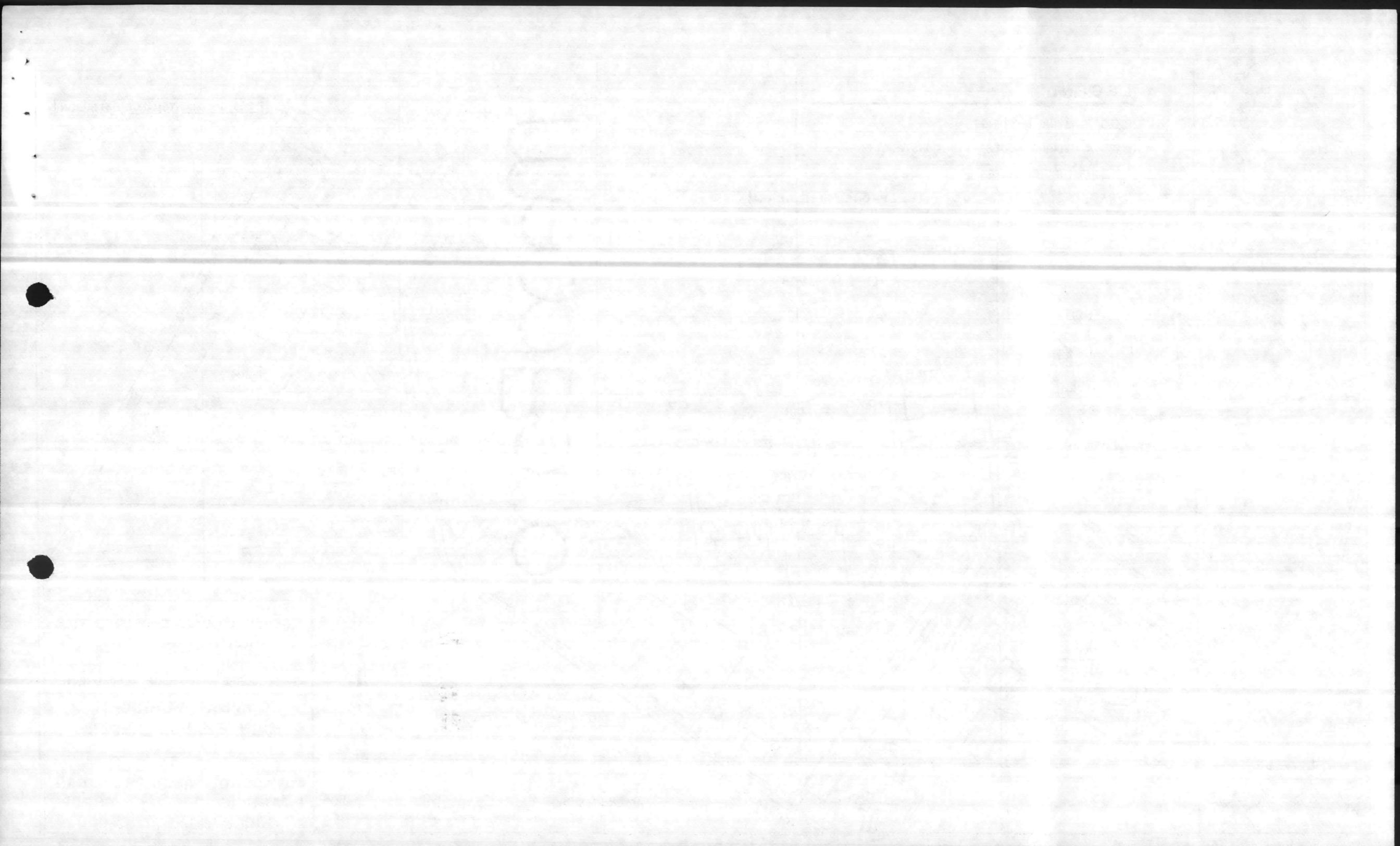
LEGEND

-  EXISTING BUILDINGS
-  BUILDINGS IN DESIGN OR CONSTRUCTION
-  FUTURE BUILDINGS
- T/FA DIRECT BURIED 200PR. TELEPHONE/FIRE ALARM
-  BORE UNDER ROAD



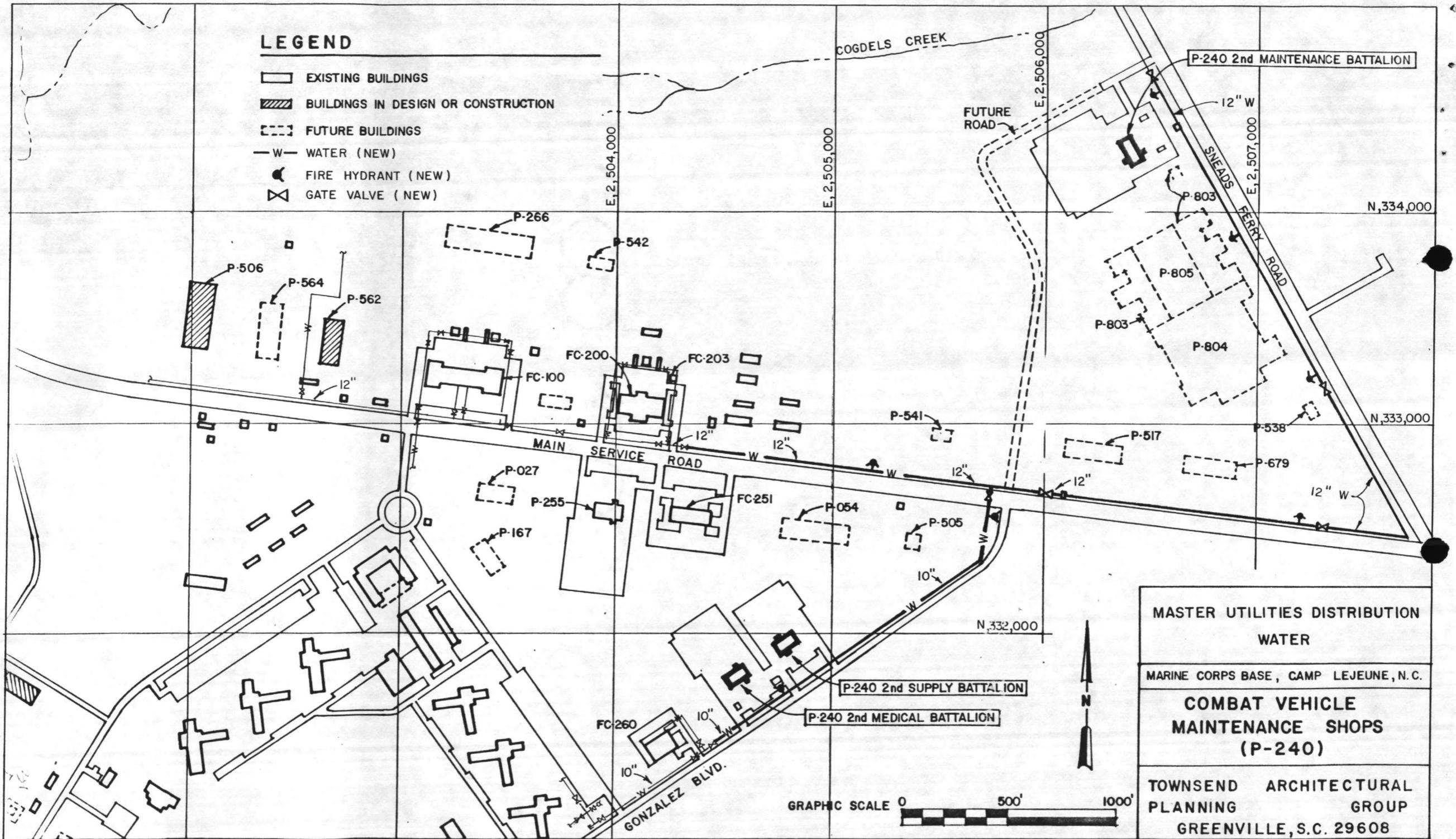
| |
|---|
| MASTER UTILITIES DISTRIBUTION TELEPHONE/FIRE ALARM |
| MARINE CORPS BASE, CAMP LEJEUNE, N.C. |
| COMBAT VEHICLE MAINTENANCE SHOPS (P-240) |
| TOWNSEND ARCHITECTURAL PLANNING GROUP GREENVILLE, S.C. 29608 |



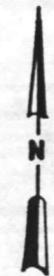


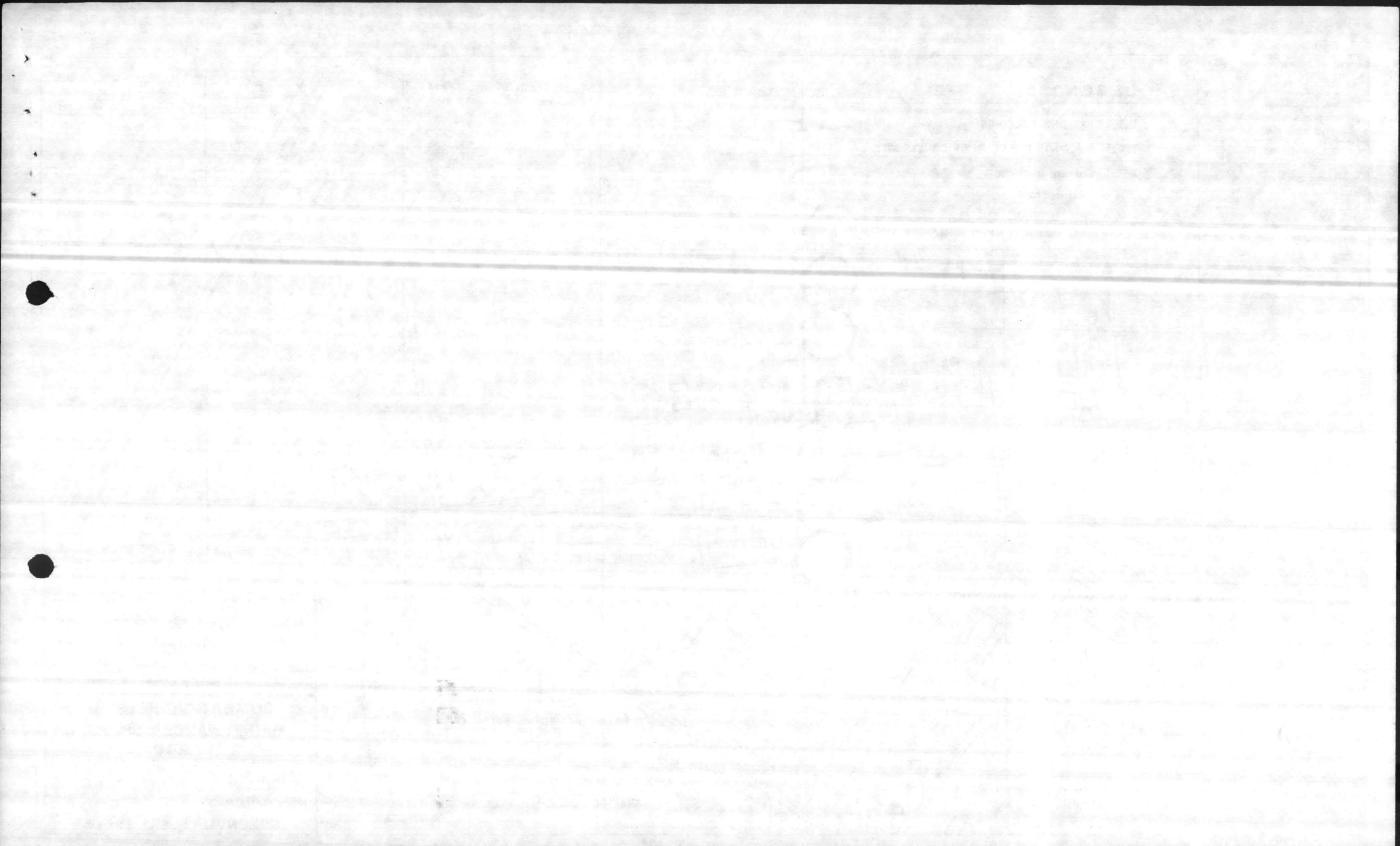
LEGEND

-  EXISTING BUILDINGS
-  BUILDINGS IN DESIGN OR CONSTRUCTION
-  FUTURE BUILDINGS
-  WATER (NEW)
-  FIRE HYDRANT (NEW)
-  GATE VALVE (NEW)



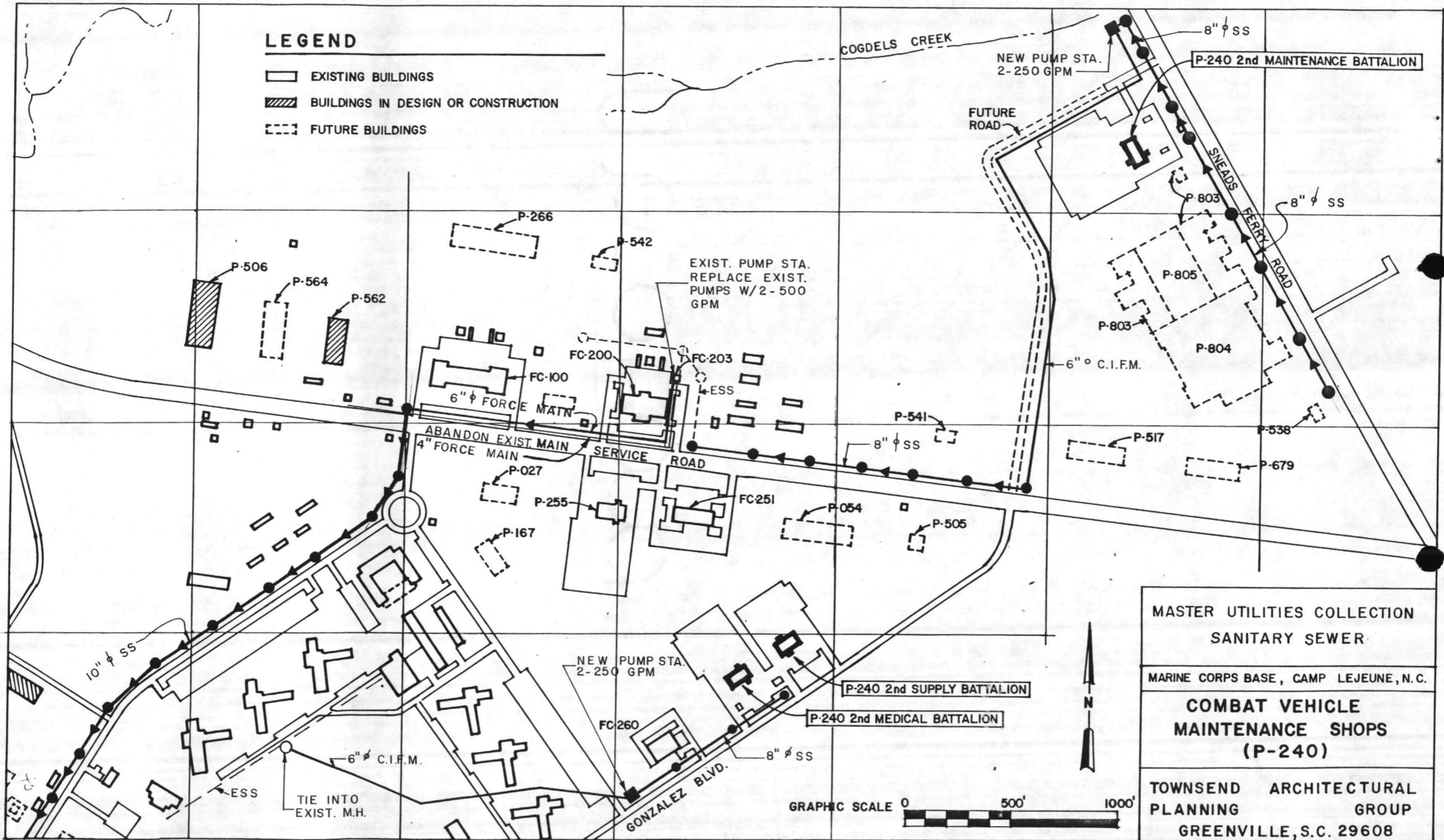
| |
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| MASTER UTILITIES DISTRIBUTION WATER |
| MARINE CORPS BASE, CAMP LEJEUNE, N.C. |
| COMBAT VEHICLE MAINTENANCE SHOPS (P-240) |
| TOWNSEND ARCHITECTURAL PLANNING GROUP GREENVILLE, S.C. 29608 |



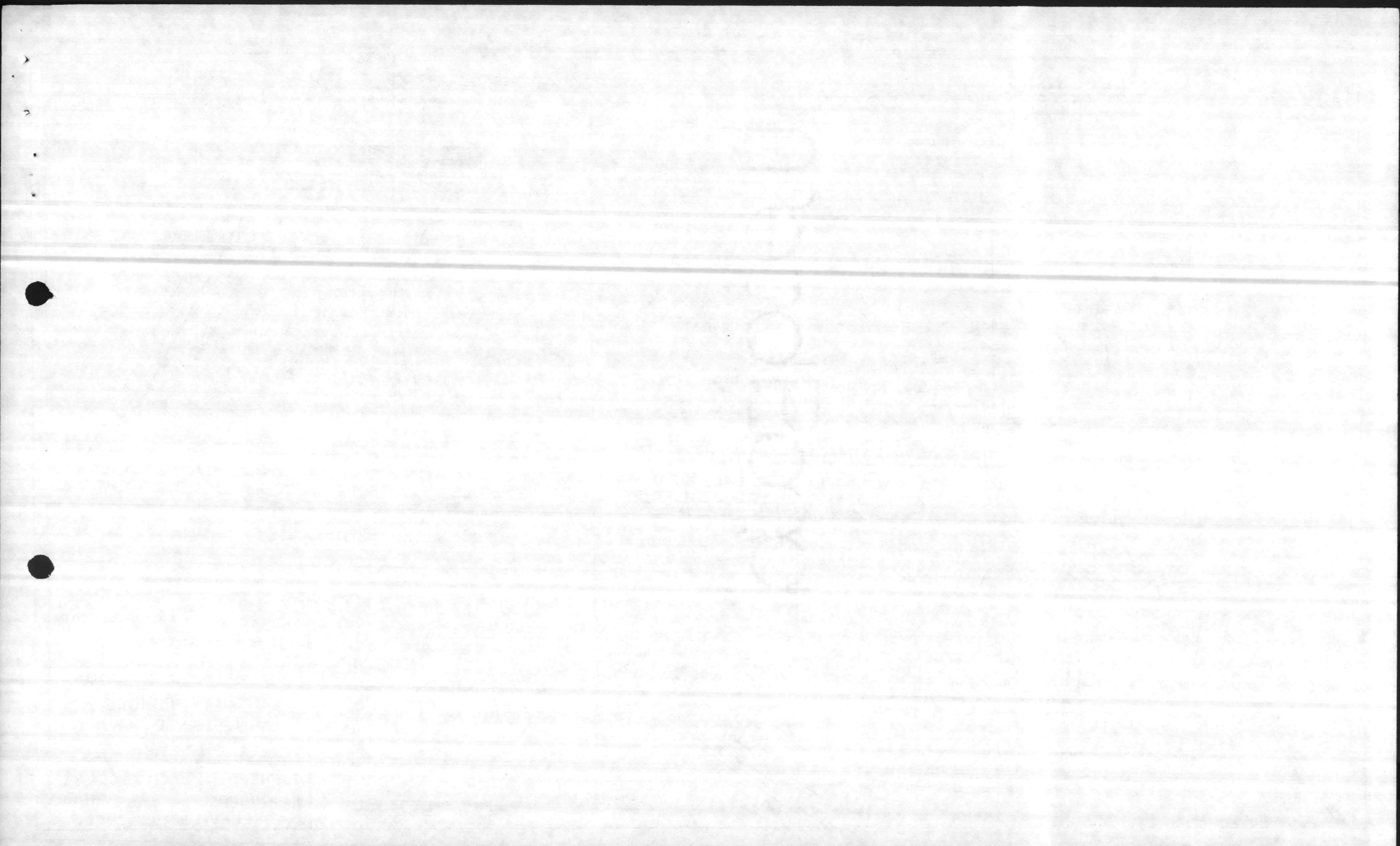


LEGEND

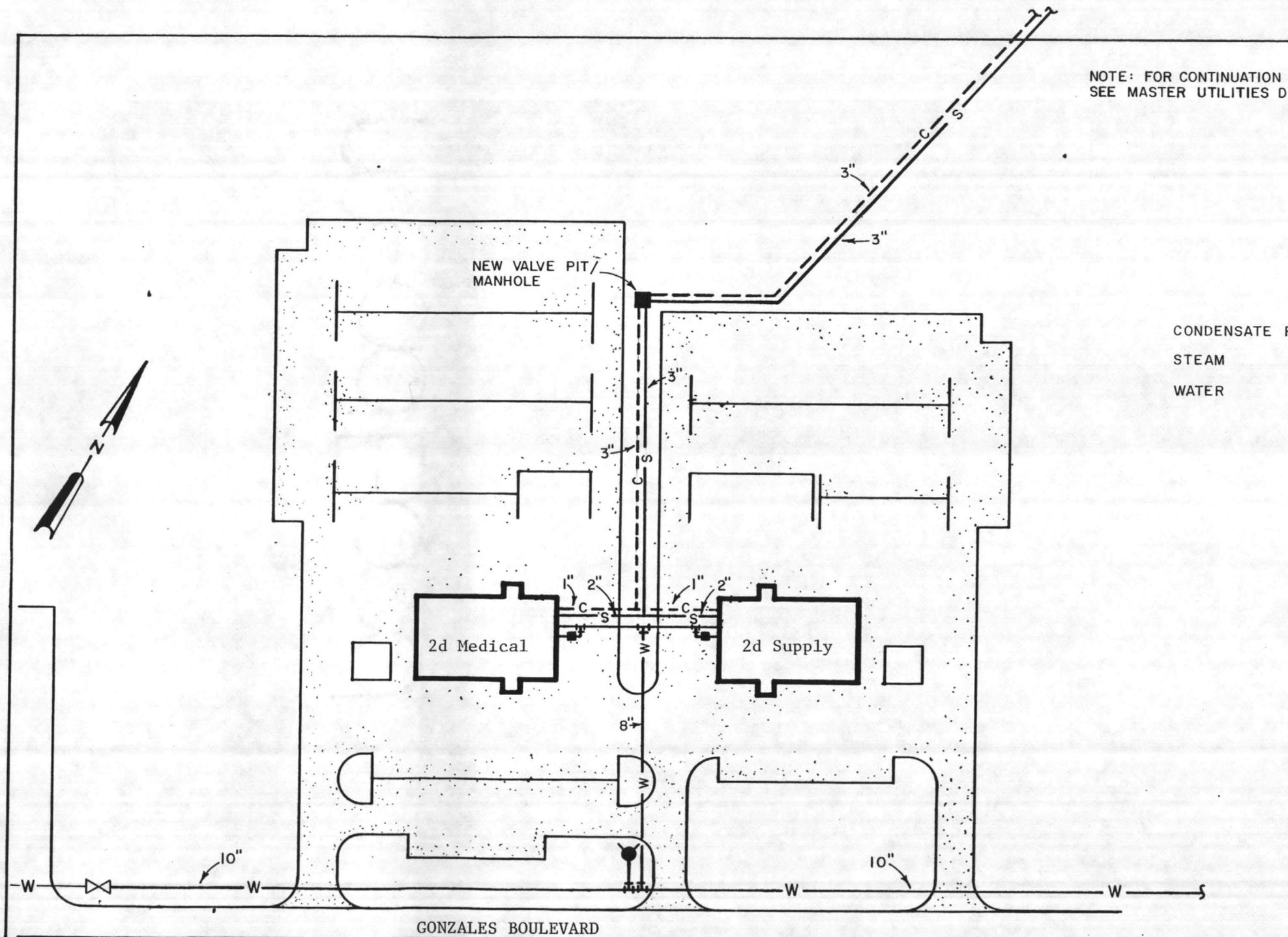
-  EXISTING BUILDINGS
-  BUILDINGS IN DESIGN OR CONSTRUCTION
-  FUTURE BUILDINGS



| |
|---|
| MASTER UTILITIES COLLECTION SANITARY SEWER |
| MARINE CORPS BASE, CAMP LEJEUNE, N.C. |
| COMBAT VEHICLE MAINTENANCE SHOPS (P-240) |
| TOWNSEND ARCHITECTURAL PLANNING GROUP GREENVILLE, S.C. 29608 |



NOTE: FOR CONTINUATION OF WATER, STEAM & CONDENSATE - SEE MASTER UTILITIES DISTRIBUTION DRAWINGS



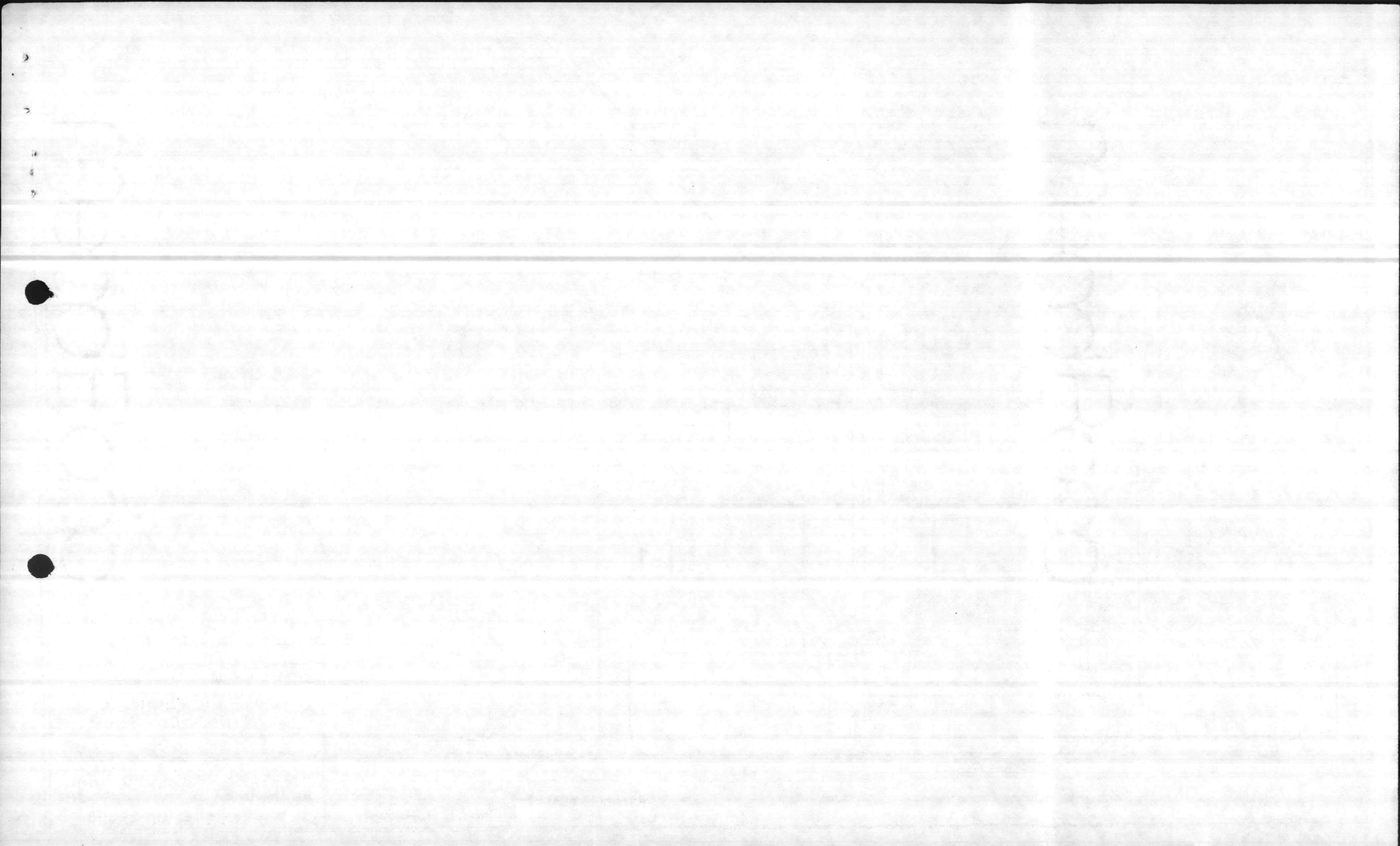
CONDENSATE RETURN C
 STEAM S
 WATER W

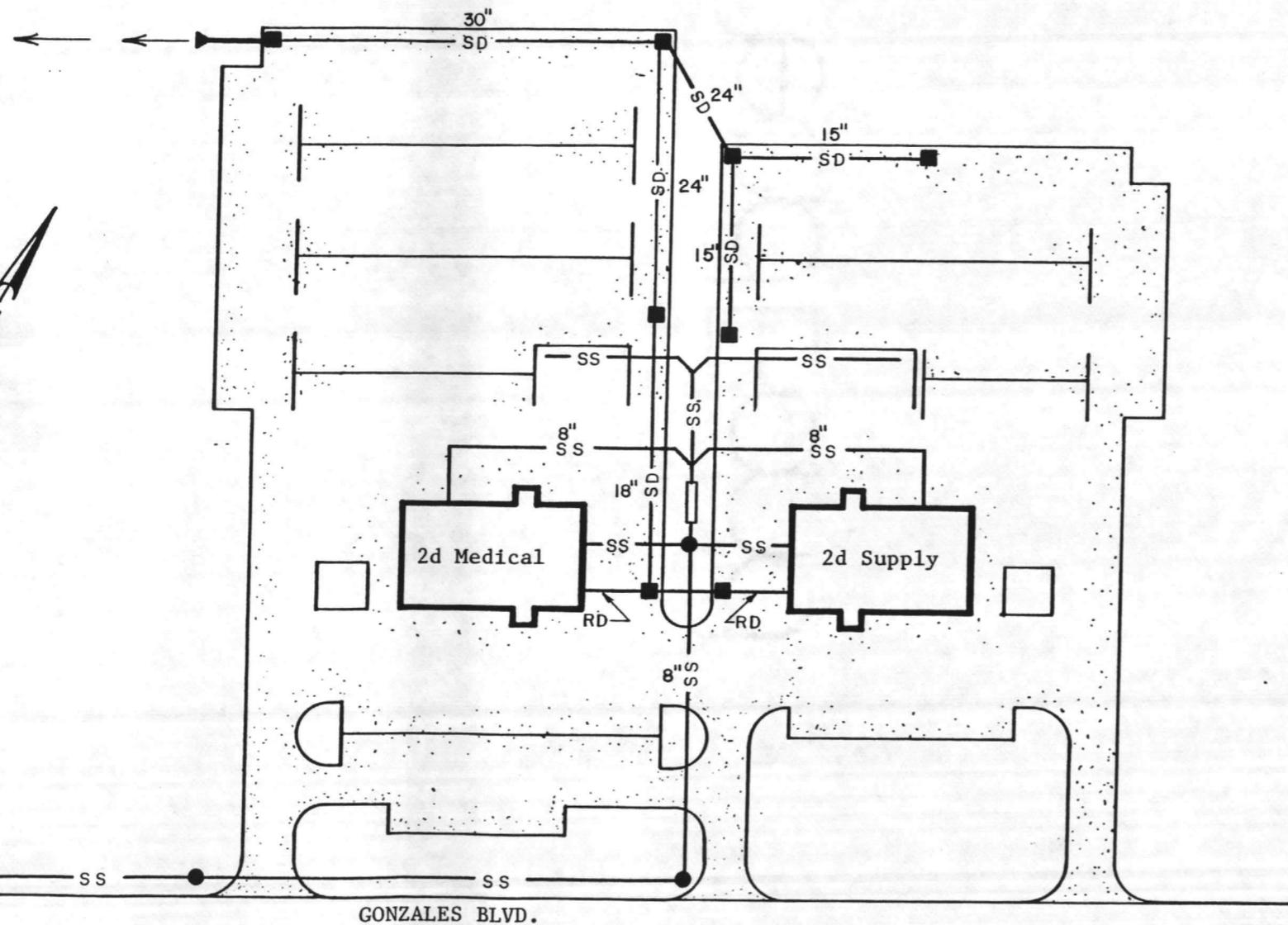
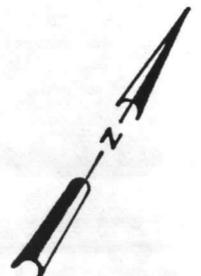
STEAM AND WATER
 2d MEDICAL AND SUPPLY

| | |
|--|--|
| MARINE CORPS BASE, CAMP LEJEUNE, N.C. | |
| COMBAT VEHICLE MAINTENANCE SHOP (P-240) | |
| TOWNSEND ARCHITECTURAL PLANNING GROUP GREENVILLE, S.C. 29608 | |



19

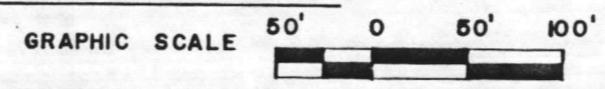




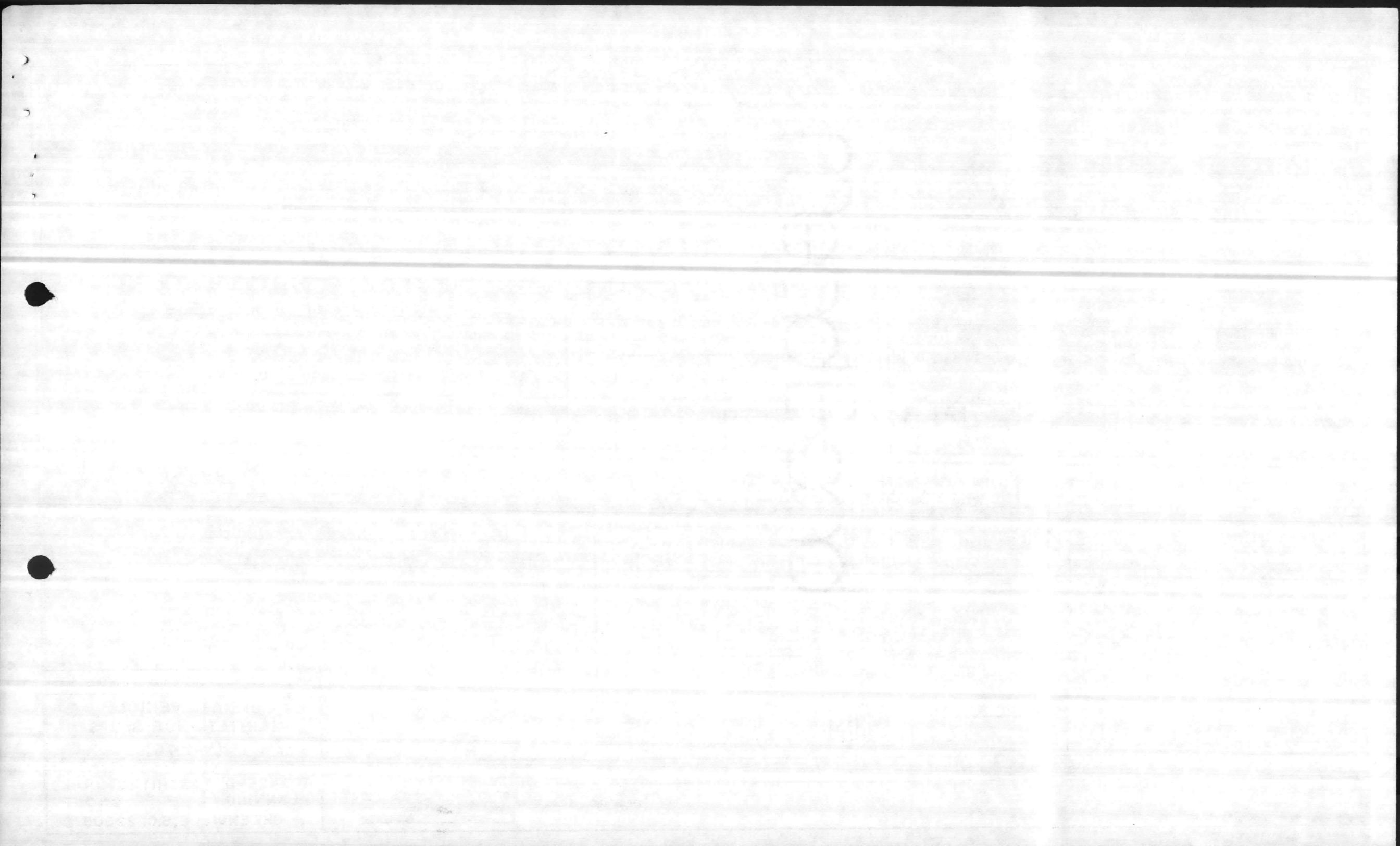
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- SANITARY SEWER — SS —
- CURB INLET ■
- STORM DRAIN — SD —
- ROOF DRAIN RD

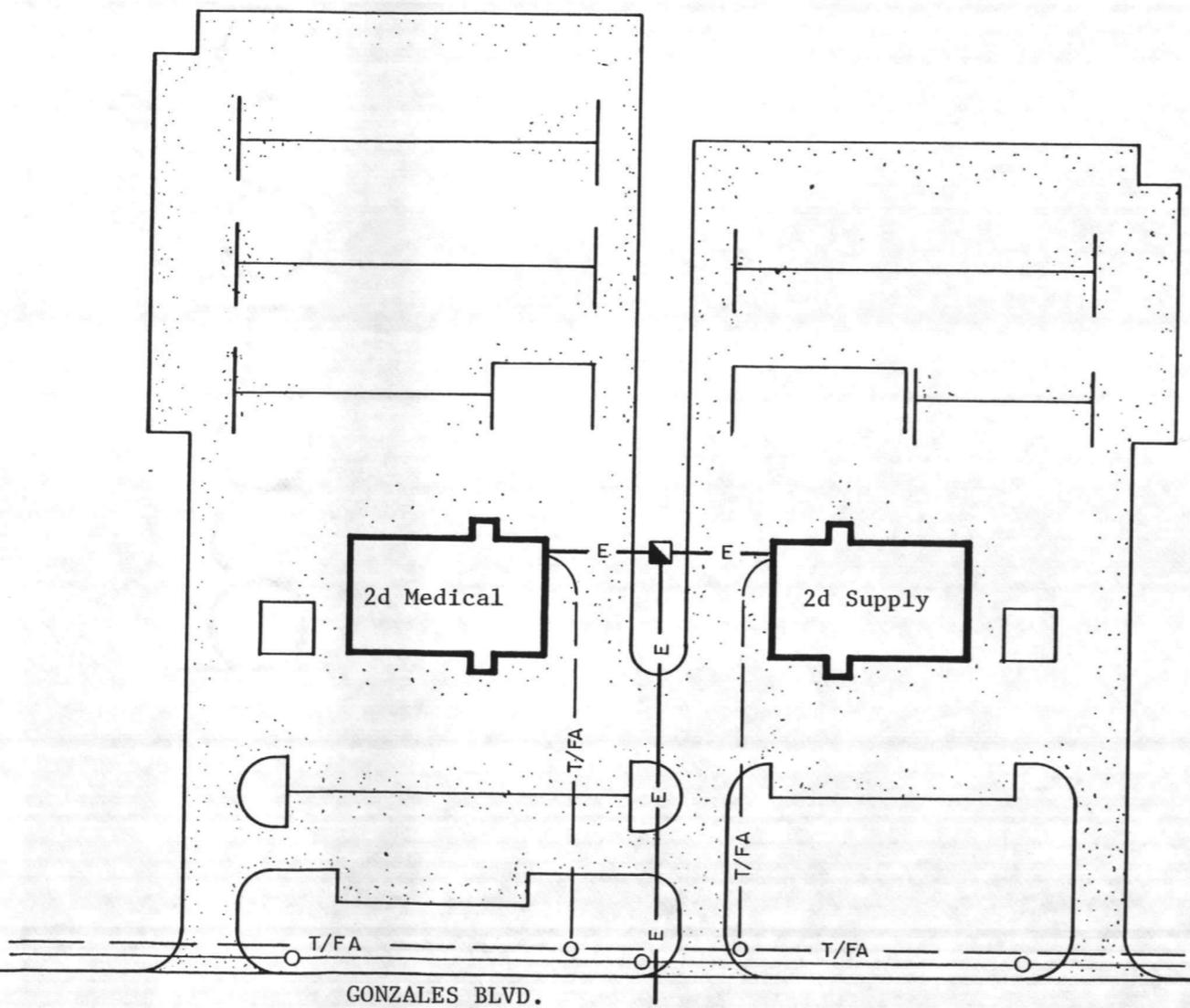
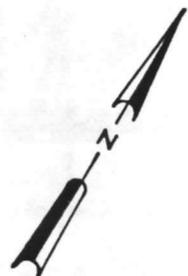
STORM DRAIN AND SEWER
2d MEDICAL AND SUPPLY

| |
|--|
| MARINE CORPS BASE, CAMP LEJEUNE, N.C. |
| COMBAT VEHICLE MAINTENANCE SHOPS (P-240) |
| TOWNSEND ARCHITECTURAL PLANNING GROUP GREENVILLE, S.C. 29608 |



42





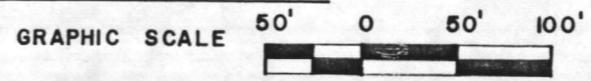
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- U. G. ELECTRICAL ——— E ———
- PAD MTD. TRANSFORMER, 300 KV
- O. H. EXIST. ELECTRICAL ———

ELECTRICAL AND FA
2d MEDICAL AND SUPPLY

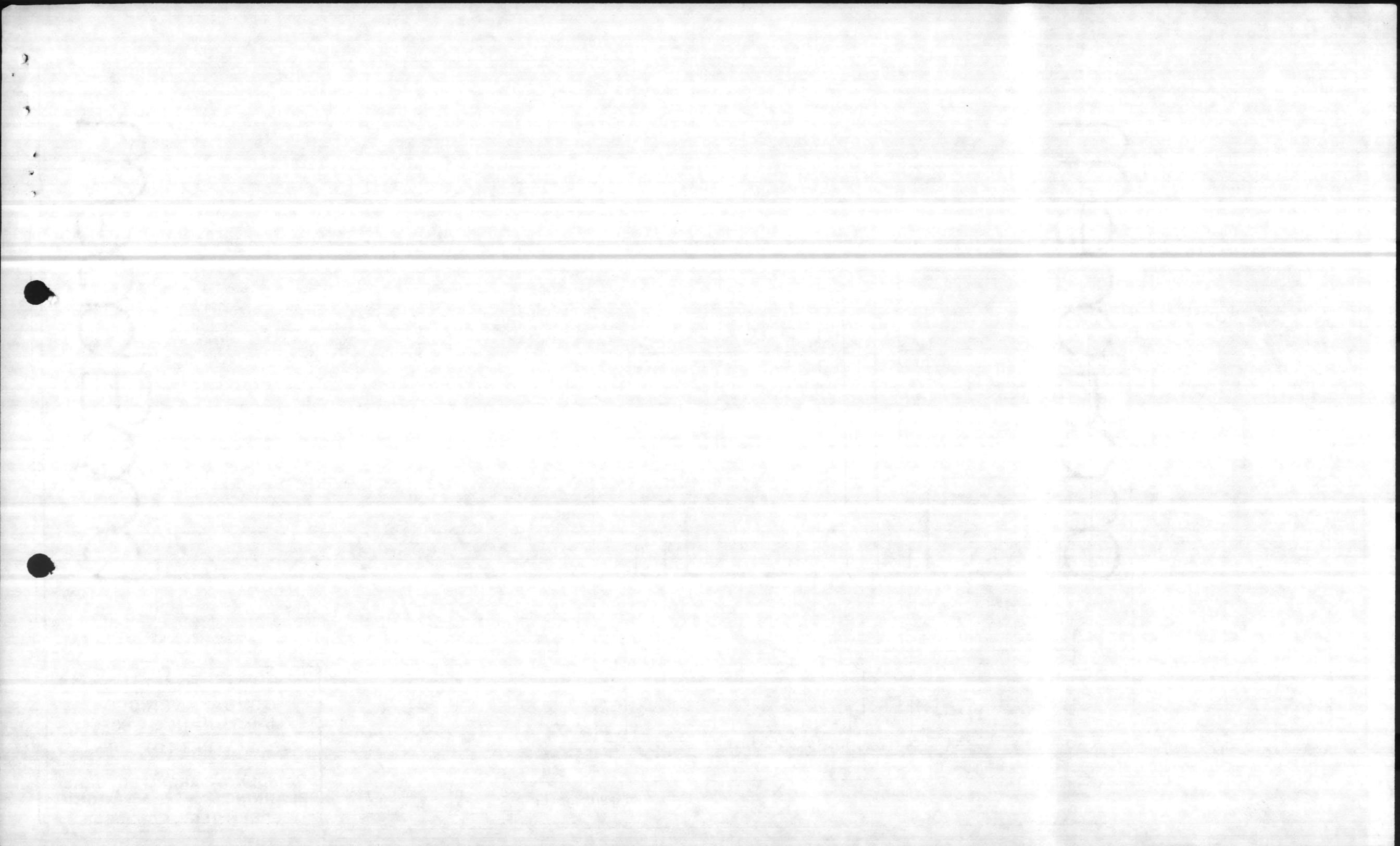
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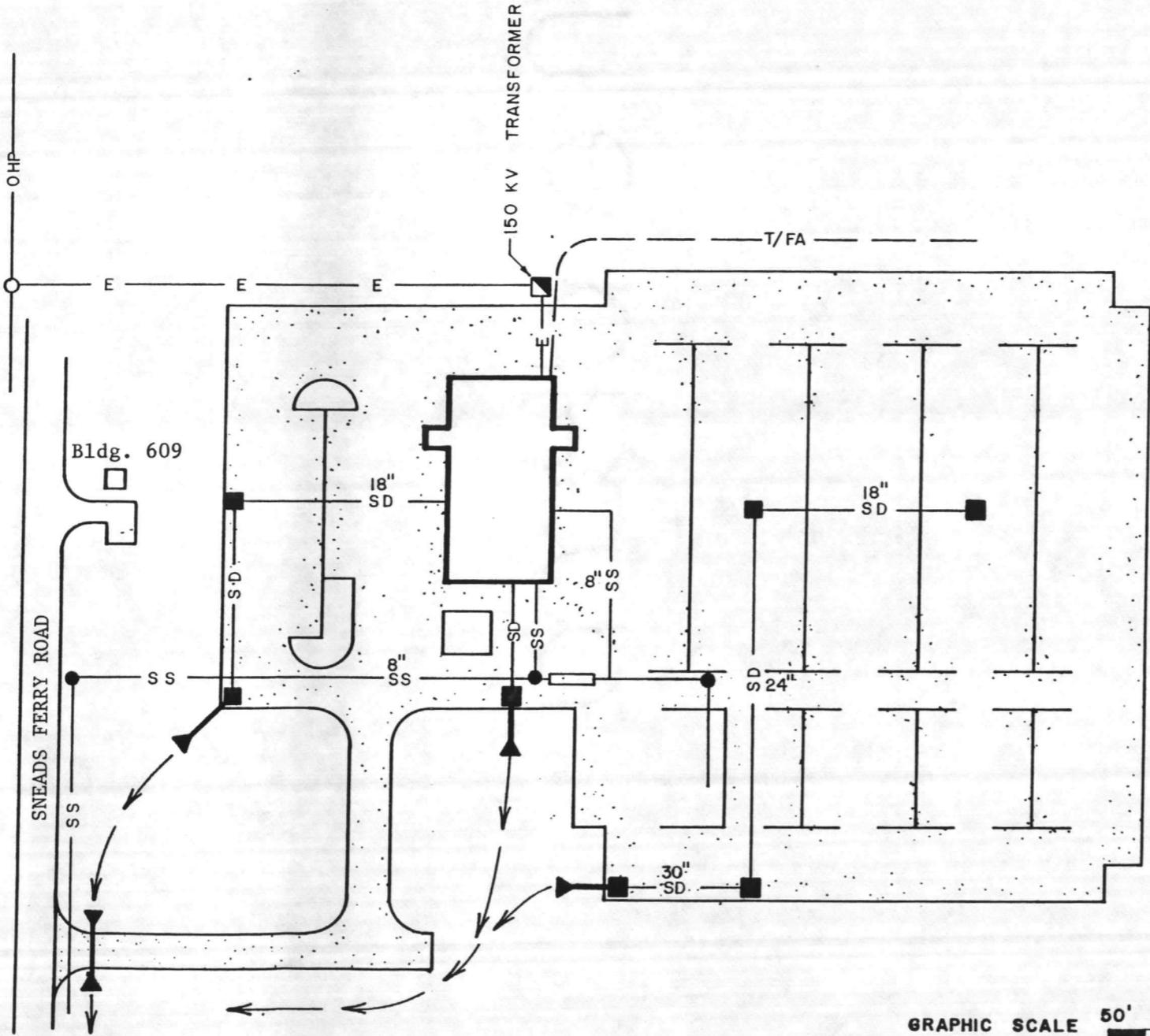
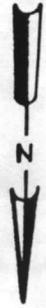
**COMBAT VEHICLE
MAINTENANCE SHOPS
(P-240)**

**TOWNSEND ARCHITECTURAL
PLANNING GROUP
GREENVILLE, S. C. 29608**



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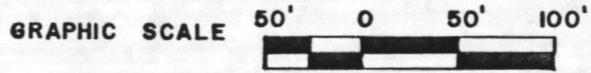




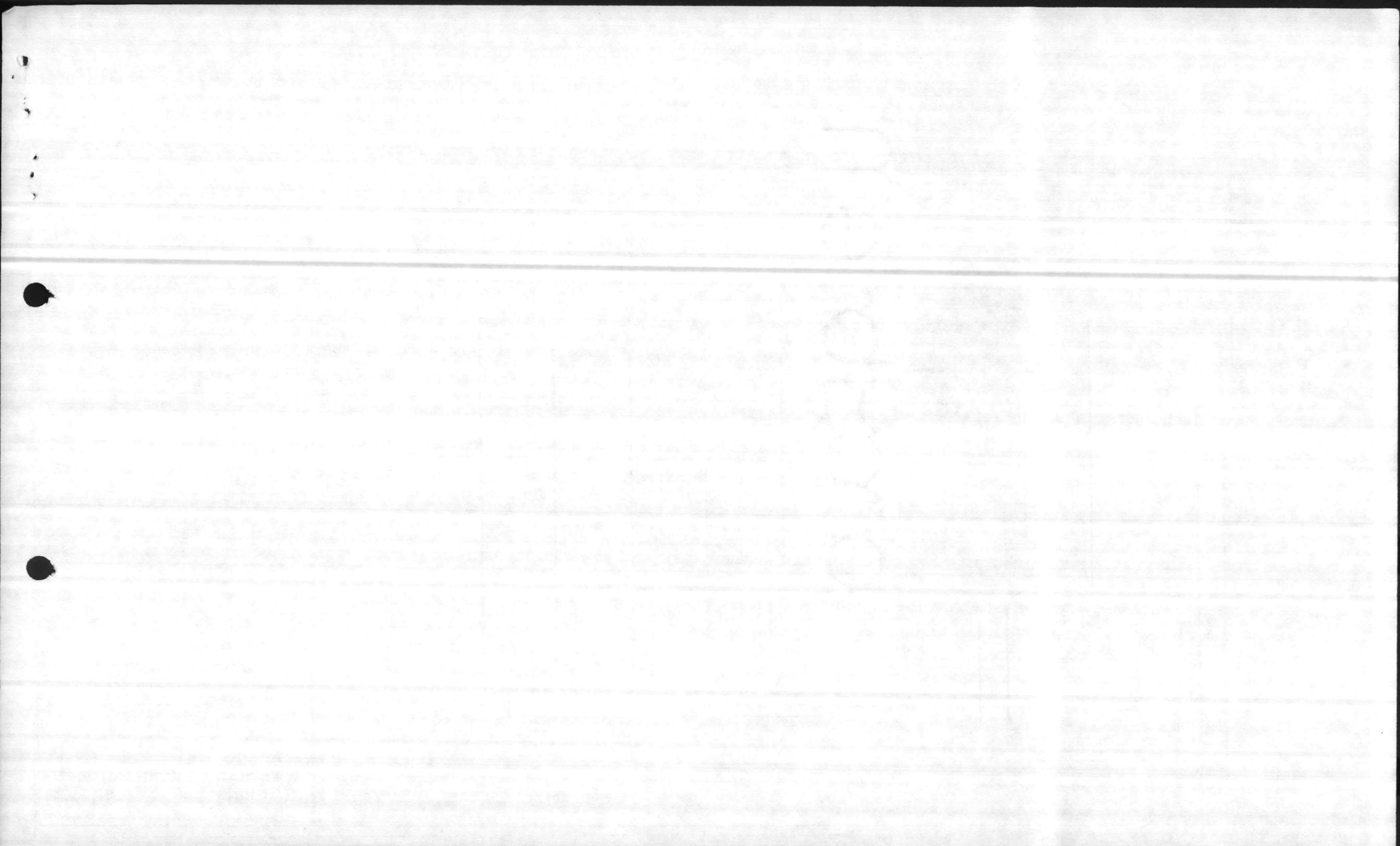
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- SANITARY SEWER — SS —
- CURB INLET / CATCH BASIN ■
- STORM DRAIN — SD —
- TELEPHONE / FIRE ALARM — T/FA —
- U.G. ELEC. — E — E —
- EXIST. O.H. ELECTRICAL — ○ —

ELECTRICAL AND FA
 STORM DRAIN AND SEWER
 2d MAINTENANCE

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| MARINE CORPS BASE, CAMP LEJEUNE, N.C. | |
| COMBAT VEHICLE MAINTENANCE SHOPS (P-240) | |
| TOWNSEND ARCHITECTURAL PLANNING | GROUP |
| GREENVILLE, S.C. 29608 | |



77

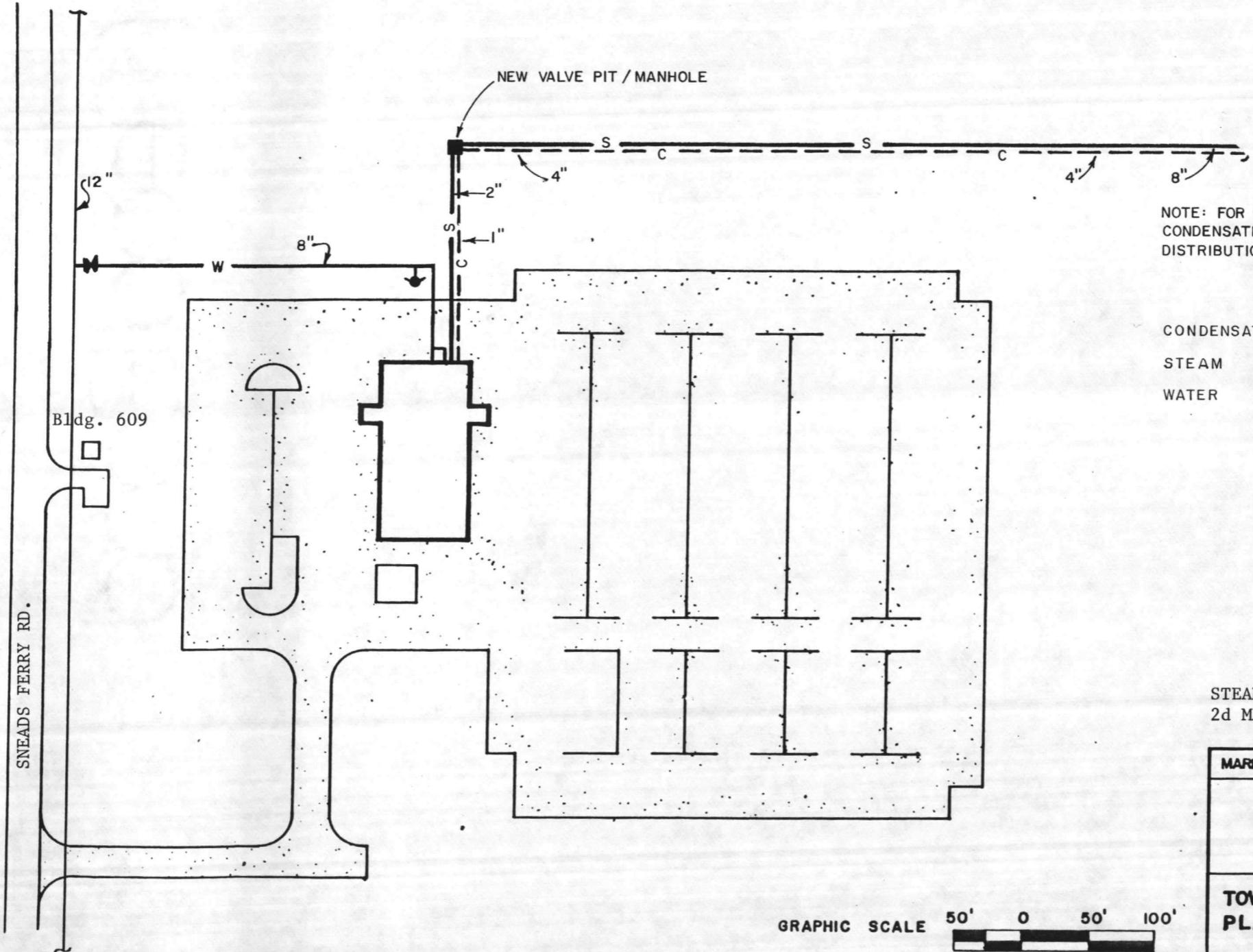




SNEADS FERRY RD.

Bldg. 609

NEW VALVE PIT / MANHOLE



NOTE: FOR CONTINUATION OF WATER, STEAM & CONDENSATE - SEE MASTER UTILITIES DISTRIBUTION DRAWINGS

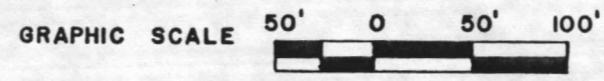
| | |
|-------------------|---|
| CONDENSATE RETURN | C |
| STEAM | S |
| WATER | W |

STEAM AND WATER
2d MAINTENANCE

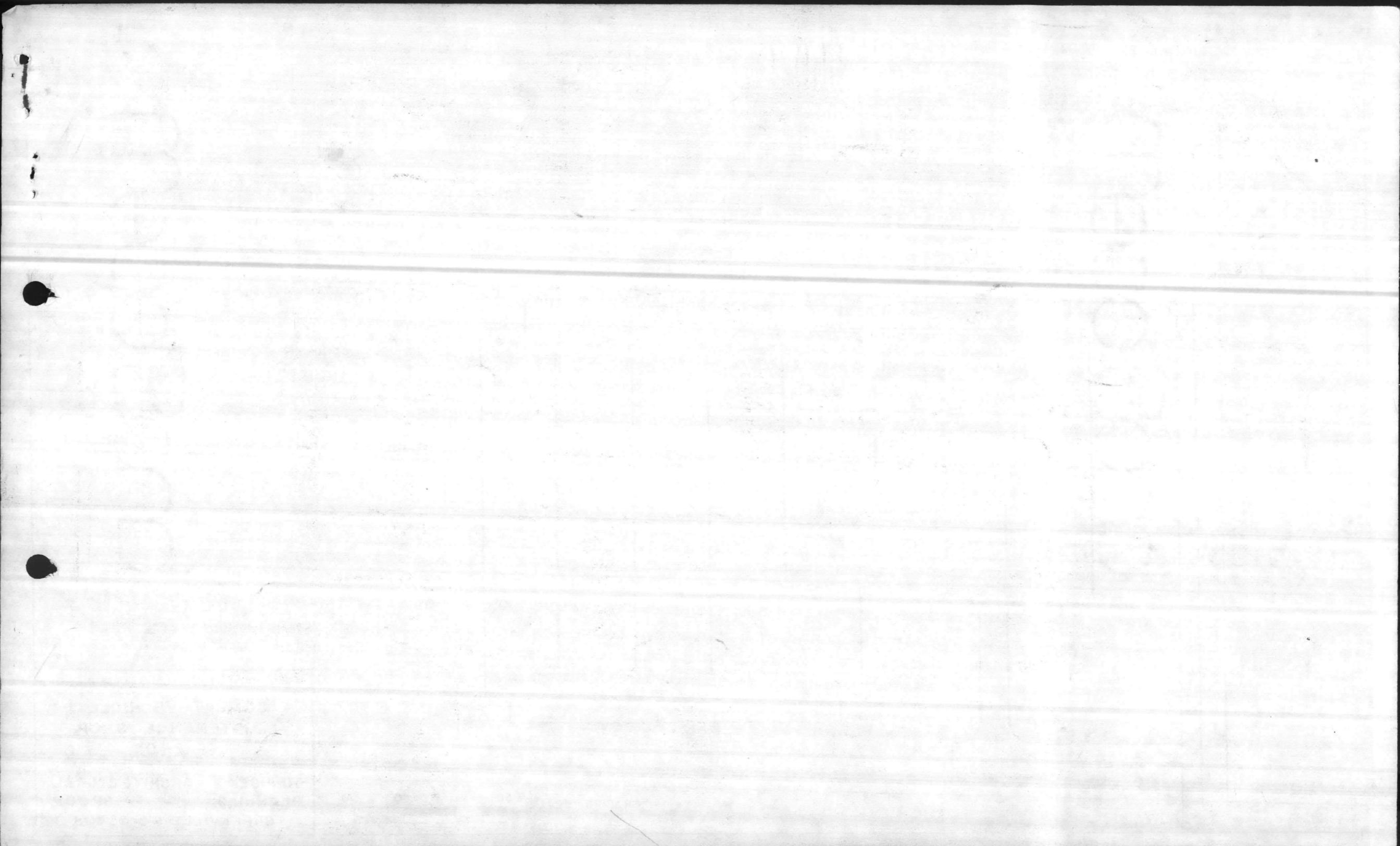
MARINE CORPS BASE, CAMP LEJEUNE, N.C.

**COMBAT VEHICLE
MAINTENANCE SHOP
(P-240)**

**TOWNSEND ARCHITECTURAL
PLANNING GROUP
GREENVILLE SC 29608**



54



TOWNSEND ARCHITECTURAL • PLANNING GROUP
 522 S. MAIN ST. P. O. BOX 3917 GREENVILLE, S.C. 29608 271-7678

TRANSMITTAL

DATE 15 MARCH 1984

PROJECT NUMBER 81-18

TO OFFICE OF THE COMMANDING OFFICER

REFERENCE PROJECT P-240

MARINE CORPS BASE

COMBAT VEHICLE MAINTENANCE SHOPS

CAMP LEJEUNE, NC 28542

MCB, CAMP LEJEUNE, NC

81-1639

ATTENTION COMMANDING OFFICER

TAP IS FORWARDING THE FOLLOWING INFORMATION ENCLOSED SEPARATE COVER
 DESIGN CONSTRUCTION REPORTS

PREPARED BY TAP CONTRACTOR OWNER

| QUANTITY | MARK | DESCRIPTION | ACTION |
|----------|-----------|----------------------|--------|
| 2 | 9 MAR. 84 | STORM DRAINAGE STUDY | YR |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
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- A - APPROVED
- AN - APPROVED AS NOTED
- CR - CORRECT & RESUBMIT
- C - CONSTRUCTION
- E - BID OR COST ESTIMATE
- YF - YOUR FILES
- YU - YOUR USE
- YR - YOUR REVIEW & COMMENT

COMMENTS 35% STORM DRAINAGE STUDY ADDED UNDER CHANGE
ORDER P00005

XC CODE 09AZIE: MUB

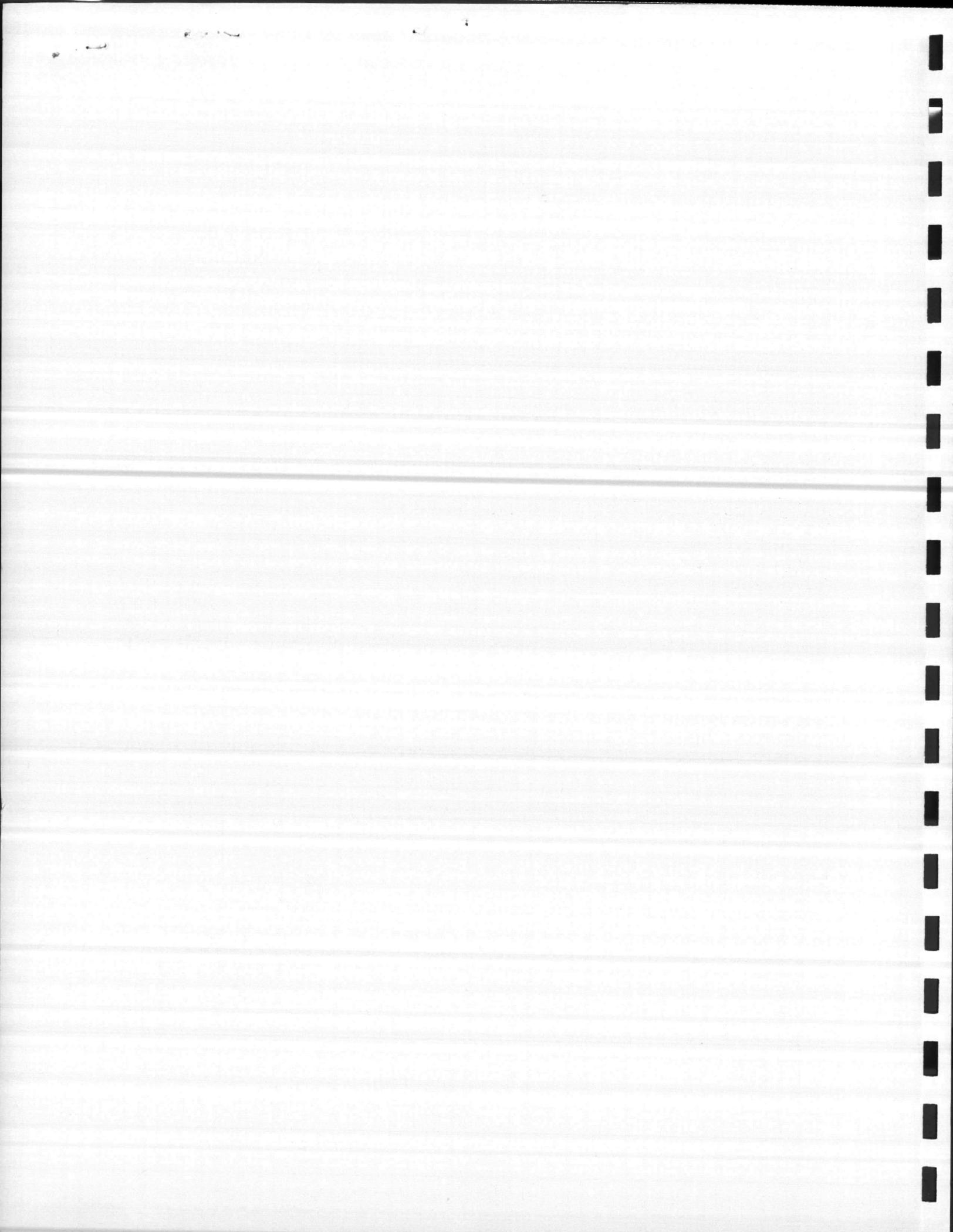
YOURS VERY TRULY,
 TAP GROUP
 BY [Signature] A/A

STUDY OF STORM DRAINAGE SYSTEM
FRENCH CREEK AREA
MARINE CORPS BASE, CAMP LEJEUNE, N.C.

PROJECT P-240
CHANGE ORDER P-00005

9 MARCH 1984

TOWNSEND ARCHITECTURAL • PLANNING TAP GROUP
522 S. MAIN ST. P. O. BOX 3917 GREENVILLE, S.C. 29608 271-7678



COMMENTS ON "STORM DRAINAGE STUDY FOR
FREN CREEK ARE":

① Assumption #4 Page 3 have to be re-checked at the end of the study to make sure it complies with the required section to prevent floodings.

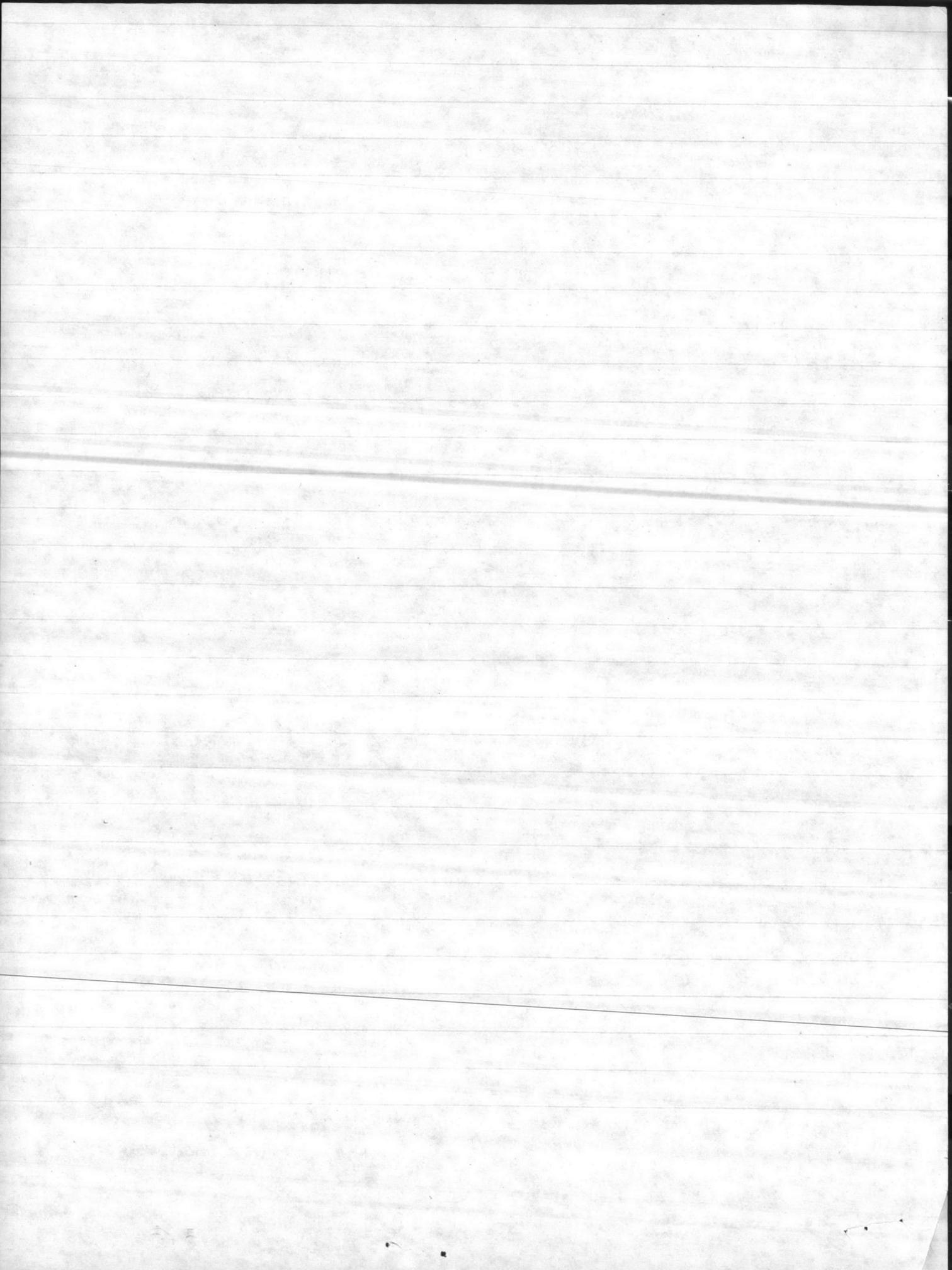
+ Drawings
② Points of design are not clear stated in a general plan.

- B-1
③ Tributary areas and its respective flowing directions are not clear as shown.

④ Intensity-frequency ^{rainfall} curves for Camp Lejeune area should be shown or included in the study.

⑤ Discharge at the design points should be shown in a general map to get a better design, estimates and understanding of the study.

Jay L. Cozys
Civil Engineer.



9 March 1984

Commander, Atlantic Division
Naval Facilities Engineering Command
Norfolk, VA 23511

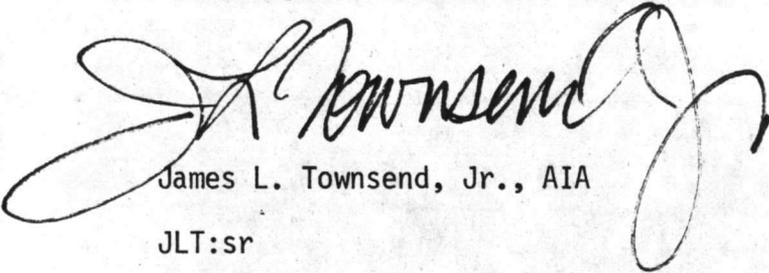
Ref: Combat Vehicle Maintenance Shops, MCB, Camp Lejeune, NC
Project P-240, Change Order P-00005

Gentlemen:

The Townsend Architectural Planning Group in association with Professional Engineering Associates is pleased to submit this study for a storm drainage system in the French Creek Industrial Area for the marine corps base at Camp Lejeune.

We trust this study meets with your approval and should you need additional technical information, we suggest you contact Mr. John Chambers, PE at area code (803) 242-4373.

Sincerely,



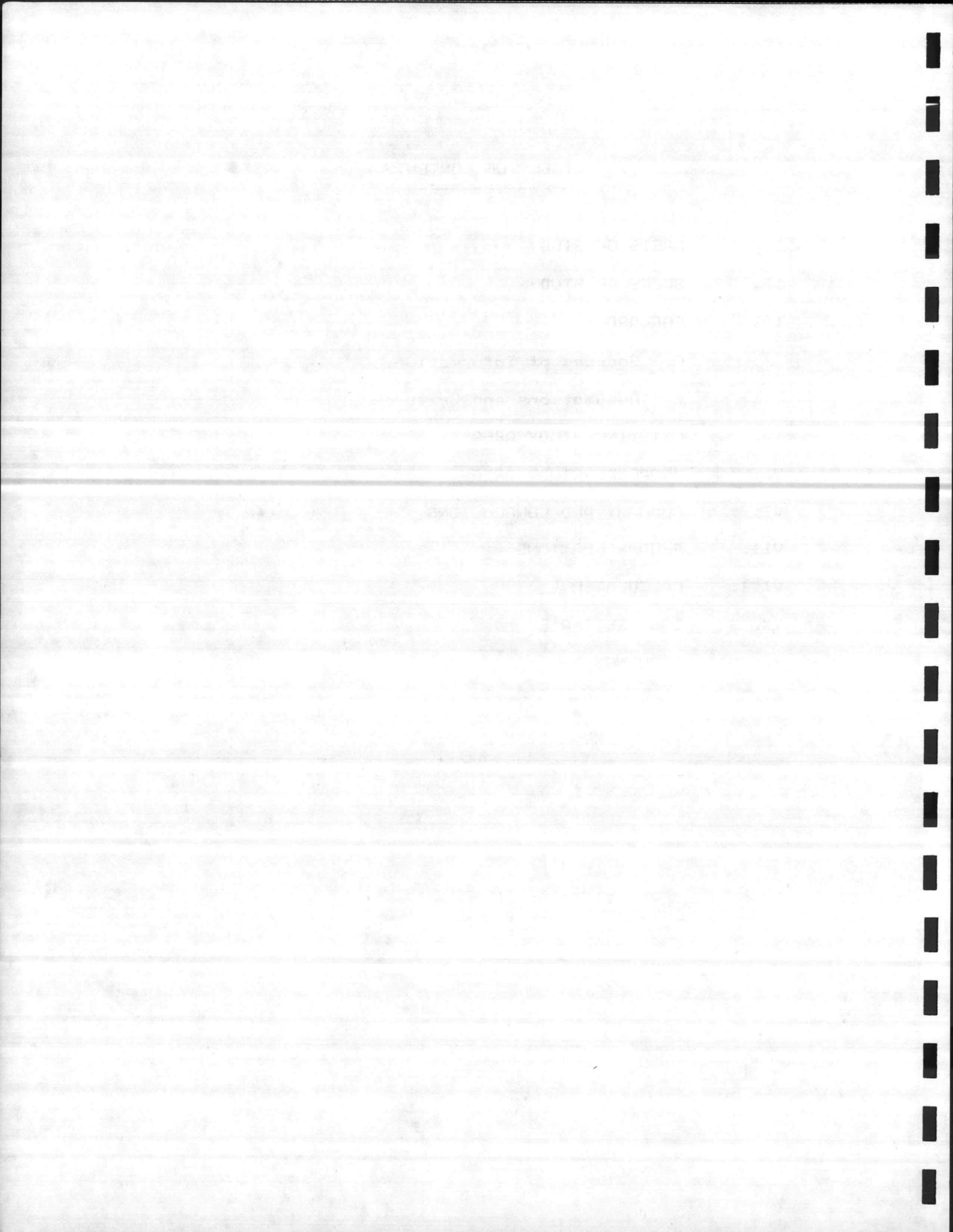
James L. Townsend, Jr., AIA

JLT:sr

52 MAIN ST. P. O. BOX 3917 GREENVILLE S.C. 29602
TOWNSEND ARCHITECTURAL & PLANNING GROUP

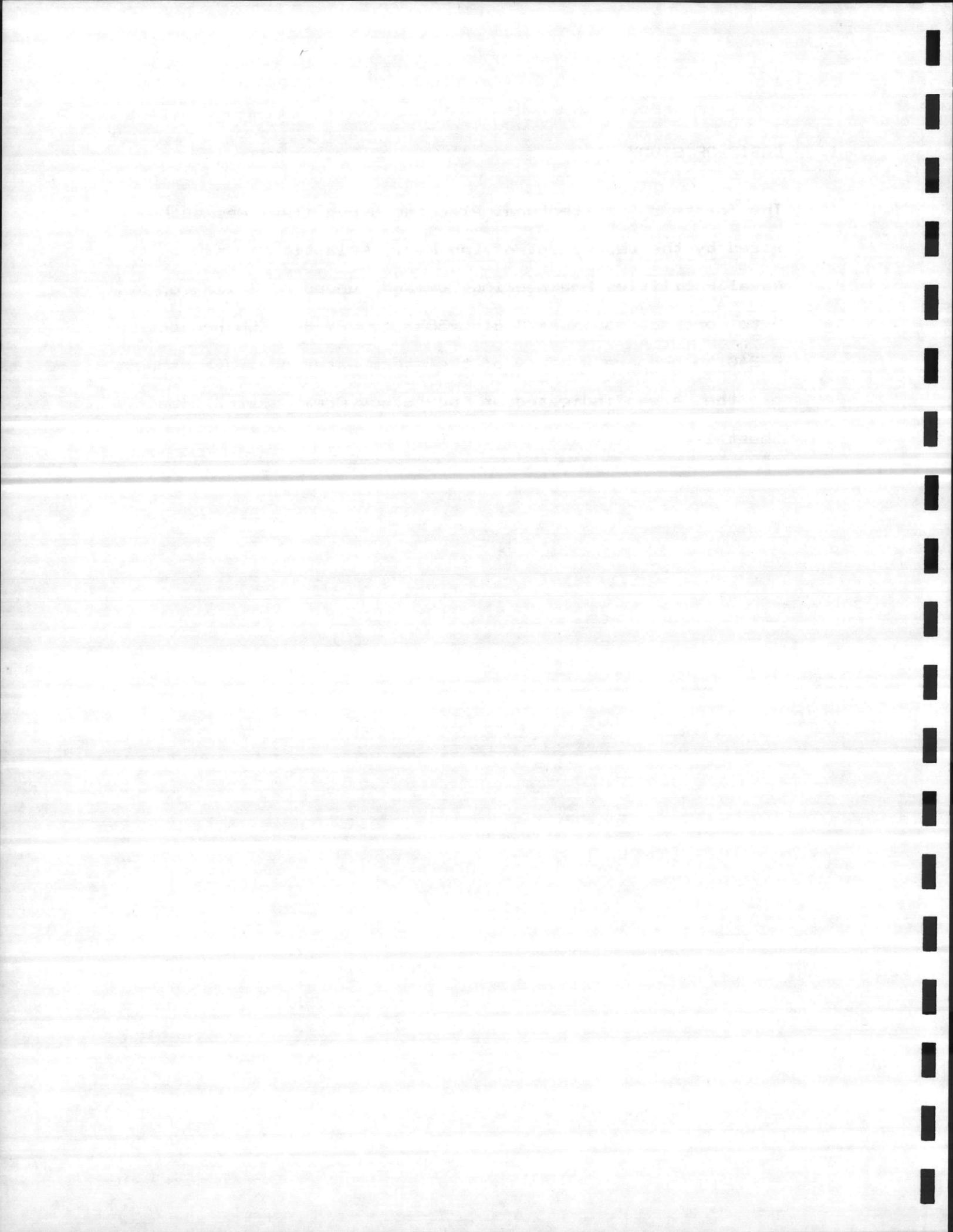
TABLE OF CONTENTS

- I. BASIS OF STUDY
- II. SCOPE OF STUDY
- III. FORWARD
 - A. Sources of Information
 - B. Assumptions and Criteria
- IV. EXISTING STUDY AREA
- V. PROPOSED STUDY AREA
- VI. SUMMARY AND CONCLUSIONS
- VII. RECOMMENDATIONS
- VIII. CALCULATIONS
- IX. COST ESTIMATE
- X. DRAWINGS



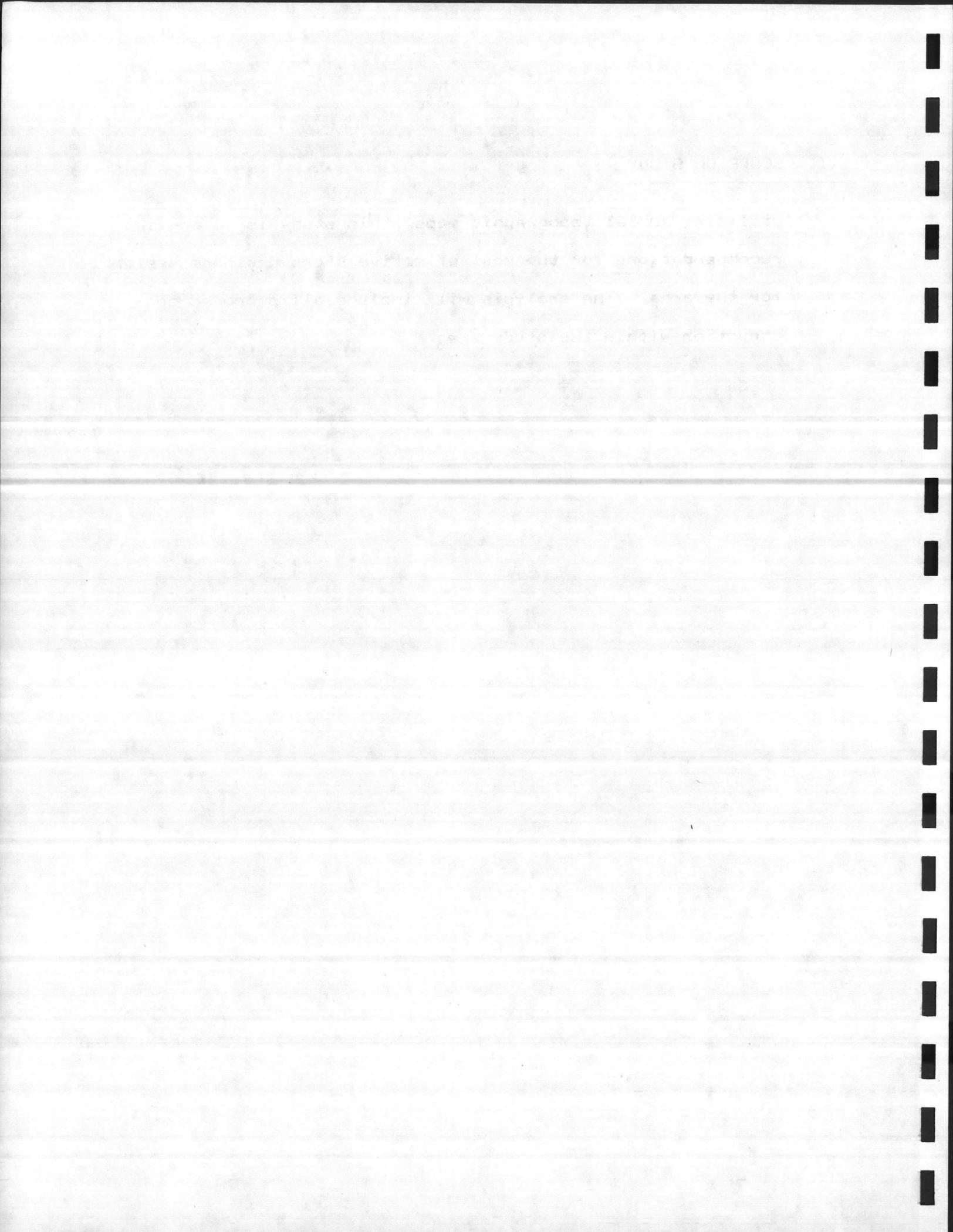
I. BASIS OF STUDY

The Townsend Architectural Planning Group (TAP) was authorized by the Department of the Navy, Atlantic Division, Naval Facilities Engineering Command, under Modification No. 5 to Contract No. N62470-81-C-3893 for FY-84 MCON Project P-240 to prepare a study of the storm water drainage aspects of the area indicated on the "Study Area" sketch (Calc. Sheet 1).



II. SCOPE OF STUDY

Utilizing aerial topographic maps, this study is to provide recommendations for the most effective storm drainage system for the area. The analysis will include all proposed construction within the study area.



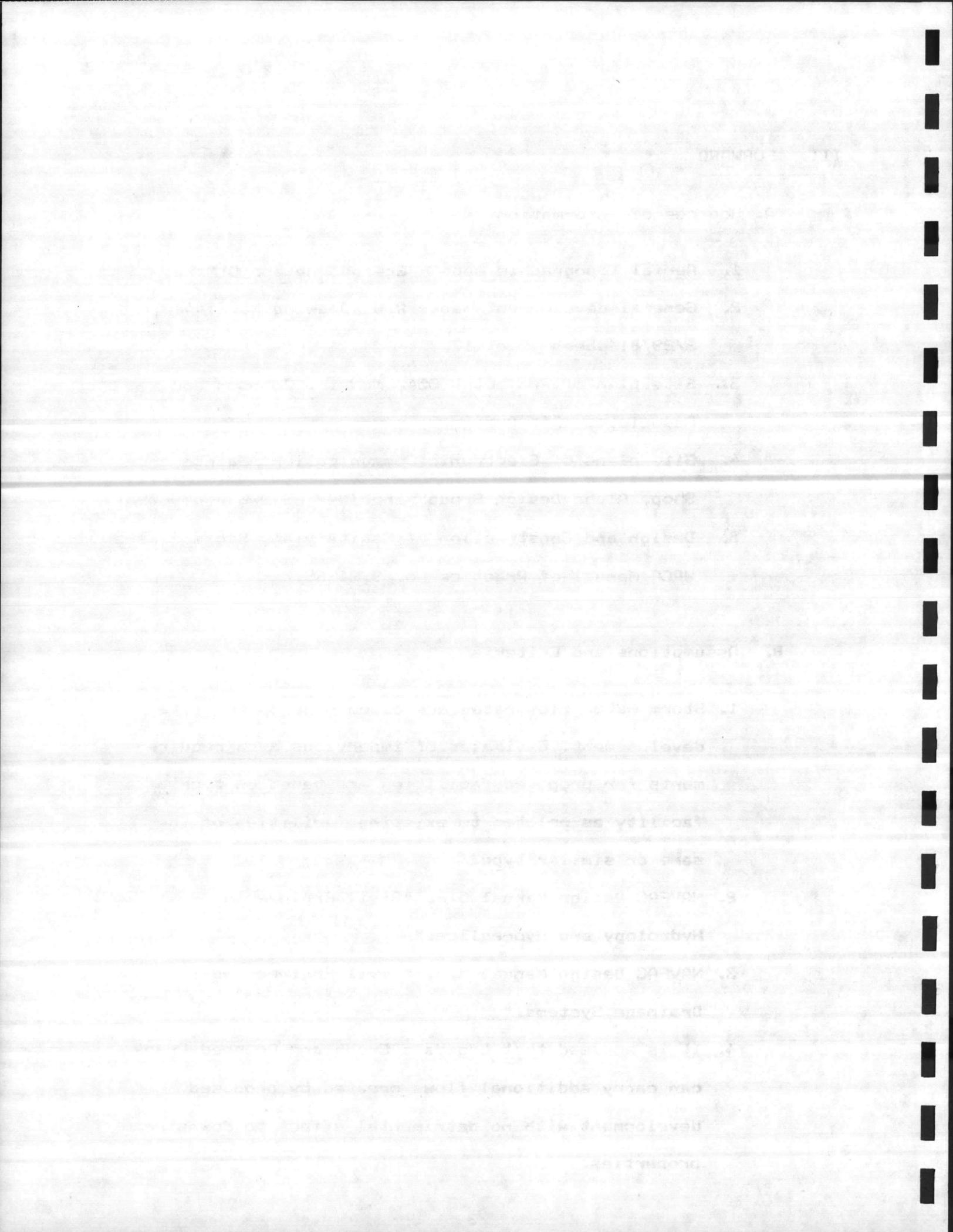
III. FORWARD

A. Sources of Information

1. Aerial topographic maps - Greenhorne and O'Mara.
2. General development map - P.W. Drawing No. 14402, 6/29/81 sheet 10 of 17.
3. Site plan of Project P-054, McNair, Johnson and Associates (35% Design).
4. Site plans of Electronic Communications Maintenance Shop, Alpha Design Group, Inc. (NAVFAC DWG # 4096098)
5. Design and Construction of Sanitary and Storm Sewers WPCF Manual of Practice No. 9, 1969.

B. Assumptions and Criteria

1. Storm water flow rates are based on proposed site development. Estimates of impervious area requirements for proposed facilities are based on type of facility as related to existing facilities of the same or similar type.
2. NAVFAC Design Manual 5.2, "Civil Engineering - Hydrology and Hydraulics."
3. NAVFAC Design Manual 5.3, "Civil Engineering - Drainage Systems."
4. It is assumed that Cogsdale Creek and Cowhead Creek can carry additional flows created by proposed development with no detrimental effect to downstream properties.



IV. EXISTING STUDY AREA

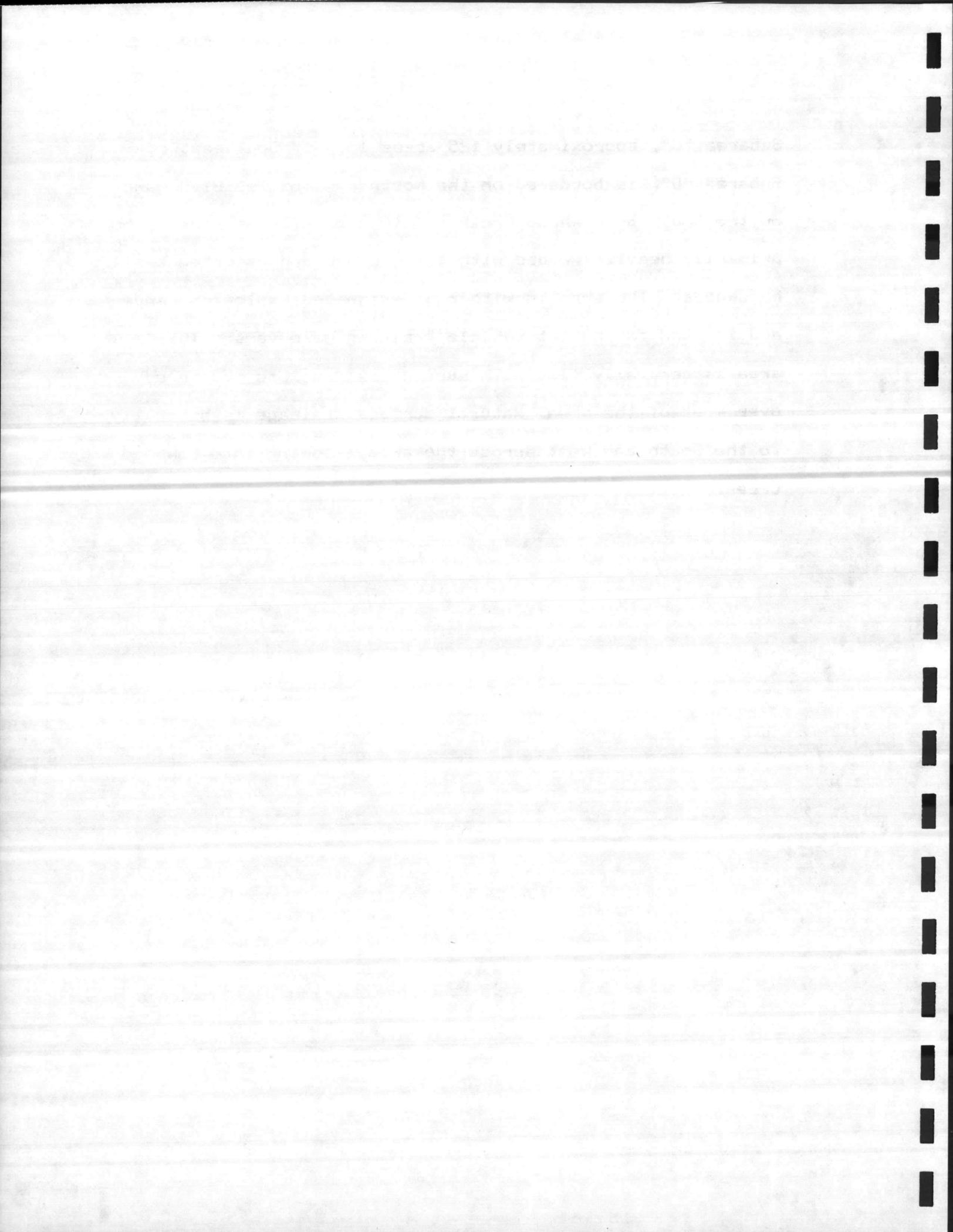
As indicated on the "Study Area" map, the study area has been divided into three subareas (A, B, & C) for analysis.

Subarea "A", approximately 110 acres bounded on three sides by Main Service Road, Sneads Ferry Road, and Cogsdale Creek, is presently used as a training area for tracked vehicles.

The area is primarily heavily wooded with large pines and assorted small hardwood. Cleared pathways for training maneuvers are evidenced throughout the site. Also, scattered over the site are surface depressions varying in depth from very shallow to several feet. The direction of runoff is North and Northwest into Cogsdale Creek.

Subarea "B", approximately 72 acres bounded by Main Service Road, Gonzalez Boulevard, Anderson Street and Daly Road, presently has three developed sites. This area is primarily heavily wooded with large pines and assorted small hardwoods. Areas of surface depressions are scattered over the undeveloped portion of this site. There is an existing drainage ditch adjacent and parallel to Anderson Street on the western side of the site. This ditch conveys ground water and runoff to a 54" diam. reinforced concrete pipe culvert under Gonzalez Blvd. and continues, discharging into French Creek and New River. The remainder of Subarea "B" also drains South into an 18" diam. pipe system transporting the flow under Gonzalez Blvd.

Subarea "C", approximately 125 acres located Southeast of Subarea "B", is bordered on the North by Gonzalez Blvd. and on the South by Cowhead Creek. This area also appears to be primarily heavily wooded with large pines and assorted small hardwoods. The area is within a designated explosion range and is used for combat vehicle training maneuvers. This area is generally flat with surface depressions scattered over most of the area. Natural surface drainage is generally to the South and West across the area, flowing into Cowhead Creek.



V. PROPOSED STUDY AREA

A. Subarea "A"

This Subarea has been divided into 3 sections for drainage analysis. (See Calc. Sheet No. 2). Section A.1 is approximately 6.7 acres at the intersection of Main Service Road and Sneads Ferry Road. The proposed road connecting Main Service Road and Sneads Ferry Road will divide the remainder of the site into Sections A.2 and A.3.

The proposed development of MCON Project P-538, approximately 1.2 acres, lies within Section A.1. Runoff from this site will be directed to an existing 18" diam. R.C.P. culvert under Sneads Ferry Road (Reference NAVFAC Dwg. No. 4096098).

Proposed development in Section A.2 consists of the following:

| <u>MCON PROJECT</u> | <u>DESCRIPTION</u> | <u>IMPERVIOUS AREA (estimated)</u> |
|----------------------------------|-------------------------|------------------------------------|
| P-679 | Elec./Comm. Shop | 3.5 acres |
| P-517 | CVMS | 5.5 acres |
| P-257 P-803 P-804 P-805 | Field Maint. Complex | 23.8 acres |
| P-240 | 2nd Maint. Batt. | 5.9 acres |
| | | <hr/> |
| TOTAL... | | 38.7 acres |

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Second section of faint, illegible text, appearing to be a list or series of entries.

Third section of faint, illegible text at the bottom of the page, possibly a conclusion or footer.

Runoff in this section will significantly increase due to the proposed impervious area.

Proposed development in Section A.3 consists of MCON Project P-541, an estimated 5.0 acre development. Runoff from this site will be North by Northwest into Cogsdale Creek.

B. Subarea "B"

Proposed development in Subarea "B" consists of the following:

| <u>MCON PROJECT</u> | <u>DESCRIPTION</u> | <u>IMPERVIOUS AREA (estimated)</u> |
|---------------------|-------------------------|------------------------------------|
| P-027 | Combat Vehicle Shop | 4.4 acres |
| P-054 | Combat Maint. Shop | 6.2 acres |
| P-505 | Elec./Comm. Shop | 2.7 acres |
| P-240 | 2nd Med./Sup. (CVMS) | 5.7 acres |
| P-167 | Elec./Comm. Maint. Shop | 2.8 acres |
| | | <u>TOTAL... 21.8 acres</u> |

Existing development in this subarea represents approximately 10.5 acres of impervious area. The total area of Subarea "B" is 72 acres. Therefore, the proposed developed area will be approximately 45% impervious.

C. Subarea "C"

There is no proposed development in this subarea. Storm water flow from Subarea "B" will be directed across this subarea to Cowhead Creek.

the proposed development is in accordance with the provisions of the relevant legislation and the relevant planning policies. The proposed development is considered to be in the public interest and it is recommended that the application be approved.

The following information is provided for your information:

| NO. | PROJECT DESCRIPTION |
|------|---------------------|
| 1-10 | Electrical works |
| 1-11 | Water supply works |
| 1-12 | Sanitary works |
| 1-13 | Structural works |
| 1-14 | Roofing works |
| 1-15 | External works |
| 1-16 | Other works |

The proposed development is considered to be in the public interest and it is recommended that the application be approved. The following information is provided for your information:

The proposed development is in accordance with the provisions of the relevant legislation and the relevant planning policies. The proposed development is considered to be in the public interest and it is recommended that the application be approved.

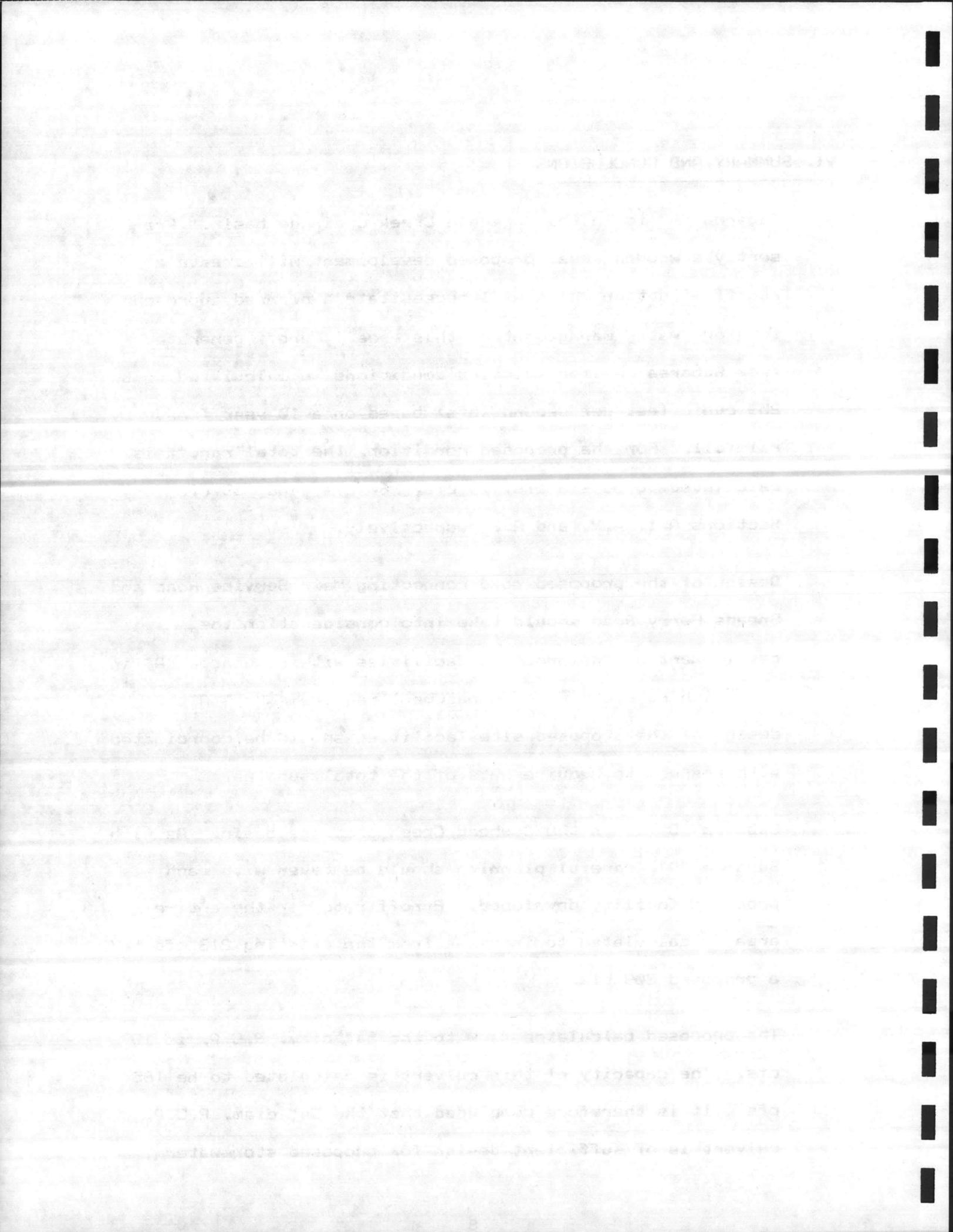
VI. SUMMARY AND CONCLUSIONS

Subarea "A" is in the Cogsdale Creek drainage basin. Presently a wooded area, proposed development will create a runoff situation which will necessitate a planned approach to storm water management of this area. Runoff generated from Subarea "A" for existing conditions is calculated to be 259 cubic feet per second (cfs) based on a 10 year frequency rainfall. For the proposed condition, the total runoff is calculated to be 418 cfs: 19 cfs, 260 cfs, and 139 cfs for Sections A.1, A.2, and A.3 respectively.

Design of the proposed road connecting Main Service Road and Sneads Ferry Road should take into consideration the development of the proposed facilities within Subarea "A" in establishing storm water management requirements. Also, design of the proposed site facilities should be coordinated with respect to requirements of the total subarea.

Subarea "B" is in the Cowhead Creek drainage basin. As with Subarea "A", careful planning should be taken with each proposed facility developed. Runoff rate for the entire area is calculated to increase from the existing 213 cfs to a proposed 309 cfs.

The proposed calculated flow to the 54" diam. R.C.P. is 197 cfs. The capacity of this culvert is calculated to be 185 cfs. It is therefore concluded that the 54" diam. R.C.P. culvert is of sufficient design for proposed stormwater

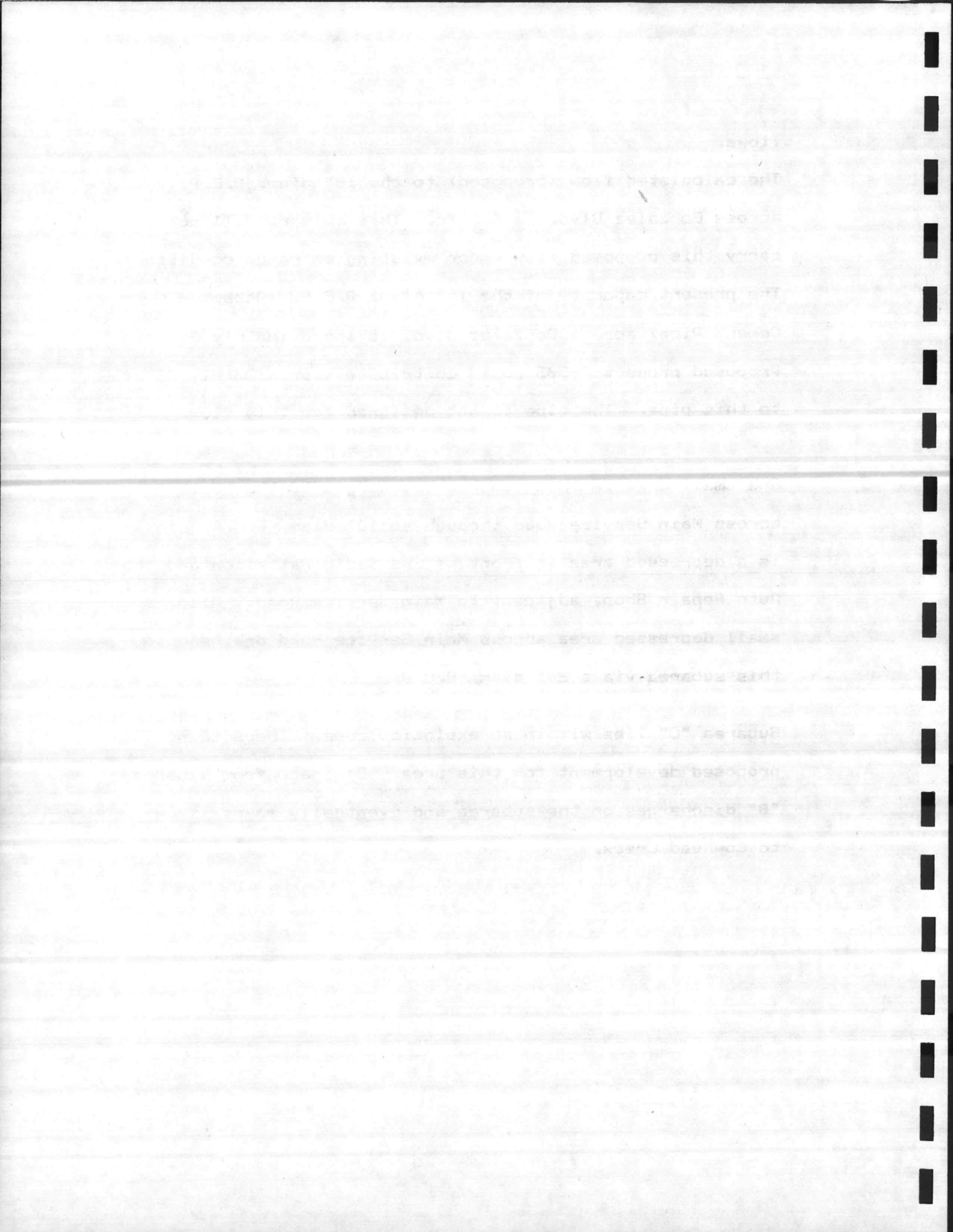


flows.

The calculated flow (proposed) to the 18" diam. R.C.P. across Gonzalez Blvd. is 82 cfs. This culvert will not carry this proposed flow under existing entrance conditions. The present capacity of the 15" diam. A.C.P. (Asbestos Cement Pipe) across Gonzalez Blvd. is approximately 8 cfs. Proposed project P-505 could contribute approximately 23 cfs to this pipe. The pipe is not designed for this flow.

One small area in this subarea discharges to the North across Main Service Road through an 18" diam. R.C.P. This is a depressed area in front of 2nd Radio Battalion and the Auto Repair Shop, adjacent to Main Service Road. Also, a small depressed area across Main Service Road drains onto this subarea via a 24" diam. R.C.P.

Subarea "C" lies within an explosion zone. There is no proposed development for this area. Drainage from Subarea "B" discharges on the subarea and eventually makes its way to Cowhead Creek.



VII. RECOMMENDATIONS

The following recommended drainage considerations for the study area are indicated on the topographic drawings developed by Greenhorne and O'Mara. The topographic maps are included as part of this report.

1. Subarea "A"

This area can be most effectively drained by utilizing a series of ditches. Larger sized drainage ditches should be constructed in the natural channels with small finger ditches extending through the lesser swales to effectively drain the depressed areas.

2. Subarea "B"

The existing drainage ditch and 54" diam. culvert under Gonzalez Blvd. will adequately convey the projected runoff generated by the western portion of this sub-area. The center and eastern sections, approximately 22 acres, of Subarea "B" should be drained to the 18" diam. culvert under Gonzalez Blvd. The proposed runoff rate at the entrance to this culvert is 105 cfs. The 18" diam. culvert will only carry 14 cfs. It is recommended that the 18" diam. culvert be paralleled with a 48" diam. culvert.

The site design of individual facilities in this sub-

The following information was obtained from the records of the Department of the Interior, Bureau of Land Management, regarding the land parcels described herein.

The land parcels described herein are situated in the County of [County Name], State of [State Name]. The parcels are described as follows:

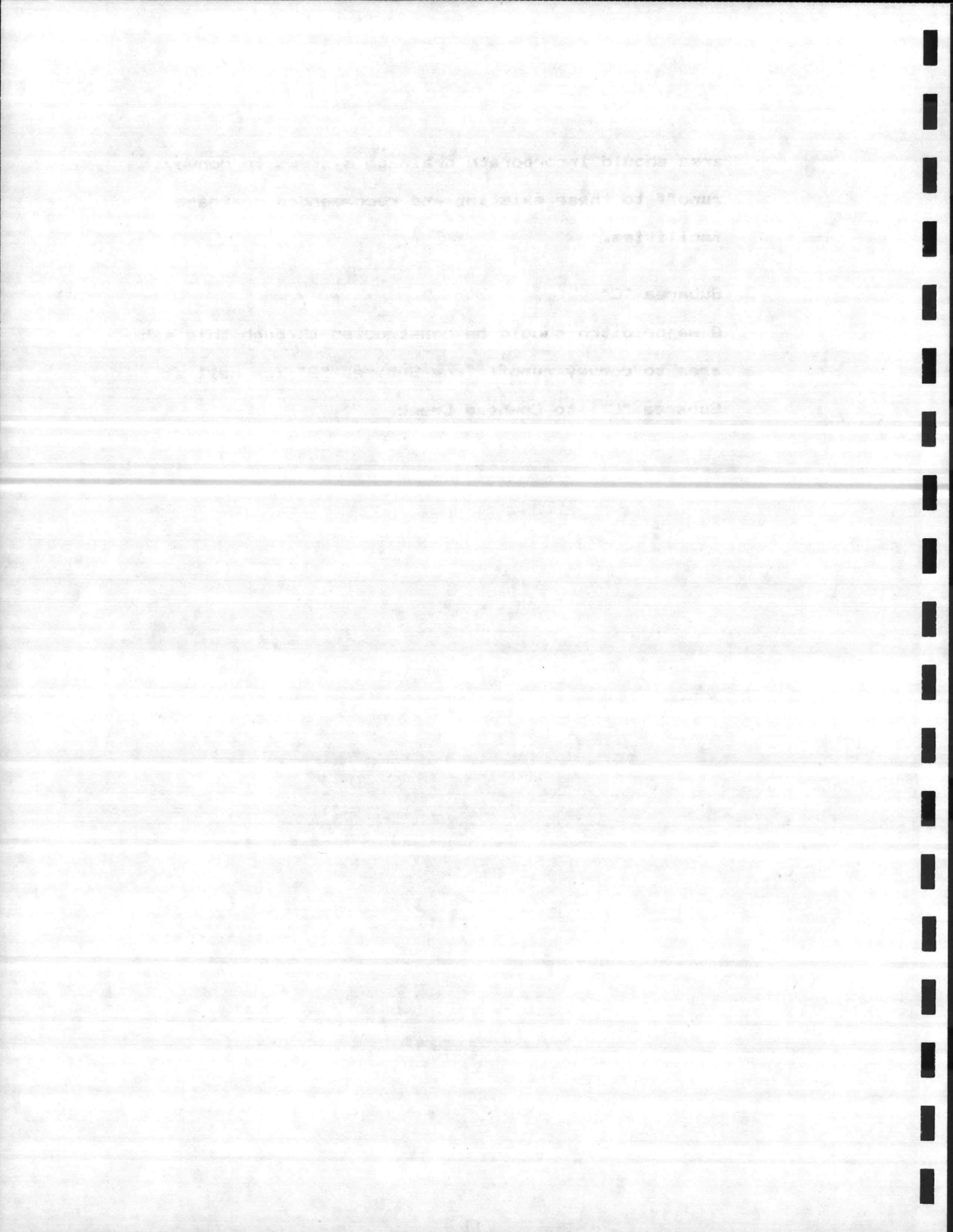
- Parcel 1: [Description]
- Parcel 2: [Description]
- Parcel 3: [Description]
- Parcel 4: [Description]
- Parcel 5: [Description]
- Parcel 6: [Description]
- Parcel 7: [Description]
- Parcel 8: [Description]
- Parcel 9: [Description]
- Parcel 10: [Description]

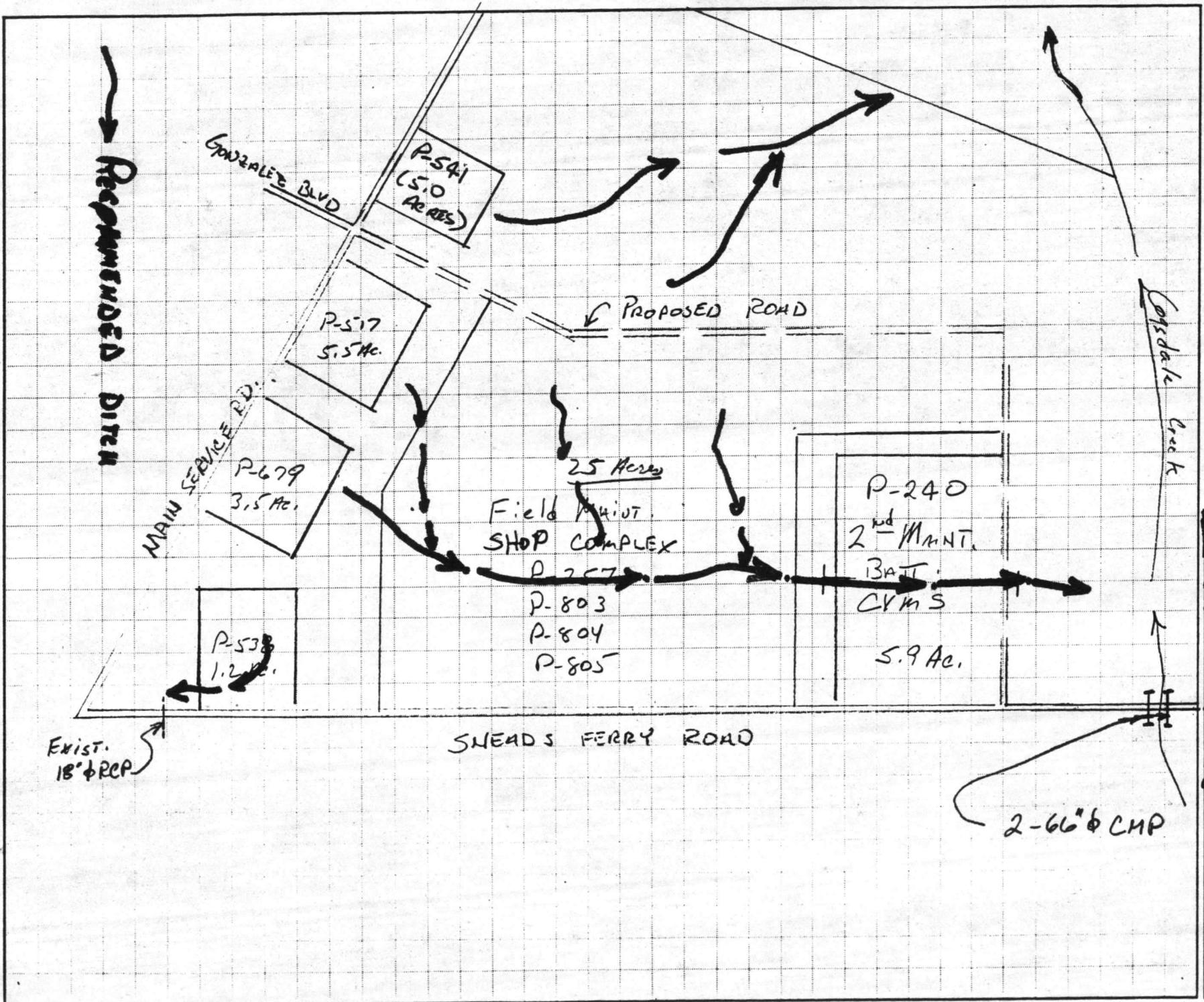
The above information is provided for your information and is not intended to constitute an offer of any financial product or service.

area should incorporate drainage systems to convey runoff to these existing and recommended drainage facilities.

3. Subarea "C"

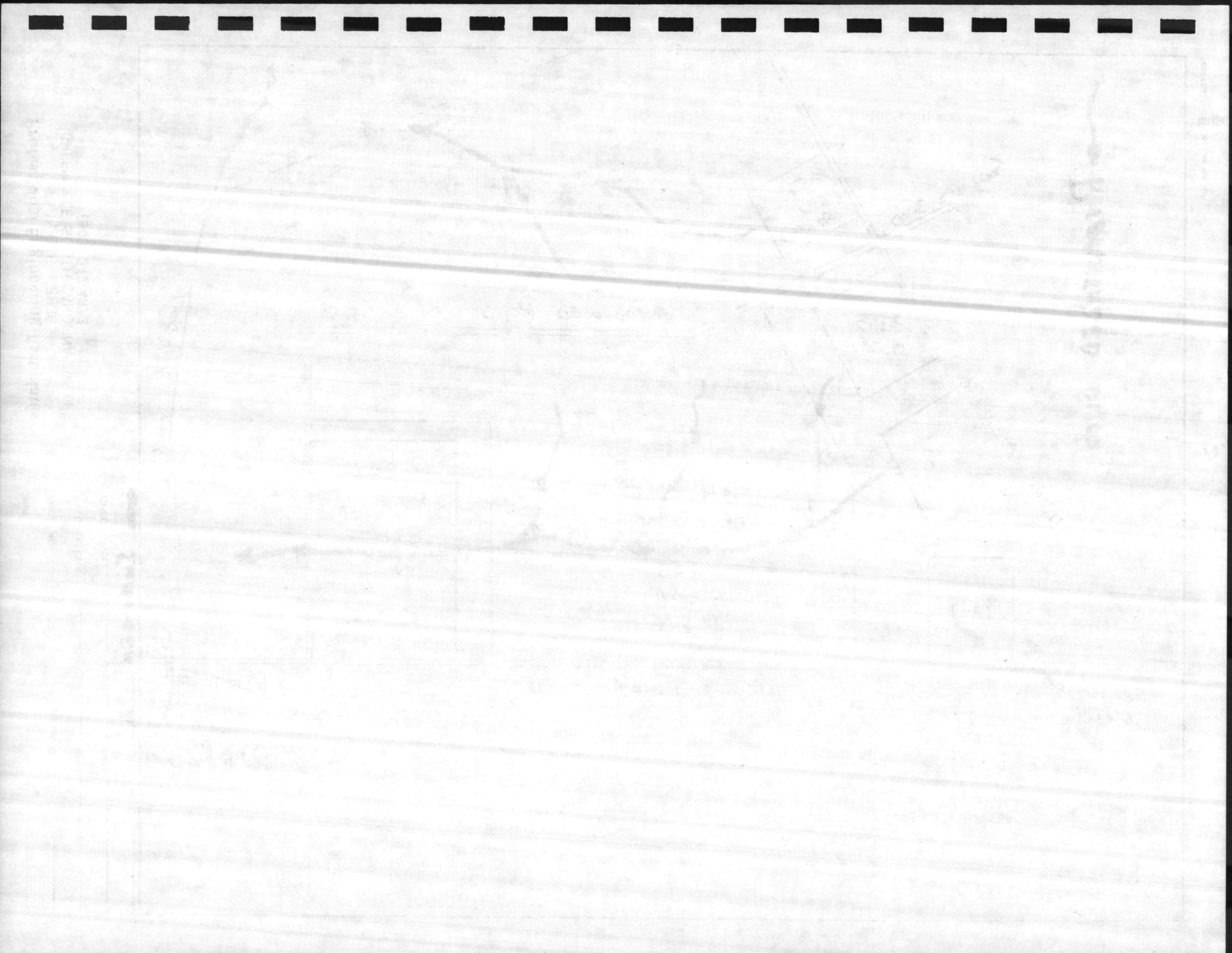
A major ditch should be constructed through this subarea to convey runoff from Subarea "B" (as well as Subarea "C") to Cowhead Creek.





PROJECT 2041 (REV) Mr. Gordon, Mass. 01871

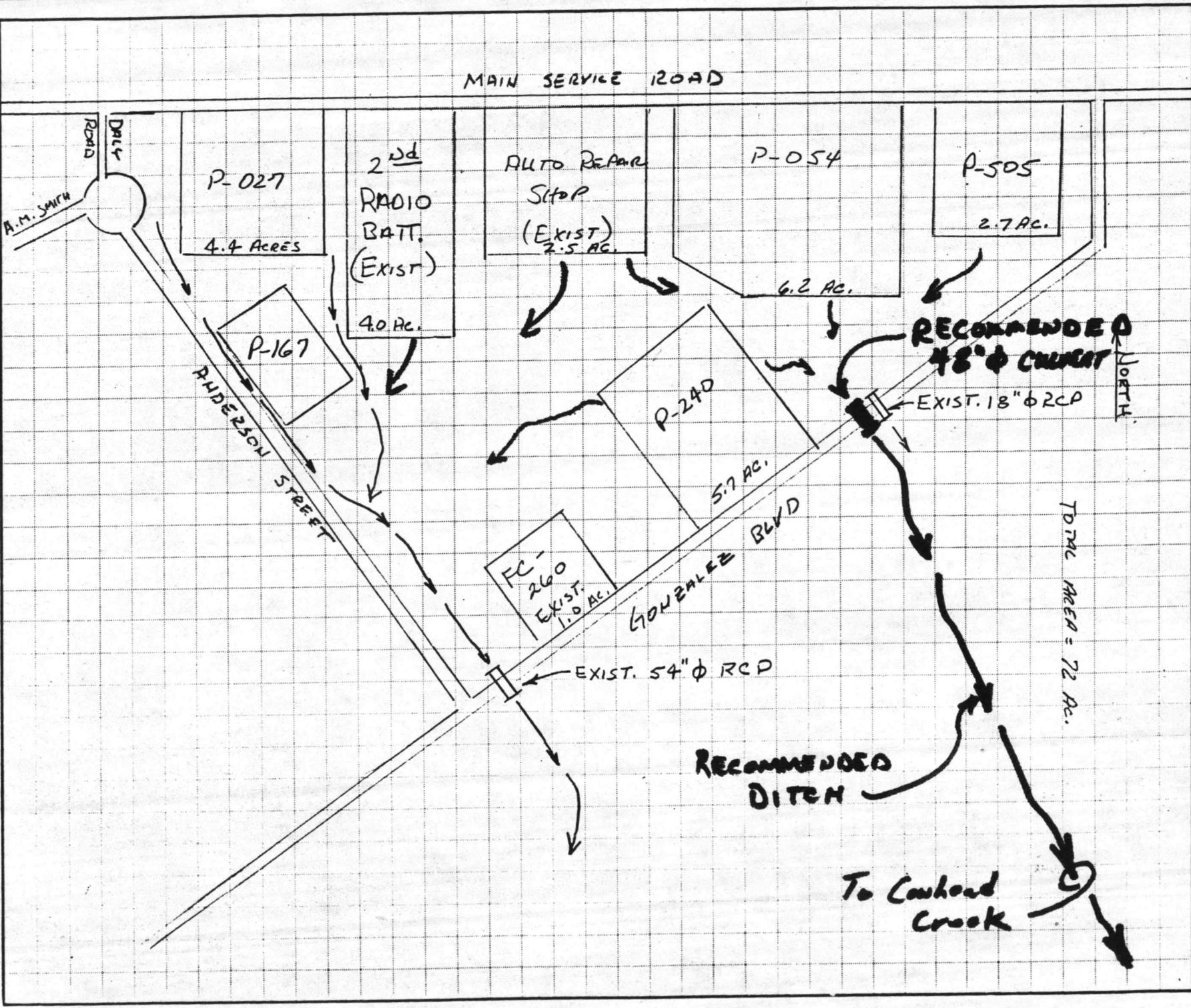
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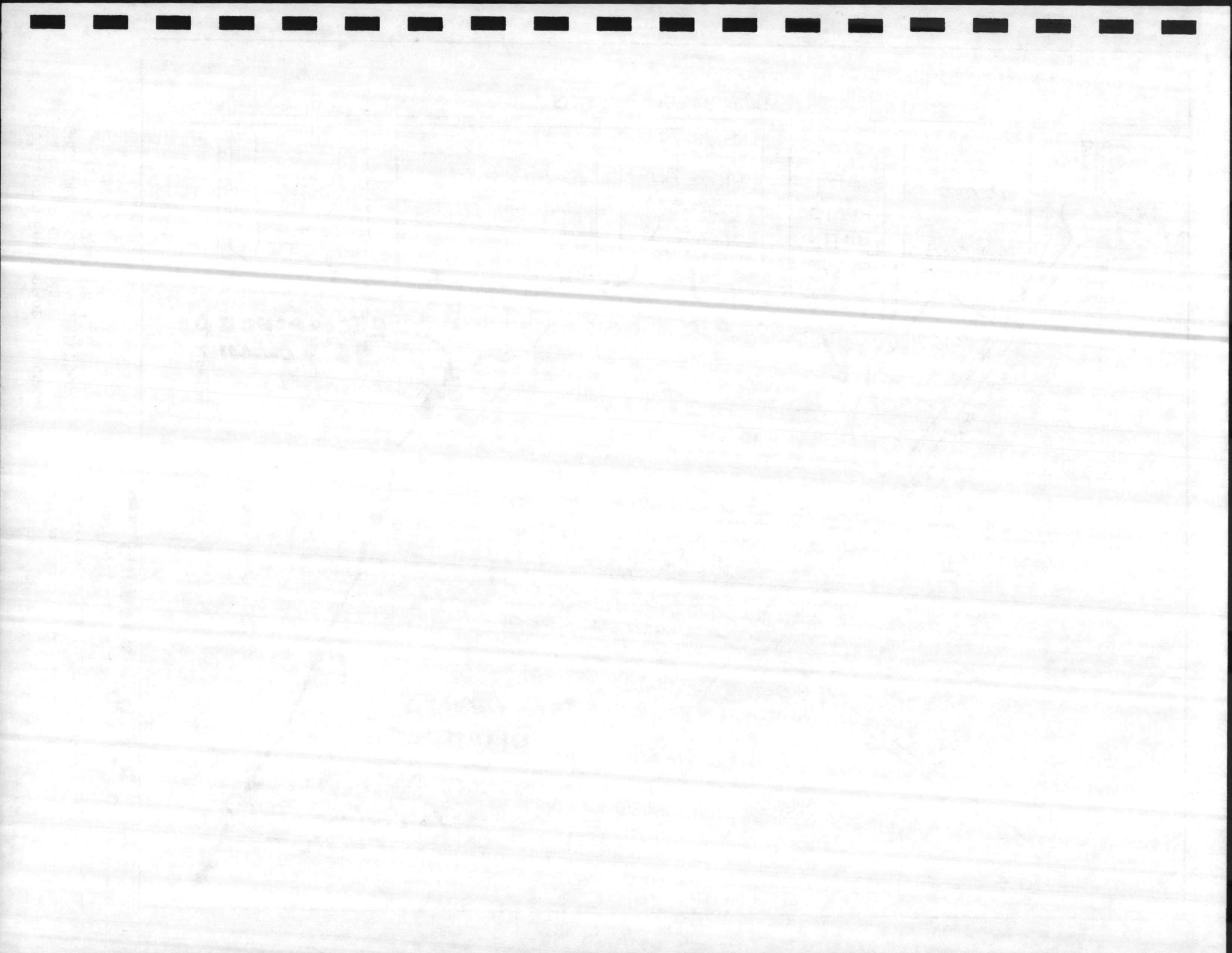
Professional Engineering Associates
 P. O. Box 8836
 GREENVILLE, SOUTH CAROLINA 29604
 (803) 242-4373

JOB P-240 MOR 5' PERM 84012
 SHEET NO. _____ OF _____
 CALCULATED BY _____ DATE _____
 CHECKED BY _____ DATE _____

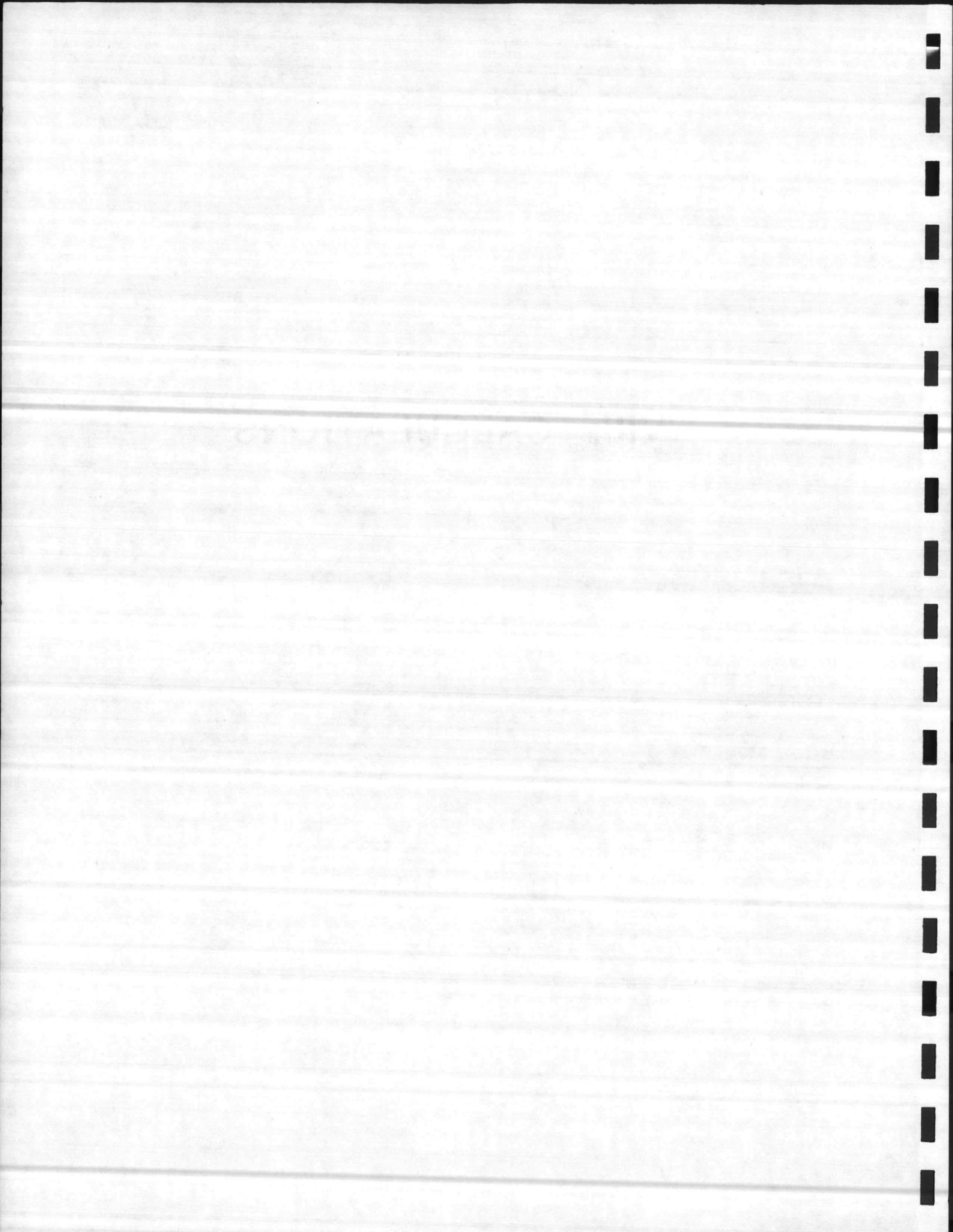
SHARRA D.P.E.



PROJECT 2041 NCEC Inc. Greenville, S.C. 29615

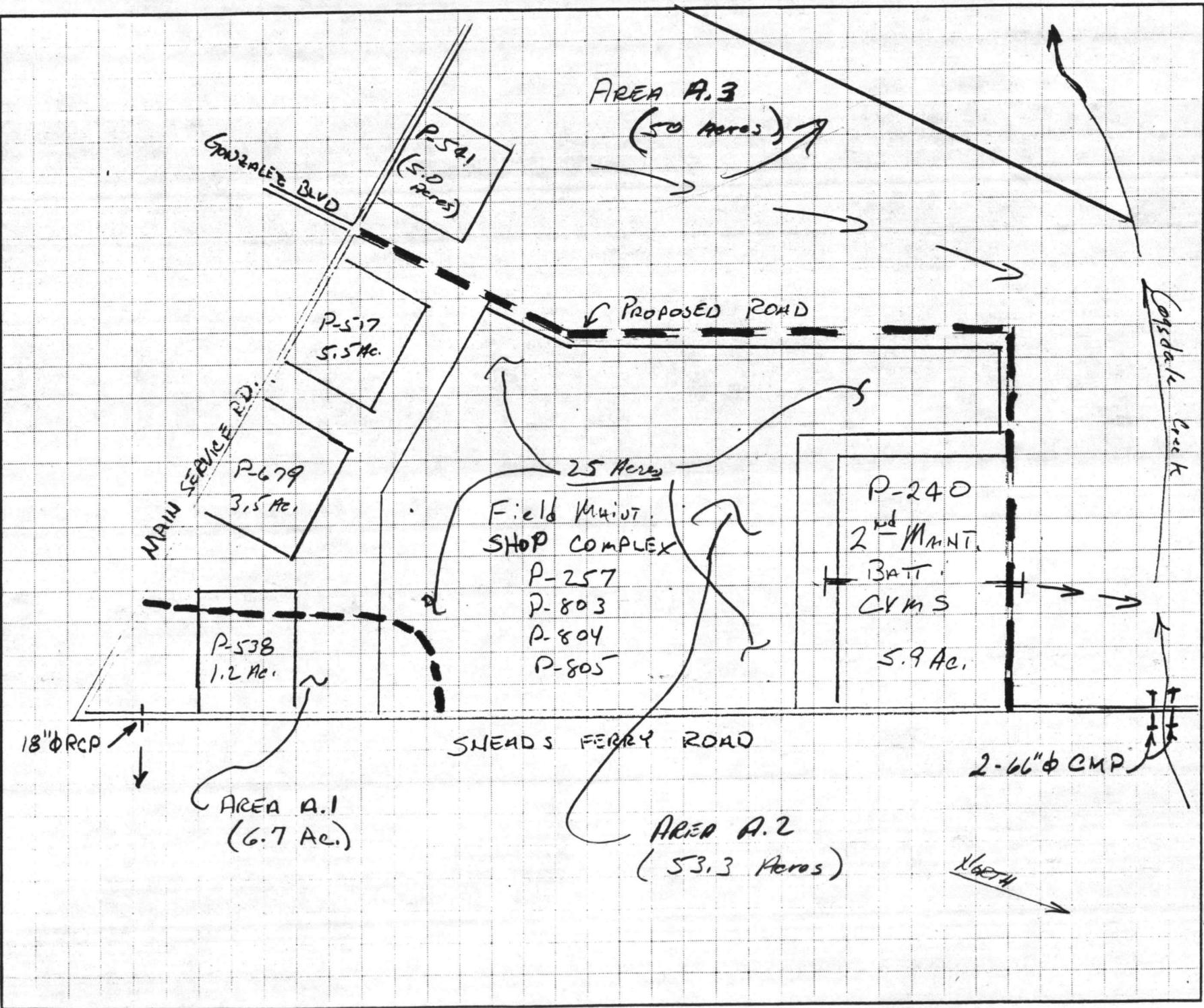


VIII. CALCULATIONS



Professional Engineering Associates
 P. O. Box 8836
 GREENVILLE, SOUTH CAROLINA 29604
 (803) 242-4373

JOB P-240 Mod. 5
 SHEET NO. 1A OF
 CALCULATED BY DATE
 CHECKED BY Sherman A DATE



PRODUCT 2041 N.E.E. Inc. Greenville, S.C. 29615

Area A.1

Intersection of Main Service Road & Sneads Ferry Road

6.7 acres ±

Proposed

Impervious area - 0.7 acres (P-538)

Permeable - 6.0 acres

Area A.2

Area bounded by Main Service Road, Sneads Ferry Road, & Proposed Road from Main Service to Sneads Ferry (Excluding Area A.1)

53.3 Acres

Proposed

Impervious Areas

P-517 (CVMS) 5.5 acres

P-679 (Elec/Com Field Maint) 3.5 acres

P-803, 804, 805, P-257
(Field Maint. Complex) 23.8 acres

P-240 2nd MAINT (CVMS) 5.9 acres

38.7 acres

Permeable Area = 14.6 acres

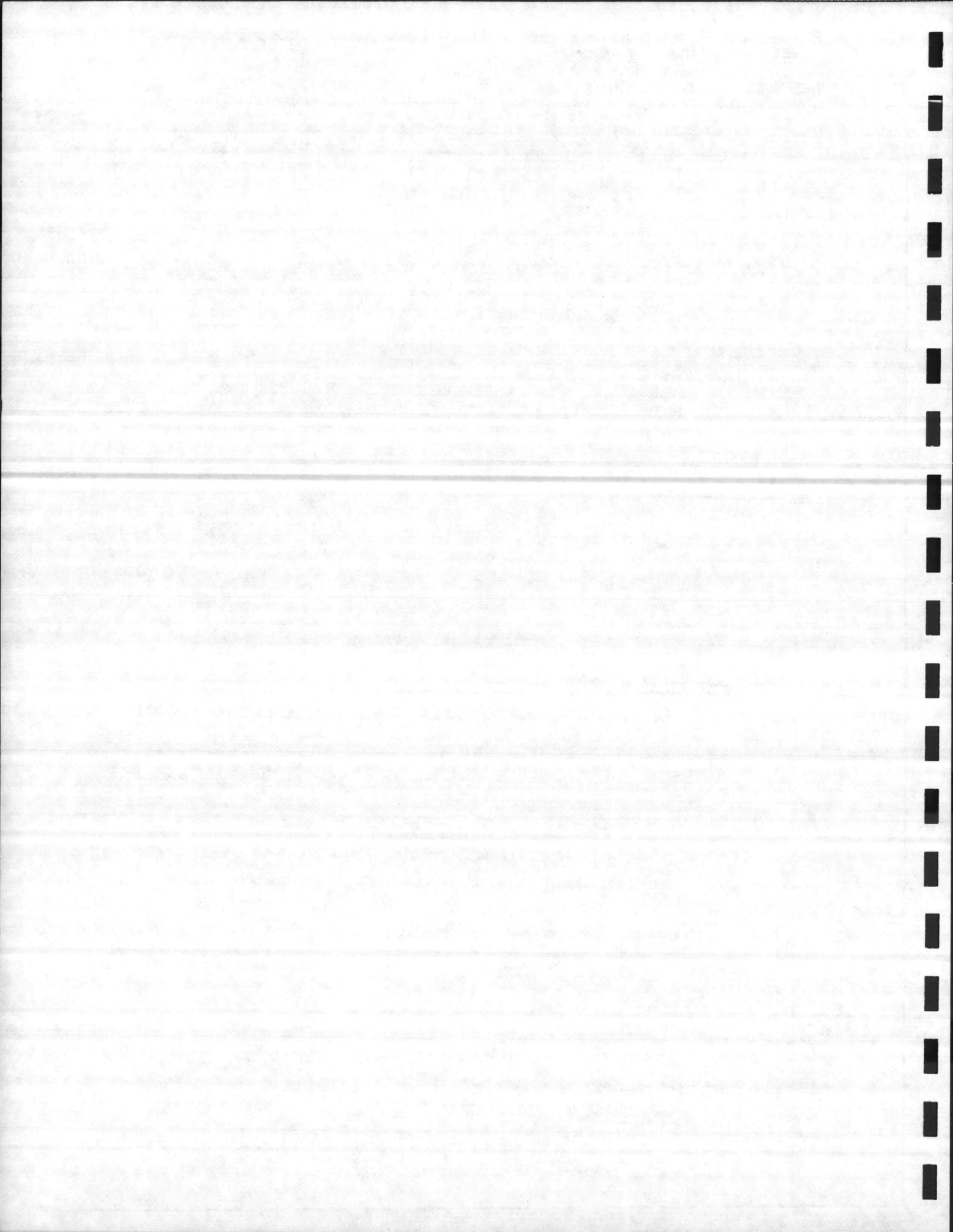
Area A.3

Area bounded by Main Service Road, Proposed Rd a 2 Cogsdale Creek - 50 acres

Proposed

Impervious - 5 acres (P-541)

Permeable - 45 acres



Input DATA - - -

Proposed Conditions

6.7 Acres - (A.1)

High Pt. = 32.3

Low Pt. = 27.1

Length = 1000

C = 0.35 @ 6.0 acres

C = .95 @ .7 acres

53.3 Acres - (A.2)

High Point = 35

Low Point = ~~18~~ 18

Length = 2300

38.7 ac. @ .95

14.6 ac. @ .35

50.0 Acres - (A.3)

High Point - 40

Low Point - 15

Length - 1200

5 acres @ .95

45 acres @ .35

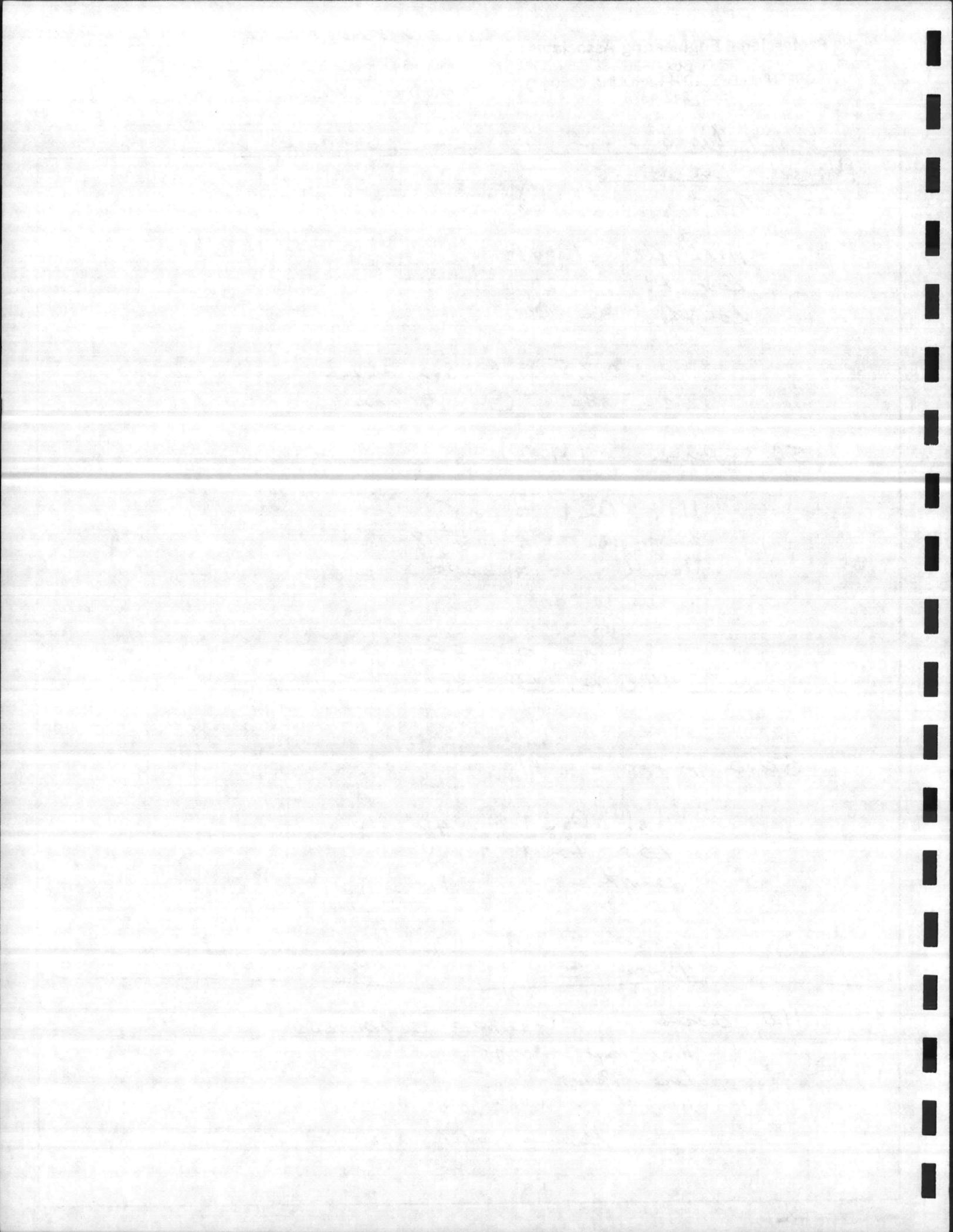
110 acres - EXISTING CONDITIONS

High Point - 35

Low Point - 5

Length - 3500

Assume total area @ C = .35



94012 *** P240 Mod. # 5

THIS PROGRAM CALCULATES RATE OF RUNOFF USING THE RATIONAL FORMULA

STEEL FORMULA REGION 2 .
STORM FREQUENCY FOR 10 YEARS.

DESIGN DATA FOR EXISTING CONDITIONS

Total Area

WEIGHTED COEFFICIENT OF RUNOFF:

| SECTION | COEF. | AREA |
|---------|-------|--------|
| 1 | 0.35 | 110.00 |

TOTAL AREA OF SITE IS 110.00 ACRES.

WEIGHTED COEFFICIENT OF RUNOFF IS 0.35

HIGHEST ELEVATION OF DRAINAGE PATH IS 35 FEET.

LOWEST ELEVATION OF DRAINAGE PATH IS 5 FEET.

LENGTH OF DRAINAGE PATH IS 3500 FEET.

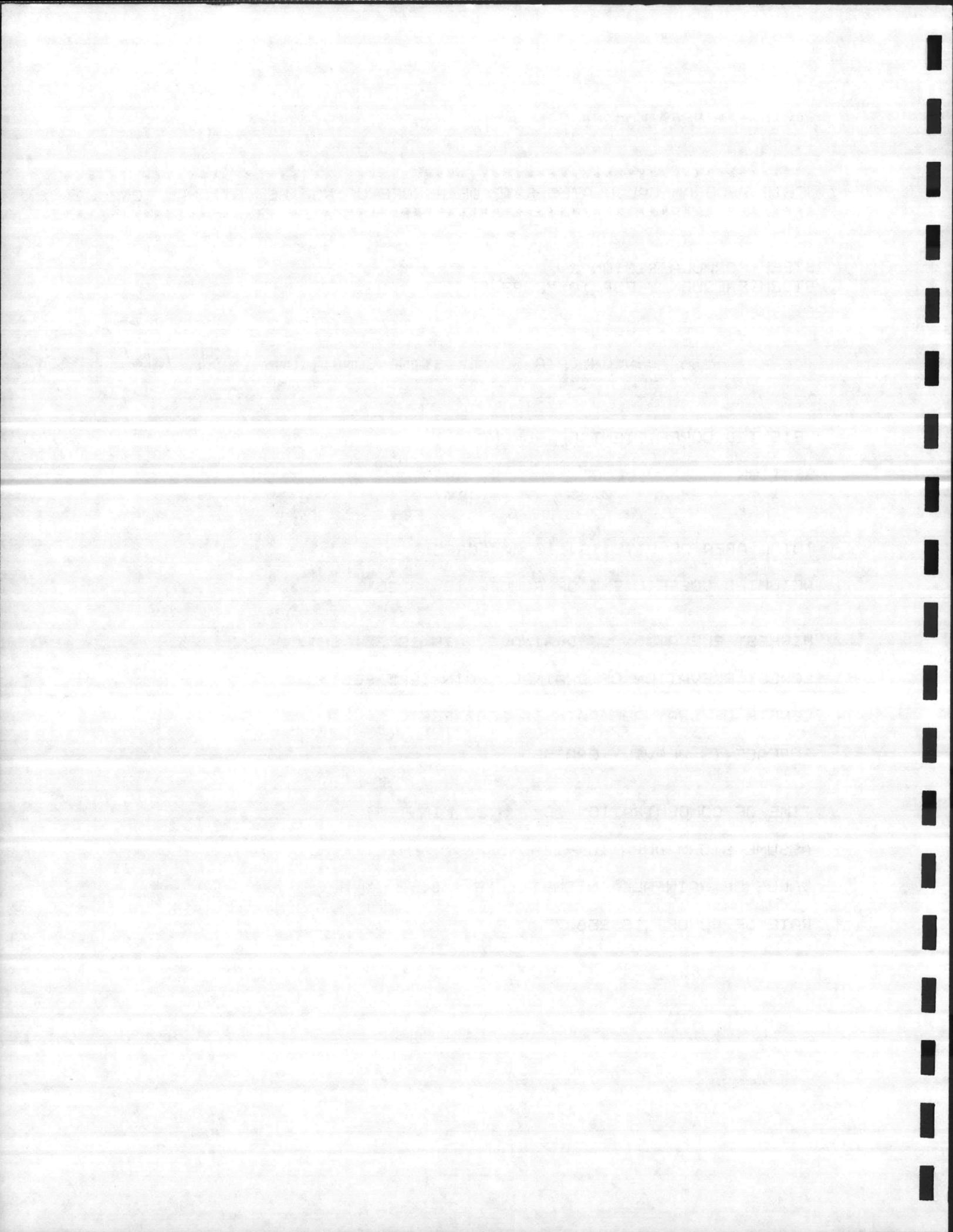
SURFACE IS HEAVILY GRASSED.

TIME OF CONCENTRATION IS 5.22 MINUTES.

ASSUME STORM DURATION IS 5.22 MINUTES.

VALUE OF RAINFALL INTENSITY IS 6.72 IN/HR.

RATE OF RUNOFF IS 258.75 CFS.



84012 *** P-240 Mod. # 5

THIS PROGRAM CALCULATES RATE OF RUNOFF USING THE RATIONAL FORMULA

STEEL FORMULA REGION 2 .
STORM FREQUENCY FOR 10 YEARS.

Area A.1

DESIGN DATA FOR ~~EXISTING~~ ^{PROPOSED} CONDITIONS

WEIGHTED COEFFICIENT OF RUNOFF:

| SECTION | COEF. | AREA |
|---------|-------|------|
| 1 | 0.95 | 0.70 |
| 2 | 0.35 | 6.00 |

TOTAL AREA OF SITE IS 6.70 ACRES.

WEIGHTED COEFFICIENT OF RUNOFF IS 0.41

HIGHEST ELEVATION OF DRAINAGE PATH IS 32.3 FEET.

LOWEST ELEVATION OF DRAINAGE PATH IS 27.1 FEET.

LENGTH OF DRAINAGE PATH IS 1000 FEET.

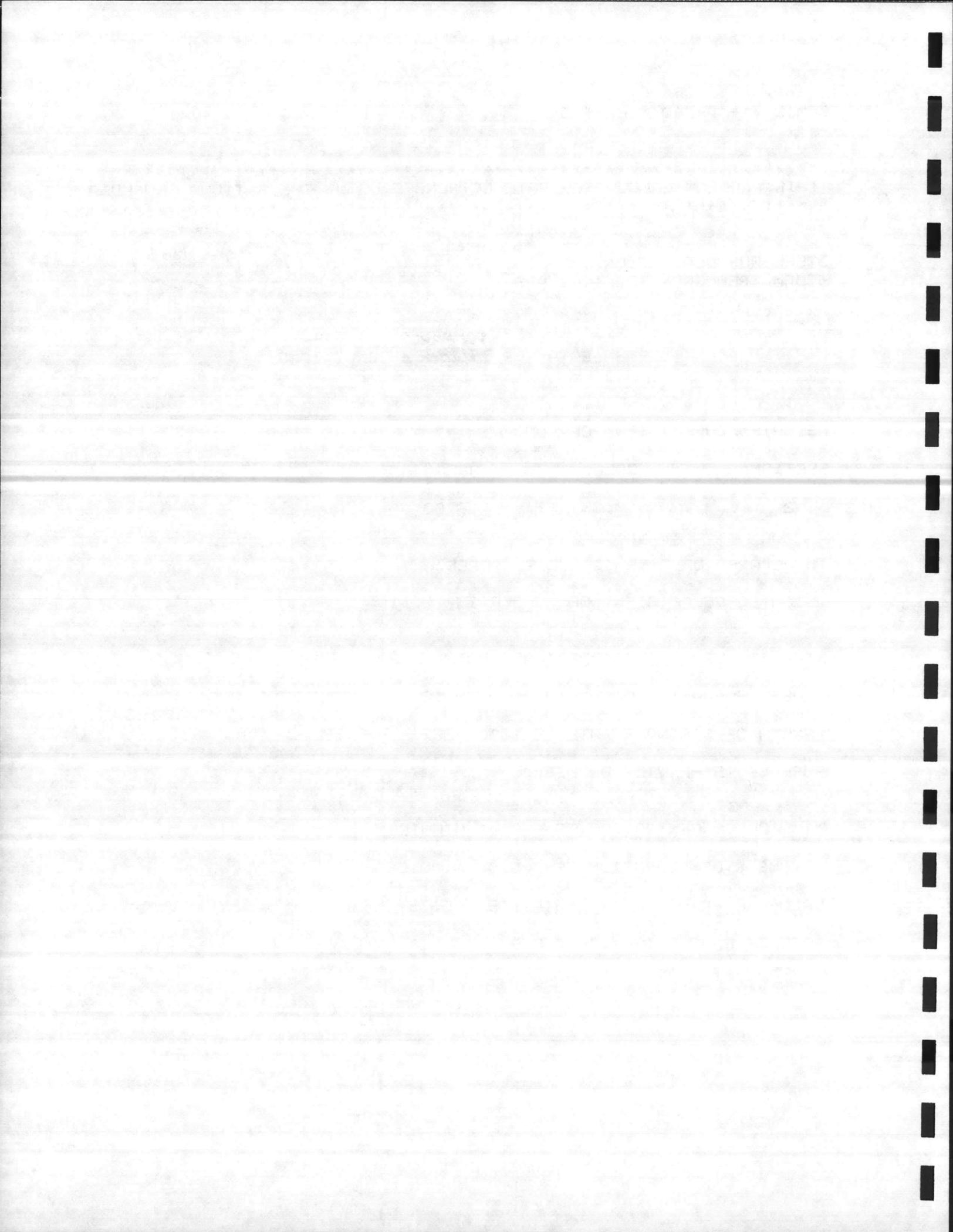
SURFACE IS HEAVILY GRASSED.

TIME OF CONCENTRATION IS 2.41 MINUTES.

ASSUME STORM DURATION IS 5.00 MINUTES.

VALUE OF RAINFALL INTENSITY IS 6.76 IN/HR.

RATE OF RUNOFF IS 18.70 CFS.



84012

THIS PROGRAM CALCULATES RATE OF RUNOFF USING THE RATIONAL FORMULA

STEEL FORMULA REGION 2 .
STORM FREQUENCY FOR 10 YEARS.

Area A.2

DESIGN DATA FOR ~~EXISTING~~ ^{PROPOSED} CONDITIONS

WEIGHTED COEFFICIENT OF RUNOFF:

| SECTION | COEF. | AREA |
|---------|-------|-------|
| 1 | 0.95 | 38.70 |
| 2 | 0.35 | 14.60 |

TOTAL AREA OF SITE IS 53.30 ACRES.

WEIGHTED COEFFICIENT OF RUNOFF IS 0.79

HIGHEST ELEVATION OF DRAINAGE PATH IS 35 FEET.

LOWEST ELEVATION OF DRAINAGE PATH IS 18 FEET.

LENGTH OF DRAINAGE PATH IS 2300 FEET.

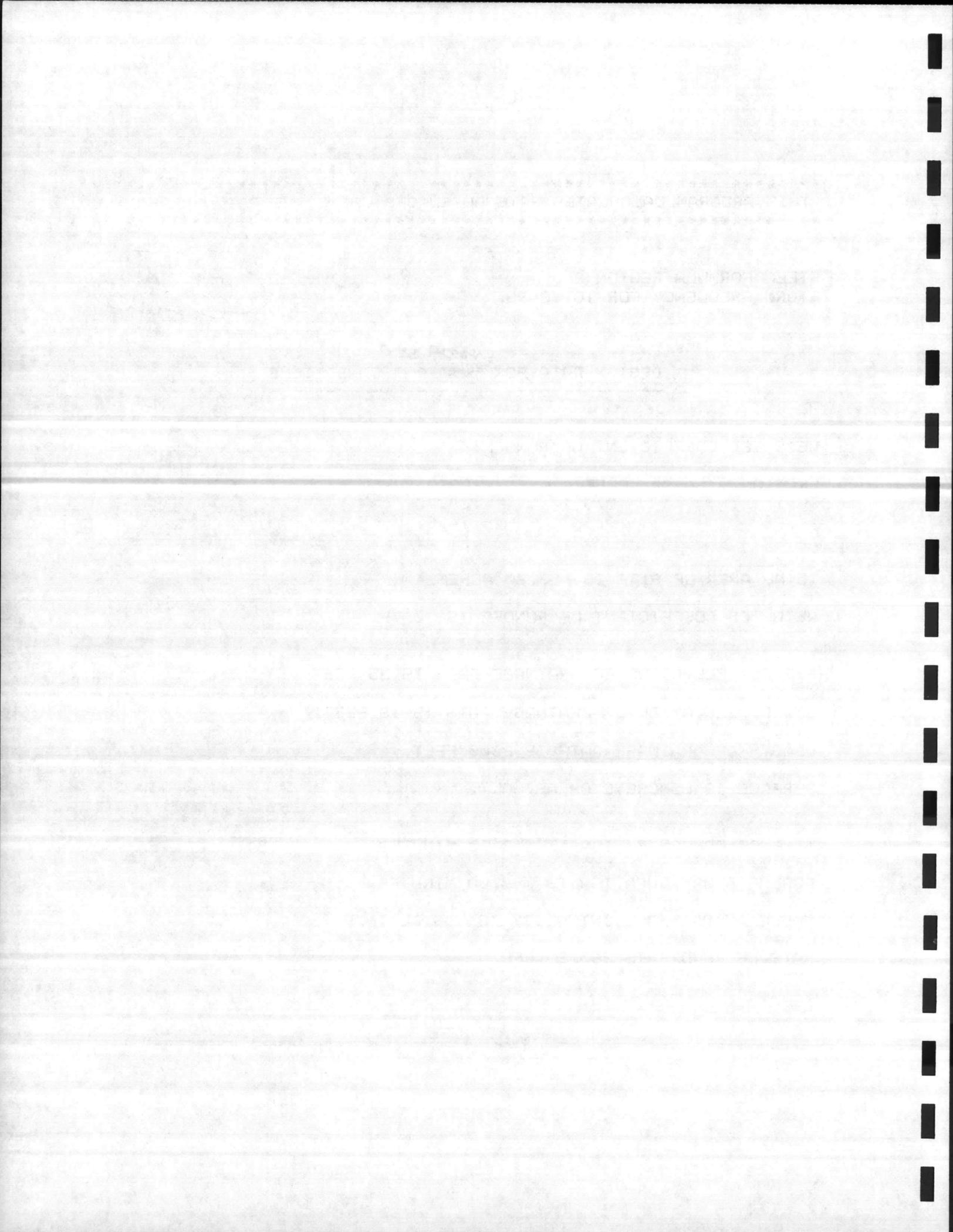
SURFACE IS CONCRETE OR ASPHALT.

TIME OF CONCENTRATION IS 8.00 MINUTES.

ASSUME STORM DURATION IS 8.00 MINUTES.

VALUE OF RAINFALL INTENSITY IS 6.22 IN/HR.

RATE OF RUNOFF IS 260.29 CFS.



84012 *** P-240

THIS PROGRAM CALCULATES RATE OF RUNOFF USING THE RATIONAL FORMULA

STEEL FORMULA REGION 2 .
STORM FREQUENCY FOR 10 YEARS.

Area A.3

DESIGN DATA FOR ~~EXISTING~~ ^{PROPOSED} CONDITIONS

WEIGHTED COEFFICIENT OF RUNOFF:

| SECTION | COEF. | AREA |
|---------|-------|-------|
| 1 | 0.95 | 5.00 |
| 2 | 0.35 | 45.00 |

TOTAL AREA OF SITE IS 50.00 ACRES.

WEIGHTED COEFFICIENT OF RUNOFF IS 0.41

HIGHEST ELEVATION OF DRAINAGE PATH IS 40 FEET.

LOWEST ELEVATION OF DRAINAGE PATH IS 15 FEET.

LENGTH OF DRAINAGE PATH IS 1200 FEET.

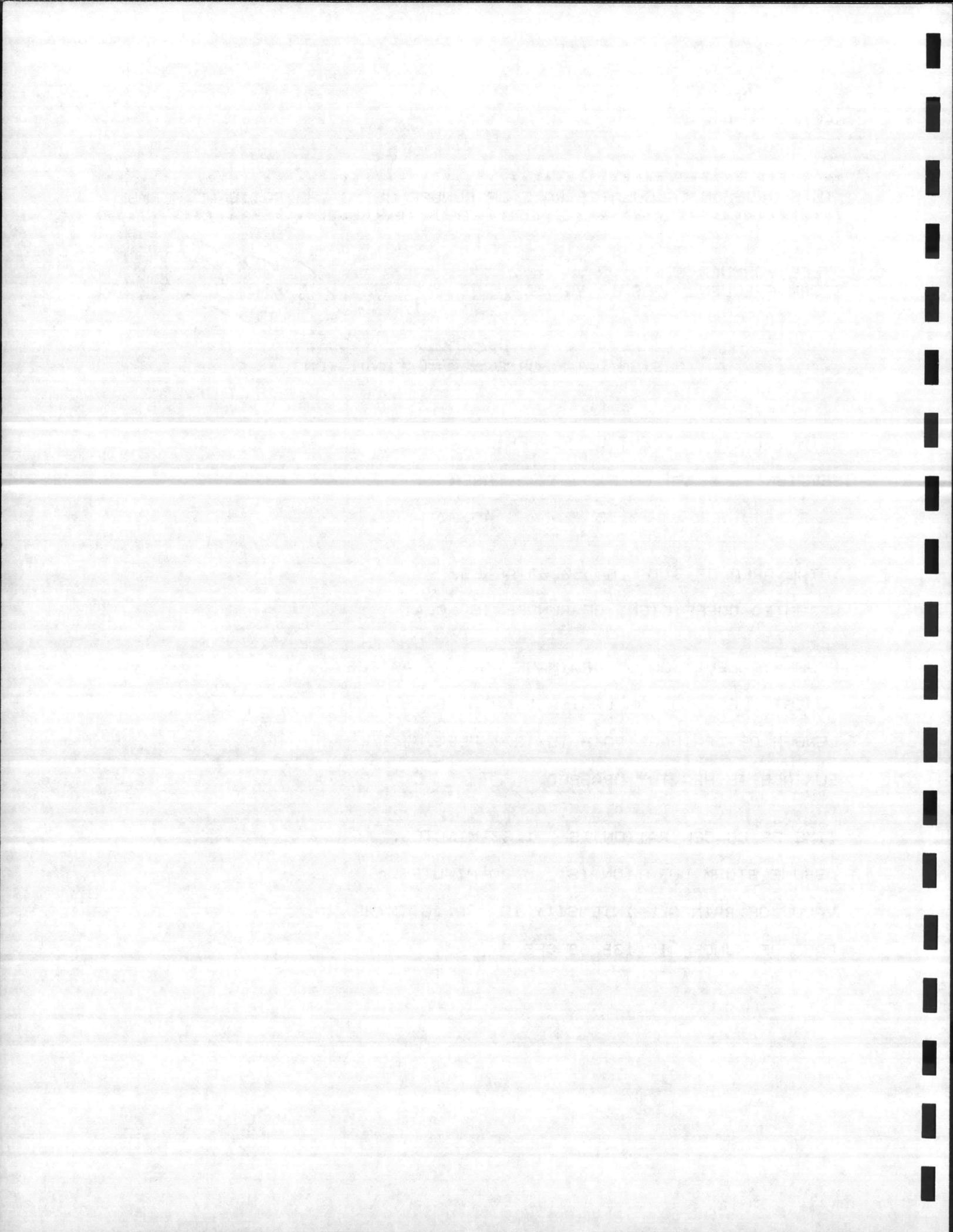
SURFACE IS HEAVILY GRASSED.

TIME OF CONCENTRATION IS 1.63 MINUTES.

ASSUME STORM DURATION IS 5.00 MINUTES.

VALUE OF RAINFALL INTENSITY IS 6.76 IN/HR.

RATE OF RUNOFF IS 138.68 CFS.



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JOB _____

SHEET NO. 7a OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE Section "A"

Check Capacity of Existing 18" ϕ culvert draining Area A.1

See Nomograph (Sheet)

$$\text{Invert} = 25.44$$

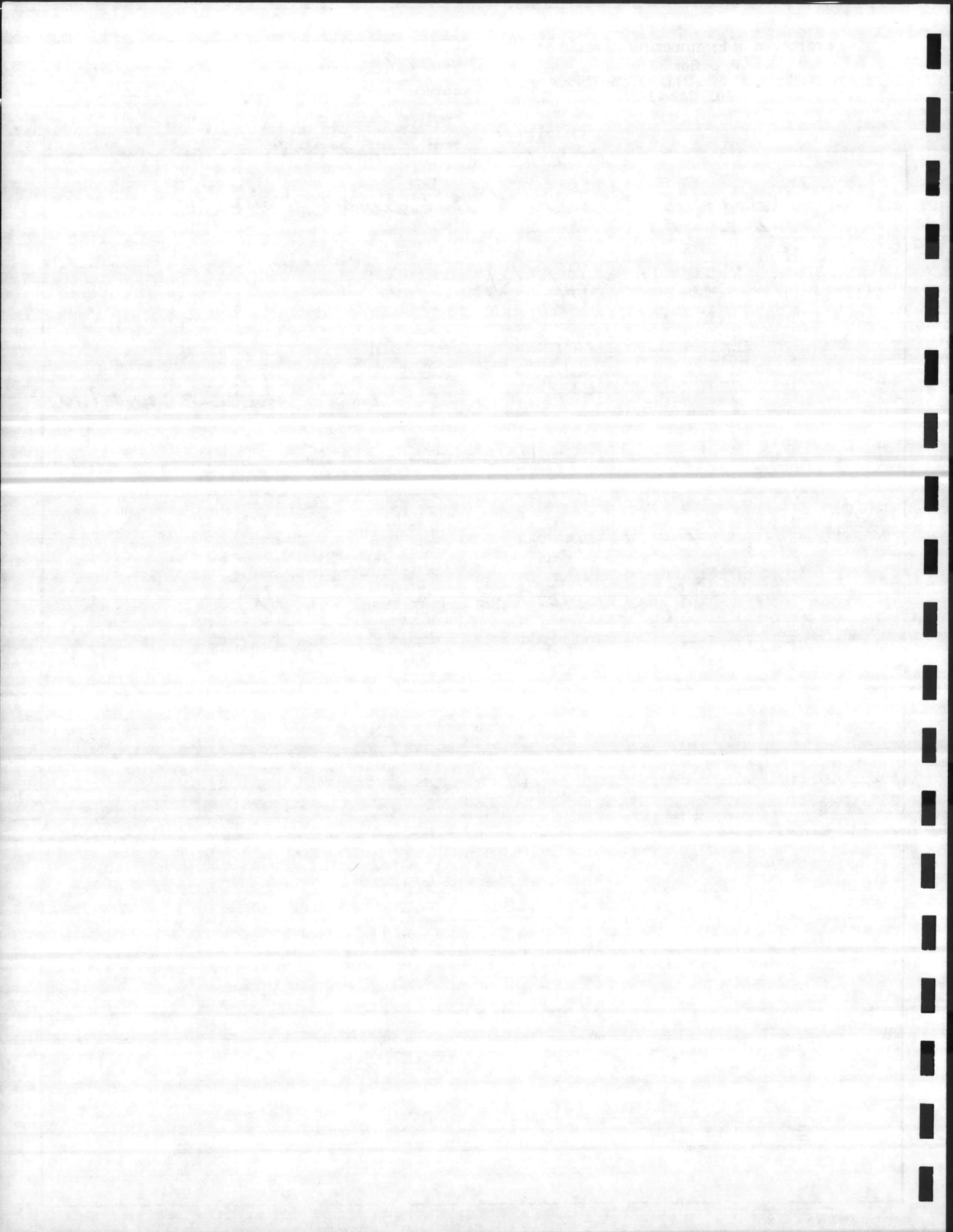
$$\text{Road ELEV.} = 29.1$$

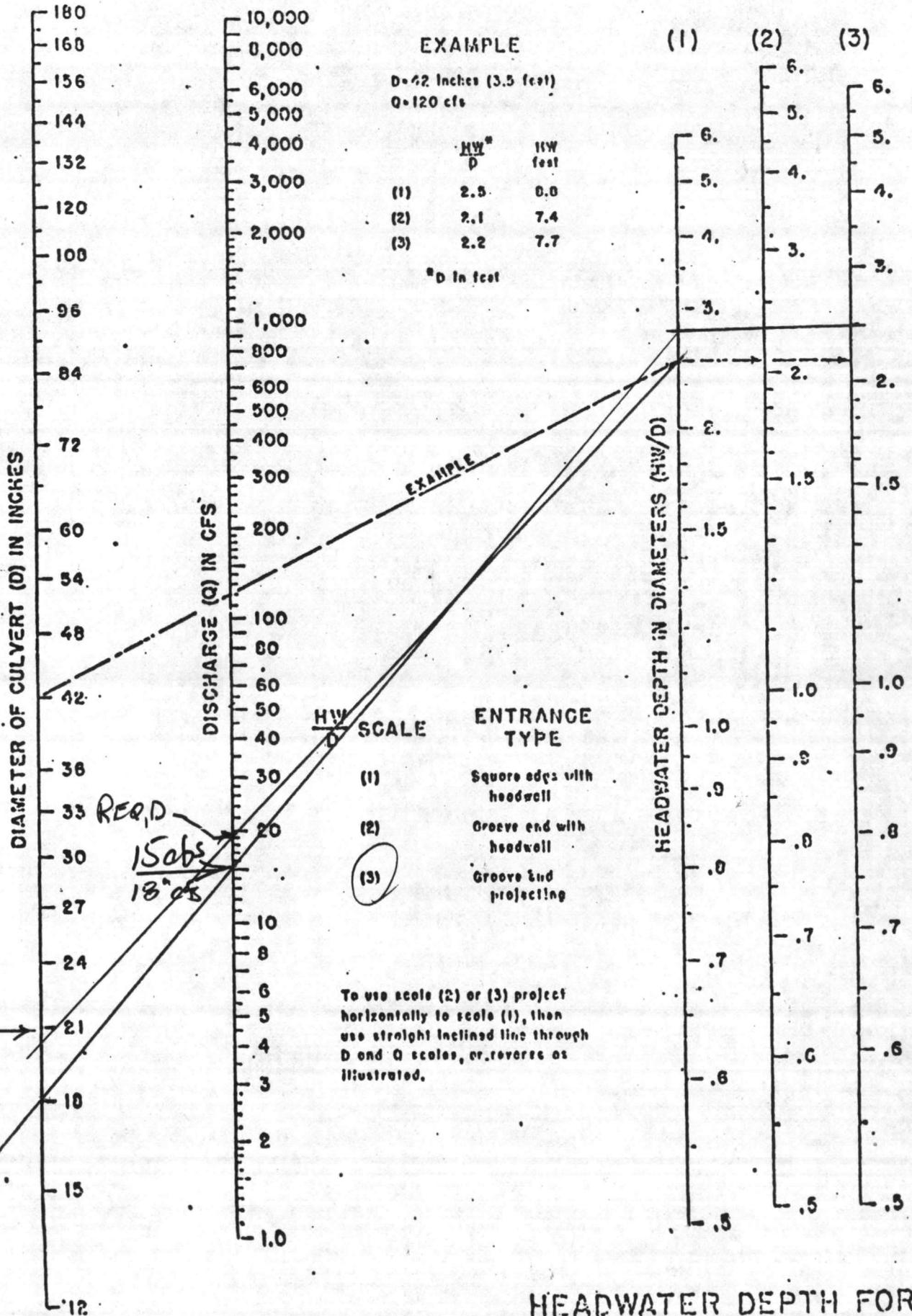
$$3.7 \text{ feet} = \text{headwater depth (HW)}$$

$$\text{HW/D} = \frac{3.7}{1.5} = 2.5$$

$$Q = 15 \text{ cfs}$$

$$Q_{\text{REQ'D}} = 18.7 \text{ cfs (from Sheet 4A)}$$





EXAMPLE

D = 42 inches (3.5 feet)
Q = 120 cfs

| | HW D | HW feet |
|-----|---------|------------|
| (1) | 2.5 | 8.8 |
| (2) | 2.1 | 7.4 |
| (3) | 2.2 | 7.7 |

¹D in feet

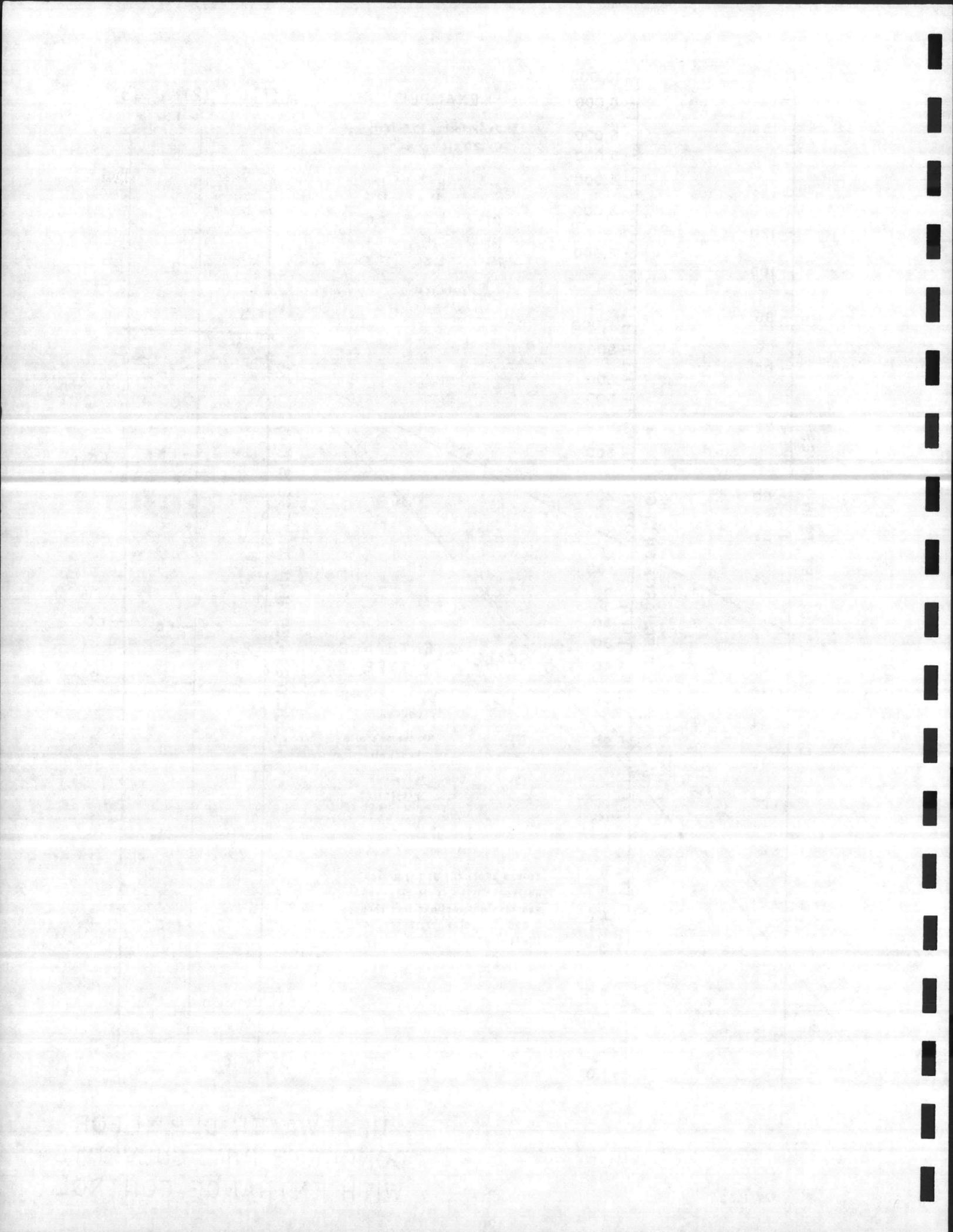
HW
D SCALE

**ENTRANCE
TYPE**

- (1) Square edge with headwell
- (2) Groove end with headwell
- (3) Groove end projecting

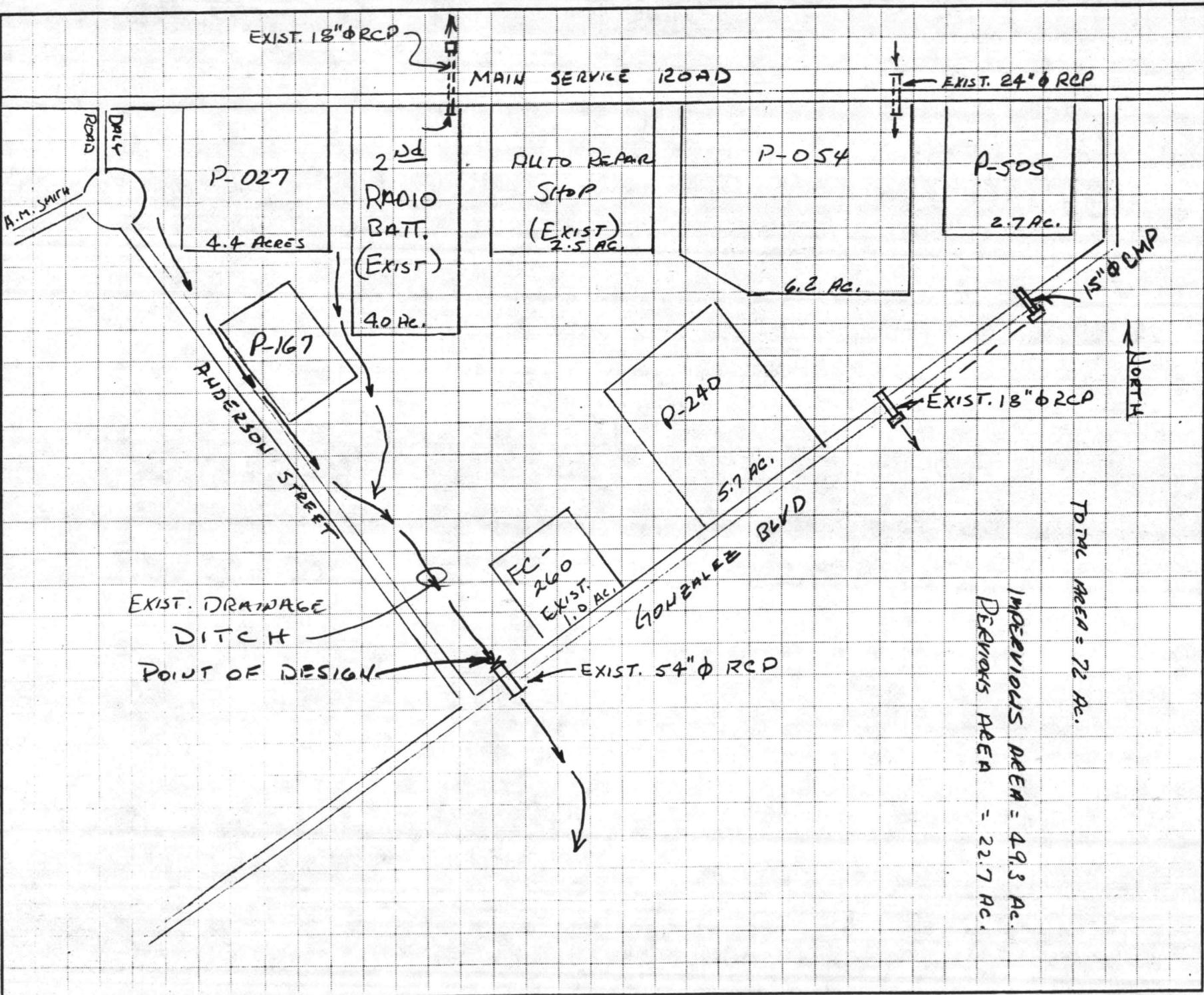
To use scale (2) or (3) project horizontally to scale (1), then use straight inclined line through D and Q scales, or reverse as illustrated.

**HEADWATER DEPTH FOR
CONCRETE PIPE CULVERTS
WITH ENTRANCE CONTROL**



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JOB P-240 MOD 5
 SHEET NO. 1B OF
 CALCULATED BY
 CHECKED BY
 DATE
 DATE
 DATE



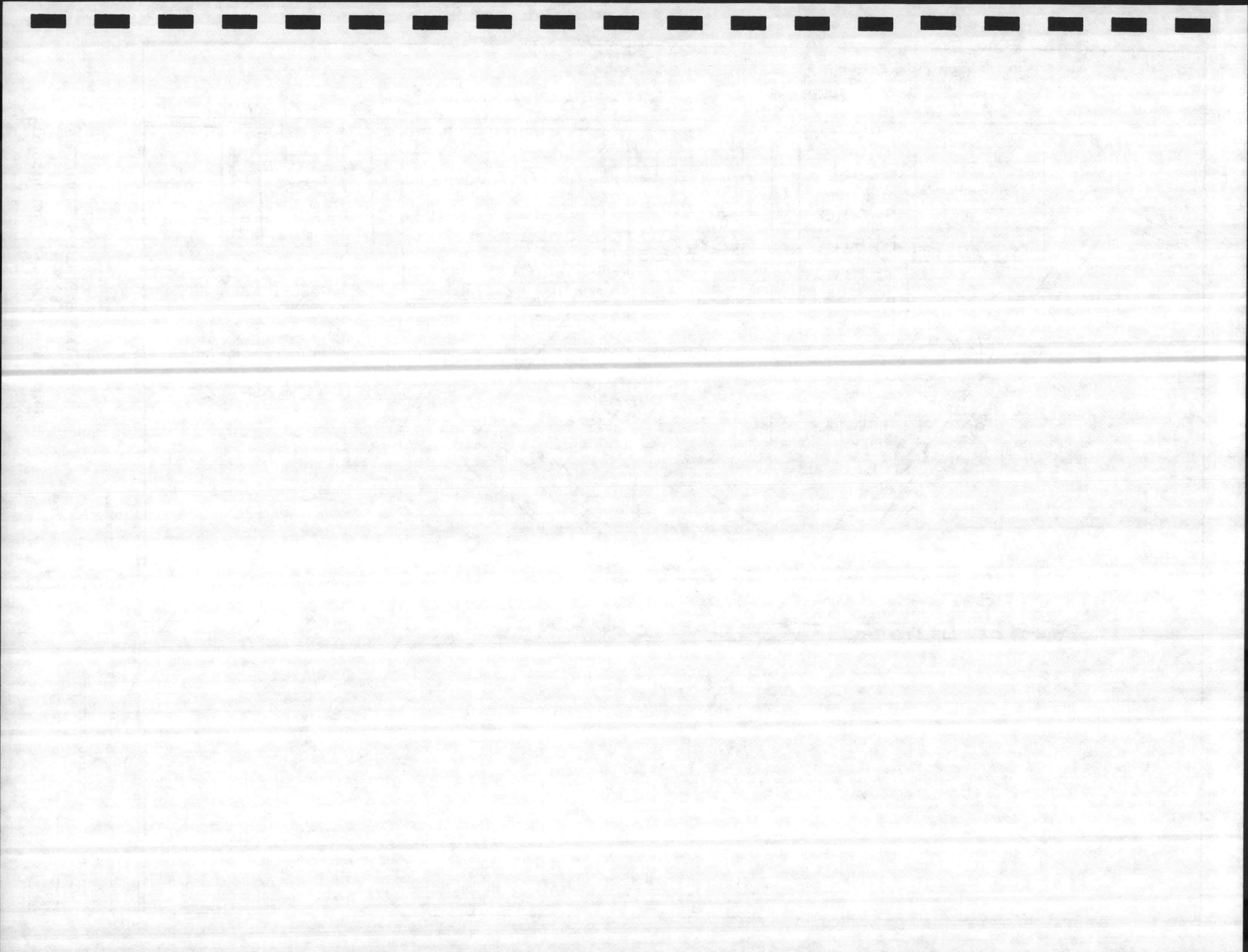
TOTAL AREA = 72 AC.

IMPROVED AREA = 49.3 AC.
 DERIVATIVE AREA = 22.7 AC.

PROJECT 2041 NERS Inc. Greenville, S.C. 01/11

DATE 5th Dec - 8

PER # 84012



Subarea "B"

SCALE Subarea "B"

EXISTING CONDITIONS (TOTAL SITE)

Impervious area

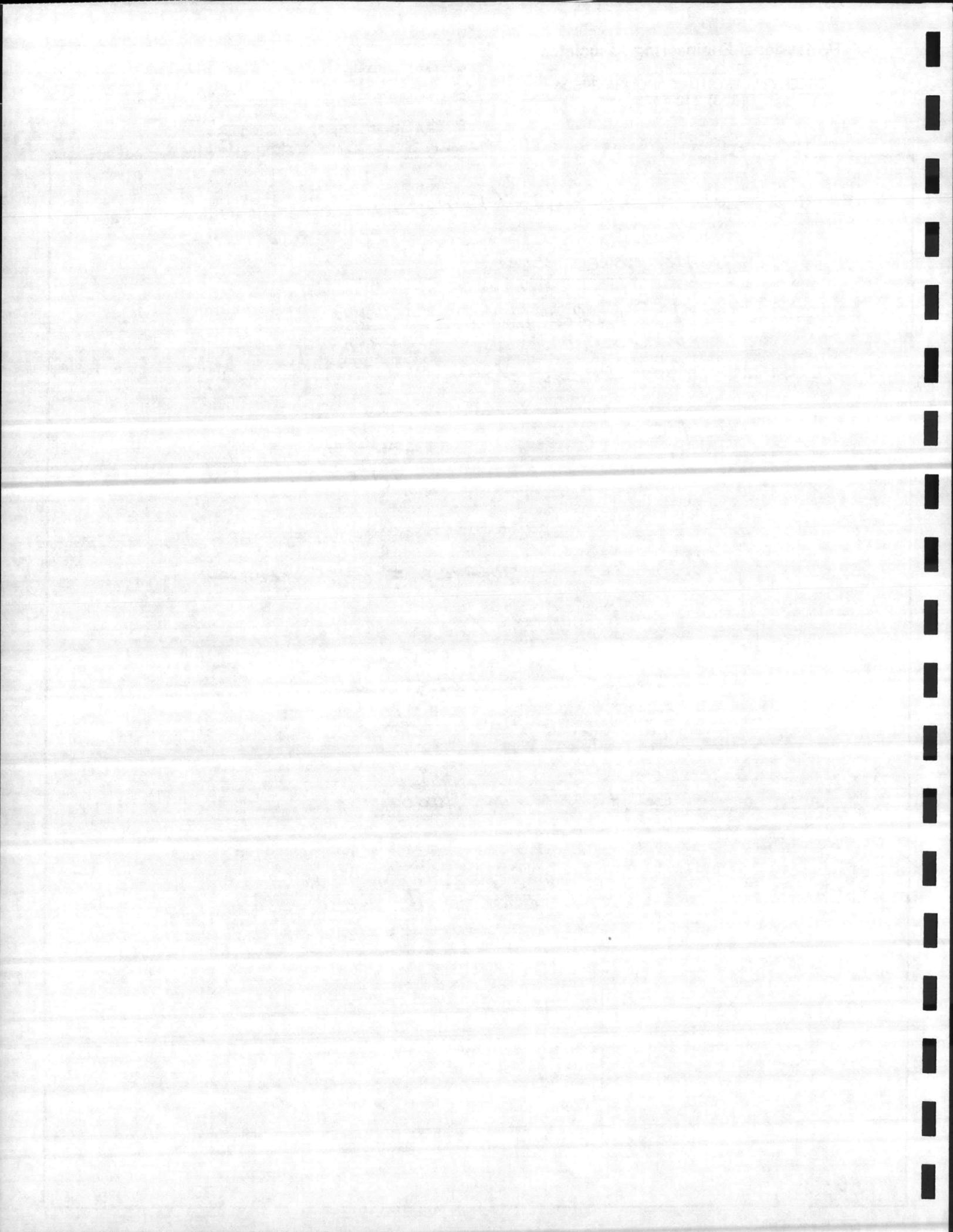
| | | |
|-----------------------------|---|-----|
| 2 nd Radio Batt. | - | 4.0 |
| Pavements | | 3.0 |
| Auto Repair Shop | - | 2.5 |
| FC-260 | - | 1.0 |

10.5 acres

Permeous = $72 - 10.5 = 61.5$ acres

| | | |
|-----|-----|------------|
| .95 | - - | 10.5 acres |
| .35 | . | 61.5 acres |

| | |
|------------|------|
| High Point | 25 |
| Low Point | 14 |
| Length | 1000 |



84012 *** P240 - Mod. # 5

THIS PROGRAM CALCULATES RATE OF RUNOFF USING THE RATIONAL FORMULA

STEEL FORMULA REGION 2 .
STORM FREQUENCY FOR 10 YEARS.

DESIGN DATA FOR EXISTING CONDITIONS

Total Area

WEIGHTED COEFFICIENT OF RUNOFF:

| SECTION | COEF. | AREA |
|---------|-------|-------|
| 1 | 0.35 | 61.50 |
| 2 | 0.95 | 10.50 |

TOTAL AREA OF SITE IS 72.00 ACRES.

WEIGHTED COEFFICIENT OF RUNOFF IS 0.44

HIGHEST ELEVATION OF DRAINAGE PATH IS 25 FEET.

LOWEST ELEVATION OF DRAINAGE PATH IS 14 FEET.

LENGTH OF DRAINAGE PATH IS 1000 FEET.

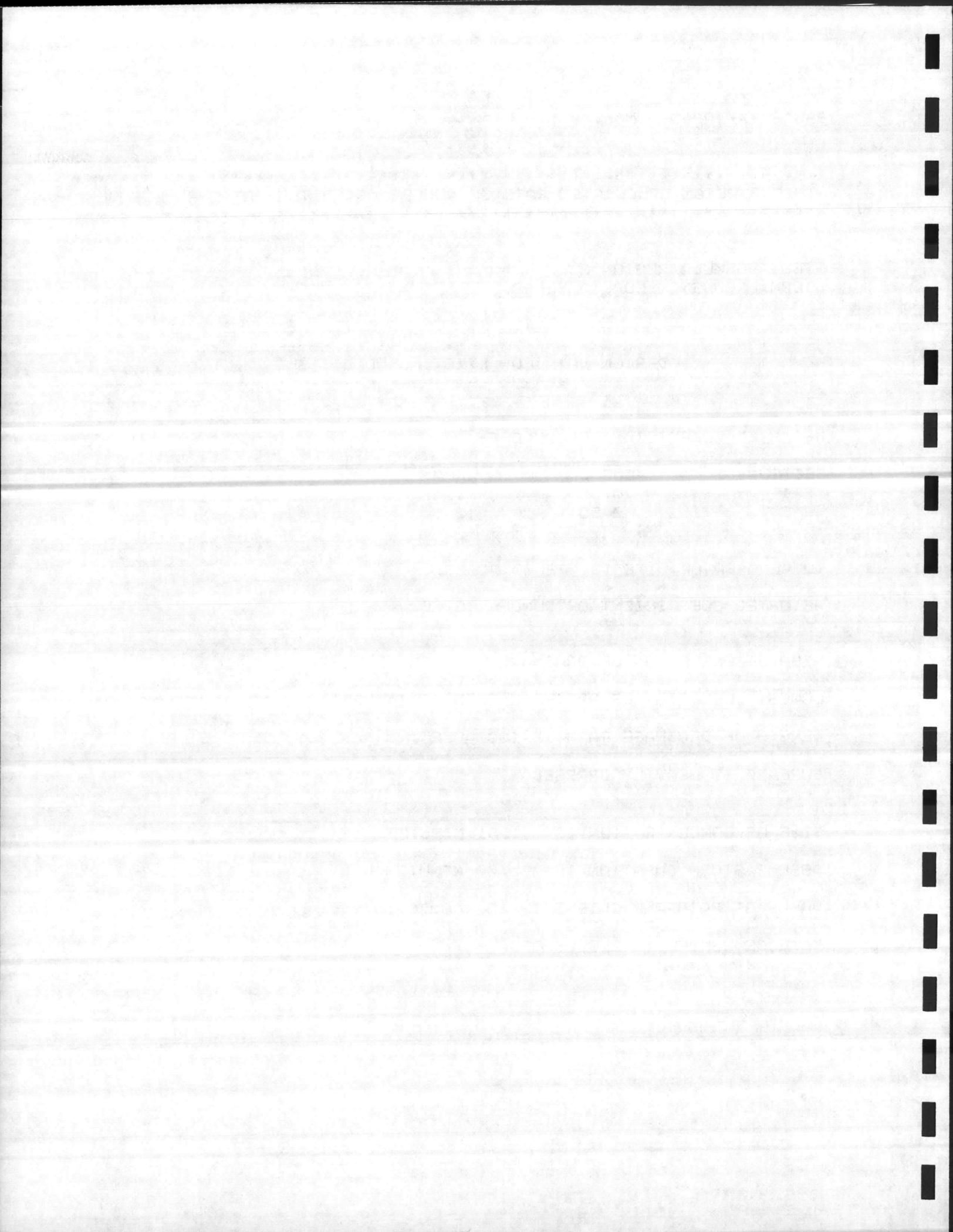
SURFACE IS HEAVILY GRASSED.

TIME OF CONCENTRATION IS 1.81 MINUTES.

ASSUME STORM DURATION IS 5.00 MINUTES.

VALUE OF RAINFALL INTENSITY IS 6.76 IN/HR.

RATE OF RUNOFF IS 213.09 CFS.



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JOB 84012 - P-240 Mod. 5

SHEET NO. 2 B

OF

CALCULATED BY

DATE

CHECKED BY

DATE

SCALE

Subarea B

Proposed

(AREA "B")

AREA Bounded by -
MAIN SERVICE ROAD
GONZALEZ BLVD.
ANDERSON STREET
DALY ROAD

TOTAL AREA \approx 72 acres

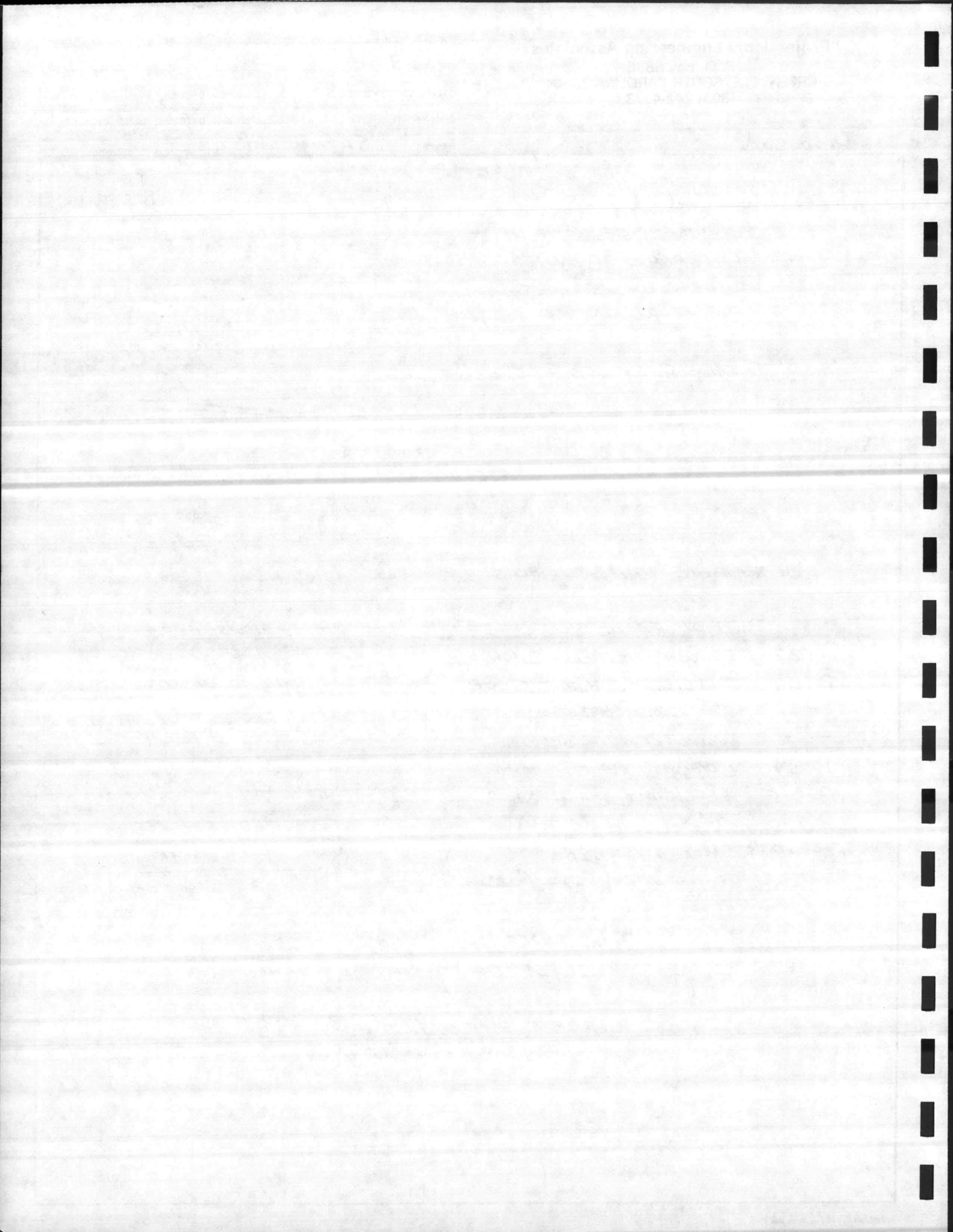
0.5
3600.
1750.
3150000.
3150000.
43560.
104959 Acres

DETERMINE IMPERVIOUS AREA -

| BUILDING FACILITY | IMPERVIOUS AREA |
|--|-----------------|
| P-027 COMBAT VEHICLE SHOP | 4.4 ACRES |
| P-167 ELEC/COMM. MAINT. SHOP | 2.8 ACRES |
| — 2 ND RADIO BATTALION | 4.0 ACRES |
| — AUTO REPAIR SHOP | 2.5 ACRES |
| P-054 COMBAT MAINT. SHOP | 6.2 ACRES |
| P-505 ELEC/COMM. MAINT. SHOP | 2.7 ACRES |
| P-240 2 ND Med./SUPPLY (CVMS) | 5.7 ACRES |
| FC-260 PARACHUTE BLDG. | 1.0 ACRES |
| Road Pavements | 3P Acres |

TOTAL IMPERVIOUS AREA = 32.3 Acres
HSE coefficient of runoff $C = 0.95$

PERVIOUS AREA = $72 - 32.3 = 39.7$ Acres
HSE coefficient of runoff $C = 0.35$



84012 *** P 240 - MOD. # 6

THIS PROGRAM CALCULATES RATE OF RUNOFF USING THE RATIONAL FORMULA

STEEL FORMULA REGION 2 .
STORM FREQUENCY FOR 10 YEARS.

Proposed
DESIGN DATA FOR ~~EXISTING~~ CONDITIONS

TOTAL
AREA

WEIGHTED COEFFICIENT OF RUNOFF:

| SECTION | COEF. | AREA |
|---------|-------|-------|
| 1 | 0.95 | 32.30 |
| 2 | 0.35 | 39.70 |

TOTAL AREA OF SITE IS 72.00 ACRES.

WEIGHTED COEFFICIENT OF RUNOFF IS 0.62

HIGHEST ELEVATION OF DRAINAGE PATH IS 40 FEET.

LOWEST ELEVATION OF DRAINAGE PATH IS 13.7 FEET.

LENGTH OF DRAINAGE PATH IS 2400 FEET.

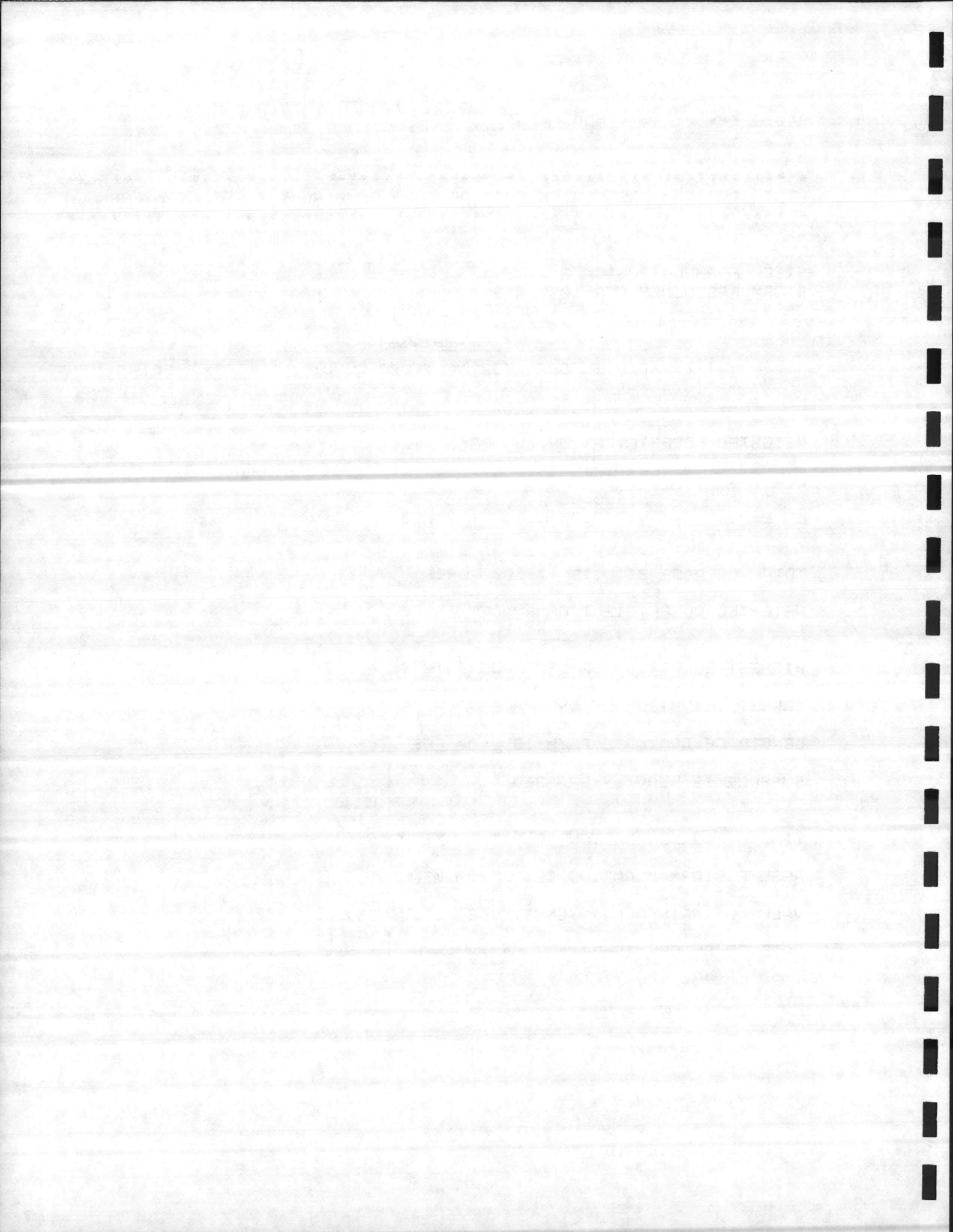
SURFACE IS HEAVILY GRASSED.

TIME OF CONCENTRATION IS 3.55 MINUTES.

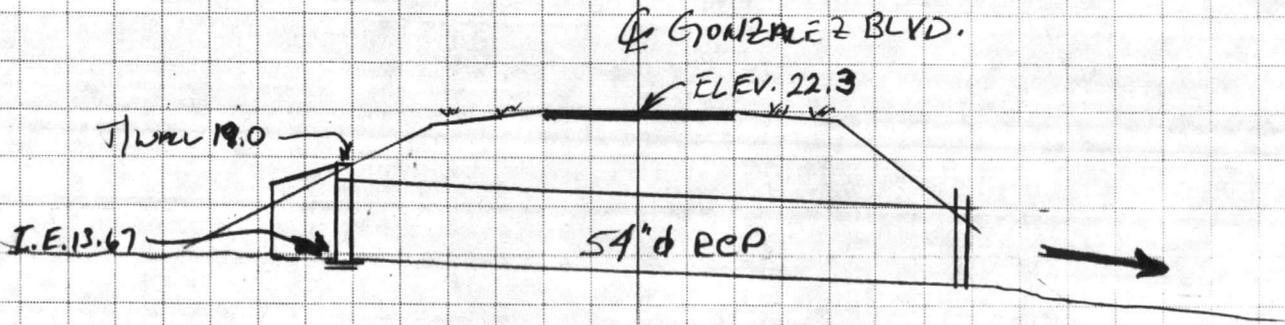
ASSUME STORM DURATION IS 5.00 MINUTES.

VALUE OF RAINFALL INTENSITY IS 6.76 IN/HR.

RATE OF RUNOFF IS 301.57 CFS.



Check Capacity of 54" ϕ RCP CULVERT UNDER
GONZALEZ BLVD. ADJACENT TO FC-260



$$HW = 22.3 - 13.67 = 8.63$$

$$D = 4.5'$$

$$HW/D = 1.9$$

From NOMOGRAPH ^(Sheet 3) Capacity of 54" ϕ CULVERT = 185 CFS

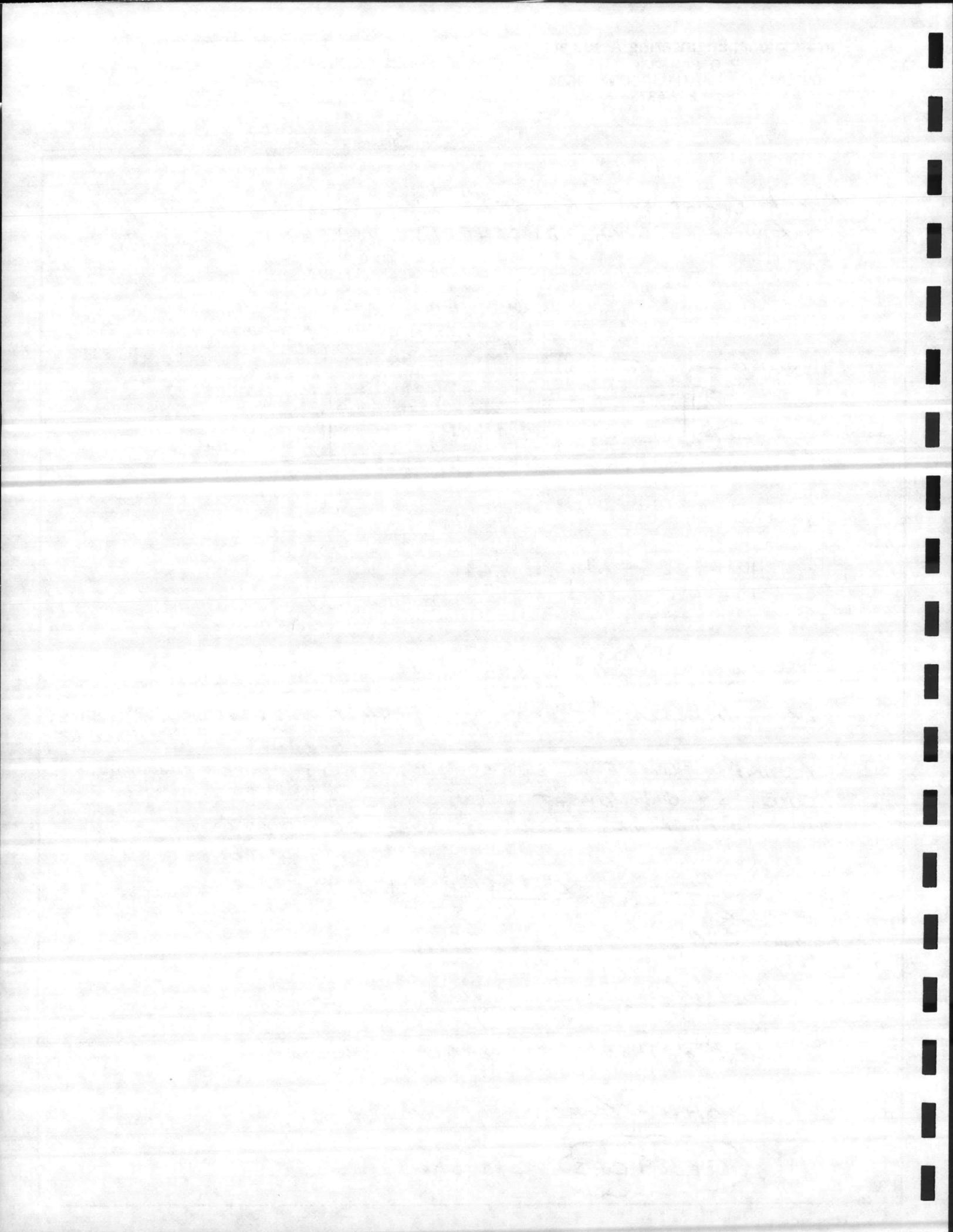
- I. ASSUME FLOW FROM ENTIRE AREA MUST PASS THROUGH THE 54" ϕ CULVERT - (SEE SHEET 4)
DETERMINE FLOW AT INVERT EL. 13.67 (54" ϕ RCP)

| | Area | Coef. of Runoff (C) |
|------------|------|---------------------|
| Impervious | 29.3 | .95 |
| Pervious | 42.7 | .35 |

| | |
|------------------|-------|
| High PT. | 40.0 |
| Low PT. | 13.67 |
| Length of Travel | 2400 |

Surface - Grass

Q = 289 CFS See Sheet

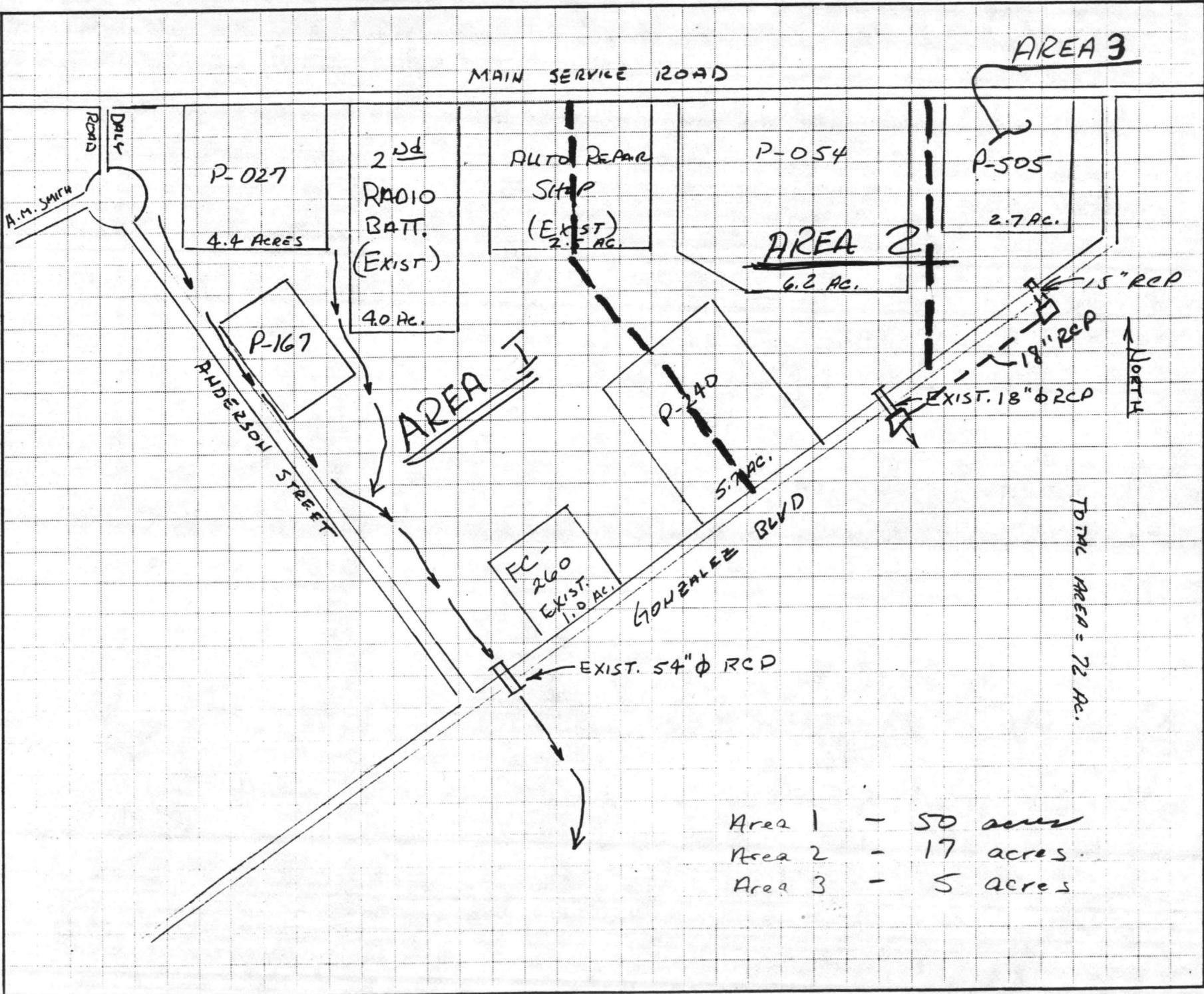


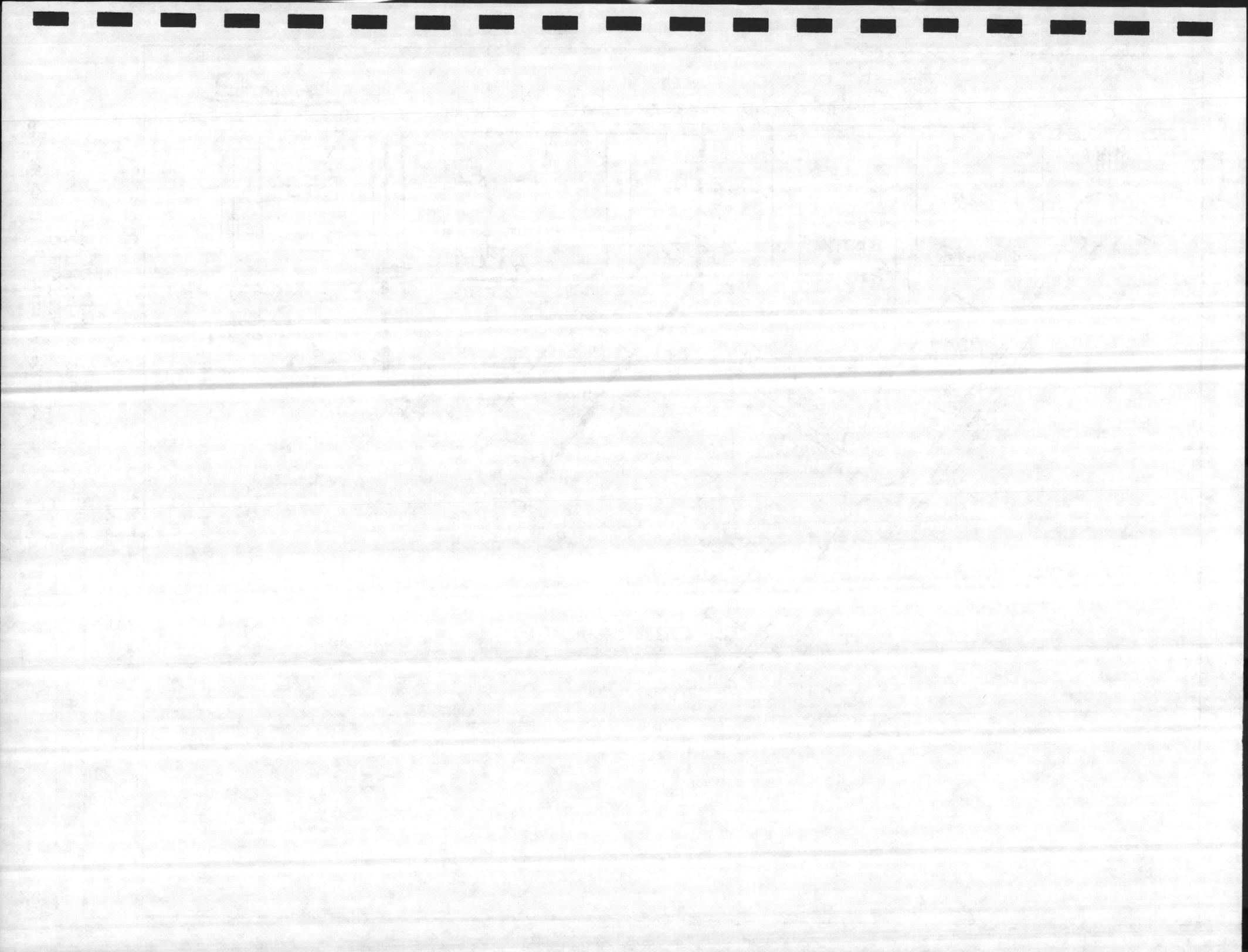
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JOB P-240 MOD 5
 SHEET NO. 13 OF
 CALCULATED BY
 CHECKED BY
 DATE
 PERM 84012

Proposed

Checked by Selma B
 Date _____





Proposed

SCALE Subarea B

DETERMINE FLOW TO 54" ϕ RCP FOR AREA I
& FLOW TO 18" ϕ RCP FOR AREA II (SHEET 7)

AREA #1
50 Ac.

IMPERVIOUS AREAS -

| | | |
|----------------------------|---|----------|
| Pavement | - | 3.0 |
| P-027 | - | 4.4 Ac. |
| 2 nd Radio Batt | - | 4.0 Ac. |
| 1/2 Auto Repair Shop | - | 1.25 Ac. |
| P-167 | - | 2.8 Ac. |
| 1/2 P-240 | - | 2.85 Ac. |
| FC 260 | - | 1.0 Ac. |

TOTAL = 19.30 Ac.

AREA 2

| | |
|-------------|-----|
| 0.5 | CLR |
| 1270. | X |
| 1500. | X |
| 952500. | = |
| 952500. | + |
| 48560. | = |
| 21,86629118 | |

AREA 2 = 22 Ac.

Area 1 = 72 - 22 = 50 Ac.

Pervious - 50 - 19.3 = 30.7 Ac.

High PT. - 30
Low PT. - 13.67
Length of Travel - 1700 Feet.

Grass Surface

Q = 197 CFS
Sheet

Area 2 - (22 Ac.)

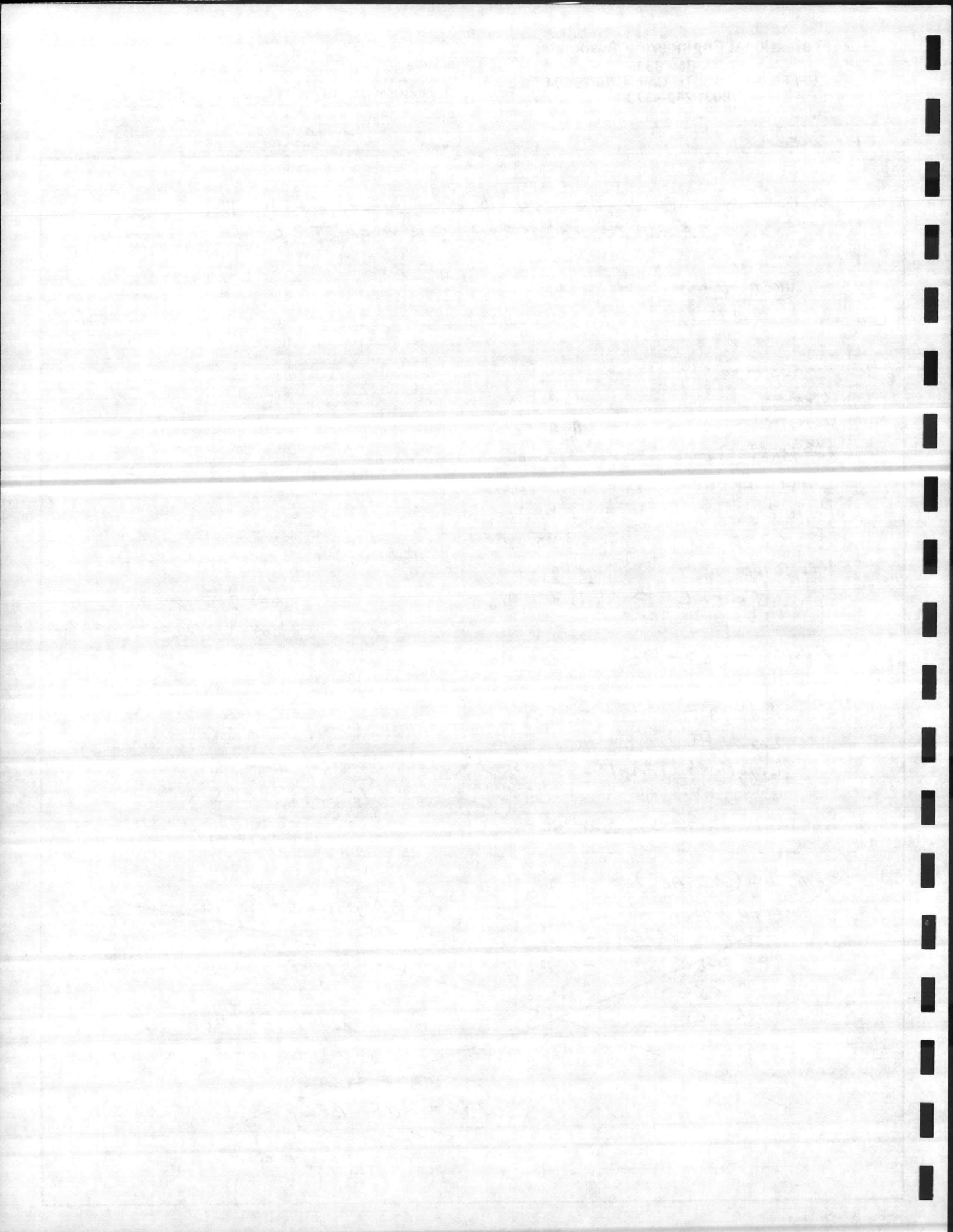
IMPERVIOUS -

| | | |
|-----------------|---|------------------|
| 1/2 Auto Repair | - | 1.25 |
| 1/2 P-240 | - | 2.85 |
| P-054 | - | 6.2 |
| P-505 | - | 2.7 |
| | | <u>13.00 Ac.</u> |

Pervious = 22 - 13 = 9 Ac.

High PT. = 35
Low PT. = 23.4
Length = 800 Feet -

Q = 105 CFS
Sheet 9



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JOB _____

SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE Subarea B

Proposed

Area 2 - 17 acres

Impervious

| | | | |
|---------------------------|---|-----------------|-------|
| $\frac{1}{2}$ Auto Repair | - | 1.25 | |
| $\frac{1}{2}$ P-240 | - | 2.85 | |
| P-054 | - | 6.2 | |
| | | <u> </u> | |
| Total | | 10.30 | acres |

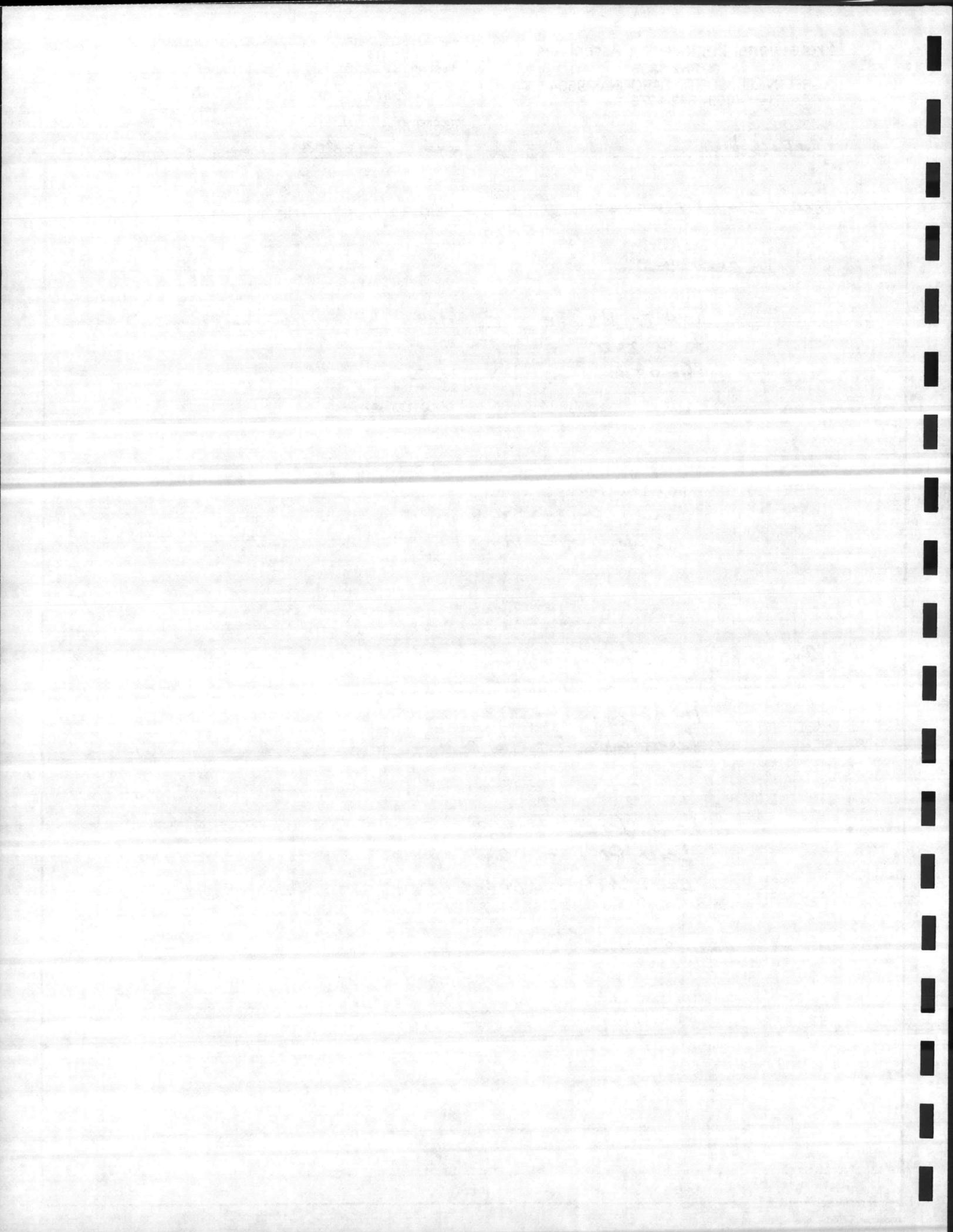
Pervious - 6.7 acres

High Pt. - 31
 Low Pt. - 23
 Length - 700

Area 3 - 5 acres

Impervious - 2.7
 Pervious - 2.3

High Pt. - 40
 Low Pt - 26
 Length - 600



84012 *** P 240 - Mod. # 5

THIS PROGRAM CALCULATES RATE OF RUNOFF USING THE RATIONAL FORMULA

STEEL FORMULA REGION 2 .
STORM FREQUENCY FOR 10 YEARS.

AREA 1

DESIGN DATA FOR Proposed CONDITIONS

WEIGHTED COEFFICIENT OF RUNOFF:

| SECTION | COEF. | AREA |
|---------|-------|-------|
| 1 | 0.35 | 30.70 |
| 2 | 0.95 | 19.30 |

TOTAL AREA OF SITE IS 50.00 ACRES.

WEIGHTED COEFFICIENT OF RUNOFF IS 0.58

HIGHEST ELEVATION OF DRAINAGE PATH IS 30 FEET.

LOWEST ELEVATION OF DRAINAGE PATH IS 13.7 FEET.

LENGTH OF DRAINAGE PATH IS 1700 FEET.

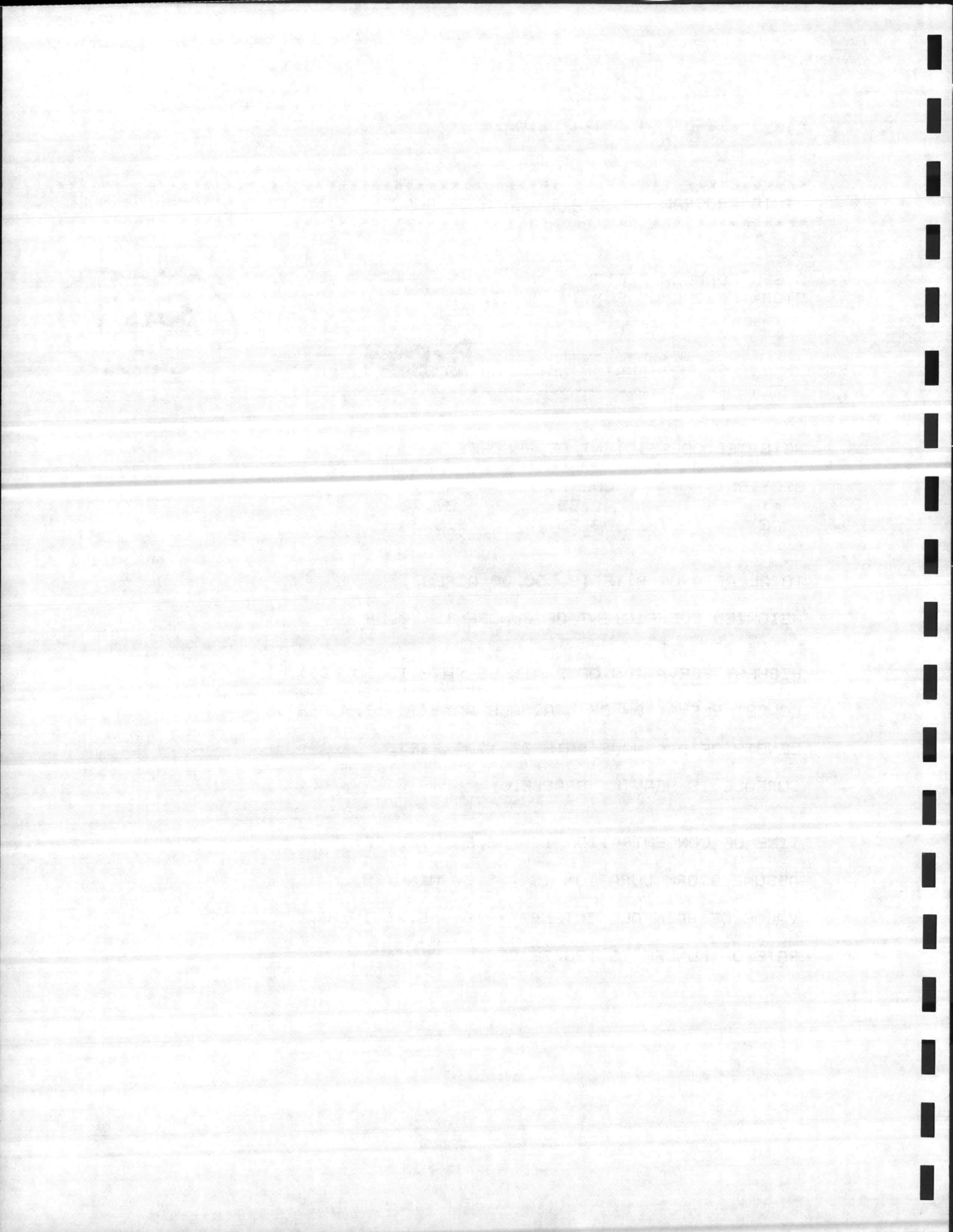
SURFACE IS HEAVILY GRASSED.

TIME OF CONCENTRATION IS 2.87 MINUTES.

ASSUME STORM DURATION IS 5.00 MINUTES.

VALUE OF RAINFALL INTENSITY IS 6.76 IN/HR.

RATE OF RUNOFF IS 196.72 CFS.



84012

THIS PROGRAM CALCULATES RATE OF RUNOFF USING THE RATIONAL FORMULA

STEEL FORMULA REGION 2 .
STORM FREQUENCY FOR 10 YEARS.

Area 2

DESIGN DATA FOR EXISTING CONDITIONS

WEIGHTED COEFFICIENT OF RUNOFF:

| SECTION | COEF. | AREA |
|---------|-------|-------|
| 1 | 0.95 | 10.30 |
| 2 | 0.35 | 6.70 |

TOTAL AREA OF SITE IS 17.00 ACRES.

WEIGHTED COEFFICIENT OF RUNOFF IS 0.71

HIGHEST ELEVATION OF DRAINAGE PATH IS 31 FEET.

LOWEST ELEVATION OF DRAINAGE PATH IS 23 FEET.

LENGTH OF DRAINAGE PATH IS 700 FEET.

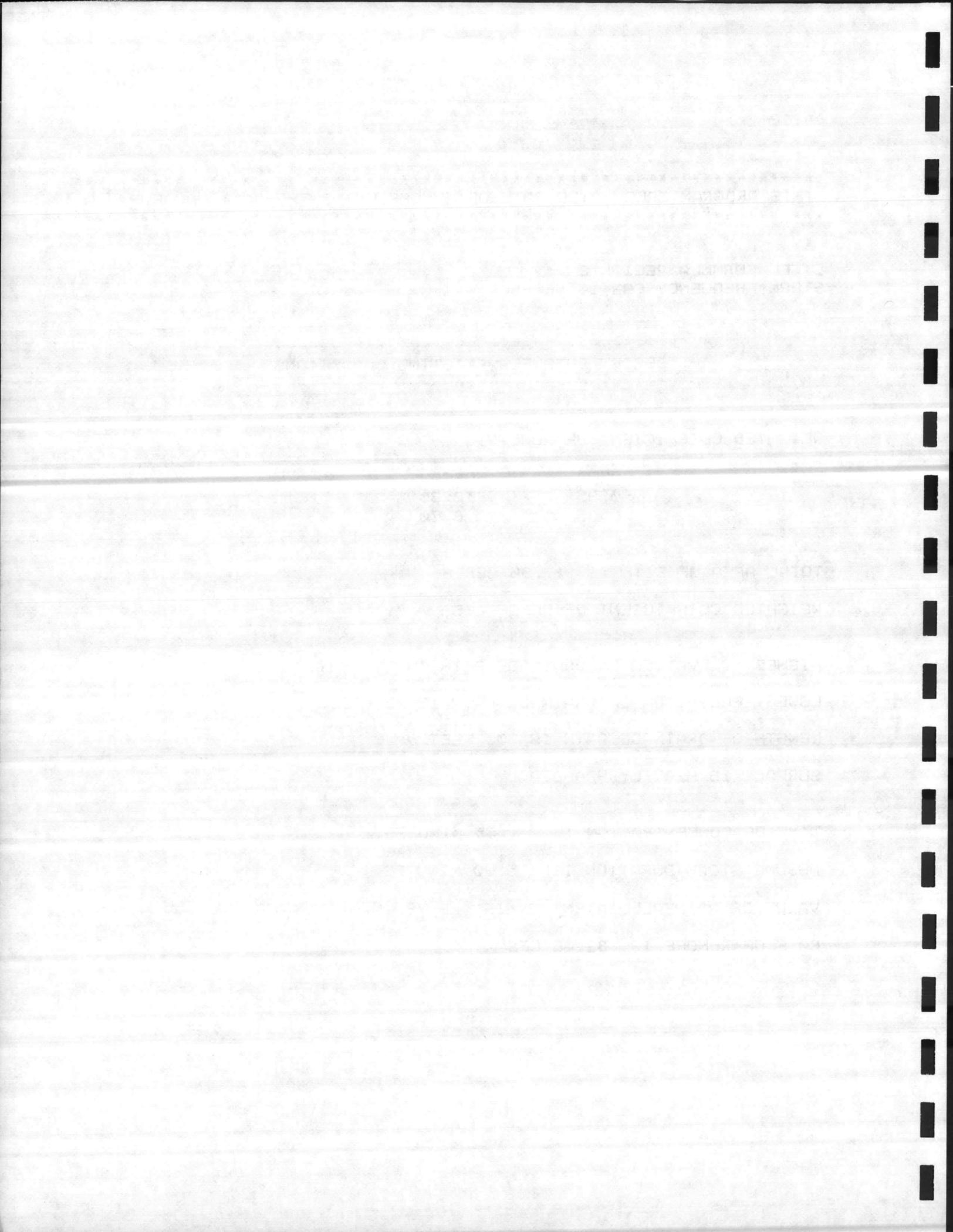
SURFACE IS HEAVILY GRASSED.

TIME OF CONCENTRATION IS 1.35 MINUTES.

ASSUME STORM DURATION IS 5.00 MINUTES.

VALUE OF RAINFALL INTENSITY IS 6.76 IN/HR.

RATE OF RUNOFF IS 82.06 CFS.



84012

THIS PROGRAM CALCULATES RATE OF RUNOFF USING THE RATIONAL FORMULA

STEEL FORMULA REGION 2 .
STORM FREQUENCY FOR 10 YEARS.

Area 3

DESIGN DATA FOR EXISTING CONDITIONS

WEIGHTED COEFFICIENT OF RUNOFF:

| SECTION | COEF. | AREA |
|---------|-------|------|
| 1 | 0.95 | 2.70 |
| 2 | 0.35 | 2.30 |

TOTAL AREA OF SITE IS 5.00 ACRES.

WEIGHTED COEFFICIENT OF RUNOFF IS 0.67

HIGHEST ELEVATION OF DRAINAGE PATH IS 35 FEET.

LOWEST ELEVATION OF DRAINAGE PATH IS 26 FEET.

LENGTH OF DRAINAGE PATH IS 600 FEET.

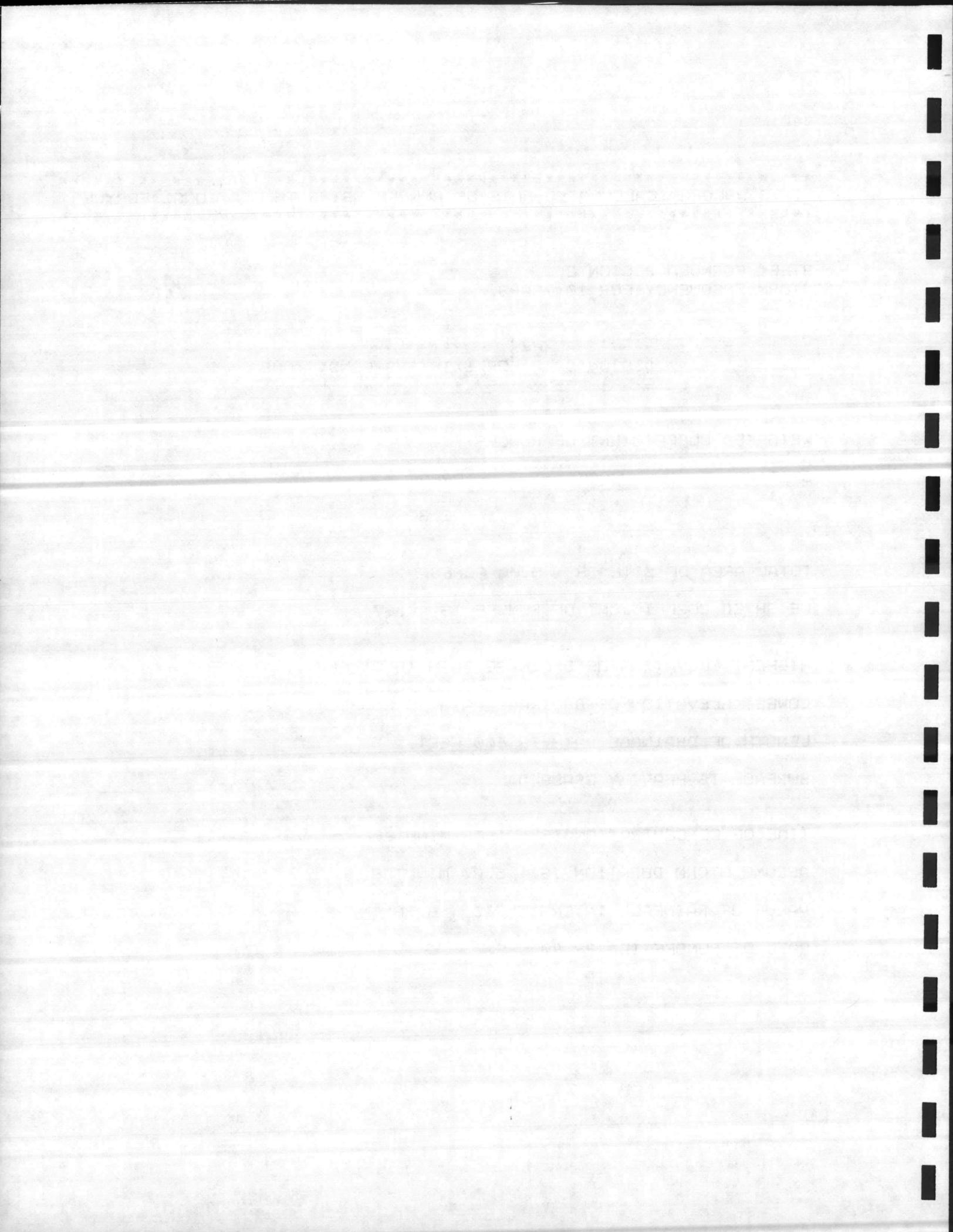
SURFACE IS HEAVILY GRASSED.

TIME OF CONCENTRATION IS 1.08 MINUTES.

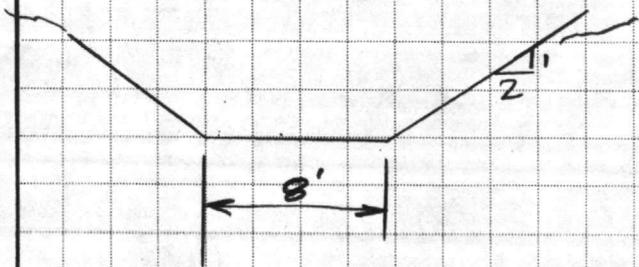
ASSUME STORM DURATION IS 5.00 MINUTES.

VALUE OF RAINFALL INTENSITY IS 6.76 IN/HR.

RATE OF RUNOFF IS 22.80 CFS.



EXISTING DITCH FLOWING TO 54" 6 RCP -

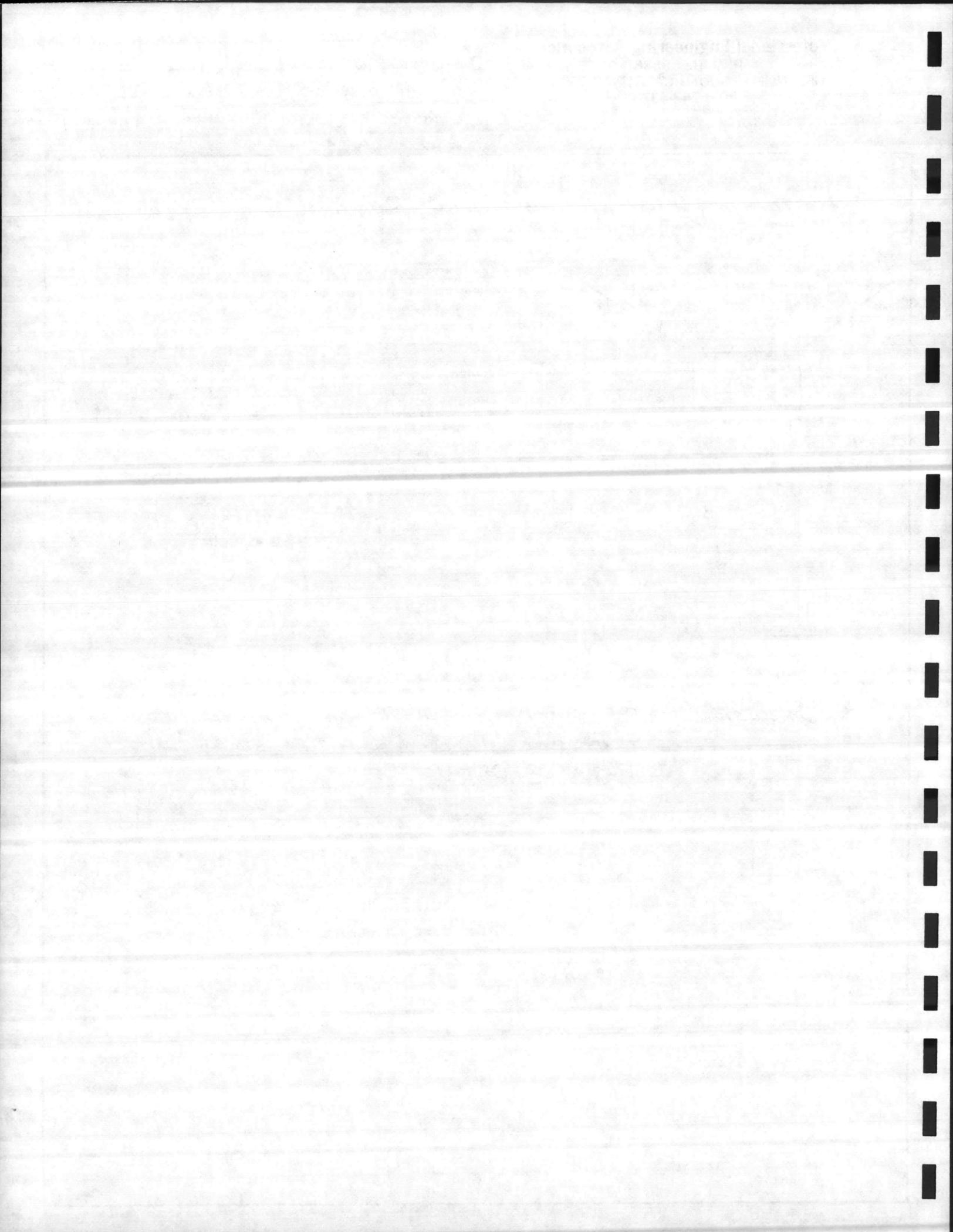


Grassed
 $n = .03$

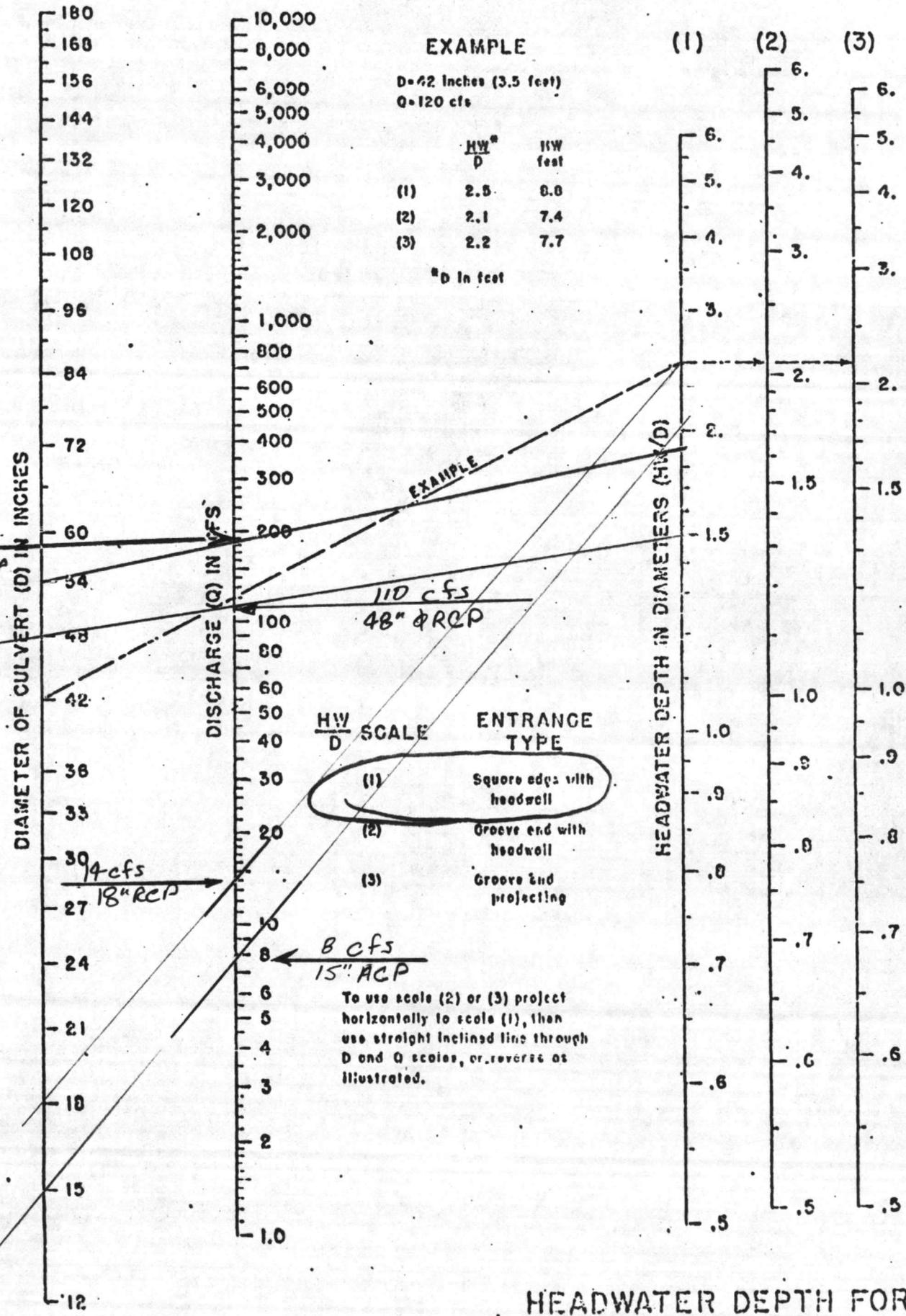
| | | |
|--------|---|--------------------|
| 290. | Q | FLOW |
| 8. | B | BOT. WIDTH |
| 2. | H | HOR. SLOPE (RATIO) |
| 0.0017 | S | BTM SLOPE FT/FT. |
| 0.03 | N | ROUGHNESS COEFF. |

- 2.727835858 - CRIT. DEPTH
- 7.900860268 - CRIT. VELOCITY
- 4.395537966 - NORM. DEPTH
- 3.929229868 - NORM. VEL.

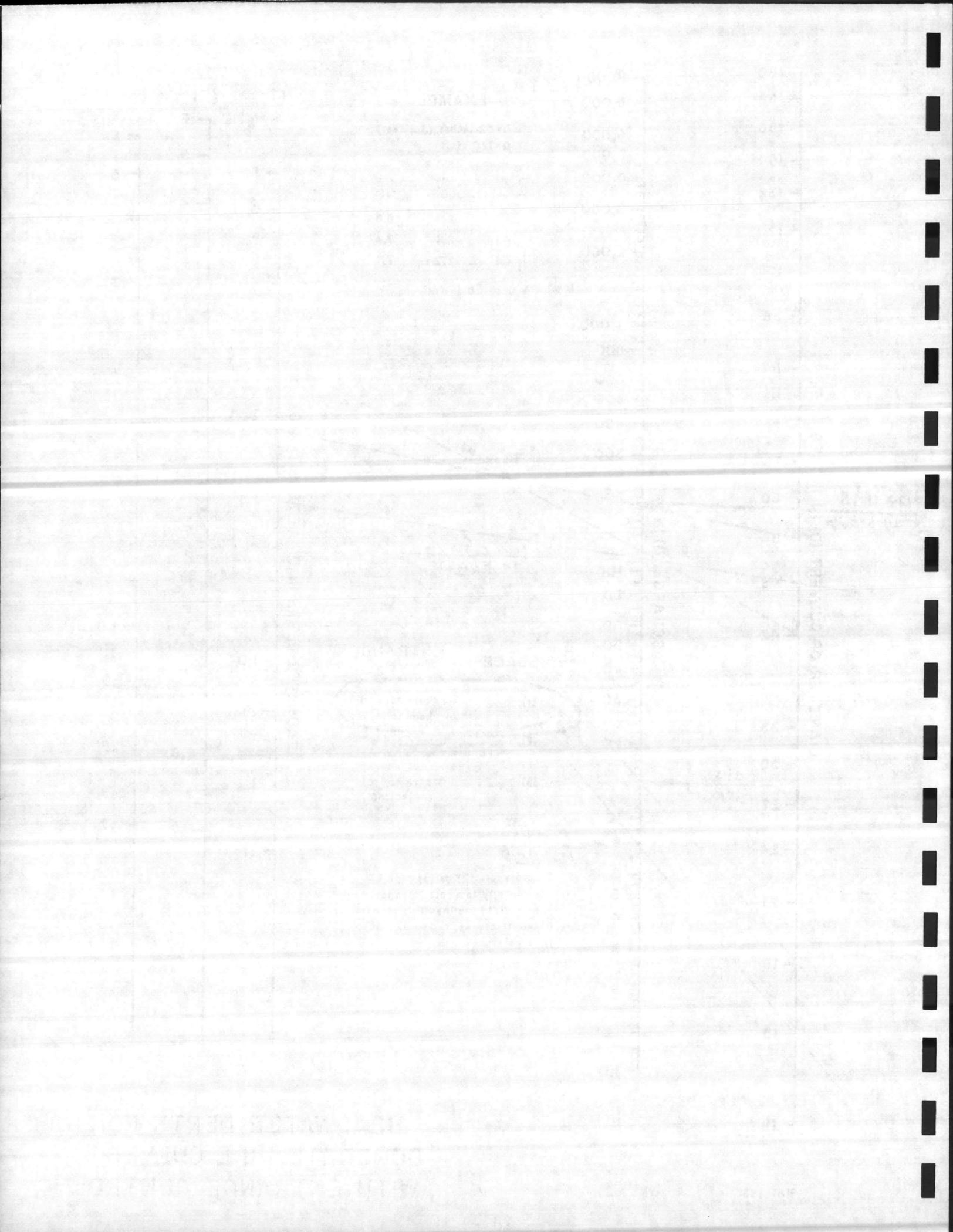
* CONCLUSION - THE EXISTING DITCH IS ADEQUATE TO TRANSPORT 10 YEAR DURATION STORM WATER FLOW OF DRAINAGE AREA.



13
5/2



HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH ENTRANCE CONTROL



NORMAL & CRITICAL DEPTHS-TRAP & RECT CHANNELS

NEWTONS METHOD

FLOW RATE (CFS) = 600
MANNINGS COEFFICIENT = .03
CHANNEL SLOPE (FT/FT) = .003
BOTTOM WIDTH OF CHANNEL (FT) = 10
SIDE SLOPE RATIO = 2

***VELOCITY AT NORM DEPTH (FT/SEC) = 5.82

***NORMAL DEPTH(FT) = 5.1

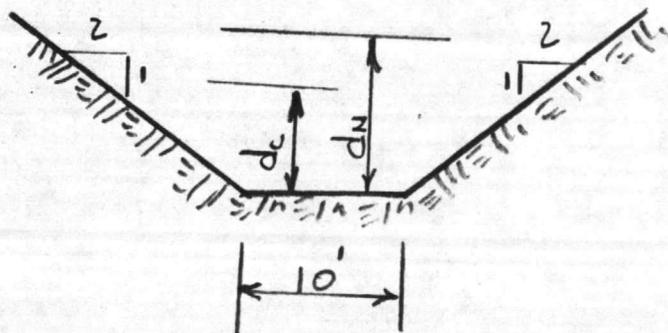
NORMAL & CRITICAL DEPTHS-TRAP & RECT CHANNELS

NEWTONS METHOD

FLOW RATE (CFS) = 600
BOTTOM WIDTH OF CHANNEL (FT) = 10
SIDE SLOPE RATIO = 2

***VELOCITY AT CRIT DEPTH (FT/SEC) = 9.18

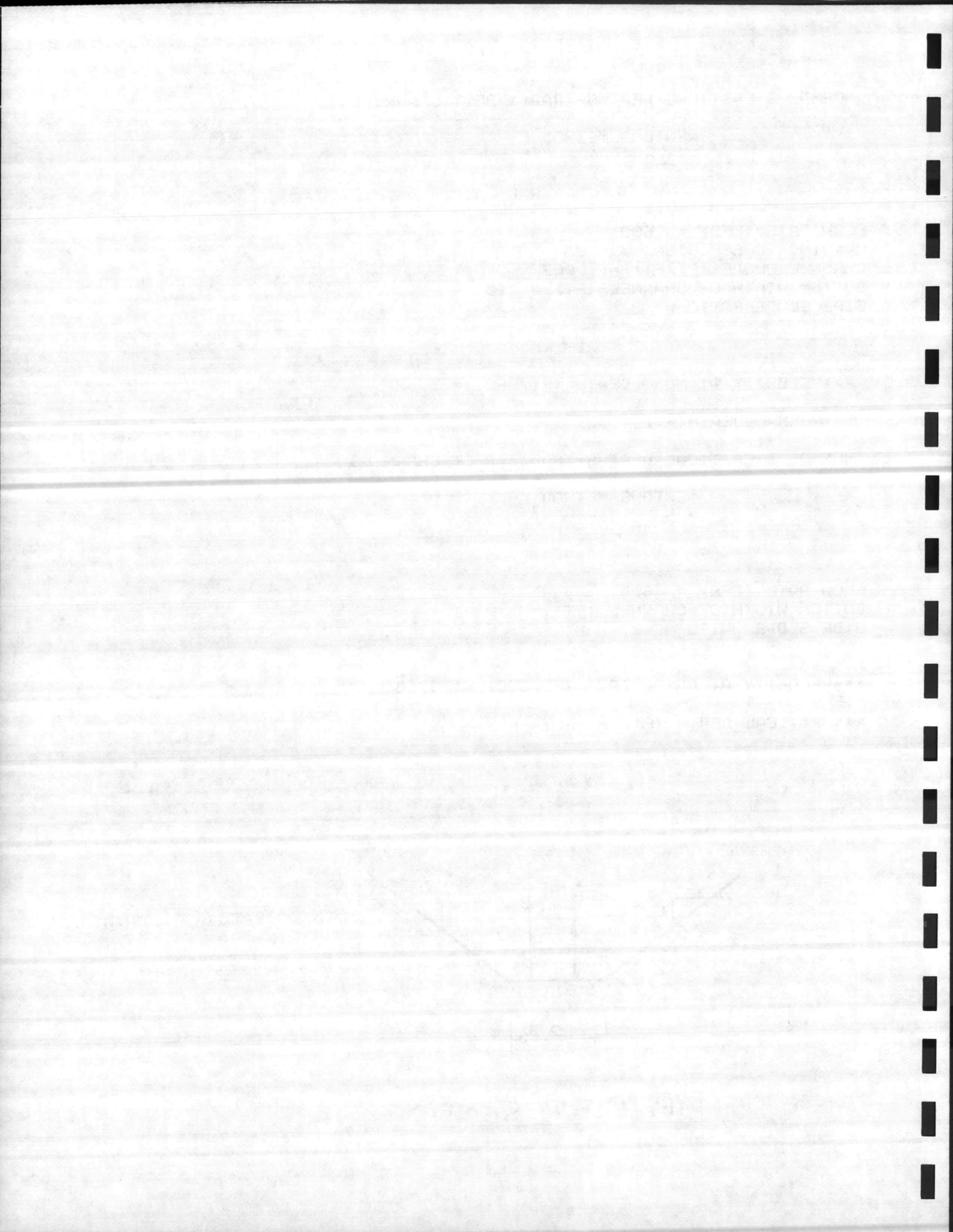
***CRITICAL DEPTH (FT) = 3.74



CRIT. DEPTH (d_c) = 3.74 ft.

Norm. DEPTH (d_n) = 5.1 ft.

TYP. DITCH SECTION



NORMAL & CRITICAL DEPTHS-TRAP & RECT CHANNELS

NEWTONS METHOD

FLOW RATE (CFS) = 600
MANNINGS COEFFICIENT = .03
CHANNEL SLOPE (FT/FT) = .003
BOTTOM WIDTH OF CHANNEL (FT) = 10
SIDE SLOPE RATIO = 3

***VELOCITY AT NORM DEPTH (FT/SEC) = 5.41

***NORMAL DEPTH (FT) = 4.64

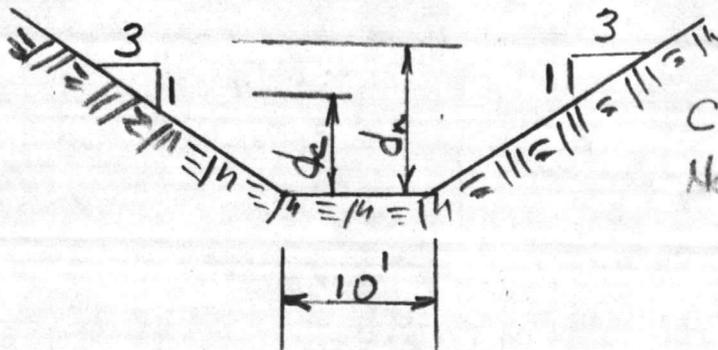
NORMAL & CRITICAL DEPTHS-TRAP & RECT CHANNELS

NEWTONS METHOD

FLOW RATE (CFS) = 600
BOTTOM WIDTH OF CHANNEL (FT) = 10
SIDE SLOPE RATIO = 3

***VELOCITY AT CRIT DEPTH (FT/SEC) = 8.57

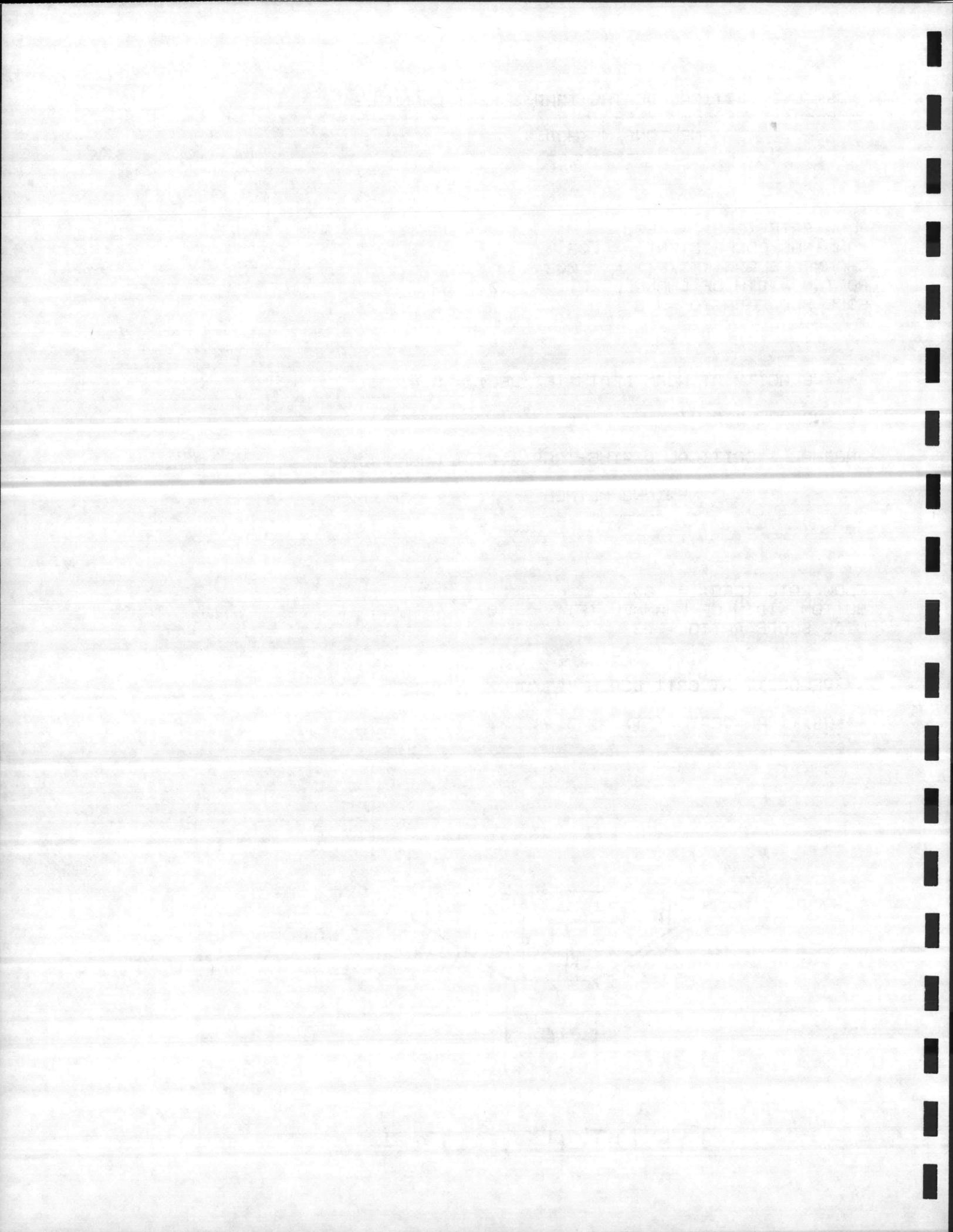
***CRITICAL DEPTH (FT) = 3.44



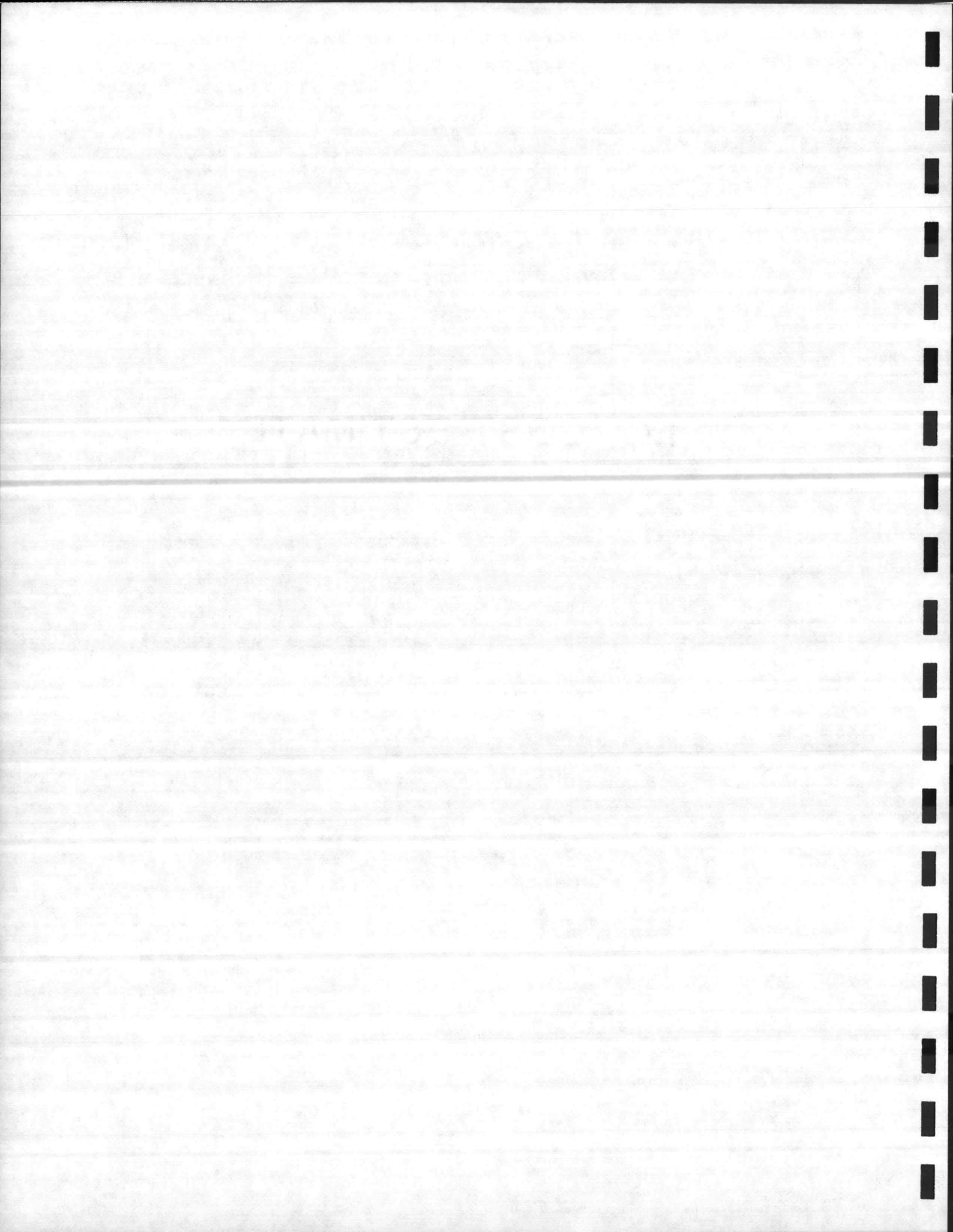
CRIT. DEPTH (d_c) = 3.44 ft.

NORM. DEPTH (d_n) = 4.64 ft.

TYP. DITCH SECTION



IX. COST ESTIMATE



MATERIAL & LABOR COST ESTIMATE

5ND LANTDIV 4-11012 '5 (REV. 10 74)

SHEET _____ of _____

PREPARED BY CHAMBERS

ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND

Const. Contr. No. N62470-84-B-1639

FUNDS AVAIL. _____

NORFOLK, VIRGINIA

DATE 15 Feb. 1984 Mod. 5

| PROJECT | | LOCATION | | | | | | PRELIM. FINAL | |
|--|----------|-------------------------|------------------|--------------|-------------------|--------------|---------------|--|--|
| Combat Vehicle Maintenance Shops (P-240) | | MCB, Camp Lejeune, N.C. | | | | | | <input checked="" type="checkbox"/> PRELIM. <input type="checkbox"/> FINAL | |
| ITEMS | QUANTITY | UNIT | MATERIAL COST | | LABOR COST | | TOTAL COST | REMARKS | |
| | | | UNIT | TOTAL | UNIT | TOTAL | | | |
| 78 STORM DRAINAGE | | | | | | | | | |
| Removal - Curbs & Gutter | 20 | LF | - | - | 8 ²⁰ | 164 | - | - | |
| " Asphalt Pavement | 30 | S.Y. | - | - | 6 ⁰⁰ | 180 | - | - | |
| TRENCH EXCAVATION | 150 | C.Y. | - | - | 1 ⁷⁷ | 265 | - | - | |
| 48" φ R.C.P. | 60 | L.F. | 33 ²⁵ | 1995 | 18 ²⁰ | 1092 | - | - | |
| Backfill & Compaction | 80 | C.Y. | - | - | 9 ⁰⁰ | 720 | - | - | |
| 8" Crushed Stone Base | 30 | S.Y. | 2 ⁰⁰ | 60 | 0 ²⁷ | 8 | - | - | |
| 2" Asphalt Pavement | 30 | S.Y. | 2 ⁷⁵ | 83 | 1 ⁵⁵ | 47 | - | - | |
| Concrete Curbs & Gutter | 20 | L.F. | 4 ³⁰ | 86 | 1 ⁷⁵ | 35 | - | - | |
| Concrete Headwalls | 12 | C.Y. | 75 ⁰⁰ | 900 | 125 ⁰⁰ | 1500 | - | - | |
| Subtotal | - | - | - | 3124 | - | 4011 | | | |
| Markup (Sub Contr.) | - | % | 34 | 1062 | 52 | 2086 | | | |
| Subtotal | - | - | - | 4186 | - | 6097 | | | |
| Escalation | - | % | 4 | 167 | 4 | 244 | | | |
| SUBTOTAL (STM DRAINAGE) | | | | 4,353 | | 6,341 | 10,694 | SAY 11,000 | |



MATERIAL & LABOR COST ESTIMATE

5ND LANTDIV 4-11012 '5 (REV. 10 74)

SHEET _____ of _____

PREPARED BY _____

ATLANTIC DIVISION NAVAL FACILITIES ENGINEERING COMMAND

Const. Contr. No. N62470-84-B-1639

FUNDS AVAIL. _____

NORFOLK, VIRGINIA

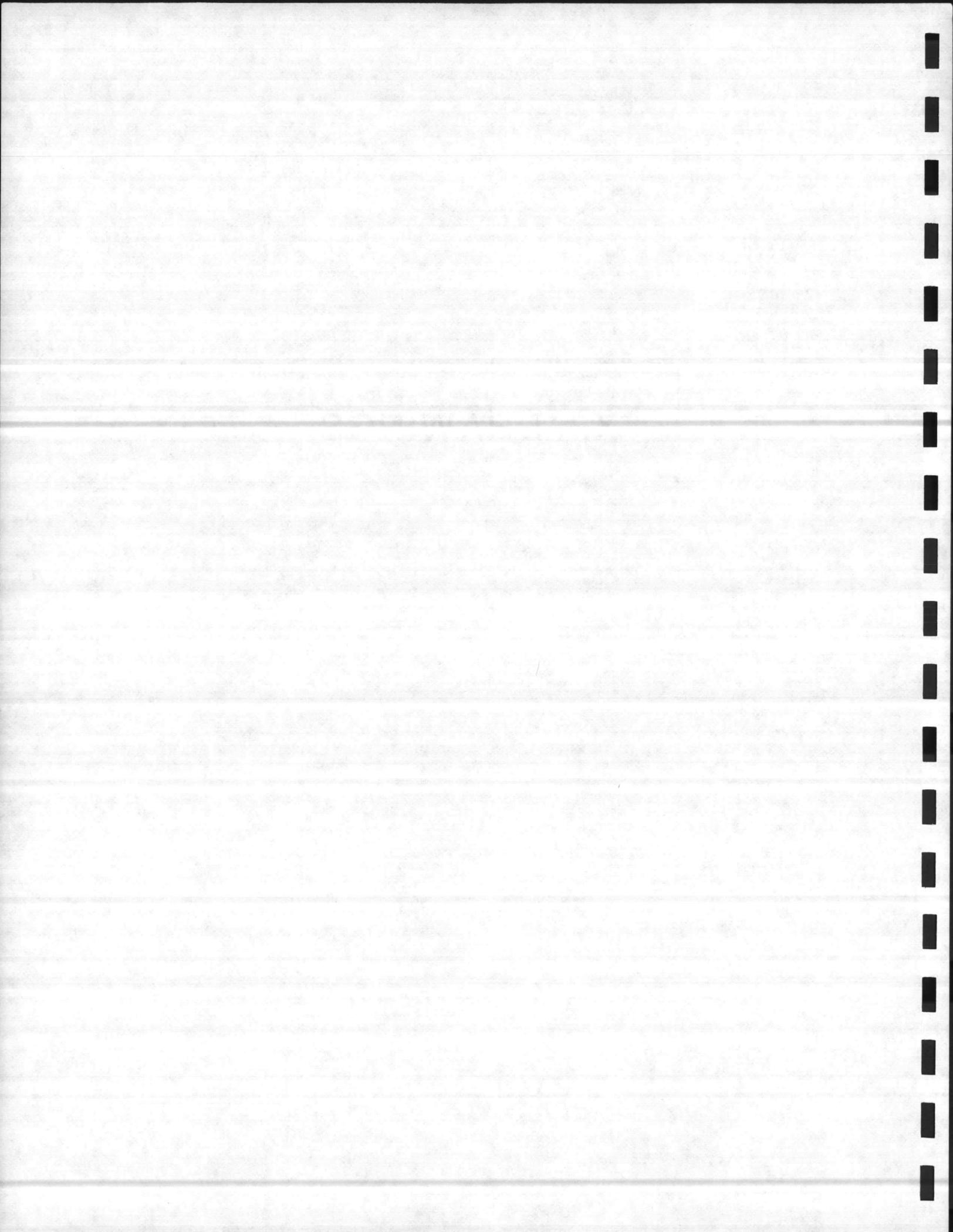
DATE 15 Feb. 1984 Mod. 5

| PROJECT | | LOCATION | | | | MATERIAL COST | | LABOR COST | | TOTAL COST | REMARKS |
|--|--|-------------------------|------|----|---|---------------------|---------|------------|---------|-------------|---------|
| Combat Vehicle Maintenance Shops (P-240) | | MCB, Camp Lejeune, N.C. | | | | UNIT | TOTAL | UNIT | TOTAL | | |
| ITEMS | | QUANTITY | UNIT | | | | | | | | |
| 79 SITE EARTHWORK | | | | | | | | | | | |
| CLEAR & Grubb | | 13 | Ac | — | — | 2,020 ⁰⁰ | 26,260 | — | — | — | — |
| STRIP & STOCK PILE TOPSOIL | | 8000 | C.Y. | — | — | 1 ¹⁵ | 9,200 | — | — | — | — |
| Excavation | | 75,000 | C.Y. | — | — | 1 ⁷⁴ | 130,500 | — | — | — | — |
| Grading | | 48,000 | S.Y. | — | — | 0 ³⁵ | 16,800 | — | — | — | — |
| SUBTOTAL | | — | — | — | 0 | — | 182,760 | — | — | — | — |
| MARK-UP (SUB CONTR) | | — | % | 34 | 0 | 52 | 95,035 | — | — | — | — |
| SUBTOTAL | | — | — | — | 0 | — | 277,795 | — | — | — | — |
| ESCALATION | | — | % | 4 | 0 | 4 | 11,112 | — | — | — | — |
| SUBTOTAL (EARTHWORK) | | — | — | — | 0 | — | 288,907 | 288,907 | 288,907 | SAY 289,000 | |





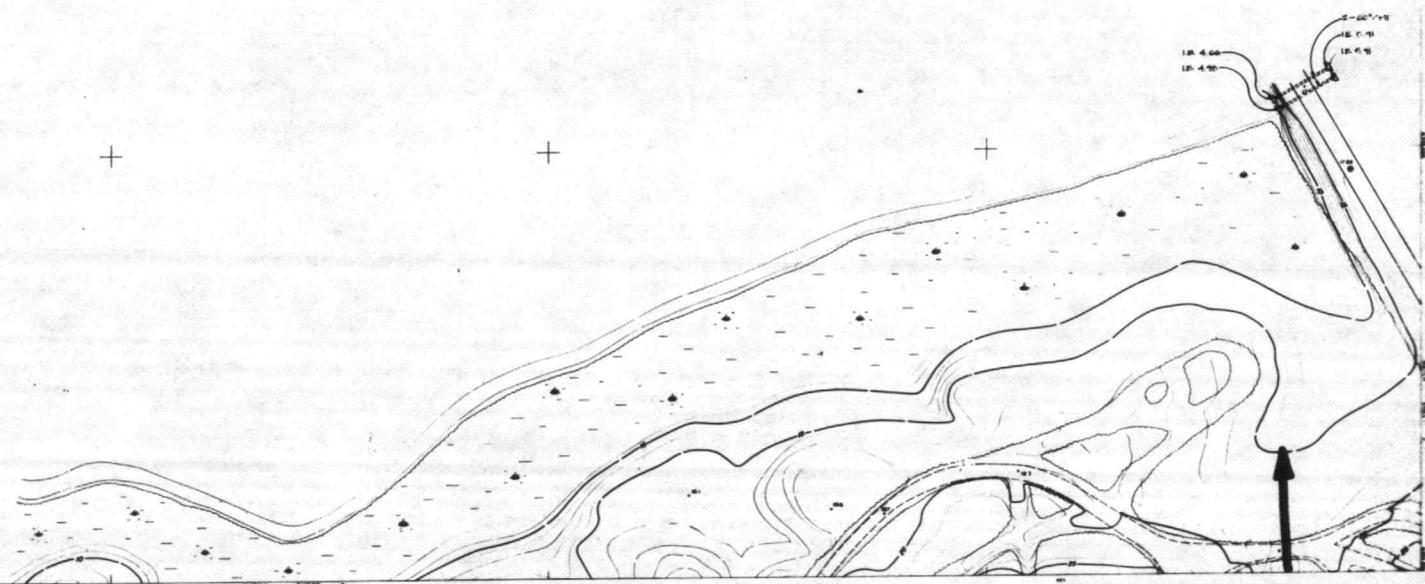
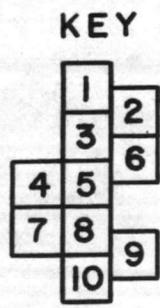
X. DRAWINGS



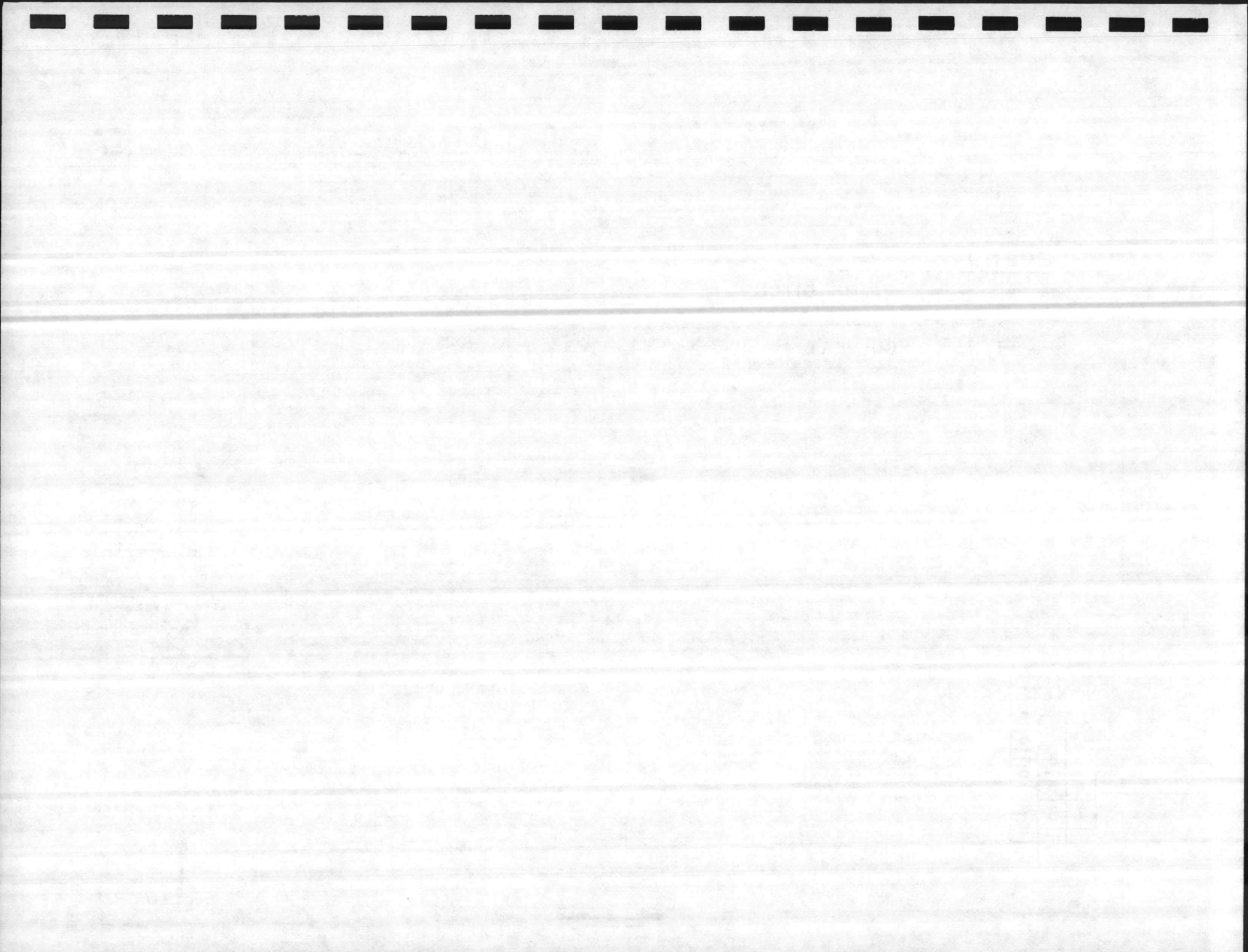
LEGEND

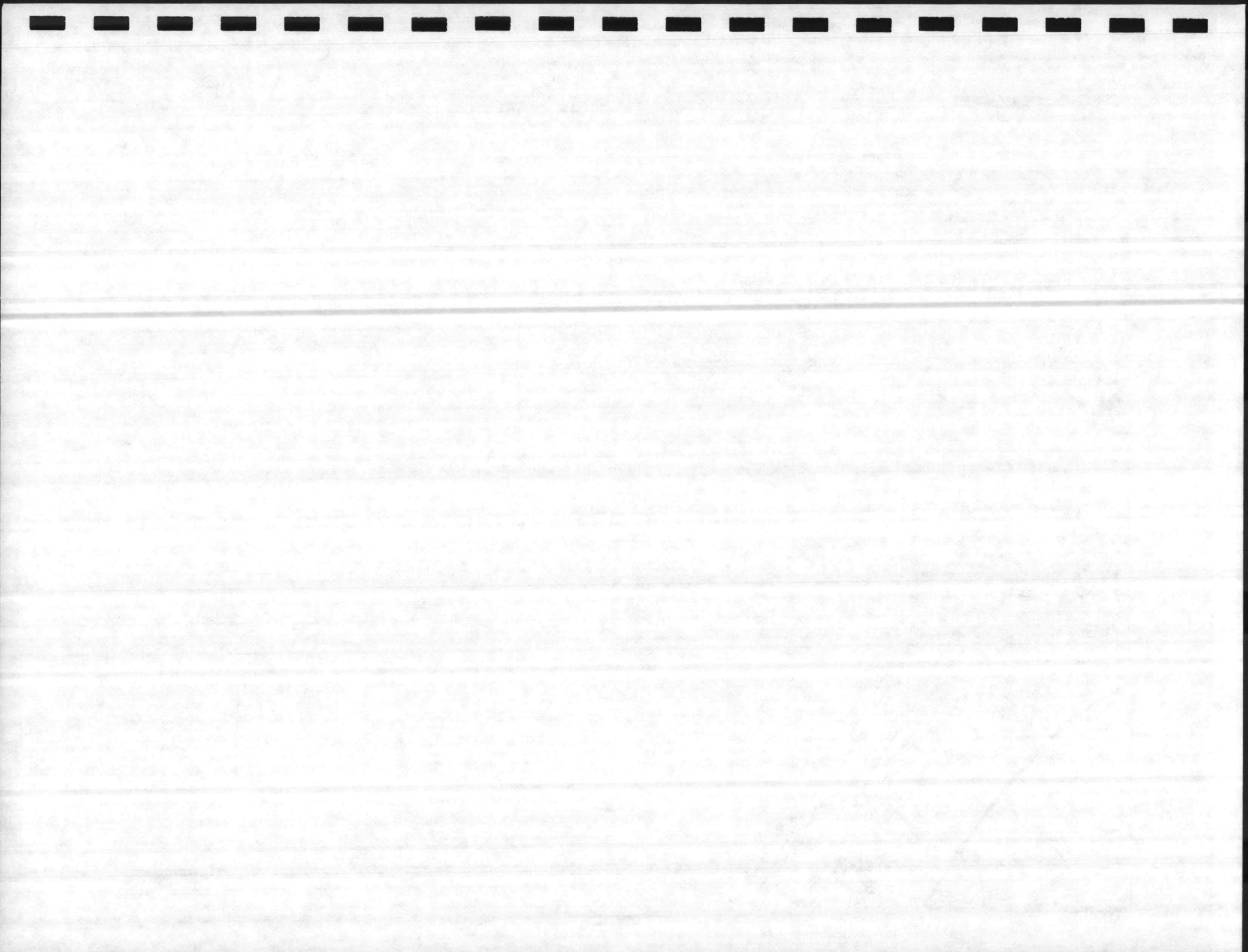
-  MAJOR DITCH
-  FINGER DITCH
-  CULVERT

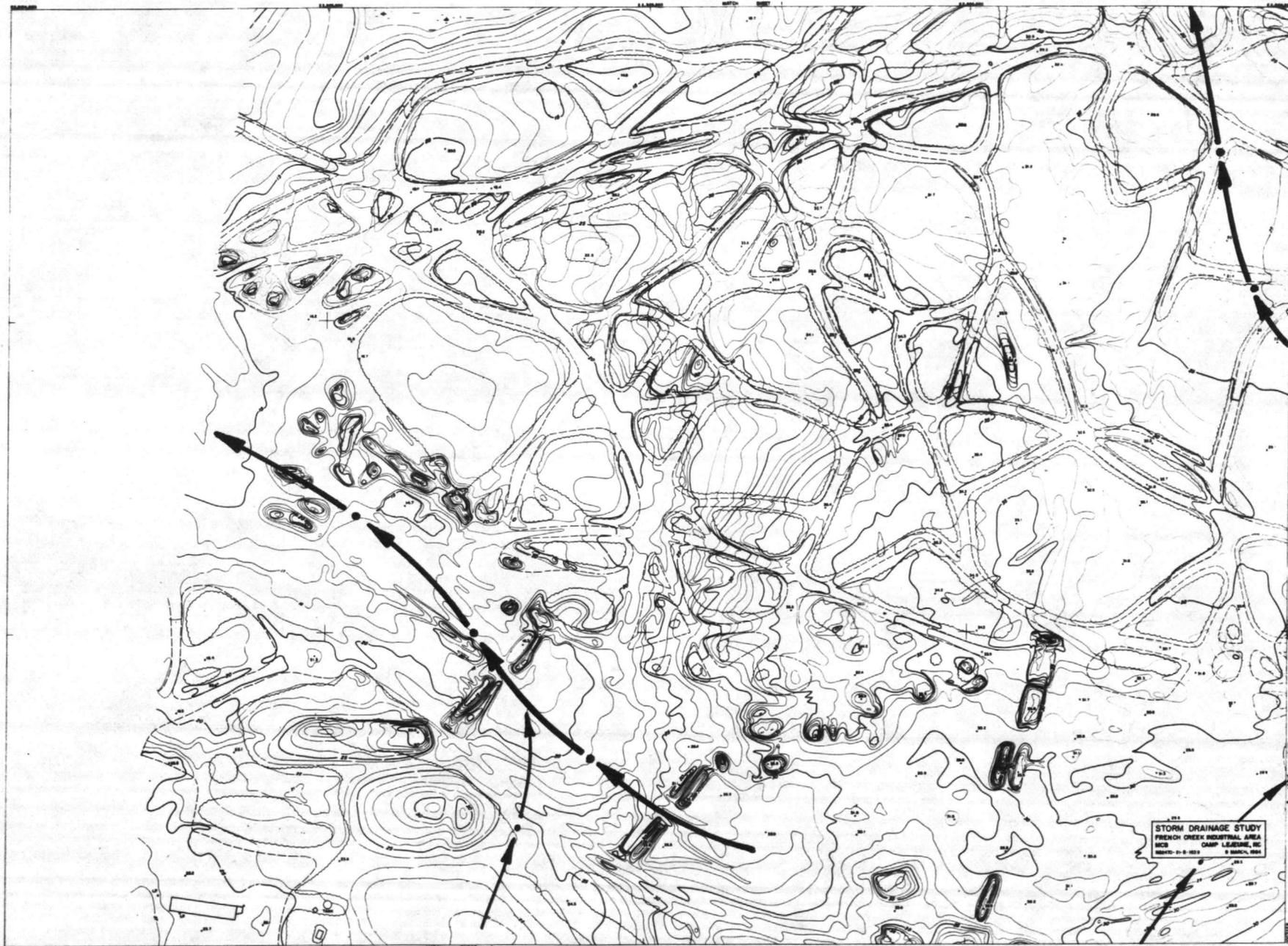
STORM DRAINAGE STUDY
FRENCH CREEK INDUSTRIAL AREA
CAMP LEAVER, NC
NOV-80-8-001 8 MAR 81



SCALE 1" = 50'
CONTOUR INTERVAL: 1 FEET

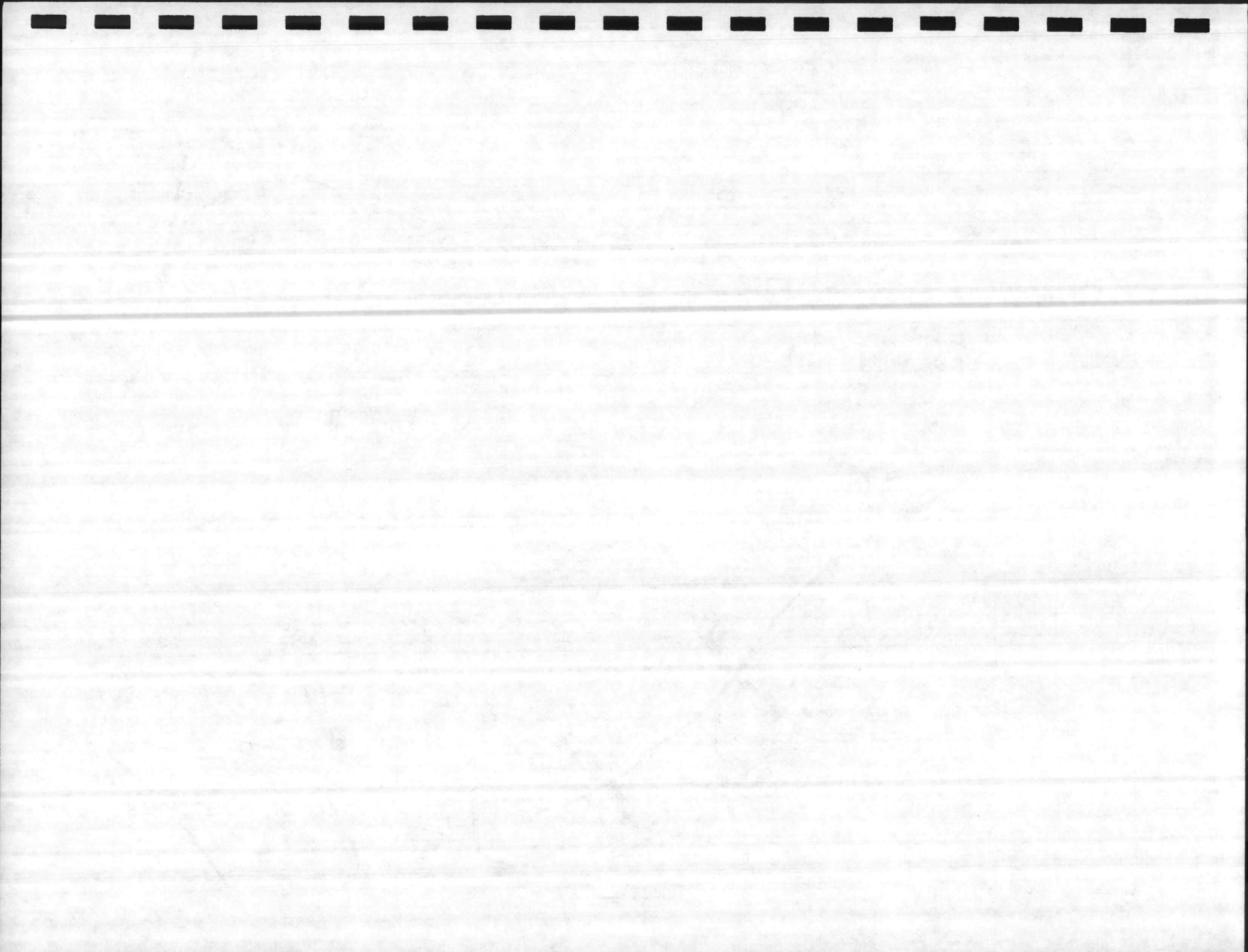


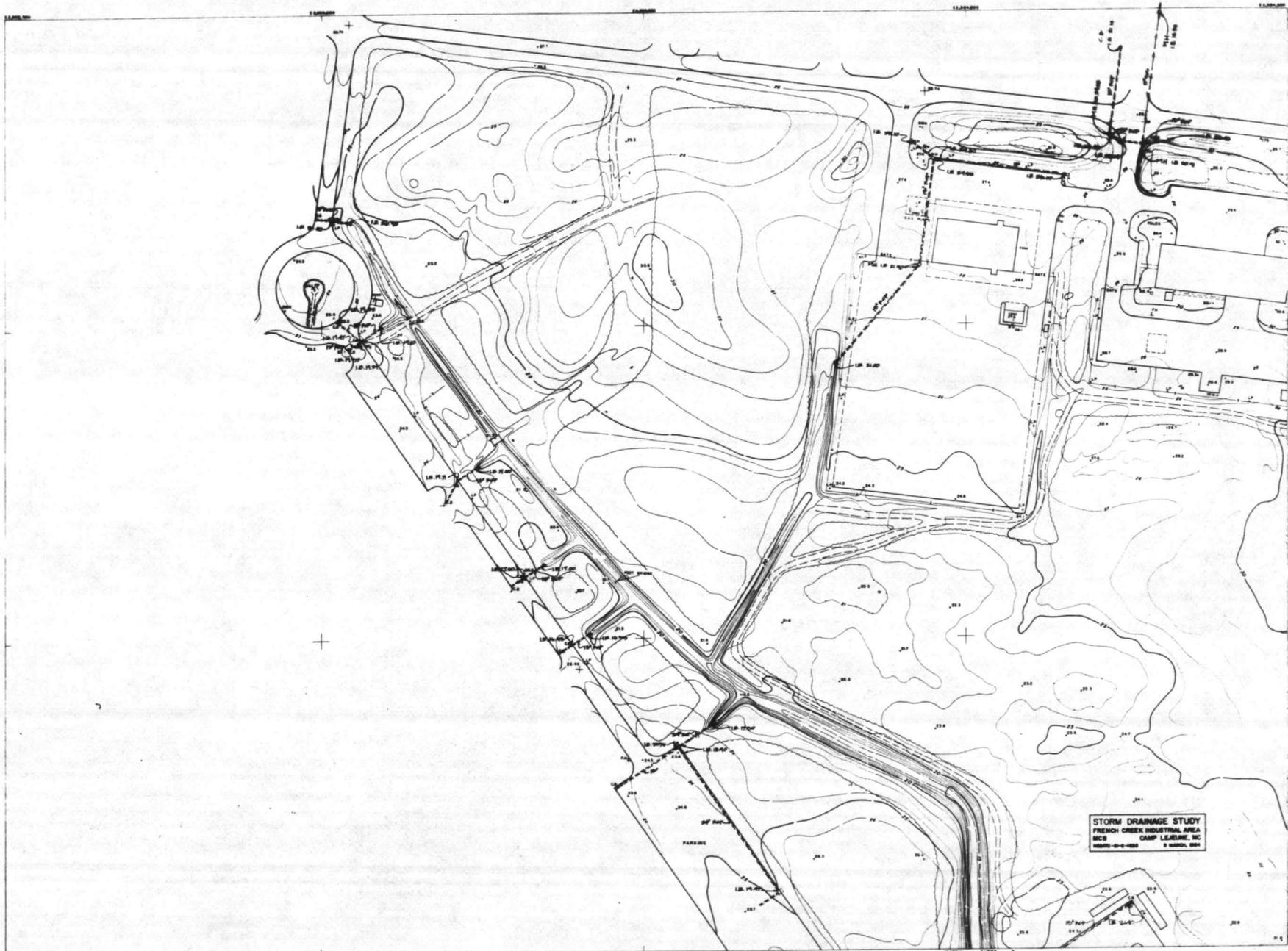




STORM DRAINAGE STUDY
FRENCH CREEK INDUSTRIAL AREA
CAMP LEASING, NC
1987-10-01-101

SCALE 1" = 100'
CONTINUOUS INTERVAL, 1' FEET



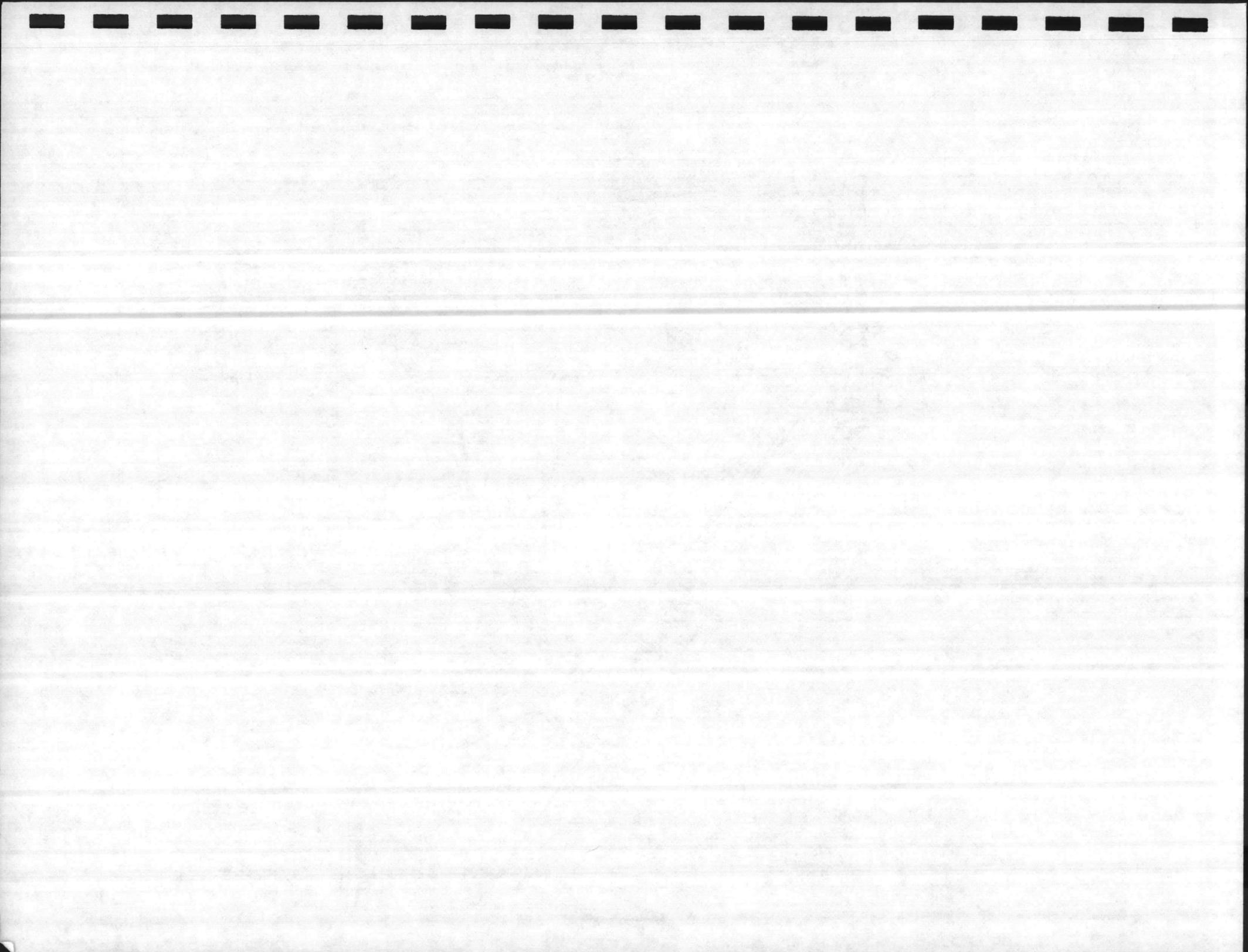


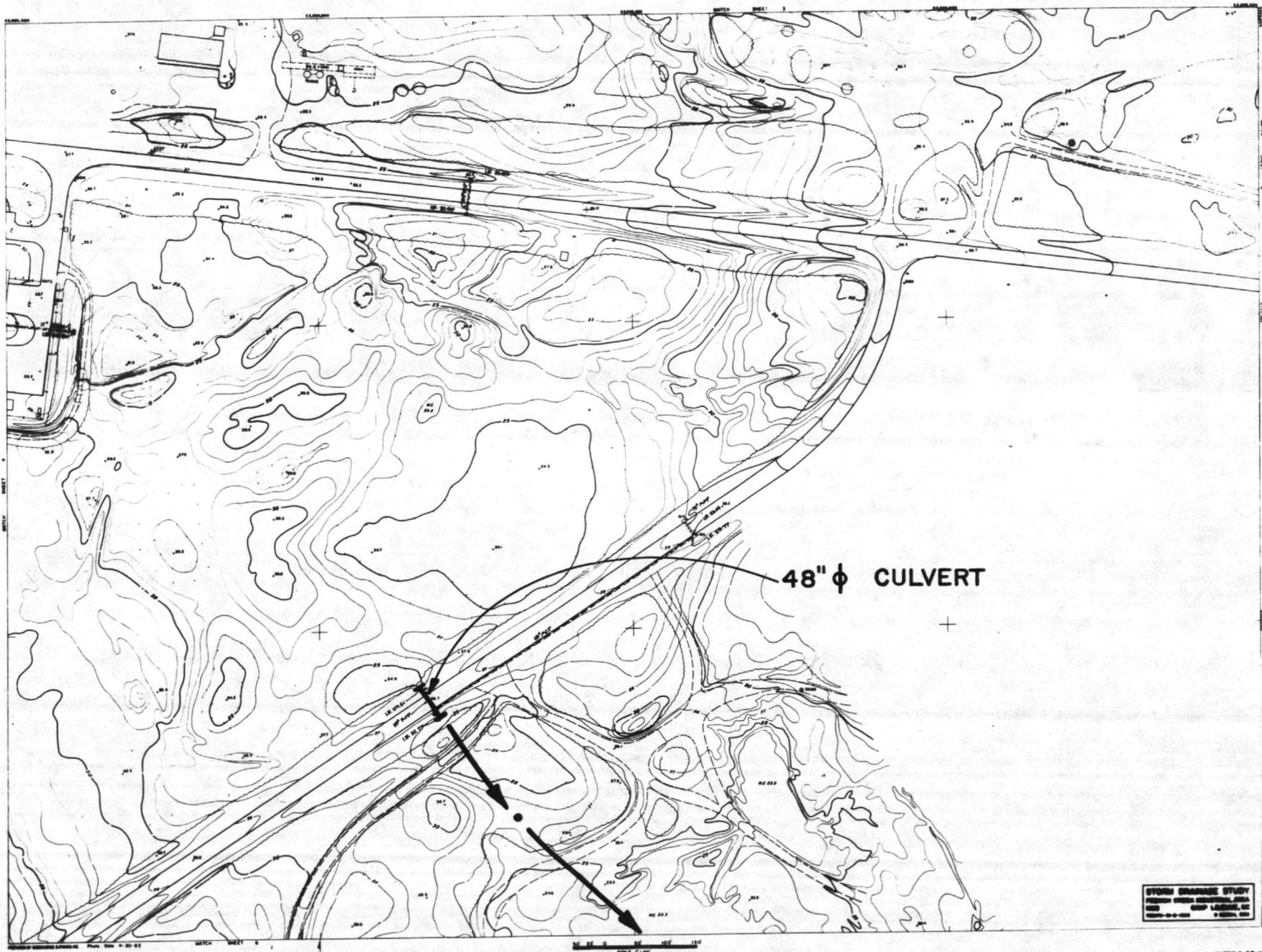
UNIVERSITY MICROFILMS INTL. Pass No. 1-20-83

0 25 50 75 100 125 150
 SCALE 1" = 50'
 CONTOUR INTERVAL 1 FEET

MATCH SHEET

SHEET 4 OF 10

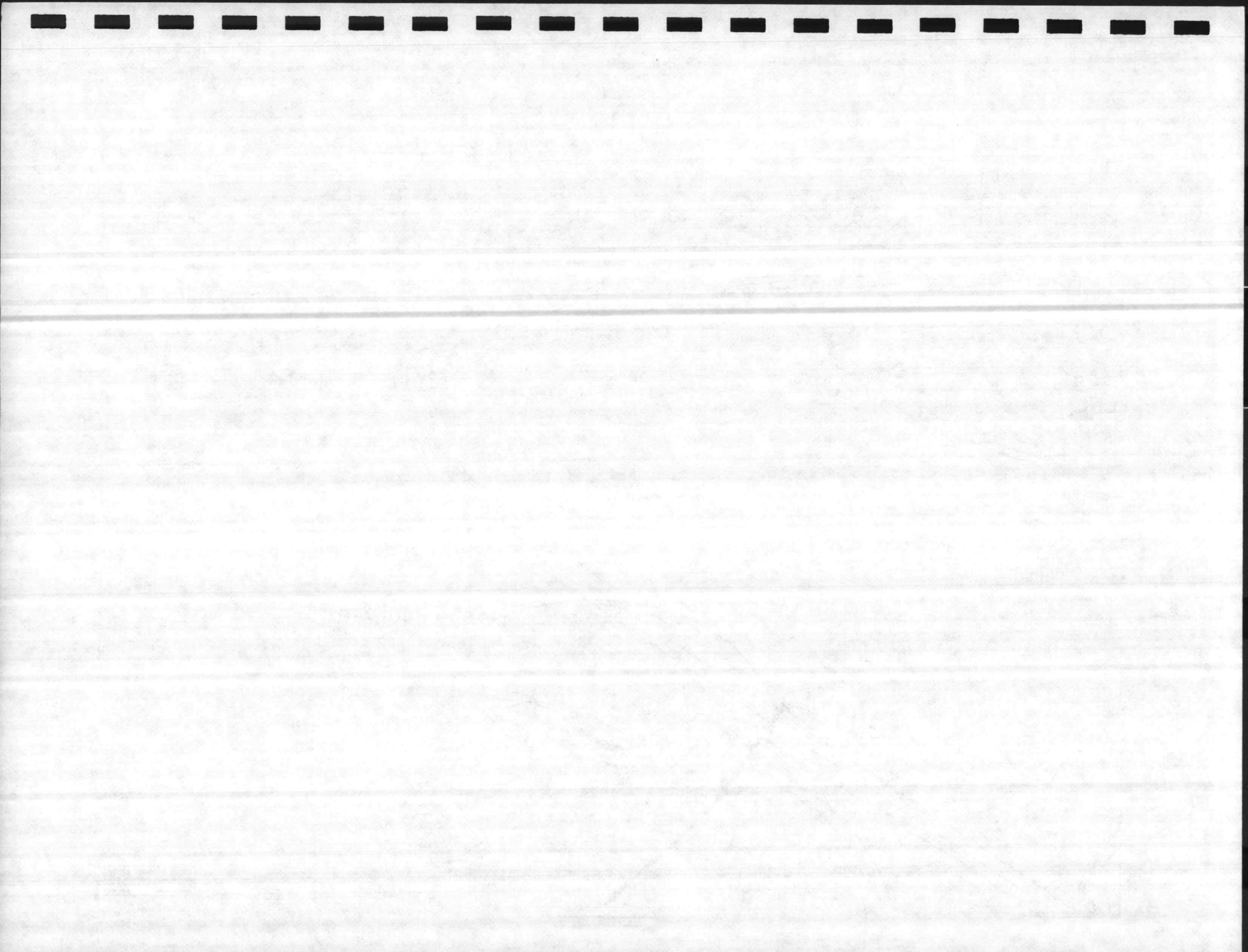


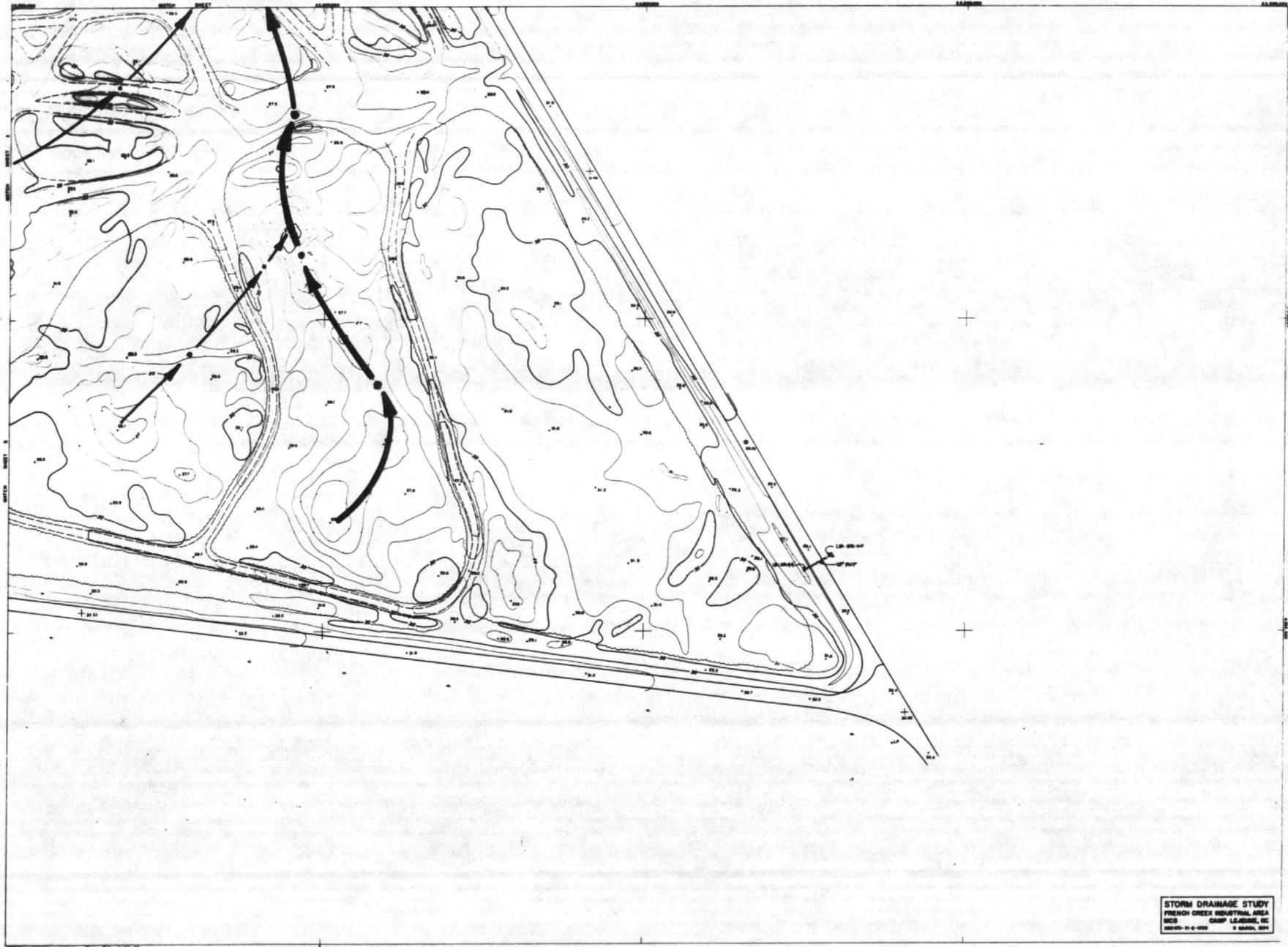


48" ϕ CULVERT

STORM DRAINAGE STUDY
GWP LANSING, INC.
LANSING, MICHIGAN

SCALE 1" = 50'
VERTICAL INTERVAL 5 FEET

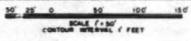
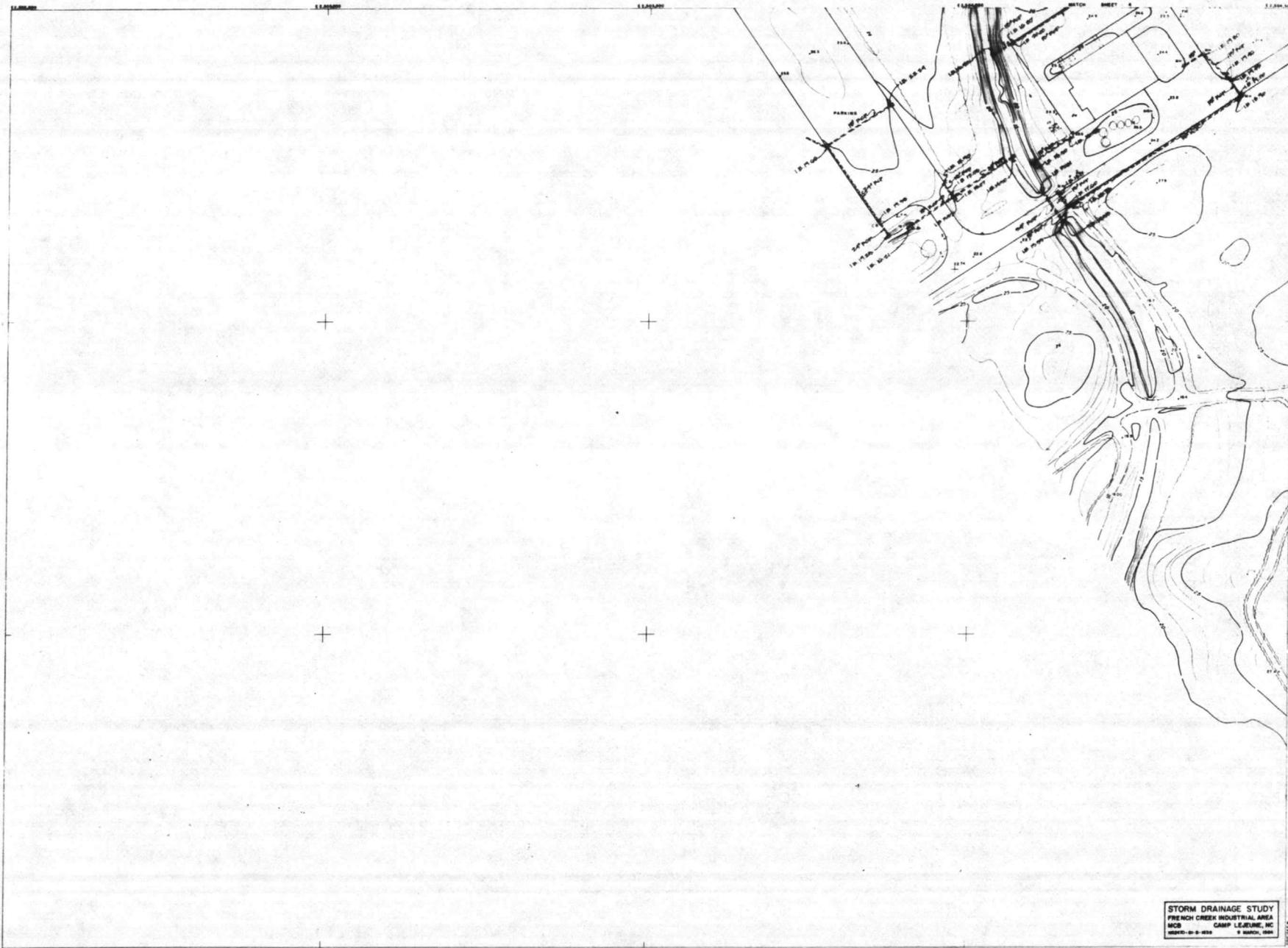




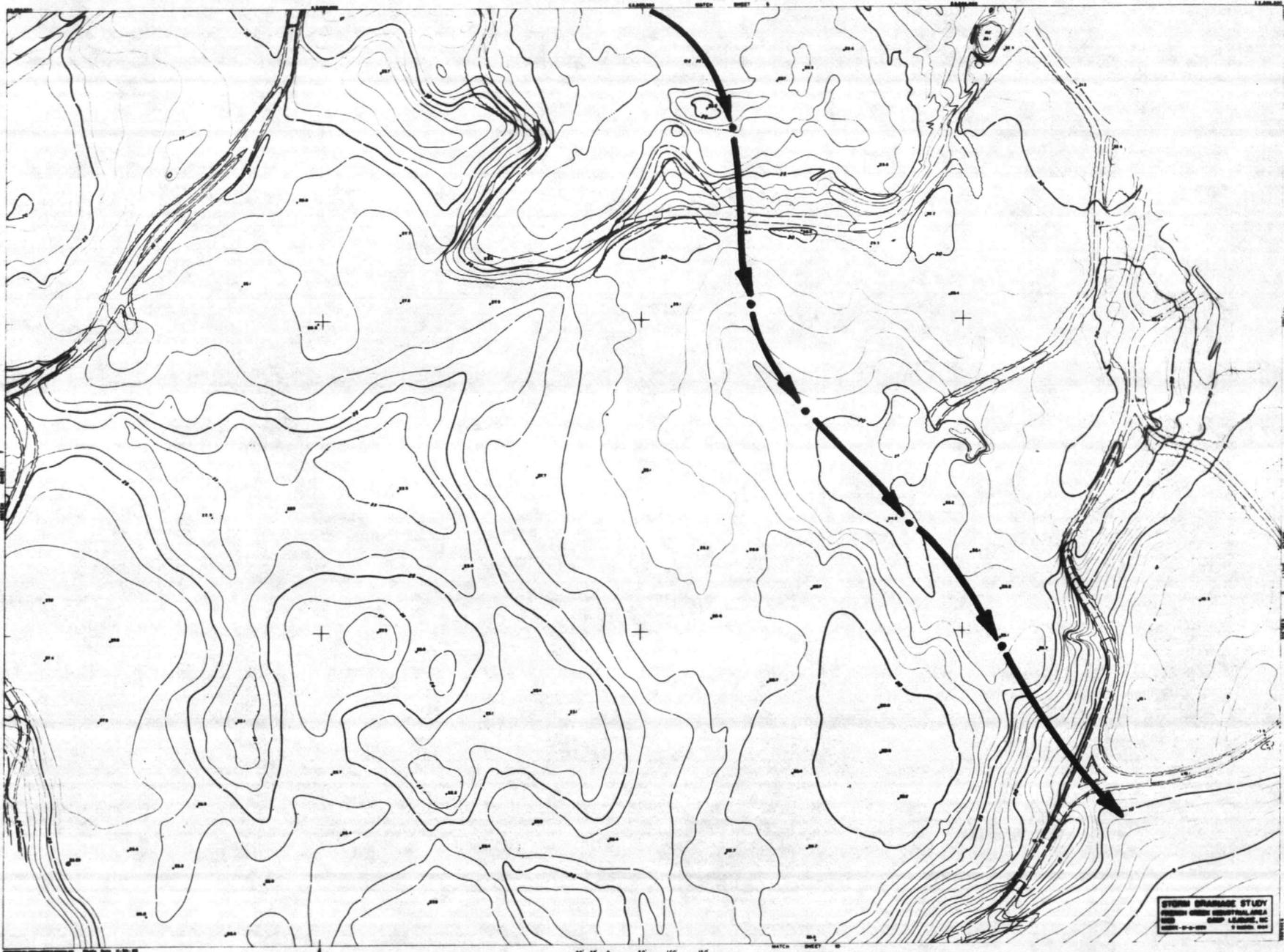
STORM DRAINAGE STUDY
 FRENCH CREEK INDUSTRIAL AREA
 SIC
 CAMP LEWIS, DC
 1954-55-56-57-58
 © 1954, 1955

SCALE 1" = 100'
 GRAPHIC SCALE, 1" = 100'



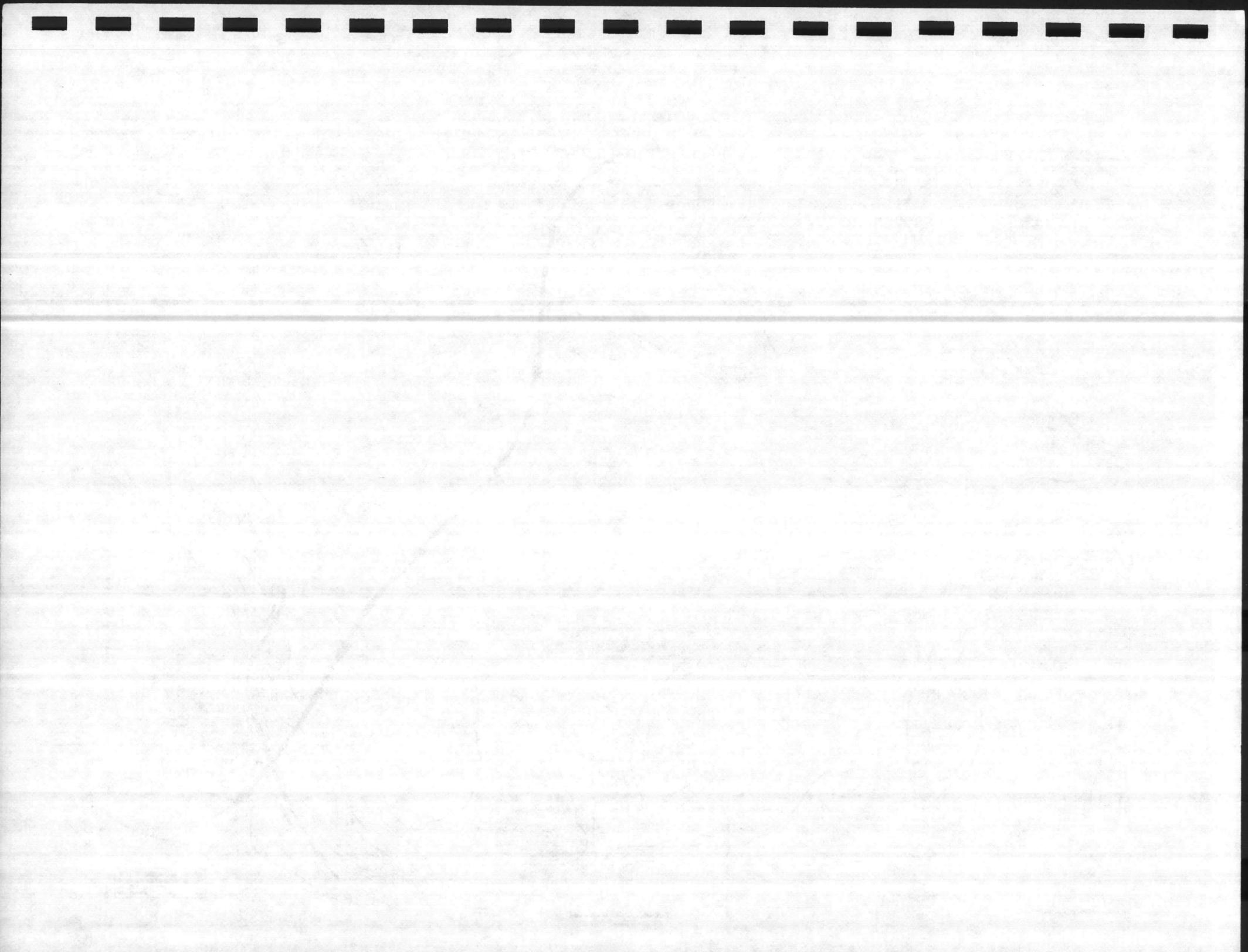






STORM DRAINAGE STUDY
CAMP LEASE, NC
NOV 1958

SCALE 1" = 100'
CONTINUED FROM SHEET 5



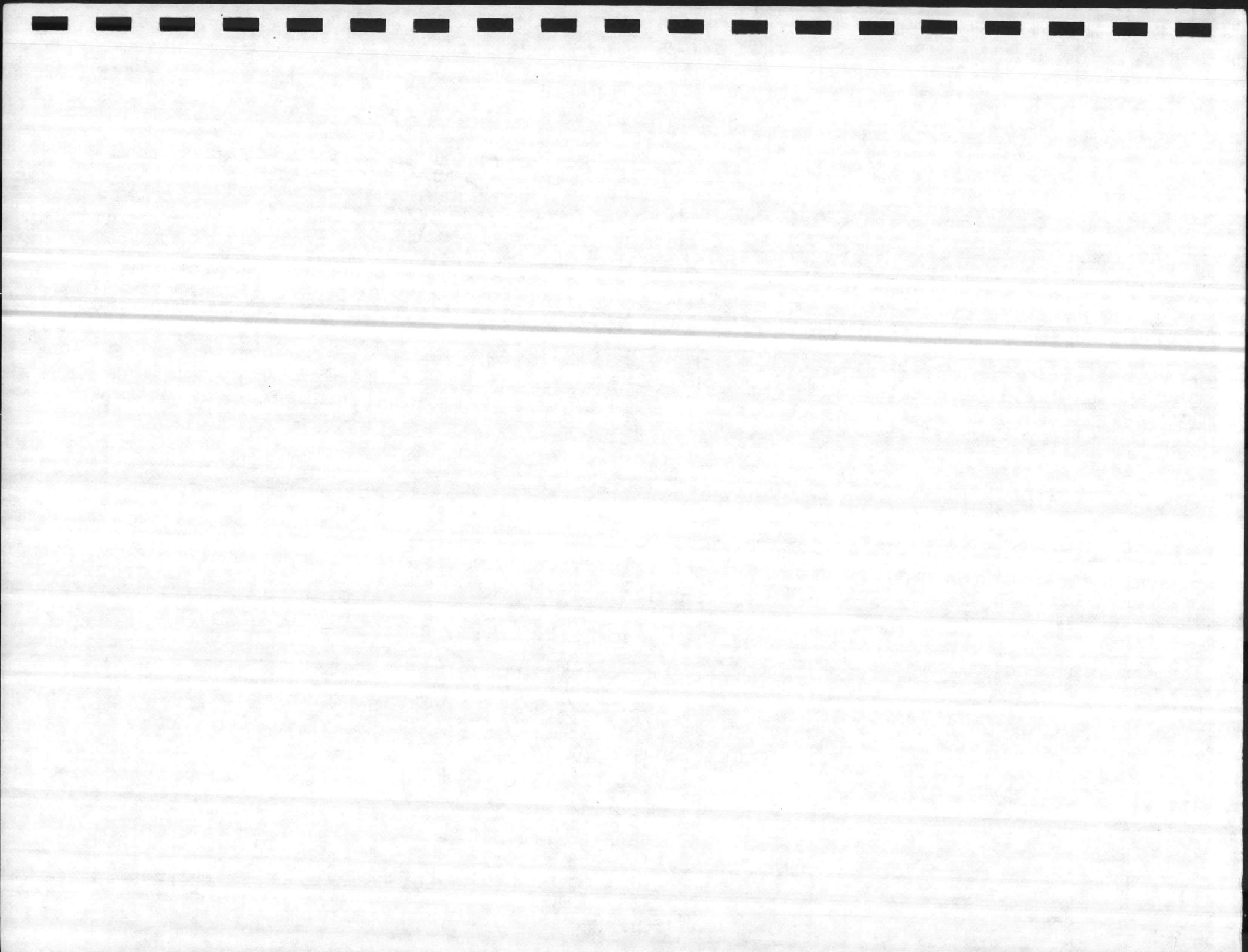


STORM DRAINAGE STUDY
FRENCH CREEK INDUSTRIAL AREA
NEAR CAMP LEONARD, NC
MARCH-20-1952

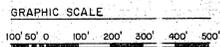
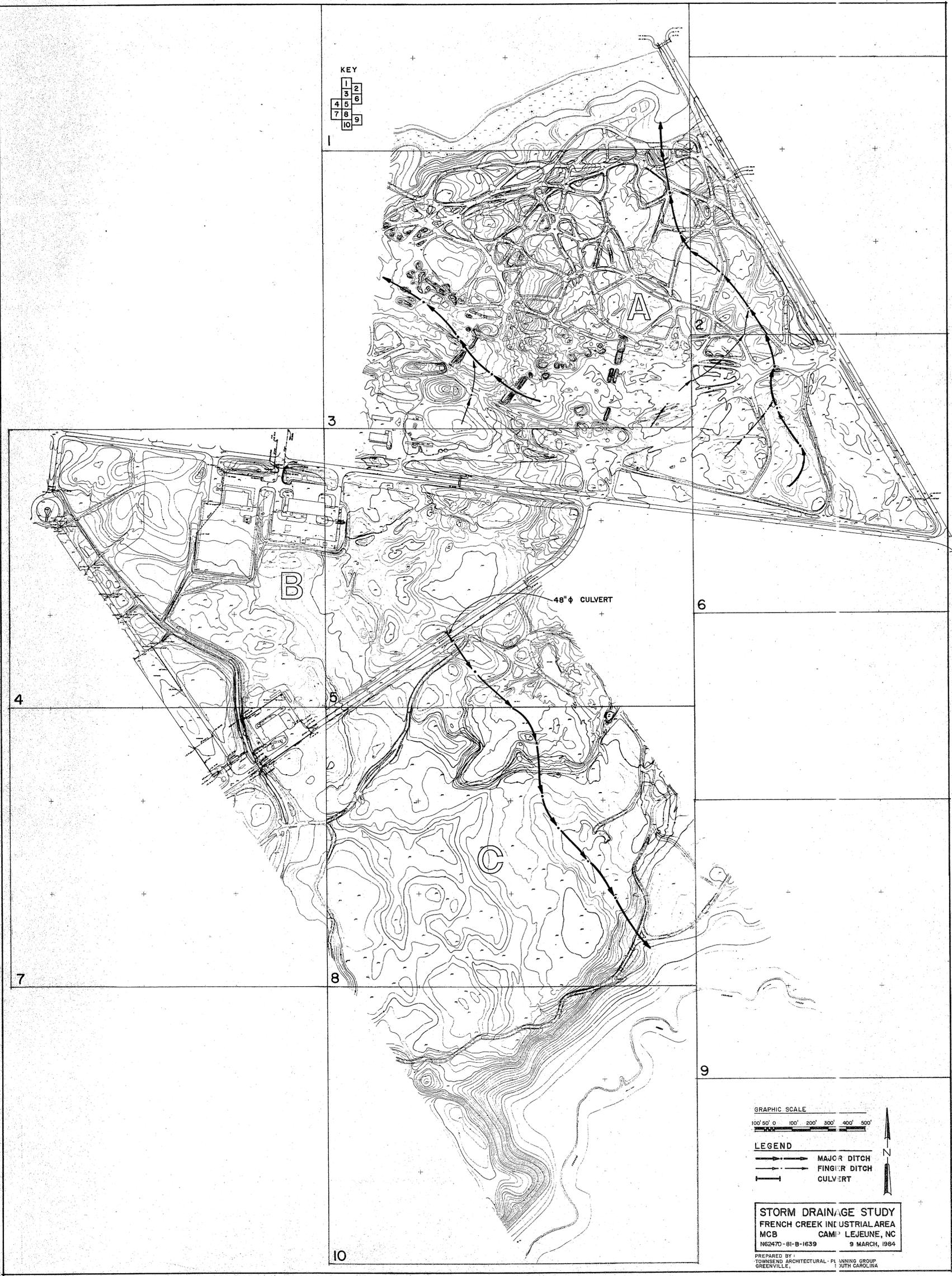




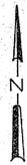
STORM DRAINAGE STUDY
FRENCH CREEK INDUSTRIAL AREA
SICB
CAMP LEJEUNE, NC
NOVEMBER 1963
1 SHEET OF 10



KEY
1
2
3
4
5
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7
8
9
10



LEGEND
MAJOR DITCH
FINGER DITCH
CULVERT



STORM DRAINAGE STUDY
FRENCH CREEK INDUSTRIAL AREA
MCB CAMD LEJEUNE, NC
N62470-81-B-1639 9 MARCH, 1984

PREPARED BY
TOWNSEND ARCHITECTURAL - PLANNING GROUP
GREENVILLE, SOUTH CAROLINA

