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PART I (To be completed by contractor)

1. ACTIVITY AND LOCATION

Marine Corps Base, Camp Lejeune, NC

2. TITLE OF CONTRACT AND SITE LOCATION

Replacing Water Wells, Marine Corps Base, Camp Lejeune, NC

3. NAME AND ADDRESS OF CONTRACTOR

East Coast Construction Co., Inc., P. O. Box 5004, Jacksonville, NC 28540

4. SIGNATURE AND TITLE OF CONTRACTOR'S AGENT

PART II (To be completed by OICC or ROICC)

1. CONTRACT NO.	2. DATE OF CONTRACT	3. CONTRACT PRICE	4. 2ND LOW BID	5. HIGH BID	6. NO. OF BIDDERS
N62470-82-C-4551	8 Apr 83	\$211,000.00	\$217,777.77	\$284,310.00	6
7. ALLOTMENT OR ALLOCATION NO.		8. APPROPRIATION TITLE			
1731106.2720		<i>shgs</i>			
9. TIME FOR COMPLETION (Days)		10. REVIEWED & FORWARDED (Date)		11. SIGNATURE OF APPROVING OICC	
195 days		6/16/83		<i>Gary R. Jones</i>	

12. a. ITEM NO.	b. DESCRIPTION OF ITEM	c. QUANTITIES		d. MATERIAL COST		e. LABOR COST		f. TOTAL COST
		NO. OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	
1	P&P Bond	1	EA	-	2,532.00	-	-	2,532.00
2	Clear & Grubbing	3	EA	-	-	1,000	3,000.00	3,000.00
3	Temp Fencing	100	LF	2.00	200.00	2	200.00	400.00
4	Test Drilling	3	EA	2000.00	6,000.00	12,000	36,000.00	42,000.00
5	Surface Casing	150	LF	30.00	4,500.00	50	7,500.00	12,000.00
6	Inner Casing	480	LF	15.00	7,200.00	13	6,240.00	13,440.00
7	Screen Line	3	EA	3782.00	11,346.00	3,000	9,000.00	20,346.00
8	Test Pumping	3	EA	-	-	4,850	14,550.00	14,550.00
9	Permanent Pump	3	EA	8000.00	24,000.00	600	1,800.00	25,800.00
10	Auxilliary Engines	3	EA	6600.00	19,800.00	300	900.00	20,700.00
11	Demolition	3	EA	-	-	400	1,200.00	1,200.00
12	Concrete	45	CY	125.00	5,625.00	125	5,625.00	11,250.00
13	Hollow Metal Drs Frames & Hardware	3	EA	400.00	1,200.00	150	450.00	1,650.00
14	8" CMV Bldg	3	EA	750.00	2,250.00	450	1,350.00	3,600.00
15	Framing Lumber	3	Jobs	600.00	1,800.00	400	1,200.00	3,000.00
16	Built up Roof	3	EA	700.00	2,100.00	500	1,500.00	3,600.00
17	Flg Pipe/Flgs/Valves	3	Jobs	1909.00	5,727.00	300	900.00	6,627.00
18	6" DI Pipe	72	LF	10.00	720.00	10	720.00	1,440.00
19	8x6 TS&Valve/Box	2	EA	750.00	1,500.00	150	300.00	1,800.00
20	18x6 TS&Valve/Box	1	EA	1000.00	1,000.00	250	250.00	1,250.00
21	Grassing	3	EA	100.00	300.00	100.00	300.00	600.00
22	Panel Starters	3	EA	185.00	555.00	450	1,350.00	1,905.00
23	Fixtures & Heaters	6	EA	180.00	1,080.00	25	150.00	1,230.00
24	Devices & Plates	12	EA	40.00	480.00	15	180.00	660.00
25	Conduit	1000	FT	1.56	1,560.00	1.56	1,560.00	3,120.00
26	Wires	600	FT	3.00	1,800.00	2	1,200.00	3,000.00
27	10 KVA Transformers	8	EA	800.00	6,400.00	300	2,400.00	8,800.00
28	Service Pole Hdwe	3	EA	300.00	900.00	200	600.00	1,500.00



DEPARTMENT OF THE NAVY
OFFICER IN CHARGE OF CONSTRUCTION
RESIDENT OFFICER IN CHARGE OF CONSTRUCTION
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO
JAX/60/JLD/sel
N62470-82-C-4551
24 April 1984

East Coast Construction Co., Inc.
P. O. Box 5004
Jacksonville, NC 28540

Re: Contract N62470-82-C-4551, Replace Three Water Wells,
MCB, Camp Lejeune, NC

Gentlemen:

During a visit of Wellhouse 601 on 10 April 1984 by myself and Mr. Leon Wood, the following discrepancies were noted. An earlier inspection of BB43 revealed similar problems:

1. Service entrance conductors and branch conductors are located in same raceway, violating NEC.
2. Plastic anchors used in hollow masonry walls vice specified toggle bolts.
3. Use of 15 amp devices instead of required 20 amp switches, receptacles.
4. Incorrect wire types. Need solid wire for # 10 and smaller, need # 12 on branch circuits vice installed # 14.
5. Bolts on several pipe flanges too long.

Please take action to correct these discrepancies.

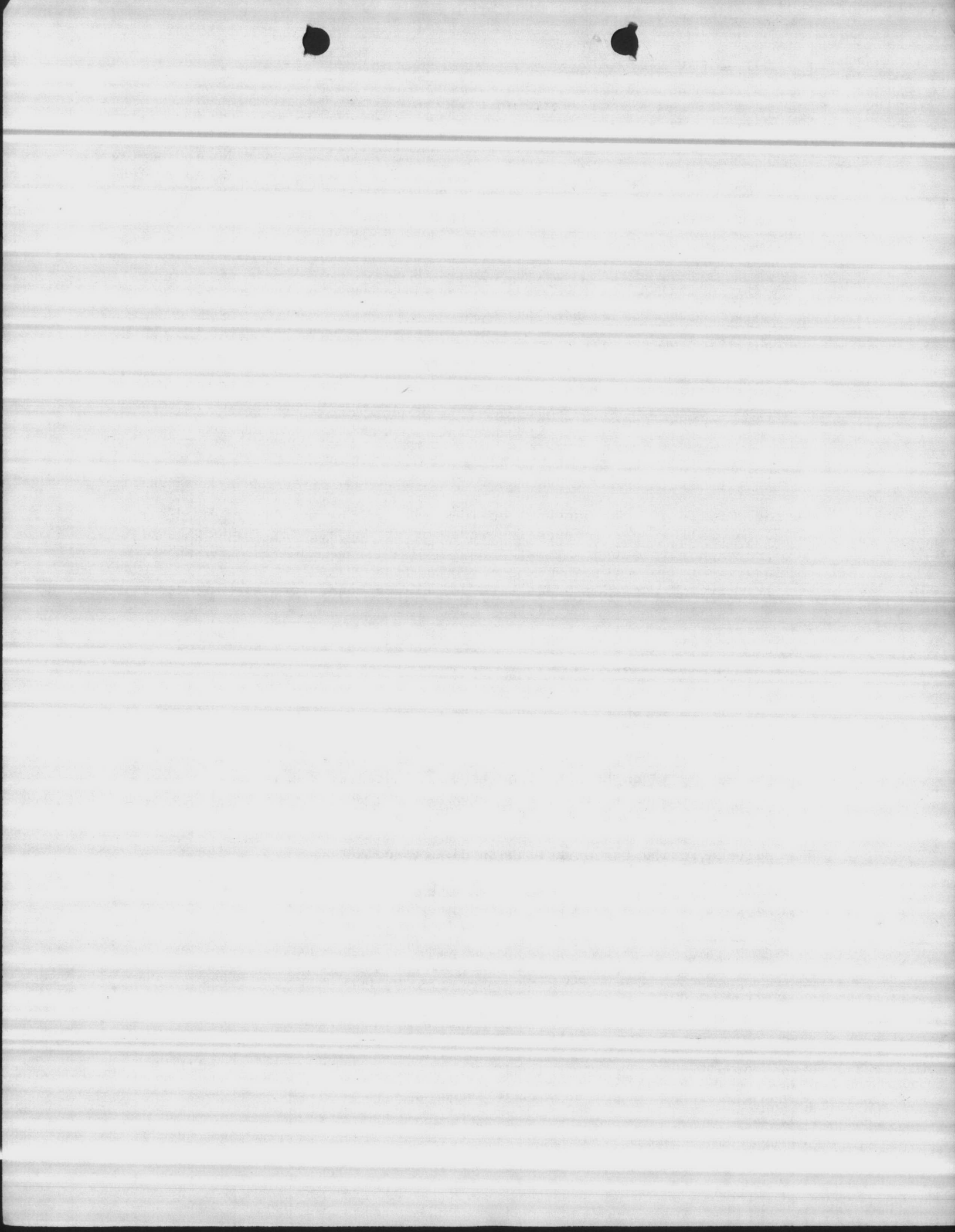
Sincerely yours,

J. L. DAVIS
LTJG, CEC, USN
Resident Officer in
Charge of Construction

Blind copy to:

05A

R. Hunt



Attention:
Ray Hunt

EAST COAST CONSTRUCTION COMPANY, INC.

General Contractors

P. O. BOX 5004

JACKSONVILLE, NORTH CAROLINA 28540

Date August 01, 1983 Job No. 199

TO
Officer in Charge of Construction
Building 1005
Camp Lejeune, N. C. 28542

CONTRACT: N62470-82-C-4551
Replacing Three (3) Water Wells,
Camp Lejeune, N. C.

Gentlemen:

We are sending you ~~under separate cover~~ ^{herewith} One prints of Sheet No. Recap of Certified Payroll
Submittals
samples

These are: (As checked below).

- 1. For _____ approval. Please return corrected prints.
- 2. Revised and for _____ final approval. Please return correct prints.
- 3. For your Files and use on job _____
- 4. Approved for fabrication—Please forward _____ correct prints.
- 5. _____

Remarks:

Carolina Well & Pump Co., Inc. began work April 24, 1983. Daily Reports have
been submitted for weeks ending 5-04-83 through 7-27-83 (Payrolls 1-13).

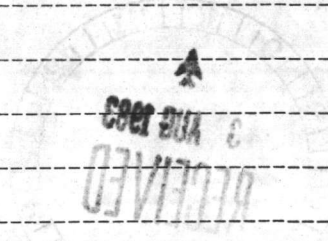
C. C. _____

Yours Truly
EAST COAST CONSTRUCTION CO., INC.
Approval Section

Drwgs. Enclosed _____

By: L. Morrison
L. Morrison

PLEASE ACKNOWLEDGE RECEIPT OF THE ABOVE PROMPTLY





EAST COAST CONSTRUCTION COMPANY INC.

General Contractors

P. O. BOX 5004

JACKSONVILLE, NORTH CAROLINA 28540

Date August 01, 1983 Job No. 199

TO Officer in Charge of Construction Building 1005 Camp Lejeune, N. C. 28542

CONTRACT: N62470-82-C-455J Replacing Three (3) Water Wells, Camp Lejeune, N. C.

Gentlemen:

We are sending you {herewith under separate cover} One prints of Sheet No. Recap of Certified Payroll Submittals samples

These are: (As checked below).

- 1. For approval. Please return corrected prints.
2. Revised and for final approval. Please return correct prints.
3. For your Files and use on job
4. Approved for fabrication-Please forward correct prints.
5.

Remarks:

Carolina Well & Pump Co., Inc. began work April 24, 1983. Daily Reports have been submitted for weeks ending 5-04-83 through 7-27-83 (Payrolls 1-13).

C. C.

Yours Truly EAST COAST CONSTRUCTION CO., INC. Approval Section

Drwgs. Enclosed

By: L. Morrison

PLEASE ACKNOWLEDGE RECEIPT OF THE ABOVE PROMPTLY





DEPARTMENT OF THE NAVY
OFFICER IN CHARGE OF CONSTRUCTION
RESIDENT OFFICER IN CHARGE OF CONSTRUCTION
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO
JAX/60/JAE/se1
N62470-82-C-4551
16 August 1983

East Coast Construction Co.
P. O. Box 5004
Jacksonville, NC 28540

Re: Contract N62470-82-C-4551, Replace Water Wells,
MCB, Camp Lejeune, NC

Gentlemen:

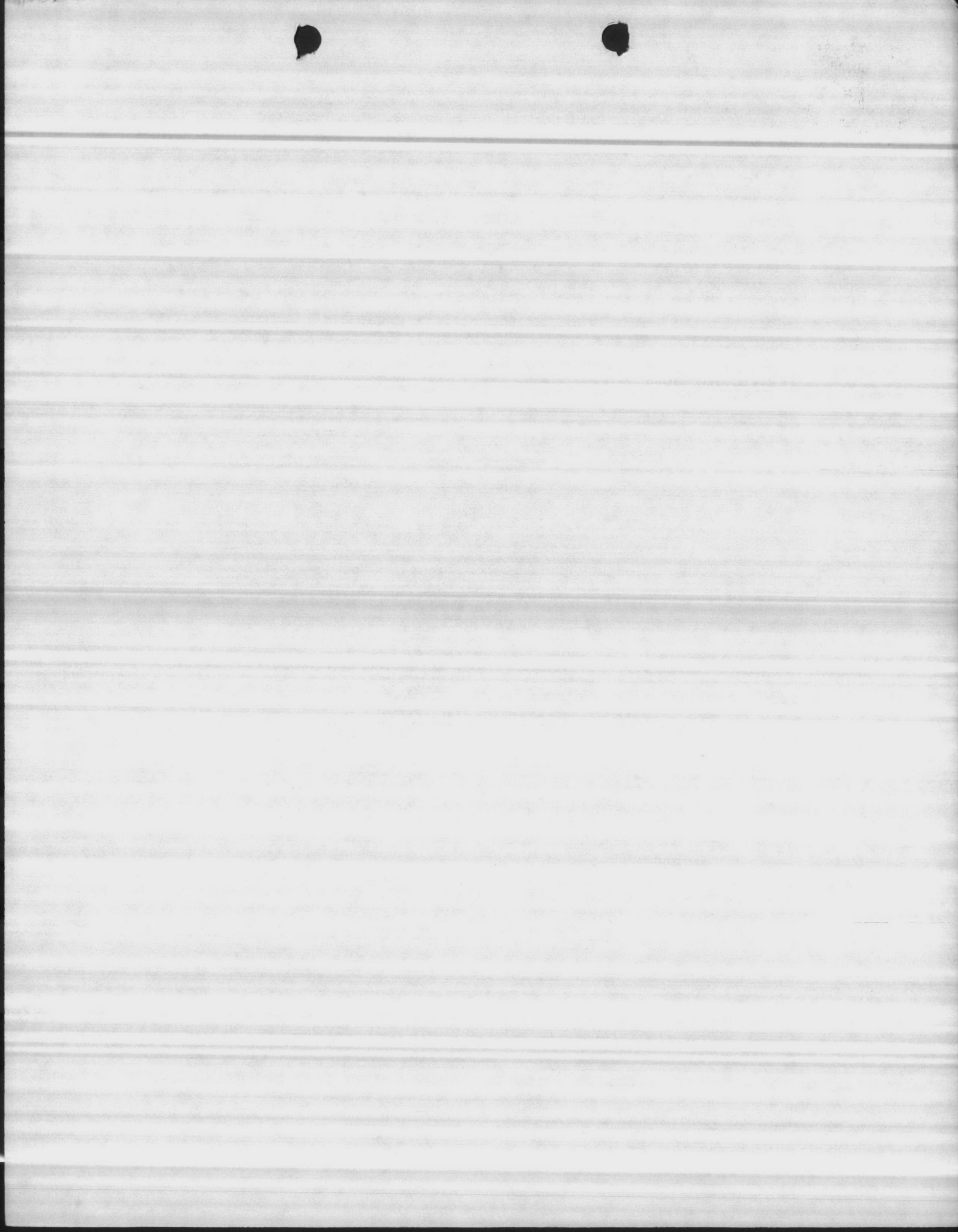
The Government hereby cancels Modification No. 1.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "J. A. Elliott", is written over the typed name.

J. A. ELLIOTT
LT, CEC, USN
Resident Officer in
Charge of Construction

Blind copy to:
~~M. Coston~~ R. HUNT ←





DEPARTMENT OF THE NAVY
OFFICER IN CHARGE OF CONSTRUCTION
RESIDENT OFFICER IN CHARGE OF CONSTRUCTION
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO:
JAX/60/JAE/sel
N62470-82-C-4551
16 August 1983

East Coast Construction Co.
P. O. Box 5004
Jacksonville, NC 28540

Re: Contract N62470-82-C-4551, Replace Water Wells,
MCB, Camp Lejeune, NC

Gentlemen:

The following changes to the subject contract are proposed:

MODIFICATION NO. 2

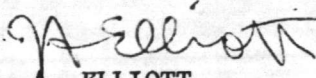
- "1) Relocate well M168 across Montford Landing Road.
- 2) Delete 'T' and two gate valves on blow off line outside of building on all three wells."

It is requested that your cost proposal be provided to this office as soon as possible, but no later than 26 August 1983 to allow review prior to price negotiations. The proposal must contain detailed breakdowns as required by Clause 39 of the General Provisions to the contract.

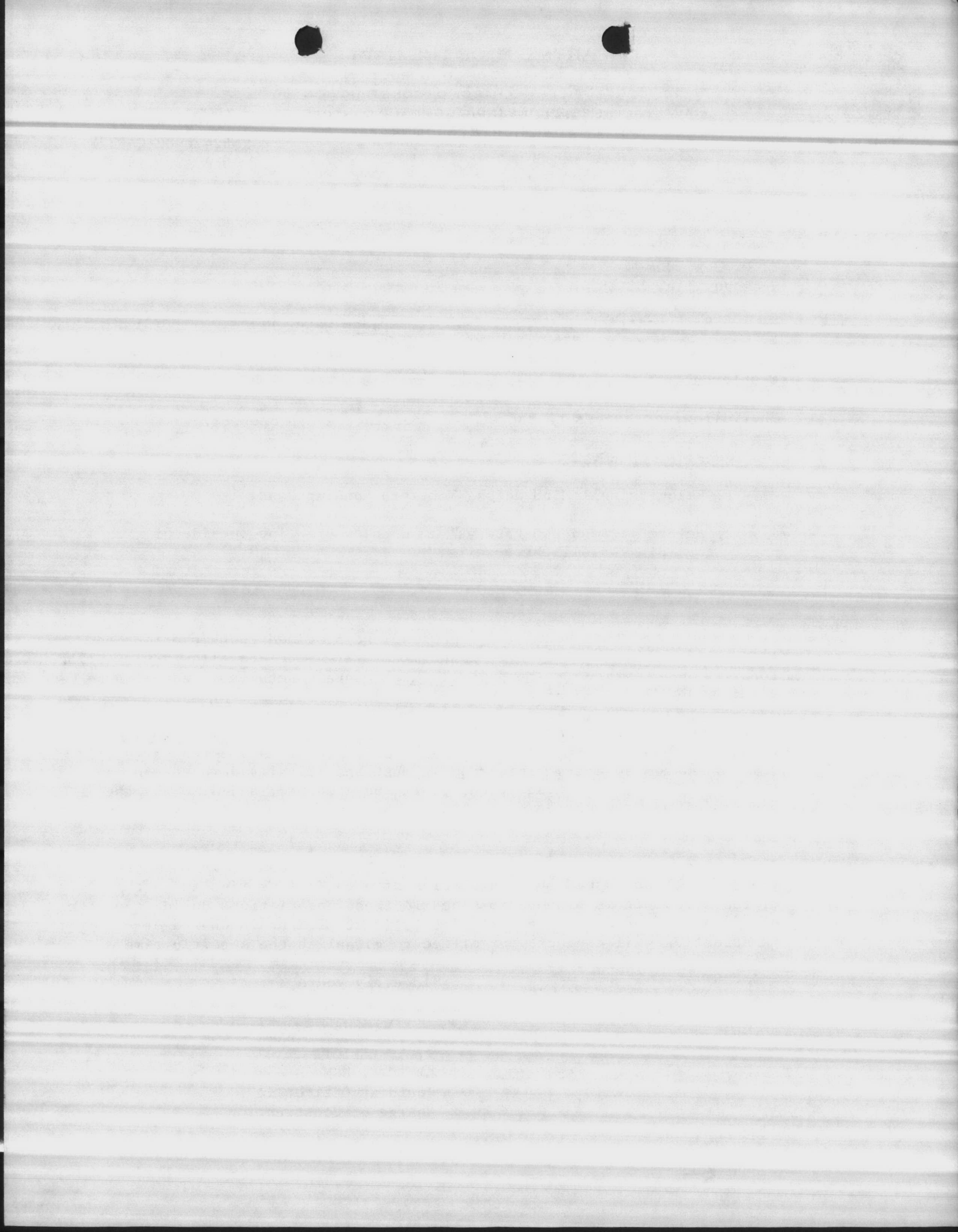
If you consider that additional contract time will be required to accomplish the changed work, your proposal should contain a substantiated time extension request. This request must specifically demonstrate what portions of the work, trades, etc., will be affected, and also why the additional work cannot be accomplished concurrently with the basic contract work.

This is not a notice to proceed with the above changes. Direction to proceed will be issued upon completion of negotiations finalizing the price of the work. It is planned to schedule these negotiations during the week of 29 August 1983. The Assistant Resident Officer in Charge of Construction will contact your office to establish the specific time.

Sincerely yours,


J. A. ELLIOTT
LT, CEC, USN
Resident Officer in
Charge of Construction

Blind copy to:
05A
R. Hunt ←





DEPARTMENT OF THE NAVY
OFFICER IN CHARGE
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO:
JAX/60/JAE/sel
N62470-82-C-4551
29 June 1983

East Coast Construction Co.
P. O. Box 5004
Jacksonville, NC 28540

Re: Contract N62470-82-C-4551, Replace Water Wells, MCB,
Camp Lejeune, NC

Gentlemen:

The following changes to the subject contract are proposed:

MODIFICATION NO. 1

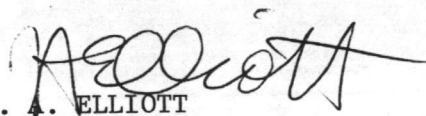
Delete well M168. Restock all procured materials. Cap test well.

It is requested that your credit proposal be provided to this office as soon as possible, but no later than 15 July 1983 to allow review prior to price negotiations. The proposal must contain detailed breakdowns as required by Clause 39 of the General Provisions to the contract.

If you consider that additional contract time will be required to accomplish the changed work, your proposal should contain a substantiated time extension request. This request must specifically demonstrate what portions of the work, trades, etc., will be affected, and also why the additional work cannot be accomplished concurrently with the basic contract work.

This is not a notice to proceed with the above changes. Direction to proceed will be issued upon completion of negotiations finalizing the price of the work. It is planned to schedule these negotiations during the week of 18 July 1983. The Resident Officer in Charge of Construction will contact your office to establish the specific time.

Sincerely yours,


J. A. ELLIOTT
LT, CEC, USN
Resident Officer in
Charge of Construction

Blind copy to:
R. Hunt ←





DEPARTMENT OF THE NAVY
OFFICER IN CHARGE
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO:
JAX/60/JAE/sel
N62470-82-C-4551
21 June 1983

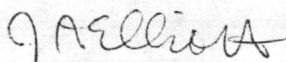
East Coast Construction Co.
P. O. Box 5004
Jacksonville, NC 28540

Re: Contract N62470-82-C-4551, Three Water Wells,
MCB, Camp Lejeune, NC

Gentlemen:

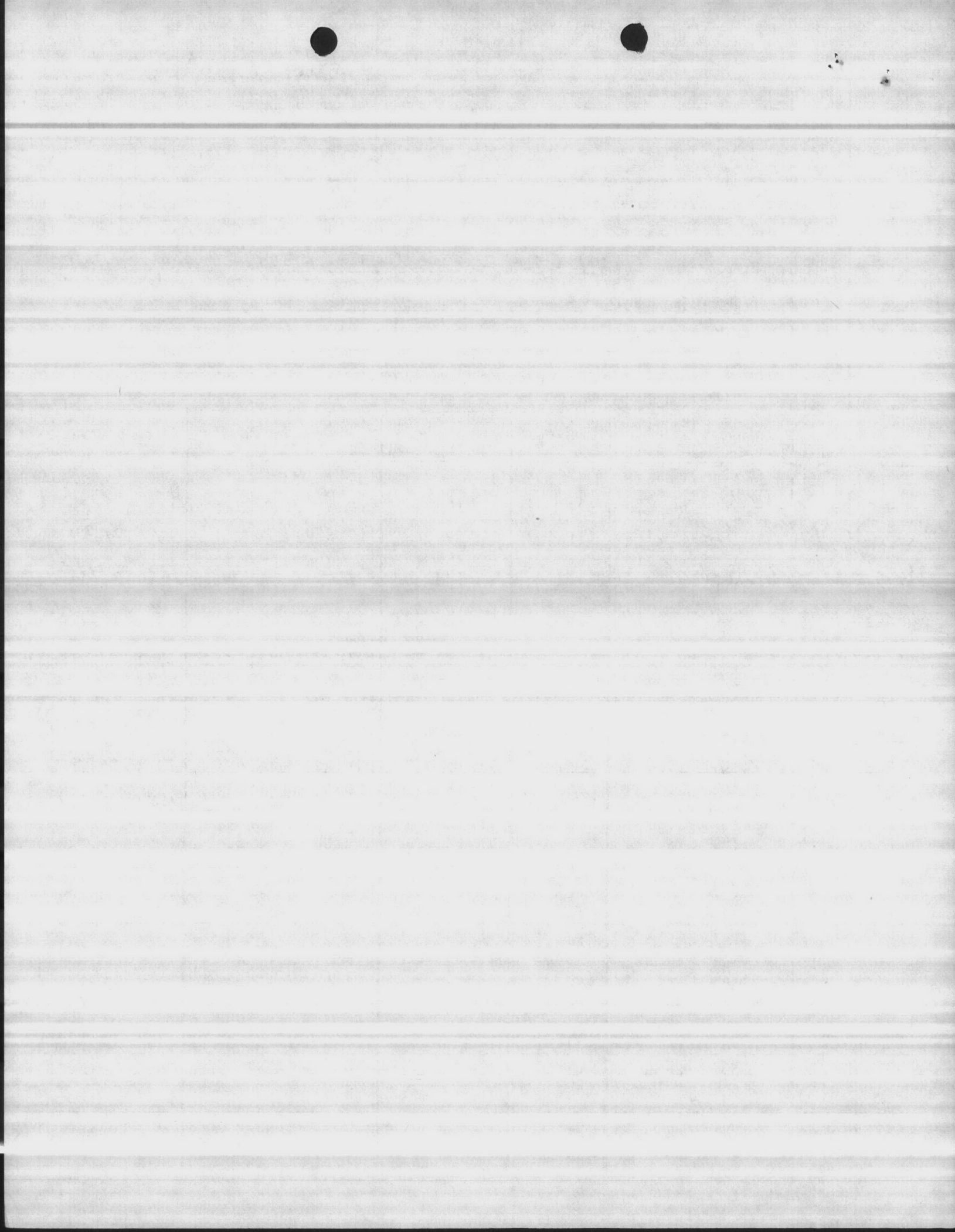
You have requested that we indicate the color of the bronze anodizing for the louvers. Please finish this with a medium bronze anodizing.

Sincerely yours,


J. A. ELLIOTT
LT, CEC, USN
Resident Officer in
Charge of Construction

Blind copy to:
05A
R. Hunt ←





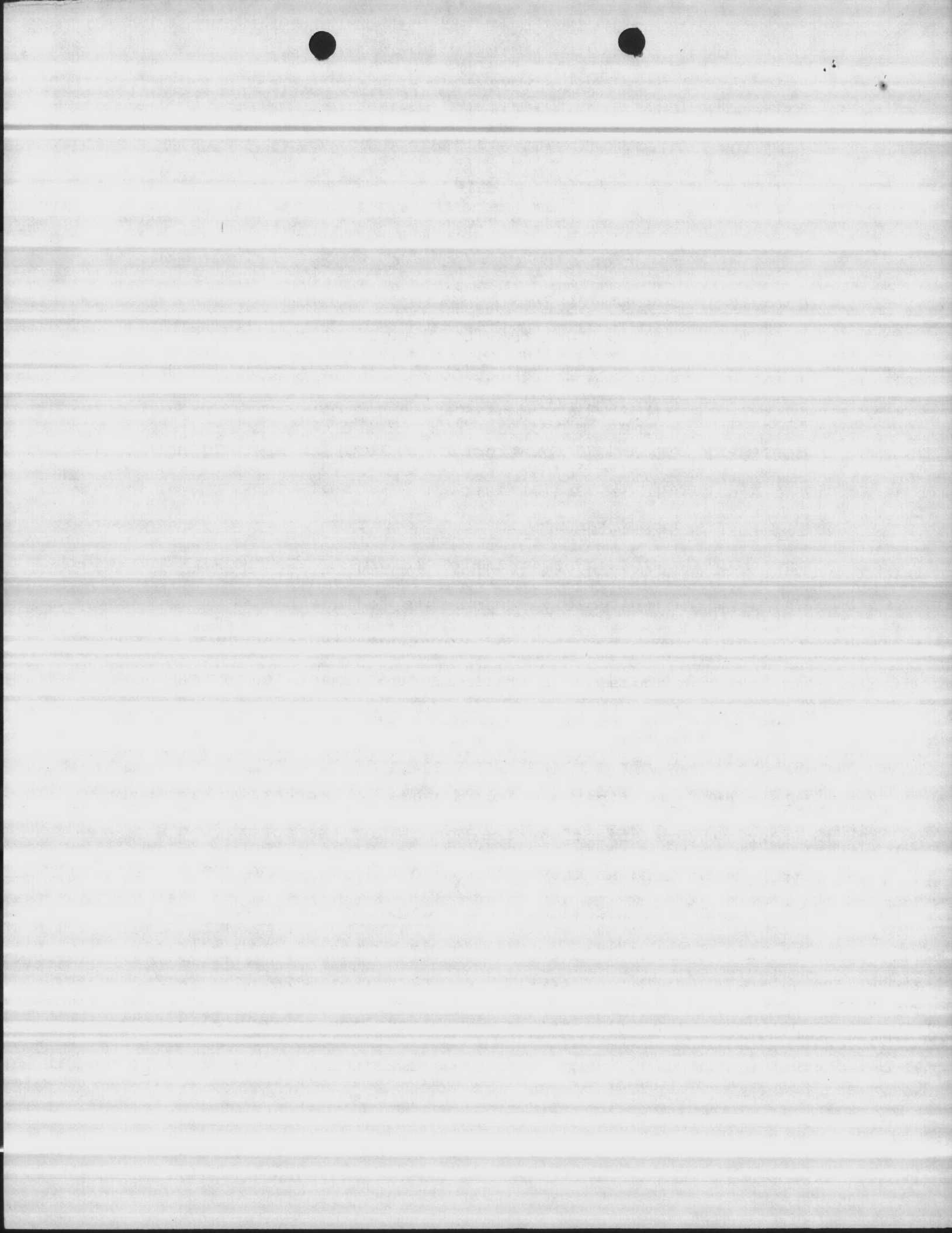
CONFERENCE CHECKLIST

(1) The subject contract was awarded to EAST COAST CONST
COMPANY INC, JACKSONVILLE
on 8 APR 83 in the amount of \$ 211,000.00 with a
contract completion date of 20 Oct 83. Liquidated
damages in the amount of \$ 65.00 per day have been
established for failure to meet the stated completion date.

(2) The Officer in Charge of Construction (OICC) for this
project is R.F. CARLSON, CDR CEC USA The Resident
Officer in Charge of Construction (ROICC) is JA ELLIOTT, Lt.
~~The Assistant Resident Officer in Charge of Construction (AROICC)~~
~~for this project is _____.~~ The govern-
ment Construction Representative is MR R. HUNT.

(3) The OICC is solely responsible for administering the con-
tract through his authorized representatives and only he may
authorize changes in contract plans or specifications. The
Government Construction Representative has all the necessary
authority to see that the work is completed according to the
plans and specifications, but he has no authority in change
order matters affecting time, price, or the contractor's
methods so long as they conform to the plans and specifica-
tions and safe practice. Any changes in the contract
involving these items must be made by the OICC in writing.

(4) The contractor will be required to implement a safety
program which will conform to all applicable federal, state



and local laws and regulations. The safety program shall include the provisions of the following publications:

"Occupational Safety and Health Standards" and "General Safety Requirements" by the Army Corps of Engineers. A

written Safety Program must be submitted and approved

prior to commencement of work on this contract. Any

accidents resulting in lost time for personnel must be

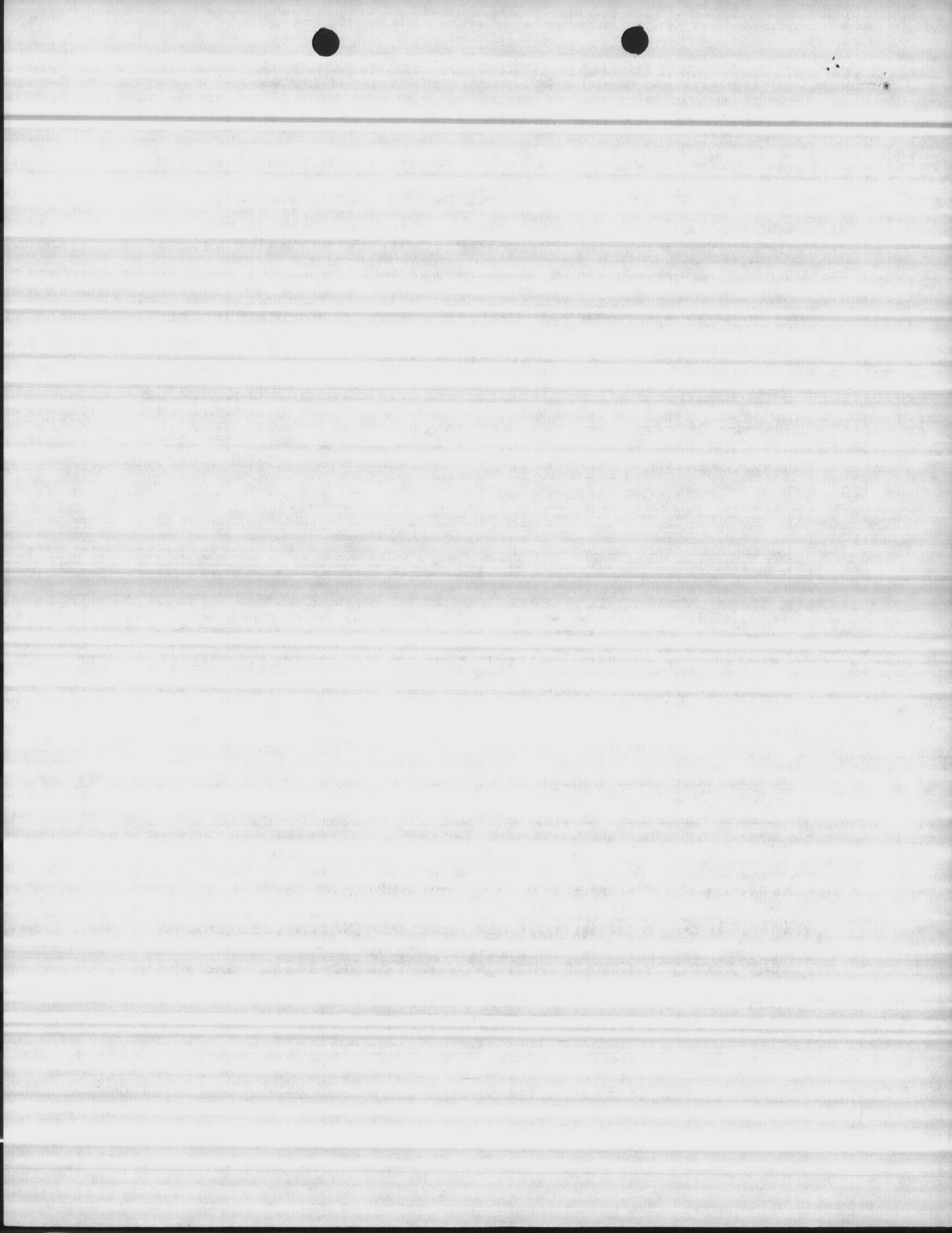
promptly reported in writing to this office.

____ (5) _____, representing the Base Safety Office provided additional information on safety requirements. _____

____ (6) MR MARTIN, representing the Base Fire Department, provided information on procedures involving "HOT" work and fire prevention.

____ (7) Federal Regulations require that all job vacancies be listed with the state employment office.

____ (8) Mr Jack McMortery from the North Carolina Employment Security Commission, provided information concerning local employment. _____



(9) _____, representing the OICC/ROICC Contract Branch, discussed various administrative items concerning the contract.

Performance/Payment Bonds _____

Certificate of Insurance _____

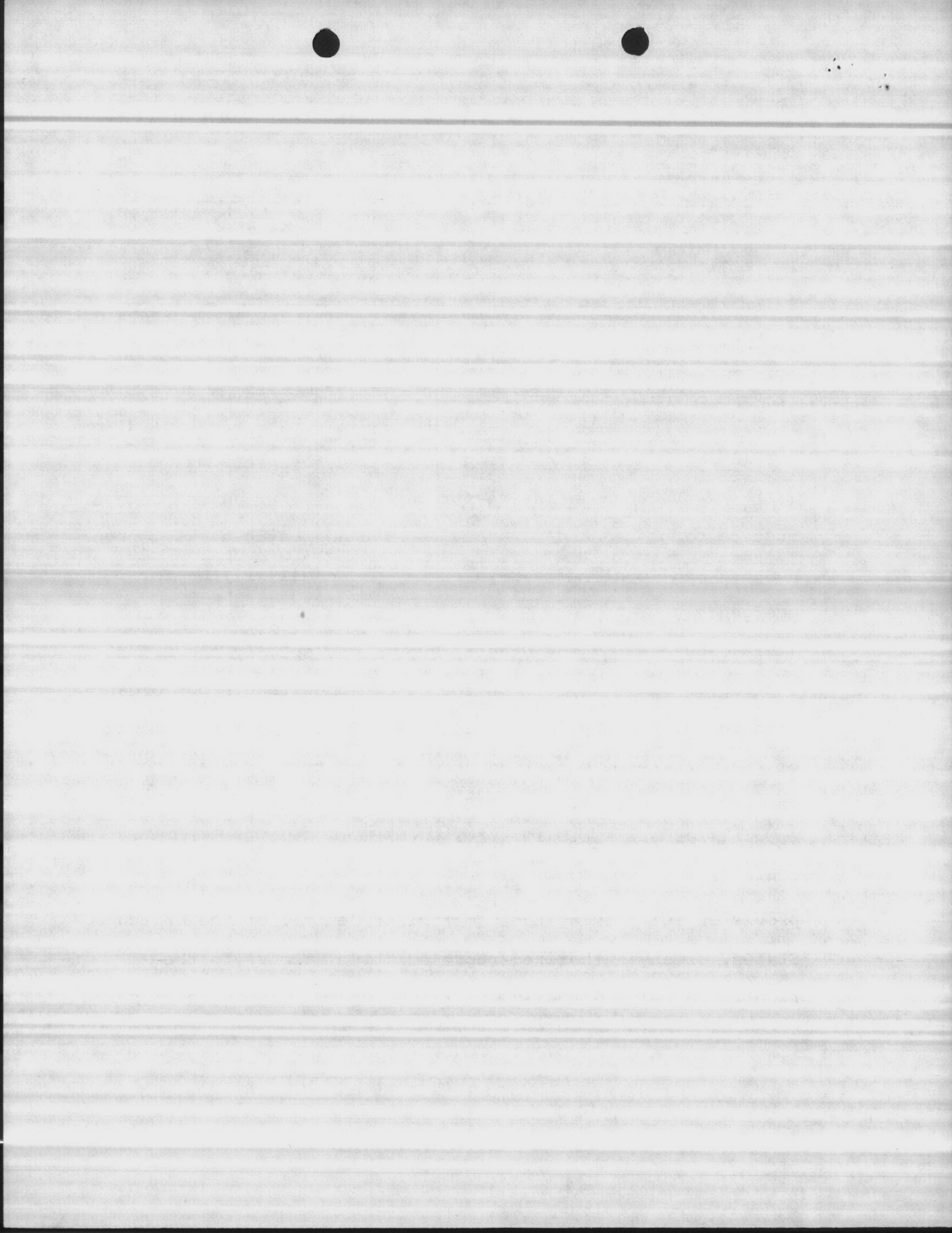
Payrolls _____

Sales and Use Tax Records _____

(10) _____, representing _____
_____ (prospective user of the facility)
provided specific information concerning the project.

(11) Key Personnel Listing furnished with your award package must be completed and returned as soon as possible. Telephone numbers and local addressess of key personnel will be for emergency use.

(12) Clause 63 of the General Provisions specify the Prime Contractor shall perform on the site, and with his own organization, work equivalent to at least 20% of the total amount of the work to be performed under the contract. That amount can only be reduced, provided written approval of such reduction is obtained from the Officer in Charge of Construction. All negotiated subcontracts greater than \$10,000 shall include a provision authorizing the Comptroller General of the United States, or any authorized representative, access to the right to examine directly, pertinent books, papers and records



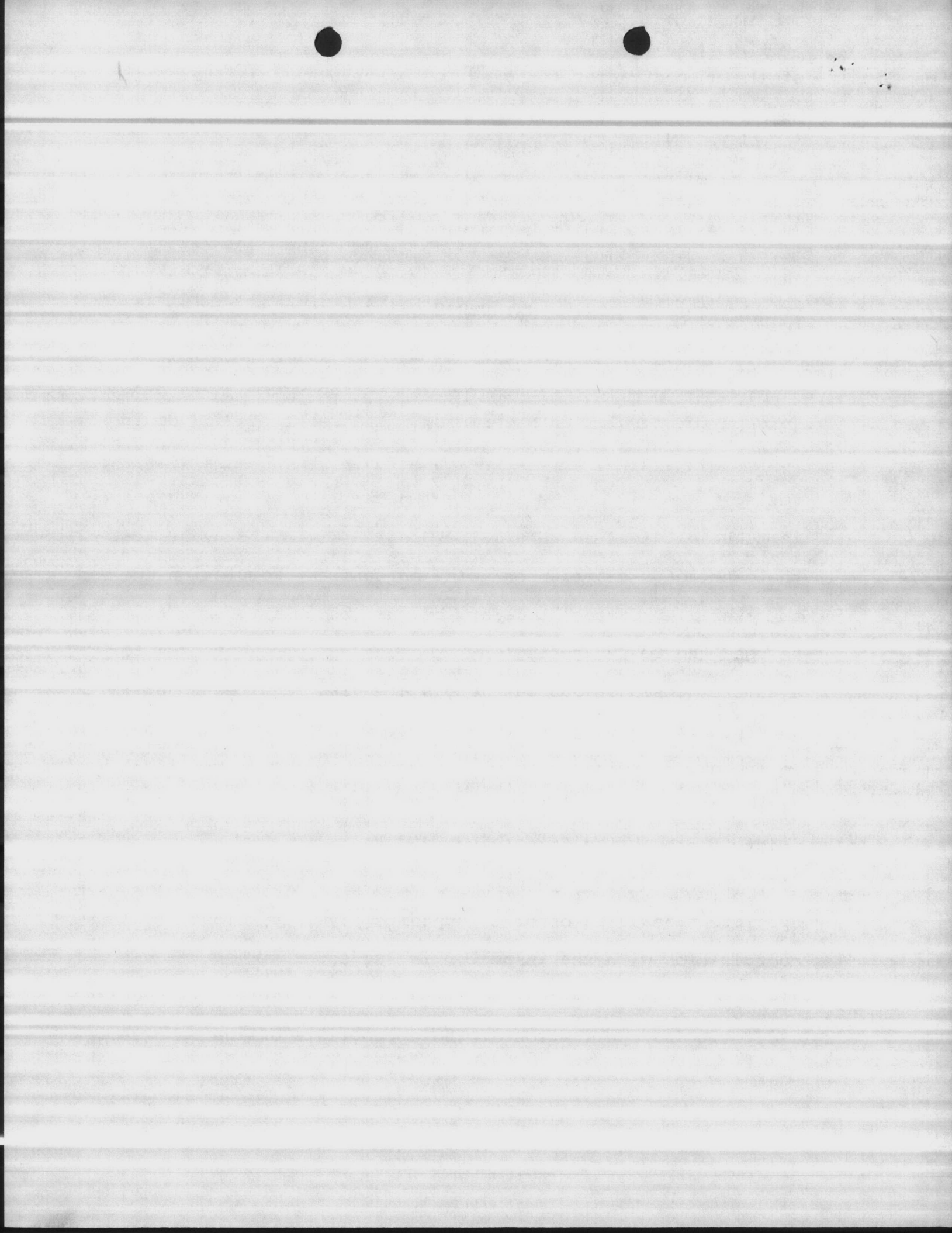
of the subcontractor for a period of three years after final payment of the contract. All subcontracts issued must contain all provisions of the prime contract. If any subcontractors will be working on this contract, a written report must be made listing the names, addresses and what work they will be doing. Use of subcontractors does not relieve the prime contractor from having a qualified representative on the job at all times.

_____ (13) A DO-C2 priority rating will apply to this contract (except for insulation materials). All materials and equipment purchased under this contract must have this priority rating indicated on the ordering information if any assistance is to be obtained in material expediting. In the event that the contractor experiences delay in contract completion due to material procurement delay, he must be able to show that he used the DO-C2 rating on the order as substantiation for a time extension. Subcontractors are also required to utilize this priority system in procurement of their materials and equipment.

_____ (14) A Schedule of Prices must be submitted and approved prior to processing first payment.

_____ (15) Requests for payments must be in accordance with the specifications. In order to expedite payments, close coordination with the inspector is suggested.

_____ (16) Power and telephone hook-ups when available will require a deposit and application at the appropriate office on base.

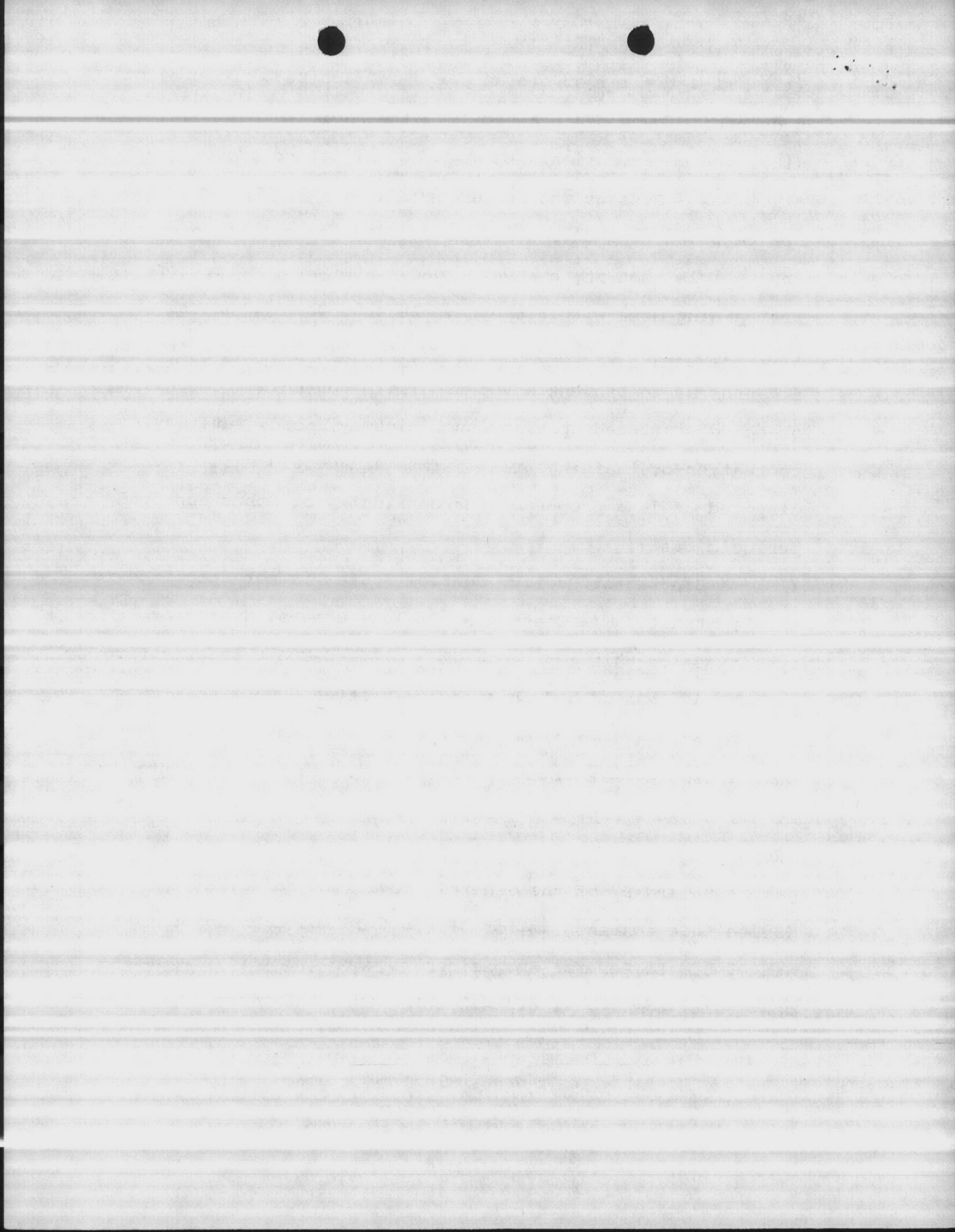


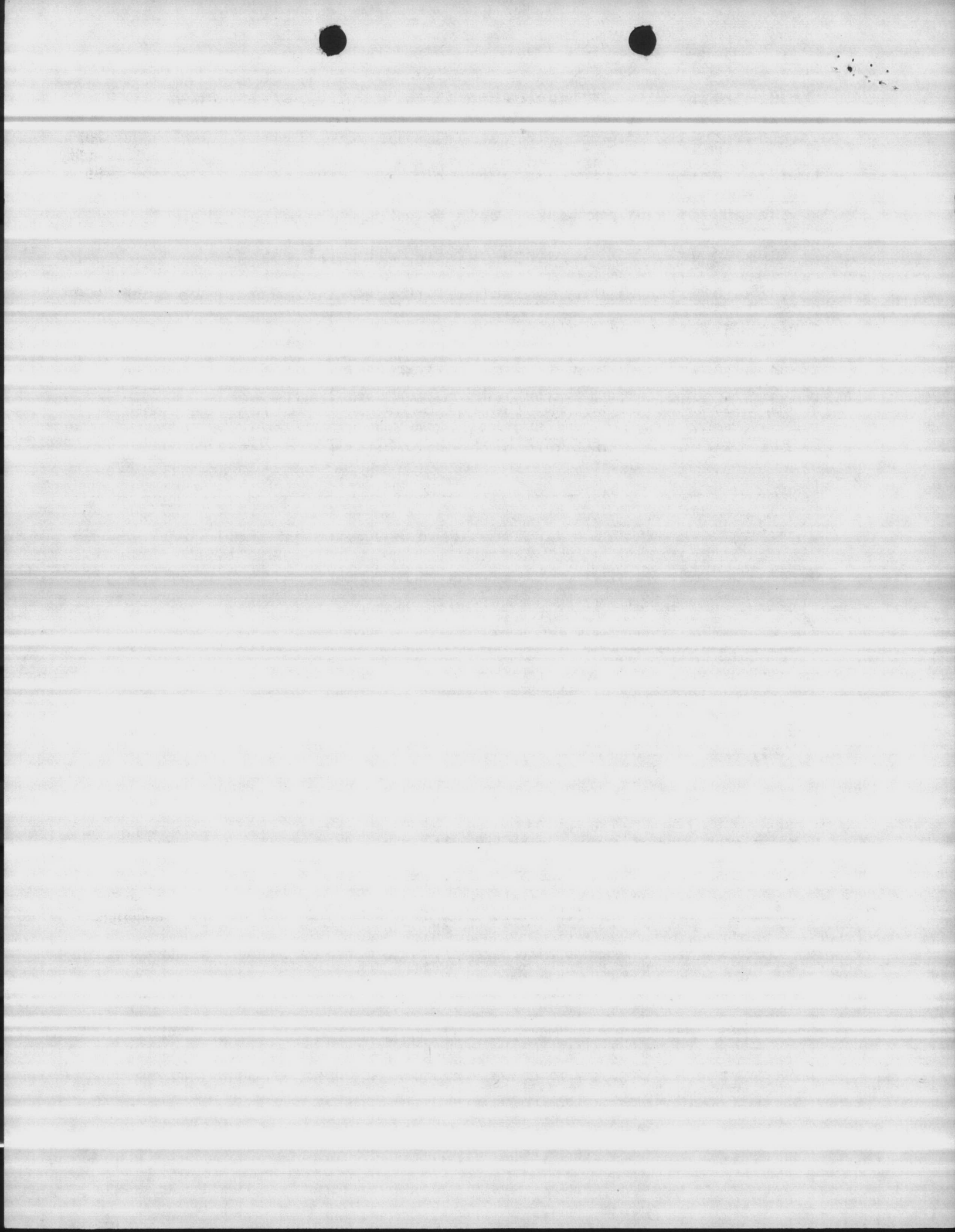
(17) If a trailer or storage area is required, approval of such a site must be obtained from the AROICC.

(18) The construction site must be maintained properly at all times. Persons who litter aboard Marine Corps Base can now be prosecuted in Federal Court. No person will operate any vehicle upon any highway, road, waterway, recreation or training area within the Camp Lejeune Complex unless the cargo is in containers or covered by a tarpaulin in such a manner as to prevent any part of its contents from falling or being scattered upon any such highway, road, waterway, recreation or training area. Trash and debris should be disposed of in a proper manner on a daily or other approved periodic basis.

(19) (A Contractor Quality Control System is not specified for this contract.) ~~(A Contractor Quality Control System is specified for this contract. A qualified CQC representative must be designated and on site. A written CQC program must be submitted and approved prior to commencement of work. The CQC representative cannot be subordinate to the superintendent, i. e., he must report separately to an officer of the firm).~~

(20) (Since this contract is for less than \$500,000, Paragraphs 96 and 97 of the General Provisions do not apply.) ~~(Since this contract is for \$500,000 or more, Paragraphs 96 and 97 of the General Provisions require quarterly reports concerning small business subcontracting and minority business~~





DEPARTMENT OF THE NAVY
OFFICER IN CHARGE
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO:
JAX/60/JAE/sel
N62470-82-C-4551
12 April 1983

MEMORANDUM FOR: Distribution

SUBJECT: Preconstruction Conference: Contract N62470-82-C-4551, Replacing Water Wells, MCB, Camp Lejeune, NC

1. The preconstruction conference for this contract will be held in our Conference Room in Building 1005, Marine Corps Base on

Tuesday , 26 April 1983 at 1000
(Day) (Date) (Hour)

You are invited to attend or to be represented.

2. The Contractor for this project is: East Coast Construction Co.
P. O. Box 5004
Jacksonville, NC 28540
Telephone: 353-4479

J. A. Elliott
J. A. ELLIOTT
LT, CEC, USN
Resident Officer in
Charge of Construction

Distribution:

BMO, Inspection Br.
BMO, Environmental Br.
Fire Chief
Safety Manager
PWO, Design Div. (Code 04)
User (If Specified):
N. C. Employment Security Commission

Copies to: JAX/02

05

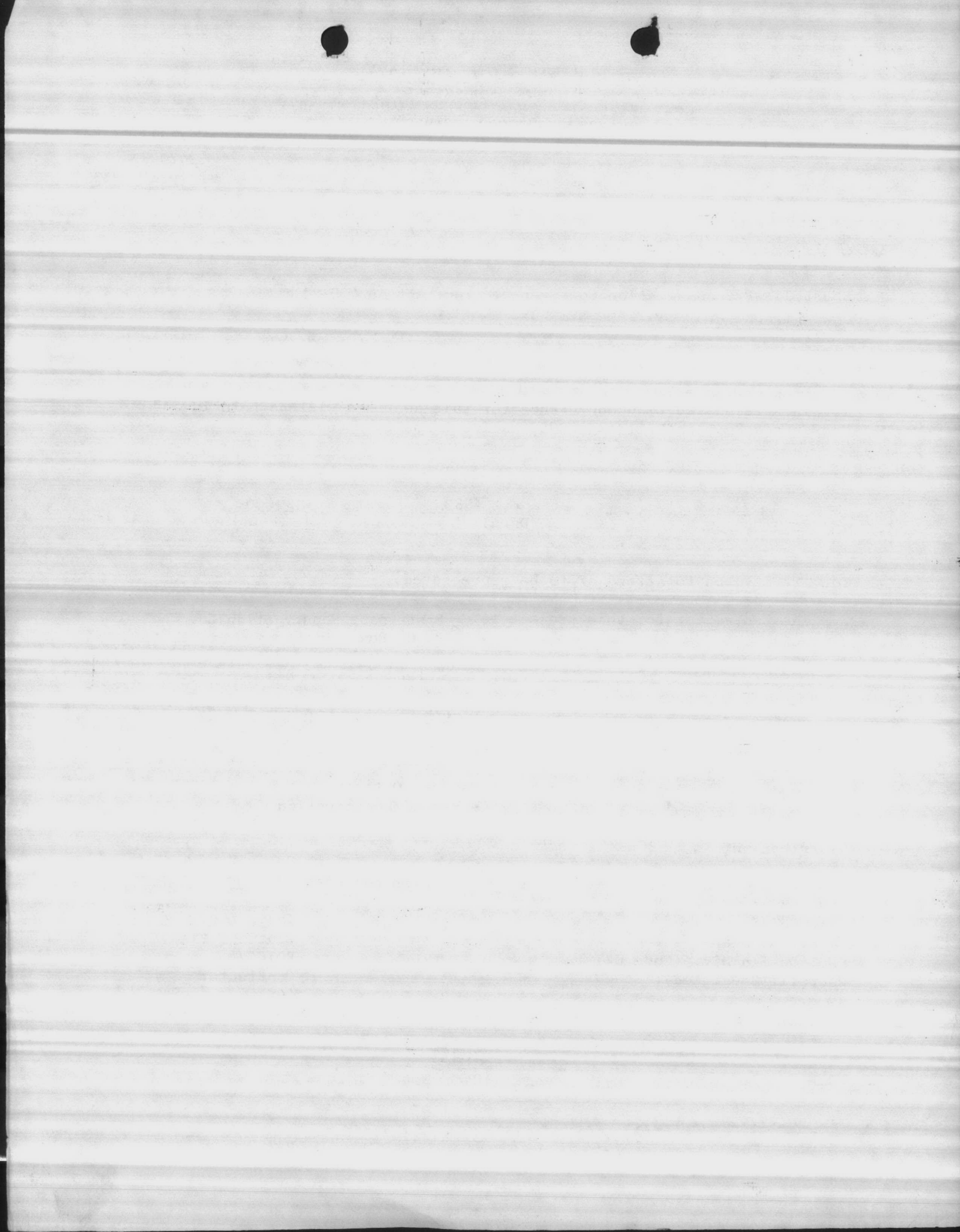
Inspector/M. *Hunt* Coston

Contract File

ROICC/60

Contractor

10S



DEPARTMENT OF THE NAVY
 OFFICER IN CHARGE OF CONSTRUCTION
 NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
 JACKSONVILLE NORTH CAROLINA AREA
 MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA 28542

In reply refer to:
 JAX/02/MLE/lw
 N62470-82-C-4551
 8 April 1983

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

East Coast Construction Company, Incorporated
 P. O. Box 5004
 229 Center Street
 Jacksonville, North Carolina 28540

Gentlemen:

The Government hereby accepts your bid dated 24 February 1983 in the sum of \$211,000.00 for Replacing Water Wells at the Marine Corps Base, Camp Lejeune, North Carolina, in accordance with Base Bid of NAVFAC Specification No. 05-82-4551 and Amendment Nos. 1, 2, 3 and 4 (Contract N62470-82-C-4551). The contract completion date will be 20 October 1983.

The formal contract will be prepared on the contract forms indicated in the Specification. The contract will provide that payments will be made by the Disbursing Officer, Marine Corps Base, Camp Lejeune, North Carolina 28542, and the cost of the work will be chargeable to Appropriation 1731106.2720; Object Class 000; Bureau Control 67001/0; Authorization Accounting Activity 067001; Transaction Type 2D; Property Accounting Activity 000000; Cost Code 345 213M 45LEQ.

Subject to receipt of Performance and Payment bonds within fifteen days from the date of this notice in the penal sums of \$211,000.00 and \$105,500.00 respectively, you are hereby directed to proceed with the work under the authority of this notice pending execution of such formal contract. The Command's standard provisions for termination, at the convenience of the Government or otherwise, shall be applicable to this notice and your right to proceed thereunder.

It is requested that you execute three copies of this notice and that you and an acceptable Surety execute three copies of the attached bonds. A verifax or other facsimile of the Agent's authority to sign the bonds for the Surety should be attached to each copy of the Performance Bond. The date of the contract on the bonds should be the same as the date of this letter. Return two copies of this notice and the executed bonds to the Officer in Charge of Construction, Naval Facilities Engineering Command Contracts, Marine Corps Base, Camp Lejeune, North Carolina 28542, within fifteen days from the date of this notice.

Lieutenant J. A. ELLIOTT, CEC, USN has been designated Resident Officer in Charge of Construction for this contract. Please contact him at telephone 919-451-2581 no later than 18 April 1983 to arrange a preconstruction conference for the purpose of reviewing various base regulations and contract administration procedures. The Resident Officer in Charge of Construction, as the field representative of the Officer in Charge of Construction, exercises full supervision and general direction of the work at the site, so far as it affects the interest of the Government. Should the contractor receive any direction affecting the work at the site from anyone who is not a member of the OICC/ROICC organization, he shall immediately refer the matter to the Resident Officer in Charge of Construction.

Sincerely yours,

R. E. CARLSON
 Commander, CEC, USN
 For Commander, Naval Facilities
 Engineering Command
 (Contracting Officer)

Encl:

- (1) Standard Form 25, Performance Bond
- (2) Standard Form 25A, Payment Bond

The above award received this _____ day of _____ 1983

EAST COAST CONSTRUCTION COMPANY, INC.
 (Contractor)

By: _____
 (Signature)

 (Type or Print Name and Official Title)

CMC	JAX/02
CG MCB CLNC	04
COMPT MCB CLNC	05
LANTDIV Code 02	05A
" " 05B	20
" " 013	60
" " 09A21B3	→ Coston
" " 407	Payroll
SBA	Tax
State Revenue	OFCCP



STANDARD FORM 20
 JANUARY 1961 EDITION
 GENERAL SERVICES ADMINISTRATION
 FED. PROC. REG. (41 CFR) 1-16.401

REFERENCE
 Contract N62470-82-B-4551
 Specification No. 05-82-4551
 and Amendments Nos. 1 and 2

DATE
 24 January 1983

**INVITATION FOR BIDS
 (CONSTRUCTION CONTRACT)**

<p>NAME AND LOCATION OF PROJECT</p> <p>Replacing Water Wells Marine Corps Base Camp Lejeune, North Carolina</p>	<p>DEPARTMENT OR AGENCY</p> <p>Department of the Navy Naval Facilities Engineering Command</p>
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BY (Issuing office) Officer in Charge of Construction
 Jacksonville North Carolina Area
 Building 1005, Marine Corps Base
 Camp Lejeune, North Carolina 28542

Sealed bids in DUPLICATE for the work described herein will be received until
 2:00 P. M., 24 February 1983.

at Office of Officer in Charge of Construction, Jacksonville North Carolina
 Area, Building 1005, Marine Corps Base, Camp Lejeune, North Carolina 28542.

and at that time publicly opened.

Information regarding bidding material, bid guarantee, and bonds

Specification No. 05-82-4551 and other bidding data and information may be
 obtained or examined on application to the Officer in Charge of Construction,
 Jacksonville North Carolina Area, Building 1005, Marine Corps Base, Camp
 Lejeune, North Carolina 28542.

NOTE: If the bid is \$25,000 or greater, failure to submit bid guaranty at
 time of bid opening is cause for rejection of the bid.

Contract to be awarded as a result of this solicitation shall be assigned a
 DO-C2 rating in accordance with the provisions of BDSA Reg. 2 and/or DMS Reg. 1.

For information concerning this contract: Telephone Area Code 919-451-2581.

NOTE: When published in commercial periodicals, this is for News Release Only.

NOT A PAID ADVERTISEMENT

Description of work

The work includes demolition of pump houses, well capping, test drilling, new
 wells with pump houses.

R. E. CARLSON, CDR, CEC, USN
 Officer in Charge of Construction
 Jacksonville North Carolina Area
 24 January 1983

Estimated Cost Range: Between \$100,000 and \$500,000

(See Reverse) (SPEC. 05-82-4551)

NOTICE OF TOTAL SMALL BUSINESS SET-ASIDE (1972 JUL)

(a) Restriction. Offers under this procurement are solicited from small business concerns only and this procurement is to be awarded only to one or more small business concerns. This action is based on a determination by the Contracting Officer, alone or in conjunction with a representative of the Small Business Administration that it is in the interest of maintaining or mobilizing the Nation's full productive capacity, in the interest of war or national defense programs, or in the interest of assuring that a fair proportion of Government procurement is placed with small business concerns. Offers received from firms which are not small business concerns shall be considered nonresponsive and shall be rejected.

(b) Definition. A "small business concern" is a concern, including its affiliates, which is independently owned and operated, is not dominant in the field of operation in which it is offering on Government contracts, and can further qualify under the criteria set forth in regulations of the Small Business Administration (Code of Federal Regulations, Title 13, Section 121.3-8). In addition to meeting these criteria, a manufacturer or a regular dealer submitting offers in his own name must agree to furnish in the performance of the contract end items manufactured or produced by small business concerns: Provided, That this additional requirement does not apply in connection with construction or service contracts.

Bid or proposals received from firms which are not small business concerns shall be considered nonresponsive.

Standard Industrial Classification No. 1781 applies and the applicable size standard for this procurement is \$5,000,000.00.

"Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity" is attached hereto as Appendix 'A' and hereby made a part hereof.

CONTRACTOR'S SUBMITTAL TRANSMITTAL
5ND LANTDIV 4-4355/3 (Rev. 6/76)

CONTRACT NO N62470-82-C-4551	TRANSMITTAL NO 15	DATE 8-26-83
PROJECT TITLE AND LOCATION Replacing Three (3) Water Wells, MCB, Camp Lejeune, N. C.		
WELL #M-168		

FROM CONTRACTOR
East Coast Construction Co., Inc.
TO
ROICC, Camp Lejeune, N. C.

CONTRACTOR USE ONLY
*List only one specification division per form.
List only one of the following categories on each transmittal form,
and indicate which is being submitted

Contractor Approved OICC Approval Deviation/Substitution For OICC Approval

REVIEWER USE ONLY
**ACTION CODES
A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged.
C-Comments
R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO.	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	15201-6	Driller's Log	3	D	AS
2	"	Electric Log & Gamma Log	3		60
3	"	Water Analysis	3		9-8-83
4	"	Sieve Analysis	3		
5	"	Recommendation & Data Submittal	3	D	

CONTRACTOR'S COMMENTS
WE

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC _____ CONTRACTOR REPRESENTATIVE (Signature) _____

DATE RECEIVED BY REVIEWER _____ FROM (Reviewer) _____ TO _____

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS
well Relocated

COPIES TO ROICC (2) LANTDIV (1) A-E (1)	DATE 9-8-83	SIGNATURE GAE... ROICC
--	----------------	---------------------------

EAST COAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

Post Office Box 5004

JACKSONVILLE, NORTH CAROLINA 28549

CAMP LEJEUNE

M-168

May 3, 1983

- 0 - 10 fine white sand
- 10 - 20 fine white sand
- 20 - 30 fine white sand
- 30 - 40 fine gray-white sand
- 40 - 50 fine gray-white sand
- 50 - 60 medium to coarse gray sand
- 60 - 70 medium to coarse gray sand
- 70 - 80 medium to coarse gray sand
- 80 - 90 fine to medium gray sand
- 90 - 100 fine, medium and coarse gray sand
- 100 - 110 fine, medium coarse sand with some clay
- 110 - 120 fine sand, silt and clay with some medium sand
- 120 - 130 fine to medium sand
- 130 - 140 fine sand
- 140 - 150 very fine sand
- 150 - 160 fine sand
- 160 - 170 fine sand, some medium sand, trace of clay
- 170 - 180 very fine sand, some medium sand, trace of clay
- 180 - 190 fine to medium sand
- 190 - 200 medium sand
- 200 - 210 medium sand
- 210 - 220 medium sand
- 220 - 230 medium sand
- 230 - 240 fine to medium sand
- 240 - 250 fine to medium sand

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for determining and correlating all quantities and dimensions; selecting fabrication processes and methods of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
 Greenville, South Carolina

Date 8-15-83 By *[Signature]*

RECEIVED

AUG 2 1983

ENWRIGHT ASSOCIATES

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DE T.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
M ECHANICAL	_____	_____
E LECTRICAL	_____	_____
WATER	<i>PKL</i>	<i>EW</i>
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____



Johnson Division
 P.O. Box 43118 • St. Paul, Minnesota 55164
 Telephone 612-636-3900 • Telex 29-7451
uop Inc.

SAND ANALYSIS
(FINE)

MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

Sample sent in by Carolina Well & Pump Co

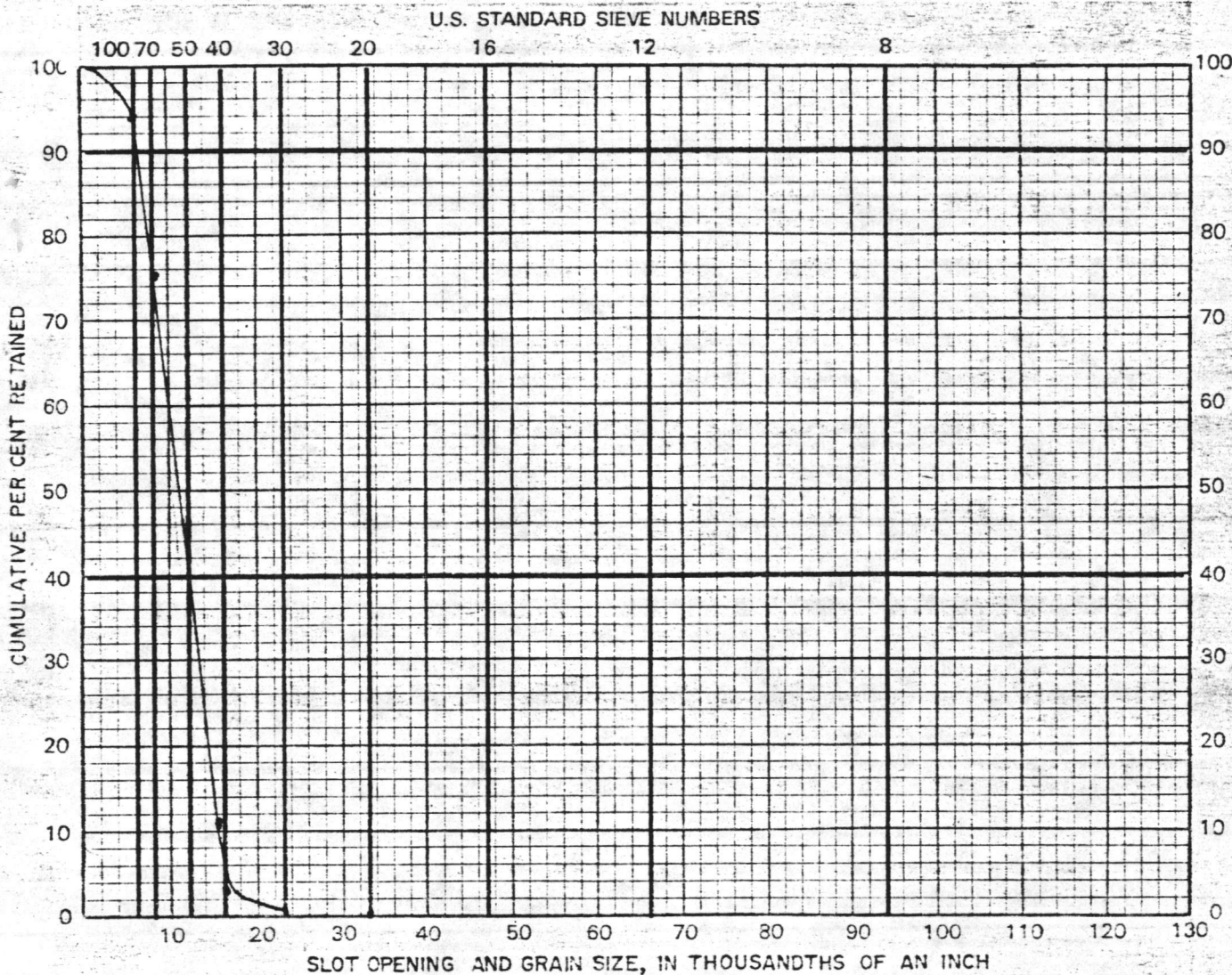
Town Sanford State NC Zip _____ Date 5-17-83

From well of Camp LeJeune (Gardner House)

Contract N62470-82-C-4551

Remarks: 40-50

- Field Copies -



U.S. SIEVE NO.	SIEVE OPENING INCHES	SIEVE OPENING MM.	CUMULATIVE % RETAINED
6	.132	3.36	
8	.094	2.38	
12	.066	1.68	
16	.047	1.19	
20	.033	0.84	1
30	.023	0.60	3
40	.016	0.42	75
50	.012	0.30	
70	.008	0.21	94
100	.006	0.15	

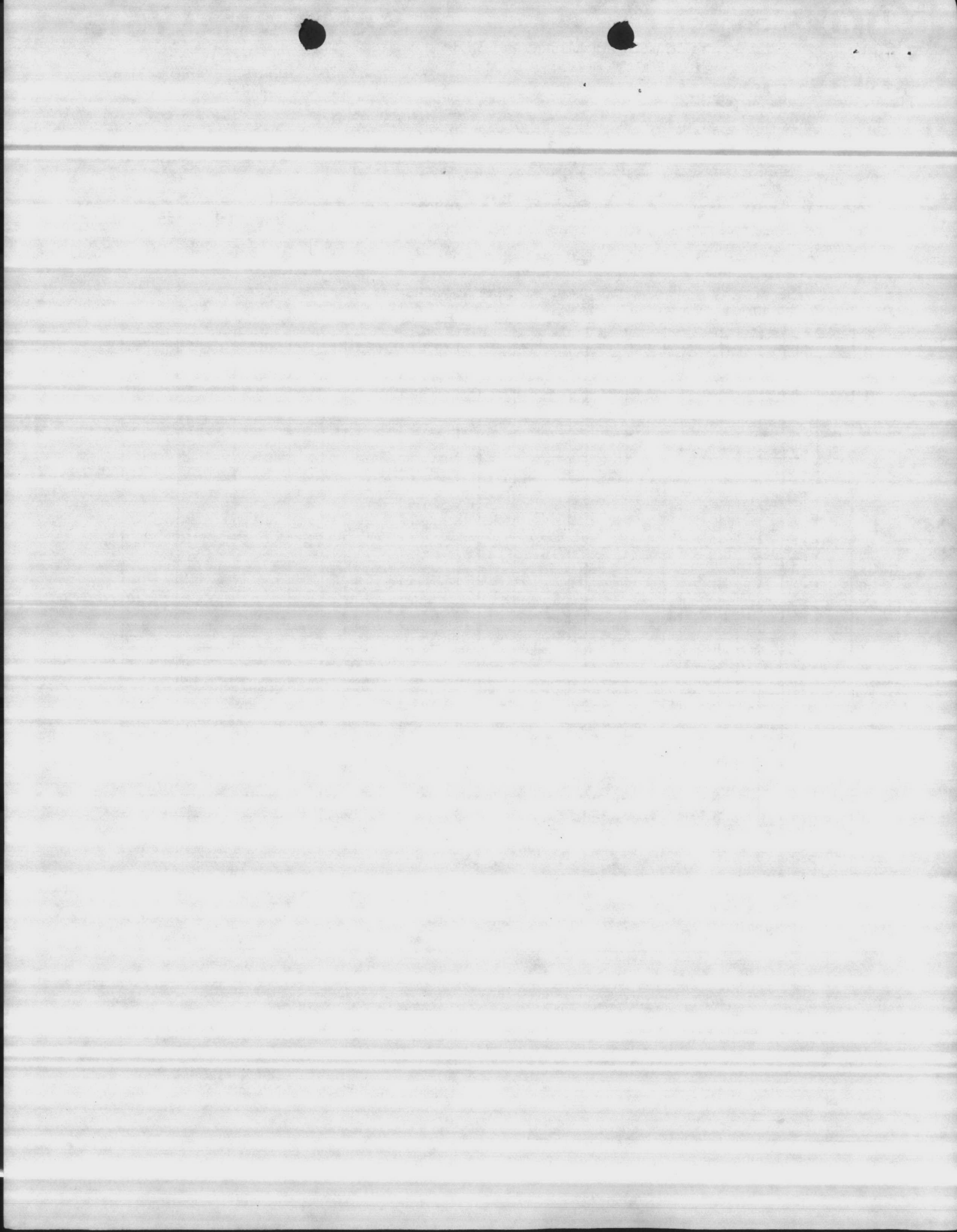
Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: BPV

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.





Johnson Division
 P.O. Box 43118 • St. Paul, Minnesota 55164
 Telephone 612-636-3900 • Telex 29-7451
uop Inc.

SAND ANALYSIS

(FINE)

MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

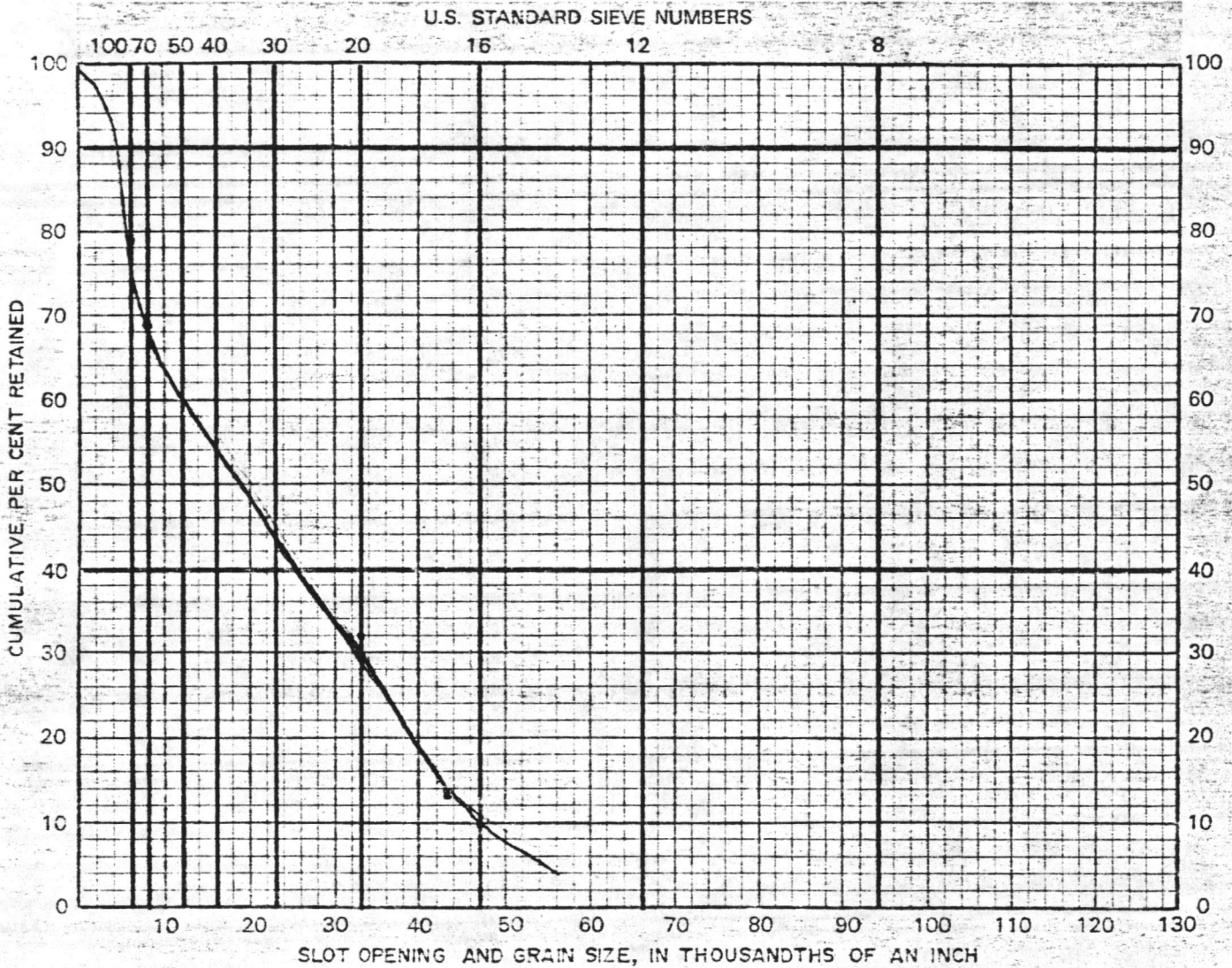
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: 190-200

200-210



U.S. SIEVE NO.	SIEVE OPENING		CUMULATIVE % RETAINED
	INCHES	MM.	
6	.132	3.36	
8	.094	2.38	
12	.066	1.68	
16	.047	1.19	
20	.033	0.84	
30	.023	0.60	
40	.016	0.42	
50	.012	0.30	
70	.008	0.21	
100	.005	0.15	

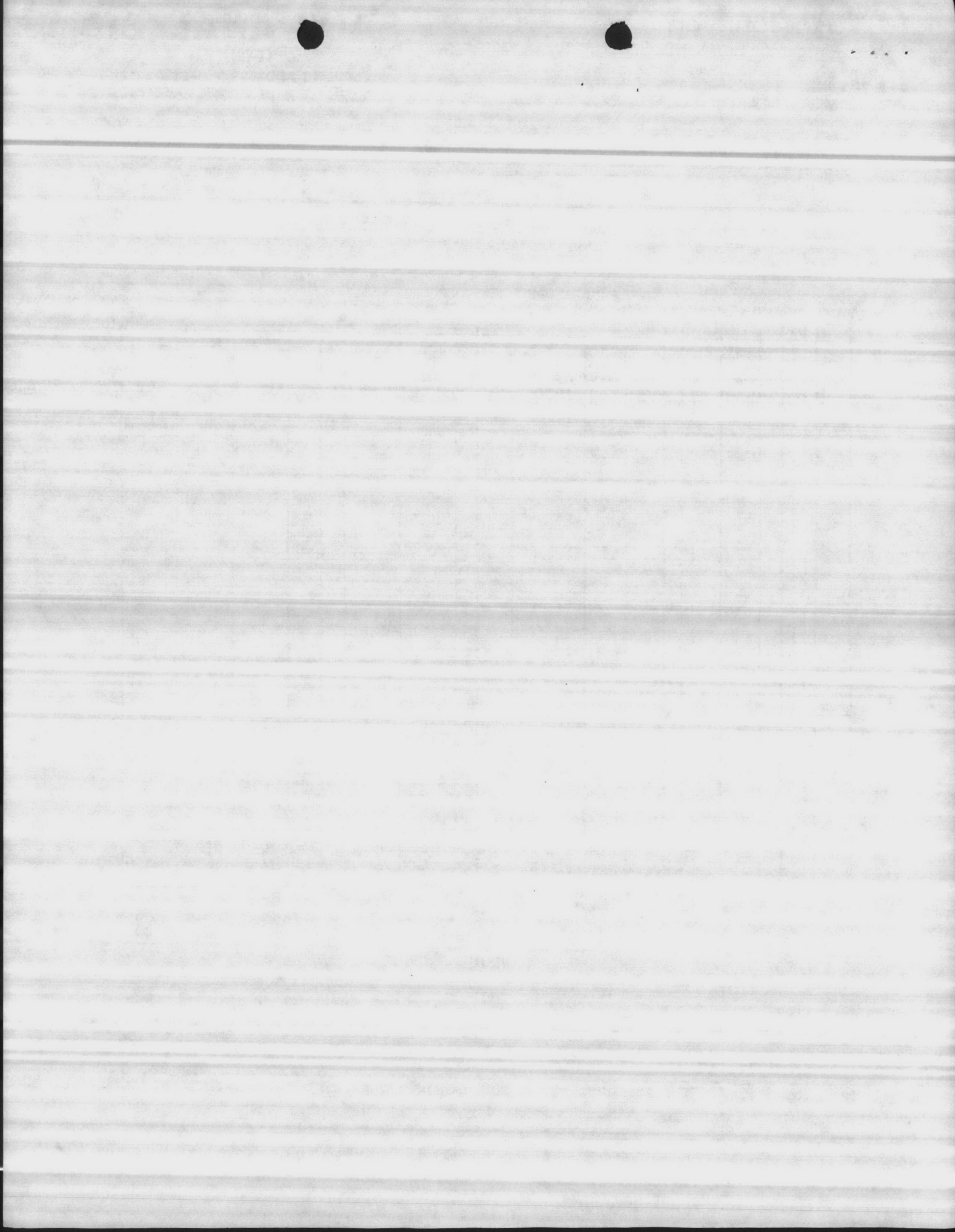
Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.





Johnson Division
 P.O. Box 43118 • St. Paul, Minnesota 55164
 Telephone 612-636-3900 • Telex 29-7451

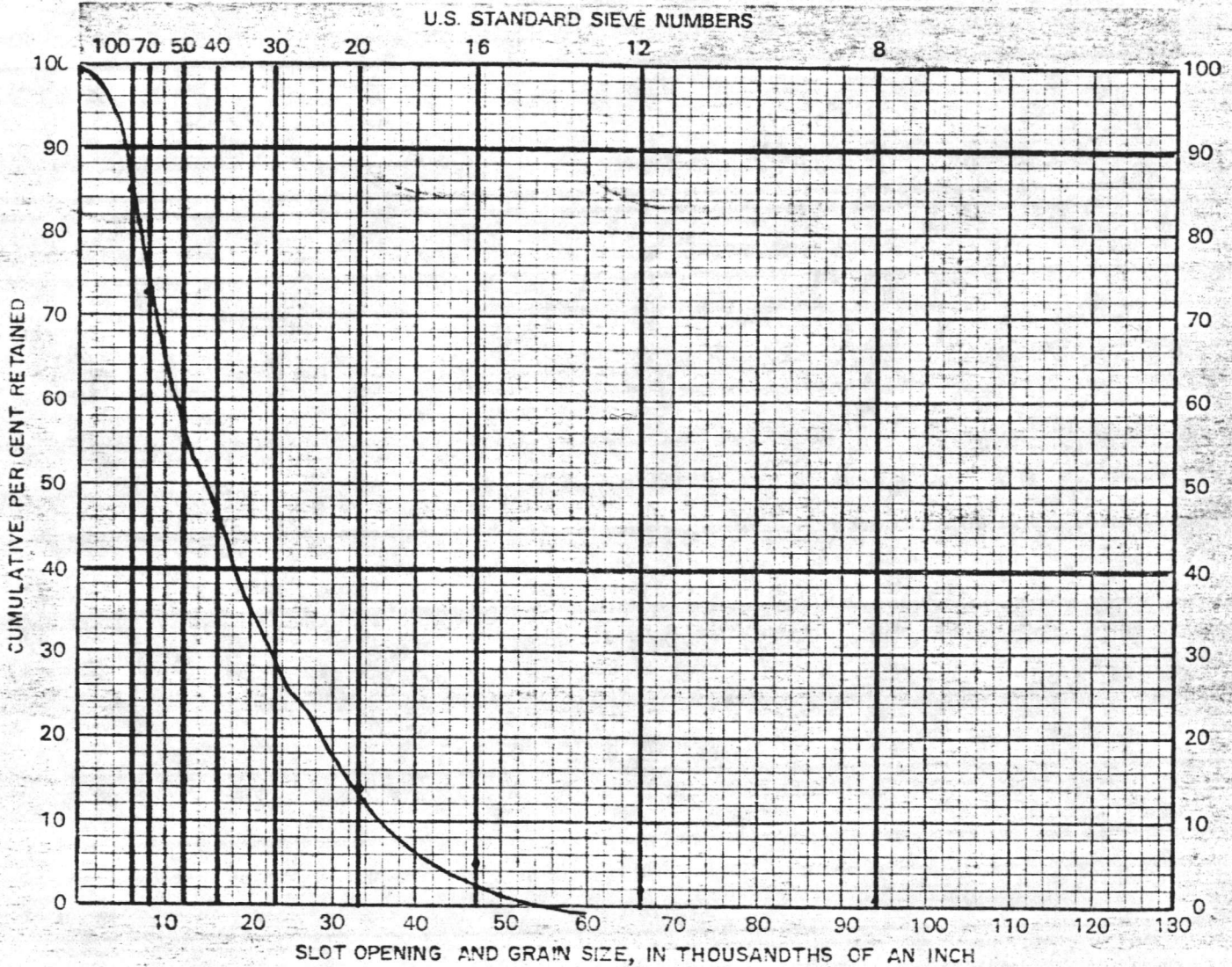
uop Inc.

SAND ANALYSIS (FINE)

MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

Sample sent in by Carolina Well & Pump
 Town Sanford State N.C. Zip _____ Date 5-17-87
 From well of Camp Lejeune (Guard House)
 Remarks: _____

210-220



U.S. SIEVE NO.	SIEVE OPENING		CUMULATIVE % RETAINED
	INCHES	MM	
6	.132	3.36	
8	.094	2.36	
12	.066	1.68	
16	.047	1.19	
20	.033	0.84	
30	.023	0.60	
40	.016	0.42	
50	.012	0.30	
70	.008	0.21	
100	.005	0.15	

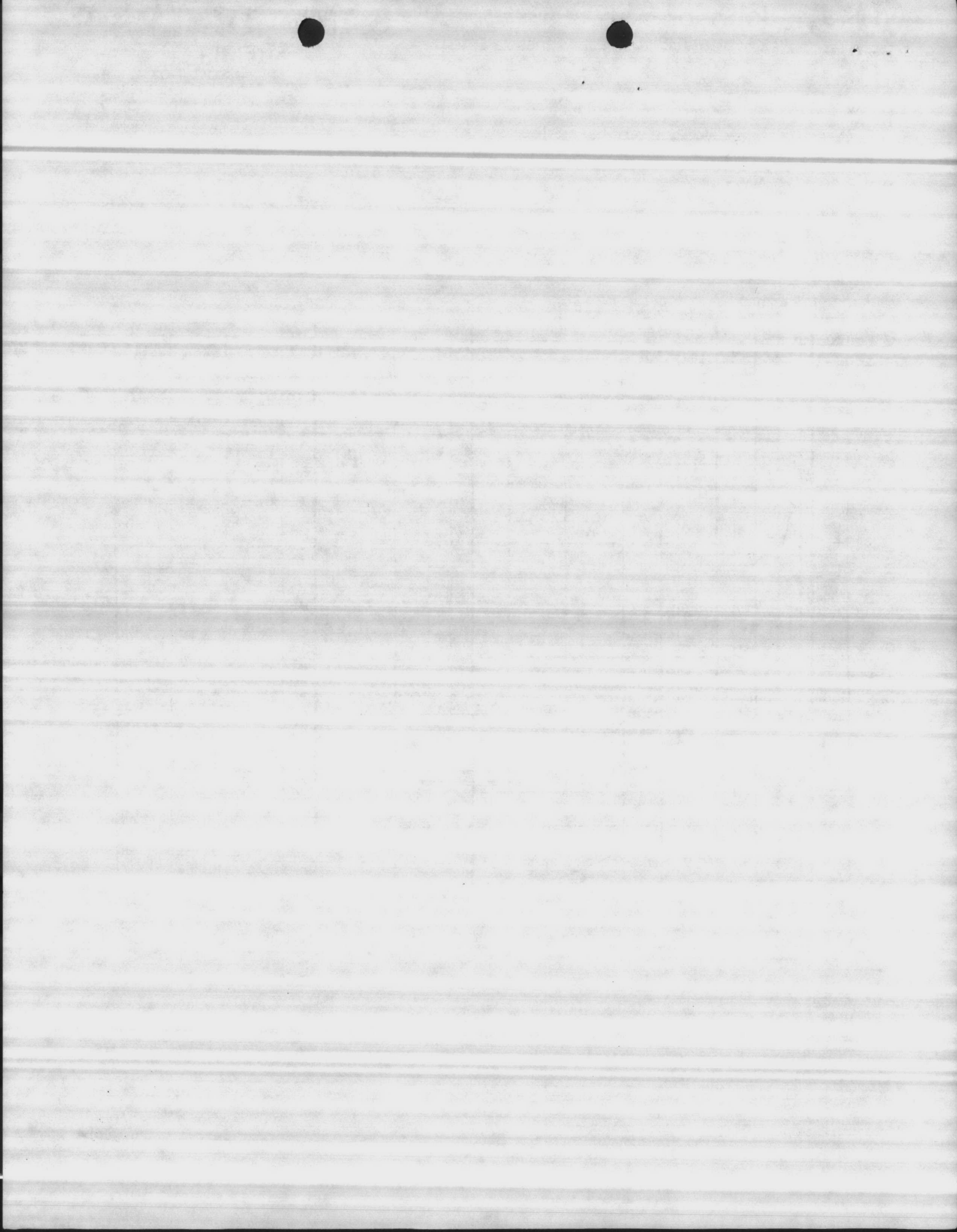
Notes: _____

 Recommended Slot Opening: _____

 Recommended Screen: Dia. _____ in. Length _____ Ft.

 By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.





Johnson Division
 P.O. Box 43118 • St. Paul, Minnesota 55164
 Telephone 612-636-3900 • Telex 29-7451
Uop Inc.

SAND ANALYSIS (FINE)

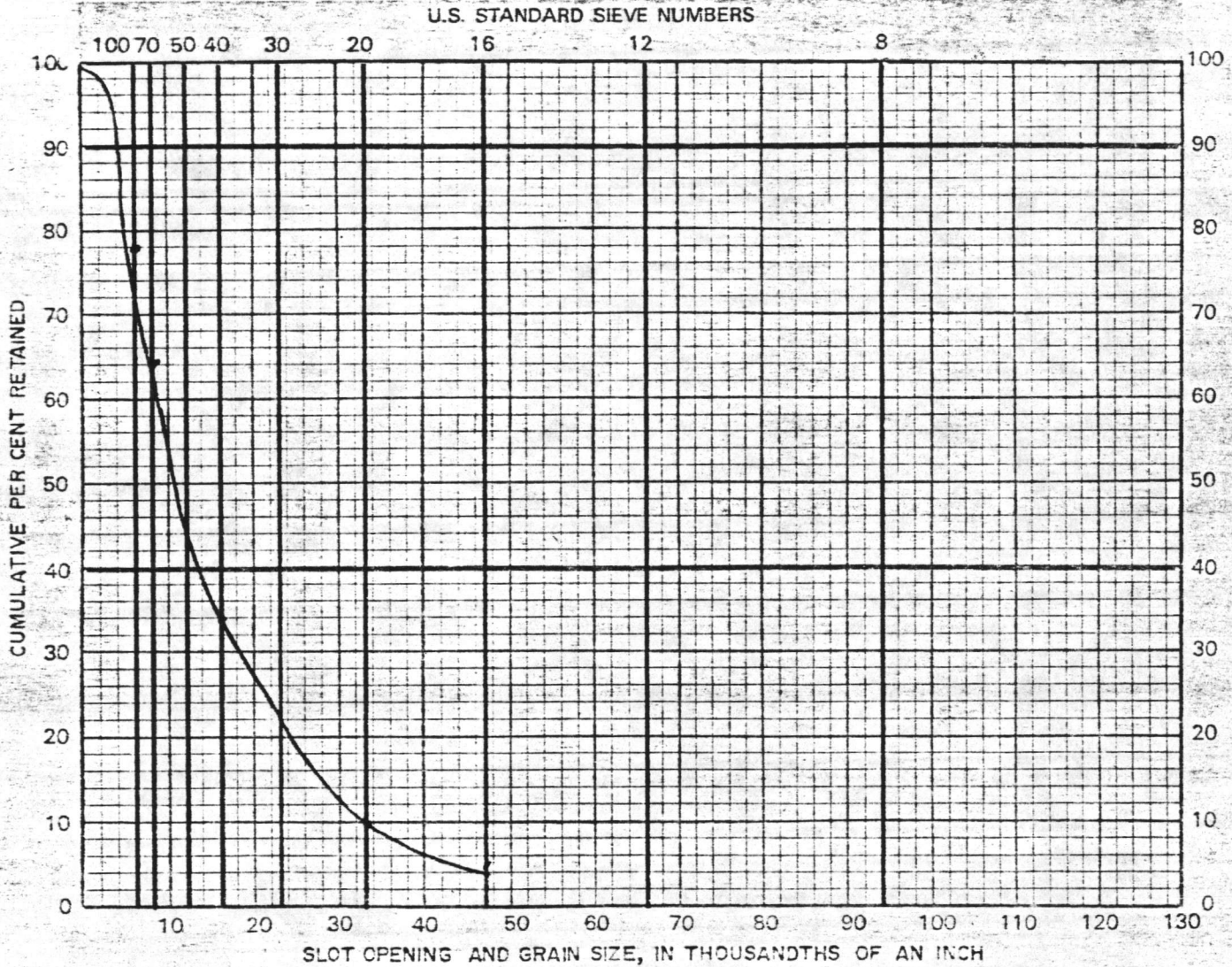
MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

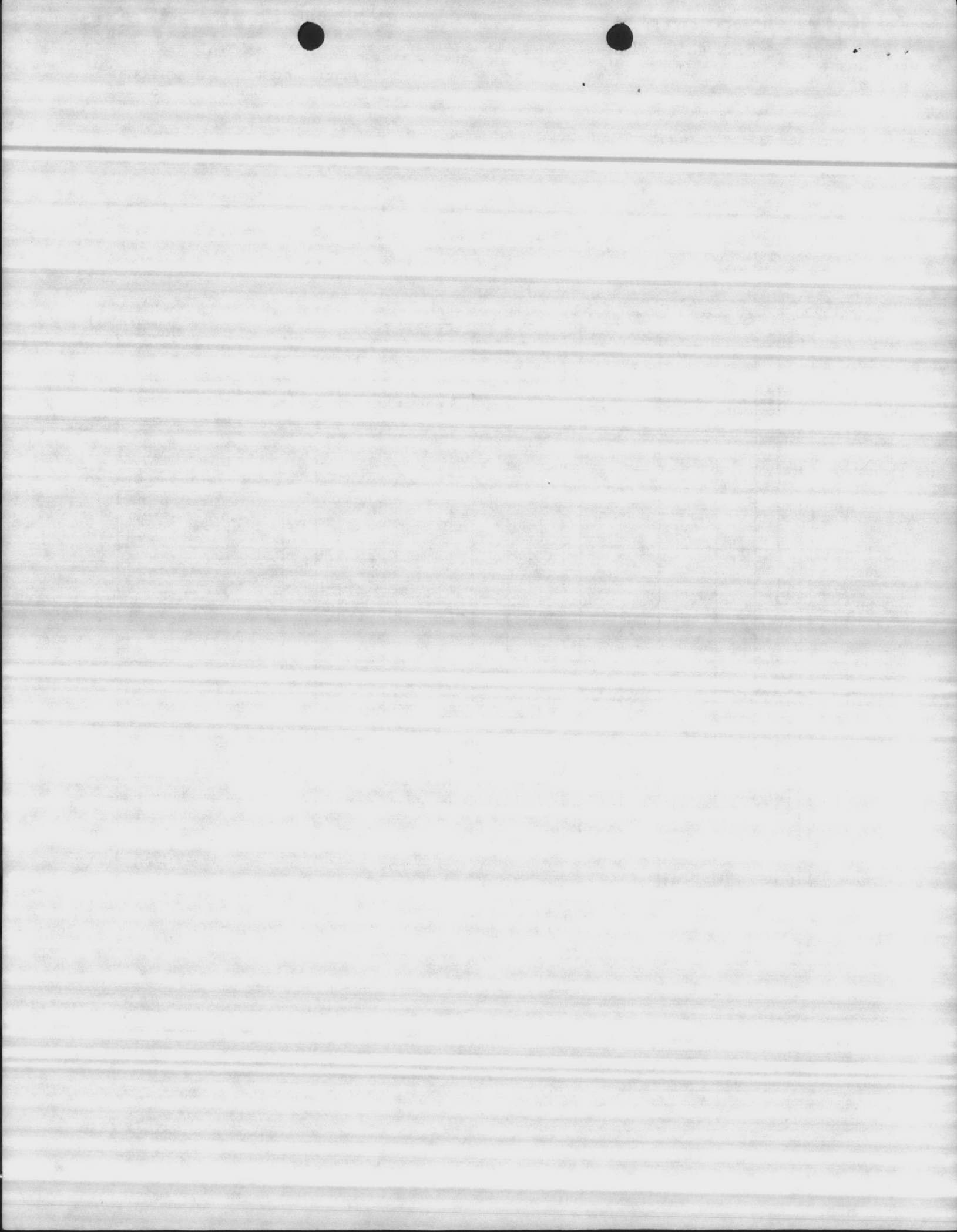
Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: 220-230







Johnson Division
 P.O. Box 43118 • St. Paul, Minnesota 55164
 Telephone 612-636-3900 • Telex 29-7451
Uop Inc.

SAND ANALYSIS (FINE)

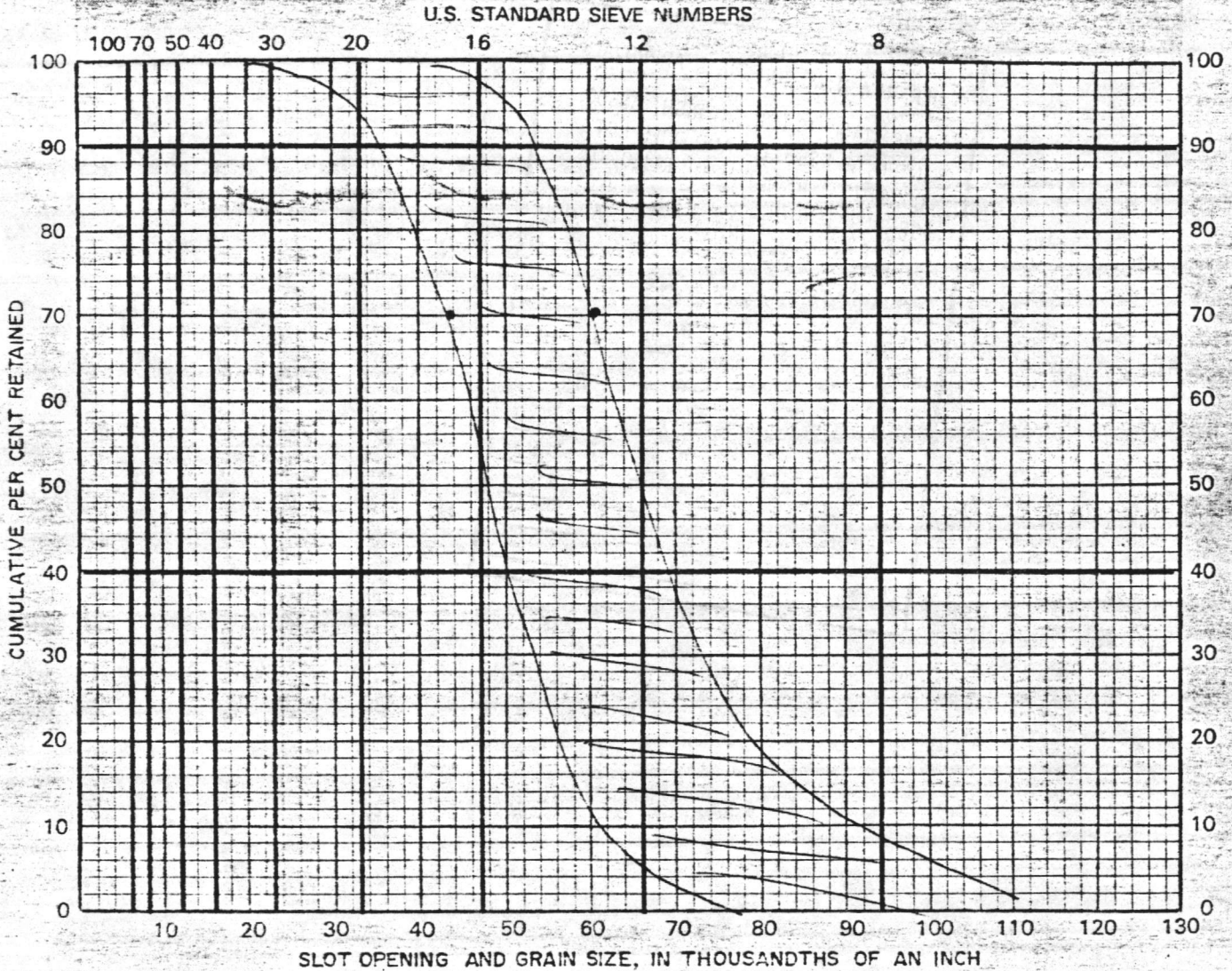
MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

Sample sent in by _____

Town _____ State _____ Zip _____ Date 5-17-83

From well of _____

Remarks: Recommended Gravel Pack for
Camp Lejeune (Guard House) [Field Copy]



U.S. SIEVE NO.	SIEVE OPENING INCHES	SIEVE OPENING MM	CUMULATIVE % RETAINED
6	.132	3.36	
8	.094	2.38	
12	.066	1.68	
16	.047	1.19	
20	.033	0.84	
30	.023	0.60	
40	.016	0.42	
50	.012	0.30	
70	.008	0.21	
100	.006	0.15	

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length 10 Ft.

By: BAV

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

RECEIVED

AUG 2 1983

ENWRIGHT ASSOCIATES

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	FKV	RV
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

WATER ANALYSIS LABORATORY

802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29312

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

(803) 479-4639

DATE: June 2, 1983

Report To: Carolina Well & Pump Co.
Sanford, N. C.

Date Analyzed: 6/2/83
Sample Number: Monkford Point- 60'

Contract: N62470-82-C-4551

Analysis Results--Parts Per Million

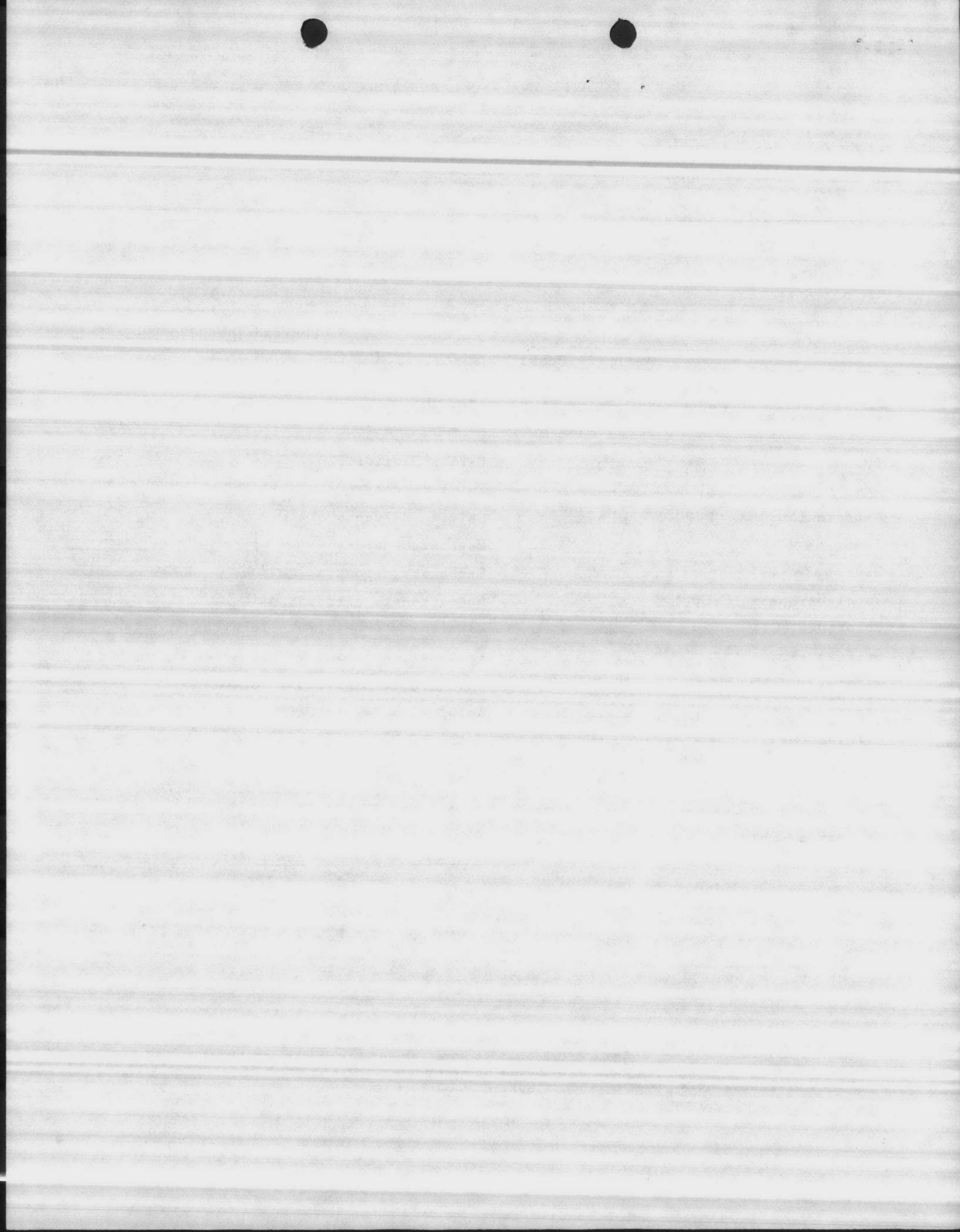
<u>Determination</u>		<u>Determination</u>	
pH	<u>6.6</u>	Carbon Dioxide (CO ₂)	<u>8</u>
Iron (Fe)	<u>0.1</u>	Total Acidity (CaCO ₃)	<u>14</u>
Nitrate (NO ₃)	<u>Trace</u>	Calcium Hardness (CaCO ₃)	<u>182</u>
Fluoride (F)	<u>0.3</u>	Magnesium Hardness (CaCO ₃)	<u>14</u>
Manganese (Mn)	<u>Trace</u>	Carbonate Hardness (CaCO ₃)	<u>140</u>
Total Hardness (CaCO ₃)	<u>196</u>	Noncarbonate Hardness (CaCO ₃)	<u>56</u>
Chlorides (Cl)	<u>14</u>	Alkalinity (Phenolphthalein) (CaCO ₃)	<u>0</u>
Sulfate (SO ₄)	<u>8.2</u>	Carbonate Alkalinity (CaCO ₃)	<u>0</u>
Phosphate (PO ₄)	<u>0</u>	Bicarbonate Alkalinity (CaCO ₃)	<u>140</u>
Magnesium (Mg)	<u>3.6</u>	Total Alkalinity (CaCO ₃)	<u>140</u>
Calcium (Ca)	<u>72.8</u>	Total Dissolved Solids	<u>224</u>
Carbonate (CO ₃)	<u>0</u>	Specific Conductance (micromhos at 25°)	<u>320</u>
Bicarbonate (HCO ₃)	<u>170</u>	Appearance When Analyzed	<u>Clear</u>
Hydroxide (OH)	<u>0</u>	Odor When Analyzed	<u>Not Objectionable</u>

Walter Analytical

802 Hamlet Highway

SIGNED: Bennettsville, South Carolina
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE-WATER,' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES,' WATER SUPPLY PAPER 1454 (1980), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.



Water Analysis Laboratory

WATER ANALYSIS LABORATORY
802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29812

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

(803) 479-4639

DATE: June 2, 1983

Report To: Carolina Well & Pump Co.
Sanford, N. C.

Date Analyzed: 6/2/83
Sample Number: Monkford Point- 105'

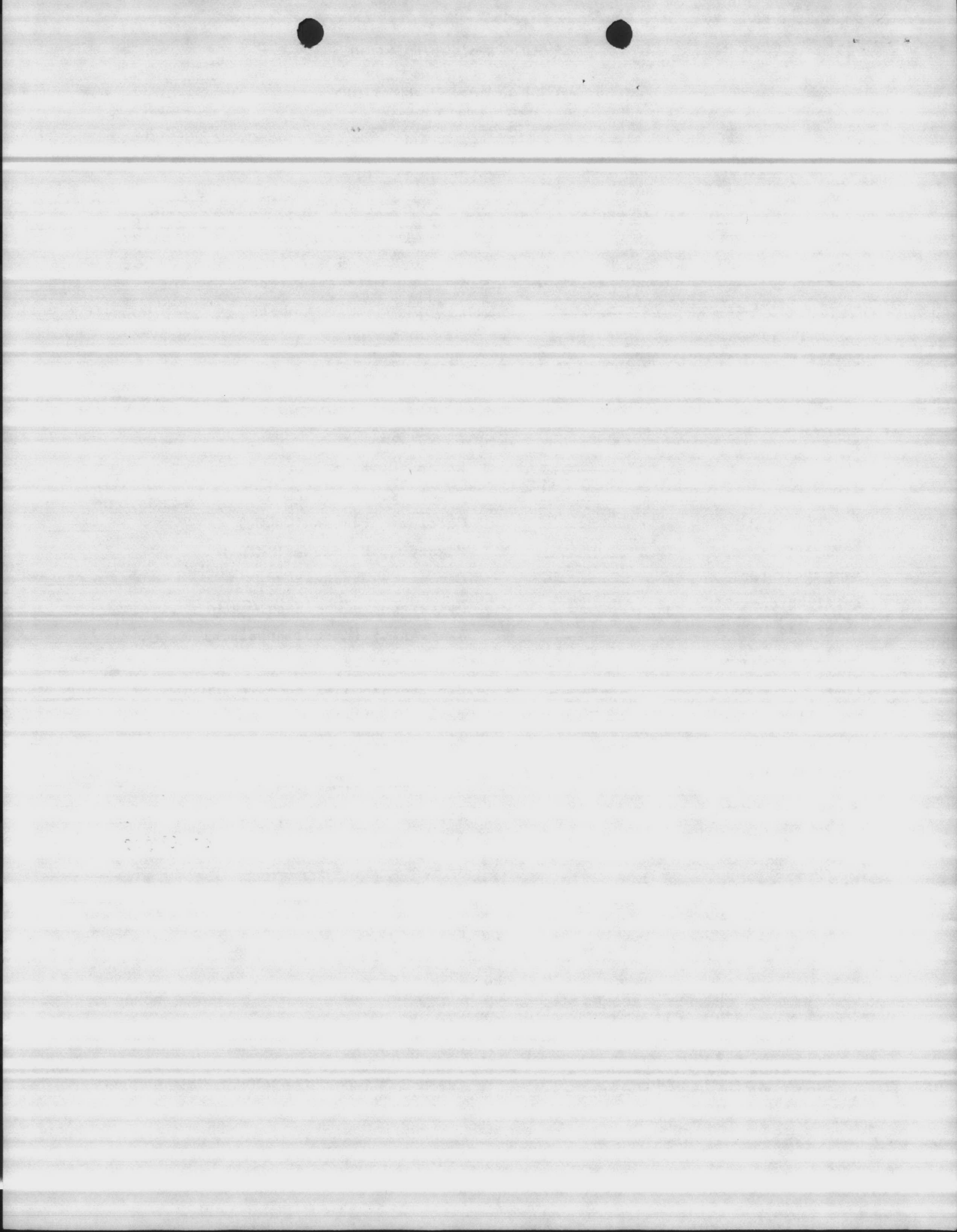
Analysis Results--Parts Per Million

<u>Determination</u>		<u>Determination</u>	
pH	<u>7.1</u>	Carbon Dioxide (CO ₂)	<u>4</u>
Iron (Fe)	<u>0.15</u>	Total Acidity (CaCO ₃)	<u>5</u>
Nitrate (NO ₃)	<u>Trace</u>	Calcium Hardness (CaCO ₃)	<u>178</u>
Fluoride (F)	<u>0.5</u>	Magnesium Hardness (CaCO ₃)	<u>26</u>
Manganese (Mn)	<u>Trace</u>	Carbonate Hardness (CaCO ₃)	<u>204</u>
Total Hardness (CaCO ₃)	<u>204</u>	Noncarbonate Hardness (CaCO ₃)	<u>0</u>
Chlorides (Cl)	<u>17</u>	Alkalinity (Phenolphthalein) (CaCO ₃)	<u>0</u>
Sulfate (SO ₄)	<u>12.6</u>	Carbonate Alkalinity (CaCO ₃)	<u>0</u>
Phosphate (PO ₄)	<u>0</u>	Bicarbonate Alkalinity (CaCO ₃)	<u>360</u>
Magnesium (Mg)	<u>4.3</u>	Total Alkalinity (CaCO ₃)	<u>360</u>
Calcium (Ca)	<u>71.2</u>	Total Dissolved Solids	<u>476</u>
Carbonate (CO ₃)	<u>0</u>	Specific Conductance (micromhos at 25°C)	<u>680</u>
Bicarbonate (HCO ₃)	<u>439</u>	Appearance When Analyzed	<u>Hazy</u>
Hydroxide (OH)	<u>0</u>	Odor When Analyzed	<u>Not Objectionable</u>

Water Analysis Laboratory
802 Hamlet Highway

SIGNED: Bennettsville, South Carolina 29812
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE-WATER,' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES,' WATER SUPPLY PAPER 1434 (1960), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.



WATER ANALYSIS LABORATORY

802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29812

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

(803) 479-4639

DATE: June 2, 1983

Report To: Carolina Well & Pump Co.
Sanford, N. C.

Date Analyzed: 6/2/83
Sample Number: Monkford Point-210'

Analysis Results--Parts Per Million

<u>Determination</u>		<u>Determination</u>	
pH	<u>6.9</u>	Carbon Dioxide (CO ₂)	<u>6</u>
Iron (Fe)	<u>0.1</u>	Total Acidity (CaCO ₃)	<u>9</u>
Nitrate (NO ₃)	<u>Trace</u>	Calcium Hardness (CaCO ₃)	<u>190</u>
Fluoride (F)	<u>0.6</u>	Magnesium Hardness (CaCO ₃)	<u>20</u>
Manganese (Mn)	<u>Trace</u>	Carbonate Hardness (CaCO ₃)	<u>210</u>
Total Hardness (CaCO ₃)	<u>210</u>	Noncarbonate Hardness (CaCO ₃)	<u>0</u>
Chlorides (Cl)	<u>22</u>	Alkalinity (Phenolphthalein) (CaCO ₃)	<u>0</u>
Sulfate (SO ₄)	<u>14.6</u>	Carbonate Alkalinity (CaCO ₃)	<u>0</u>
Phosphate (PO ₄)	<u>0</u>	Bicarbonate Alkalinity (CaCO ₃)	<u>260</u>
Magnesium (Mg)	<u>4.8</u>	Total Alkalinity (CaCO ₃)	<u>260</u>
Calcium (Ca)	<u>76.2</u>	Total Dissolved Solids	<u>378</u>
Carbonate (CO ₃)	<u>0</u>	Specific Conductance (micromhos at 25°)	<u>540</u>
Bicarbonate (HCO ₃)	<u>317</u>	Appearance When Analyzed	<u>Clear</u>
Hydroxide (OH)	<u>0</u>	Odor When Analyzed	<u>Not Objectionable</u>

Water Analysis Laboratory

802 Hamlet Highway
Bennettsville, South Carolina 29812

SIGNED: _____
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE-WATER,' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES,' WATER SUPPLY PAPER 1484 (1960), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	<u>ERU</u>	<u>RJ</u>
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

RECEIVED

AUG 2 1983

ENWRIGHT ASSOCIATES

CONTRACTOR'S SUBMITTAL TRANSMITTAL

5ND LANTDIV 4055/3 (Rev. 6/76)

1/18/84

CONTRACT NO. *86-C-4551* TRANSMITTAL NO. *23* DATE *1/18/84*

FROM CONTRACTOR
East Coast Construction Co. Inc.

PROJECT TITLE AND LOCATION
*Replacing three (3) water wells
Camp Lejeune AC. well N^o BB-43*

TO
ROICC

CONTRACTOR USE ONLY

REVIEWER USE ONLY

*List only one specification division per form.

**ACTION CODES

List only one of the following categories on each transmittal form, and indicate which is being submitted

- A-Approved
- D-Disapproved
- AN-Approved as noted
- RA-Receipt acknowledged
- C-Comments
- R-Resubmit

- Contractor Approved OICC Approval Deviation/Substitution For OICC Approval

ITEM NO	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO.	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
	<i>15201-7.3</i>	<i>24 hour Pumping Test</i>	<i>4</i>	<i>RA</i>	<i>gld 1/26/84</i>

CONTRACTOR'S COMMENTS

Well N^o BB-43 24 hr. Pumping Test

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature)

JAN 27 12 55 PM '84
 RECEIVED
 ROICC JMW:MA

DATE RECEIVED BY REVIEWER

FROM (Reviewer)

TO

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS

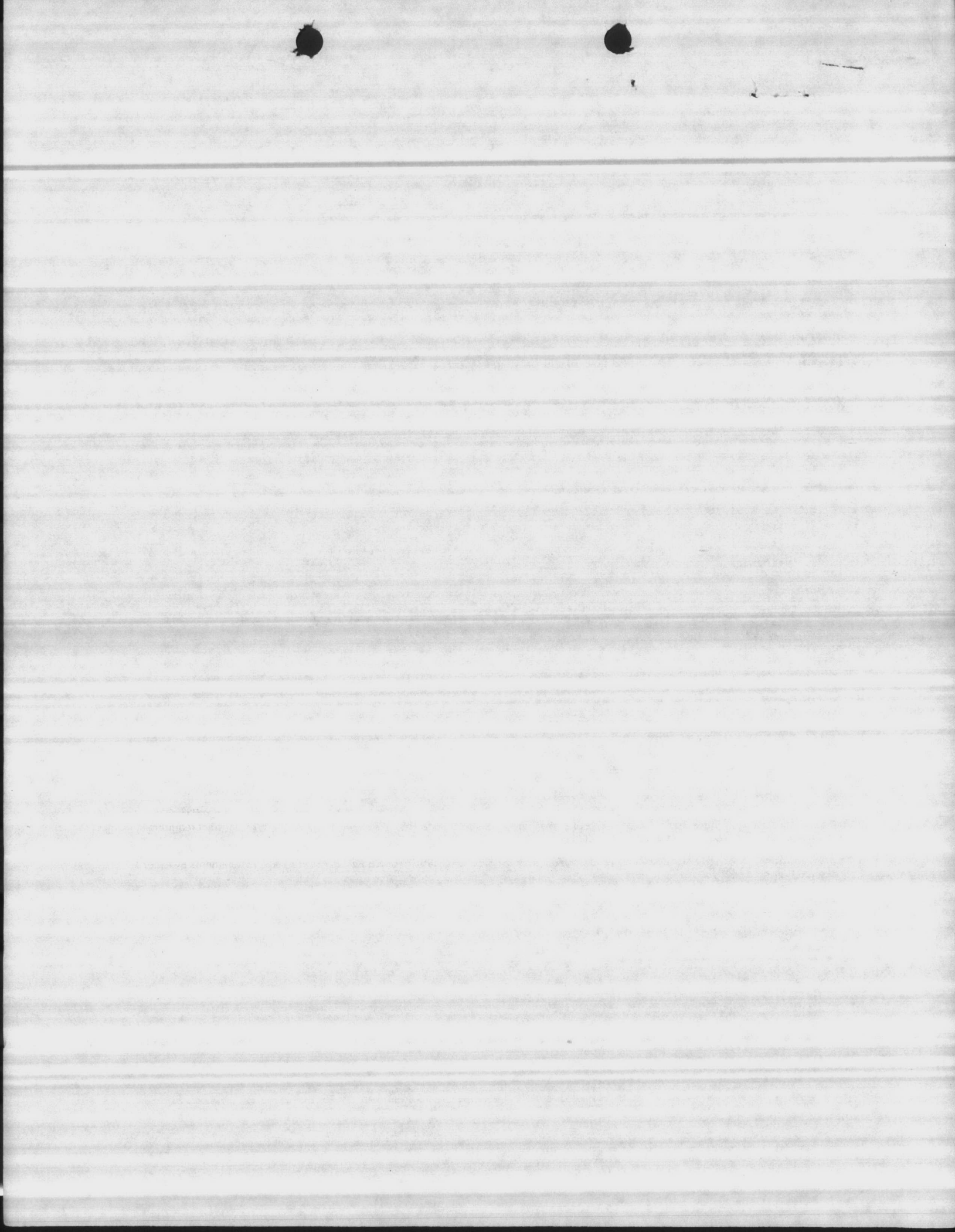
COPIES TO:
ROICC (2)
LANTDIV (1)
A-E (1)

DATE

1/20/84

SIGNATURE

Judana



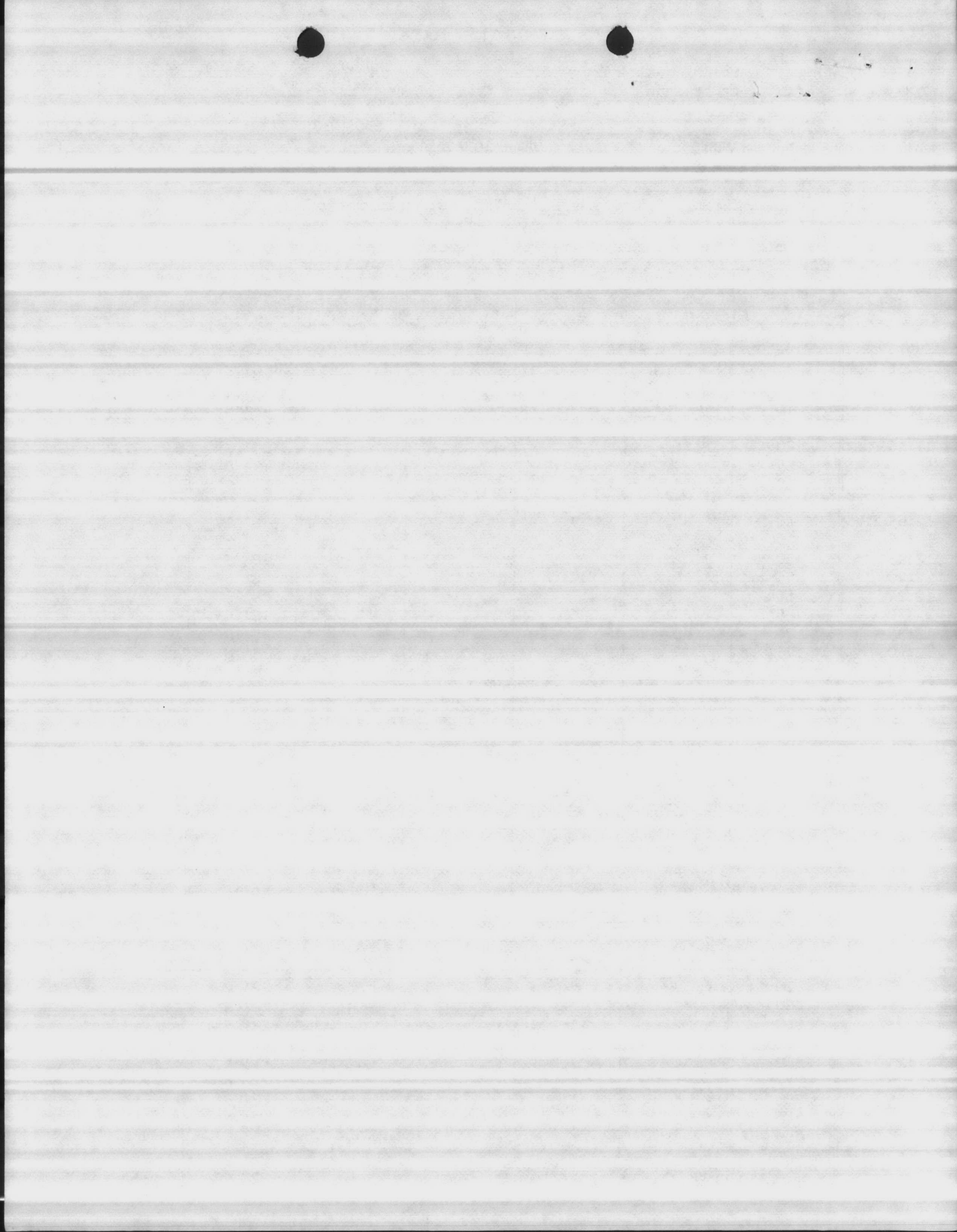
PUMPING TEST DATA

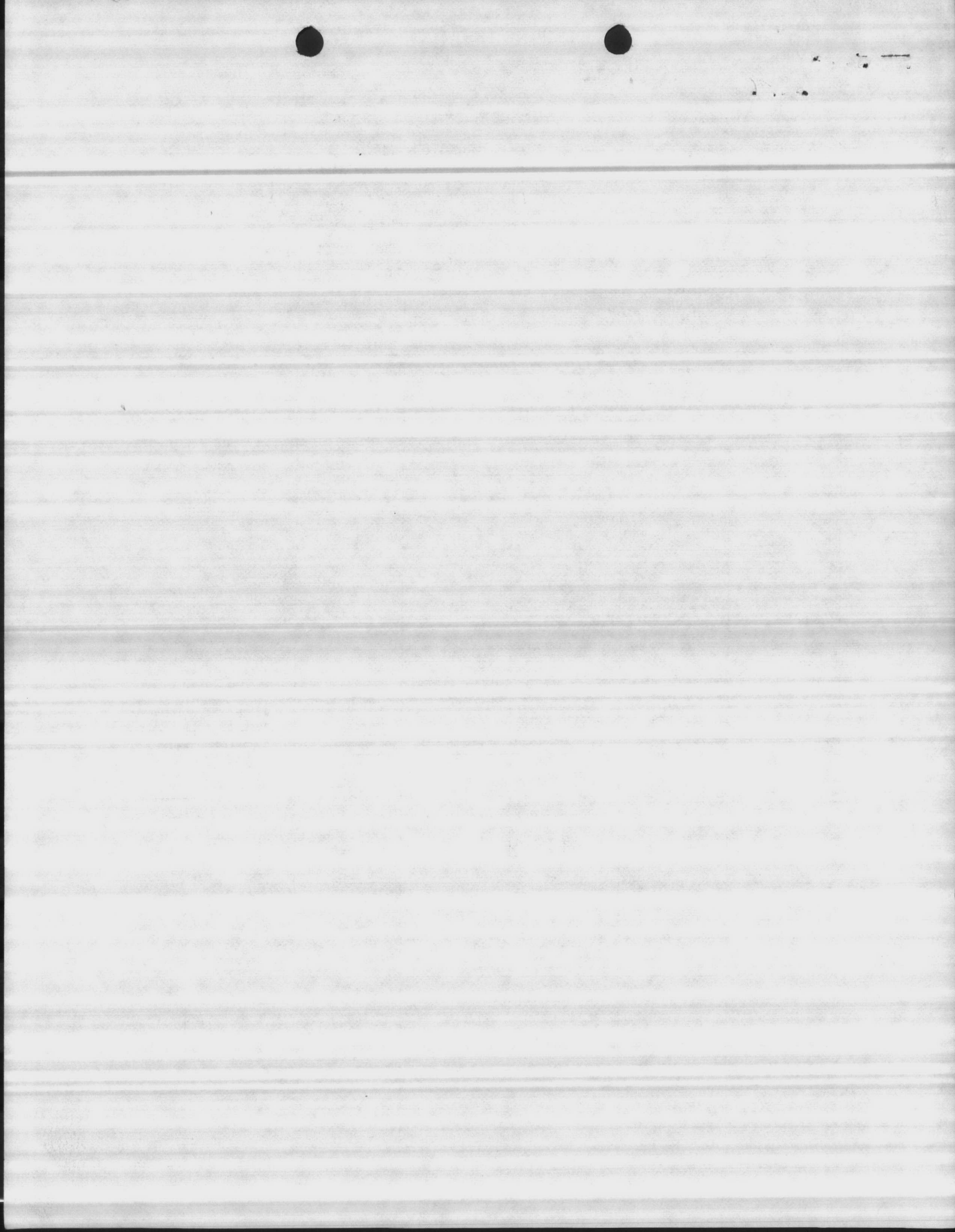
Test conducted by: Carolina Well & Pump Co. R. Thomas
 Well Owner: Camp Lejeune Address: _____
 Pumped Well No.: BB 43 Location: Corthouse Bay County: Onslow
 Observation Well Locations: _____
 Airline Lengths: Pumped Well _____ Observation Wells _____
 Remarks: _____

Pumping rate measured with: 3 x 4 orifice Water levels measured with: electric tape

Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks
10/13/83							
11:25 AM						13' 4"	
11:30	5 min.	23	250			13' 4"	
11:35	10	"	"			16' 8"	
11:40	15	"	"			17' 3"	
11:45	20	"	"			17' 6"	
11:50	25	"	"			17' 8"	
11:55	30	"	"			17' 9"	
12:00	35	"	"			18' 0"	
12:05 PM	40	"	"			18' 1"	
12:10	45	"	"			18' 3"	
12:15	50	"	"			18' 5"	
12:20	55	"	"			18' 6"	
12:25	60	"	"			18' 6"	
12:30	65	"	"			18' 8"	
12:35	70	"	"			18' 8"	
12:40	75	"	"			18' 10"	
12:45	80	"	"			18' 10"	
12:50	85	"	"			18' 11"	
12:55	90	"	"			19' 0"	
1:00	95	"	"			19' 2"	
1:05	100	"	"			19' 4"	
1:10	105	"	"			19' 4"	
1:15	110	"	"			19' 5"	
1:20	115	"	"			19' 7"	
1:25	120	"	"			19' 8"	
1:35	130(10 min.)	"	"			19' 8"	
1:45	140	"	"			19' 11"	
1:55	150	"	"			20' 2"	
2:10	165(15 min.)	"	"			20' 4"	
2:25	180	"	"			20' 8"	
3:25	240(60 min.)	"	"			20' 10"	
4:25	300	"	"			21' 9"	
5:25	360	"	"			22' 4"	
6:25	420	"	"			22' 7"	
7:25	480	"	"			22' 8"	
8:25	540	"	"			22' 8"	
9:25	600	"	"			22' 8"	
10:25	660	"	"			22' 8"	
11:25	720	"	"			22' 8"	
12:25	780	"	"			22' 8"	
1:25	840	"	"			22' 8"	
2:25	900	"	"			22' 9"	
3:25	960	"	"			22' 9"	
4:25	1020	"	"			22' 9"	





CONTRACTOR'S SUBMITTAL TRANSMITTAL

5ND LANTDIV 4-4355/3 (Rev. 6/78)

Hunt

CONTRACT NO. 82-C-4551	TRANSMITTAL NO.	DATE 12-6-83
----------------------------------	-----------------	------------------------

FROM CONTRACTOR
EAST COAST CONSTRUCTION Co INC

TO
ROICC

PROJECT TITLE AND LOCATION
**Replacing three (3) WATER Well
Camp Lejeune NC
Well N° BB-43**

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form,
and indicate which is being submitted

- Contractor Approved
 OICC Approval
 Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

****ACTION CODES**

- A-Approved
 D-Disapproved
 AN-Approved as noted
 RA-Receipt acknowledged.
 C-Comments
 R-Resubmit

ITEM NO	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
	15201-7.3	24 hour Pumping Test	6	A	FRL

RECEIVED

CONTRACTOR'S COMMENTS
**Well N° BB-43
Pump Test DATA**

DEC 19 1983

ENWRIGHT, ASSOCIATES

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature)
RON ELLEN

DATE RECEIVED BY REVIEWER FROM (Reviewer) TO

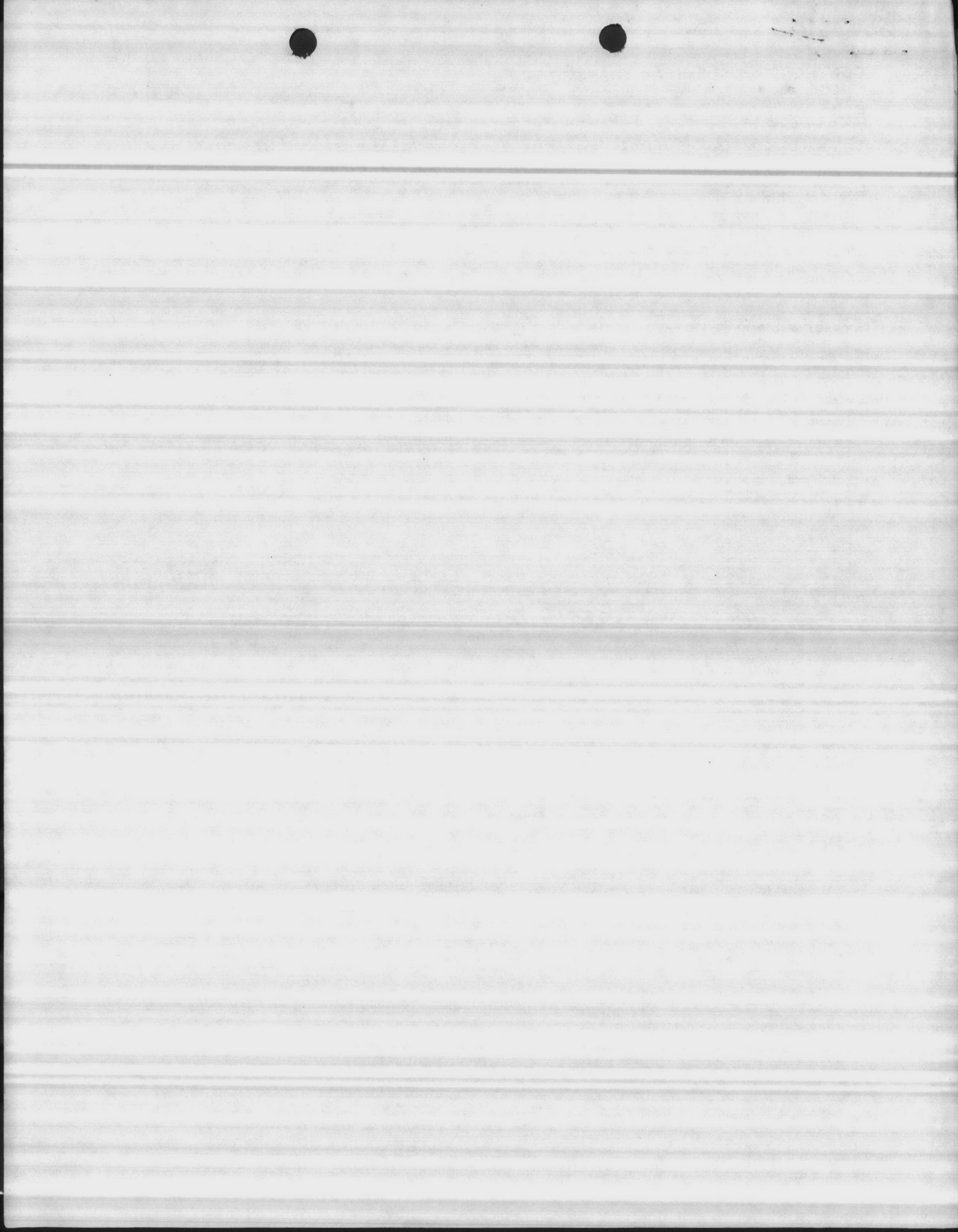
- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
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REVIEWER'S COMMENTS

COPIES TO:
ROICC (2)
LANTDIV (1)
A-E (1)

DATE

SIGNATURE



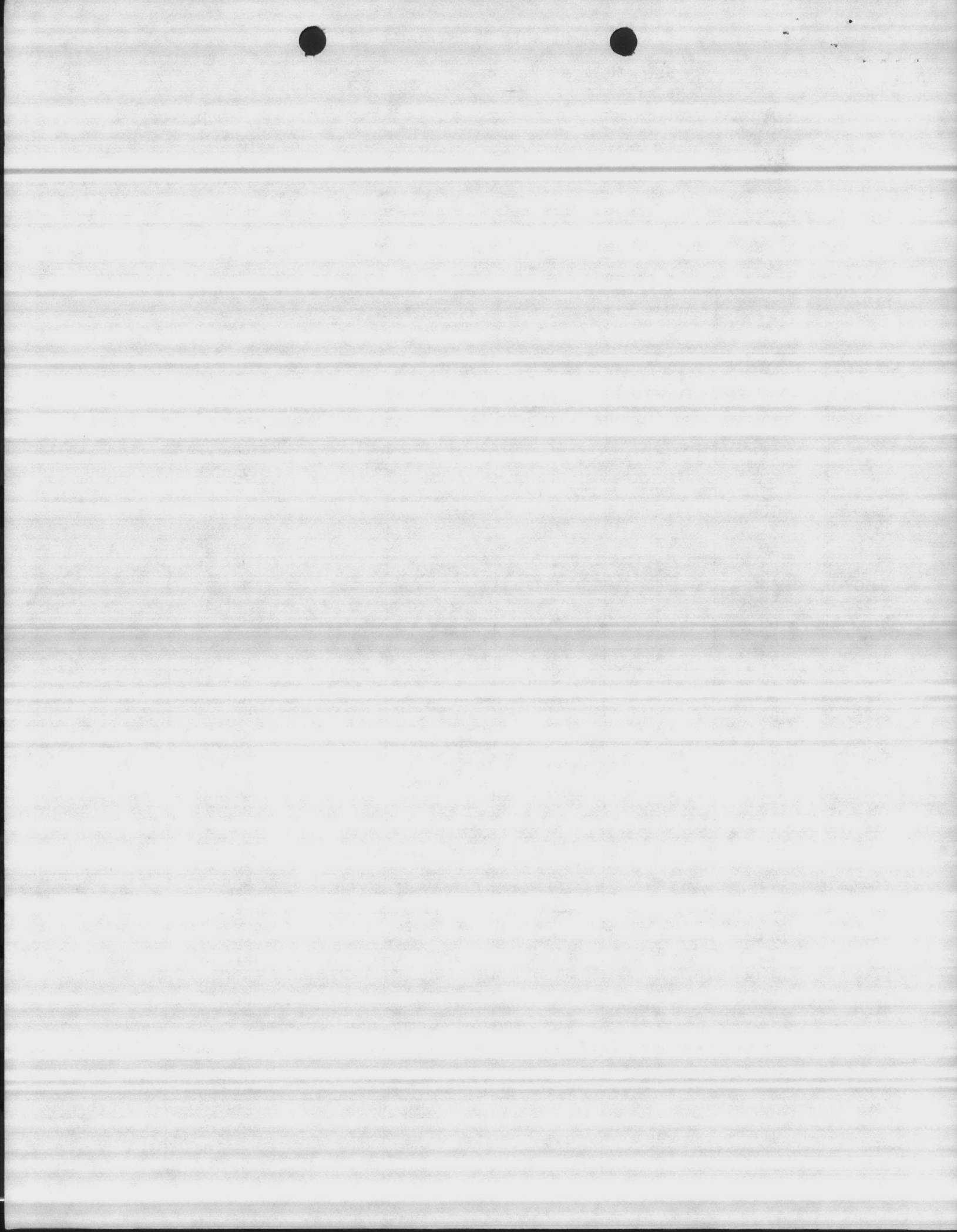
PUMPING TEST DATA

Test conducted by: Carolina Well & Pump Co. Roger Thomas
 Well Owner: Camp Lejeune Address: _____
 Pumped Well No.: BB 43 Location: across blvd. from Steak House County: Onslow
 Observation Well Locations: _____
 Airline Lengths: Pumped Well _____ Observation Wells _____
 Remarks: _____

Pumping rate measured with: 3 x 4 orifice Water levels measured with: electric tape

Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks
11/21/83							
12:50 PM						15' 5"	
1:00		13	151			15' 5"	
1:05	5 min.	"	"			62' 4"	
1:10	10	"	"			63' 0"	
1:15	15	"	"			68' 5"	
1:20	20	"	"			72' 8"	
1:25	25	"	"			75' 0"	
1:30	30	"	"			76' 0"	
1:35	35	"	"			77' 8"	
1:40	40	"	"			77' 8"	
1:45	45	"	"			78' 3"	
1:50	50	"	"			79' 3"	
1:55	55	"	"			79' 3"	
2:00	60	"	"			79' 5"	
2:05	65	"	"			80' 0"	
2:10	70	"	"			80' 0"	
2:15	75	"	"			80' 3"	
2:20	80	"	"			80' 9"	
2:25	85	"	"			80' 9"	
2:30	90	"	"			80' 9"	
2:35	95	"	"			80' 9"	
2:40	100	"	"			80' 9"	
2:45	105	"	"			80' 9"	
2:50	110	"	"			80' 9"	
2:55	115	"	"			80' 9"	
3:00	120	"	"			80' 9"	
3:10	130(10 min.)	"	"			80' 9"	
3:20	140	"	"			80' 9"	
3:30	150	"	"			80' 9"	
3:40	160	"	"			80' 9"	
3:50	170	"	"			80' 9"	
4:00	180	"	"			81' 0"	
4:15	195(15 min.)	"	"			81' 0"	
4:30	210	"	"			81' 0"	
5:00	240(30 min.)	"	"			81' 0"	
6:00	300(60 min.)	"	"			81' 0"	
7:00	360	"	"			81' 0"	
8:00	420	"	"			81' 0"	
9:00	480	"	"			81' 0"	
10:00	540	"	"			81' 0"	
11:00	600	"	"			81' 0"	
12:00	660	"	"			81' 0"	
1:00	720	"	"			81' 0"	
2:00	780	"	"			81' 0"	



RECEIVED

DEC 19 1983

ENWRIGHT ASSOCIATES

- REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

Enwright associates
Greenville, South Carolina

Date 12-27-83 By A.P.P.

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
PLUMBING	<u>FL</u>	<u>RV</u>
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

DEC 30 1 12 PM '83
RECEIVED
ROICC JAXNCA

Hart

CONTRACTOR'S SUBMITTAL TRANSMITTAL

5ND LANTDIV 4-4355/3 (Rev. 6/76)

CONTRACT NO. N62470-82-B-4551	TRANSMITTAL NO. 18	DATE 10-07-83
----------------------------------	-----------------------	------------------

FROM CONTRACTOR
East Coast Construction Co., Inc.

TO
Enwright Associates, Inc. Greenville, S.C.

PROJECT TITLE AND LOCATION
Replace Three (3) Water Wells, MCB
Camp Lejeune, N. C.

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

- Contractor Approved OICC Approval Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES

- A-Approved
- D-Disapproved
- AN-Approved as noted
- RA-Receipt acknowledged.
- C-Comments
- R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	15201-313	Certificates of Compliance	7	A	FKL 10-17-83

RECEIVED

CONTRACTOR'S COMMENTS

OCT 13 1983

ENWRIGHT ASSOCIATES

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature)

Ron Ellis

DATE RECEIVED BY REVIEWER

FROM (Reviewer)

TO

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS

COPIES TO
ROICC (2)
LANTDIV (1)
A-E (1)

DATE

SIGNATURE



2011 117 A





VALLEY STEEL PRODUCTS COMPANY

A Division of Valley Industries, Inc.
P.O. Box 503
St. Louis, Mo. 63166
314/231-2160

September 28, 1983

Mr. Worth Pickard
CAROLINA WELL & PUMP
P.O. Box 1085
Sanford, NC 27330

Dear Sir:

We hereby certify the following material shipped per your verbal order dated 7/7/83 to Mr. Gus Demos for the Camp Lejeune Water Well, meets 35,000 PSI minimum yield point:

150' 18" O.D. EW Pipe, VSP Invoice #09-1961 Dated 7/15/83

Thank you for your order and we look forward to receiving future inquiries from you.

Very Truly Yours,
Valley Steel Products Co.

G.R. Mergel
Q.A. Manager

GRM:lsr

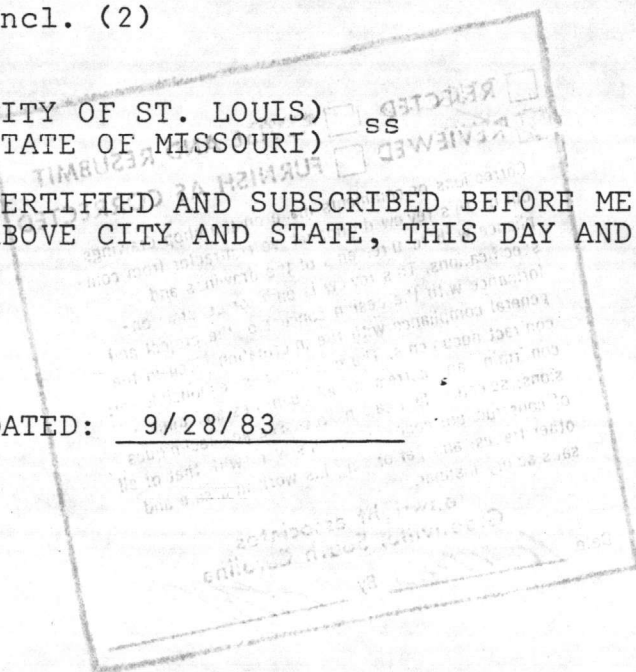
Encl. (2)

CITY OF ST. LOUIS) ss
STATE OF MISSOURI)

CERTIFIED AND SUBSCRIBED BEFORE ME, A NOTARY PUBLIC IN AND FOR THE ABOVE CITY AND STATE, THIS DAY AND DATE.

CAROLYN M. LANDWEHR
NOTARY PUBLIC

DATED: 9/28/83



- REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for confirming and correcting all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
Greenville, South Carolina

Date 10-17-83 By [Signature]

Handwritten: JTA

CONTRACTOR'S SUBMITTAL TRANSMITTAL
LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

CONTRACT NO. N62470-82-C-4551	TRANSMITTAL NO. 17	DATE 9-13-83
----------------------------------	-----------------------	-----------------

FROM CONTRACTOR
 East Coast Construction Co., Inc.
 Enwright Associates
 Greenville, S.C.

PROJECT TITLE AND LOCATION
 Replace 3 Water Wells, MCB
 Camp Lejeune, N. C.

<p align="center">CONTRACTOR USE ONLY</p> <p align="center"><i>*List only one specification division per form.</i></p> <p align="center"><i>List only one of the following categories on each transmittal form, and indicate which is being submitted</i></p> <p> <input type="checkbox"/> Contractor Approved <input type="checkbox"/> OICC Approval <input type="checkbox"/> Deviation/Substitution For OICC Approval </p>	<p align="center">REVIEWER USE ONLY</p> <p align="center">**ACTION CODES</p> <p> A-Approved D-Disapproved AN-Approved as noted RA-Receipt acknowledged. C-Comments R-Resubmit </p>
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ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	15272-4.6	Model ML-04 Hersey Meter	7	RV	FICK 9-26-83

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC: 9-13-83

CONTRACTOR REPRESENTATIVE (Signature): *Ronald L. Ellis*

DATE RECEIVED BY REVIEWER: _____ FROM (Reviewer): _____ TO: _____

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS

RECEIVED
 SEP 19 1983
 ENWRIGHT ASSOCIATES

COPIES TO: ROICC (2) LANTDIV (1) A-E (1)	DATE	SIGNATURE
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SEP 30 11 36 AM '83

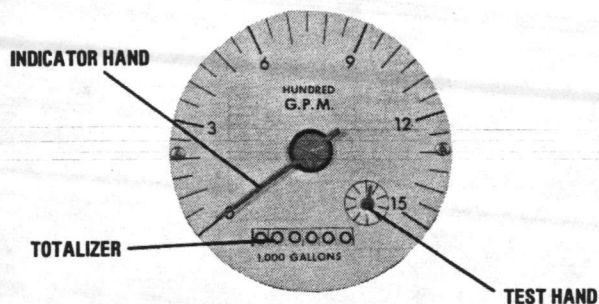
RECEIVED
ROICC JAXNCA

Hersey

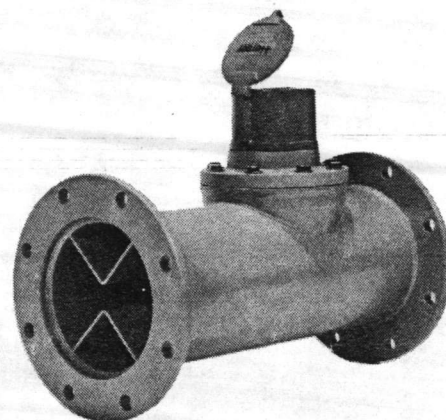
PRODUCTS INC.

MODEL ML-04

150 psi FLANGED TUBE METER
SEALED METER MECHANISM — MAGNETIC DRIVE
INDICATOR-TOTALIZER
SIZES 3" thru 36"



TYPICAL
4" DIAL
INDICATOR-TOTALIZER



DESCRIPTION

MODEL ML-04 FLANGED TUBE METERS are designed to meet AWWA specifications. The flanged end tube design permits installation in a wide range of applications with up to 150 PSI working pressure. Flanged ends are 150 lb. AWWA class D flat face steel flanges. Fabricated steel meter tubes have straightening vanes and are protected internally and externally with 10-15 mils of fusion epoxy resin.

INSTALLATION is made similar to placing a short length of flanged end pipe in the line. The meter may be installed in any position; vertically, horizontally, or inclined on suction or discharge lines. The meter must have a full flow of liquid for proper accuracy. Valves, fittings, or other obstructions that tend to set up flow disturbances should be a minimum of five pipe diameters upstream or one pipe diameter downstream from the meter.

PROPELLER is magnetically coupled with the driven mechanism through the sealed oil filled gearbox. This completely eliminates water entering the meter assembly as well as the need for any packing gland. The propeller assembly on 3" thru 20" meters utilizes water lubricated ceramic sleeve bearings that ride on a ceramic coated stainless steel spindle. The propeller assembly on 24" thru 36" meters utilizes sealed stainless steel ball bearings that ride on a stainless steel spindle. The bearing designs on all meters promote extended periods of maintenance free propeller operation.

BEARINGS within the sealed meter mechanism are shielded precision stainless steel bearings and are factory lubricated for the life of the meter.

INDICATOR is mechanically driven by the meter assembly and features a full 4" diameter, 250 degree sweep dial available in a variety of linear divisions to meet the requirements of each metering system. The dial can be furnished to read in gallons per minute, cubic feet per second, or any standard liquid measuring unit.

TOTALIZER is a six digit, straight reading type with test sweep hand that permits accurate readings for timing purposes in checking flow rates. The totalizer dial can be furnished in gallons, acre feet, or any standard liquid measuring unit.

CHANGE GEARS for the indicator-totalizer may be easily exchanged in the field when a change of indicator dial, totalizer dial or recalibration for different pipe sizes is required. It is not necessary to remove pressure from the line for these changes.

CONSTRUCTION of the indicator-totalizer features an all metal hermetically sealed housing and magnetic coupling to the driving mechanism. This completely eliminates the entrance of foreign materials into the assembly and guards against the corrosive effects that they can have on the mechanism. The unit can be positioned in four different directions for the easiest possible reading when meters are mounted in unusual positions.

O-RING SEALS are used at the meter head and most points where seals are required, making the meter mechanism completely immune to any of the corrosive effects of atmospheric moisture or the liquids measured by the meter assembly.

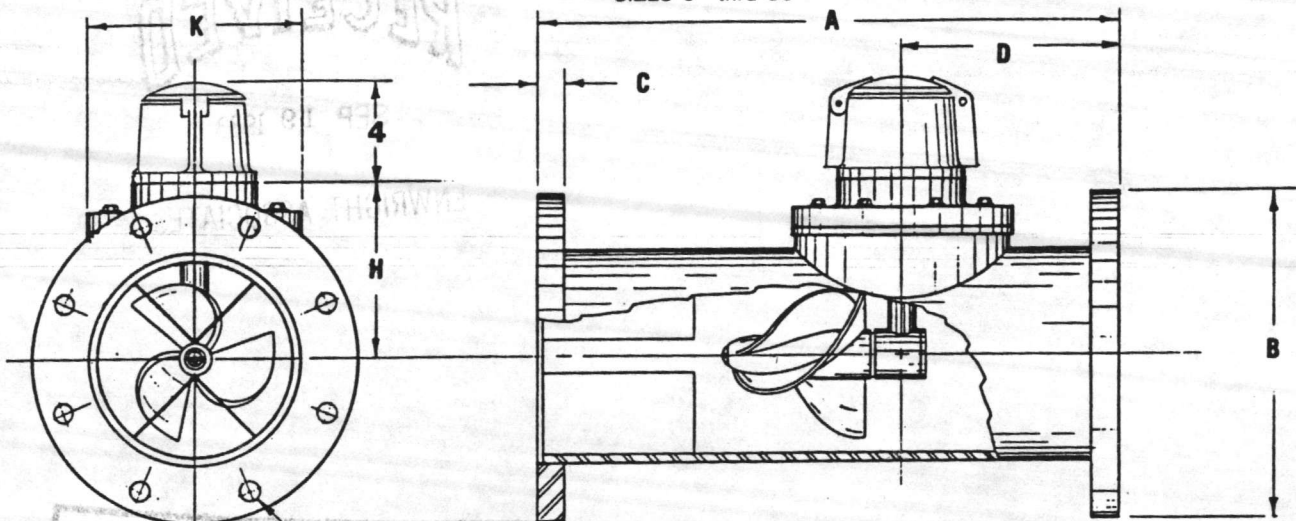
SPECIFICATIONS

ACCURACY	plus or minus 2% of actual flow within the range specified for each meter size and type of construction.
PRESSURE RANGE	up to 150 PSI maximum working pressure
TEMPERATURE RANGE	140°F maximum. Consult factory for special construction for higher temperatures.
MINIMUM FLOWS	are shown for two different types of meter construction. Please specify <u>Low velocity</u> or Std. velocity construction to achieve the desired minimum flow. (see chart on back)
MAXIMUM FLOWS	as shown for each meter size are rated for continuous duty. Consult factory for special construction for higher continuous flows.
INTERMITTENT FLOWS	as shown for each meter size are rated for 10% to 15% of the total time the meter is operating. Consult factory for special construction when longer operating periods are required.
MATERIALS	used in manufacture are chosen to minimize the corrosive effects of the liquids measured by the meter assembly. magnets — permanent ceramic type interior bearings — shielded stainless steel propeller bearings — ceramic sleeve type (3"-20"), sealed stainless steel ball type (24"-36") propeller spindle — ceramic coated stainless steel (3"-20"), or stainless steel (24"-36") propeller — injection molded thermoplastic gear housing — cast bronze shafts and bolts — stainless steel meter head — cast iron or fabricated steel, fusion epoxy coated meter tube — fabricated steel with straightening vanes and coated inside and outside with 10-15 mils of fusion epoxy resin or equivalent.
OPTIONAL EQUIPMENT	includes meter mounted Rate of Flow Indicator, Fwd. & Rev. Totalizer, Totalizer extensions and a wide range of controls and instruments for indicating, totalizing, and recording flow data for each meter. Special constructions and materials are available upon request.
ORDERING INFORMATION	must be specified by the customer and includes: serial number of meter unit is to be mounted on, or type of dial and change gears of totalizer to be replaced by indicator-totalizer. indicator scale and units totalizer dial units optional equipment desired



MODEL ML-04

150 psi FLANGED TUBE METER
 SEALED METER MECHANISM — MAGNETIC DRIVE
 SEALED TOTALIZER
 SIZES 3" thru 36"



E - Bolt Circle
 F - Number of Bolts
 G - Size of Bolts

METER & PIPE SIZE	FLOW RANGES, GPM			INTERMITTENT FLOW MAX.	DIMENSIONS										SHIPPING WEIGHT POUNDS
	L.V.* MIN.	STD. MIN.	STD. MAX.		A	B	C	D	E	F	G	H	K		
3	40	60	250	350	18	7-1/2	11/16	7	6	4	5/8	5-1/4	9	70	
4	50	80	500	700	18	9	11/16	7	7-1/2	8	3/4	5-1/4	9	80	
6	90	150	1200	1500	22	11	11/16	9	9-1/2	8	3/4	6-1/4	9	110	
8	100	200	1500	2000	24	13-1/2	11/16	9	11-3/4	8	3/4	7-1/4	9	150	
10	125	250	2000	3000	26	16	11/16	10	14-1/4	12	7/8	8-1/2	11	190	
12	150	300	2500	3500	28	19	13/16	10	17	12	7/8	9-1/2	11	280	
14	250	400	3000	4500	42	21	15/16	12	18-3/4	12	1	10-1/2	13-1/2	420	
16	350	450	4000	6000	48	23-1/2	1	12	21-1/4	16	1	11-1/2	13-1/2	520	
18	450	550	5000	7500	54	25	1-1/16	15	22-3/4	16	1-1/8	12-1/2	13-1/2	600	
20	550	600	6000	9000	60	27-1/2	1-1/8	15	25	20	1-1/8	13-1/2	13-1/2	800	
24	800	900	9000	13,500	72	32	1-1/4	18	29-1/2	20	1-1/4	17-1/2	21	970	
30	1200	1500	14,000	21,000	84	38-3/4	1-3/8	18	36	28	1-1/4	20-1/2	21	1100	
36	1500	2000	20,000	30,000	96	46	1-5/8	20	42-3/4	32	1-1/2	23-1/2	21	1300	

* DENOTES LOW VELOCITY

SALES OFFICES

SOUTHEAST—2131 Kingston Court, S.E., Suite 102, Marietta, GA 30067 (404) 952-4424
NEW ENGLAND—250 Elm St., Dedham, MA 02026-4598 (617) 326-9400
NORTHEAST—104 Braen Ave., Hawthorne, NJ 07506 (201) 445-0373
MIDWEST—1025 Criss Circle, Elk Grove Village, IL 60007 (312) 439-7700
WESTERN—2425 So. Eastern Ave., Los Angeles, CA 90040 (213) 722-6870
NORTHWEST—329 Primrose Rd., Burlingame, CA 94010 (415) 344-2575
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Water Meter & Controls Group
 250 Elm Street, Dedham, Mass.
 U.S.A. 02026-4598
 (617) 326-9400 Telex 92-4436

RECEIVED

SEP 19 1983

ENWRIGHT ASSOCIATES

SEP 30 11 35 AM '83
RECEIVED
ROICC JAXNCA

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	PKL	RV
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

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enwright associates
Greenville, South Carolina

Date 9-26-83 By [Signature]

EAST COAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

Post Office Box 5004

JACKSONVILLE, NORTH CAROLINA 28540

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

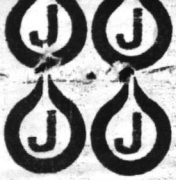
Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques; construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
 Greenville, South Carolina

Date: 8-15-83 By: [Signature]

CAMP LEJEUNE
 BB 43
 June 17, 1983

- 0 - 10 very fine white sand
- 10 - 20 fine gray sand, some clay
- 20 - 30 fine gray sand, some clay and shale
- 30 - 40 fine to medium sand with shale and rock fragments
- 40 - 50 mostly shale with fine sand
- 50 - 60 large, mostly shale, some rock and sand
- 60 - 70 large rock, shells, sand
- 70 - 80 very fine gray uniform sand
- 80 - 90 shale, shells, fine sand, some clay
- 90 - 100 shale, shells, fine sand, some clay
- 100 - 110 shale, some sand, some clay
- 110 - 120 large rock fragments, fine sand, shale
- 120 - 130 rock fragments, shale, sand
- 130 - 140 sand, rock fragments, sand, clay
- 140 - 200 very fine, uniform gray sand



Johnson Division
 P.O. Box 43118 - St. Paul, Minnesota 55164
 Telephone 612-636-3900 • Telex 29-7451
Uop Inc.

SAND ANALYSIS

(FINE)

MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

Sample sent in by _____

Contract N62470-82-C-4551

Town _____

State _____

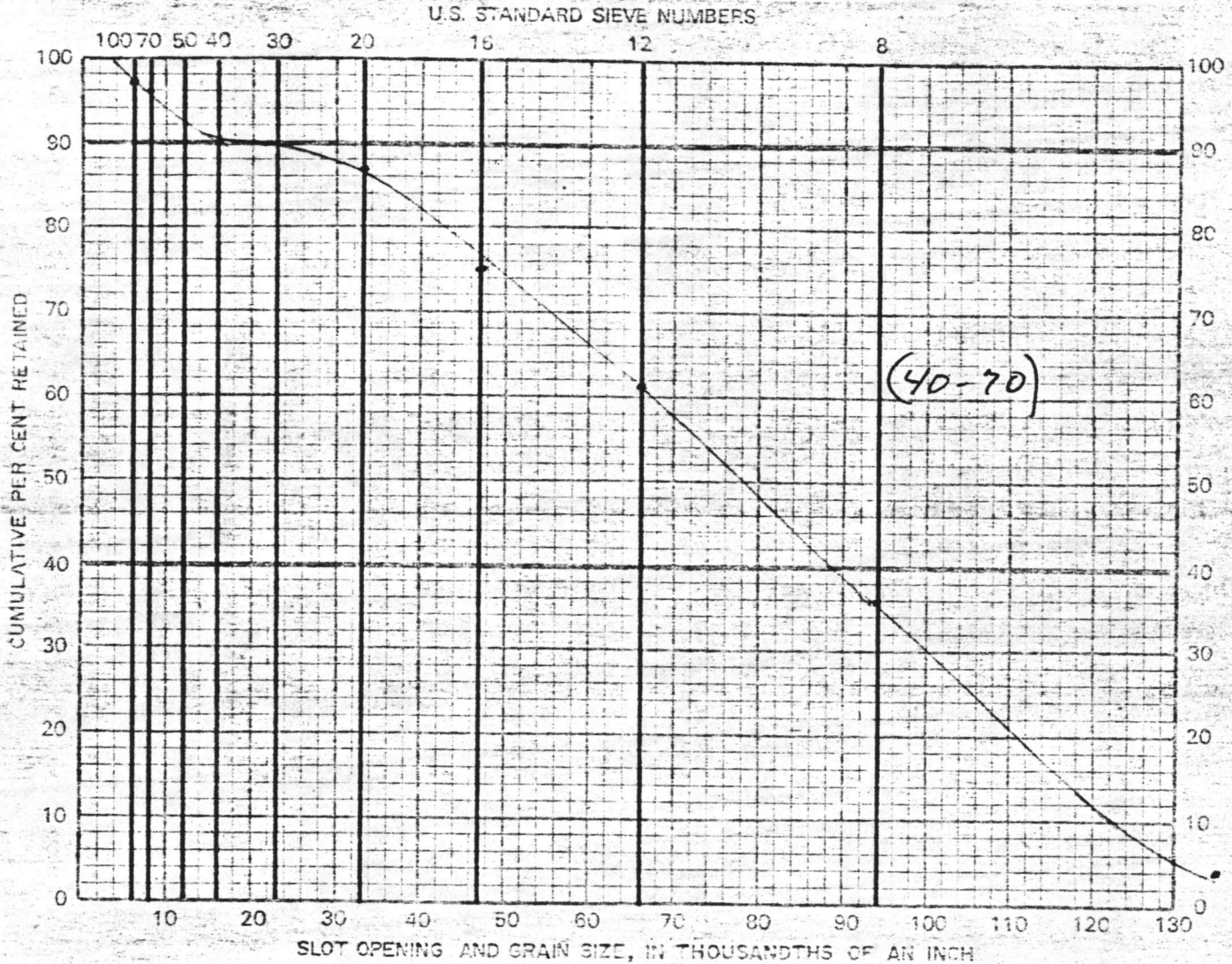
Zip _____

Date _____

C-27-83

From well of _____

Remarks: *Well BB-43 Camp Lejeune, NC.*
For Gravel Pack Selection



U.S. SIEVE NO.	SIEVE OPENING		CUMULATIVE PER CENT RETAINED
	INCHES	MM	
6	1.18	30.0	
8	0.94	23.8	
12	0.60	15.2	
16	0.47	11.9	
20	0.33	8.4	
30	0.23	5.8	
40	0.16	4.2	
50	0.12	3.0	
70	0.08	2.1	
100	0.06	1.5	

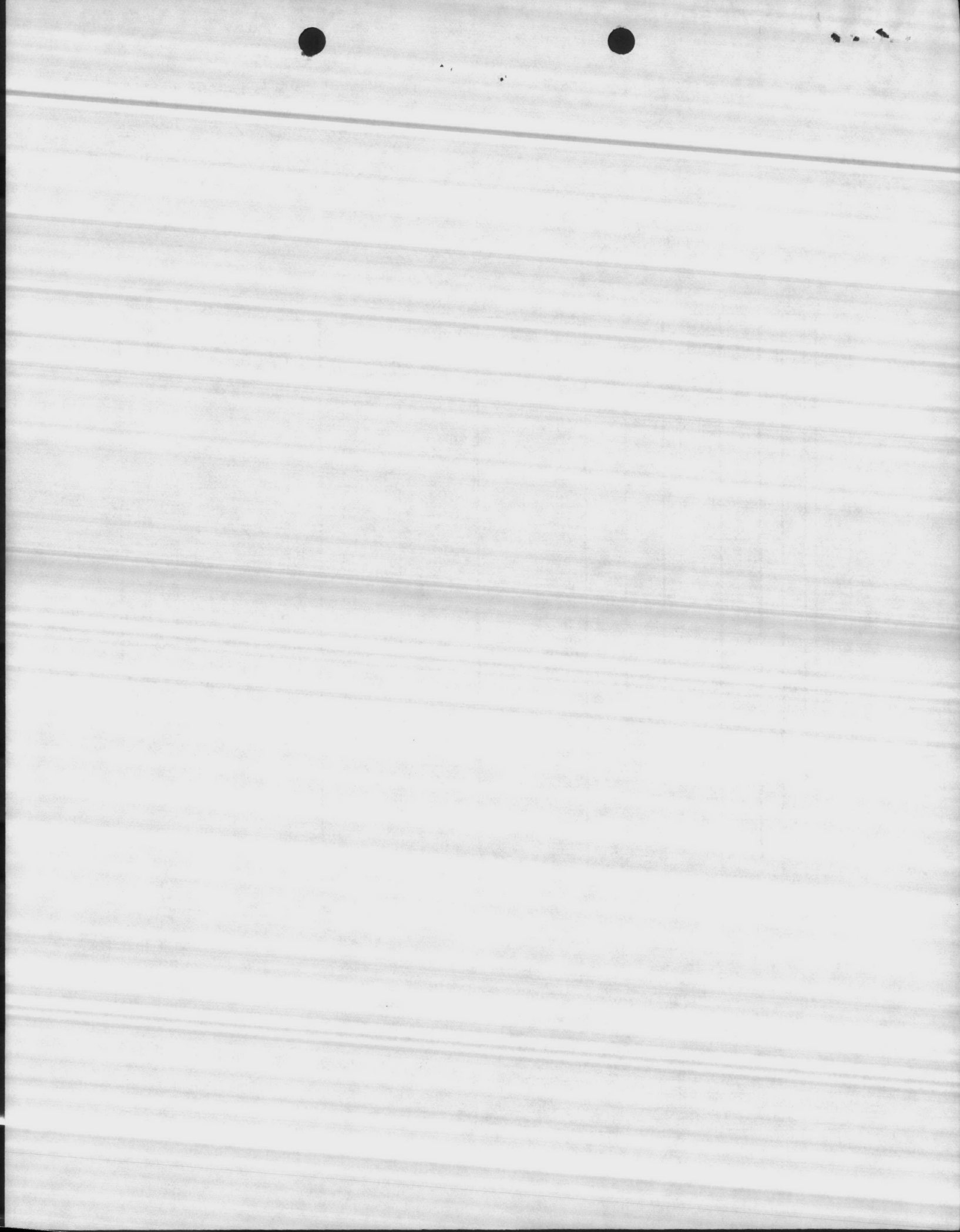
Notes _____

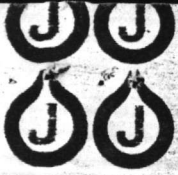
Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: *BPV*

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.





Johnson Division
 P.O. Box 43118 • St. Paul, Minnesota 55164
 Telephone 612-636-3000 • Telex 29-7451
Uop Inc.

SAND ANALYSIS

(FINE)

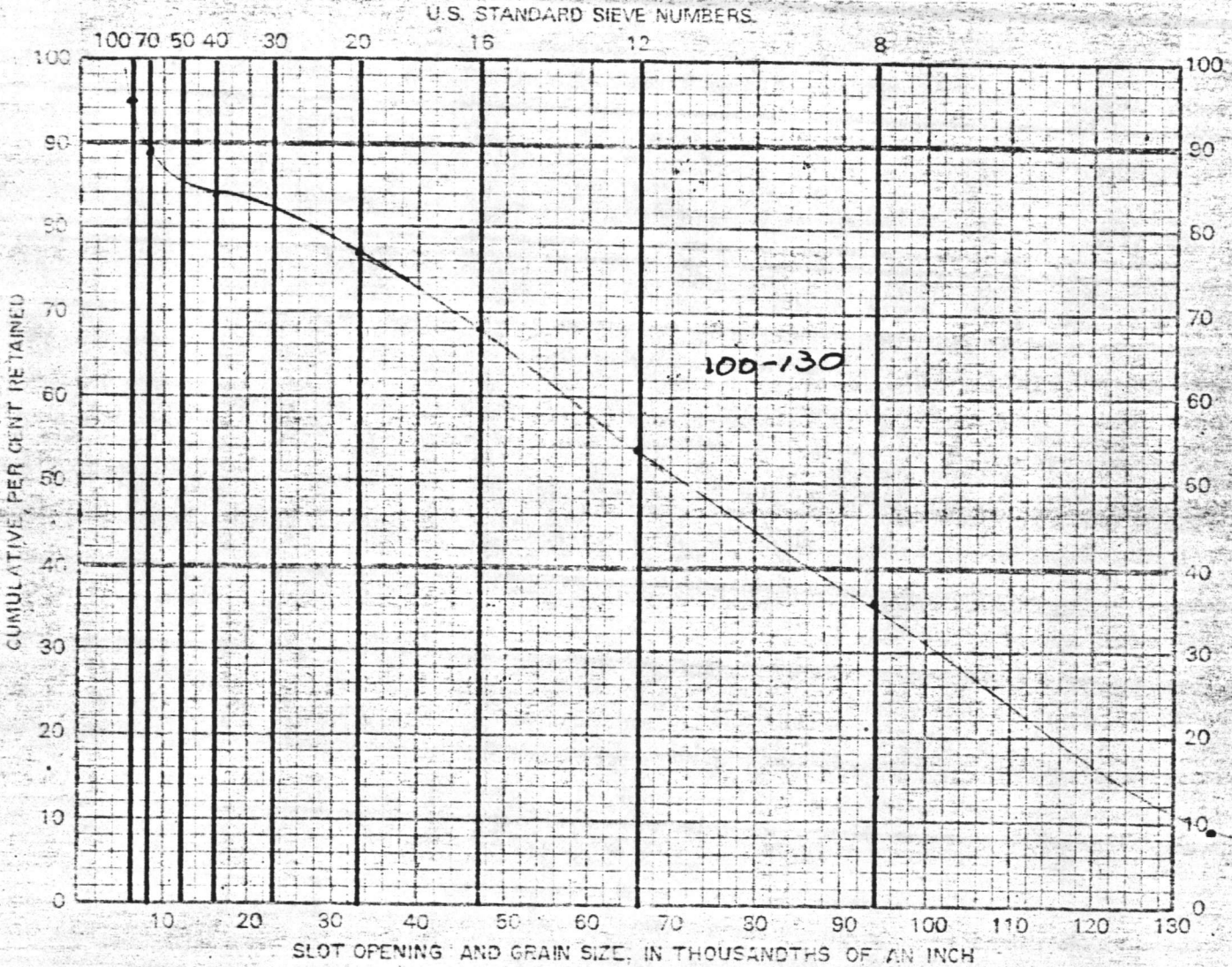
MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: BB-43 Camp LeJeune NYC



S. SIEVE	SIEVE OPENING		CUMULATIVE % RETAINED
	INCHES	MM	
6	.132	3.36	
8	.094	2.39	
12	.065	1.66	
16	.047	1.19	
20	.033	.84	
30	.023	.60	
40	.016	.42	
50	.012	.30	
70	.008	.21	
100	.006	.15	

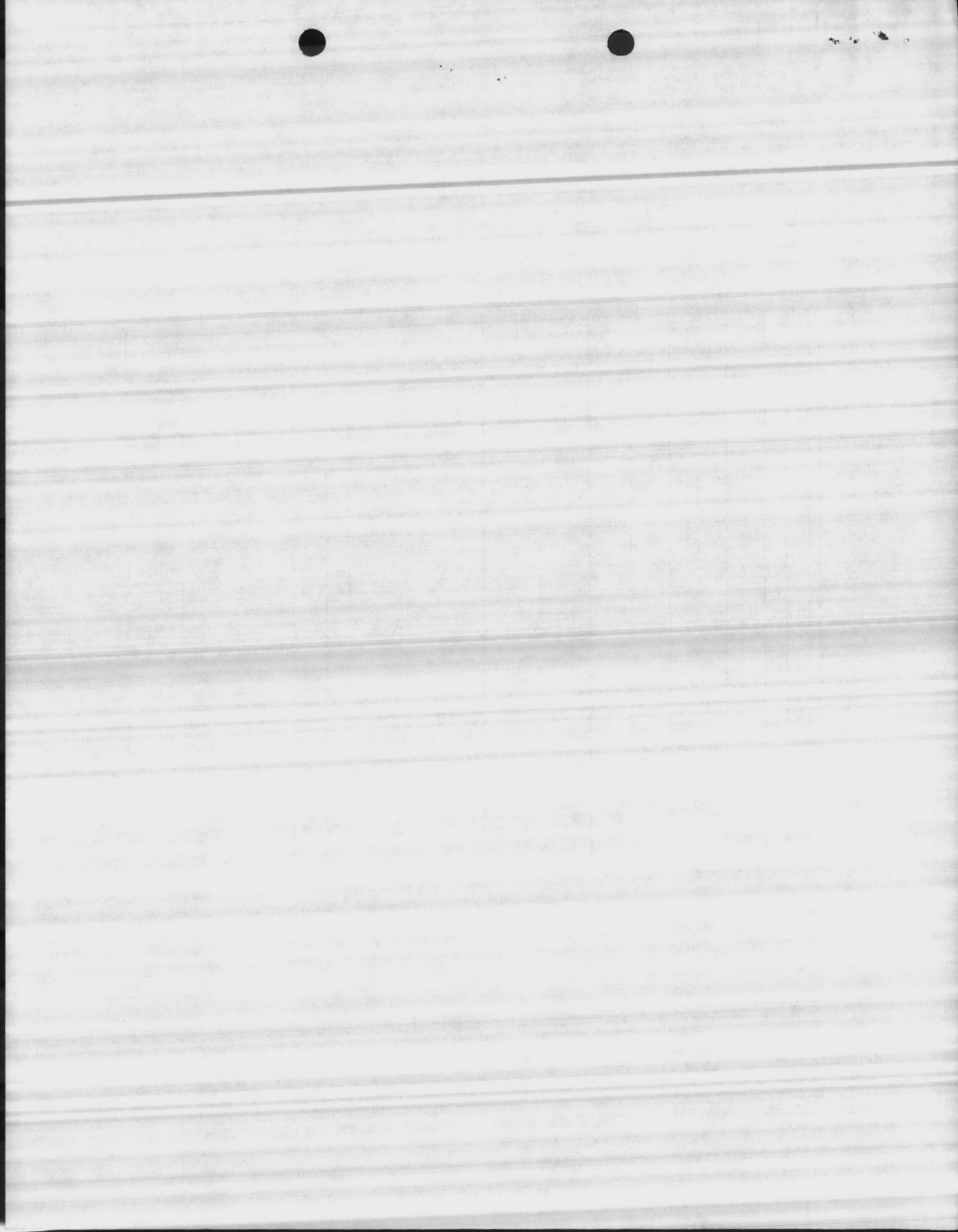
Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

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Johnson Division
 P.O. Box 43118 • St. Paul, Minnesota 55164
 Telephone 612-636-3900 • Telex 29-7451
 UOP Inc.

SAND ANALYSIS

(FINE)

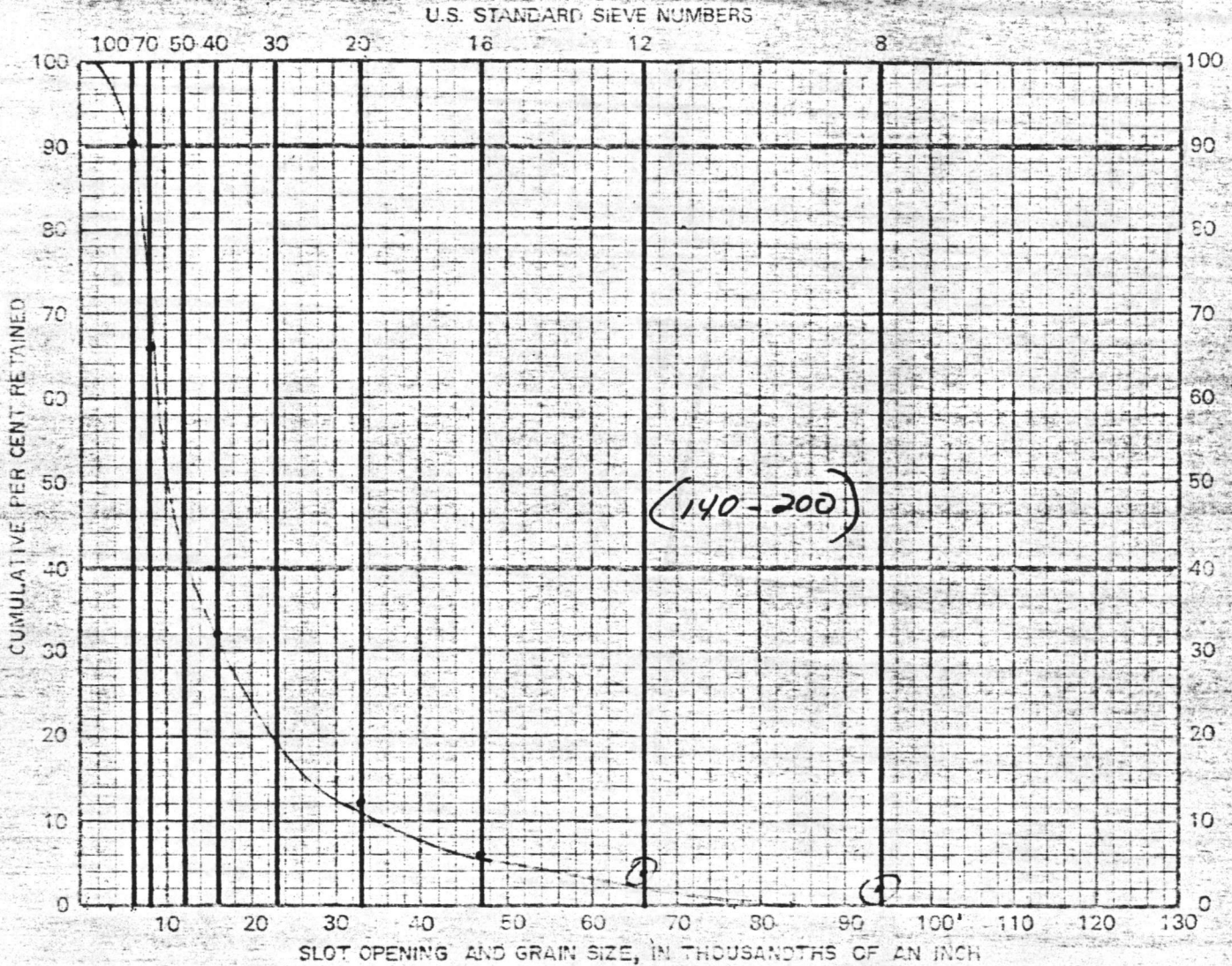
MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: BB-43



U.S. SIEVE NO.	SIEVE OPENING		CUMULATIVE % RETAINED
	INCHES	MM	
6	132	3.36	
8	094	2.38	
12	066	1.68	
16	047	1.19	
20	033	0.84	
30	023	0.60	
40	016	0.42	
50	012	0.30	
70	008	0.21	
100	006	0.15	

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.

RECEIVED

AUG 2 1983

ENWRIGHT ASSOCIATES

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
MECHANICAL		
ELECTRICAL	FKL	RJ
WATER		
AIR		
WASTE WATER		

WATER ANALYSIS LABORATORY
802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29312

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

(803) 479-4639

DATE: June 25, 1983

Contract N62470-82-C-4551

Report To: Carolina Well & Pump Co.
Sanford, N. C.

Date Analyzed: 6/25/83
Sample Number: Top Sample 45'
BB 43

Analysis Results--Parts Per Million

Determination

pH	<u>7.1</u>
Iron (Fe)	<u>0.15</u>
Nitrate (NO ₃)	<u>Trace</u>
Fluoride (F)	<u>0.5</u>
Manganese (Mn)	<u>Trace</u>
Total Hardness (CaCO ₃)	<u>173</u>
Chlorides (Cl)	<u>14</u>
Sulfate (SO ₄)	<u>12.3</u>
Phosphate (PO ₄)	<u>0</u>
Magnesium (Mg)	<u>3.8</u>
Calcium (Ca)	<u>62.8</u>
Carbonate (CO ₃)	<u>0</u>
Bicarbonate (HCO ₃)	<u>195</u>
Hydroxide (OH)	<u>0</u>

Determination

Carbon Dioxide (CO ₂)	<u>2</u>
Total Acidity (CaCO ₃)	<u>4</u>
Calcium Hardness (CaCO ₃)	<u>157</u>
Magnesium Hardness (CaCO ₃)	<u>16</u>
Carbonate Hardness (CaCO ₃)	<u>160</u>
Noncarbonate Hardness (CaCO ₃)	<u>13</u>
Alkalinity (Phenolphthalein) (CaCO ₃)	<u>0</u>
Carbonate Alkalinity (CaCO ₃)	<u>0</u>
Bicarbonate Alkalinity (CaCO ₃)	<u>160</u>
Total Alkalinity (CaCO ₃)	<u>160</u>
Total Dissolved Solids	<u>252</u>
Specific Conductance (micromhos at 25°)	<u>360</u>
Appearance When Analyzed	<u>Hazy</u>
Odor When Analyzed	<u>Not Objectionable</u>

Water Analysis Lab
802 Hamlet Highway

SIGNED: Bennettsville, South Carolina
LABORATORY DIRECTOR



WATER ANALYSIS LABORATORY

802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29512

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

(RR3) 479-4639

DATE: June 25, 1983

Report To: Carolina Well & Pump Co.
Sanford, N. C.

Date Analyzed: 6/25/83
Sample Number: Bottom Sample 115'
BB 43

Analysis Results--Parts Per Million

Determination

pH	<u>6.8</u>
Iron (Fe)	<u>0.1</u>
Nitrate (NO ₃)	<u>Trace</u>
Fluoride (F)	<u>0.4</u>
Manganese (Mn)	<u>Trace</u>
Total Hardness (CaCO ₃)	<u>194</u>
Chlorides (Cl)	<u>16</u>
Sulfate (SO ₄)	<u>6.4</u>
Phosphate (PO ₄)	<u>0</u>
Magnesium (Mg)	<u>7.2</u>
Calcium (Ca)	<u>66</u>
Carbonate (CO ₃)	<u>0</u>
Bicarbonate (HCO ₃)	<u>193</u>
Hydroxide (OH)	<u>0</u>

Determination

Carbon Dioxide (CO ₂)	<u>5</u>
Total Acidity (CaCO ₃)	<u>8</u>
Calcium Hardness (CaCO ₃)	<u>165</u>
Magnesium Hardness (CaCO ₃)	<u>29</u>
Carbonate Hardness (CaCO ₃)	<u>158</u>
Noncarbonate Hardness (CaCO ₃)	<u>36</u>
Alkalinity (Phenolphthalein) (CaCO ₃)	<u>0</u>
Carbonate Alkalinity (CaCO ₃)	<u>0</u>
Bicarbonate Alkalinity (CaCO ₃)	<u>158</u>
Total Alkalinity (CaCO ₃)	<u>158</u>
Total Dissolved Solids	<u>224</u>
Specific Conductance (micromhos at 25°C)	<u>320</u>
Appearance When Analyzed	<u>Clear</u>
Odor When Analyzed	<u>Not Objectionable</u>

Walter S. Goodby
802 Hamlet Highway

SIGNED: _____
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE-WATER,' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES,' WATER SUPPLY PAPER 1454 (1960), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.

RECEIVED

AUG 2 1983

ENWRIGHT ASSOCIATES

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
M. MECHANICAL		
ELECTRICAL	PKV	RV
WATER		
AIR		
WASTE WATER		

CONTRACTOR'S SUBMITTAL TRANSMITTAL

5ND LANTDIV 4-1355/3 (Rev. 6/76)

Heint

CONTRACT NO	TRANSMITTAL NO	DATE
N62470-82-C-4551	15	9-08-83

FROM CONTRACTOR

East Coast Construction Co., Inc.
TO
ROICC

PROJECT TITLE AND LOCATION
Replacing Three (3) Water Wells, MCB
Camp Lejeune, N. C.
Well No. 601.

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form,
and indicate which is being submitted

- Contractor Approved
 OICC Approval
 Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES

- A-Approved
- D-Disapproved
- AN-Approved as noted
- RA-Receipt acknowledged.
- C-Comments
- R-Resubmit

ITEM NO	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	15201-6	Driller's Log	3	A	JAE 60
2	15201-6	Electric Log and Gamma Log	3	|	
3	15201-6	Water Analysis	3	|	9-8-83
4	15201-6	Sieve Analysis	3		
5	15201-6	Recommendation and Data Submittal	3	A	JAE 60

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature)

Ronald R. Eller

DATE RECEIVED BY REVIEWER

FROM (Reviewer)

TO

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

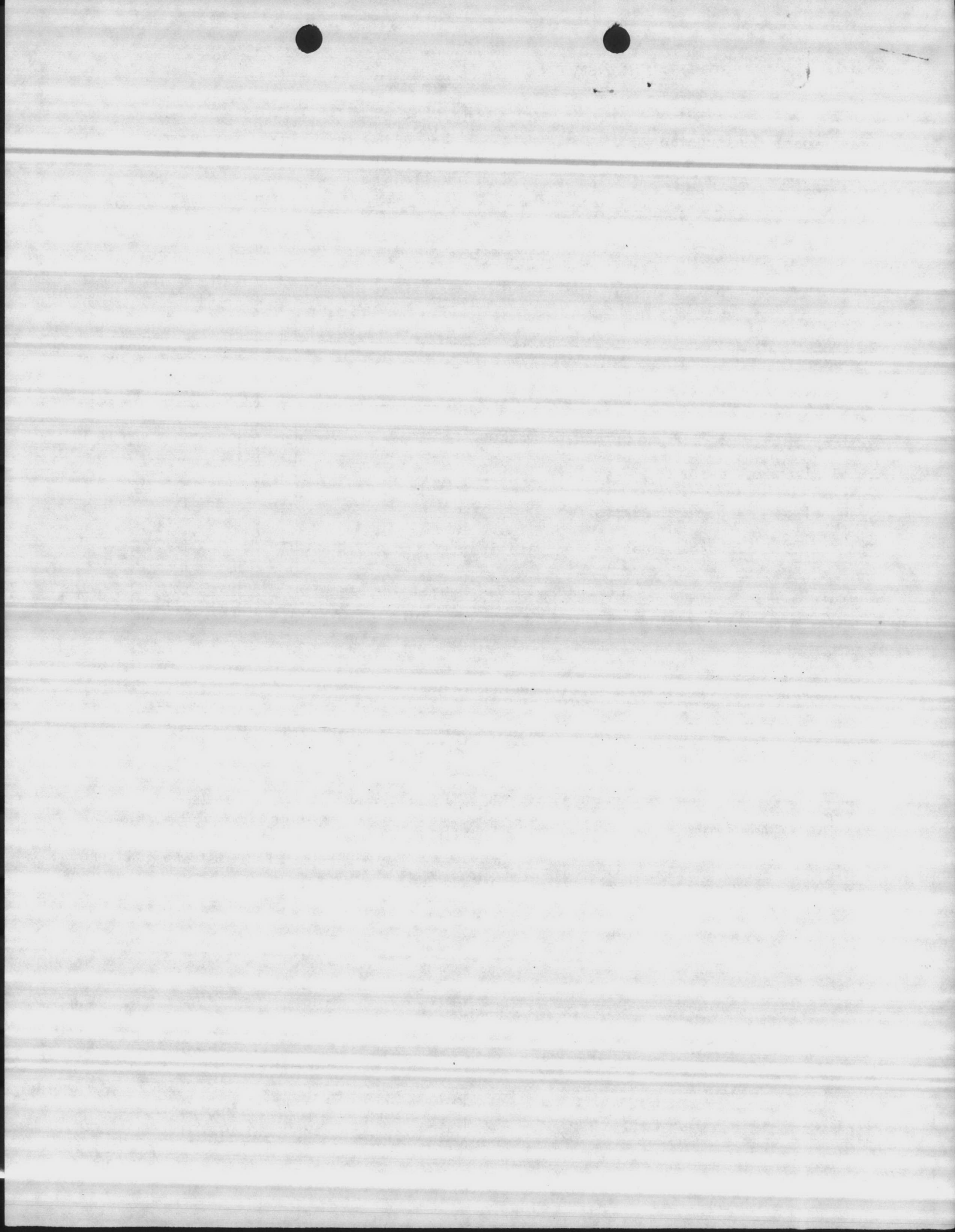
REVIEWER'S COMMENTS

COPIES TO:
ROICC (2)
LANTDIV (1)
A-E (1)

DATE 9-8-83

SIGNATURE JAE

ROICC



July 05, 1983

Officer in Charge of Construction
Building 1005
Camp Lejeune, N. C. 28542

Re: N62470-82-C-4551
Replacing Three (3) Water Wells
Camp Lejeune, N. C.
Well No. 601

Gentlemen:

We are enclosing six (6) copies of the Driller's Log, Electric Log, Gamma Log, Water Analysis and Sieve Analysis for your review. The test well was drilled 225 feet deep. Water samples were taken at the 92' to 97'; 132' to 137'; and 175' to 180' levels.

We recommend a line of .30-slot stainless steel screens set at the 94' to 99'; 108' to 140'; and 175' to 187' levels for a total of 49 VF of screens. The gravel pack recommended is a coarse sand. It is our best estimate that this well may yield 250 to 300 GPM.

Please review the data and advise if we are to proceed with developing a permanent well at this site.

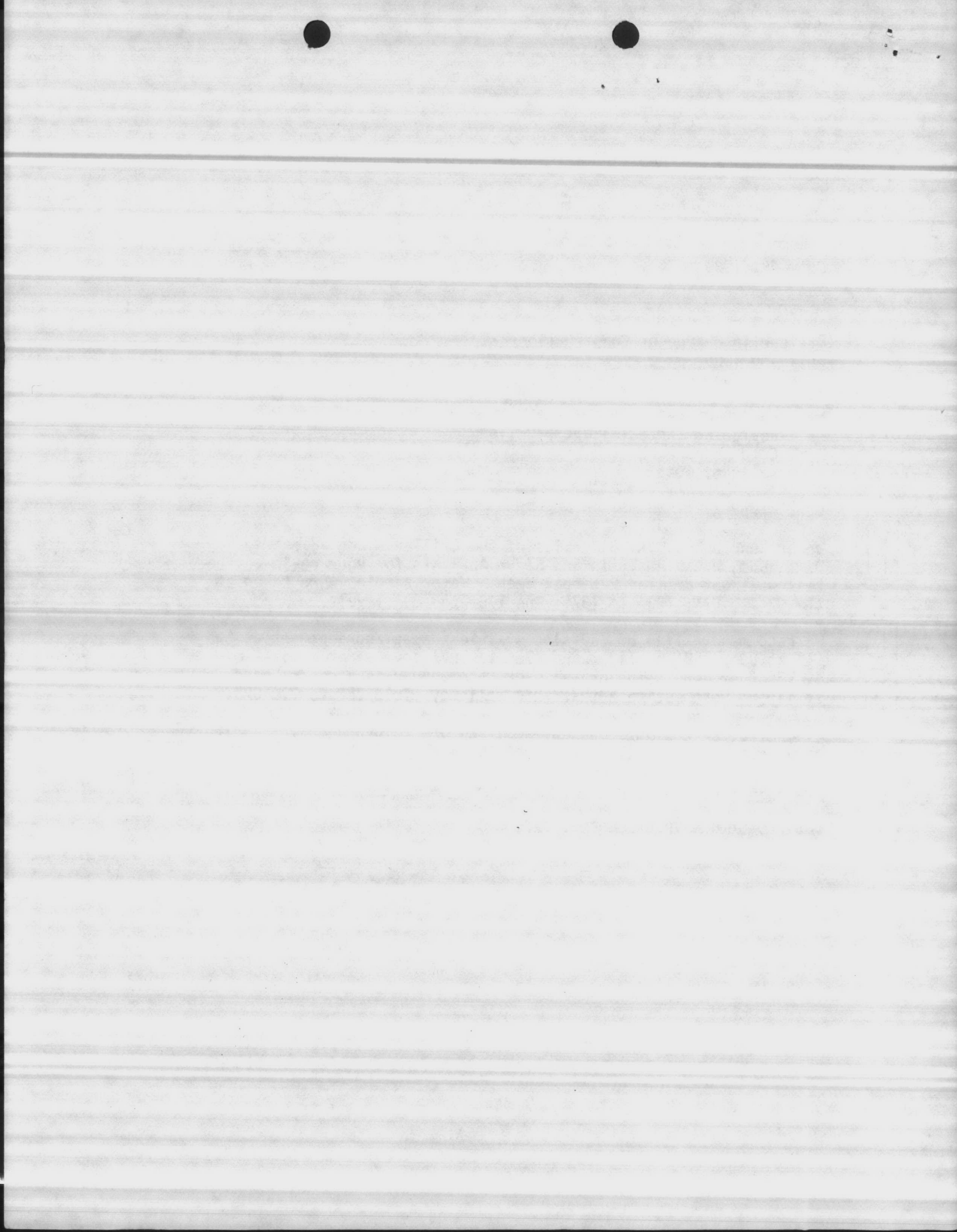
Yours very truly,

EAST COAST CONSTRUCTION CO., INC.

W. H. Myers

WHM/lm
Enclosures

C
O
P
Y



EAST COAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

Post Office Box 5004

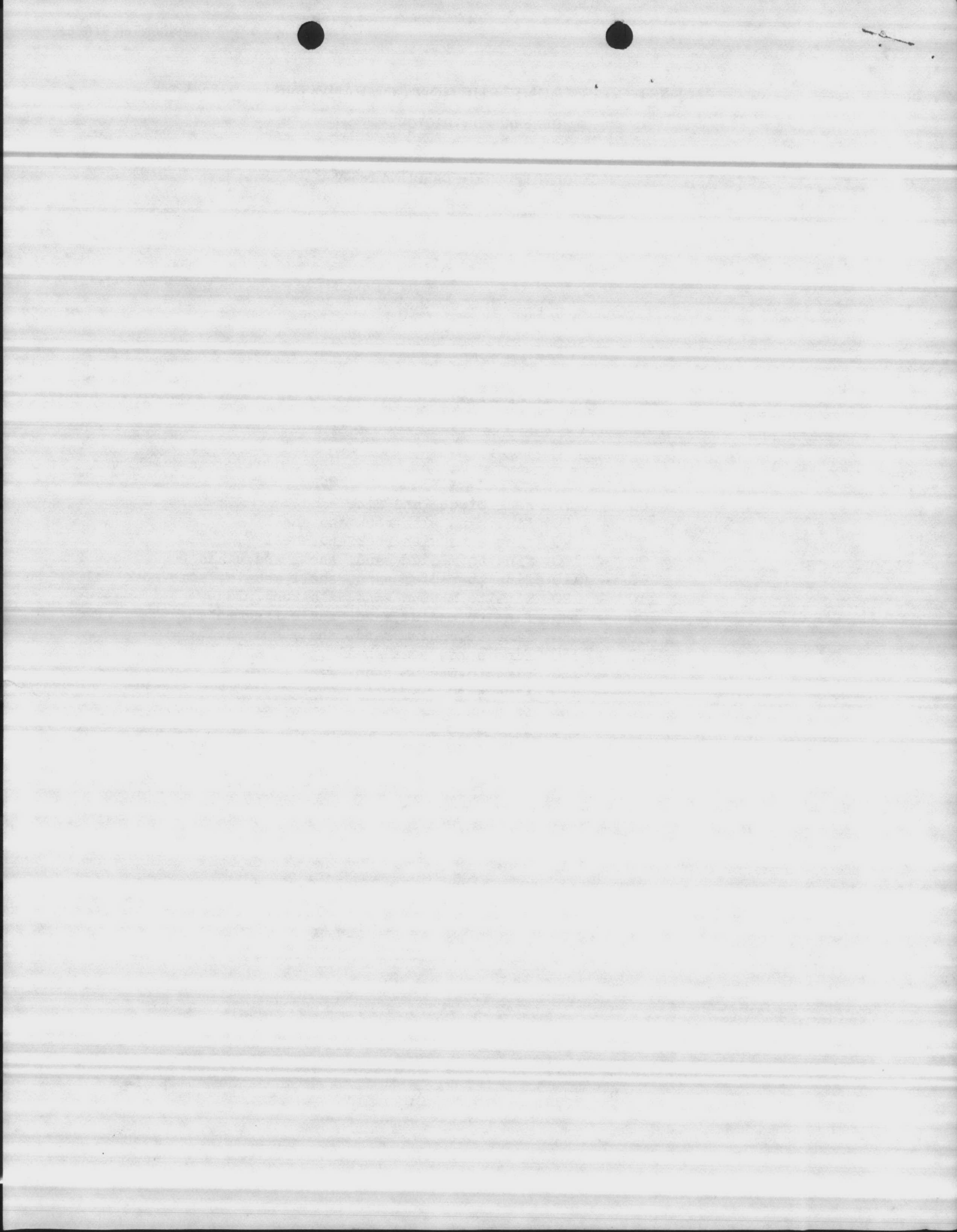
JACKSONVILLE, NORTH CAROLINA 28540

CAMP LEJEUNE

601

May 6, 1983

60	-	70	rock pieces and fine sand
70	-	80	fine sand with rock and shell
80	-	90	fine sand with rock and shell
90	-	100	fine to medium sand, shell and shale
100	-	110	fine to medium sand, shell, shale, some rock
110	-	120	fine to medium sand, with rock pieces
120	-	130	fine to medium sand, shale fragments
130	-	140	fine to medium sand, shale and shells
140	-	150	fine sand, some shell
150	-	160	fine to medium sand
160	-	170	fine sand
170	-	180	fine sand
180	-	190	fine sand
190	-	200	very fine sand





Johnson Division

P.O. Box 43118 • St. Paul, Minnesota 55164
Telephone 612-656-3900 • Telex 29-7451

UOP Inc.

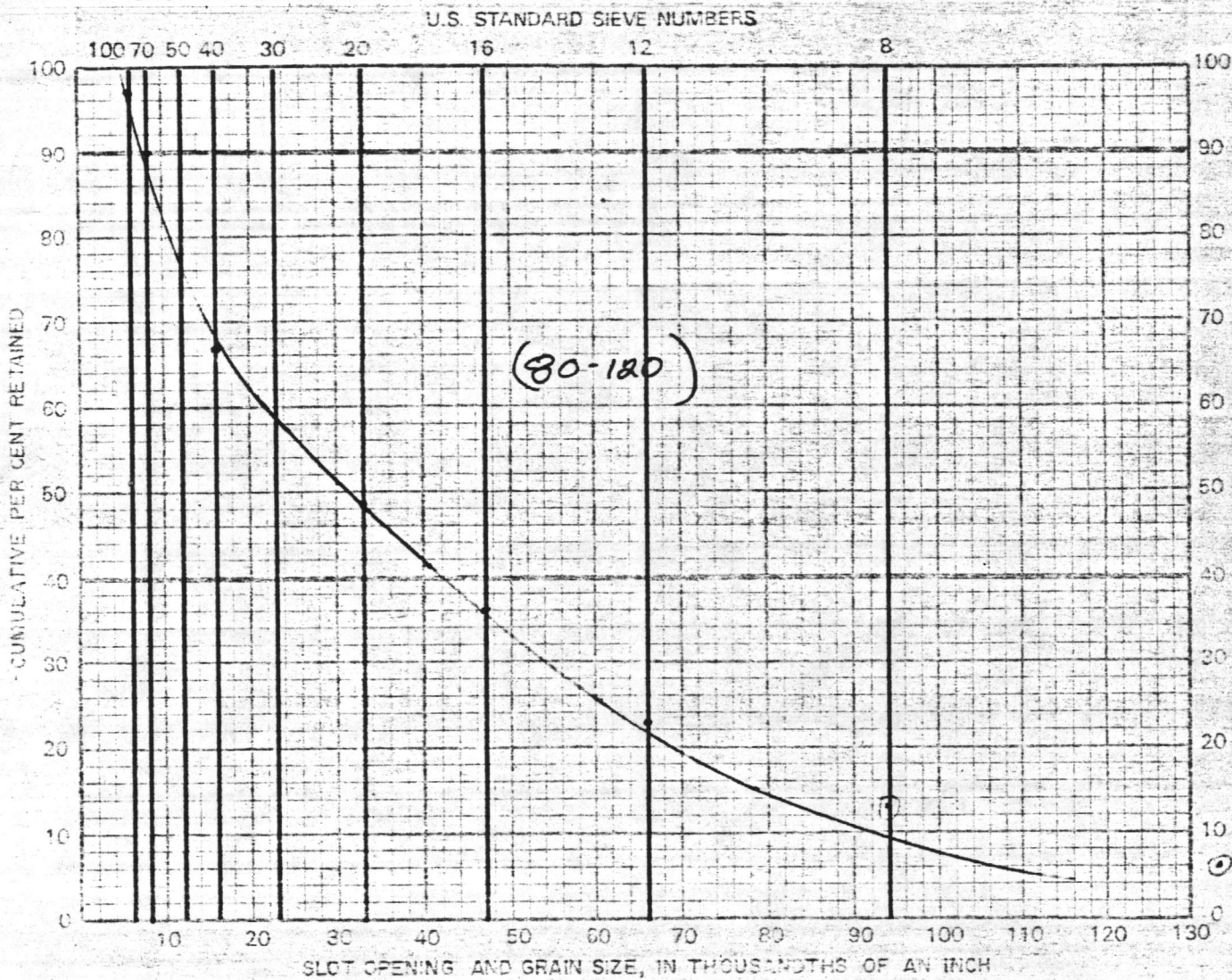
SAND ANALYSIS (FINE)

MAILING ADDRESS: P.O. BOX 43118
ST. PAUL, MINNESOTA 55164

Contract N62470-2-C-4551

Sample sent in by Carolina Well & Pump
Town _____ State _____ Zip _____ Date 6-27-83

From well of _____
Remarks: Well #601 Camp Sejeune, N.C.
For Gravel Pack Selection



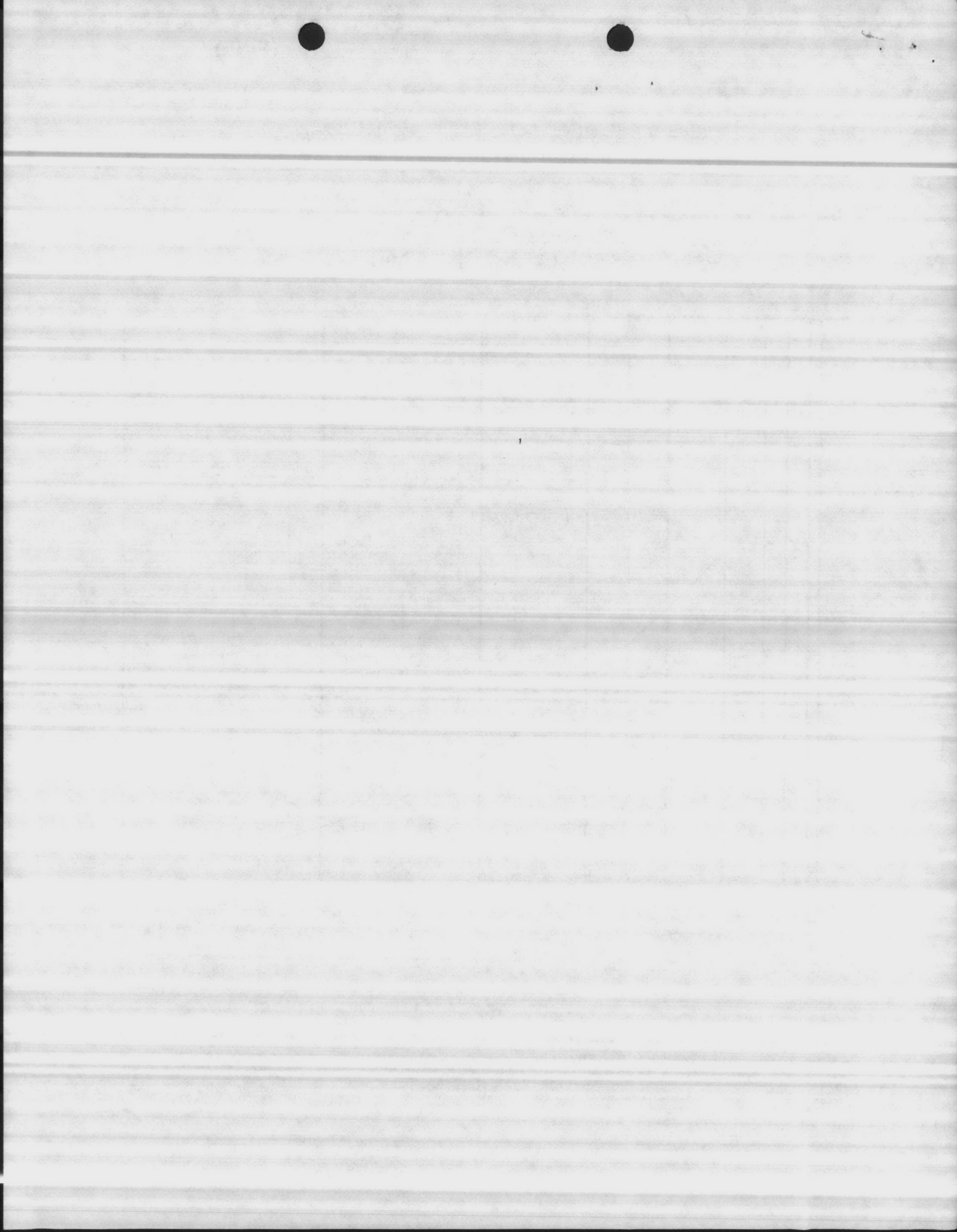
SIEVE NO.	SIEVE OPENING INCHES	SIEVE OPENING MM	CUMULATIVE % RETAINED
6	.132	3.36	
8	.094	2.39	
12	.065	1.65	
15	.047	1.19	
20	.033	0.84	
30	.025	0.60	
40	.016	0.42	
50	.012	0.30	
70	.008	0.21	
100	.006	0.15	

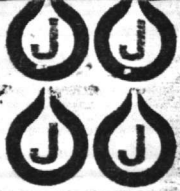
Notes: _____

 Recommended Slot Opening: _____

 Recommended Screen: Dia. _____ in. Length _____ Ft.
 By: BPV

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS.





Johnson Division
 P.O. Box 43118 • St. Paul, Minnesota 55164
 Telephone 612-636-3900 • Telex 29-7451
UOP Inc.

SAND ANALYSIS

(FINE)

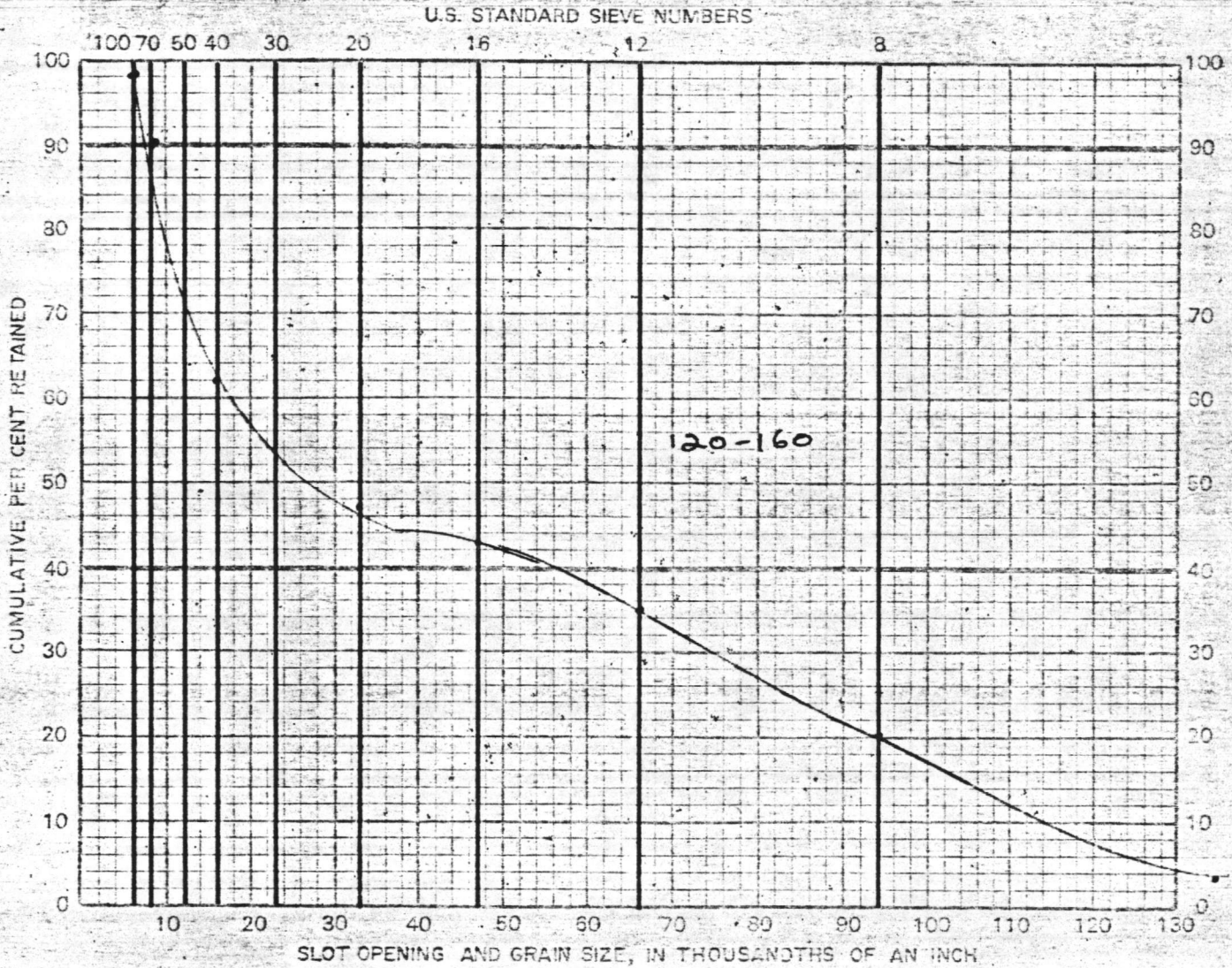
MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: *well #601*



U.S. SIEVE NO.	SIEVE OPENING		CUMULATIVE PER CENT RETAINED
	INCHES	MM	
6	1.32	3.36	
8	.094	2.38	
12	.066	1.68	
16	.047	1.19	
20	.033	0.84	
30	.023	0.60	
40	.016	0.42	
50	.012	0.30	
70	.008	0.21	
100	.006	0.15	

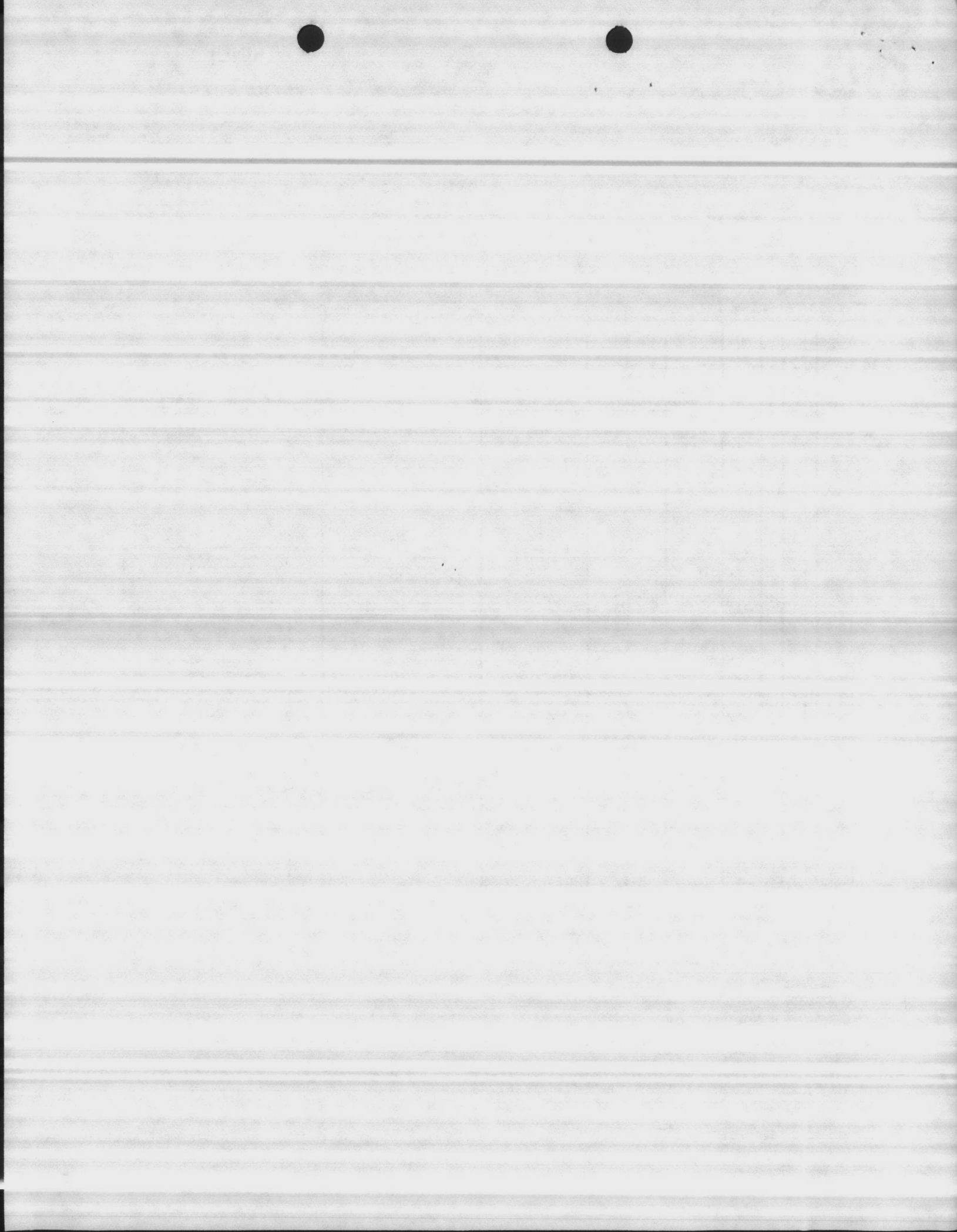
Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

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Johnson Division
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SAND ANALYSIS

(FINE)

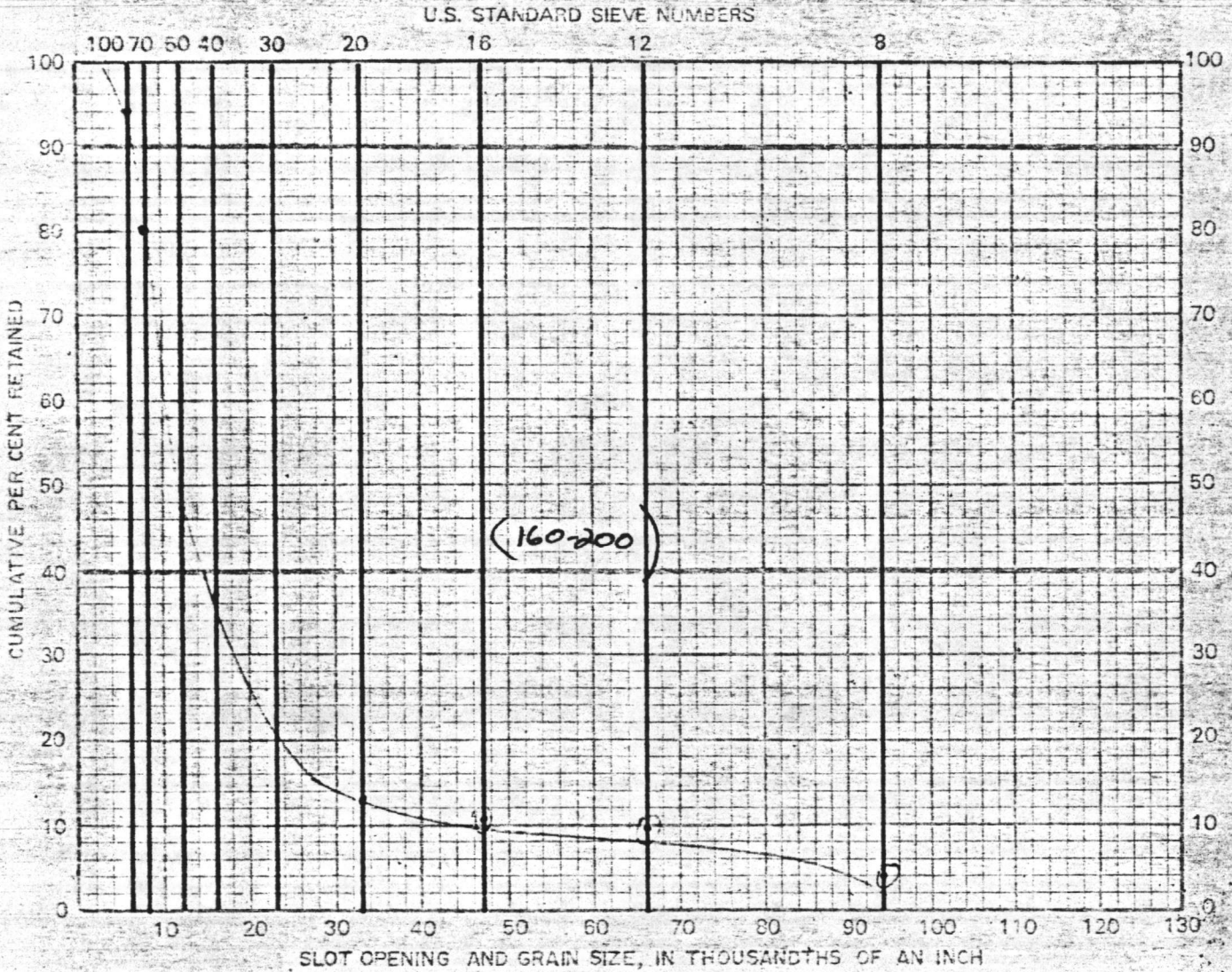
MAILING ADDRESS: P.O. BOX 43118
 ST. PAUL, MINNESOTA • 55164

Sample sent in by _____

Town _____ State _____ Zip _____ Date _____

From well of _____

Remarks: 601



U.S. SIEVE NO.	SIEVE OPENING*		CUMULATIVE % RETAINED
	INCHES	MM	
6	132	3.36	
8	094	2.38	
12	065	1.65	
16	047	1.19	
20	033	0.84	
30	023	0.60	
40	016	0.42	
50	012	0.30	
70	008	0.21	
100	006	0.15	

Notes: _____

Recommended Slot Opening: _____

Recommended Screen: Dia. _____ in. Length _____ Ft.

By: _____

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1

WATER ANALYSIS LABORATORY
802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29512

(RR3) 479-4639

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

DATE: June 15, 1983

Contract N62470-82-C-4551

Report To: Carolina Well & Pump Co.
Sanford, N. C.

Date Analyzed: 6/15/83
Sample Number: Job 601-92'-97'

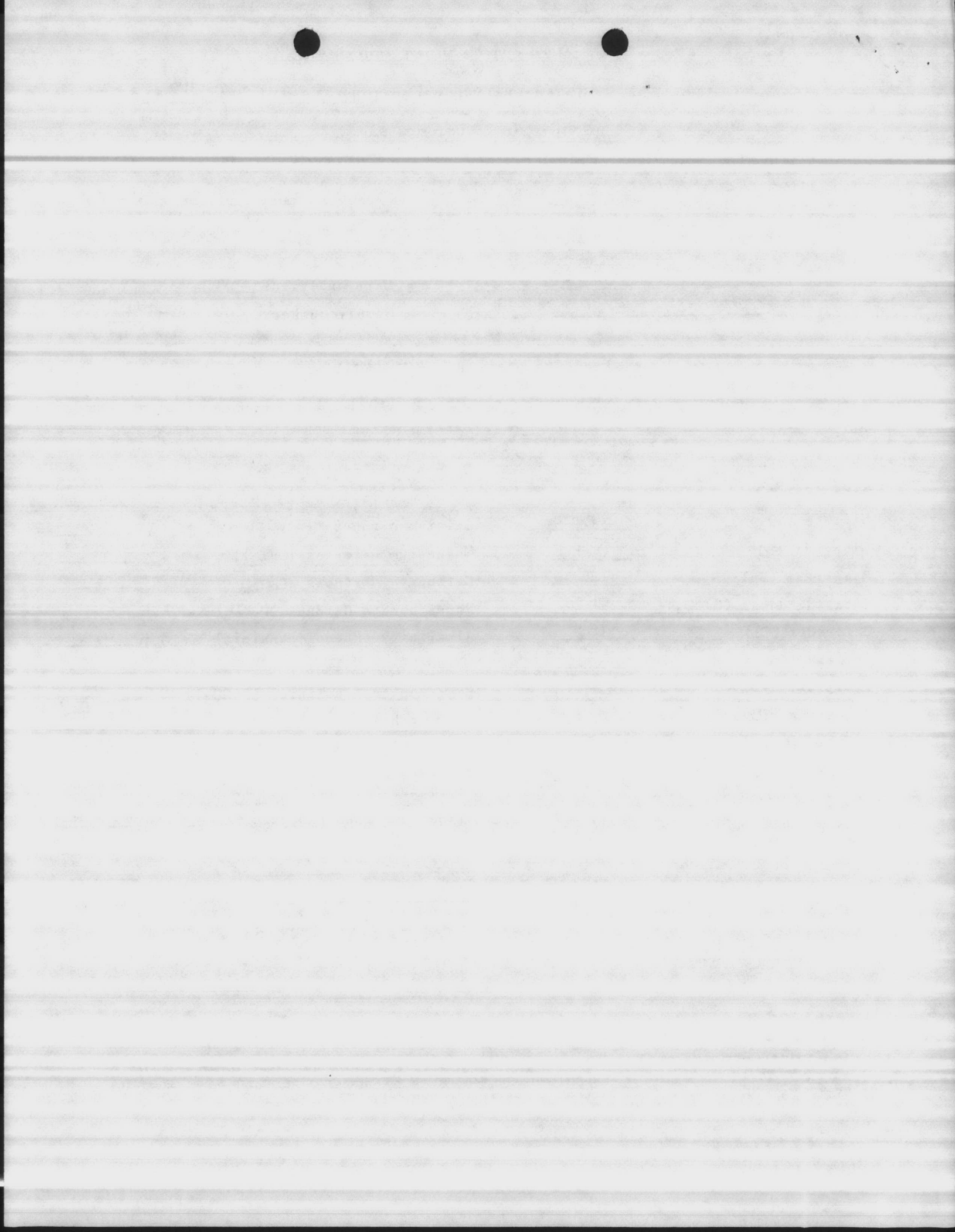
Analysis Results--Parts Per Million

<u>Determination</u>		<u>Determination</u>	
pH	<u>6.9</u>	Carbon Dioxide (CO ₂)	<u>5</u>
Iron (Fe)	<u>0.1</u>	Total Acidity (CaCO ₃)	<u>6</u>
Nitrate (NO ₃)	<u>Trace</u>	Calcium Hardness (CaCO ₃)	<u>208</u>
Fluoride (F)	<u>0.4</u>	Magnesium Hardness (CaCO ₃)	<u>34</u>
Manganese (Mn)	<u>Trace</u>	Carbonate Hardness (CaCO ₃)	<u>220</u>
Total Hardness (CaCO ₃)	<u>242</u>	Noncarbonate Hardness (CaCO ₃)	<u>22</u>
Chlorides (Cl)	<u>16</u>	Alkalinity (Phenolphthalein) (CaCO ₃)	<u>0</u>
Sulfate (SO ₄)	<u>32.6</u>	Carbonate Alkalinity (CaCO ₃)	<u>0</u>
Phosphate (PO ₄)	<u>0</u>	Bicarbonate Alkalinity (CaCO ₃)	<u>220</u>
Magnesium (Mg)	<u>8.4</u>	Total Alkalinity (CaCO ₃)	<u>220</u>
Calcium (Ca)	<u>83.2</u>	Total Dissolved Solids	<u>392</u>
Carbonate (CO ₃)	<u>0</u>	Specific Conductance (micromhos at 25°C)	<u>560</u>
Bicarbonate (HCO ₃)	<u>268</u>	Appearance When Analyzed	<u>Clear</u>
Hydroxide (OH)	<u>0</u>	Odor When Analyzed	<u>Not Objectionable</u>

Water Analysis Laboratory
802 Hamlet Highway

SIGNED: _____
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE-WATER,' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES,' WATER SUPPLY PAPER 1454 (1960), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.



WATER ANALYSIS LABORATORY
802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29312

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

(803) 479-4639

DATE: June 15, 1983

Report To: Carolina Well & Pump Co.
Sanford, North Carolina

Date Analyzed: 6/15/83
Sample Number: Job 601-132'-137'

Analysis Results--Parts Per Million

<u>Determination</u>		<u>Determination</u>	
pH	<u>7.0</u>	Carbon Dioxide (CO ₂)	<u>2</u>
Iron (Fe)	<u>0.1</u>	Total Acidity (CaCO ₃)	<u>3</u>
Nitrate (NO ₃)	<u>Trace</u>	Calcium Hardness (CaCO ₃)	<u>152</u>
Fluoride (F)	<u>0.5</u>	Magnesium Hardness (CaCO ₃)	<u>23</u>
Manganese (Mn)	<u>Trace</u>	Carbonate Hardness (CaCO ₃)	<u>175</u>
Total Hardness (CaCO ₃)	<u>175</u>	Noncarbonate Hardness (CaCO ₃)	<u>0</u>
Chlorides (Cl)	<u>14</u>	Alkalinity (Phenolphthalein) (CaCO ₃)	<u>0</u>
Sulfate (SO ₄)	<u>6.2</u>	Carbonate Alkalinity (CaCO ₃)	<u>0</u>
Phosphate (PO ₄)	<u>0</u>	Bicarbonate Alkalinity (CaCO ₃)	<u>180</u>
Magnesium (Mg)	<u>5.6</u>	Total Alkalinity (CaCO ₃)	<u>180</u>
Calcium (Ca)	<u>60.8</u>	Total Dissolved Solids	<u>266</u>
Carbonate (CO ₃)	<u>0</u>	Specific Conductance (micromhos at 25°C)	<u>380</u>
Bicarbonate (HCO ₃)	<u>220</u>	Appearance When Analyzed	<u>Clear</u>
Hydroxide (OH)	<u>0</u>	Odor When Analyzed	<u>Not objectionable</u>

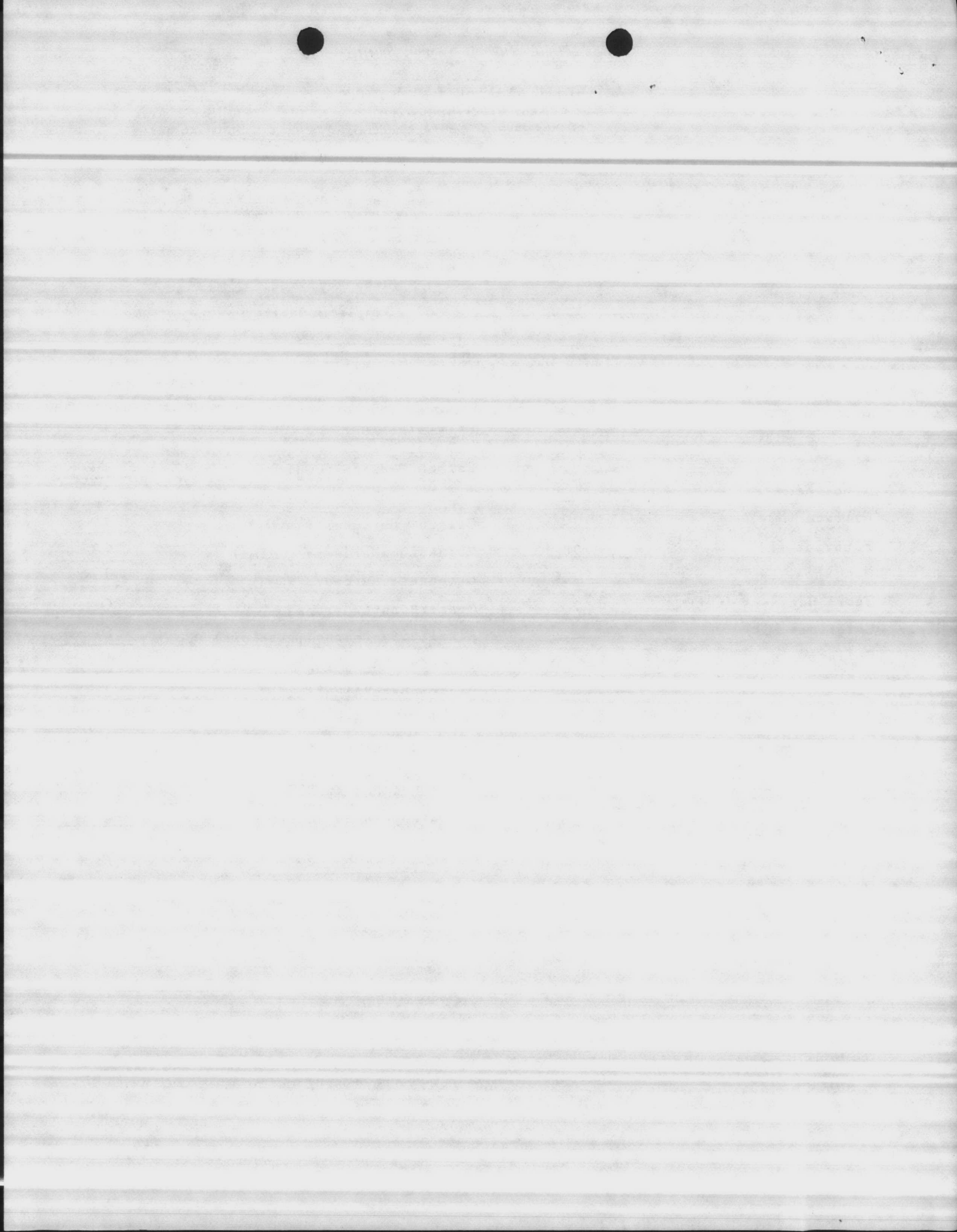
Water Analysis Laboratory

802 Hamlet Highway

Bennettsville, South Carolina 29312

SIGNED _____
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE-WATER,' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES,' WATER SUPPLY PAPER 1454 (1960), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.



WATER ANALYSIS LABORATORY

802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29312

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

(RQ3) 479-4639

DATE: June 15, 1983

Report To: Carolina Well & Pump Co.
Sanford, North Carolina

Date Analyzed: 6/15/83
Sample Number: Job 601-175'-180'

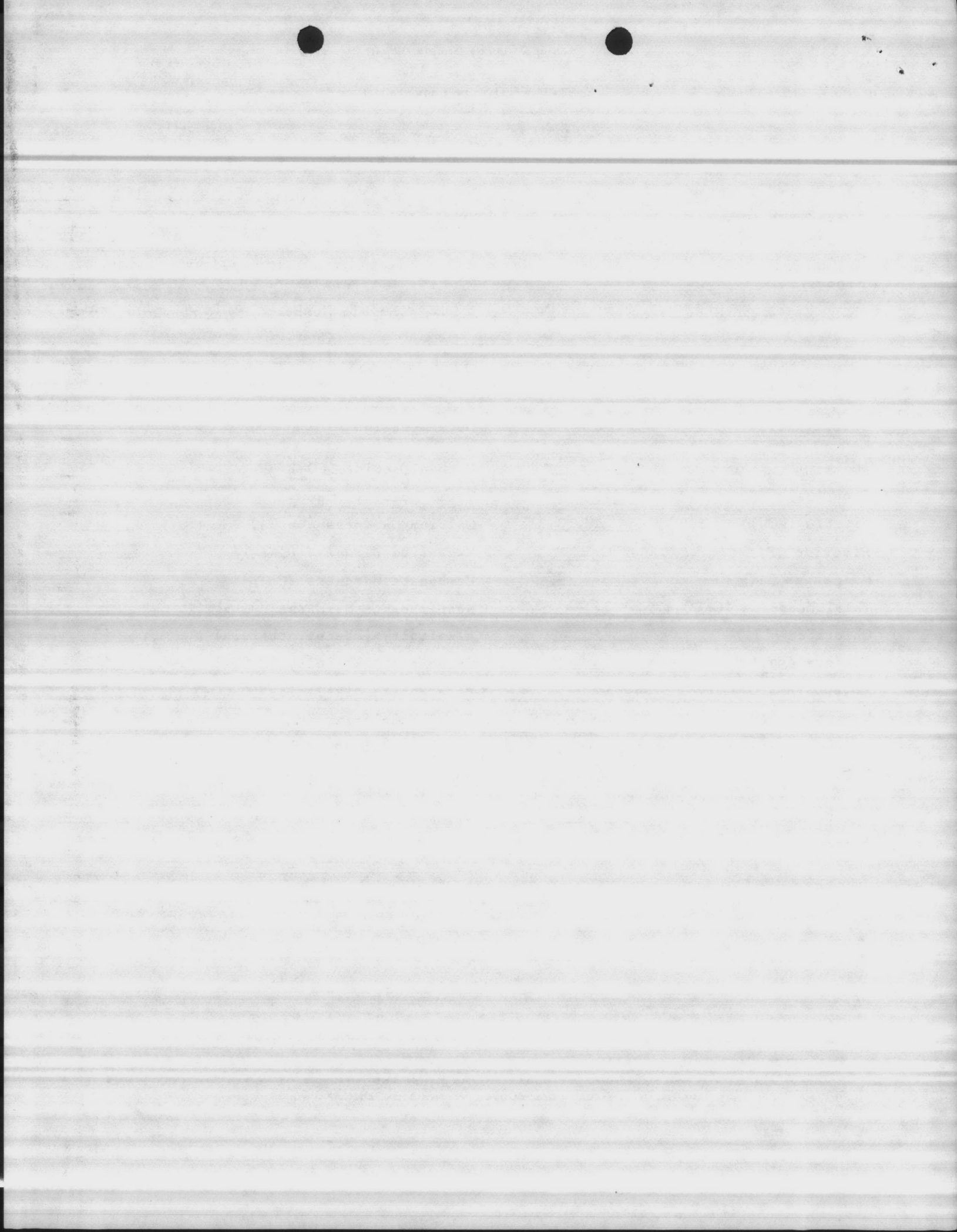
Analysis Results--Parts Per Million

<u>Determination</u>		<u>Determination</u>	
pH	<u>7.2</u>	Carbon Dioxide (CO ₂)	<u>2</u>
Iron (Fe)	<u>.05</u>	Total Acidity (CaCO ₃)	<u>2</u>
Nitrate (NO ₃)	<u>Trace</u>	Calcium Hardness (CaCO ₃)	<u>146</u>
Fluoride (F)	<u>0.4</u>	Magnesium Hardness (CaCO ₃)	<u>16</u>
Manganese (Mn)	<u>Trace</u>	Carbonate Hardness (CaCO ₃)	<u>160</u>
Total Hardness (CaCO ₃)	<u>162</u>	Noncarbonate Hardness (CaCO ₃)	<u>2</u>
Chlorides (Cl)	<u>18</u>	Alkalinity (Phenolphthalein) (CaCO ₃)	<u>0</u>
Sulfate (SO ₄)	<u>7.1</u>	Carbonate Alkalinity (CaCO ₃)	<u>0</u>
Phosphate (PO ₄)	<u>0</u>	Bicarbonate Alkalinity (CaCO ₃)	<u>160</u>
Magnesium (Mg)	<u>3.8</u>	Total Alkalinity (CaCO ₃)	<u>160</u>
Calcium (Ca)	<u>58.4</u>	Total Dissolved Solids	<u>238</u>
Carbonate (CO ₃)	<u>0</u>	Specific Conductance (micromhos at 25°)	<u>340</u>
Bicarbonate (HCO ₃)	<u>178</u>	Appearance When Analyzed	<u>Clear</u>
Hydroxide (OH)	<u>0</u>	Odor When Analyzed	<u>Not Objectionable</u>

Water Analysis Laboratory

802 Hamlet Highway

SIGNED: Bennettsville, South Carolina 29312
LABORATORY DIRECTOR

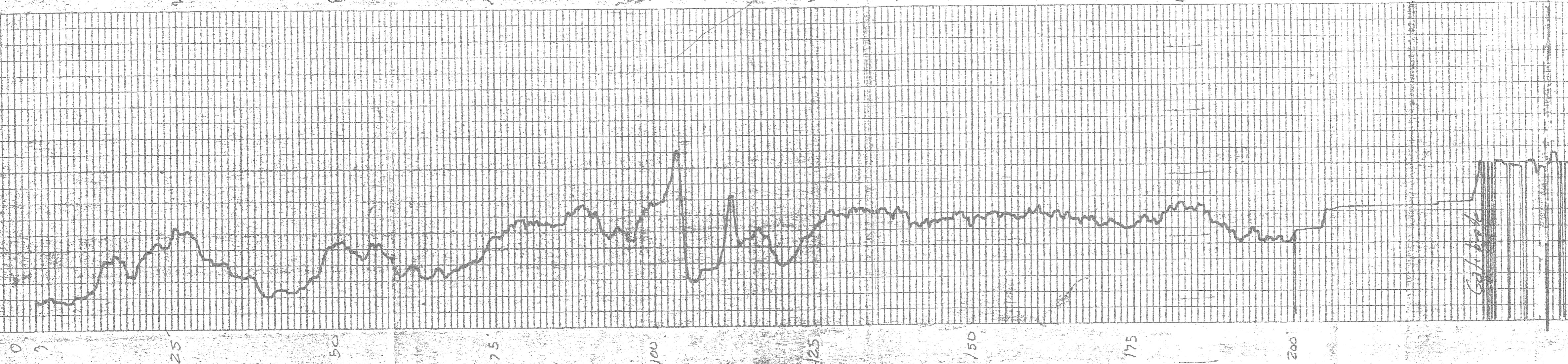


Portland 11/24/50 2-C-4531

Test well
BB 23
2 1/2" casing
hole 18" below
Cammings log
FIG 3502
AS 15' min
logged by
RC Blackie
spot checked
by: WJ / ME
DATE: 1-8-53

UP 104

Gas break



MINERAL LOGGING SYSTEMS, INC.
FORT WORTH, TX 76140

No. 12-1023-01

TX 76140

ENWRIGHT ASSOCIATES
 DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
 INTERNAL USE ONLY AND DOES NOT
 CONSTITUTE APPROVAL OR REJECTION
 OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
M. MECHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	FKL	RV
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____

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Contract 1162470-88-C-4551

Test well
#BB 43
21" 8" dia
hole below
73"
51450
Rps 50
1.5 2.5 mm
UP log
SWC 17-83
torped dip
AP MWD's
Sud & MWD
By A.I.N.C.



UP log

2.5

50

75

100

113'

125

150

175

200

115

50

75

100

125

175

200
50
50



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OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
M. MECHANICAL	_____	_____
EL. MECHANICAL	_____	_____
WATER	FKL	RV
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____

Check
Calibrate

Gamma

22' 9" Gamma
June 6' 83
hole 7' 2" 1/2
mod. distal
UP hole

Well No 601

Comp. by
Lagard
R.E. Smith
Eon & Roberts

0.0'

1.8'

25

30

75

100

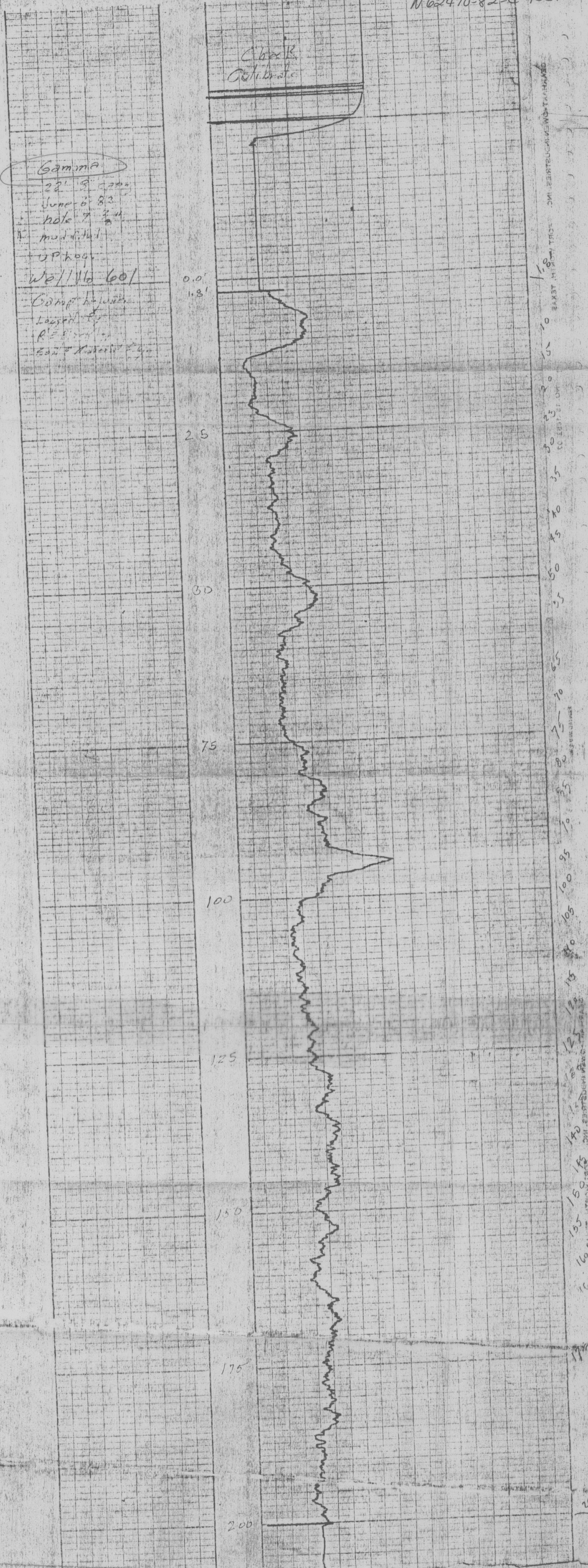
125

150

175

200

GEOPHYSICAL INDUSTRIES, INC. SOUTHWEST TEXAS
NO. 1-1587-03
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200



N 62490-98-C 455

Electric Log

Well No 601

Camp Arlene

May 6 83

5 P.M.

6:30 P.M.

1.5 mi

100 ft

100 ft

100 ft

100 ft

100 ft

100 ft

100 ft

100 ft

100 ft

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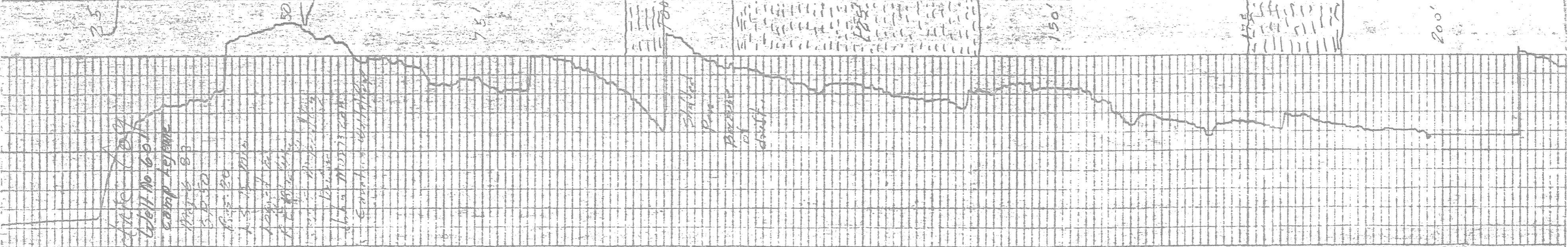
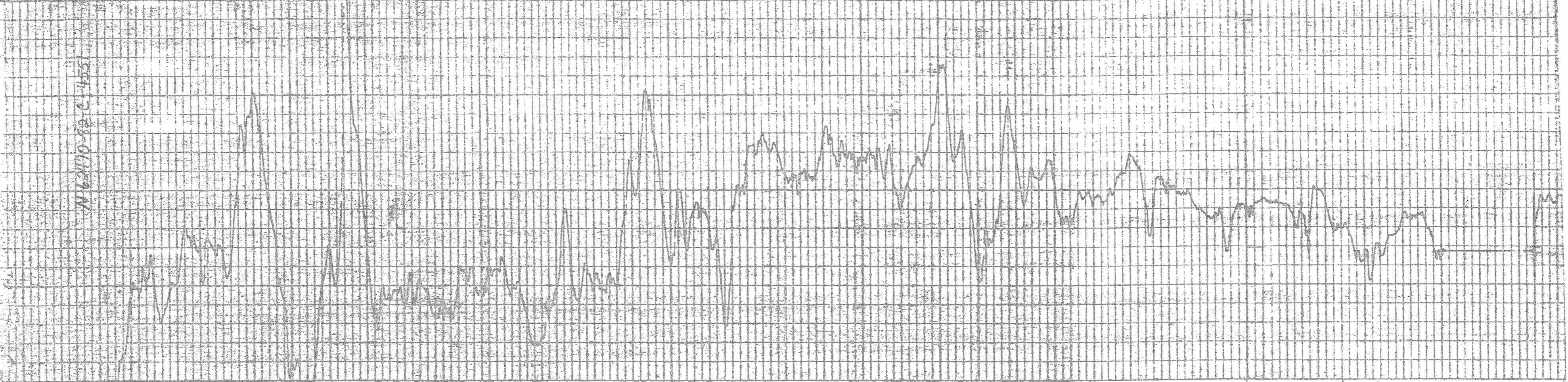
100 ft

100 ft

100 ft

100 ft

Shale
Pore
Pressure
of
depth



100'

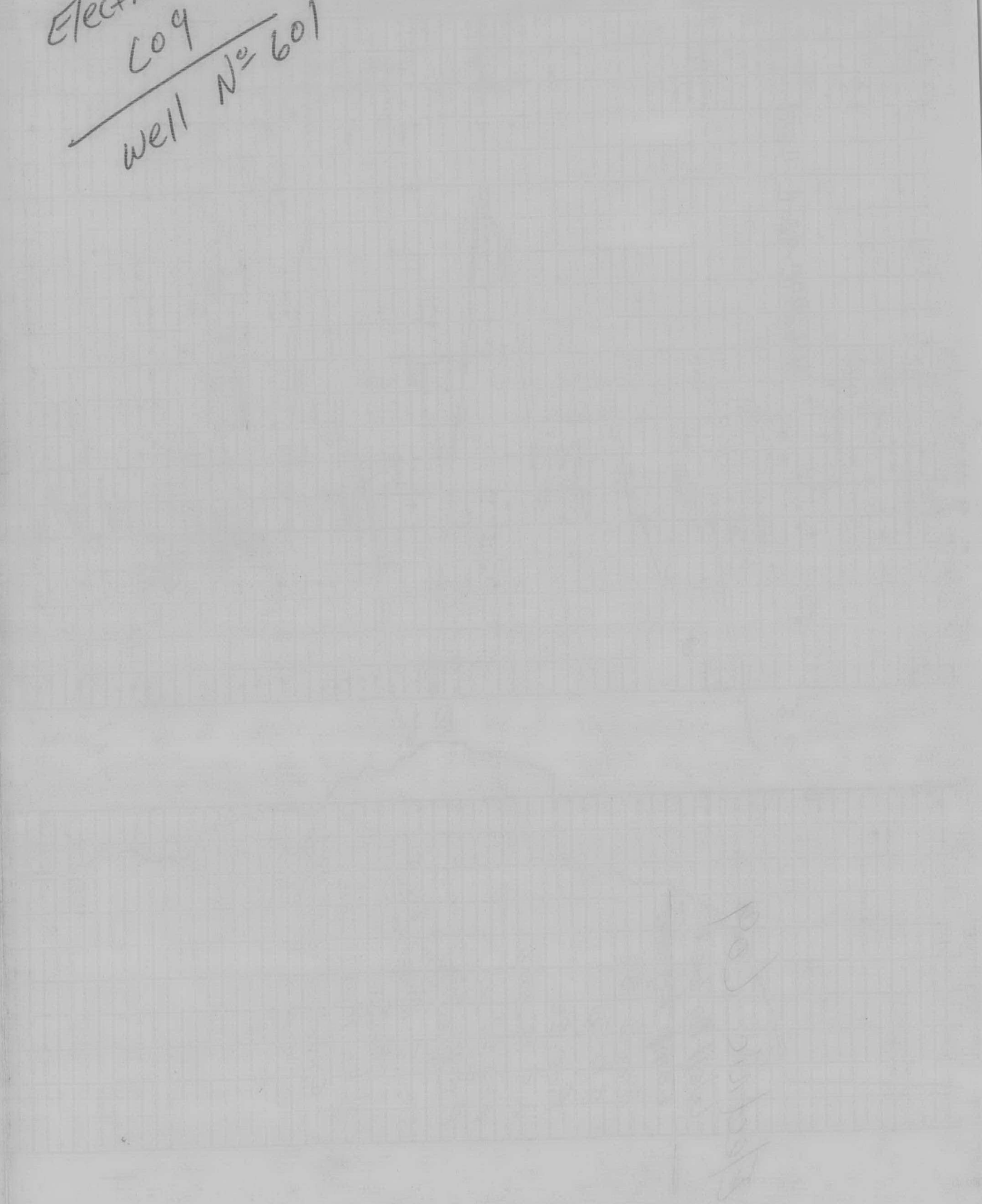
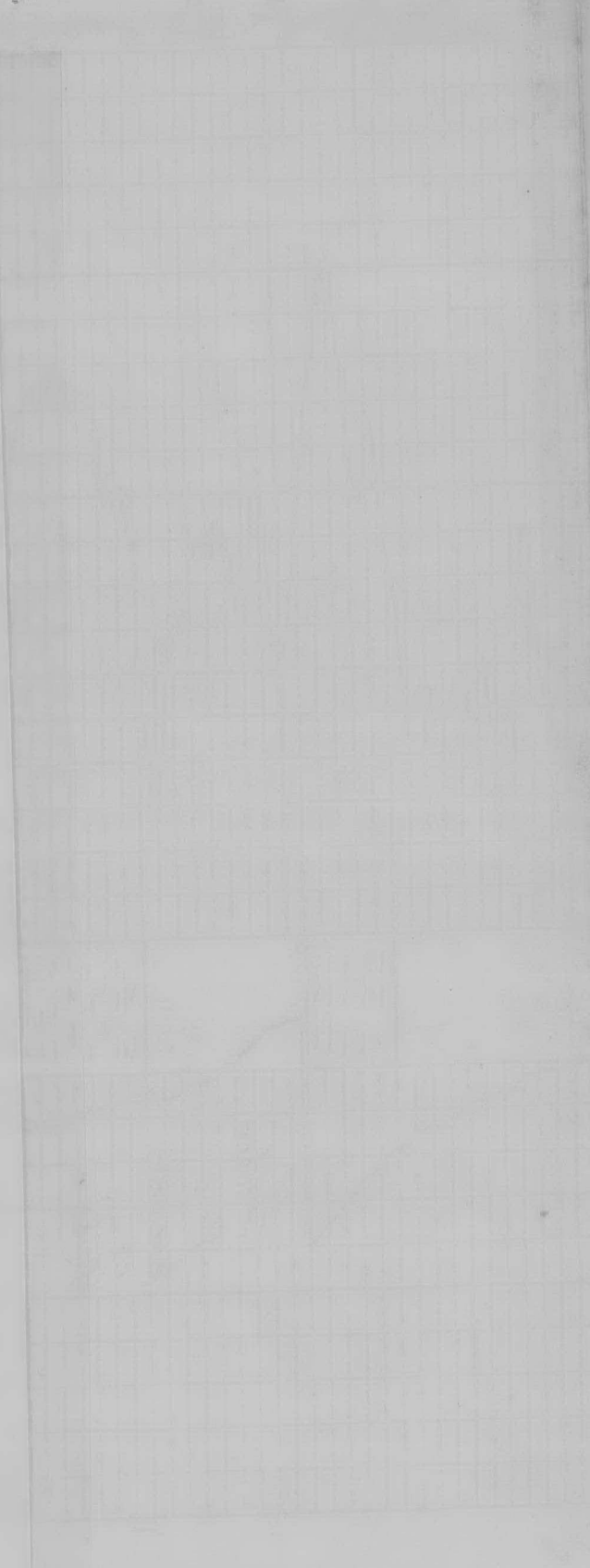
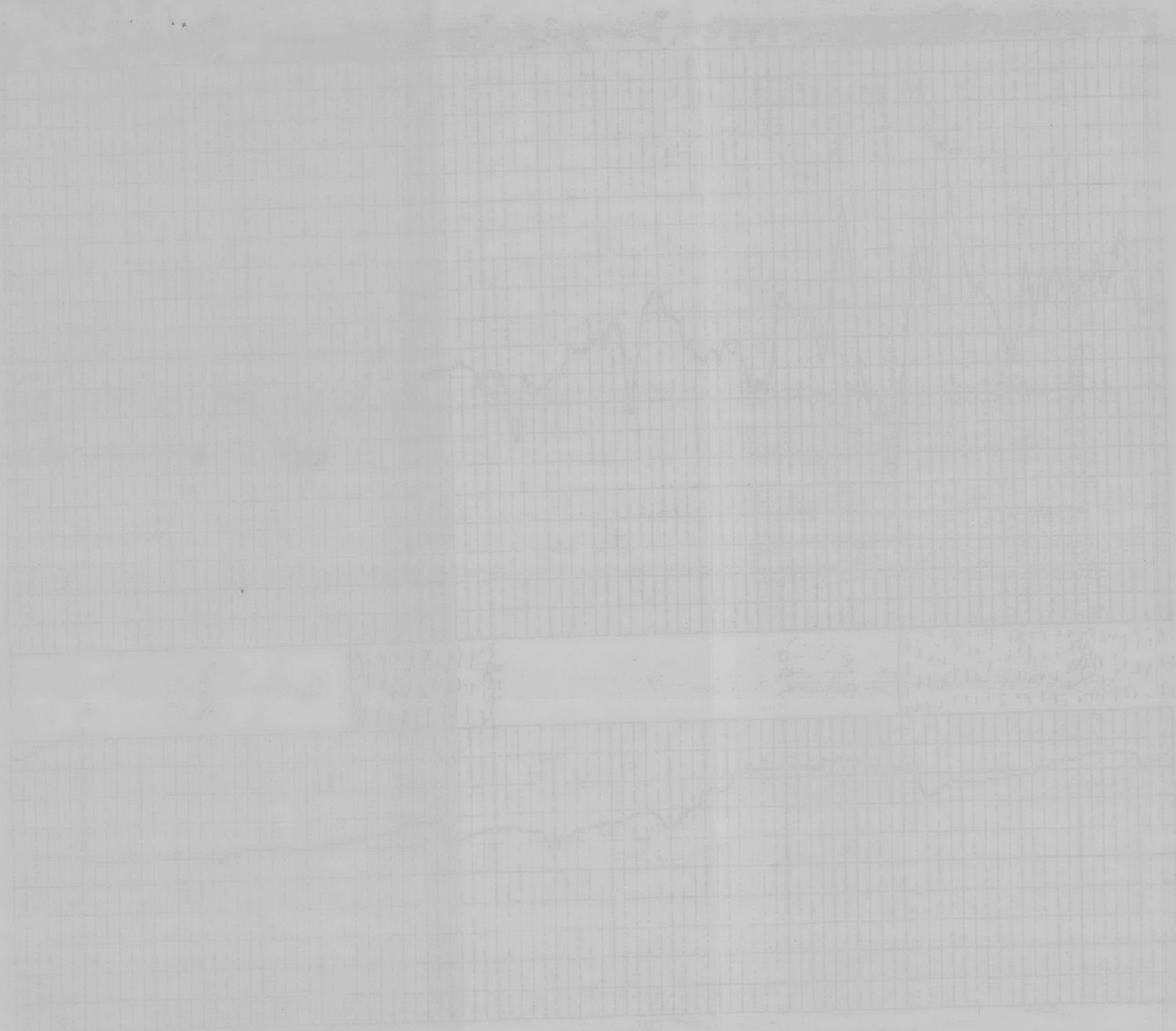
150'

200'

200'

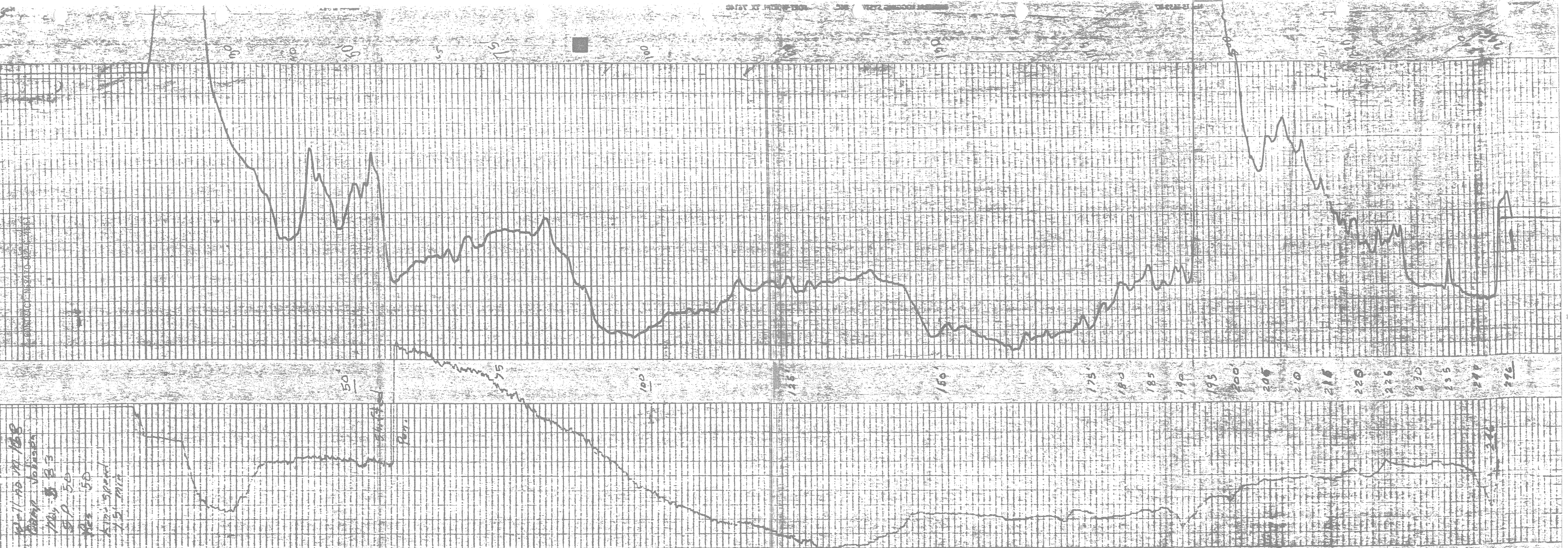
8/5
10-50

Electric
Co
well N^o 601



pos. output

Well No. M 108
Camp Johnson
May 8 53
SP 50
Res 50
API speed
1.5' min



CONTRACT NUMBER 02-1-1151

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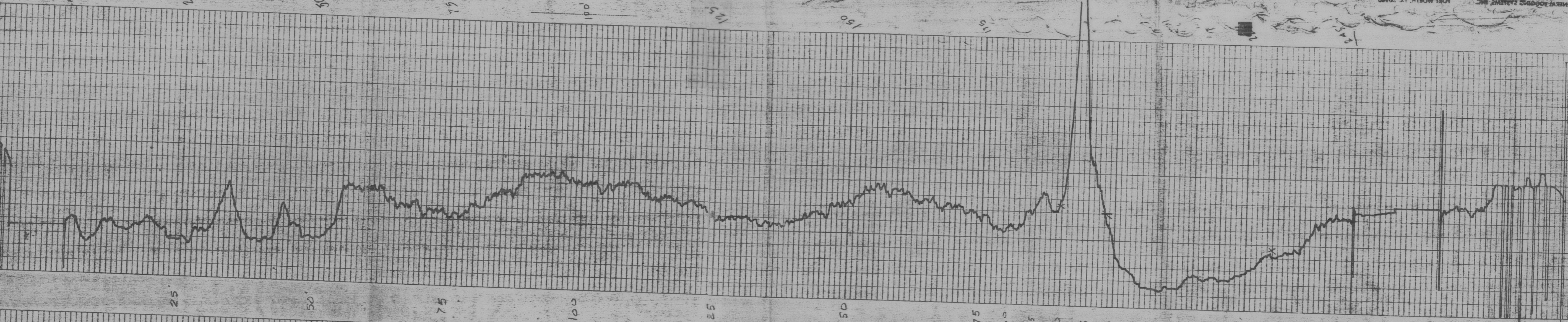
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DEPARTMENTAL ROUTING & APPROVALS

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CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
M ^E CHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	Edv	RN
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

6 Emma Jay
Well No
11-163
Camp Johnson
76 35°C
1 day 5 hours
13' water
May 8 5.3

CONTRACT 162470-82-C-4561



MINERT LOGGING SYSTEMS, INC.
FORT WORTH, TX 76100

No. 12-1823-C3

MADE IN U.S.A.

MINERT LOGGING SYSTEMS, INC.
FORT WORTH, TX 76100

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DEPARTMENTAL ROUTING & APPROVALS

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CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
M. CHEMICAL		
ELECTRICAL	PKL	RV
MECHANICAL		
AIR		
WASTE WATER		

Cash

CONTRACTOR'S SUBMITTAL TRANSMITTAL

5ND LANTDIV 4-4355/3 (Rev. 6/76)

CONTRACT NO. N62470-82-C-4551	TRANSMITTAL NO. 8	DATE 5-23-83
----------------------------------	----------------------	-----------------

FROM CONTRACTOR
EAST COAST CONSTRUCTION CO., INC.
 Enwright Assoc, Inc. P.O.Box 5287, Sta. B
 Greenville, S. C. 29606

PROJECT TITLE AND LOCATION
 Replace three (3) Water Wells,
 MCB, Camp Lejeune, N. C.

CONTRACTOR USE ONLY

REVIEWER USE ONLY

*List only one specification division per form.

**ACTION CODES

List only one of the following categories on each transmittal form,
 and indicate which is being submitted

A-Approved
 D-Disapproved
 AN-Approved as noted
 RA-Receipt acknowledged.
 C-Comments
 R-Resubmit

- Contractor Approved OICC Approval Deviation/Substitution
 For OICC Approval

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1		Certificate of Insurance - Cape Fear Electric	3	NONE	B.S.F. 6-02-83
2	16302-2.1.6	Cutouts	7	A	DAZ 6-2-83
3	16302-2.1.8	Transformers	7	R	DAZ 6-2-83
4	16302-2.1.9	Tapes	7	A	DAZ 6-2-83
5	16302-2.1.5	Arrestors	7	A	DAZ 6-2-83
6	16510-2.1	Lighting fixtures	7	D	DAZ 6-2-83

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature)

James H. Boehm

DATE RECEIVED BY REVIEWER

FROM (Reviewer)

TO

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS

RECEIVED

MAY 30 1983

ENWRIGHT ASSOCIATES

COPIES TO
 ROICC (2)
 LANTDIV (1)
 A-E (1)

DATE

SIGNATURE

JUN 8 11 37 AM '83

RECEIVED
ROICC JAXNCA

CONTRACTOR'S SUBMITTAL TRANSMITTAL

5ND LANTDIV 4-4355/3 (Rev. 6/76)

CONTRACT NO. N62470-82-C-4551	TRANSMITTAL NO. 8	DATE 5-23-83
----------------------------------	----------------------	-----------------

FROM CONTRACTOR
EAST COAST CONSTRUCTION CO., INC.
TO
Enwright Assoc, Inc., Greenville, S. C.

PROJECT TITLE AND LOCATION
Replace three (3) Water Wells
MCB, Camp Lejeune, N. C.

CONTRACTOR USE ONLY

REVIEWER USE ONLY

*List only one specification division per form.

****ACTION CODES**

*List only one of the following categories on each transmittal form, and indicate which is being submitted

- A-Approved
- D-Disapproved
- AN-Approved as noted
- RA-Receipt acknowledged.
- C-Comments
- R-Resubmit

- Contractor Approved
 OICC Approval
 Deviation/Substitution For OICC Approval

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
7	16302-3.1.2.1	AL/CU splices & directions	7	A	DLH 6-2-83
8	16402-2.1.9	Receptacles	7	A	DLH 6-2-83
9	16402-2.1.8	Switches	7	A	DLH 6-2-83
10	16402-2.1.10	Panelboards & Circuit Breakers	7	AN	DLH 6-2-83
11	4080710-5	Wireway	7	A	DLH 6-2-83

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature)

James H. Boehm

DATE RECEIVED BY REVIEWER

FROM (Reviewer)

TO

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
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REVIEWER'S COMMENTS

RECEIVED

MAY 30 1983

ENWRIGHT ASSOCIATES

COPIES TO:
ROICC (2)
LANTDIV (1)
A-E (1)

DATE

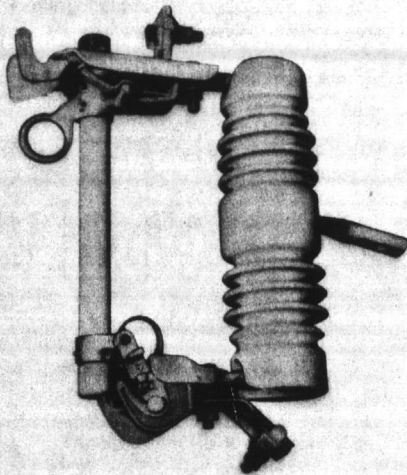
SIGNATURE

JUN 8 11 37 AM '83

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ROICC JAXNCA

Type NCX, Non-Loadbreak, Open Fuse

7.8/13.8, 15, 14.4/24.9, 20/34.5, 27, 38 kv; 50, 100, 200 Amps
 Interrupting Capacity to 20,000 Amps
 and 300 Amps Non-Fusible Disconnect



Application

This positive latch fuse link ejector cutout provides protection for equipment which can be damaged by system overload or fault conditions. Also used as a non-loadbreak switch on apparatus and applications such as power and distribution transformers, regulator and recloser by-passing, system sectionalizing and switching discharged capacitors.

Primary applications include:

1. Transformer Protection
2. Single Phase Recloser Bypass Protection
3. Regulator Bypass Protection

User Benefits

1. Increased fuse barrel life (up to 100%). Fuse link ejector produces positive action during low fault currents or overloads and reduces arcing time on horn fiber in fuse tube.
2. Equipped with hooks for use with "Loadbuster" tool.
3. Aluminum bronze castings used have the highest corrosive resistant properties and strength available in aluminum bronze or yellow bronze. Castings also allow for close tolerance control of hinge and locking cam.

Locking cam also insures that fuseholder remains in its hinge during closing as well as when the cutout drops open.

4. Coordinated creep and strike. Distances from energized parts at the top to the backstrap are longer than their respective distances from the bottom to the backstrap. Flashovers occur from the bottom to the backstrap.
5. Easy to reach terminals. All are located on the centerline of the cutout and can be tightened by one wrench.

Ratings

7.8/13.8 kv: 100 and 200 amps continuous, 5000 to 20,000 A.I.C.
 15 kv: 100 and 200 amps continuous, 4000 to 16,000 A.I.C.
 14.4/24.9 kv: 100 and 200 amps continuous, 4000 to 16,000 A.I.C.
 For higher voltage ratings, see Price List 38-650.

Selection Factors

All styles are ASA-70 light gray and include basic cutout, terminals, EEI-NEMA crossarm mounting bracket. Fuse links are not included.

Description	Cont. Current Rating	NEMA Interrupting Rating RMS Assym. Amps	BIL	NCX Style Number	Estimating List Price	Approx. Wt., Lbs.		Cutouts Per Pallet ①
						With Bracket Net	Shipping	
7.8/13.8 kv Grounded Wye Maximum Voltage								
Heavy Duty (Solid Cap)	100	5000	110	279C601A01	\$51.40	12	15	36
Extra Heavy Duty (Exp. Cap)	100	10000	110	279C601A02	51.40	12	15	36
Extra Heavy Duty (Solid Cap)	100	10000	110	279C601A03	54.30	12	15	36
Ultra Heavy Duty (Exp. Cap)	100	20000	110	279C601A04	54.30	12	15	36
Heavy Duty (Solid Cap)	200	8000	110	279C601A05	62.90	13	16	36
Heavy Duty (Exp. Cap)	200	12000	110	279C601A06	62.90	13	16	36
Disconnect	300	.....	110	Use 15 kv rating	.....	.....	.....	.....
15 kv Maximum Voltage								
Heavy Duty (Solid Cap)	100	4000	110	279C601A08	51.40	12	15	36
Extra Heavy Duty (Exp. Cap)	100	8000	110	279C601A09	51.40	12	15	36
Extra Heavy Duty (Solid Cap)	100	8000	110	279C601A10	54.30	12	15	36
Ultra Heavy Duty (Exp. Cap)	100	16000	110	279C601A11	54.30	12	15	36
Heavy Duty (Solid Cap)	200	8000	110	279C601A12	62.90	13	16	36
Heavy Duty (Exp. Cap)	200	12000	110	279C601A13	62.90	13	16	36
Disconnect	300	.....	110	279C601A14	51.40	13	16	36
14.4/24.9 kv Grounded Wye Maximum Voltage								
Heavy Duty (Solid Cap)	100	4000	125	②	65.70	..	..	..
Heavy Duty (Exp. Cap)	100	8000	125	③	65.70	..	..	..
Extra Heavy Duty (Solid Cap)	100	8000	125	279C601A17	65.70	16	19	36
Ultra Heavy Duty (Exp. Cap)	100	16000	125	279C601A18	65.70	16	19	36
Heavy Duty (Solid Cap)	200	5000	125	279C601A19	68.60	17	20	36
Heavy Duty (Exp. Cap)	200	10000	125	279C601A20	72.90	17	20	36
Disconnect	300	.....	125	279C601A21	65.70	17	20	36

	110 kv and 125 kv BIL	150 kv BIL
Carton Size	20 7/8" x 4 1/2" x 14 7/16"	Refer to Westinghouse
Pallet Size including height	40" x 48" x 45 1/2"	

- ① Pallet weight determined by multiplying shipping weight by quantity per pallet.
- ② Use 8000 Amp Rating, Style 279C601A17.
- ③ Use 8000 Amp Rating, Style 279C601A17 if solid cap rating is acceptable. Use 16000 Amp Rating, Style 279C601A18 if expendable cap rating is required.

Accessories

		Style Number	Estimating List Price
Solid Caps	For 100A LDX	162A775H02	\$2.60
	For 200A LDX	.....	2.60
Expendable Caps	For 100A LDX	3872A3G01	4.30
	For 200A LDX	403A062H03	4.30

Further Information

Open Cutouts
 Price List 38-650
 Descriptive Bulletin 38-651

Enclosed Cutouts
 Price List 38-610

Fuse Links
 Price List 38-660
 Application Data 38-663

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correcting all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
 Greenville, South Carolina

Date 6-03-83 By A.P.F.

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
 INTERNAL USE ONLY AND DOES NOT
 CONSTITUTE APPROVAL OR REJECTION
 OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	<i>DA</i>	<i>A</i>
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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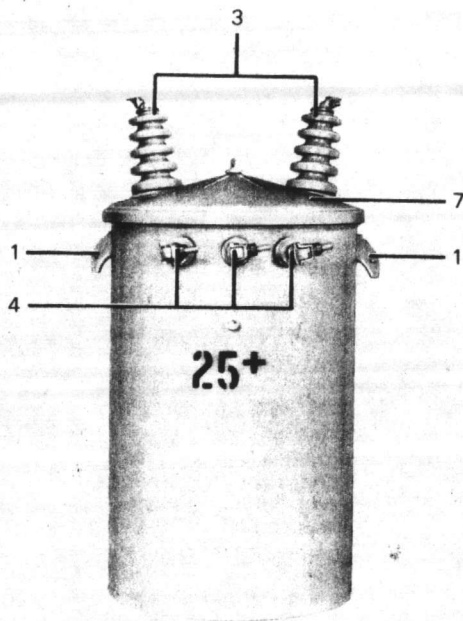
MAY 30 1983

ENWRIGHT ASSOCIATES

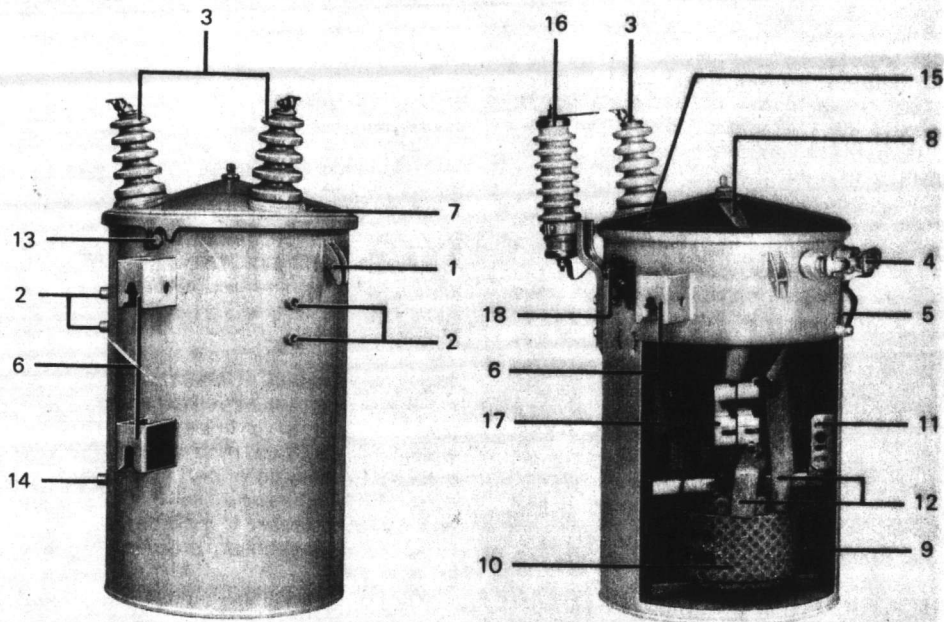
Single Phase

3

Type S



Type CSP®

**Standard Features**

1. Lifting lugs
2. Arrester mounting pads
3. Cover-mounted high voltage porcelain bushing(s) with eyebolt terminal (see Other Options).
4. Low voltage porcelain bushings with eyebolt terminals (see Other Options).
5. Low voltage neutral grounding strap (CSP only).
6. ANSI support lugs (hanger brackets) with nameplate on lower bracket.
7. Plasticlad cover
8. Self-venting cover assembly
9. Core
10. Coil
11. Diagonally positioned cover support brackets.
12. Low voltage leads
13. Oil fill plug with cover ground strap.
14. Tank ground pad.

The following additional features are all standard on self-protected type CSP units only:

15. Primary protective link (mounted in high voltage bushing).
16. Surge arrester
17. Secondary circuit breaker
18. Secondary breaker operating handle with emergency overload reset and overload signal light.

Other Options**Primary Termination**

- Cover-mounted high voltage porcelain bushing(s) with spin top terminal
- Side-wall mounted high voltage porcelain bushing(s) with spin top terminal (Standard on all 4800 volts and below)

Secondary Termination

- Low voltage porcelain bushings with NEMA spade terminals (Standard on all 4800 volts and below)

• Self-protected (operation) tap

• Multiple switch board

Other Options

- Side-wall mounted Westinghouse current limiting fuse in series with protective link

Insufficient information - address each spec requirement.

Single Phase

High Voltage: 7200/12470Y

7200/12470Y, 95 Kv BIL, Class A (For CSP, Two 9 Kv Arresters)
12470 Grd. Y/7200, 95 Kv BIL, Classes B-2, B-3 (For CSP, One 9 Kv Arrester)

Low Voltage	Kva	Class	CSP						Type S					
			No Taps		Four 2½% Below		Two 2½% Above and Below		No Taps		Four 2½% Below		Two 2½% Above and Below	
			Style Number	Estimating List Price	Style Number	Estimating List Price	Style Number	Estimating List Price	Style Number	Estimating List Price	Style Number	Estimating List Price	Style Number	Estimating List Price
120/240	10	A	A711BA10XA	\$ 458	A721BA10XA	\$ 489	.....	.....	A7112A10AA	\$ 345	A7212A10AA	\$ 375	.....	.....
	10	B-2	C711BA10XA	403	C721BA10XA	434	.....	.....	C7112A10AA	329	C7212A10AA	360	.....	.....
	10	B-3	D711BA10XA	405	D721BA10XA	436	.....	.....	D7112A10AA	331	D7212A10AA	362	.....	.....
	10	B-3	D711AA10XA	402	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	15	A	A711BA15XA	513	A721BA15XA	544	.....	.....	A7112A15AA	400	A7212A15AA	431	.....	.....
	15	B-2	C711BA15XA	458	C721BA15XA	489	.....	.....	C7112A15AA	394	C7212A15AA	415	.....	.....
	15	B-3	D711BA15XA	460	D721BA15XA	491	.....	.....	D7112A15AA	396	D7212A15AA	417	.....	.....
	15	B-3	D711AA15XA	457	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	25	A	A711BA25XA	612	A721BA25XA	643	.....	.....	A7112A25AA	499	A7212A25AA	530	.....	.....
	25	B-2	C711BA25XA	557	C721BA25XA	588	.....	.....	C7112A25AA	483	C7212A25AA	514	.....	.....
	25	B-3	D711BA25XA	559	D721BA25XA	590	.....	.....	D7112A25AA	485	D7212A25AA	516	.....	.....
	25	B-3	D711AA25XA	556	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	37½	A	A711BA37XA	828	A721BA37XA	859	.....	.....	A7112A37AA	676	A7212A37AA	707	.....	.....
	37½	B-2	C711BA37XA	773	C721BA37XA	804	.....	.....	C7112A37AA	680	C7212A37AA	691	.....	.....
	37½	B-3	D711BA37XA	775	D721BA37XA	806	.....	.....	D7112A37AA	662	D7212A37AA	693	.....	.....
	50	A	A711BA50XA	935	A721BA50XA	966	.....	.....	A7112A50AA	783	A7212A50AA	814	.....	.....
	50	B-2	C711BA50XA	880	C721BA50XA	911	.....	.....	C7112A50AA	767	C7212A50AA	798	.....	.....
	50	B-3	D711BA50XA	882	D721BA50XA	913	.....	.....	D7112A50AA	769	D7212A50AA	800	.....	.....
	75	A	A711BA75XA	1281	A721BA75XA	1343	A731BA75XA	\$1343	A7112A75AA	1129	A7212A75AA	1191	A7312A75AA	\$1191
	75	B-2	C711BA75XA	1226	C721BA75XA	1288	C731BA75XA	1288	C7112A75AA	1113	C7212A75AA	1175	C7312A75AA	1175
	100	A	A711BA99XA	1524	A721BA99XA	1586	A731BA99XA	1586	A7112A99AA	1294	A7212A99AA	1356	A7312A99AA	1356
	100	B-2	C711BA99XA	1469	C721BA99XA	1531	C731BA99XA	1531	C7112A99AA	1278	C7212A99AA	1340	C7312A99AA	1340
	167	A	.....	.....	.....	.....	.....	.....	A7112E67AA	2031	A7212E67AA	2093	A7312E67AA	2093
	250	A	.....	.....	.....	.....	.....	.....	A7112E52AA	2725	A7212E52AA	2818	A7312E52AA	2818
333	A	.....	.....	.....	.....	.....	.....	A7112E54AA	3196	A7212E54AA	3289	A7312E54AA	3289	
500	A	.....	.....	.....	.....	.....	.....	A7112E55AA	4498	A7212E55AA	4591	A7312E55AA	4591	

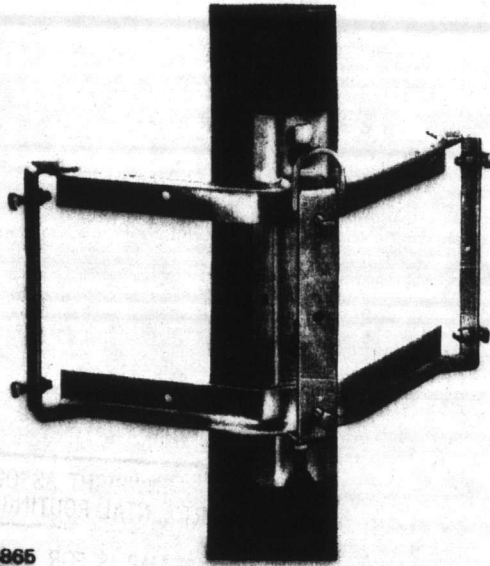
High Voltage: 14400/24940Y

14400/24940 Y, 125 Kv BIL, Class A (For CSP, Two 18 Kv Arresters)
24940 Grd. Y/14400, 125 Kv BIL, Classes B-2, B-3 (For CSP, One 18 Kv Arrester)

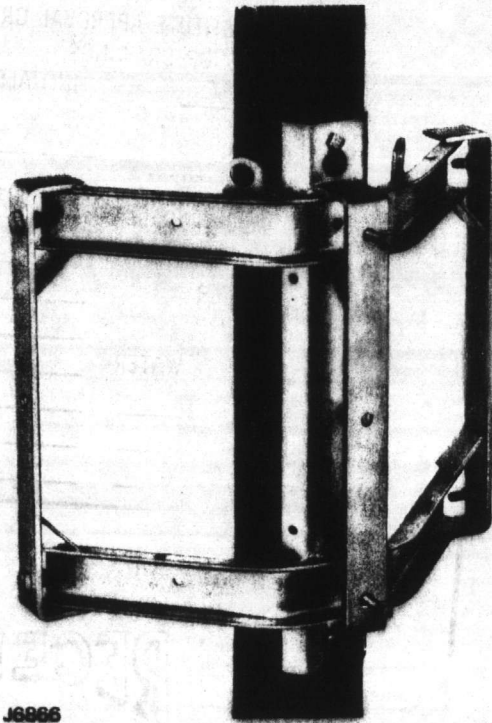
Low Voltage	Kva	Class	CSP				Type S			
			No Taps		Taps All Full Capacity 13800/13200-12870/12540		No Taps		Taps All Full Capacity 13800/13200-12870/12540	
			Style Number	Estimating List Price	Style Number	Estimating List Price	Style Number	Estimating List Price	Style Number	Estimating List Price
120/240	10	A	A141BA10XA	\$ 603	A171BA10PS	\$ 634	A1412A10AA	\$ 436	A1712A10PR	\$ 467
	10	B-2	C141BA10XA	513	C171BA10PS	544	C1412A10AA	412	C1712A10PR	443
	10	B-3	D141BA10XA	515	D171BA10PS	546	D1412A10AA	414	D1712A10PR	445
	15	A	A141BA15XA	625	A171BA15PS	656	A1412A15AA	459	A1712A15PR	489
	15	B-2	C141BA15XA	535	C171BA15PS	566	C1412A15AA	434	C1712A15PR	465
	15	B-3	D141BA15XA	537	D171BA15PS	568	D1412A15AA	436	D1712A15PR	467
	25	A	A141BA25XA	727	A171BA25PS	758	A1412A25AA	560	A1712A25PR	591
	25	B-2	C141BA25XA	637	C171BA25PS	668	C1412A25AA	536	C1712A25PR	567
	25	B-3	D141BA25XA	639	D171BA25PS	670	D1412A25AA	538	D1712A25PR	569
	37½	A	A141BA37XA	953	A171BA37PS	984	A1412A37AA	747	A1712A37PR	778
	37½	B-2	C141BA37XA	863	C171BA37PS	894	C1412A37AA	723	C1712A37PR	754
	37½	B-3	D141BA37XA	865	D171BA37PS	896	D1412A37AA	725	D1712A37PR	756
	50	A	A141BA50XA	1089	A171BA50PS	1120	A1412A50AA	842	A1712A50PR	873
	50	B-2	C141BA50XA	939	C171BA50PS	970	C1412A50AA	818	C1712A50PR	849
	50	B-3	D141BA50XA	941	D171BA50PS	972	D1412A50AA	820	D1712A50PR	851
	75	A	A141BA75XA	1381	A171BA75PS	1412	A1412A75AA	1205	A1712A75PR	1267
	75	B-2	C141BA75XA	1226	C171BA75PS	1257	C1412A75AA	1181	C1712A75PR	1243
	100	A	A141BA99XA	1641	A171BA99PS	1672	A1412A99AA	1385	A1712A99PR	1447
	100	B-2	C141BA99XA	1469	C171BA99PS	1500	C1412A99AA	1361	C1712A99PR	1423
	167	A	.....	.....	.....	.....	A1412E67AA	2047	A1712E67AA	2109
	250	A	.....	.....	.....	.....	A1412E52AA	2741	A1712E52AA	2804
	333	A	.....	.....	.....	.....	A1412E54AA	3212	A1712E54AA	3265
	500	A	.....	.....	.....	.....	A1412E55AA	4514	A1712E55AA	4607

Triple Transformer Racks

Hot Dip Galvanized



J6865



J6866

These one-piece transformer racks can be assembled with the transformers on the ground and then hoisted as a unit into position for mounting on the pole.

The J6865 rack has 12-inch lug centers for mounting three, 3 through 50 kVA transformers with the six, 5/8 x 1-3/4-inch machine bolts included. It is secured to the pole with two 3/4-inch machine bolts and two 1/2-inch lag screws to prevent the installation from wobbling in the wind.

The J6866 rack can be used to mount three transformers ranging from 75 through 333 kVA (24" mounting hole spacing). Each position is designed to accommodate ANSI Type "B" lug spacing. One set of either the J6796 or J6798 jump-proof adapter plates is required for any position where a transformer with Type "C" lugs is to be mounted. Six, 3/4 x 2-1/2-inch machine bolts are included for bolting the transformers to the rack. The rack is fastened to the pole with two 3/4-inch machine bolts and four 1/2-inch lags.

Holes are provided on both racks for a ground wire lug.

Stock No.	Approximate Shipping Weight Pounds Each	Standard Package Quantity
J6865 (E)	40	1
J6866 (E)	105	1

(E) REA Electrical Approved, Item dm

Prices on Application

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for:

- controlling and correcting all quantities and dimensions;
- selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
 Greenville, South Carolina

Date 6-03-83 By [Signature]

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DEPARTMENTAL ROUTING & APPROVALS

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OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
M. MECHANICAL	_____	_____
ELECTRICAL	<u>DoJ</u>	<u>R</u>
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
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SCOTCH VINYL PLASTIC ELECTRICAL TAPE NO. 33+



Flame retardant, cold and weather resistant, 33+ is the first and only 7-mil "one tape for all jobs"

Excellent for applications in extremes of heat and cold. Designed to perform in a continuous temperature environment of 105°C (220°F).

Wraps and conforms superbly - even at 0°F. Resists ultraviolet, abrasion, moisture, alkalis, acids and corrosion.

DCI Vendor No. 05-4007

PRICE PER ROLL

Cat. No.	DCI No.	Packing	10
3/4" x 66'	06132	Can.	\$3.40
3/4" x 44'	10075	Plastic Can	2.40
3/4" x 20'	06130	Carton	1.32

No. 33+D - Dispenser Roll

3/4" x 66'	10216	Dispenser	\$3.80
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SCOTCH VINYL PLASTIC ELECTRICAL TAPE NO. 88



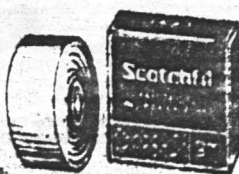
Flame-retardant cold and weather-resistant tape designed for special applications where superior cold-weather resistance is judged important. Its 8.5 mil thickness provides extra electrical properties and quick insulation buildup.

DCI Vendor No. 05-4007

PRICE PER ROLL

Size	DCI No.	Packing	10
3/4" x 66'	08143	Can	\$ 3.72
3/4" x 44'	10307	Box	2.60
1/2" x 44'	10364	Box	4.90

SCOTCHFIL ELECTRICAL INSULATION PUTTY



Self-fusing elastic type putty in tape form. "Scotchfil" can be wrapped, stretched, or molded around irregular shapes for quick, smooth insulation build-up. .125 in thickness.

DCI Vendor No. 05-4007

PRICE PER ROLL

Size	DCI No.	Packing	10
1 1/2" x 80'	15140	Box	\$5.50



SCOTCH GLASS CLOTH ELECTRICAL TAPE NO. 27

High temperature glass cloth tape with thermosetting pressure-sensitive adhesive designed to operate at Class B (130°C) temperature. Provides a heat-stable insulation for use in such high temperature applications as furnace connections, etc. .007 in. thickness.

DCI Vendor No. 05-4007

PRICE PER ROLL

Size	DCI No.	Packing	10
1 1/2" x 86'	15066	Box	\$5.80
3/4" x 86'	15074	Box	8.60

SCOTCH "IVI-SPRAY" SEALER



An electrical grade enamel paint and sealer, formulated to give protection against weather, moisture, acids, alkalis, and oils. Used for electric motor repair; repaint; spray over varnish treatment for additional thickness build-up and sealing; seal breakout leads.

DCI Vendor No. 05-4007

PRICE PER 15 OZ. CAN

Cat. No.	DCI No.	Color	10
1602	13825	Red	\$13.48
1603	13816	Black	13.48

SCOTCHKOTE ELECTRICAL COATING



An electrical grade, fast-drying sealing agent in a brush-top can. It is compounded to be compatible with "Scotch" brand plastic electrical tapes and provides extra moisture and corrosive protection.

DCI Vendor No. 05-4007

PRICE PER CAN

Size	DCI No.	10
15 Oz.	14853	\$10.52



IRVINGTON VARNISHED CAMBRIC TAPE Yellow Bias Cut

For heavy duty mechanical build-up and insulation where high puncture resistance is required. For insulating connections on motors and controls. For insulating splices on VC cable. 3/4" x 60'.

DCI Vendor No. 05-4007

PRICE PER ROLL

Cat. No.	DCI No.	Type	Size	10
2540	15249	W/Adhesive	.007	\$8.02
2520	16256	W/Adhesive	.008	9.52

SCOTCHCAST ELECTRICAL INSULATING RESIN



No. 4 Two-part epoxy resin, packaged in "Unipak" brand containers, for exact mixing ratios and convenience. An excellent general-purpose insulating and sealing resin.

DCI Vendor No. 05-4007

PRICE PER CONTAINER

Size	DCI No.	Fl. Oz.	10
F	25594	1 3/8	\$4.82
A	25677	2 3/4	6.74
B	25685	6 1/4	11.00
C	25693	12 1/2	20.54

SCOTCHCAST ELECTRICAL SPLICING KITS



For insulating and moisture-sealing splices on non-shielded cables rated up to 5KV (multi-conductor cables up to 600 volts).

Kit features snap-together transparent mold bodies and "Scotchcast" brand resin No. 4 in the "Unipak" container as the insulating and sealing compound.

PRICE PER KIT

No.	Conductor Size	Each	10
Inline Splices			
82-A1	#2	\$18.40	\$14.02
82-A2	2-3/0	29.40	22.40
82-A3	3/0-400	48.46	36.92

Wye and Tap Splices

82-B1	#2 Max.	\$28.22	\$21.50
90-B1	2/0 Max.	28.22	21.50

SCOTCHLOK ELECTRICAL SPRING CONNECTORS



Four connectors with "five" spring action will splice all common combinations of solid and stranded building and fixture wire. Spring is encased in a steel shell with an outer jacket of color-coded vinyl plastic insulation.

DCI Vendor No. 05-4007

PRICE PER 100

Cat. No.	DCI No.	Wire Size	Box	10
T	20041	18-12	100	\$2.00
R	20058	16-10	100	2.00
G	21346	14-8	100	2.00
S	20066	12-6	100	2.00



REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections of comments are to be on the shop drawings
 signed by the designer or his authorized representative and
 stamped with the name of the designer and
 a date. This stamp is only for internal use
 and does not constitute approval of the project and
 remains confidential with the drawings. It is the
 responsibility of the designer to ensure that all
 comments are corrected and that the drawings
 are complete and correct. The designer is
 responsible for the accuracy of the drawings
 and for the quality of the work. It is the
 responsibility of the designer to ensure that all
 comments are corrected and that the drawings
 are complete and correct.

Enwright Associates
 Greenville, South Carolina
 Date 6-03-83 by M.P.K.

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 OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
ELECTRICAL	_____	_____
Mechanical	<u>MPK</u>	<u>A</u>
CHEMICAL	_____	_____
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____

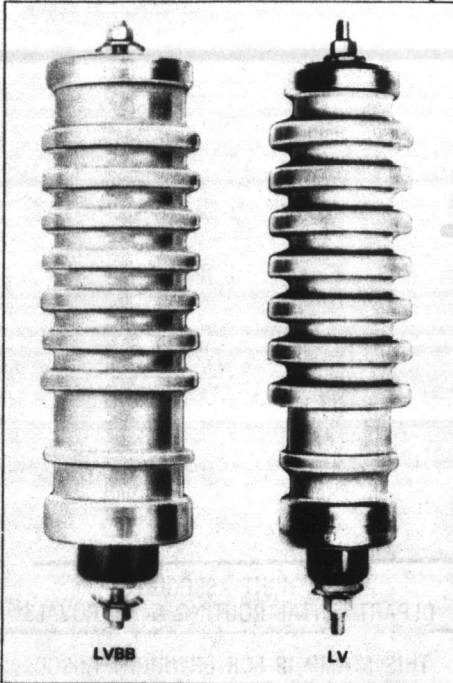
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Distribution Arresters



Application

Westinghouse Surgemaster™ valve-type, distribution-class surge arresters are used on primary distribution circuits ranging in voltage from 4.16 through 24.94 kv phase-to-phase. They are designed to protect distribution transformers and associated line equipment from the occasional high voltage surges resulting from lightning or switching operations. All Westinghouse valve arresters can be used for either line-mounted (cross arm or pole) or transformer-mounted applications.

Ratings

Westinghouse Surgemaster™ valve arresters are available in either the small block (LV) or big block (LVBB) designs, in the following ratings: 3 kv, 6 kv, 9/10 kv, 12 kv, 15 kv, and 18 kv. Depending on application, LV and LVBB arresters are available for direct connection with no disconnecter, or for external gapping with no disconnecter. Both designs meet or exceed all applicable ANSI, IEEE and NEMA standards for distribution class surge arresters. The LV and LVBB units are designed for indoor or outdoor applications at altitudes from 0 to 10,000 feet.

Estimating Prices: Type LV

Arrestor Rating kv	Style Number	Estimating List Price Each	For Crossarm or Pole Mounting, Direct-Connected, Disconnector-Type		For Transformer Mounting, Direct-Connected, Disconnector-Type		For Crossarm or Pole Mounting, Externally-Gapped, Non-Disconnector-Type	
			Style Number	Estimating List Price Each	Style Number	Estimating List Price Each	Style Number	Estimating List Price Each
3	634A100A03	\$18.73	368A100A03	\$19.87	367A109A03	\$22.73		
6	634A100A06	22.20	368A100A06	23.53	367A109A06	26.20		
9/10	634A100A10	27.53	368A100A10	29.20	367A109A10	31.53		
12	634A100A12	34.20	368A100A12	35.60				
15	634A100A15	44.53	368A100A15	43.20				
18	634A100A18	52.87	368A100A18	55.00				

Estimating Prices: Type LVBB

Arrestor Rating kv	Style Number	Estimating List Price Each	For Crossarm or Pole Mounting, Direct-Connected, Disconnector-Type		For Transformer Mounting, Direct-Connected, Disconnector-Type		For Crossarm or Pole Mounting, Externally-Gapped, Non-Disconnector-Type	
			Style Number	Estimating List Price Each	Style Number	Estimating List Price Each	Style Number	Estimating List Price Each
3	367A100A03	\$21.47	369A100A03	\$22.73	369A104A03	\$25.53		
6	367A100A06	25.33	369A100A06	26.87	369A104A06	29.40		
9/10	367A100A10	31.47	369A100A10	33.33	369A104A10	35.47		
12	367A100A12	38.60	369A100A12	40.93	369A104A12	42.60		
15	367A100A15	48.93	369A100A15	50.87	369A104A15	52.93		
18	367A100A18	60.40	369A100A18	62.80	369A104A18	64.40		

List Prices Include

For Crossarm or Pole Mounting, Direct-Connected:

1. Standard EEI-NEMA crossarm mounting bracket and hardware.
2. Arrester clamp.
3. Top insulating cap.
4. Ground lead disconnecter.
5. Line and ground terminal hardware to accommodate #6 solid and #2 stranded conductor.

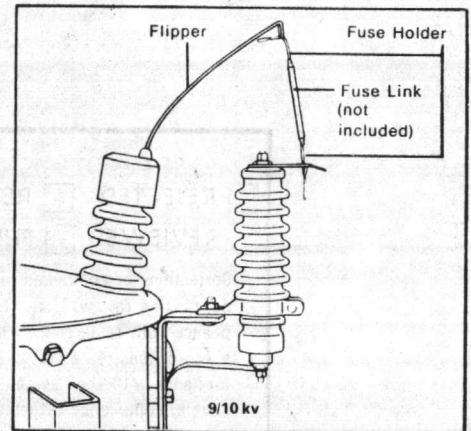
For Transformer Mounting, Direct-Connected:

1. Transformer mounting bracket and hardware.
2. Top insulating cap.
3. Ground lead disconnecter.
4. 9" flexible line lead.
5. Ground strap.
6. Line terminal hardware to accommodate #6 solid and #2 stranded conductor.

For Crossarm or Pole Mounting, Externally-Gapped

1. Standard EEI-NEMA crossarm mounting bracket and hardware.
2. Arrester clamp.
3. Top insulating cap.
4. Line terminal hardware to accommodate #6 solid and #2 stranded conductor.

Estimating Prices: Protecto-Combo Kit



The Protecto-Combo Kit uses a disconnecter-type LV arrester which is direct-connected to the transformer. It can be used only on transformers 50 kVA or less. The Kit includes: Standard transformer-mounted, direct-connected, disconnecter-type LV arrester and installation hardware and accessories plus flipper, fuse-holder and required hardware. (Fuse link is not included.)

Arrestor Rating kv	Kit Style Number	Estimating List Price Each
9/10	272D871G01	\$40.53
18	272D871G02	63.53

- REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

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Enwright associates
 Greenville, South Carolina

Date 6-03-83 By H.P.F.

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DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	<i>DPZ</i>	<i>A</i>
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
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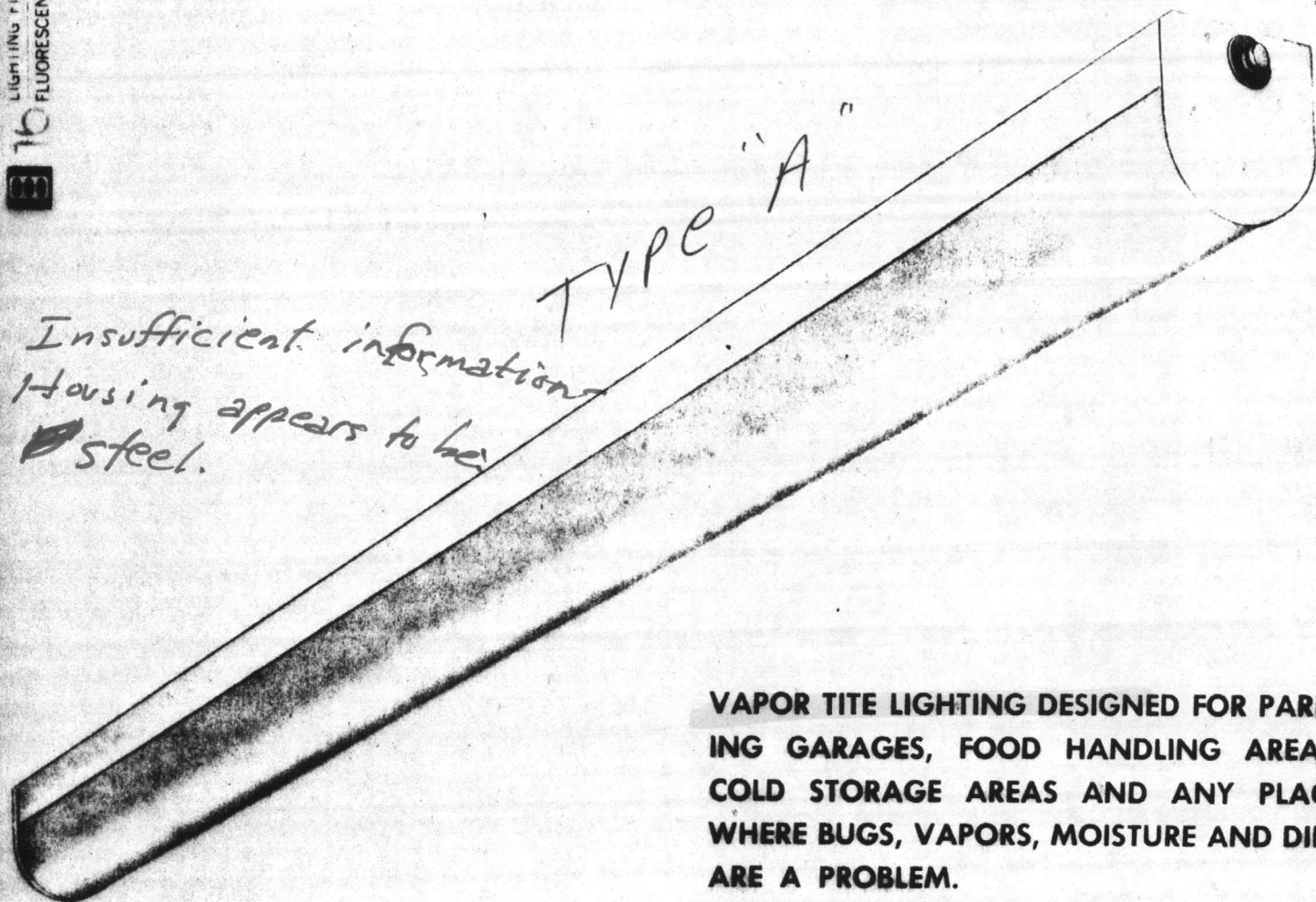
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ENWRIGHT ASSOCIATES

VAPOR TITE

by **EMCO**

LIGHTING FIXTURES
FLUORESCENT



*Insufficient information
Housing appears to be
steel.*

VAPOR TITE LIGHTING DESIGNED FOR PARKING GARAGES, FOOD HANDLING AREAS, COLD STORAGE AREAS AND ANY PLACE WHERE BUGS, VAPORS, MOISTURE AND DIRT ARE A PROBLEM.

SPECIFICATIONS

Tight, Gasketed Construction

- End caps and shield gasketed to completely lock out moisture, vapor, bugs, and dirt.
- Resists breakage.
- Recommended for indoor and outdoor applications wherever light may attract insects or where moisture is a factor.

Sturdy, Rugged, Safe

- Thick acrylic shield internally ribbed for efficiency — smooth outside for ease of cleaning.
- Gasketed end plates lock shield in place.

- Full length angle retains gasket and reinforces side of fixture.

Easy to Install, Service, and Maintain

- Shipped completely assembled and wired.
 - Lamps can be replaced quickly and easily.
 - One piece plastics on both four and 8 foot units.
 - Choice of 1 lamp or 2 lamp models.
 - Complete selection of lamp intensities.
- Special End to End Vapor-Tite Connector. Advise Length of Rows so that Correct Parts will be Furnished.**

FLUORESCENT EQUIPMENT AND MANUFACTURING CO.
4145 EAST 79th STREET • CLEVELAND, OHIO 44105 • PHONE: 883-0860

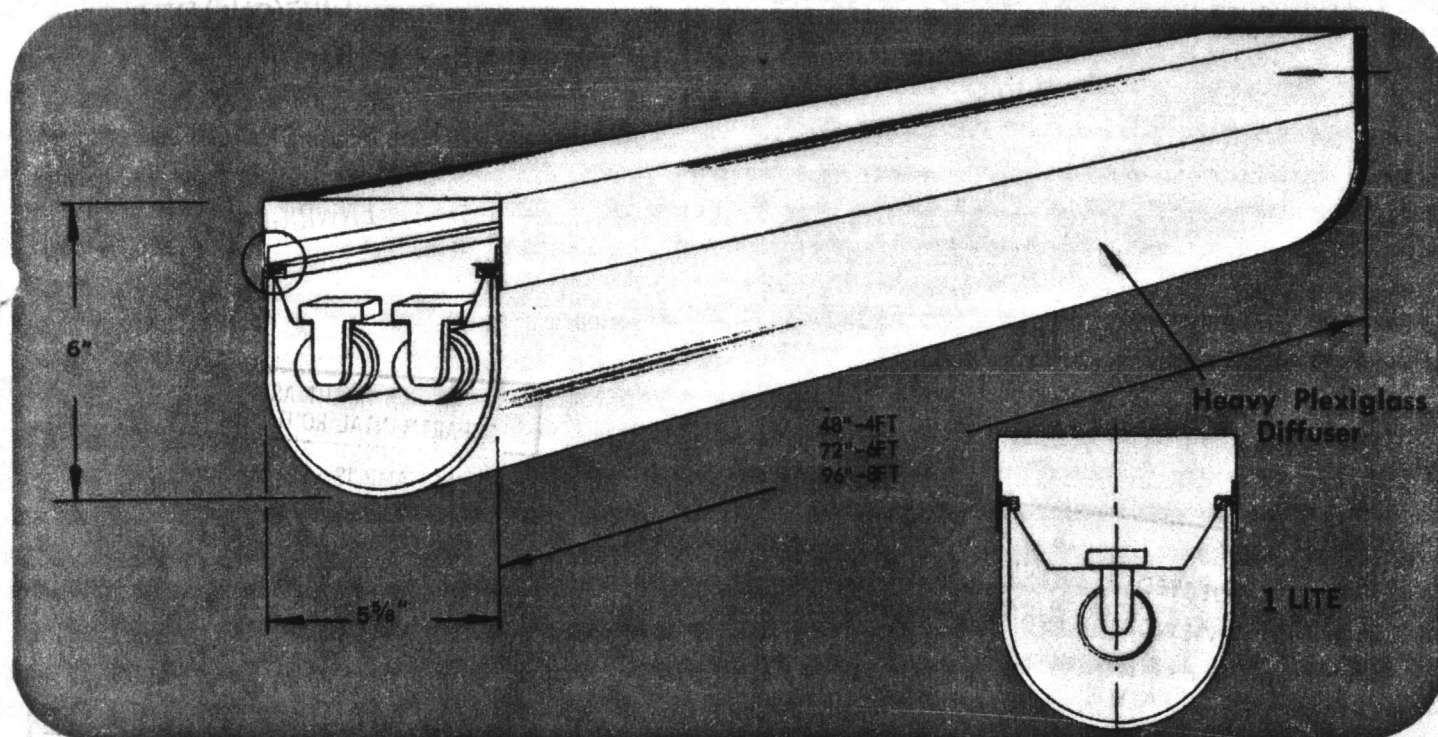
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ORDERING INFORMATION

SIZE	CAT. NO. RAPID START	CAT. NO. SLIMLINE (430 MA)	CAT. NO. HI OUTPUT (800 MA)	CAT. NO. 1500 MA (PG, VHO, SHO)
1-40	VT140	VT148	VT148HO	VT148PG
2-40 (96")	VT140-8			
1-72		VT172*	VT172HO	VT172PG
1-96		VT196*	VT196HO	VT196PG
2-96 (16 FT.)		VT196T *(16 FT.)	VT196THO (16 FT.)	VT196TPG (16 FT.)
2-40**	VT240	VT248	VT248HO	VT248PG
2-72**		VT272*	VT272HO	VT272PG
2-96**		VT296*	VT296HO	VT296PG

*ETL-CBM BALLASTS ARE AVAILABLE. SEE PRICE LIST FOR BALLAST ADDER. ETL-CBM BALLASTS ARE USED WHEN THAT APPROVAL IS AVAILABLE FOR 800 M.A. AND 1500 M.A. BALLASTS. 800 M.A. AND 1500 M.A. BALLASTS ARE DESIGNED TO OPERATE IN TEMPERATURES AS LOW AS -20°. RAPID START AND SLIMLINE BALLASTS ARE DESIGNED TO OPERATE IN TEMPERATURES AS LOW AS 50°. LOW TEMPERATURE BALLASTS ARE AVAILABLE FOR RAPID START AND SLIMLINE (430 M.A.) ADD LT TO CATALOG NUMBER. NOTE PRICE LIST FOR ADDITIONAL COST.

**VHO OR SHO LAMPS ONLY. PG LAMPS ARE TOO LARGE FOR THE FIXTURE BODY. LOW BALLASTS ETL APPROVED SLIMLINE BALLASTS ARE U.I. APPROVED ETL AVAILABLE. SEE PRICE LIST FOR ADDITIONAL COST.



PHOTOMETRIC DATA

COEFFICIENTS OF UTILIZATION

1 LIGHT										2 LIGHT										
Ceiling	Walls	50%		80%		30%		10%		Ceiling	Walls	50%		80%		30%		10%		
Ratio	Index	30%	30%	30%	30%	30%	30%	30%	30%	Ratio	Index	30%	30%	30%	30%	30%	30%	30%	30%	
0.6	J	.28	.23	.19	.27	.22	.18	.25	.20	0.6	J	.27	.22	.18	.26	.21	.18	.24	.20	.16
0.8	I	.37	.30	.26	.35	.29	.25	.32	.27	0.8	I	.35	.29	.24	.33	.28	.23	.30	.26	.21
1.0	H	.43	.36	.31	.41	.35	.30	.37	.32	1.0	H	.41	.34	.30	.39	.33	.29	.35	.30	.27
1.25	G	.50	.43	.37	.47	.41	.35	.41	.37	1.25	G	.45	.40	.35	.44	.38	.34	.39	.35	.31
1.5	F	.54	.49	.43	.51	.46	.41	.45	.41	1.5	F	.51	.45	.41	.48	.43	.38	.43	.38	.35
2.0	E	.61	.54	.49	.57	.51	.46	.50	.45	2.0	E	.56	.51	.46	.54	.48	.44	.47	.43	.39
2.5	D	.66	.60	.55	.61	.56	.51	.53	.50	2.5	D	.61	.55	.50	.57	.52	.48	.50	.46	.42
3.0	C	.69	.65	.61	.64	.60	.56	.55	.53	3.0	C	.64	.59	.54	.60	.55	.51	.52	.49	.46
4.0	B	.74	.69	.65	.68	.64	.60	.59	.56	4.0	B	.68	.64	.59	.64	.59	.56	.56	.52	.50
5.0	A	.77	.73	.69	.71	.68	.64	.61	.59	5.0	A	.71	.68	.64	.67	.63	.60	.58	.55	.53

16 LIGHTING FIXTURES
FLUORESCENT

RECEIVED

MAY 30 1983

ENWRIGHT ASSOCIATES

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: determining and correcting all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
Greenville, South Carolina

Date: 6-03-83 By: [Signature]

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC. INTERNAL USE ONLY AND DOES NOT CONSTITUTE APPROVAL OR REJECTION OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	<u>DEH</u>	<u>D</u>
PLASTER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

NEW PRODUCT INFORMATION

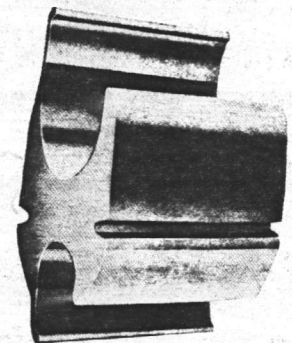
TYPE "H" NICOTAP® SEVEN CONNECTOR SERIES

Joslyn is pleased to introduce our new line of type "H" NICOTAPS® for secure connections of aluminum conductors or aluminum conductors in combination with copper conductors. These taps develop peak operating characteristics to meet Class A requirements of EEI-NEMA Standard TDJ-162 using standard compression tools and dies. The seven connector series of aluminum taps accommodates the largest range of conductors with the smallest possible tap inventory. Fold-over metal tabs hold both conductors in place during compression allowing a quick and easy connection. The inner surfaces of the type "H" NICOTAPS contain a special splice compound which enhances the electrical and mechanical characteristics of the connection.

Each type "H" NICOTAP connector and package is marked with tap number, crimp locations, conductor range and compression die information. They are individually packaged to fit standard holders in crew trucks.

FEATURES:

- High Conductivity Aluminum
- Meets Class A Requirements of EEI-NEMA Standard TDJ-162 and ANSI-C119.4—1976
- Prefilled with Special Splice Compound
- Taps Fit Broad Range of Conductor Combinations
- No need for special tooling as NICOTAPS are designed for use with the vast majority of present tooling



TAP NO.	STOCK NUMBER	NICOTAP GROOVE	STANDARD CONCENTRIC CONDUCTOR			COMPACT CONDUCTOR		CONDUCTOR DIAMETER RANGE *		COMPRESSION DIE	MECH. TOOL	HYDR. TOOL	NUMBER OF INDENTATIONS (CRIMPS)	HOLDER SIZE	STD. PKG.	APPROX. WEIGHT POUNDS PER 1000
			ALUMINUM OR COPPER		ACSR AND ALUMINUM ALLOY	ACSR	STRANDED	MIN.	MAX.							
			STRANDED	SOLID												
1	H-1000-0	A	6,4,3(7)	6,4,3,2	6,4	6,4,3	6,4,3,2	162"	268"	0	4	2	1	25	77	
		B	6,4,3(7)	6,4,3,2	6,4	6,4,3	6,4,3,2	162"	268"							
2	H-2000-0	A	3(3),2,1,1/0	1,1/0,2/0	3,2,1,1/0	2,1,1/0	2,1,1/0,2/0	268"	419"	0	5	2	1	25	86	
		B	6,4,3,2,1(19)	6,4,3,2,1,1/0	6,4,3,2	6,4,3,2,1	6,4,3,2,1	162"	332"							
3	H-3000-DD3	A	2/0,3/0	3/0,4/0	1/0,2/0	2/0,3/0	3/0	398"	470"	D,D ₃	5	2	8	25	150	
		B	6,4,3,2,1(19)	6,4,3,2,1,1/0	6,4,3,2	6,4,3,2,1	6,4,3,2,1	162"	332"							
4	H-4000-DD3	A	1(3),1/0,2/0,3/0	2/0,3/0,4/0	1,1/0,2/0	1/0,2/0,3/0	1/0,2/0,3/0	338"	470"	D,D ₃	5	2	8	25	152	
		B	1(3),1/0,2/0	2/0,3/0	1,1/0,2/0	1/0,2/0	1/0,2/0,3/0	338"	447"							
5	H-5000-DD3	A	4/0	250,266,300	3/0,4/0	4/0,266 ^(M/1)	4/0,250,266	480"	563"	D,D ₃	5	2	8	25	143	
		B	6,4,3,2,1(19)	6,4,3,2,1,1/0	6,4,3,2	6,4,3,2,1	6,4,3,2,1	162"	332"							
6	H-6000-DD3	A	3/0,4/0	250,266,300	3/0,4/0	3/0,4/0,266 ^(M/1)	4/0,250,266	461"	563"	D,D ₃	7	3	8	25	177	
		B	1(3),1/0,2/0	2/0,3/0	1,1/0,2/0	1/0,2/0	1/0,2/0,3/0	338"	447"							
7	H-7000-DD3	A	3/0,4/0	250,266,300	3/0,4/0	3/0,4/0,266 ^(M/1)	4/0,250,266	461"	563"	D,D ₃	7	3	8	25	181	
		B	3/0,4/0	250,266,300	3/0,4/0	3/0,4/0,266 ^(M/1)	4/0,250,266	461"	563"							

* For Alumaweld®, AWAC, and ACAR conductors consult the conductor diameter range column.

85-101 polaroid

C

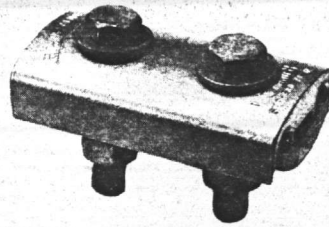
ENCLOSURE

10/10/68

2

Reliable Bolted Connectors

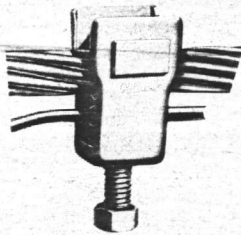
(continued)



Double bolt type

DISTRIBUTION CLAMPS

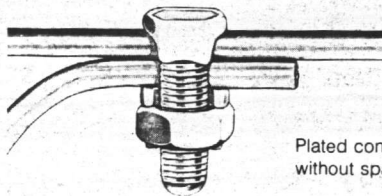
Distribution Clamps are used in making taps or distribution connections on aluminum to aluminum or aluminum to copper conductors. The clamps are manufactured from high density extruded aluminum and the bolt, nut and washer from heat-treated, galvanized steel.



Clamp used over conductor with armor rods

FLIP-ON TAP CLAMPS

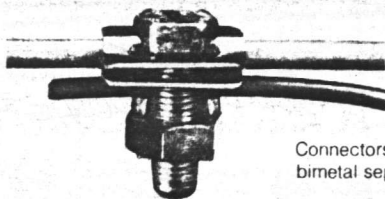
Flip-On Tap Clamps are used on overhead distribution circuits to make an electrical connection to a conductor. This one-piece unit is specially designed for "hot" work and can be used with combinations of aluminum, copper and steel conductors. Various clamps are available for use over conductors with or without armor rods.



Plated connectors without spacer

SPLIT-BOLT CONNECTORS

Split-Bolt Connectors are used to make an electrical connection between two stripped insulated or bare conductors. The connectors are available in copper, electro-tin plated copper and aluminum for copper-to-copper, aluminum-to-aluminum, aluminum-to-steel and copper-to-steel connections.



Connectors with bimetal separator

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MAY 30 1983

ENWRIGHT ASSOCIATES

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only in general conformance with the intent of the project and general compliance with the information given in the contract documents. The contractor is responsible for obtaining and retaining all materials and dimensions, methods, materials, and construction techniques of construction, and for doing his work in a safe and satisfactory manner.

Enwright Associates
Greenville, South Carolina
Date 6-03-83 by A.P.K.

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	<u>DEL</u>	<u>A</u>
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

RECEPTACLES

2-POLE, 3-WIRE GROUNDING RECEPTACLES

LIMITED 25-YEAR WARRANTY
PREMIUM SPECIFICATION GRADE

SIDE WIRED

BACK AND SIDE WIRED

SIDE WIRED

BACK AND SIDE WIRED

SIDE WIRED BACK AND SIDE WIRED

SIDE WIRED



No. 5800-I



No. 5801-I



No. 5824



No. 5842-I



No. 5032-I

20A 125V



NEMA 5-20R

CAT. NO. BROWN or GRAY (-GY)	CAT. NO. IVORY (-I) or WHITE (-W)	DESCRIPTION
5800 5800-GY 5800-SP	5800-I 5800-ISP 5800-WSP	Duplex Duplex, SEE PACK
5803 5800-4 5800-S 5801 5805	5800-4I 5800-SI 5801-I	Duplex, on 4" cover Duplex, less plaster ears Duplex, Self-Grounding Single Single, on 4" cover
5896 5891	5896-I 5891-I	Duplex Single

20A 250V



NEMA 6-20R

5822 5827 5821	5822-I 5821-I 5821-W	Duplex Duplex, on 4" cover Single
5821-SP	5821-ISP 5821-WSP	Single, SEE PACK
5825 5826		Single, on 3/4" cover Single, on 4" cover
5824 5823	5824-I 5823-I	Duplex Single

20A 125V



NEMA 5-20R

20A 250V



NEMA 6-20R

5842 5844	5842-I 5844-I	Duplex, Dual Voltage Duplex, Dual Voltage
--------------	------------------	--

20A 125V/250V



NEMA 10-20R

CAT. NO. BLACK	CAT. NO. IVORY	DESCRIPTION
5032 5034	5032-I	Single Single, on 4" cover

20A 250V



*5032-G		Single
---------	--	--------

*Not U.L. listed; for replacement use only.

11111

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DEPARTMENTAL ROUTING & APPROVALS**

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OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	<i>DeL</i>	<i>A</i>
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general concurrence with the contract at the project and general compliance with the information given in the contract documents. The contractor is responsible for the accuracy of the drawings and dimensions shown hereon, and for the accuracy of the work of the contractor in carrying out the work in a safe and satisfactory manner.

Enwright Associates
 Columbia, South Carolina

Date 6-03-83 by R.P.L.

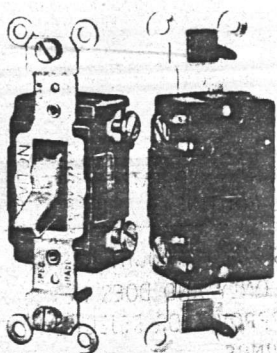
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ACQUIET SWITCHES

- Quiet, safe mechanical action in any position.
- Large-head terminal screws backed out and staked for fast wiring; accept up to No. 10 copper or copper clad wire.
- Back-wiring clamps accept up to No. 10 copper or copper clad wire.
- Quick-wire™ push-in terminals on certain models provide quickest wiring; accept up to No. 12 solid copper or copper clad wire.
- Large silver-cadmium oxide contacts for maximum conductivity.
- Heavy gauge rust resistant steel mounting strap.
- Shallow design for maximum wiring room.
- Convenient washer type break-off plaster ears for best flush alignment.
- Captive mounting screws for fast installation.



53501-I

STANDARD TOGGLE

LIMITED 25-YEAR WARRANTY
PREMIUM SPECIFICATION GRADE

15A 120-277V AC		1/2HP-120V, 2HP-240V
CAT. NO. BROWN or GRAY (-GY)	CAT. NO. IVORY (-I)	DESCRIPTION
53501	53501-I	Single Pole
53502	53502-I	Double Pole
53503	53503-I	3-Way
53504	53504-I	4-Way
20A 120-277V AC		1HP-120V, 2HP-240V - RED COVER
53521	53521-I	Single Pole
53522	53522-I	Double Pole
53523	53523-I	3-Way
53524	53524-I	4-Way



5501-I

STANDARD TOGGLE SIDE WIRED

LIMITED 25-YEAR WARRANTY
PREMIUM SPECIFICATION GRADE

15A 120-277V AC		1/2HP-120V, 2HP-240V
5501	5501-I	Single Pole
5501-GY		
5502	5502-I	Double Pole
5502-GY		
5503	5503-I	3-Way
5503-GY		
5504	5504-I	4-Way
5504-GY		
20A 120-277V AC		1HP-120V, 2HP-240V - RED COVER
5521	5521-I	Single Pole
5521-GY		
5522	5522-I	Double Pole
5522-GY		
5523	5523-I	3-Way
5523-GY		
5524	5524-I	4-Way
5524-GY		



5501-2I

GROUNDING STANDARD TOGGLE SIDE WIRED

LIMITED 25-YEAR WARRANTY
PREMIUM SPECIFICATION GRADE

15A 120-277V AC		1/2HP-120V, 2HP-240V
5501-2	5501-2I	Single Pole
5501-2GY		
5502-2	5502-2I	Double Pole
5502-2GY		
5503-2	5503-2I	3-Way
5503-2GY		
5504-2	5504-2I	4-Way
5504-2GY		

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

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OF SHOP DRAWINGS.

TYPE	INITIALS	ACTION
CIVIL		
STRUCTURAL		
Mechanical		
ELECTRICAL	<i>D.H.</i>	<i>A</i>
MECHANICAL		
PLUMBING		
WATER		

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MAY 30 1983

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REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

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Enwright Associates
 Greenville, South Carolina
 Date 6-03-83 by A.H.F.



**Types Q10P, Q22P Plug-in
B10B, Q22B, H65B Bolt-on } -240 Volts Ac Maximum**

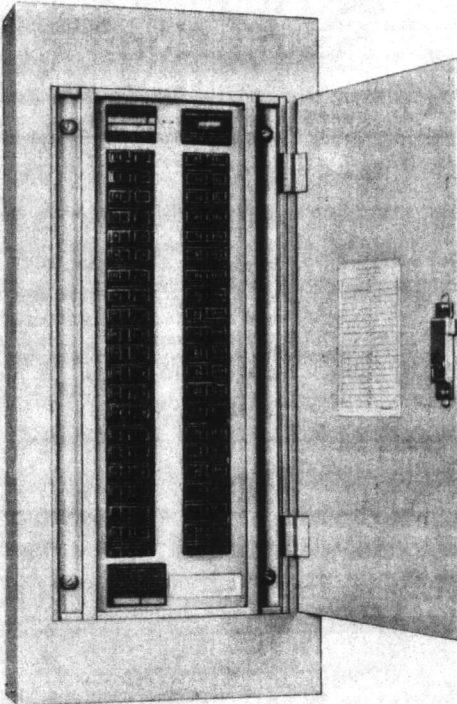


Table 1: Base Prices

Panelboard Type	Short Circuit Rating (Sym. Amps.)	Ampere Rating	Type Breaker	Type Mounting	List Prices			
					With Neutral		Without Neutral	
					3Ph, 4W 120/208 Volts	1 Ph, 3W 120/240 Volts	3 Ph, 3W 240 Volts	1Ph, 2W 120 Volts
Main Lugs Only								
Q10P, B10B	10,000	100	....	....	\$ 256	\$ 217	\$ 210	\$ 178
Q22P, Q22B	22,000	225	....	....	279	232	239	192
H65B	65,000	400	....	....	456	399	340	282
		600	....	....	590	536	427	374
Main Breakers								
Q10P, B10B	10,000	50	QP, BA	Horiz.	387	306	344	265
240 Volts Ac		100			466	369	426	326
Max.		50	EB	Vert.	476	330	375	289
		100			492	394	449	354
		225	CA	Vert.	961	788	921	745
		400	DA	Vert.	1758	1522	1636	1408
			LBB	Vert.	1828	1550	1711	1436
		600	LC	Vert.	2965	2364	2805	2200
Q22P, Q22B	22,000	50	QPH, QBH	Horiz.	419	350	382	300
240 Volts Ac		100			500	394	462	351
Max.		225	CAH	Vert.	1069	925	1029	884
			JB	Vert.	1162	954	1119	915
			KB	Vert.	1162	954	1119	915
		400	DA	Vert.	1758	1530	1636	1408
			LBB	Vert.	1828	1550	1711	1436
		600	LC	Vert.	2965	2364	2805	2200
H65B	65,000	50	GB	Horiz.	692	607	633	547
240 Volts Ac		100	GB	Horiz.	737	638	704	609
Max.		50	HFB	Vert.	706	619	646	558
		100	HFB	Vert.	752	651	718	621
		150	HFB	Vert.	1436	1249	1371	1185
		225	HKB	Vert.	2094	1767	2029	1963
		400	HLC	Vert.	2770	2428	2635	2124
		600	HLC	Vert.	3287	2683	3126	2521

Application

For use on A. C. only. Underwriters Laboratories Inc. listed. Meet Federal Specification WP-115a Type 1, Class 1. Service Entrance Equipment when required must be specified on the order and will be supplied no-charge.

Service

240 volts Ac Maximum. On all 3 phase delta, grounded B phase applications, refer to Westinghouse.

Short Circuit Rating - Panelboard Assembly

The short circuit rating of each panelboard type are listed in column 2 of Table 1, Base Prices. See Table B page 9 and instructions, page 8 for possible utilization of Integrated Equipment Short Circuit Ratings.

Mains

Mains at bottom are standard and will be supplied unless top feed is specified on the order. Exceptions are noted for certain main breakers which are top feed only.

Available ampere ratings of Main Lugs and Main Breakers are listed by panel type in Table 1, Base Prices. Standard terminal wire sizes are shown on page 50.

Branch Breakers

Breaker type, ampere rating, voltage and interrupting rating are listed in Table 2 Branch Breakers, by panel type. Meet Federal Spec. 375 (b) except where noted. See page 6 for classification of individual breakers. Terminal wire sizes listed on page 50.

For permissible modifications, refer to Modifications, page 44.

⊕ Changed or added since previous issue.

Ⓛ Top feed only.



October 18, 1982
Supersedes Price List 31-420,
pages 11-12, dated December 1, 1981.
Prices effective October 18, 1982;
Subject to change without notice.
For Standard Terms and Conditions of
Sale, refer to Selling Policy 31-400
Mailed to: E, D, C/1928/PL

Unassembled, Assembled Lighting and
Distribution Types, with Circuit Breakers,
Fusible Switches, and Motor Starter Units

Panelboards, Lighting and Distribution

**Types Q10P, Q22P, Plug-in
B10B, Q22B, H65B Bolt-on } 240 Volts Ac Maximum**

Assembled Circuit Breaker Panelboards

Table 2 - Branch Circuits List Prices

- 12 poles minimum, including spaces.
- Space only includes connectors to mount future breakers.
- Maximum amperes connected to any one connector cannot exceed 140 amperes on plug-in and 100 amperes on bolt-on panels.

Table 2: Branch Circuits

Panel Type	Breaker Type	Ampere Rating	List Prices [Ⓞ]			
			1 Pole 120 Volts Ac	2 Poles [Ⓞ] 120/240 Volts Ac		3 Poles 240 Volts Ac
10,000 Amperes Interrupting Capacity						
Q10P, B10B	QP	15-60	\$ 19	\$ 40	\$ 79	\$102
	Plug-in,	70	35	68	112 [Ⓞ]	130
	BAB	90-100	...	78	118 [Ⓞ]	138
	Bolt-on	GF15-30	131	206	...	...
	Space		7	15	15	21
22,000 Amperes Interrupting Capacity						
Q22P, Q22B	QPH	15-20	28	62	112 [Ⓞ]	151
	Plug-in,	25-60	40	62	112 [Ⓞ]	151
	QBH	70	51	79	139 [Ⓞ]	183
	Bolt-on	90-100	...	105	172 [Ⓞ]	225
	Space	GF15-30	260	...	...	...
65,000 Amperes Interrupting Capacity						
H65B [Ⓞ]	GB [Ⓞ]	15-60 [Ⓞ]	51 [Ⓞ]	113 [Ⓞ]	...	178
	Bolt-on	70-100 [Ⓞ]	93 [Ⓞ]	166 [Ⓞ]	...	225 [Ⓞ]
	Space		7	15	15 [Ⓞ]	21

Quick Pricing Tables for Branch Circuit Breakers (10,000 AIC)

1 Pole QP or QB Breakers			2 Pole QP or QB Breakers			3 Pole QP or BA Breakers		
No. of Brkrs.	List Prices [Ⓞ] 120 Volts Ac 15-60 Amp.	No. of Brkrs.	List Prices [Ⓞ] 120 Volts Ac 15-60 Amp.	No. of Brkrs.	List Prices [Ⓞ] 120/240 Volts Ac 15-60 Amp. 70 Amp. 90-100 Amp.	No. of Brkrs.	List Prices [Ⓞ] 240 Volts Ac 15-60 Amp. 70 Amp. 90-100 Amp.	
1	\$ 19	22	\$416	1	\$ 40 \$ 68 \$ 78	1	\$ 102 \$ 130 \$ 138	
2	38	24	456	2	80 136 156	2	204 260 276	
4	76	26	494	3	120 204 234	3	306 390 414	
6	114	28	532	4	160 272 312	4	408 [Ⓞ] 520 552	
8	152	30	570	5	200 340 390	5	510 [Ⓞ] 650 690	
10	190	32	608	6	240 408 468	6	612 [Ⓞ] 780 828	
12	228	34	646	7	280 476 546	7	714 [Ⓞ] 910 966	
14	266	36	684	8	320 544 624	8	816 [Ⓞ] 1040 1104	
16	304	38	722	9	360 612 702	9	918 [Ⓞ] 1170 1242	
18	342	40	760	10	400 680 778	10	1020 [Ⓞ] 1300 1380	
20	380	42	798					

Cabinets[Ⓞ]

Fronts are Fastrim[®] panelboard fronts with concealed trim fasteners and hinges, flush lock and ANSI-61 Gray finish.

Boxes are code gauge galvanized steel with knock-outs. Standard size is 20 in. wide x 5 3/4 in. deep. Calculate box size from page 12.

Minimum Cabinet Gutters

For reference only; do not include in box height calculations.

Top and Bottom Gutters (minimum)

50, 100 ampere Mains: 5 in.
225 ampere Mains: 5 in.
400, 600 ampere Mains: 8 in.

Side Gutters

20 in. Wide Box: 6 1/2 in.
H65B: 20 in. Wide box: 5 3/4 in.

Pricing Example:

A. Description

- Panelboard 3 ph. 4 wire 120/208 V.A.C. Short circuit rating 10,000 amps. (SYM.) 225A C.A. Main Breaker; Flush Mtg. Bolt-on type branch circuits; 24-20 amp. 1 pole; 1-50 amp. 3 pole; 3 - space only 1 pole.

B. Selection

Type B10B meets above requirements.

C. Pricing

Base Price from Table 1, page 10: (CA Main, 225A. under 3 ph. 4W.)... **\$ 961**

Branch Circuits (Type BA) from Table 2, page 11.

24-20A. 1 P (a 19	456 [Ⓞ]
1-50A. 3 P (a 102	102
3-Space, 1 P (a 7	21 [Ⓞ]

Total List **\$1540[Ⓞ]**

[Ⓞ] Changed or added since previous issue.

[Ⓞ] For use on 1 phase, 3 wire, and 3 phase, 4 wire systems.

SUBMITTAL DATE: 5/3/83

FOR APPROVAL

FOR CONSTRUCTION/RECORD

DESIGNATION _____

TYPE PANEL _____

S.C. RATING 10,000

SERVICE 3 ϕ 3 WIRE 4

VOLTAGE 120/208

MAINS:
TYPE: MLO MB MS

LOCATION TOP BOTTOM

AMP RTG. 50 FRAME BA

INCOMING CABLE CU. AL.

PHASE 1 # 14-4

NEUTRAL 1 # 8

GROUND 1 # 10

DESIGNATION _____

TYPE PANEL _____

S.C. RATING _____

SERVICE _____ ϕ _____ WIRE _____

VOLTAGE _____

MAINS:
TYPE: MLO MB MS

LOCATION TOP BOTTOM

AMP RTG. _____ FRAME _____

INCOMING CABLE CU. AL.

PHASE _____ # _____

NEUTRAL _____ # _____

GROUND _____ # _____

DESIGNATION _____

TYPE PANEL _____

S.C. RATING _____

SERVICE _____ ϕ _____ WIRE _____

VOLTAGE _____

MAINS:
TYPE: MLO MB MS

LOCATION TOP BOTTOM

AMP RTG. _____ FRAME _____

INCOMING CABLE CU. AL.

PHASE _____ # _____

NEUTRAL _____ # _____

GROUND _____ # _____

BRANCH BREAKERS:

QTY.	AMP RTG.	POLE	FRAME	NOTES
<u>2</u>	<u>20</u>	<u>2</u>	<u>BAB</u>	
<u>6</u>	<u>20</u>	<u>1</u>	<u>BAB</u>	

BRANCH BREAKERS:

QTY.	AMP RTG.	POLE	FRAME	NOTES

BRANCH BREAKERS:

QTY.	AMP RTG.	POLE	FRAME	NOTES

DIMENSIONS

BOX: HEIGHT 20 WIDTH 20 DEPTH 5 3/4

GUTTER: T 5" B 5" L 6 1/2 R 6 1/2

TRIM MTG. SURFACE FLUSH

DIMENSIONS

BOX: HEIGHT _____ WIDTH _____ DEPTH _____

GUTTER: T _____ B _____ L _____ R _____

TRIM MTG. SURFACE FLUSH

DIMENSIONS

BOX: HEIGHT _____ WIDTH _____ DEPTH _____

GUTTER: T _____ B _____ L _____ R _____

TRIM MTG. SURFACE FLUSH

NOTES

SERVICE ENTRANCE LABEL

GROUND BAR

NOTES

SERVICE ENTRANCE LABEL

GROUND BAR

NOTES

SERVICE ENTRANCE LABEL

GROUND BAR

REF. DWG. NO. DED-PB _____ ATTACHED.

BREAKER AND TERMINAL DATA
REFER DWG. NO. PB-18 ATTACHED.

REF. DWG. NO. DED-PB _____ ATTACHED.

BREAKER AND TERMINAL DATA
REFER DWG. NO. PB-18 ATTACHED.

REF. DWG. NO. DED-PB _____ ATTACHED.

BREAKER AND TERMINAL DATA
REFER DWG. NO. PB-18 ATTACHED.

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

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CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
M ECHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

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enwright associates
Greenville, South Carolina

Date 6-03-83 By [Signature]

RECEIVED

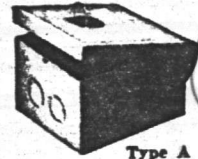
MAY 30 1983

ENWRIGHT ASSOCIATES



Type SC

Columbia pull boxes are constructed to code specs for all surface mounted wiring requirements. Standard finish is gray enamel. The more popular sizes are listed. Check Graybar for special requirements including: without knockouts, galvanized, aluminum, or other sizes, etc.



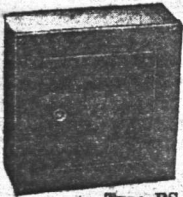
Type A

DIMENSION (H x W x D)	TYPE SC—SCREW COVER—		TYPE A—HINGE COVER—	
	Pkg.	Pkg. Wt.	Each Pkg.	Pkg. Wt.
4 1/2 x 5x3	—	—	10	20 Lbs. \$.83
6 x 6x3	10	27 Lbs.	\$1.28	10 28 Lbs. 1.08
6 x 6x4	10	32 Lbs.	1.40	10 32 Lbs. 1.18
8 x 6x4	10	40 Lbs.	1.60	10 40 Lbs. 1.45
8 x 8x4	5	25 Lbs.	1.78	5 25 Lbs. 1.78
10 x 8x4	5	28 Lbs.	2.03	5 28 Lbs. 1.93
12 x 8x4	5	31 Lbs.	2.40	5 33 Lbs. 2.25
10 x 10x4	5	33 Lbs.	2.33	5 35 Lbs. 2.33

DIMENSION (H x W x D)	TYPE SC—SCREW COVER—		TYPE A—HINGE COVER—	
	Pkg.	Pkg. Wt.	Each Pkg.	Pkg. Wt.
12 x 10x4	5	34 Lbs.	\$2.63	5 38 Lbs. \$2.55
12 x 12x4	5	43 Lbs.	2.85	5 43 Lbs. 2.68
8 x 8x6	5	29 Lbs.	2.03	—
12 x 12x6	3	32 Lbs.	4.03	3 33 Lbs. 3.83
18 x 12x6	3	40 Lbs.	5.80	3 41 Lbs. 5.10
18 x 18x6	2	42 Lbs.	7.05	2 40 Lbs. 7.05
24 x 18x6	1	28 Lbs.	12.80	1 28 Lbs. 11.38
24 x 24x6	1	42 Lbs.	15.78	1 40 Lbs. 17.26

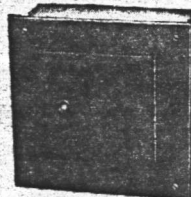
COLUMBIA

TELEPHONE CABINETS



Type PS

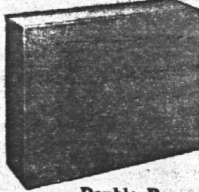
Columbia telephone cabinets feature removable gray enamel trim, piano hinge, and panel board latch with galvanized bodies. Check Graybar for price and special requirements.



Type PF

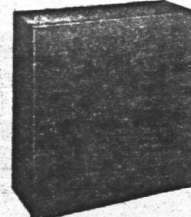
COLUMBIA

TRANSFORMER CABINETS



Double Door

Transformer cabinets are gray enamel on heavy sheet steel. Vault handle is standard with single or 3 point latching. For standard or special needs check Graybar.



Single Door

COLUMBIA WIREWAYS

All Columbia wireways are fabricated of code gauge steel with a gray enamel finish. Screws, bolts, and nuts are provided with each part for custom job site assembly. All fittings necessary for complete installation flexibility are available. Check Graybar for prices and special requirements.



TYPE AFS is screw cover lay-in flangeless wireway available with or without knockouts. Standard sizes include: 2 1/2" x 2 1/2", 4" x 4", 6" x 6", 8" x 8", 10" x 10", and 12" x 12".



TYPE AFH is hinged cover lay-in flangeless wireway available with or without knockouts. Standard sizes include: 2 1/2" x 2 1/2", 4" x 4", 6" x 6", and 8" x 8".



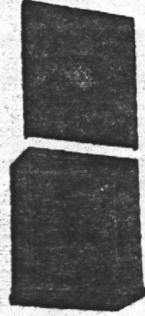
TYPE CD is neoprene gasketed, hinged cover (with external positive-pressure latching type clamps) flanged wireway. All items include necessary neoprene flange gaskets. Standard sizes include: 2 1/2" x 2 1/2", 4" x 4", 6" x 6", and 8" x 8".

Price on Application

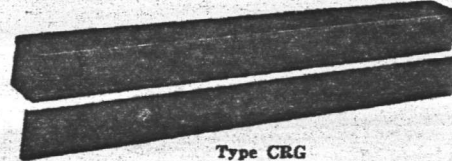
COLUMBIA

RAIN TIGHT SCREW COVER BOXES AND WIRING GUTTERS

Overhanging flanges on top "shingle" over sides protecting enclosed wiring from the elements. Cover also slides under front flange and wide side flanges nest into body recesses. Screws at the bottom hold the cover in place and provide quick access. Knockouts are provided at the bottom. Finish is gray enamel. Check Graybar for prices.



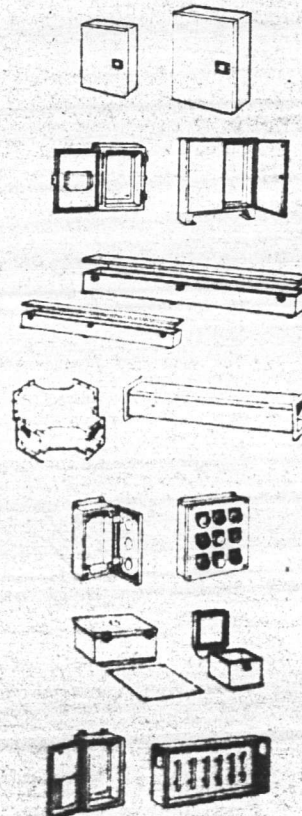
Type CRSC



Type CRG

COLUMBIA

NEMA-JIC ENCLOSURES



Columbia produces standard special NEMA 1 and NEMA 12 enclosures, "JIC" enclosed wiring troughs, oil-tight pushbutton enclosures, "JIC" terminal and pull box enclosures, and special custom boxes and cabinets. All are fabricated from code gauge steel (depending on size, etc.).

NEMA 1 enclosures are gray prime coated inside and out with a removable white enameled panel.

NEMA 12 enclosures are gray prime outside, white enamel inside with a removable white enameled panel.

JIC WIRING TROUGH, PUSHBUTTON, TERMINAL AND PULL BOX enclosures are all gray hammertone inside and out.

These enclosures are also available in galvanized and other special finishes and aluminum and other materials.

5

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformity with the design intent of the project and general compliance with the information given in the non-retention notes. The contractor is responsible for compliance with all codes and regulations and dimensions, etc. in the drawings and specifications of the project. The contractor is responsible for all work on the project.

Enwright Associates
 Greenville, South Carolina

Date 6-03-83 by [Signature]

ENWRIGHT ASSOCIATES
 DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC. INTERNAL USE ONLY AND DOES NOT CONSTITUTE APPROVAL OR REJECTION OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
Mechanical		
Electrical	<u>AK</u>	<u>A</u>
WALLS		
AIR		
WASTE WATER		

RECEIVED

MAY 30 1983

ENWRIGHT ASSOCIATES

CONTRACTOR'S SUBMITTAL TRANSMITTAL

5ND LANTDIV 4-4355/3 (Rev. 6/76)

CONTRACT NO. 82-C-4551	TRANSMITTAL NO. 7	DATE 5-12-83
---------------------------	----------------------	-----------------

FROM CONTRACTOR
East Coast Construction Co., Inc.
TO Enwright Assoc.
Greenville, S.C.

PROJECT TITLE AND LOCATION
Replace 3 Water wells, MCB,
Camp Lejeune, N.C.

CONTRACTOR USE ONLY

REVIEWER USE ONLY

*List only one specification division per form.

**ACTION CODES

List only one of the following categories on each transmittal form,
and indicate which is being submitted

A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged.
C-Comments
R-Resubmit

- Contractor Approved OICC Approval Deviation/Substitution
For OICC Approval

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
7	15272-4.5	Valve Boxes	7		
8	15272-4.2	Flanged Fitting	7		
9	15272-4.3.1	Flanged Pipe	7		
10	15272-4.2	MJ CI Fittings	7		

CONTRACTOR'S COMMENTS

RECEIVED

MAY 17 1983

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature)

James H. Boehm

DATE RECEIVED BY REVIEWER

FROM (Reviewer)

TO

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

ROICC RECEIVED

MAY 22 10 02 AM '83

COPIES TO:
ROICC (2)
LANTDIV (1)
A-E (1)

DATE

SIGNATURE

MAY 23 1 06 PM '83

RECEIVED
ROICC JAXNCA



enwright associates, inc.

ENGINEERS · SURVEYORS · PLANNERS
HAYWOOD ROAD POST OFFICE BOX 5287
GREENVILLE, SOUTH CAROLINA 29606

PHONE 803 - 288-5190

TRANSMITTAL

JOB ORDER NAME	A/E Contract No. N62470-82-C-770	JOB NO. 82005-00-2-01
	Construction Contract N62470-82-C-4551	PAGE NO. 1 OF PAGES 1
	Camp Lejeune, North Carolina	DATE May 18, 1983
	Replacing Water Wells Marine Corps Base	PURCHASE ORDER NO. <input type="checkbox"/> OURS <input type="checkbox"/> YOURS

THE FOLLOWING INFORMATION AND/OR ATTACHMENTS ARE FOR DISTRIBUTION AS INDICATED BELOW:

COMPANY	TITLE	NO.	REV. NO.	ISSUE	EQT. OR MTR. NUMBER	ACTION
	622 Tapping Sleeves Tapping Valves D.I. Tyton Pipe Flange Gate Valves Flange L&W Check Valves 102 Rockwell Meter Valve Boxes Flanged Fitting Flanged Pipe MJ CI Fittings					REVWD (A) REVWD (A) REVWD (A) RR (R) REVWD (A) REVWD (A) REVWD (A) REVWD (A) FC (AN) FC (AN)

DISTRIBUTION	T	P	SEP	DISTRIBUTION	T	P	SEP	DISTRIBUTION	T	P	SEP
Dept. of the Navy Officer in Charge of Const. Naval Facilities Engr. Cmd Contracts Camp Lejeune, NC 28542	2	2		East Coast Const. Co. Post Office Box 5004 Jacksonville, NC 28540 Atn: Mr. James H. Boehm	1	1*		CIVIL & SANITARY ELECTRICAL INSTRUMENTATION H VAC PROJECT MANAGER RESIDENT ENGINEER STRUCTURAL File		1	4

REVWD - Reviewed (A-Approved)
 FC - Furnish as Corrected (AN-Approved as Noted)
 RR - Revise and Resubmit (R-Resubmit)

Minor corrections were made by the reviewer so that this contractor-approved submittal could be stamped APPROVED-AS-NOTED. The contractor is requested to update his copies of this submittal, acknowledge corrections below, and forward this submittal to the OICC. CORRECTIONS ACKNOWLEDGED:

Signature

Date

ACTION CODES

A - APPROVED
 AN - APPROVED AS NOTED
 RC - RETURNED FOR CORRECTION

ABBREVIATIONS
 I - TRANSMITTAL ONLY
 P - PRINT
 SEP - SEPIA

BY Bill Foster

enwright associates, inc.

MAY 23 1 06 PM '83

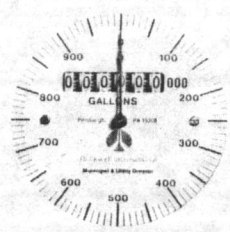
RECEIVED
ROICC JAXNCA

Rockwell

PROPELLER METERS

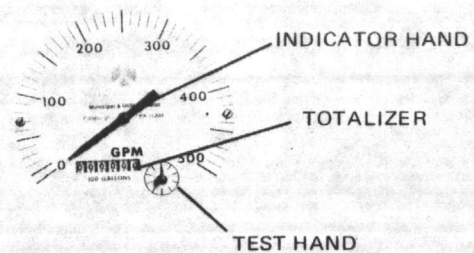
MODEL 101 and 102 ✓
 150 psi CAST IRON FLANGED TUBE
 MAGNETIC DRIVE — SEALED GEAR HOUSING
 SIZES 3" thru 12"

MODEL 101

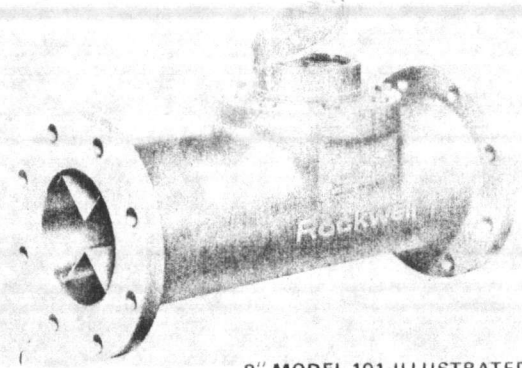


STANDARD REGISTER

MODEL 102



INDICATOR-TOTALIZER



8" MODEL 101 ILLUSTRATED

DESCRIPTION

MODEL 101 AND 102 PROPELLER METERS are intended for the measurement of cold water, either potable or non-potable, within specified flow limits. The meter tubes are cast iron and contain stainless steel liners and straightening vanes. (The 3" size does not have a full length liner.) The flanged ends conform to ANSI Class 125 drilling dimensions.

MAGNETIC DRIVE: The propeller is magnetically coupled, thus eliminating mechanical packings and stuffing boxes. A sleeve type, ceramic magnet in the propeller drives the follower magnet which is located inside the propeller spindle (separator).

RIGHT ANGLE GEARING: The brass bevel gears are sealed in an oil-filled gear housing. The gears are attached to shafts connecting the follower magnet to the register. The gear housing is factory lubricated for the life of the meter.

CERAMIC BEARINGS: The propeller contains radial ceramic bearings. The sleeve type bearings mate with the ceramic coated propeller spindle (separator). The extremely durable ceramic bearings and spindle combination permit the meter to measure water containing entrained sand without undue wear.

STANDARD REGISTER: It features a 4" diameter, 100 division dial with center sweep hand. The register can be positioned in any of four different directions for easy reading when the meters are mounted in vertical or overhead installations.

INDICATOR-TOTALIZER: It provides a 270° arc for reading instantaneous flow rate. A six digit totalizer and test circle are also included.

INSTALLATION: The meter is installed in a pipeline similar to placing a short length of flanged end pipe in the line. The meter may be installed in any position: Horizontal, vertical or inclined. The meter must have a full flow of water in the pipeline for proper registration. Valves, fittings or other obstructions which might create a flow disturbance should be at least five pipe diameters upstream and one pipe diameter downstream from the meter location.

O-RINGS: The meter head to tube body connection on 6" meters and larger are sealed with O-rings. (3" and 4" meters use a flat gasket.) All other areas where water seals are required have O-rings.

INSTRUMENTATION: For applications requiring instrumentation, various transmitters are available which mount between the meter head and the register. See the transmitter product data sheets for signal output capabilities and Rockwell ACT-PAK (instruments) literature for additional details.

MAINTENANCE: The meter head can be removed and repaired without disturbing the tube body in the pipeline. Blank covers are also available for line flushing or to keep the customer's line in service while the meter head is repaired and recalibrated. Factory meter head exchange programs are also available for testing and/or maintenance purposes.

SPECIFICATIONS

SERVICE ACCURACY	where fluid flow is in one direction only. 100 ± 2% of actual flow within specified normal and intermittent flow ranges. 95% minimum at low flow rate.
PRESSURE RATING	150 psi maximum working pressure.
TEMPERATURE	100° F maximum
MAXIMUM FLOWS	maximum normal flow rates are for continuous service.
INTERMITTENT FLOWS	as shown are for use 10% to 15% of total time meter is operating.
STANDARD REGISTER	six digit straight reading type with full 4" diameter, 100 division dial and center sweep test hand. Registration available in gallons, cubic feet, acre feet, liters, cubic meters, miners inch hours, barrels and other standard units.
INDICATOR-TOTALIZER	combination of a 4" dial for instantaneous rate of flow indication and a six digit totalizer. Indicator dial can be furnished to read in gallons per minute, cubic feet per second, million gallons per day and other standard units.
FLANGE ENDS	ANSI Class 125 drilling
MATERIAL	tube body — cast iron with stainless steel lining and straightening vanes meter head — cast iron propeller and nut — polypropylene propeller spindle (separator) — stainless steel, ceramic coated rotor bearings — ceramic magnets — permanent, ceramic sleeve type gear housing — cast bronze shafts and bolts — stainless steel
OPTIONAL EQUIPMENT	blank covers, register extensions, transmitters for Rockwell ACT-PAK and other instruments are available.

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MAY 17 1983

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REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

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enwright associates
Greenville, South Carolina

Date 5-18-83 By [Signature]

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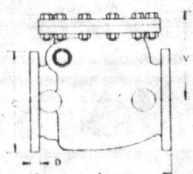
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DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
MECHANICAL		
ELECTRICAL		
WATER	FKV	
AIR		RV
WASTE WATER		

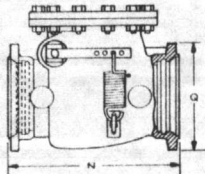


CLOW HORIZONTAL SWING CHECK VALVES

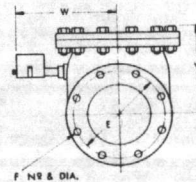
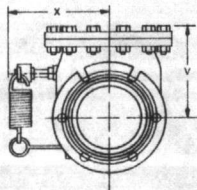
4" thru 12"
DIMENSIONS



F-5380 Flanged Ends



F-5386 Mechanical Joint, showing typical dimensions of Outside Spring and Lever



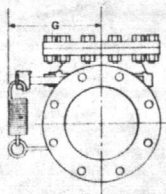
F-5382 Flanged Ends, showing Outside Lever and Weight

Dimensions—Inches

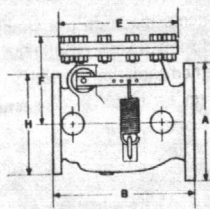
Valve Size in Inches		4	6	8	10	12
A	Face to face of flanges	13	16	18	22	26
C	Diameter of end flanges	9	11	13 1/2	16	19
D	Thickness of end flanges	15/16	1	1 1/8	1 3/16	1 1/4
E	Diameter of bolt circle	7 1/2	9 1/2	11 3/4	14 1/4	17
F	Number and diameter of bolts	8-5/8	8-3/4	8-3/4	12-7/8	12-7/8
N	Face to face of mechanical joints	14 1/4	17 3/4	20 3/4	24	27
Q	Outside diameter of mechanical joint end	9 3/8	11 5/16	13 5/8	15 13/16	18 1/16
V	Center line of port to top of cover	7 13/16	9 3/4	11 1/2	14 1/16	15 3/8
W	Center line of valve to end of hinge pin of valve with weight and lever	8	10 3/8	11 3/4	13 1/2	14 5/8
X	Center line of valve to outside of spring	7 1/2	9 3/4	11	12 5/8	14 1/8

Flanges faced and drilled to ANSI 125 pound template, unless otherwise instructed.

INCREASING HORIZONTAL SWING CHECK VALVES



F-5380 Flanged Ends, showing Outside Spring and Lever



F-5386 Side View Flanged Ends, showing Outside Spring and Lever

Dimensions—Inches

Valve Size Inches	A	B	E	F	G	H
4x6	11	13 1/2	10 1/2	7 13/16	7 1/2	9
4x8	13 1/2	15	10 1/2	7 13/16	7 1/2	9
6x8	13 1/2	16 1/4	13 1/8	9 3/4	9 3/4	11

CHECK VALVE ORDERING INFORMATION

Please furnish all the information requested below:

- Quantity.**
- Size.**
- Type:** Whether plain, outside lever and weight, or outside lever and spring.
- End Types:** Whether flanged or Mechanical Joint.
- Special Features:** Leather or rubber facings, aluminum or bronze gates, etc.

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 REVIEWED FURNISH AS CORRECTED

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enwright associates
Greenville, South Carolina

Date 5-18-83 By H.P.R.

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DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
MECHANICAL		
ELECTRICAL		
WATER		
AIR	FKL	RV
WASTE WATER		

4

IRON BODY BRONZE MOUNTED GATE VALVES **AWWA**

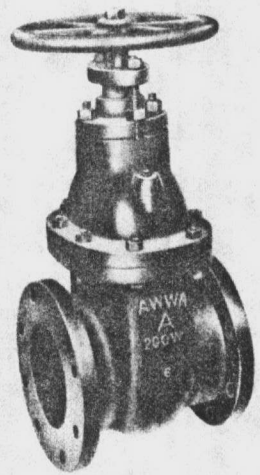
FIG. 27A



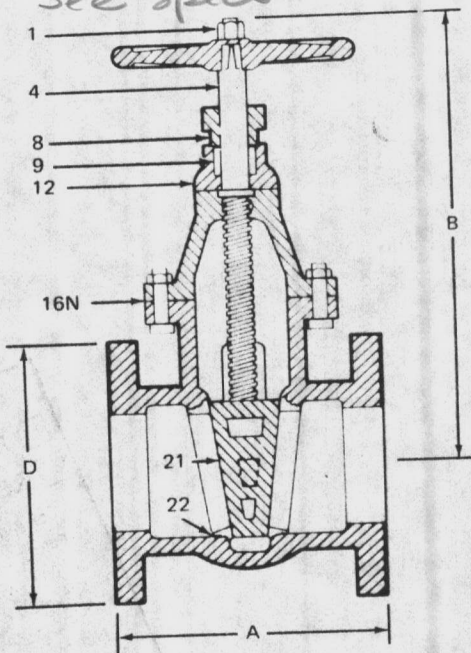
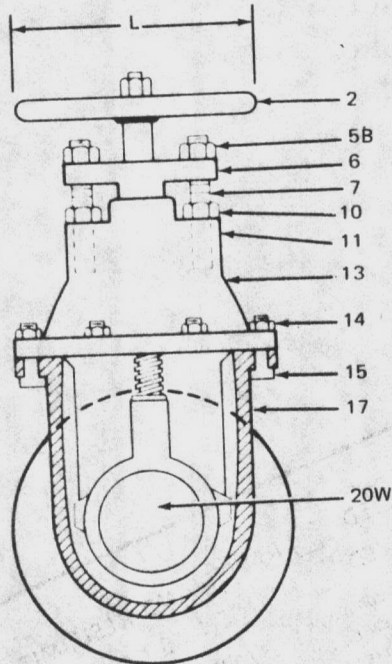
RATING
200 lbs. WWP

- Flanged Ends
- ~~Non-Rising Stem~~

*Need O.S. & Y.
See Specs.*



**Solid Wedge Disc
or
Split Tapered Disc
Upon Request**



LIST OF MATERIALS

ITEM	PART	MATERIAL	SPECIFICATION
1	Handwheel Nut	Steel	ASTM A-307
2	Handwheel	Cast Iron	ASTM A-126
4	Stem	Silicone Bronze	ASTM B-371
5B	Strap Adjustment Nut	Bronze	ASTM B-62
6	Strap	Cast Iron	ASTM A-126
7	Stuffing Box Stud	Steel	ASTM A-307
8	Packing Gland	Bronze	ASTM B-62
9	Packing	Graphite Asbestos	
10	Stuffing Box Lock Nut	Steel	ASTM A-307

ITEM	PART	MATERIAL	SPECIFICATION
11	Stuffing Box	Cast Iron	ASTM A-126
12	Stuffing Box Gasket	Asbestos	
13	Bonnet	Cast Iron	ASTM A-126
14	Bonnet Lock Nut	Steel	ASTM A-307
15	Bonnet Bolt	Steel	ASTM A-307
16N	Body Gasket	Asbestos	
17	Body	Cast Iron	ASTM A-126
20W	Disc	Cast Iron	ASTM A-126
21	Disc Ring	Bronze	ASTM B-62
22	Seat Ring	Bronze	ASTM B-62

DIMENSIONS

SIZE	3	4	6	8
A FACE TO FACE	8	9	10 ^{1/2}	11 ^{1/2}
B CENTER OF PORT TO TOP OF STEM	12 ^{3/4}	15 ^{1/4}	19 ^{13/16}	24 ^{1/2}
D OD OF FLANGED END	7 ^{1/2}	9	11	13 ^{1/2}
L OD OF WHEEL	7 ^{1/4}	9 ^{1/4}	12 ^{3/8}	14 ^{1/4}
APPROX WEIGHT W/WHEEL	48	81	148	245

AMERICAN VALVE MFG. CORP.
Manhasset, New York

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CIVIL		
STRUCTURAL		
MECHANICAL		
ELECTRICAL		
WATER	FKL	
AIR		RR
WASTE WATER		

* See Specs 15272-5
4.4.1-b.



10

MECHANICAL JOINT FITTINGS

ANSI SPECIFICATIONS A 21.10 (AWWA C 110) AND A 21.11 (AWWA C 111)
 FOR USE WITH CAST IRON OR DUCTILE IRON PRESSURE PIPE
 FURNISHED COMPLETE WITH JOINT ACCESSORIES

✓ FURNISHED WITH BITUMINOUS COATING UNLESS OTHERWISE SPECIFIED

Also cement mortar lined req'd

BENDS

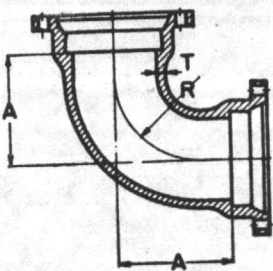


Fig. 301
MJ 90°

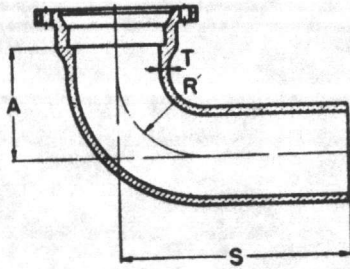


Fig. 302
MJ X PE 90°

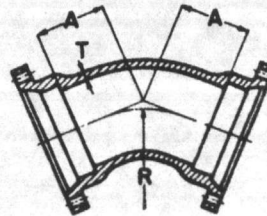


Fig. 303
MJ 45°

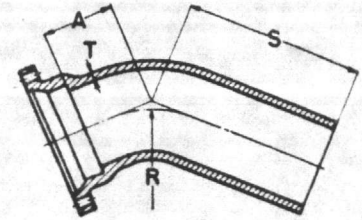


Fig. 304
MJ X PE 45°

Size	Pressure Rating psi	Dimensions in Inches 90° Bends				Weights in Pounds	
		T	R	A	S	Fig 301 MJ-MJ	Fig. 302 MJ-PE
3	250	.48	4.0	5.50	13.5	35	35
4	250	.52	4.5	6.50	14.5	55	50
6	250	.55	6.0	8.00	16.0	85	80
8	250	.60	7.0	9.00	17.0	125	120
10	250	.68	9.0	11.00	19.0	190	190
12	250	.75	10.0	12.00	20.0	255	255
14	150	.66	11.5	14.00	22.0	340	325
16	150	.70	12.5	15.00	23.0	430	410
18	150	.75	14.0	16.50	24.5	545	520
20	150	.80	15.5	18.00	26.0	680	650
24	150	.89	18.5	22.00	30.0	1025	985

Size	Pressure Rating psi	Dimensions in Inches 45° Bends				Weights in Pounds	
		T	R	A	S	Fig. 303 MJ-MJ	Fig. 304 MJ-PE
3	250	.48	3.62	3.0	11.0	30	30
4	250	.52	4.81	4.0	12.0	50	45
6	250	.55	7.25	5.0	13.0	75	70
8	250	.60	8.44	5.5	13.5	110	105
10	250	.68	10.88	6.5	14.5	155	155
12	250	.75	13.25	7.5	15.5	215	215
14	150	.66	12.06	7.5	15.5	270	255
16	150	.70	13.25	8.0	16.0	340	320
18	150	.75	14.50	8.5	16.5	420	395
20	150	.80	16.88	9.5	17.5	530	500
24	150	.89	18.12	11.0	19.0	755	715

NOTE: Mechanical Joint Bends, Tees and Crosses will always be furnished with Mechanical Joint Bell on all openings unless ordered otherwise.

NOTE: 3"-12" bends may have lugs if specified.

NOTE: Availability of 14" thru 24" with 250 PSI Pressure Rating advised upon request.

NOTE: Weight does not include accessories weight.

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enwright associates
 Greenville, South Carolina

Date 5-18-83 By H.P.E.

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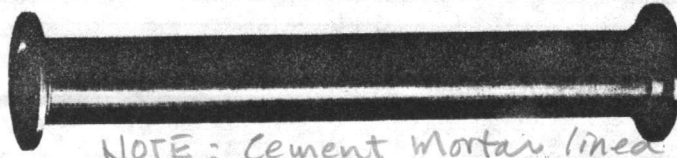
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DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
M ECHANICAL		
E L ECTRICAL		
WAT ER	<u>FW</u>	<u>RW</u>
AIR		
WASTE WATER		

Flanged Joint Cast Iron Pipe

For Water, Sewage, Oil, and Other Liquids
Joint Meets all the Requirements of ANSI A21.15 (AWWA C115) Proposed Specifications



NOTE: Cement Mortar lined reqd.

Flanged Joint Pipe

Flanged Joint cast iron pipe is manufactured for water, steam, sewage, oil and other fluid lines, where rigid joints are required. We fabricate pipe in sizes 3 through 24-inch diameter, in lengths up to 17' 0" maximum.

The pipe barrel is centrifugally cast pipe, meeting all the general quality and metallurgical provisions of ANSI specifications A21.6 (AWWA C106) and/or Federal Specifications WW-P-121c. To the plain ends of this pipe, specially designed screw flanges are assembled, in accordance with the foundry practice detailed below. Because of the requirement of refacing the face of the flange and the pipe simultaneously after power tightening, this pipe should not be flanged in the field.

Unless otherwise specified, screwed on flanges are faced and have bolt holes per ANSI B16.1 Class 125 standard template, and are designed for use with either ANSI A21.10 (AWWA C110) or ANSI B16.1 flanged fittings..

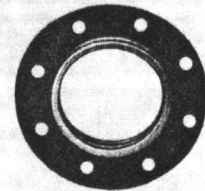
This pipe should not be threaded or flanged in the field.

Foundry Practice

Flanged joint cast iron pipe is made up by threading plain end pipe, screwing on specially designed long hub flanges — power tightened, and refacing across both face of flange and end of pipe. Due to the refacing of flange and pipe ends, the gasket actually seats over the machined ends of the adjoining pipes and, thus, threads are not affected by line pressure nor corrosive action of line contents. The long hub of the flange is designed to cover all pipe threads.



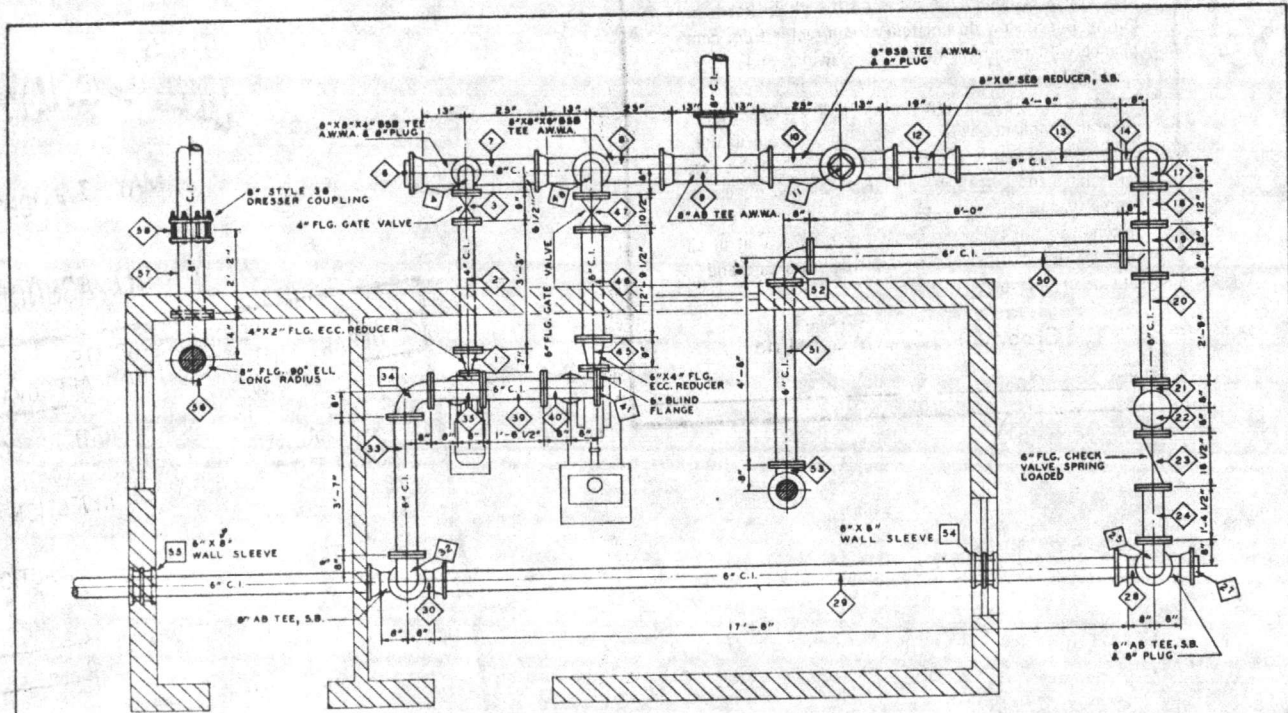
Cutaway showing flange assembled on pipe



Screw Flange For Cast Iron

Davis's Fabrication Shop can Fabricate Flanged Pipe to Practically Any Specification

Typical Application



PUMP HOUSE-MECHANICAL PLAN
SCALE: 1/2"=1'-0"

DAVIS METER & SUPPLY CO., INC.	
PIPING DETAILS	
FOR: CONTRACTORS OR MUNICIPALITIES	
ENGINEERS: ANY UTILITY ENGINEER	
DRAWING NO. 1001	SHEET 1 OF 10

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enwright associates
 Greenville, South Carolina

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STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	_____	_____
AIR	<u>PKL</u>	<u>RW</u> *
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

*: Reviewed as noted



DAVIS METER & SUPPLY div.

SHORT BODY FLANGED FITTINGS

SPECIFICATIONS

AMERICAN NATIONAL STANDARDS INSTITUTE SPECIFICATION ANSI A 21.10 (AWWA C110)
 AMERICAN NATIONAL STANDARD FOR CAST IRON FITTINGS FOR WATER & OTHER FLUIDS
 AMERICAN NATIONAL STANDARDS INSTITUTE SPECIFICATION ANSI B 16.1
 CAST IRON PIPE FLANGES AND FLANGED FITTINGS, CLASS 125

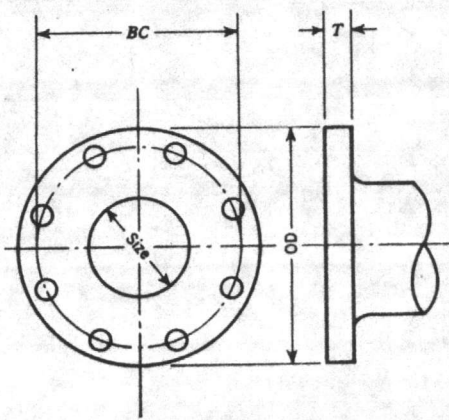
UNION FOUNDRY manufacturers 250 psi flanged fittings with 125 pound flanges conforming to above specifications add also additional flanged items to our own manufacturing standard. Specification that applies to item is shown on each page.

THIS IS REQUIRED

Cement-mortar linings shall be in accordance with ANSI A21.4 (AWWA C104) of latest revision. If desired, cement linings shall be specified in the invitation for bid and on the purchase order.

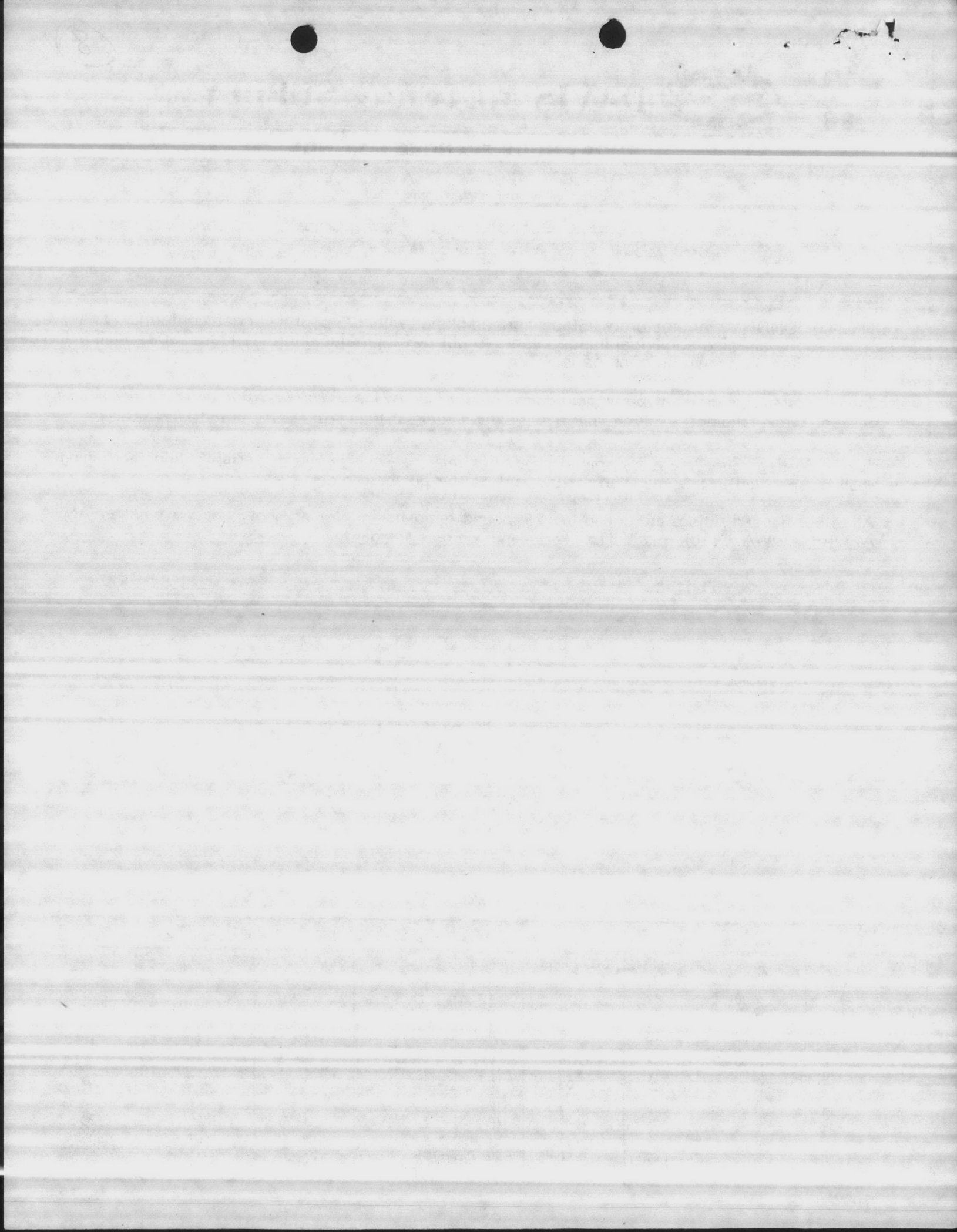
Special coatings and linings for special conditions may be available. Such special coatings and linings shall be specified in the invitation for bid and on the purchase order.

All of our flanged fittings are drilled to 125-pound template for drilling shown below whether ANSI A21.10 (AWWA C110), ANSI B16.1 or manufacturer's standard.



ANSI B16.1 - CLASS 125

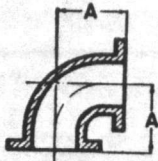
Size	Diameter of Flange	Thickness of Flange	Diameter of Bolt Circle	Number of Bolts	Size of Bolts	Diameter of Bolt Holes	Size of Full Face Gaskets	Size of Ring Gaskets
2	6.00	.62	4.75	4	5/8 x 2 1/4	3/4	2x 6	2x 4 1/8
3	7.50	.75	6.00	4	5/8 x 2 1/2	3/4	3x 7 1/2	3x 5 3/8
4	9.00	.94	7.50	8	5/8 x 3	3/4	4x 9	4x 6 7/8
6	11.00	1.00	9.50	8	3/4 x 3 1/4	7/8	6x 11	6x 8 3/4
8	13.50	1.12	11.75	8	3/4 x 3 1/2	7/8	8x 13 1/2	8x 11
10	16.00	1.19	14.25	12	7/8 x 3 3/4	1	10x 16	10x 13 3/8
12	19.00	1.25	17.00	12	7/8 x 3 3/4	1	12x 19	12x 16 1/8
14	21.00	1.38	18.75	12	1 x 4 1/4	1 1/8	14x 21	14x 17 3/4
16	23.50	1.44	21.25	16	1 x 4 1/2	1 1/8	16x 23 1/2	16x 20 1/4
18	25.00	1.56	22.75	16	1 1/8 x 4 3/4	1 1/4	18x 25	18x 21 3/8
20	27.50	1.69	25.00	20	1 1/8 x 5	1 1/4	20x 27 1/2	20x 23 3/8
24	32.00	1.88	29.50	20	1 1/4 x 5 1/2	1 3/8	24x 32	24x 28 1/4



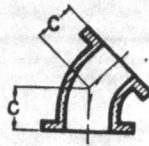
SHORT BODY FLANGED FITTINGS

GENERAL DIMENSIONS

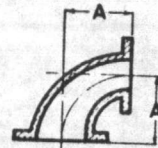
ANSI SPECIFICATION A21.10 (AWWA C110) AND ANSI SPECIFICATION B16.1



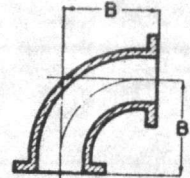
90° Bend
Fig. 401



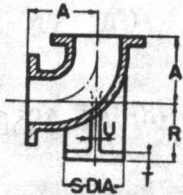
45° Bend
Fig. 402



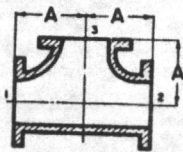
90° Reducing Bend
Fig. 405



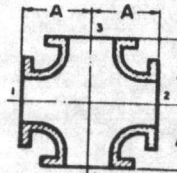
Long Radius 90° Bend
Fig. 406



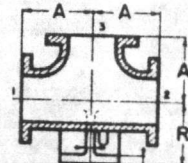
Base Bend
Fig. 408



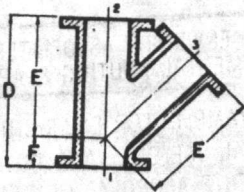
Tee
Fig. 411



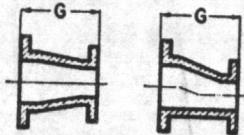
Cross
Fig. 412



Base Tee
Fig. 413



Wye (45° Lateral)
Fig. 415



Reducers
Concentric Fig. 418
Eccentric Fig. 419

Size	A	B	C	D	E	F	G	R	S (Dia.)	T	U
3	5.5	7.75	3	13	10	3	6	4.88	5		
4	6.5	9	4	15	12	3	7	5.50	6	.56	.50
5	7.5	10.25	4.5	17	13.5	3.5	8	6.25	7	.62	.50
6	8	11.5	5	18	14.5	3.5	9	7.00	7	.69	.62
8	9	14	5.5	22	17.5	4.5	11	8.38	7	.69	.62
10	11	16.5	6.5	25.5	20.5	5	12	9.75	9	.94	.88
12	12	19.0	7.5	30	24.5	5.5	14	11.25	9	.94	.88
14	14	21.5	7.5	33	27	6	16	12.50	11	1	1
16	15	24	8	36.5	30	6.5	18	13.75	11	1	1
18	16.5	26.5	8.5	39	32	7	19	15.00	11	1	1
20	18	29	9.5	43	35	8	20	16.00	13.5	1.12	1.12
24	22	34	11	49.5	40.5	9	24	18.50	13.5	1.12	1.12
									13.5	1.12	1.12

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enwright associates
Greenville, South Carolina

Date 5-18-83 By H.P.P.

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DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
M. MECHANICAL		
ELECTRICAL		
WATER	<u>PKL</u>	<u>PKV</u>
AIR		
WASTE WATER		

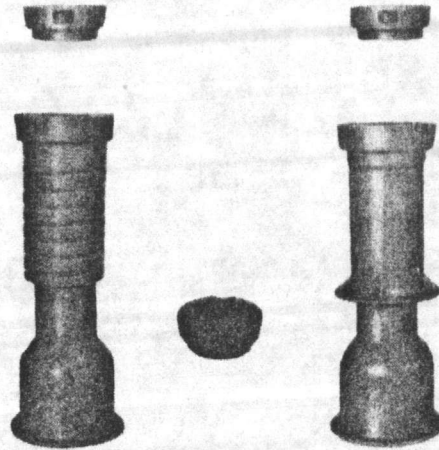


7

Cast Iron Valve Boxes
Two-Piece—5/8" Shaft

For Use With Valves 12" in Size and Smaller

H-10360 Screw Type Size	H-10364 sliding Type Size	Extension in Inches	Weight in Pounds
461-S	461-A	18-24	60
562-S	562-A	25-36	80
564-S	564-A	36-48	90
664-S	664-A	36-60	110
666-S	666-A	48-72	115
668-S	668-A	60-84	125



Extension Piece

Sizes: No. 58 — 14" length — weight 28 pounds
No. 59 — 20" length — weight 33 pounds

Extension Piece

Size: No. 58A — 14" length — weight 28 pounds

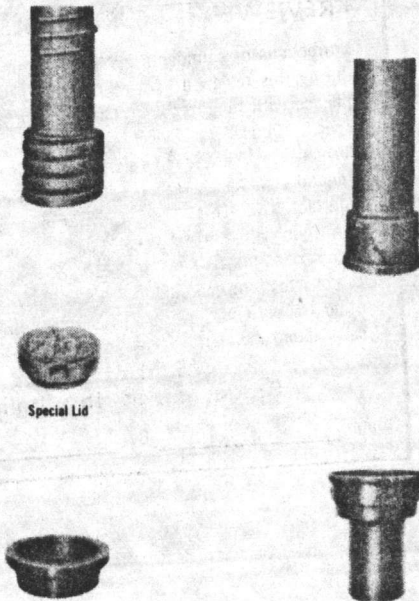
Valve Box Adapters

Valve Box Adapters are added to the top of installed Valve Boxes, raising the top of the box without disturbing the upper section. These adapters are particularly useful in preparation for repaving.

Valve Box Adapter

This adapter fits in the socket of the installed box. The size is the amount the top of the box is raised. 1" and 2" sizes are furnished with a special lid. 3" and 4" sizes are normally furnished without lid.

Sizes:	1"	2"	3"	4"
Weight:	25 lbs.	33 lbs.	22 lbs.	27 lbs.



Valve Box Adapter

This is an adjustable adapter and slides inside the top of the upper section. One size only.

Range: 2 1/2" to 8 1/2"

Weight: 13 1/2 lbs.

Minimum and Maximum Trench Depths for Screw and Slip Type Valve Boxes

Valve Box Size	Valve Box Extension	Size of Valve, Inches							
		2	3	4	6	8	10	12	
461-S or 461-A	18-24	23-29	27-33	28-34	33-39	37-43	44-50	48-54	
562-S or 562-A	24-36	29-41	33-45	34-46	39-51	43-55	50-62	54-66	
564-S or 564-A	36-48	41-53	45-57	46-58	51-63	55-67	62-74	66-78	
664-S or 664-A	36-60	41-65	45-69	46-70	51-75	55-79	62-86	66-90	
666-S or 666-A	48-72	53-77	57-81	58-82	63-87	67-91	74-98	78-102	
668-S or 668-A	60-84	65-89	69-93	70-94	75-99	77-103	86-110	90-114	
Trench to bottom of box		5	9	10	15	19	26	30	

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 Greenville, South Carolina

Date 5-18-83 By M.P.F.

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 INTERNAL USE ONLY AND DOES NOT
 CONSTITUTE APPROVAL OR REJECTION
 OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
MECHANICAL		
ELECTRICAL		
WATER	<u>EW</u>	<u>RV</u>
AIR		
WASTE WATER		

Ductile Iron Pipe

Ductile Iron pipe is normally purchased to conform to specifications of the American National Standards Institute and the American Water Works Association. The specifications are identical and they are: ANSI Specification A21.51 and AWWA C151. They cover Ductile Iron pipe designed under ANSI Specification A21.50 and AWWA C-150, "Thickness Design of Ductile Iron Pipe."

Pipe thicknesses are calculated on the basis of internal and external pressure, trench factors, earth loads, allowance for truck superload, beam load, service allowance, foundry tolerances, and a considera-

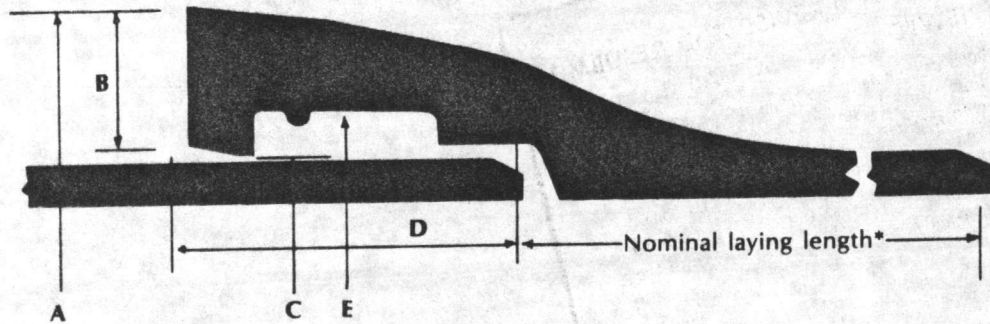
tion of minimum thickness for tapping. The Ductile Iron is required to have a minimum tensile strength of 60,000 pounds per square inch, a minimum yield strength of 42,000 pounds per square inch and minimum elongation of 10 percent.

The thicknesses, dimensions and weights are nominal and subject to the tolerances listed in the specifications.

Full information can be secured from this catalog on the pipe required for laying conditions Type 1 through Type 5 for working pressures up to 350 pounds per square inch, for various depths of cover.

TYTON JOINT® PIPE
Joint Dimensions and Weights

- Cement lined Pipe



Size Inches	Pipe Thickness Inches		Out-side Dia-meter Inches	Dimensions in Inches					Bell Weight Pounds
	From	To		A	B	C	D	E	
3	.25	.40	3.96	5.80	.80	4.07	3.00	4.62	9
4	.26	.41	4.80	6.86	.90	4.91	3.15	5.64	11
6	.25	.43	6.90	9.02	.92	7.01	3.38	7.74	18
8	.27	.45	9.05	11.40	1.02	9.17	3.69	9.98	26
10	.29	.47	11.10	13.54	1.05	11.22	3.75	12.03	34
12	.31	.49	13.20	15.68	1.07	13.32	3.75	14.13	43
14	.33	.51	15.30	18.33	1.32	15.44	5.00	16.64	63
16	.34	.52	17.40	20.45	1.33	17.54	5.00	18.74	76
18	.35	.53	19.50	22.57	1.34	19.64	5.00	20.84	87
20	.36	.54	21.60	24.69	1.35	21.74	5.00	22.94	97
24	.38	.56	25.80	28.93	1.37	25.94	5.00	27.14	120

*3"-4" Nominal 20' laying length.
6"-24" Nominal 18' laying length.

- REJECTED
- REVIEWED
- REVISE AND RESUBMIT
- FURNISH AS CORRECTED

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Enwright associates
Greenville, South Carolina

Date 5-18-83 By M.P.K.

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DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	<u>FKU</u>	<u>RL</u>
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

6 TAPPING VALVES

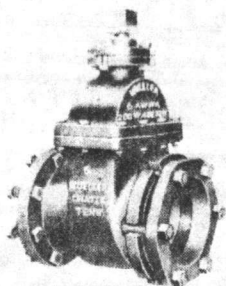
Tapping valves

Tapping valves have flanged inlet, class 125, ANSI B16.1. All valves have a 2" square wrench nut. Each type of outlet offered on Mueller® Tapping Valves will allow a Mueller® Drilling Machine Adapter to be attached directly to the valve. The necessary flange is an integral part of the outlet end.

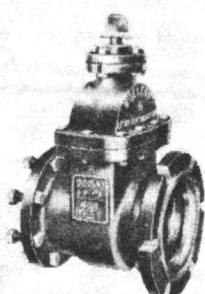
Working and test pressures

2"-12" valves are 200 psi (1379 kPa) working pressure — 400 psi (2758 kPa) test pressure.

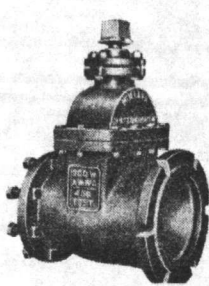
14"-24" valves are 150 psi (1034 kPa) working pressure — 300 psi (2064 kPa) test pressure.



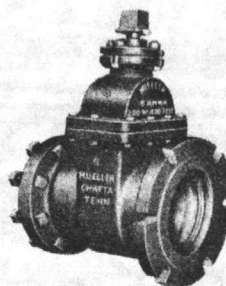
Mechanical joint end



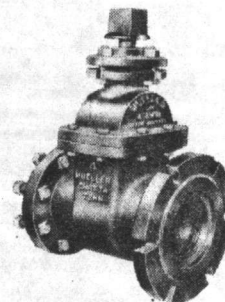
A-C end



Calked type end



Slip-On Joint end



Radial compression end

Tapping valves

Catalog number	Type end	Outlet Type of pipe	Sizes available*												
			2"	2" x 2 1/4"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
H-667	Mechanical joint	Cast iron, ductile iron	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Class 200 cast iron O.D. PVC plastic, AWWA C900				✓	✓	✓	✓	✓					
H-642	Asbestos-cement	Machined end class 150 and 200 A/C			✓	✓			✓	✓					
		Machined end class 100, 150 and 200 A-C						✓	✓						
		Machined end or rough barrel class 100, 150 and 200 asbestos-cement				✓	✓								
H-662	Calked type	Cast iron	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		ME or RB class 100, 150 and 200 asbestos-cement			✓	✓	✓	✓							
H-637	Mueller® Slip-On (less gasket)	Cast iron, ductile iron	✓	✓	✓	✓	✓	✓	✓	✓					
H-641	Mueller® Slip-On (with Lok-Tyton® gasket)	Lok-Tyton or class 150 and 200 cast iron O.D. PVC plastic, AWWA C900	✓	✓	✓	✓	✓	✓	✓	✓					
H-681	Mueller® Slip-On (with Mueller Slip-On Gasket)	Cast iron**, ductile iron	✓	✓	✓	✓	✓	✓	✓	✓					
H-696	Radial compression	Steel O.D. size (IPS) PVC plastic††	✓			✓									

*Nominal sizes.

**Fits plain end of all cast iron pipe, classes 150, 200 and 250, manufactured to specifications ANSI A21.6 and ANSI A21.8 including all makes of cast iron pipe of the slip connection type.

†Lok-Tyton is a registered trademark of U.S. PIPE AND FOUNDRY CO.

††ASTM D2241 or ASTM D1785.

The design and dimensions of the Slip-On Joint are manufactured under license of U.S. PIPE AND FOUNDRY CO.

MUELLER CO. DECATUR, ILL.

Order by quantity, size, catalog number and direction of opening

New

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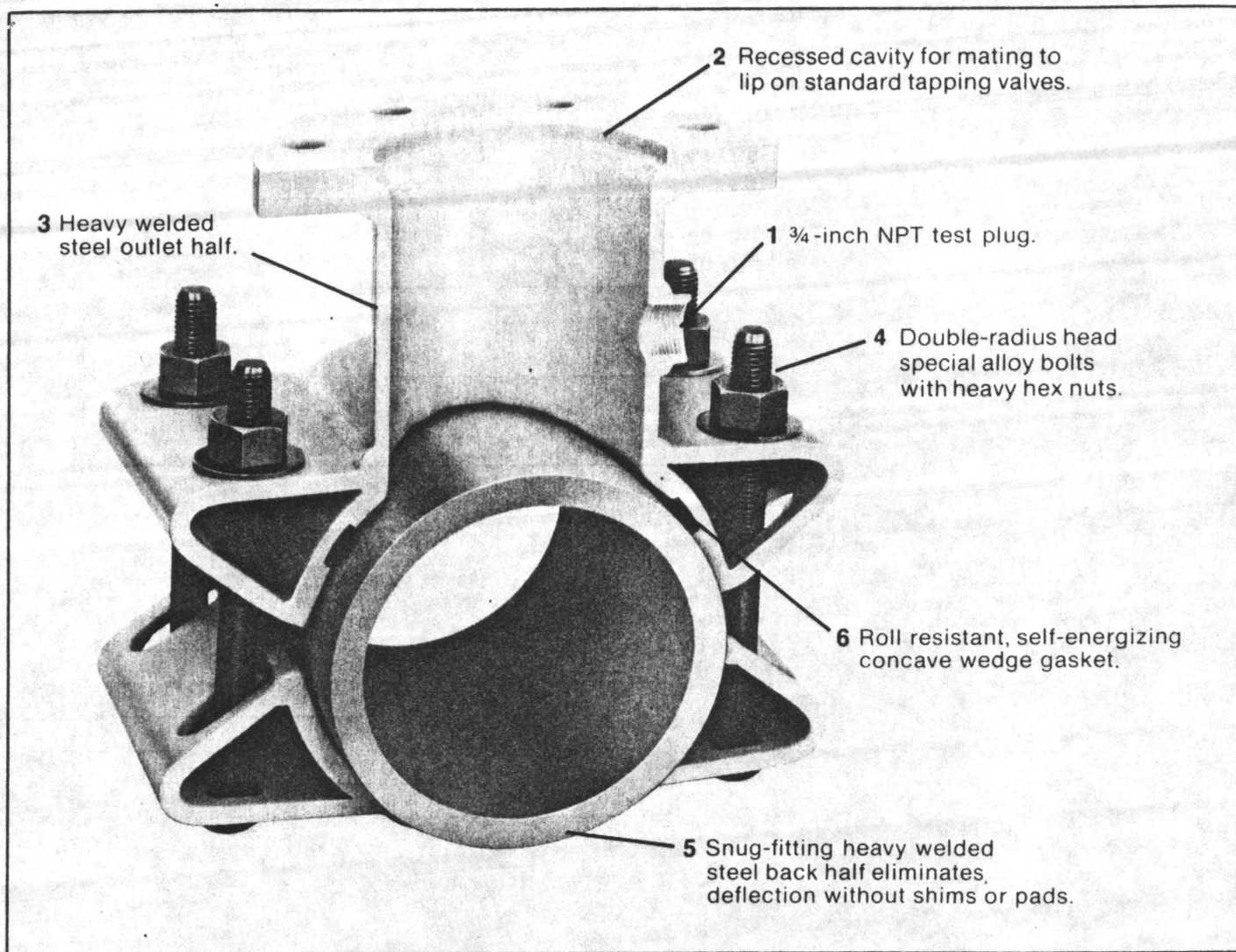
enwright associates
Greenville, South Carolina

Date 5-18-83 By A.P.A.

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DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	<u>PKL</u>	<u>PKL</u>
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____



ROCKWELL 622 TAPPING SLEEVES

Rockwell's 622 Tapping Sleeves consist of two sections of heavy welded steel which bolt together on the pipe and seal against a concave wedge gasket around the tap opening. The outlet half has a flat faced flange that is recessed to mate with standard tapping valves per MSS SP60 up through 12-inch size-on-size. For tap sizes 14-inch and above, the flanges can be furnished to accommodate the valve requirements. The outlet half also has a 3/4-inch NPT test plug.

Rockwell Tapping Sleeves are fast and easy to install with simple hand tools, require no caulking or special equipment, and may be used with any standard tapping valve. The sleeve design directly reinforces pipe without shims or pads . . . and also weighs less than heavy cast iron sleeves. The self-energizing gasket will not roll or bind on installation, and has a generous cross section to assure a good seal every time. The built-in range of Rockwell Tapping Sleeves means one sleeve fits several classes of pipe.

POPULAR SIZES IN STOCK

© Rockwell International Corporation 1979

BUILT IN BENEFITS

REDUCES INVENTORY . . . built in range means one sleeve fits both classes of cast iron or asbestos cement pipe.

TIME SAVING . . . normal crew can install and complete tap in less time than it takes to install a caulk type sleeve.

EASE OF INSTALLATION . . . No caulking, welding or special tools needed. A wrench to tighten bolts is the only tool required to install sleeve on pipe.

REINFORCES PIPE . . . sleeve design directly reinforces pipe without need of shims or pads . . . also weighs less than heavy cast iron sleeve.

NON-STANDARD SIZES AVAILABLE . . . sleeves with heavy flanges or for non-standard size pipe are available on request.

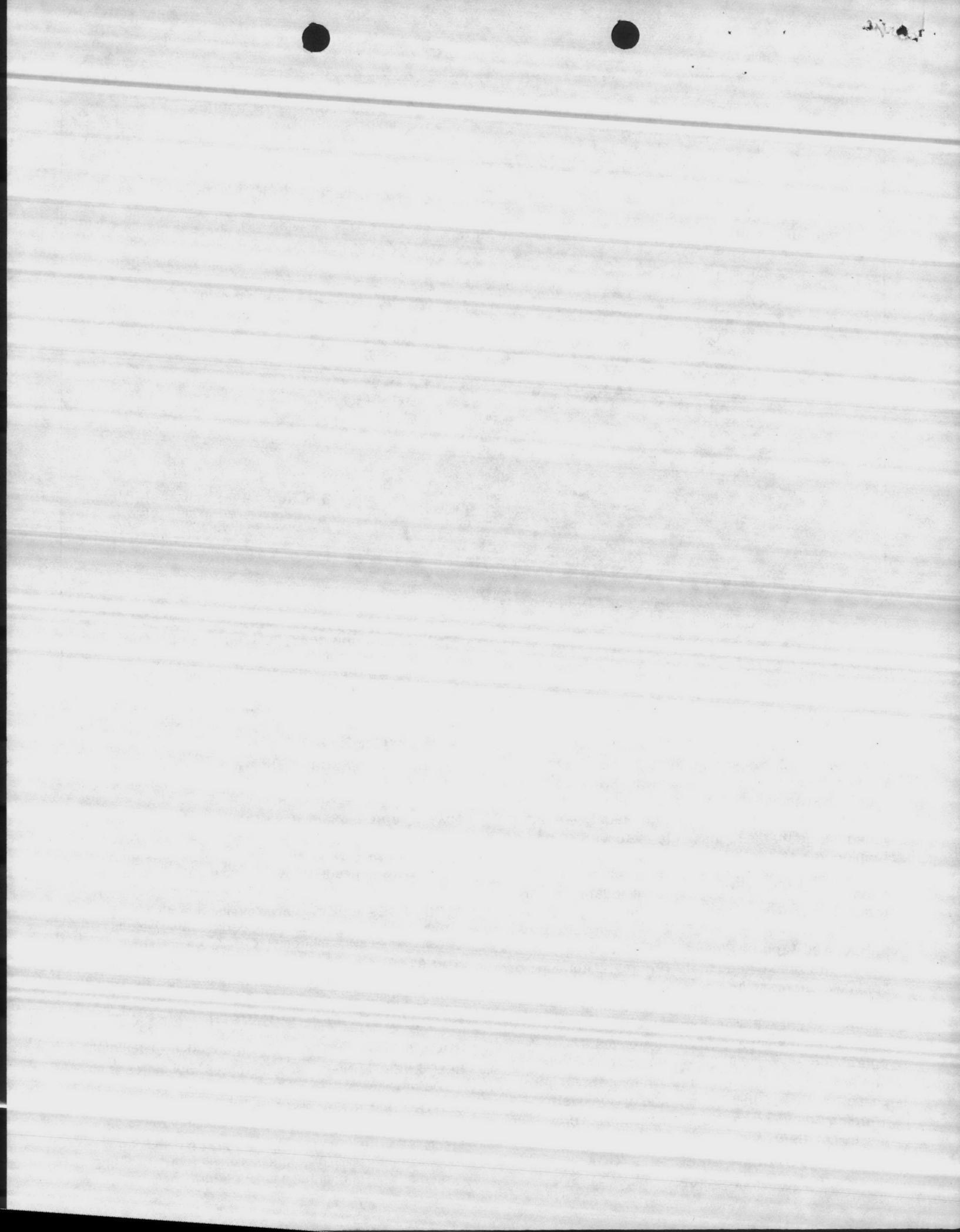
EXCLUSIVE CONCAVE WEDGE GASKET

ROLL RESISTANT . . . will not roll or bind on installation.





SELF-ENERGIZING . . . seal increases with increase in line pressure.

GENEROUS CROSS SECTION . . . assures a good seal everytime, even on rough, pitted, or out of round pipe.

FIELD TESTED . . . field tests as well as lab tests have consistently proven wedge gasket superior to O-Ring, modified O-Ring, or flat gasket performance.



SELECTION GUIDE TO ROCKWELL TAPPING SLEEVES

PRODUCT	PRODUCT NUMBER AND TYPE	APPLICATION	FOR PIPE SIZES
	622 Tapping sleeve	Reducing and size on size outlets on all types of pipe	6" & larger
	623 Tapping sleeve	Size on size outlets requiring sleeve with side and end gaskets	6" & larger
	625 Tapping sleeve for concrete cylinder pipe	Reducing outlets on concrete steel cylinder pipe	12" & larger
	626 Weld on outlet	Reducing outlet that can be welded onto any steel pipe	6" & larger

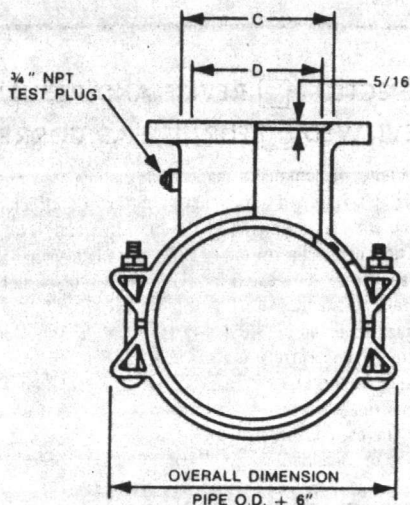
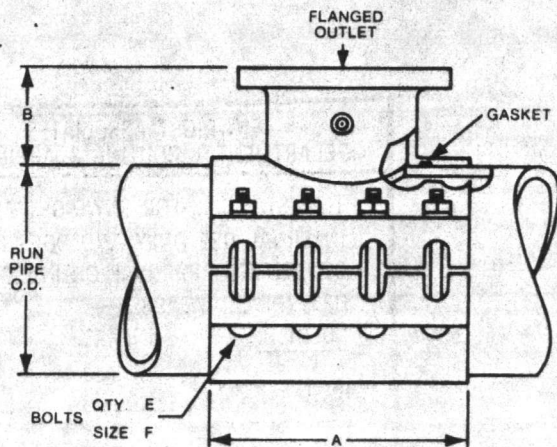
622 TAPPING SLEEVE SPECIFICATIONS

OUTLET SMALLER THAN RUN						
Flange Size	A	B	C	D	E	F
4	12	5-3/16	5-1/32	4 1/2	6	3/4
6	12	5-5/8	7-1/32	6	6	3/4
8	16	6	9-1/32	8	8	3/4
10	20	6-1/2	11-1/16	10	10	3/4
12	20	6-3/4	13-1/16	12	10	3/4

For tap sizes 14" and larger, tapping valve to be used must be specified to ensure the mating recess in the flange is the proper size.

SIZE ON SIZE ONLY						
RUN AND OUTLET SAME NOMINAL SIZE						
Flange Size	A	B	C	D	E	F
6	12	5	7-1/32	6	6	3/4
8	16	5-1/8	9-1/32	8	8	3/4
10	20	5-1/2	11-1/16	10	10	3/4
12	24	5-3/4	13-1/16	12	12	3/4

Size on size tapping sleeves require use of a 1/2" undersize shell cutter.



MATERIAL SPECIFICATIONS:

BODY: Carbon steel ASTM A285 Grade C.

FLANGES: AWWA C207 Class D, ANSI 150 lb. drilling.

GASKET: Grade 60 Concave Wedge Gasket—compounded to resist—oil, natural gas, acids, alkalis, most (aliphatic) hydrocarbon fluids, water and many chemicals. Temperatures up to 212°F.

BOLTS & NUTS: High strength low alloy steel with heavy semifinished hexagon nuts to AWWA C111 (ANSI A21.11) standards. Optional stainless steel bolts and nuts are type 304.

FINISH: Blue shopcoat enamel. Optional—fusion bonded epoxy, coated to an average of 12 mil thickness.

Material specifications are subject to change.

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enwright associates
Greenville, South Carolina

Date 5-18-83 By A.P.L.

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DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
M'CHICAL	_____	_____
ELECTRICAL	_____	_____
WATER	<u>FRV</u>	<u>RV</u>
AIR	_____	_____
WASTE WATER	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

CONTRACTOR'S SUBMITTAL TRANSMITTAL

5ND LANTDIV 4-4355/3 (Rev. 6/76)

CONTRACT NO. 82-C-4551	TRANSMITTAL NO. 6	DATE 5-04-83
---------------------------	----------------------	-----------------

FROM CONTRACTOR
 East Coast Construction Co., Inc.
 Enwright Associates, Inc.
 P.O. Box 5287, Station B, Greenville, SC 29506

PROJECT TITLE AND LOCATION
 Replace 3 Water Wells
 MCB, Camp Lejeune, N. C.

CONTRACTOR USE ONLY

REVIEWER USE ONLY

*List only one specification division per form.

**ACTION CODES

List only one of the following categories on each transmittal form,
 and indicate which is being submitted

- A-Approved
- D-Disapproved
- AN-Approved as noted
- RA-Receipt acknowledged.
- C-Comments
- R-Resubmit

- Contractor Approved
 OICC Approval
 Deviation/Substitution For OICC Approval

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	15801-3.1	Exhaust fans	7		
2	15801-3.2	Electric heaters	7		
3	15801-3.3	Louvers	7		
		ROUTING ORDER INT			
		60			

CONTRACTOR'S COMMENTS

4	
5	
6	
7	
8	

RECEIVED

MAY 9 1983

ENWRIGHT ASSOCIATES

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC
 RETURN TO 02

CONTRACTOR REPRESENTATIVE (Signature)
James H. Boehm

DATE RECEIVED BY REVIEWER FROM (Reviewer) TO

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

COPIES TO: ROICC (2) LANTDIV (1) A-E (1)	DATE	SIGNATURE
---	------	-----------

ROICC OFFICE
 RECEIVED
 MAY 11 1983

MAY 20 11 15 AM '83

RECEIVED
ROICC JAXNCA

RECEIVED

Chet Adams Company

Sales Engineers

HEATING

AIR CONDITIONING EQUIPMENT

VENTILATING

AIR POLLUTION SYSTEMS

ENERGY CONSERVATION

April 28, 1983

SUBMITTAL DATA

Project: Three (3) Water Wells
Camp Lejeune, N. C.

Contractor: East Coast Construction Company
P.O.# 1226

Sales Rep: Chet Adams Company
Raleigh, N. C.

Manufacturer: Ilg Industries
Markel Electric Products
Vent Products Co., Inc.

EXHAUST FANS - ILG INDUSTRIES

3 - PV 123 Direct drive propeller wall fans, 800 CFM @ 1/4" SP, 1600 RPM, 1/12 HP, 115 volt, single phase with rear guard, gravity shutter and thermostats.

ELECTRIC UNIT HEATERS - MARKEL ELECTRIC PRODUCTS

3 - Model HF683T Electric unit heater, 2250 Watts @ 208 volt, single phase with built-in thermostat and wall/ceiling mounting bracket.

LOUVERS - VENT PRODUCTS CO., INC.

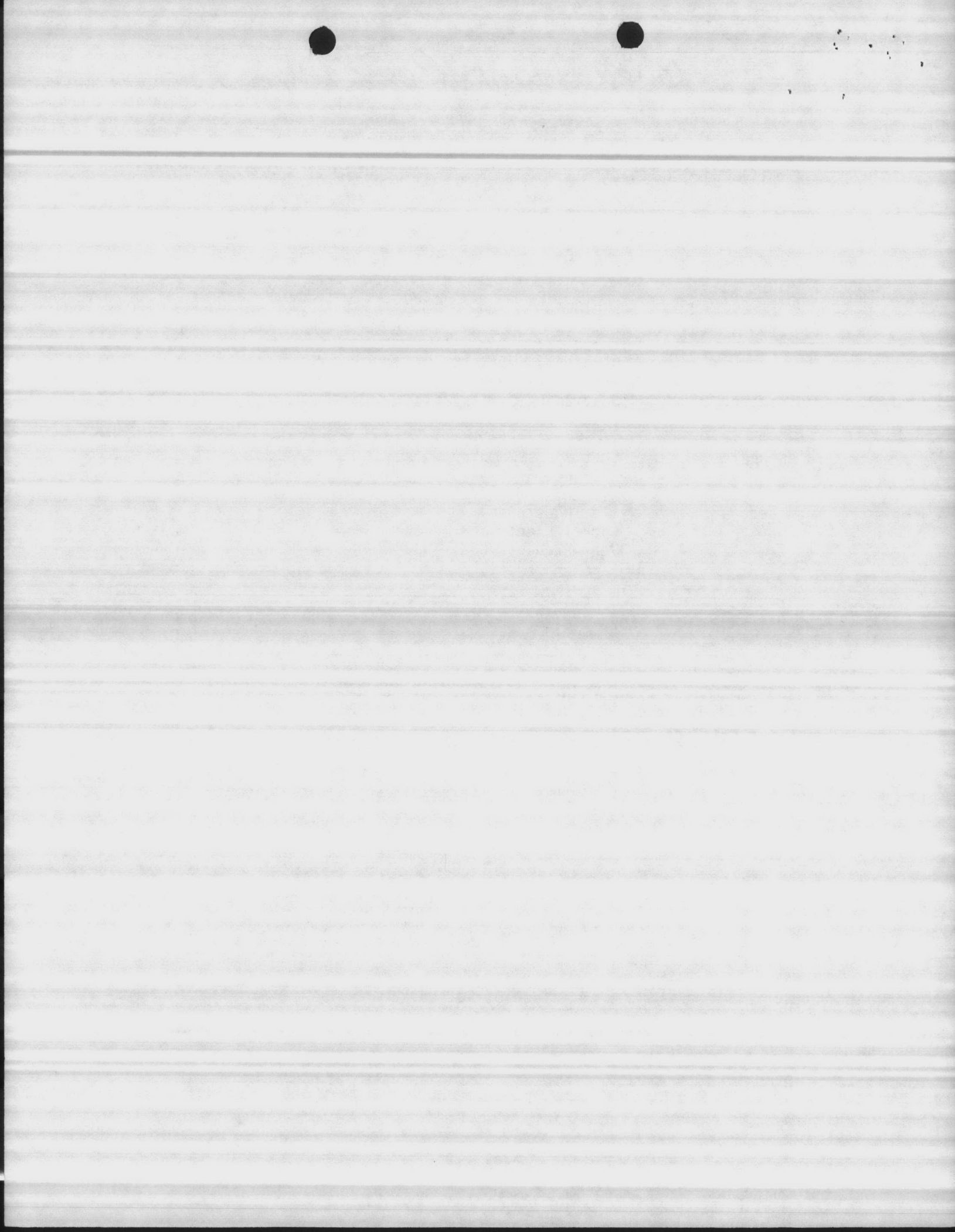
Radiator
Exhaust

3 - 24" x 24" #2700 Extruded aluminum fixed louver with 1/2" x 1/2" x .063 aluminum removable birdscreen on exterior face, channel frame and bronze anodized finish.

Intake
Louvers

6 - 24" x 24" #2700 DITTO above.

3 - 24" x 24" BD2/A1 Shipman Industries gravity shutter with channel frame.



Submittal Data
Three (3) Water Wells
Camp Lejeune, N.C.
April 28, 1983
Page 2

LOUVERS (continued)

3 - 24" x 24" #5803 Opposed blade galvanized control damper
with stainless steel side seals, bulb edge seals, 115 v.,
single phase motor operator.

LOUVER NOTES:

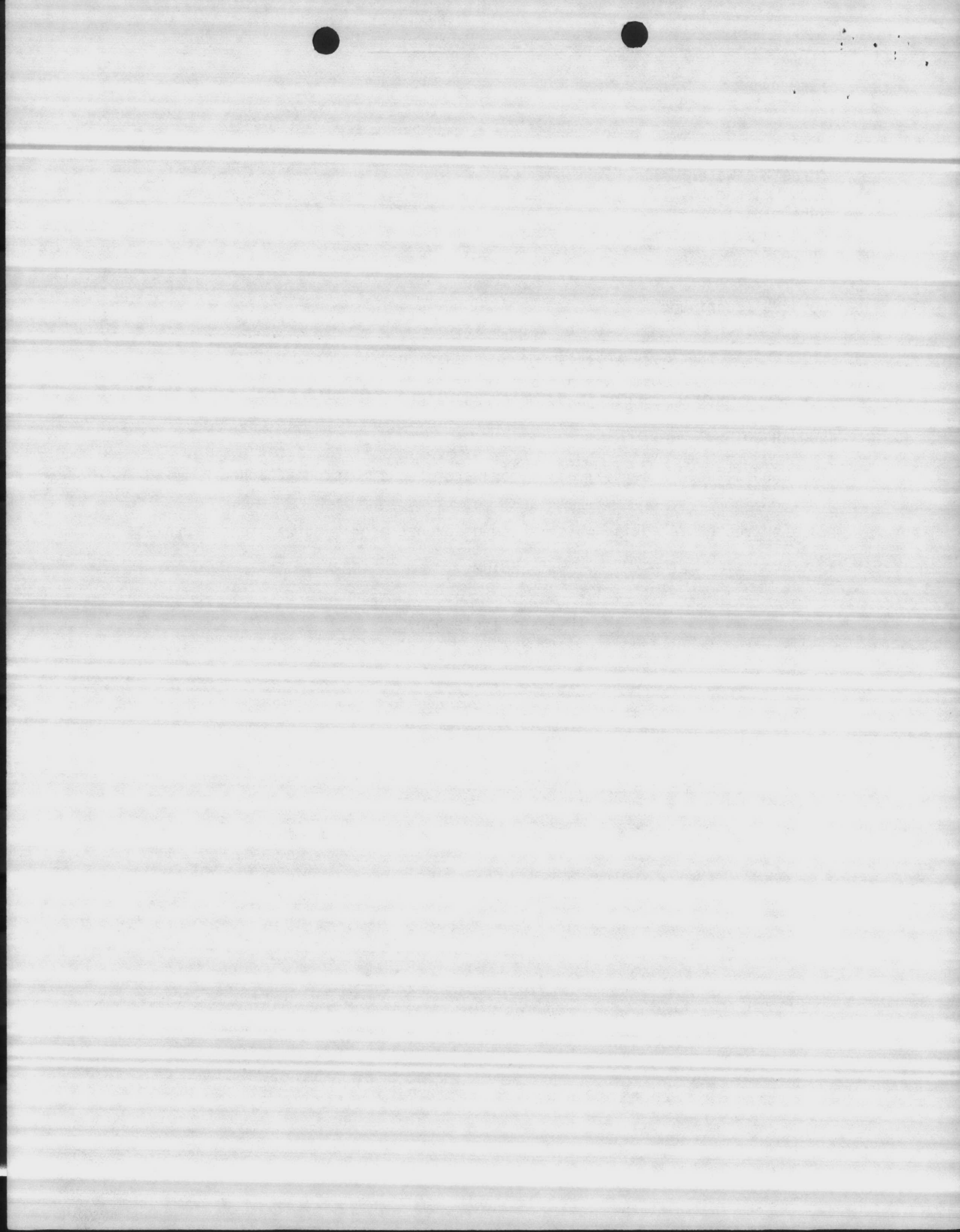
1. Manufacturer's certification for water and air is on attached Form
No. 2705.
2. Contractor to advise which shade of bronze anodizing we are to furnish:

LIGHT

MEDIUM

DARK

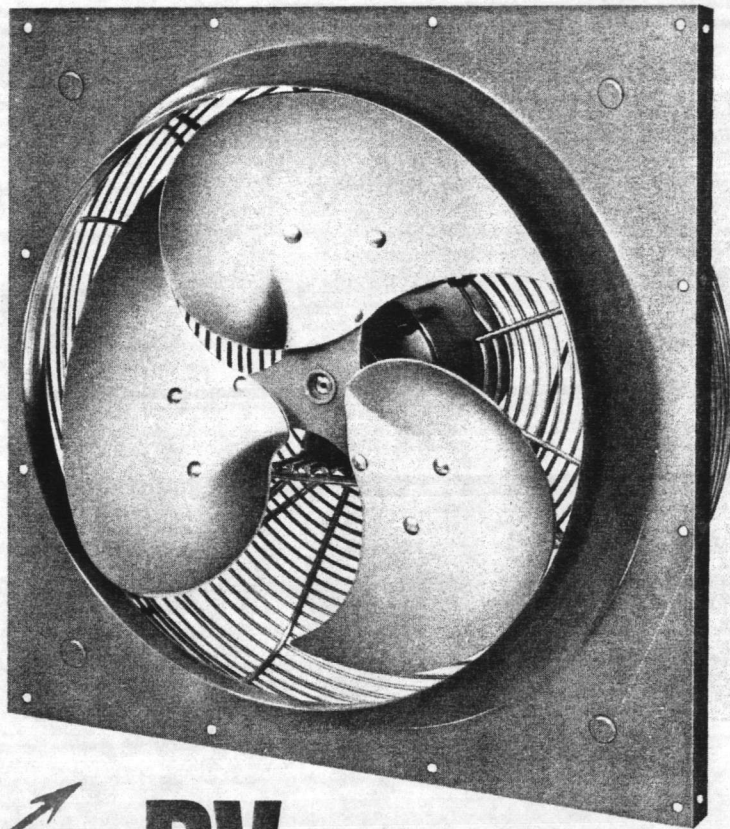
(Please circle one)



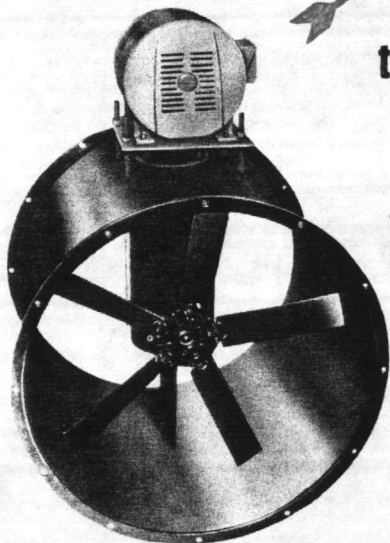


Bulletin
DB1-101
1/83

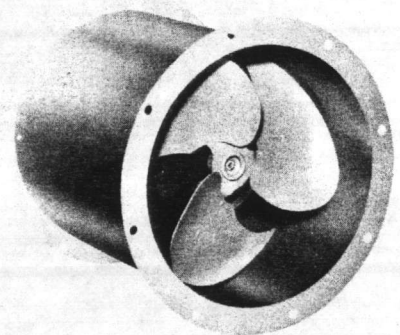
Selection Guide for Quality **AXIAL FANS**

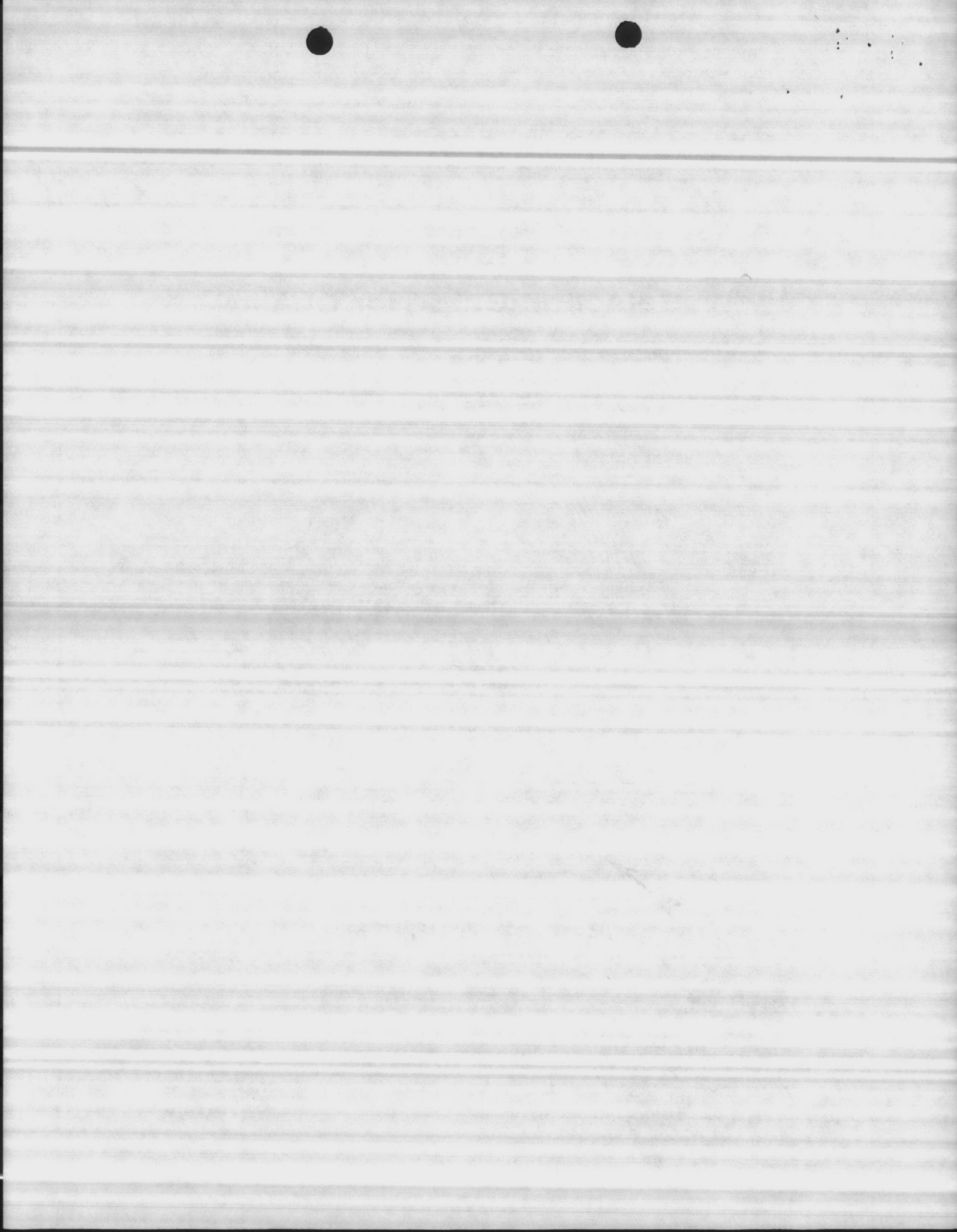


type **PV** Propeller Fans



types **PTB** and **PTD**
tubeaxial duct fans



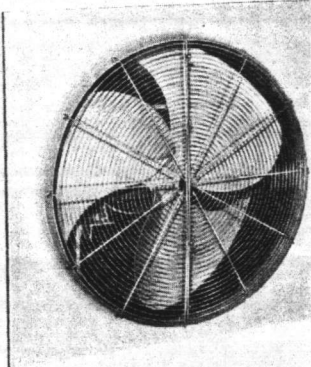


PROPELLER FAN ACCESSORIES

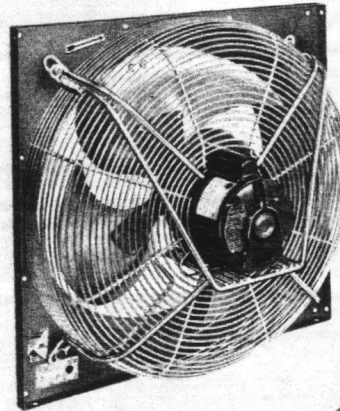
Accessories and options increase the versatility of the PV Propeller Fan and offer the user a custom designed fan for the specific application. Modifications are essential in certain situations for optimum performance and operation, for safety requirements and for simplified maintenance needs.

PROPELLER FAN GUARDS

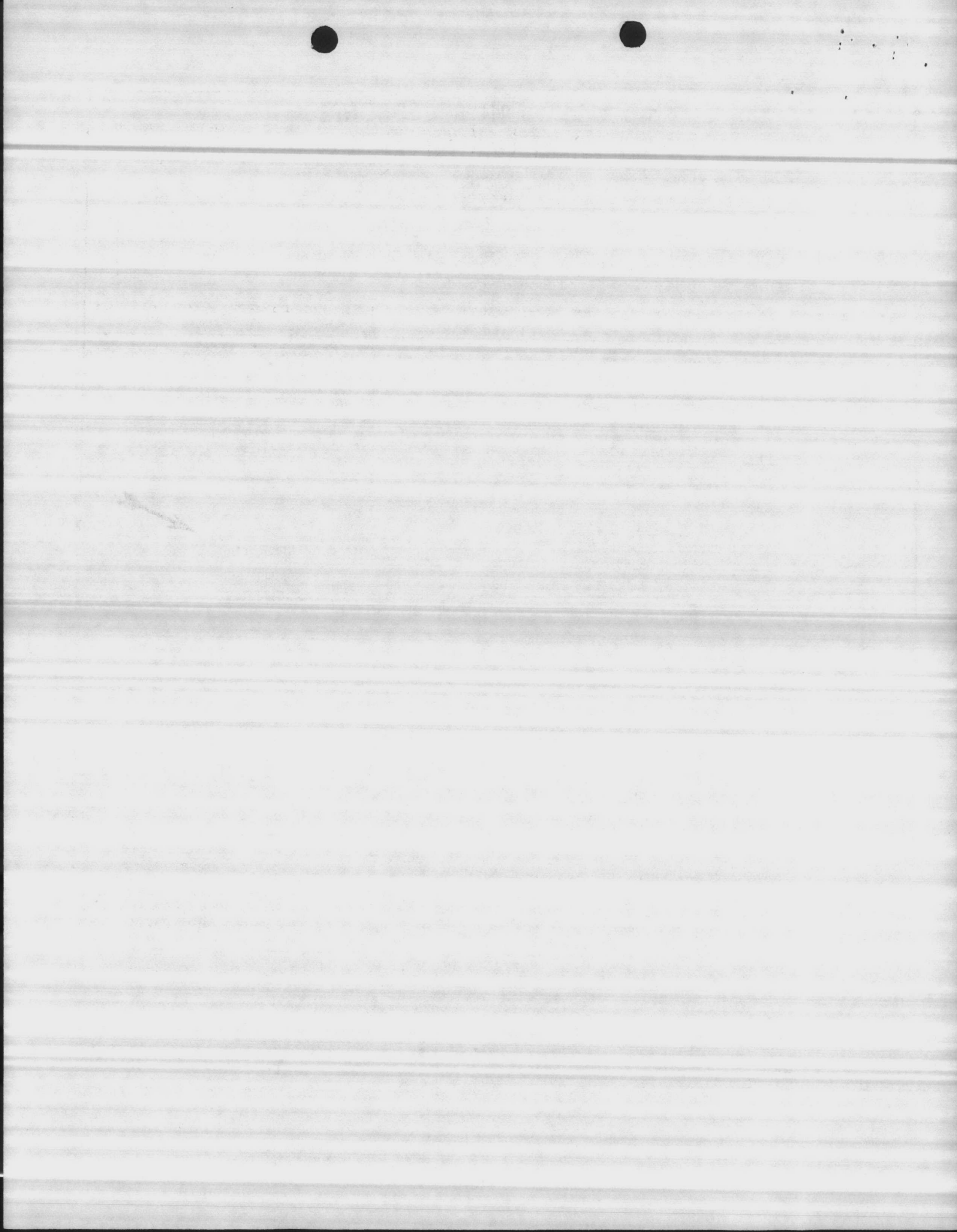
Propeller fans installed less than seven feet above the floor or working level should be protected with 1lg steel wire fan guards, both motor-side and discharge guards.



Discharge-side fan guards are available as optional extras for all 1LG square panel propeller fans.



Motor-side fan guards are standard equipment on PV-X fans through 213; available as optional extra on larger sizes.



TYPE PV PROPELLER FANS

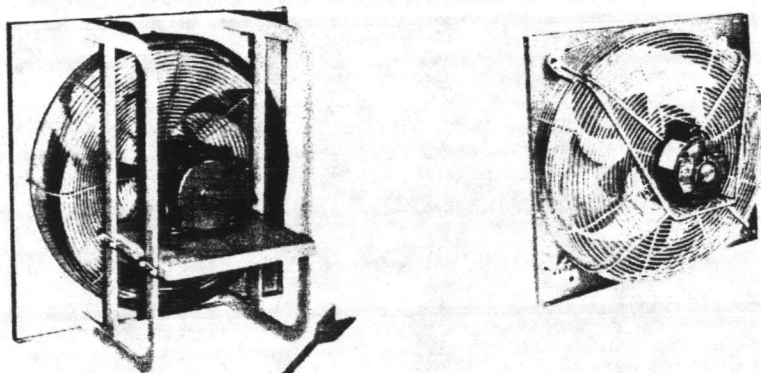
- Capacities from 205 to 35,279 cfm
- Designed to handle large volumes of air with low power output
- Operates against static pressures to 5/8"
- Durable heavy-gauge steel panels
- Pre-drilled holes for quick mounting, recessed or surface
- Two types of fan wheel available:
Type "Q" . . . for whisper-quiet operation
Airfoil, 5 or 9-blade, for operating against higher pressures
- Vertical operation

All ILG PV fans are suitable for vertical up or vertical down operation. When fan is intended for vertical down use (motor above, fan blowing down), the addition of a discharge-side fan guard is recommended.

Propeller fans installed less than seven feet above the floor or working level should be protected with 1/2" steel wire fan guards, both motor-side and discharge guards.

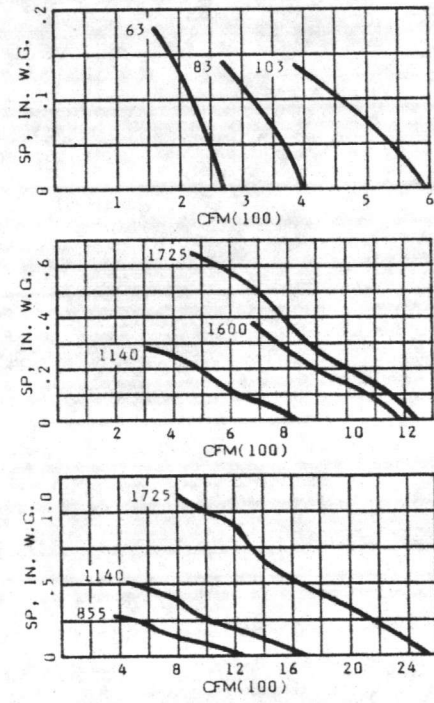


ILG INDUSTRIES certifies that the type PV fans shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests made in accordance with AMCA Standard 210 and comply with the requirements of the AMCA Certified Ratings Program.

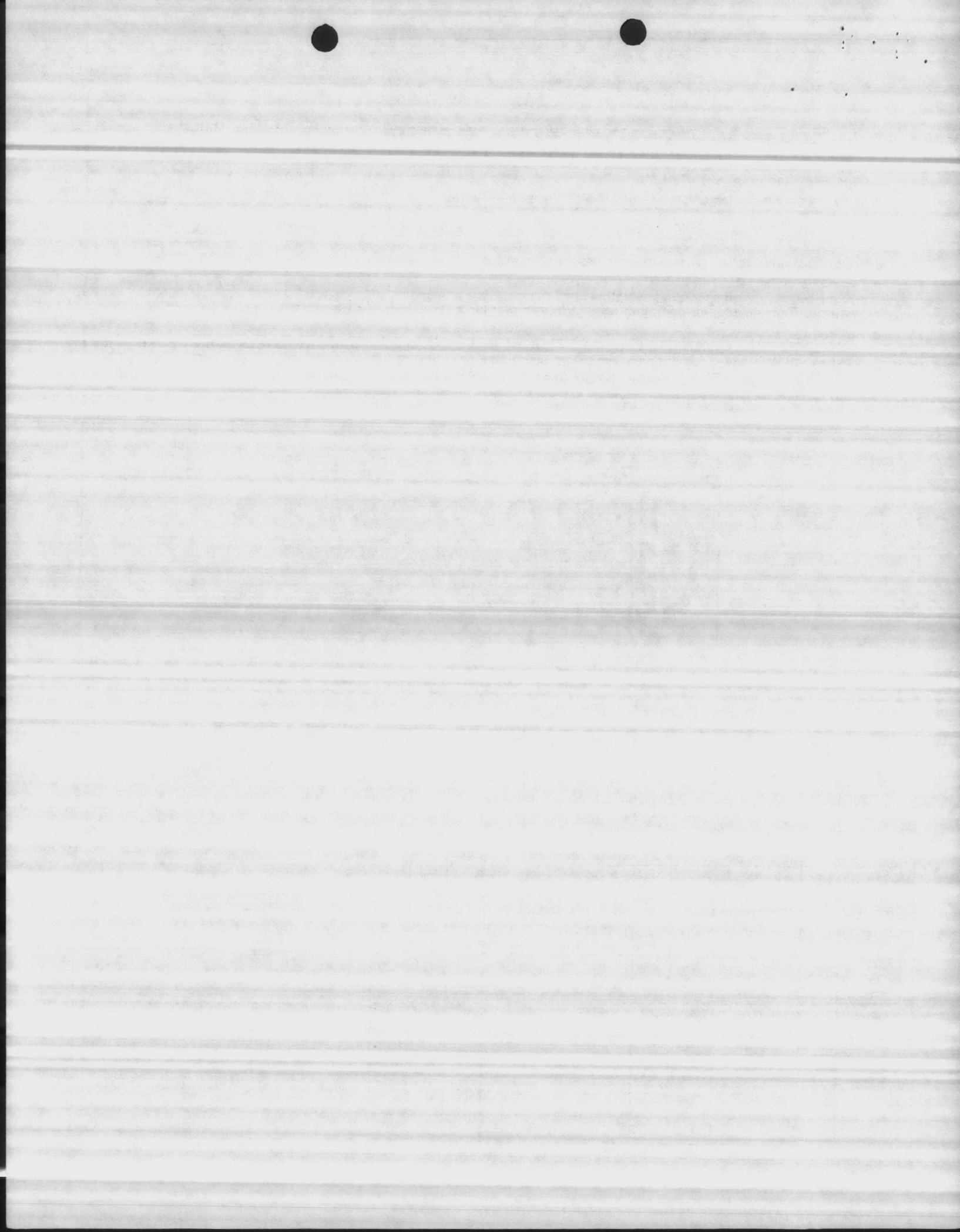


Units with Nom. RPM are rated at actual operating RPM, all others rated at constant RPM as indicated.

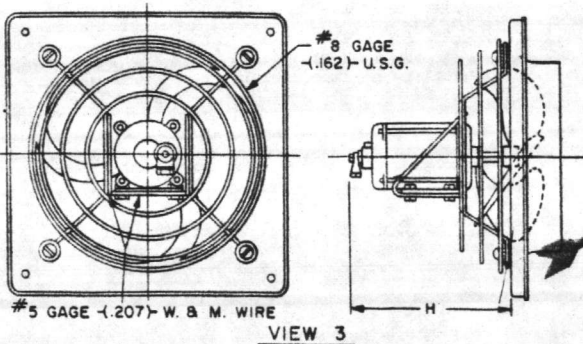
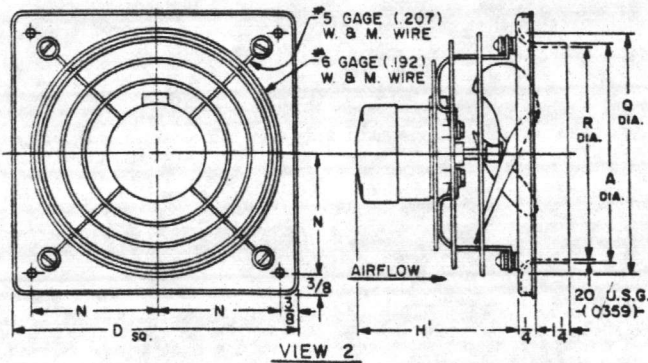
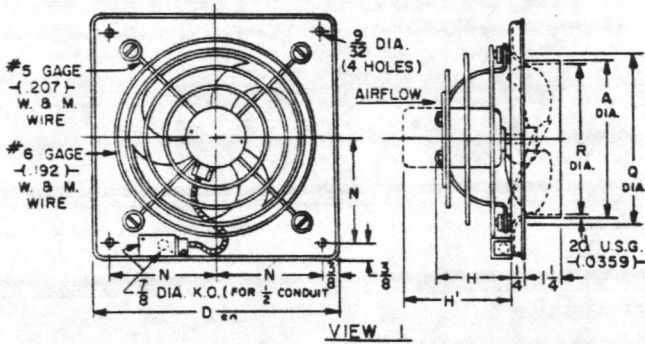
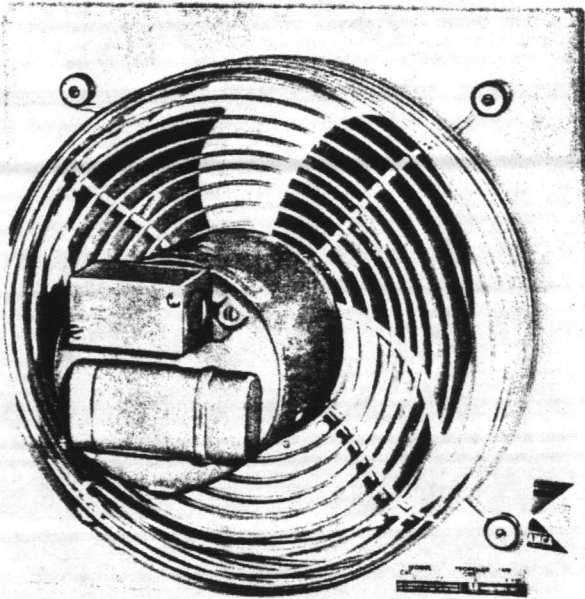
UNIT SIZE	RPM	MOTOR HP	TIP SPEED	0 SP	1/8 SP	1/4 SP	3/8 SP	1/2 SP	5/8 SP	3/4 SP	1 SP
PV 63/25	2900 Nom.	† 1/80	4555	272 0.012	205 0.012						
PV 83/26	1650 Nom.	† 1/40	3483	400 0.012	289 0.015						
PV 103/20	1550 Nom.	† 1/40	4058	594 0.016	413 0.019						
PV 123/28	1600 Nom.	† 1/12	4974	1188 0.058	1035 0.071	827 0.076	674 0.087				
PV 123/28	1725	1/6	5363	1239 0.067	1124 0.086	926 0.094	801 0.107	697 0.126	509 0.153		
PV 123/28	1140	1/8	3544	819 0.019	584 0.028	394 0.041					
PV 163/25	1725	3/4, 1/2, 1/3	7282	2534 0.212	2352 0.243	2136 0.272	1893 0.297	1640 0.334	1436 0.385	1319 0.448	1000 0.660
PV 163/25	1140	1/4, 1/8	4813	1675 0.061	1368 0.080	1002 0.104	818 0.144	487 0.252			
PV 163/25	855	*	3609	1256 0.026	805 0.041	480 0.084					



† Three speed switch available for 115 Volt operation.
* Second speed of a two speed motor.
Performances given are CFM and BHP at various static pressures for unit without inlet or discharge ducts. Shaded performances require a similarly shaded motor horsepower.



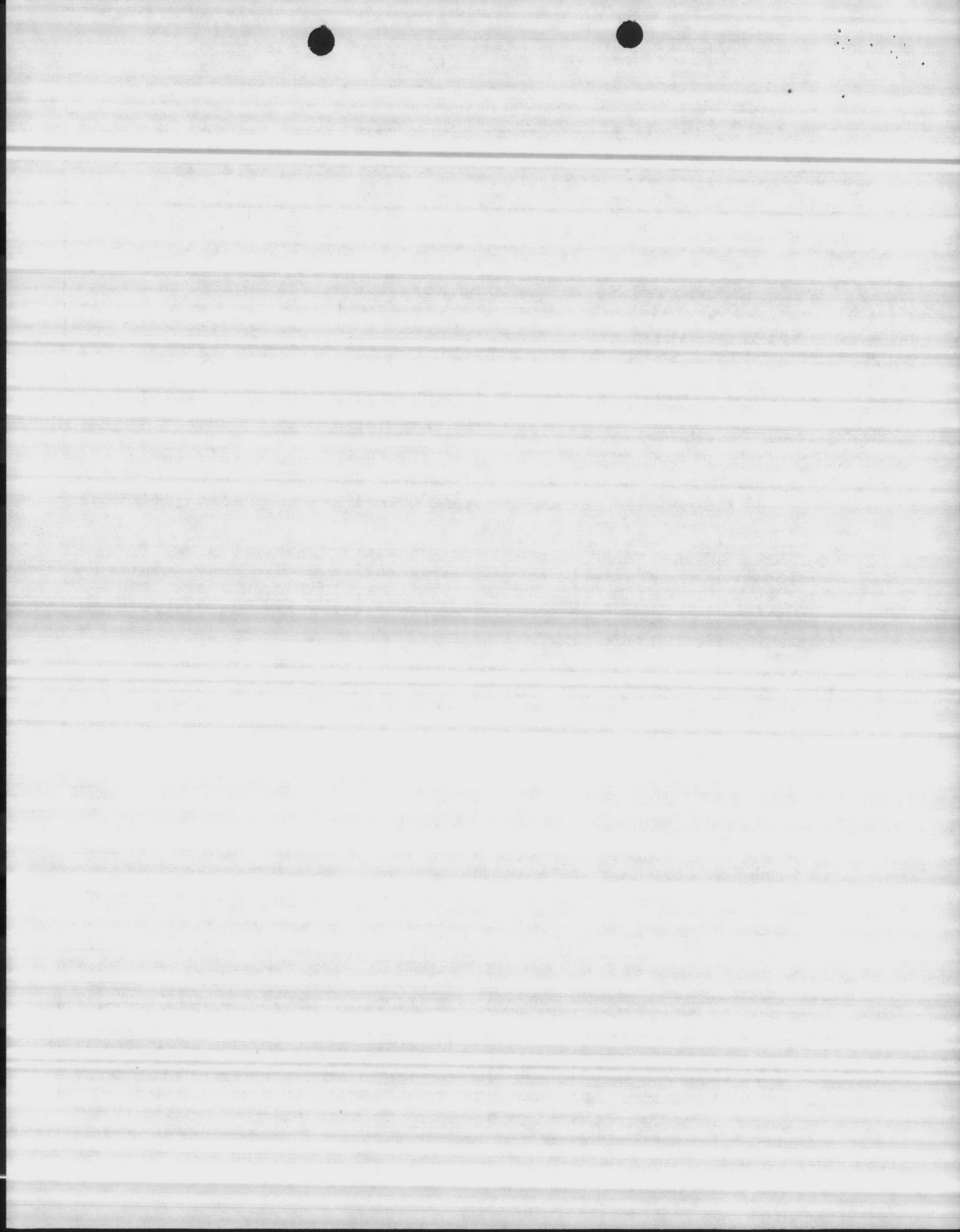
PROPELLER FANS
TYPE PV 63-123 & PVX 123



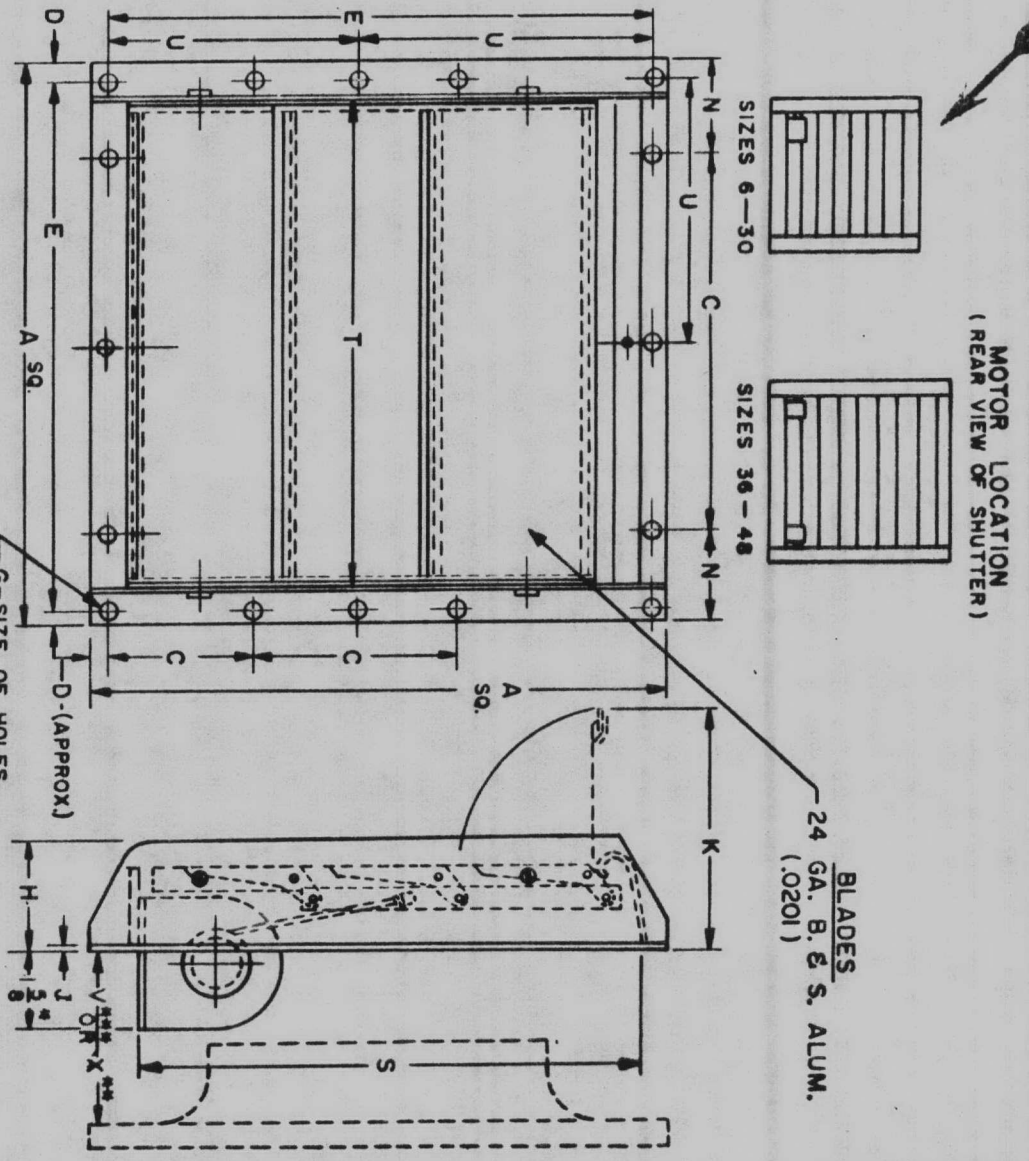
FEATURES

- Capacities from 272 to 1188 CFM.
- Standard Safety Guard.
- Operate against static pressures up to 1/2".
- Designed to handle large volumes of air with low power output.
- Durable heavy gauge steel venturi panels.
- Type Q whisper quiet wheel.
- Pre-punched holes for mounting recessed or surface.
- Suitable for vertical up or down operation. (When fan is intended for vertical down (motor above, fan blowing down) a discharge guard is recommended.)

SIZE	SPEED	WHEEL DIA.	A	D	H	H' A.C.	N	Q	R	VIEW
PV 63	2900	6	6 11/32	12	—	4 1/8	5 5/8	7 3/4	6 1/4	
PV 83	1650	8	8 15/32	12	4 1/8	—	5 5/8	9 3/4	8 3/8	1
PV 103	1550	10	10 19/32	14	4 1/8	—	6 5/8	11 3/4	10 1/2	
PV 123	1600	12	12 19/32	16	—	11 1/2	7 5/8	13 3/4	12 1/2	2
PVX 123	1725				—	11 5/8				3



DRAWN AL. LUTZ	4	SUPERSEDES AN-14895 ISS.3	AL. LUTZ-12-30-66	9	11	12	13	14	15	16	18	19	PLANOGRAPH
	5	FOR "X" COLUMN ONLY..... SIZE 16 WAS 4 1/2, SIZE 18 WAS 4, AND SIZE 21 WAS 5.-E.C. 6840-A.L.-6-27-75		20	21	22	26	28	30	34	89	34 R		P
CHECKED	ILG INDUSTRIES 2850 NORTH PULASKI ROAD, CHICAGO, ILLINOIS 60641 U.S.A.												
DATE DEC. 30, 1966	6" TO 48" AUTO. & MOTOR OPERATED SQ. PANEL TYPE SHUTTER DIMENSIONS AN-14895-5												

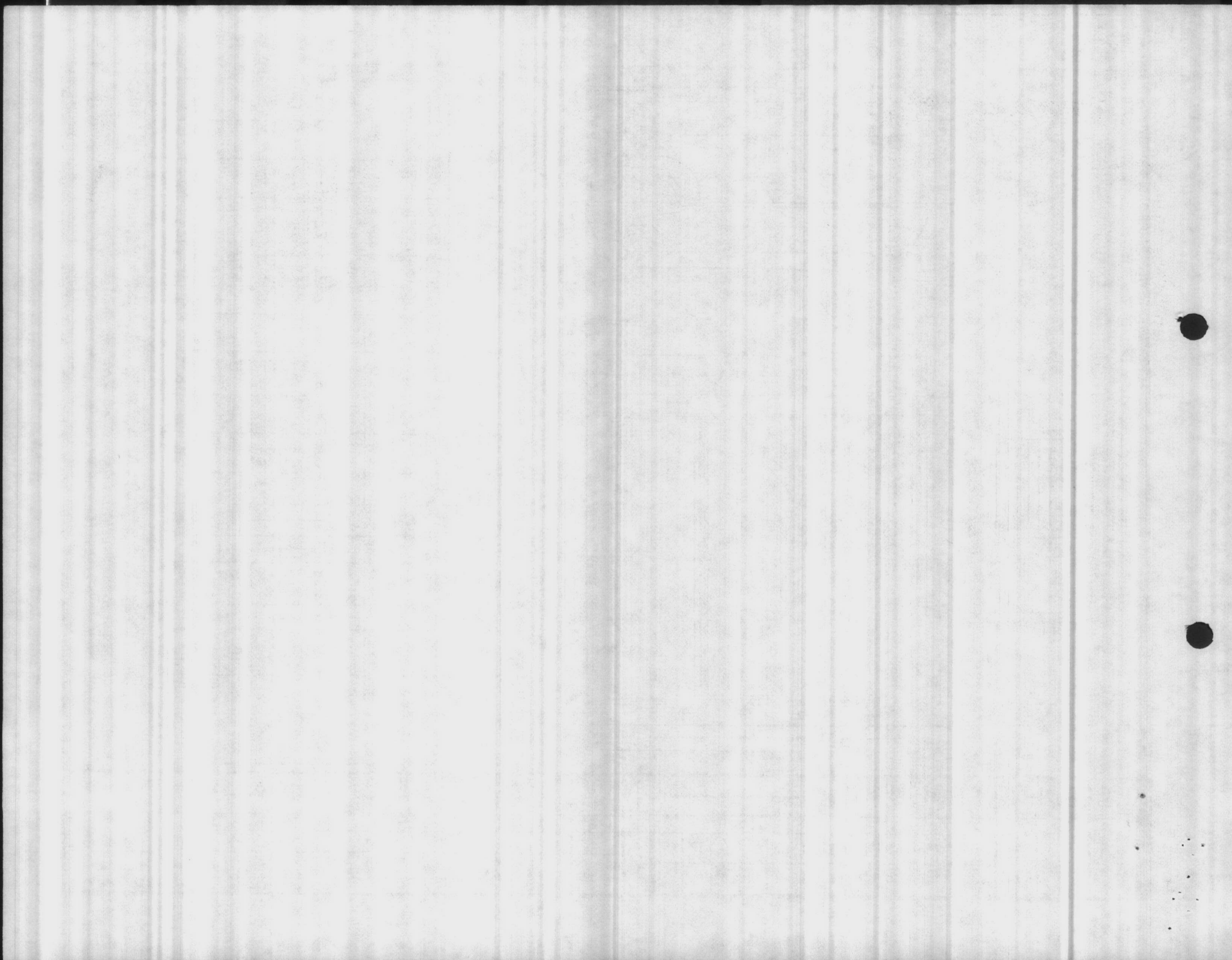


SIZE	A	C	D	E	G	H	J	K	N	R	S	T	U	V***	X***
6-8	12	—	—	11 1/4	—	2 5/8	—	4 9/16	—	4	8 5/8	8	—	—	2 7/8
10	14	—	—	13 1/4	—	—	—	5 1/4	—	—	10 1/2	10 1/8	—	—	2 7/8
12	16	—	—	15 1/4	—	—	—	6	—	8	12 1/4	12 1/16	7 5/8	—	2 7/8
16	22	6.8333	—	20 1/2	—	—	—	6 1/8	7 9/16	—	16 3/8	16 3/8	—	—	5 1/4
18	24	7.50	—	22 1/2	—	—	—	5 11/16	8 1/4	—	19	19 1/16	—	—	5
21	28	8.8333	—	26 1/2	—	—	—	6 1/2	9 1/16	—	22 1/8	22 1/4	—	—	6
24	32	10.1666	—	30 1/2	—	—	—	6 1/2	10 1/16	—	24 1/8	25 1/8	—	—	5 1/2
30	38	12	—	35 7/8	—	—	—	#8 6 1/16	12 1/16	12	31 1/8	30 1/4	—	—	5 3/4
36	44	14	—	41 1/8	—	—	—	USG 6 3/8	14 1/16	14	37 1/2	37 1/2	—	—	4 1/2
42	50	16	—	47 1/8	—	—	—	.164 7 1/4	16 1/16	16	42 1/2	44 3/8	—	—	4 7/8
48	56	18	—	53 1/8	—	—	—	7	18 1/16	18	49 1/2	49 1/8	—	—	4 7/8

*-FOR MOTOR OPERATED ONLY.

**=SPACE REQUIRED BETWEEN FAN PANEL & SHUTTER FRAME TO CLEAR SHUTTER MOTOR. IF SHUTTER IS AUTOMATIC TYPE, SUBTRACT 15/8 FROM "X" DIMENSION.

***=SPACE REQUIRED BETWEEN FAN PANEL & SHUTTER FRAME WITH OR WITHOUT SHUTTER MOTOR.



Series 680

Bulldog

2000 through 5600 watts; 208, 240/208 and 277 volt Portable/suspended heavy duty residential/commercial unit heaters.

Designed for the most exacting commercial applications as a heavy duty portable, wall hung or ceiling suspended unit heater. Standard equipment includes: built-in hydraulic snap action thermostat, swivel base with rubber feet and perforations for wall or ceiling mounting, and adjustable knobs to lock heater in position. Wall and ceiling bracket (A 1560) can be used for azimuth adjustment. Two tone brown and beige finish case.



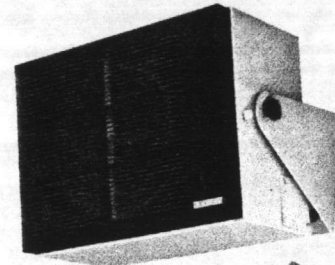
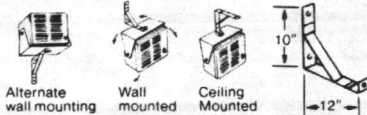
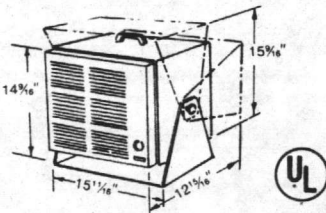
- Motor — industrial rated, totally enclosed, permanently lubricated, with thermal overload.
- Patented element — high mass steel finned sheath, zinc plated fins, large fin area provides longer trouble-free life.
- Automatic reset thermal cut-out disconnects element and motor if normal temperatures are exceeded.
- Thermostat control. Heavy duty 30 amp hydraulic snap-action type is built-in. Range of 35° to 85°F. Removable knob for tamperproof operation. Manual models available on special order.
- Cordset — 6 ft., type HS heavy duty with molded and grounded plug. Case has bottom knockouts for permanent wiring.

Series 680 and 690 SPECIFICATIONS

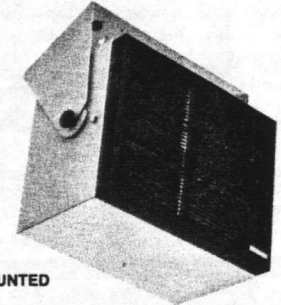
Equipped with built-in thermostat, 6' HS cord*, swivel base. For heavy duty portable use or can be attached to wall or ceiling with proper receptacle mounted adjacent to heater.

KW	208 Volts	240/208 Volts	277 Volts*
2/1.5	HF682T		
3			G693T
3/2.25	HF683T		
4			G694T
4/3	HF684T		
5	F685T		G695T
5.6/4.2	H686T		

All heaters single phase. *Cordset **not** included on 277 volt models. May be "hard" wired or customer may supply suitable cord. For wall thermostat control, turn built-in thermostat full up and remove knob. Guarantee — 680 and 690 Series: Elements, 5 years, — all other parts 1 year.



WALL MOUNTED



CEILING MOUNTED

Series 5200

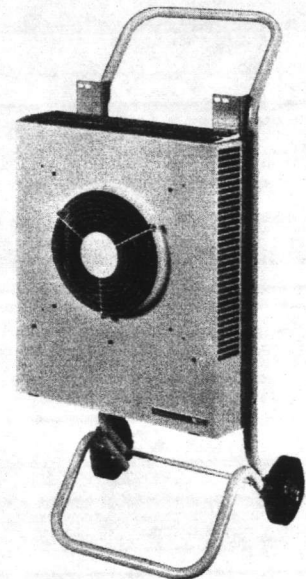
HIGH WATTAGE PORTABLE TASKMASTER

10Kw and 15Kw, 240/208 and 480 volt caddy mounted electric unit heater.

Taskmaster electric unit heaters are mounted on a two wheel caddy for easy portability in plants, warehouses or any floor location where large area spot heating is required. It has a built-in power disconnect switch and all the primary features of Series 5100 electric unit heaters.

Series 5200 SPECIFICATIONS

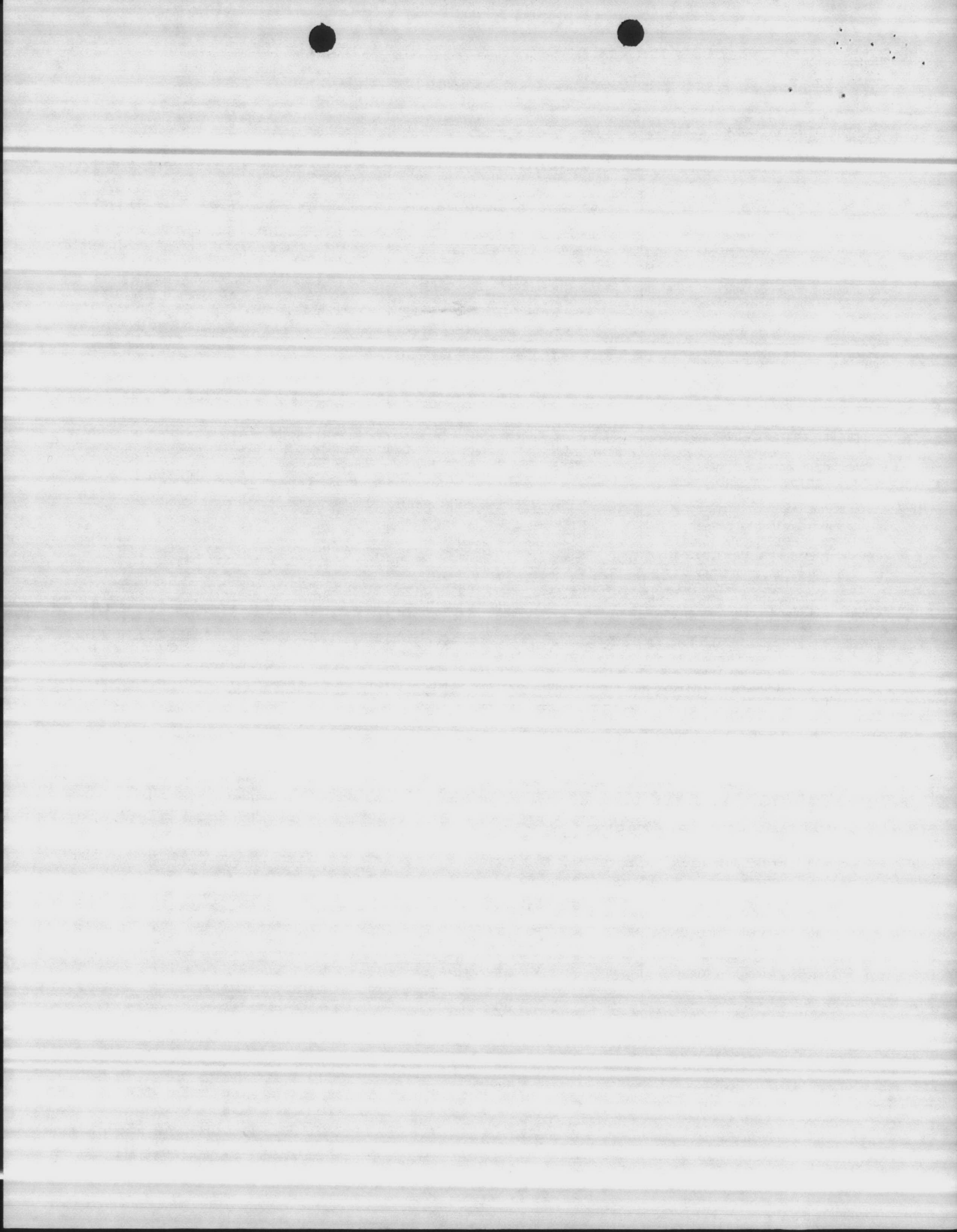
Kw	240/208 volt	480 volt	BTU/h (000)	Phase
10.0/7.5	HF2B5210CA1		34.1/25.6	1-3
10.0		P3P5210PCA1	34.1	3
15.0	HF3B5215CA1		51.2/38.4	3
15.0		P3P5215CA1	51.2	3



Markel

NuTone Division **Scovill**

601 Amherst St., Buffalo, New York 14207





AREST O VENT™ 2700

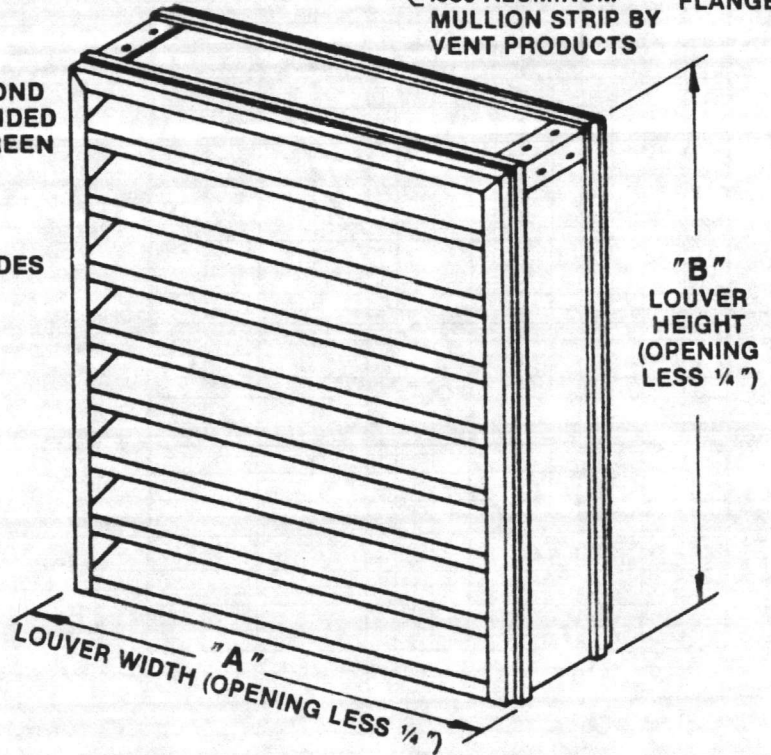
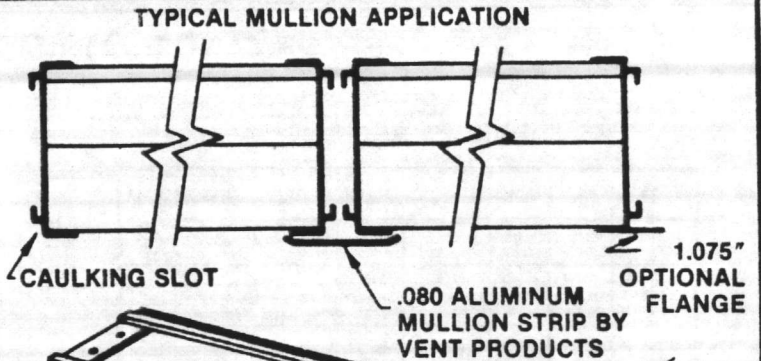
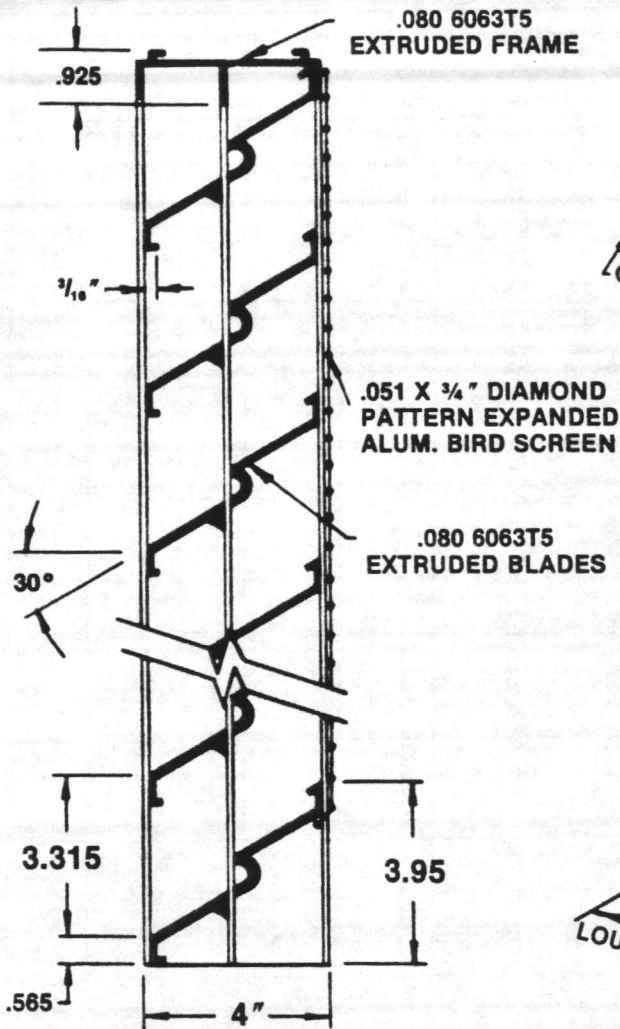
Extruded Aluminum Louvers

Stationary Blade @ 30°

U.S. Patent No. 3,645,195



VENT PRODUCTS



ENGINEERING NOTES

1. MAXIMUM SINGLE SECTION CONSTRUCTION: **A = 72" x B = 96"**. LARGER UNITS REQUIRE MULLIONS.
2. MINIMUM SIZE: **A = 4" x B = 8"**.
3. CONSTRUCTION: LOUVER BLADES DYNAMICALLY SEATED IN JAMBS. RIVETED CORNER BRACKETS. BLADES INTERMITTENTLY SUPPORTED AS REQUIRED.
4. FINISH: STANDARD MILL.
5. REFER: SUBMITTAL / ORDER SCHEDULE FOR OPTIONS.

PROJECT NAME: 3 Water Wells, Camp Lejeune

ARCHITECT: _____

ENGINEER: _____

CONTRACTOR: E. Coast Construction Co.

P.O. NUMBER: 1226 DATE: 4-28-83



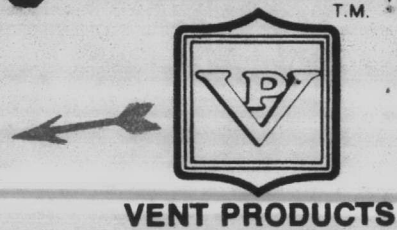
T.M.

VENT PRODUCTS CO., INC.

1901 S. Kilbourn Ave.
Chicago, Illinois 60623
Phone: 312-521-1900
Member of AMCA
Associate Member SMACNA

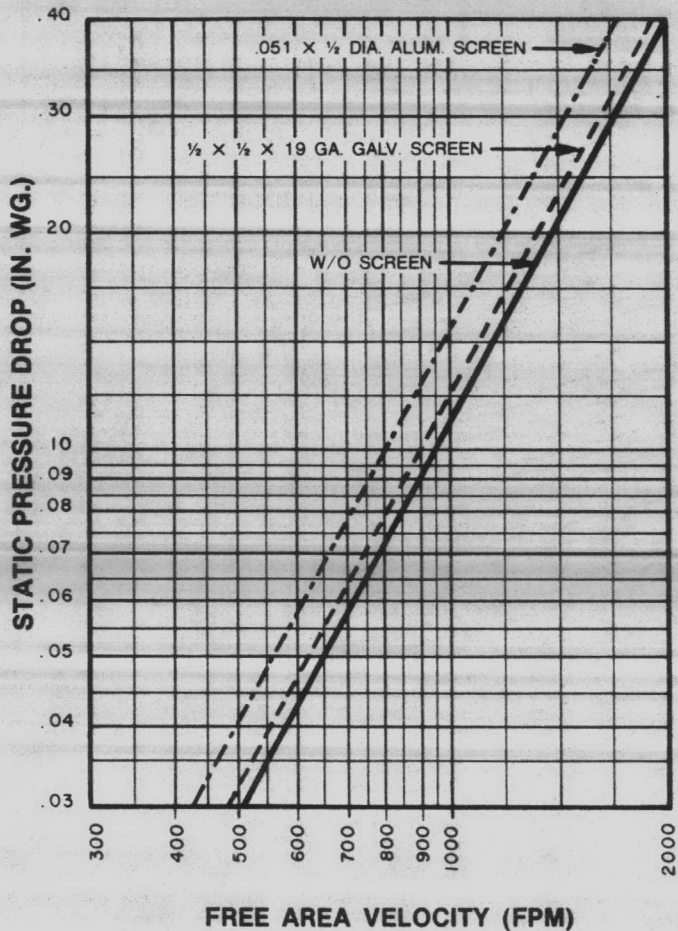


VENT PRODUCTS CERTIFIES THAT THE MODEL 2700 LOUVERS SHOWN HEREON ARE LICENSED TO BEAR THE AMCA SEAL. THE RATINGS SHOWN ARE BASED ON TESTS MADE IN ACCORDANCE WITH AMCA STANDARD 500 AND COMPLY WITH THE REQUIREMENTS OF THE AMCA CERTIFIED RATINGS PROGRAM. THE AMCA CERTIFIED RATINGS SEAL APPLIES TO AIR PERFORMANCE RATINGS AND WATER PENETRATION RATINGS.

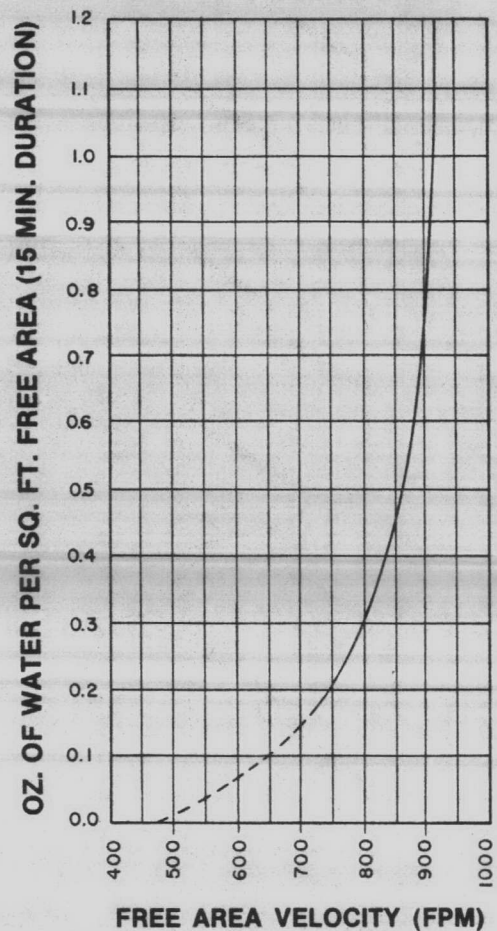


PERFORMANCE DATA MODEL 2700

AIR PERFORMANCE



WATER PENETRATION



THE ABOVE GRAPHS HAVE BEEN CORRECTED TO STANDARD AIR DENSITY, .075LB. PER CU. FT.

NOTE:

RECOMMENDED INTAKE DESIGN FREE AREA VELOCITY 475 F.P.M. WHEN MINIMUM WATER PENETRATION IS DESIRED.

TO DETERMINE PRESSURE DROP

1. USING LOUVER DIMENSIONS, DETERMINE FREE AREA OF LOUVER FROM CHART FORM NO. 2706.
2. FREE AREA VELOCITY IN FPM IS DETERMINED BY DIVIDING DESIGN CFM BY FREE AREA.
3. PRESSURE DROP CAN NOW BE DETERMINED BY LOCATING THE POINT AT WHICH THE SLANT LINE INTERSECTS THE DESIGNED FREE AREA VELOCITY. THE PRESSURE DROP IS THEN READ FROM THE VERTICAL SCALE ON THE LEFT.



MODEL 2700
Arest O Vent™ Series
Stationary Blade @ 30°
 U.S. Patent No. 3,645,195



VENT PRODUCTS

FREE AREA CHART

A — WIDTH (in Inches)

B — H E I G H T i n c h e s		12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	
	12	.29	.41	.53	.65	.76	.88	1.00	1.12	1.24	1.35	1.47	1.59	1.71	1.83	1.94	2.06	12
	16	.48	.67	.86	1.05	1.25	1.44	1.63	1.82	2.02	2.21	2.40	2.60	2.79	2.98	3.17	3.37	16
	20	.66	.93	1.20	1.46	1.73	2.00	2.26	2.53	2.80	3.07	3.33	3.60	3.87	4.13	4.40	4.67	20
	24	.85	1.19	1.53	1.87	2.21	2.55	2.90	3.24	3.58	3.92	4.26	4.61	4.95	5.29	5.63	5.97	24
	28	1.03	1.45	1.86	2.28	2.70	3.11	3.53	3.95	4.36	4.78	5.19	5.61	6.03	6.44	6.86	7.28	28
	32	1.12	1.58	2.03	2.49	2.94	3.40	3.85	4.31	4.76	5.22	5.67	6.12	6.58	7.03	7.49	7.94	32
	36	1.31	1.84	2.37	2.90	3.43	3.96	4.48	5.01	5.54	6.07	6.60	7.13	7.66	8.19	8.72	9.25	36
	40	1.49	2.10	2.70	3.31	3.91	4.51	5.12	5.72	6.32	6.93	7.53	8.14	8.74	9.34	9.95	10.55	40
	44	1.68	2.36	3.04	3.71	4.39	5.07	5.75	6.43	7.11	7.78	8.46	9.14	9.82	10.50	11.18	11.85	44
	48	1.77	2.49	3.21	3.92	4.64	5.36	6.07	6.79	7.51	8.22	8.94	9.65	10.37	11.09	11.80	12.52	48
	52	1.96	2.75	3.54	4.33	5.12	5.91	6.70	7.50	8.29	9.08	9.87	10.66	11.45	12.24	13.03	13.82	52
	56	2.14	3.01	3.87	4.74	5.61	6.47	7.34	8.20	9.07	9.93	10.80	11.67	12.53	13.40	14.26	15.13	56
	60	2.33	3.27	4.21	5.15	6.09	7.03	7.97	8.91	9.85	10.79	11.73	12.67	13.61	14.55	15.49	16.43	60
	64	2.51	3.53	4.54	5.56	6.57	7.59	8.60	9.62	10.63	11.65	12.66	13.68	14.69	15.71	16.72	17.74	64
	68	2.61	3.66	4.71	5.77	6.82	7.87	8.92	9.98	11.03	12.08	13.14	14.19	15.24	16.30	17.35	18.40	68
	72	2.79	3.92	5.05	6.17	7.30	8.43	9.56	10.68	11.81	12.94	14.07	15.19	16.32	17.45	18.58	19.71	72
	76	2.98	4.18	5.38	6.58	7.78	8.99	10.19	11.39	12.59	13.80	15.00	16.20	17.40	18.60	19.81	21.01	76
	80	3.16	4.44	5.71	6.99	8.27	9.54	10.82	12.10	13.38	14.65	15.93	17.21	18.48	19.76	21.04	22.31	80
	84	3.34	4.70	6.05	7.40	8.75	10.10	11.45	12.81	14.16	15.51	16.86	18.21	19.56	20.91	22.27	23.62	84
88	3.44	4.83	6.22	7.61	9.00	10.39	11.78	13.17	14.56	15.95	17.34	18.72	20.11	21.50	22.89	24.28	88	
92	3.62	5.09	6.55	8.02	9.48	10.94	12.41	13.87	15.34	16.80	18.27	19.73	21.19	22.66	24.12	25.59	92	
96	3.81	5.35	6.89	8.42	9.96	11.50	13.04	14.58	16.12	17.66	19.20	20.74	22.27	23.81	25.35	26.89	96	
	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72		

FREE AREA (sq. ft.)

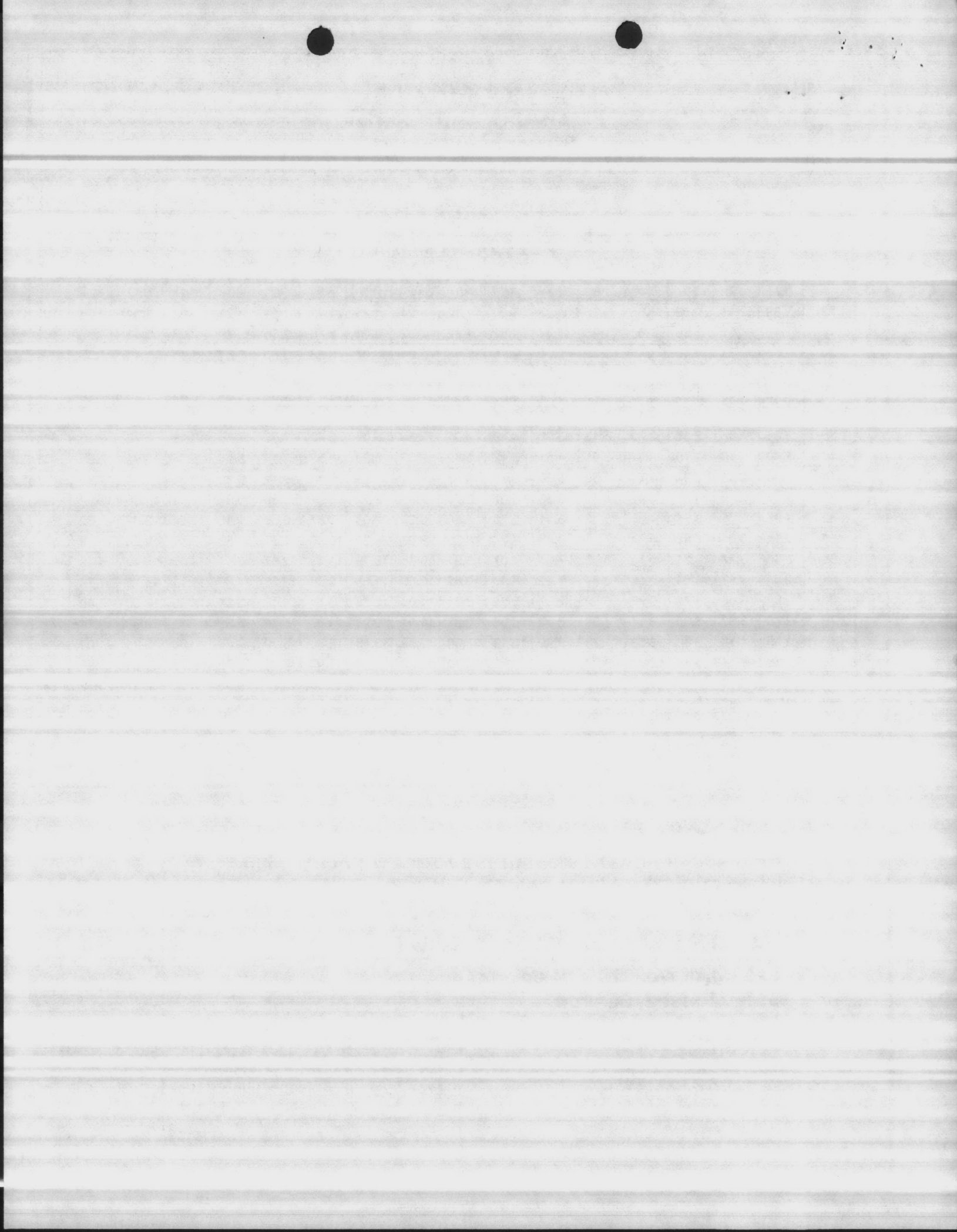
Louver Design Notes:

1. Recommend Intake Design Free Area Velocity 500 f.p.m. when minimum water penetration is desired.
2. Intake or Exhaust Air Quantity (c.f.m.) = Free Area (sq. ft.) X Design Free Area Velocity (f.p.m.)
3. See Form No. 2705, "Performance Data Model 2700" for Pressure Drop vs. Free Area Velocity.



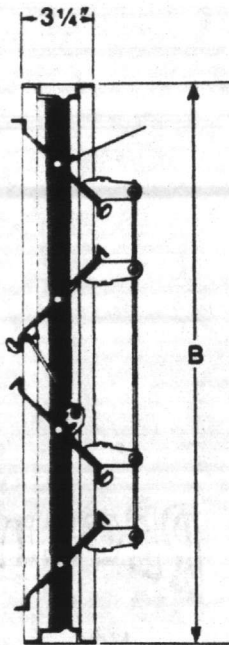
T.M.

VENT PRODUCTS CO., INC.
 1901 S. Kilbourn Ave.
 Chicago, Illinois 60623
 Phone: 312-521-1900
 Member of AMCA
 Associate Member SMACNA

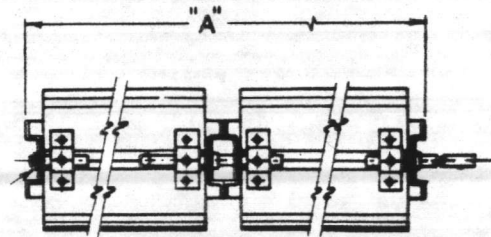


CERTIFICATION & SUBMITTAL

5800 MODELS
DYN-O-SEAL
LOW LEAKAGE DAMPERS



Model 5803
Opposed Blade
(standard)



Typical Mullion

STANDARD SPECIFICATIONS

- **FRAME:** 14 ga. galv. press formed steel with welded corners.
- **BLADES:** 16 ga. galv. steel with press formed "V" reinforcements.
- **BEARINGS:** 1/2" dia. self lubricating porous bronze.
- **AXLES:** 1/2" dia. x 2" long plated steel rods.
- **DYN-O-GRIP:** Dual durometer extruded vinyl seals on blade edges.
- **SIDE SEALS:** Spring Aluminum.
- **MAX VELOCITY:** 2000 fpm. **MAX TEMPERATURE:** 160°F.
- **FINISH:** Standard Mill.
- **MAXIMUM SINGLE SECTION:** 36" x 72".
- **MINIMUM SIZE:** 6" x 12".

NOTE: A and B are opening dimensions. Unless otherwise specified, dampers are fabricated 1/4" undersize.



Model 5802
Parallel Blade

Model 5801
Single Blade
(not shown)

QTY.	MODEL	A	B	OPTIONS & NOTES	TAG
3	5803	24"	24"	With stainless steel side seals, bulb edge seals, 115 v. single phase motor	

PROJECT: 3 Water Wells

CONTRACTOR: E. Coast Construction Co.

LOCATION: Camp Lejeune, N.C.

P.O. NO.: 1226

DATE: 4-28-83



VENT PRODUCTS CO., INC.
Dampers Louvers Curbs

1901 S. Kilbourn Ave. Chicago, Illinois 60623
Phone 312/521-1900

RECEIVED

MAY 9 1983

ENWRIGHT ASSOCIATES

- REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
Greenville, South Carolina

Date 5-17-83 By A.H.F.

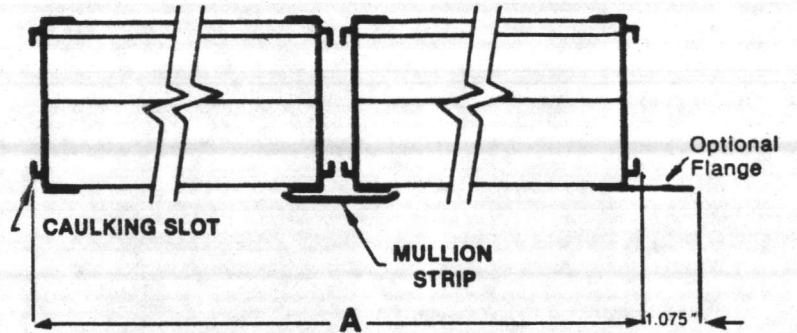
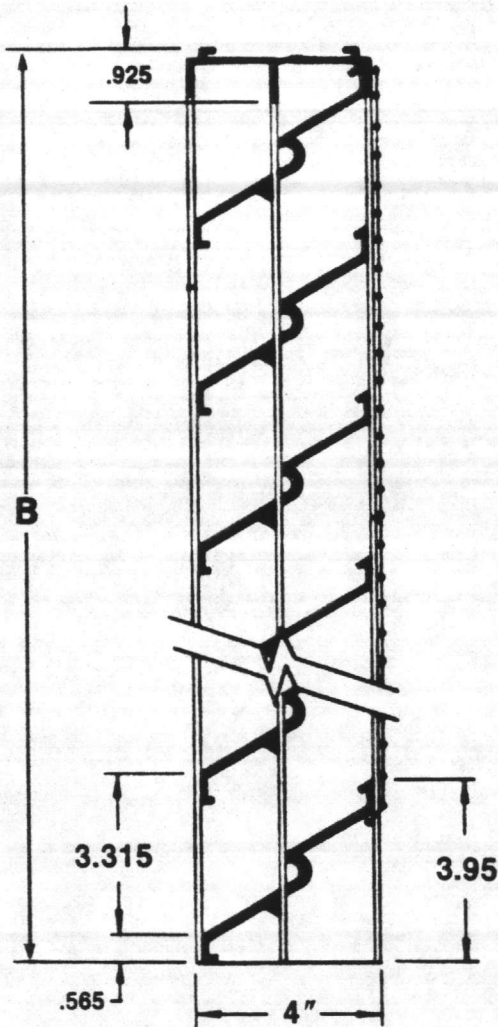
ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC. INTERNAL USE ONLY AND DOES NOT CONSTITUTE APPROVAL OR REJECTION OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL		
STRUCTURAL		
MECHANICAL	<i>JES</i>	<i>BU</i>
ELECTRICAL	<i>ROG</i>	<i>RO</i>
WATER		
AIR		
WASTE WATER		
<i>XPOH</i>	<i>JGP</i>	<i>FAC</i>

CERTIFICATION & SUBMITTAL

**MODEL 2700
EXTRUDED ALUMINUM
LOUVERS**



STANDARD SPECIFICATIONS

- **FRAME:** .080 6063T5 extruded aluminum.
 - **BLADES:** .080 6063T5 extruded aluminum.
 - **BIRDSCREEN:** .051 X 3/4" diamond pattern expanded aluminum.
 - **FINISH:** Standard Mill.
 - **MAXIMUM SINGLE SECTION:** A = 72" X B = 96"
 - **MINIMUM SIZE:** A = 4" X B = 8"
- NOTE:** A and B are opening dimensions. Unless otherwise specified louvers are made 1/4" undersize.

QTY.	A	B	OPTIONS & NOTES	TAG
3	24"	24"	With 1/2" x 1/2" x .063 aluminum removable birdscreen on exterior face, channel frame and bronze anodized finish*	RADIATOR EXHAUST
6	24"	24"	DITTO above* * NOTE: PROVIDE FLANGES ON THE INTERIOR FACE OF FRAME FOR ATTACHMENT OF DAMPERS AND DUCTS PER SPECIFICATIONS	INTAKE LOUVERS

PROJECT: 3 Water Wells

CONTRACTOR: E. Coast Construction Co.

LOCATION: Camp Lejeune, N.C.

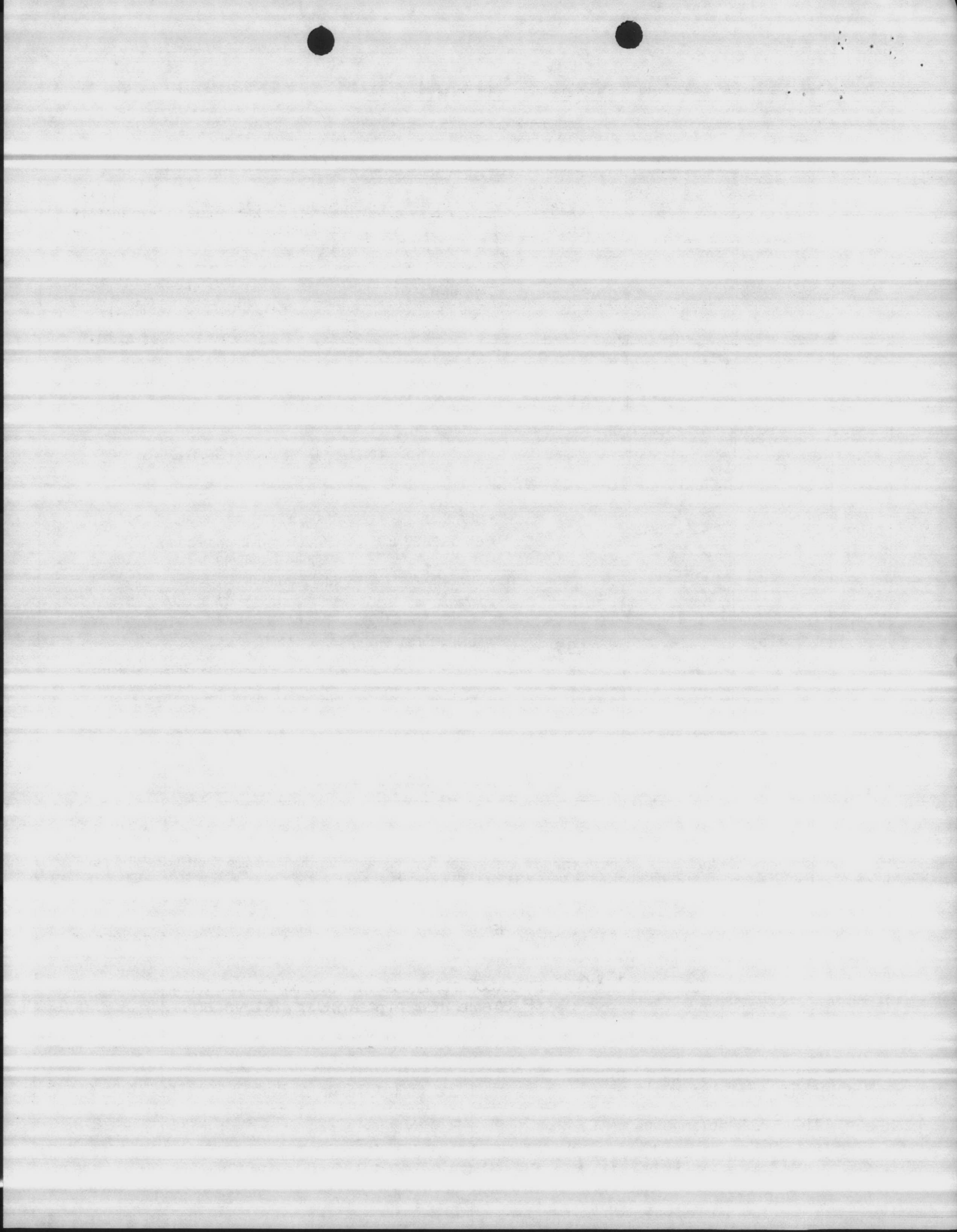
P.O. NO.: 1226

DATE: 4-28-83



VENT PRODUCTS co., inc.
Dampers Louvers Curbs

1901 S. Kilbourn Ave. Chicago, Illinois 60623
Phone 312/521-1900



\$HIPMAN INDUSTRIES, INC.

530 RIEDLIN AVENUE
COVINGTON, KY. 41012
PHONE 1 (606) 581-2400

SPEC
NO. BD2-978
Replaces BD2-578

BACKDRAFT DAMPER Aluminum

TYPE
BD2/A1
BD2/A2

STANDARD CONSTRUCTION

FRAME: 6063T5 extruded aluminum
.090" wall thickness. Mitered corners.

LINKAGE: 1/8" x 1/2" aluminum tie-bars
concealed in frame.

MAXIMUM SIZE:

Single section — 40" w x 48" h
Assembly of sections — size un-
limited.

MINIMUM SIZE: 6" w x 6" h

TEMPERATURE LIMITS:
-40°F to +200°F

FINISH: Mill

BD2/A1

(Spot velocities up to 1500 fpm)

BLADES: .025" formed aluminum with
extruded vinyl edge seals.

BEARINGS: Zytel.

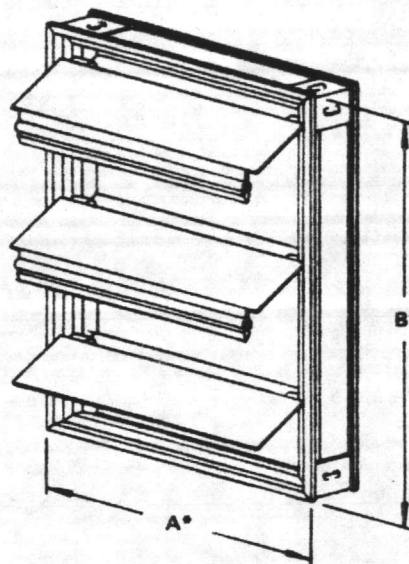
BD2/A2

(Spot velocities up to 2500 fpm)

BLADES: 6063T5 extruded aluminum
.050" wall thickness with extruded
vinyl edge seals.

BEARINGS: Zytel.

Note: When used in fan discharge ap-
plications, damper should be
located at least 1/2 fan diameter
from fan discharge.



FEATURES

BACKDRAFT PROTECTION:

Low leakage:
Less than 12 CFM/sq. ft. at 1/2"
w.g.

WEATHER RESISTANT:

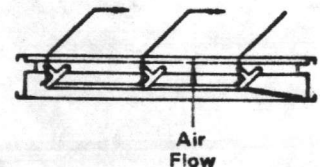
Blades overlap frame.

QUIET OPERATING:

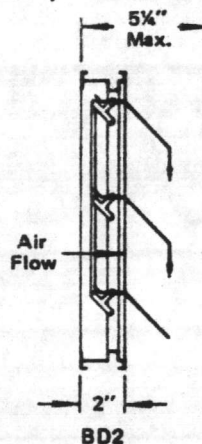
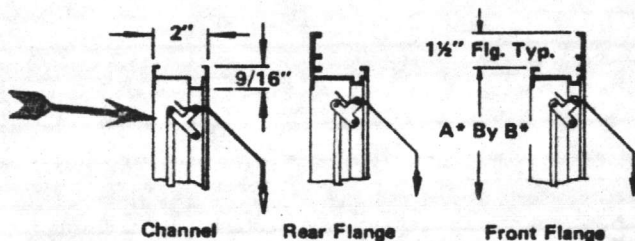
Non-metallic blade to blade seal.

APPEARANCE:

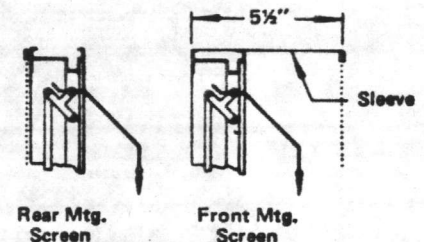
Good looking —
contemporary styling.



FRAME CONSTRUCTION



HORIZONTAL MOUNT — AIR FLOW UP
(Not available in air flow down)

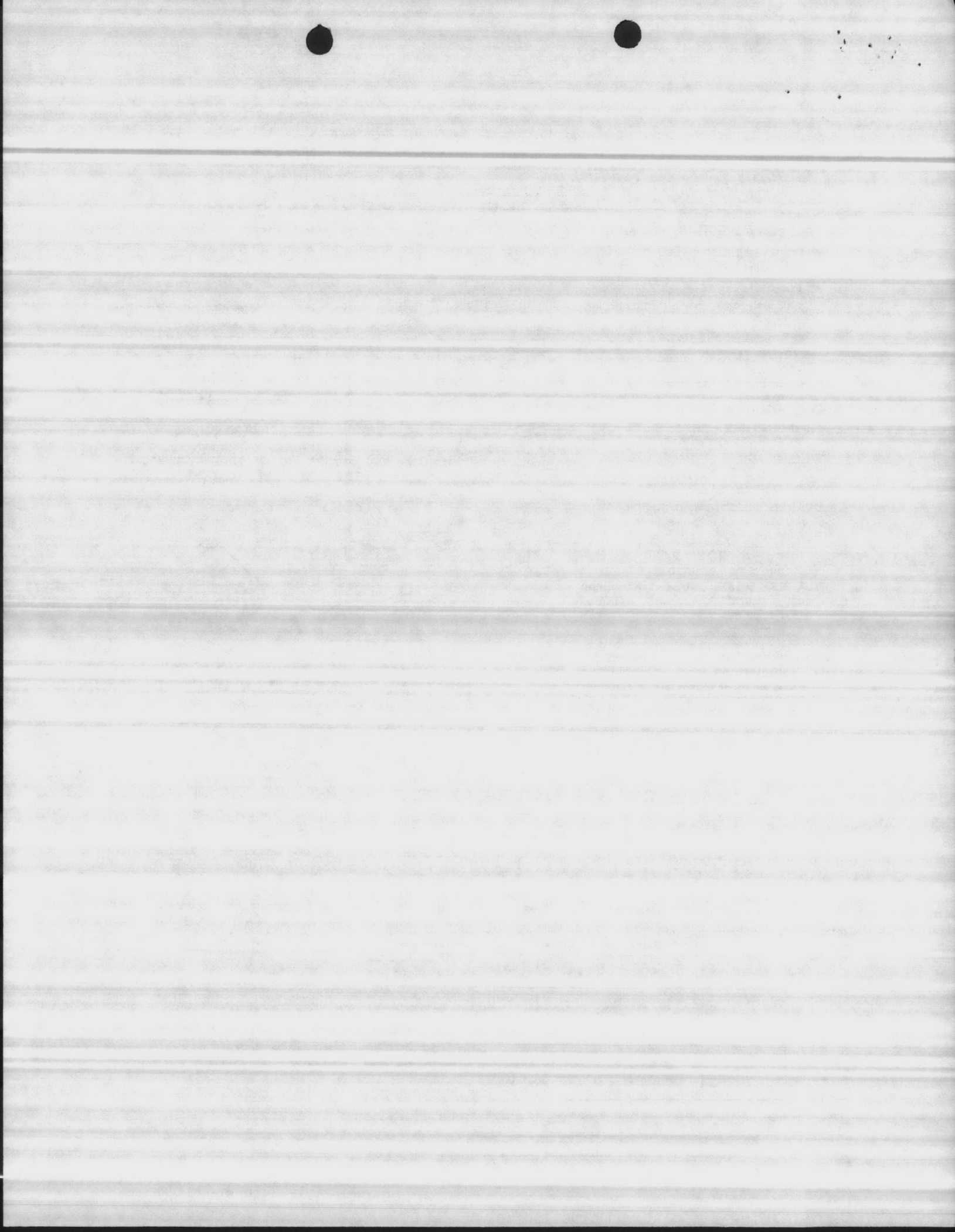


*Unit furnished approx. 1/4" smaller than
given 'opening' dimensions.

QUAN.	TYPE	OPENING DIMENSION		TYPE FRAME	MOUNTING	
		A*	B*		VERT.	HORIZ.
3	BD2/A1	24"	24"	channe	XX	

JOB 3 Water Wells
CONTRACTOR E. Coast Construction Co.

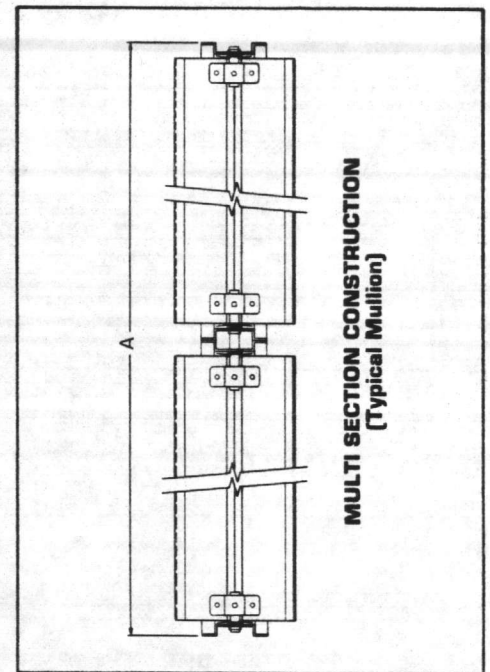
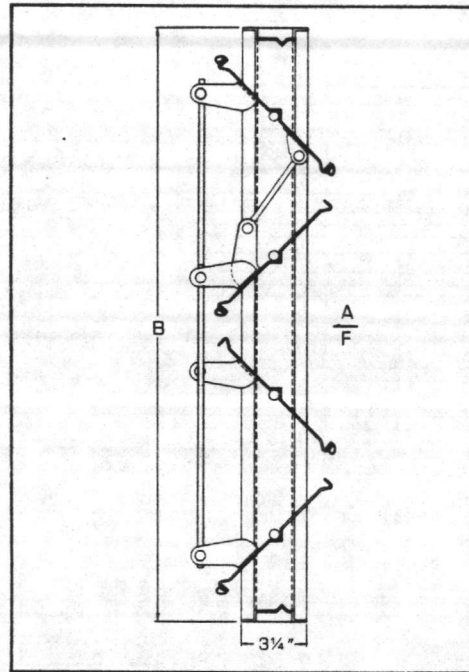
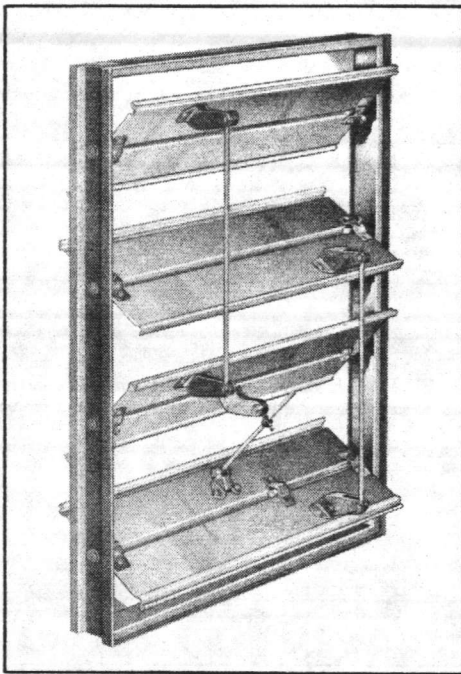
LOCATION Camp Lejeune, NC





CERTIFICATIONS & SUBMITTAL

MODEL 5803

Dyn-O-Seal Low Leakage Damper
Opposed Blade

STANDARD SPECIFICATIONS

- **FRAME:** 14 ga. galv. press formed steel with welded corners.
- **BLADES:** 16 ga. galv. steel with press formed "V" reinforcement.
- **AXLES:** 1/2" dia. x 2" long plated steel rods.
- **BEARINGS:** 1/2" dia. self lubricating porous bronze.
- **CONTROL ROD:** 1/2" dia. x 9" long plated steel.
- **HARDWARE:** Plated steel center brackets, brass pivots, 1/4" or 5/16" dia. plated steel linkage rod.
- **BLADE EDGE SEALS:** Dyn-O-Grip extruded dual durometer vinyl.
- **SIDE SEALS:** Spring Stainless Steel.
- **FINISH:** Standard Mill.
- **MAXIMUM TEMPERATURE:** 160° F.
- **MAX. VELOCITY:** 2000 fpm.
- **MAXIMUM SINGLE SECTION:** 36" x 72".
- **MINIMUM SIZE:** 8" x 12".

OPTIONS

- 09 Tack Weld Hardware
- 11 Ball Bearings
- 12 Nylon Bearings [Bushings]
- 13 Stainless Steel Bearings [Bushings]
- 14 Stainless Steel Bearings Pins [Axles]
- 20 Vertical Blades
- 24 Right Angle Mixing Set-Up, Internal Linkage
- 25 Right Angle Mixing Set-Up, External Linkage
- 26 Face & Bypass Set-Up Vertical, Internal Linkage
- 27 Face & Bypass Set-Up Horizontal, External Linkage
- 28 Face & Bypass Set-Up Horizontal, Internal Linkage or Jackshaft
- 31 Flange, 1 1/2" fastened to damper frame [opposite linkage]
- 89 Sleeve
- 90 Jackshaft
- 92 Actuators

NOTE: A and B are opening dimensions. Unless otherwise specified, dampers are made 1/4" undersize.



PERFORMANCE DATA

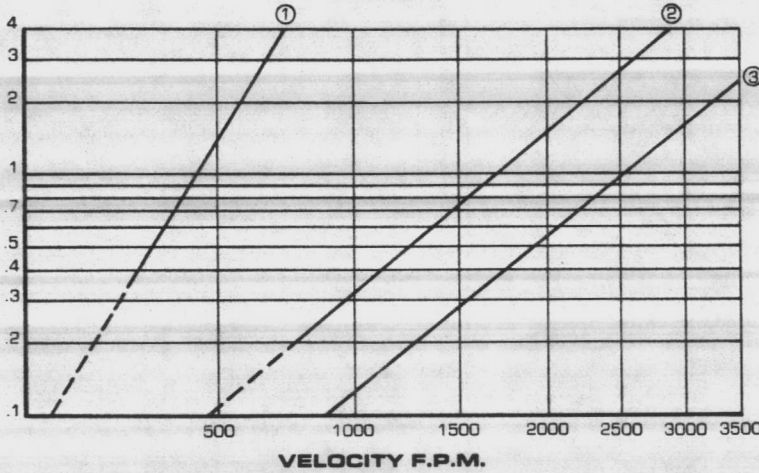
MODEL 5803

Low Leakage Dyn-O-Seal Damper Opposed Blade

Vent Products certifies that the Model 5803 dampers are licensed to bear the AMCA Seal. The ratings shown in Airflow Chart 1 and Leakage Chart 1 are based on tests made in accordance with AMCA Standard 500-75 and comply with the requirement of the AMCA certified ratings program for air performance and air leakage performance.

STATIC PRESSURE DIFF. In Inches W.G.

**AIRFLOW
CHART 1**



Test set-up per figure 5.3 and measurement per figure 6.5 of AMCA Standard 500-75.

MODEL 5803 TEST SIZE 24" x 24"

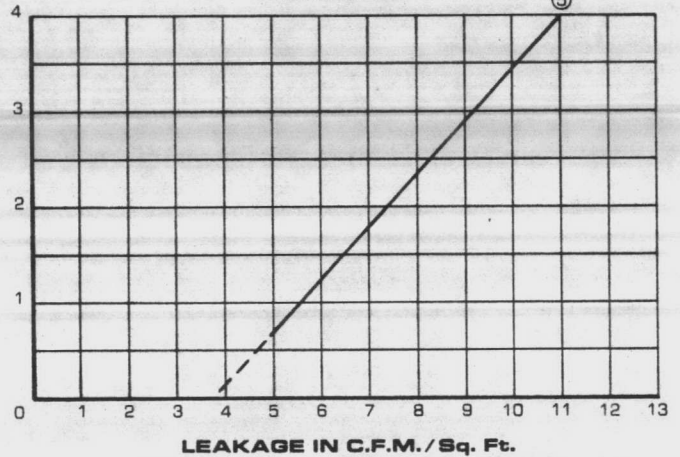
- ① 30° OPEN ② 60° OPEN ③ 90° OPEN FULL

TEST SIZE 12" x 72"

Holding Torque applied was 5 inch-pounds per square foot of damper area. Test set-up per figure 5.3 and measurement apparatus set-up per figure 6.5 of AMCA Standard 500-75.

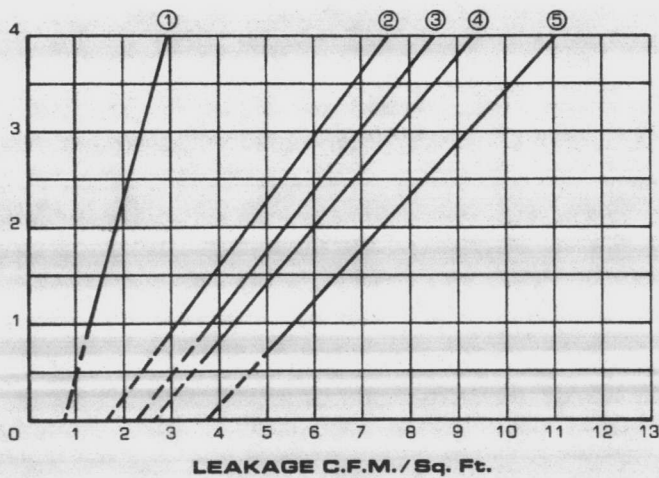
STATIC PRESSURE DIFF. In Inches W.G.

**LEAKAGE
CHART 1**



STATIC PRESSURE DIFF. In Inches W.G.

**LEAKAGE
CHART 2**



The performance information on Leakage Chart 2 is derived from testing in accordance with AMCA Standard 500-75 with test set-up per figure 5.3 and measurement apparatus set-up per figure 6.5 of this AMCA Standard.

The AMCA Certified Ratings Program (CRP) requires testing a variety of model sizes, then certifying only the least favorable performance to assure the most conservative rating possible . . . in this case the 12" x 72" size. This chart shows the performance of four other test sizes as well as the Certified (least favorable) Performance shown as #5. These other aspect ratios are shown for reference only because large damper assemblies are frequently made into multiple sections with 24" to 36" panel widths.

TEST SIZES

- ① 36" x 72" Holding Torque applied 3 in. lb/S.F. damper area.
- ② 24" x 72" Holding Torque applied 5 in. lb/S.F. damper area.
- ③ 24" x 24" Holding Torque applied 5 in. lb/S.F. damper area.
- ④ 36" x 12" Holding Torque applied 5 in. lb/S.F. damper area.
- ⑤ 12" x 72" Holding Torque applied 5 in. lb/S.F. damper area.

NOTE: To allow for field conditions, selections should be based on test ③ from Airflow Chart and test ⑤ from Leakage Chart.



enwright associates, inc.

ENGINEERS · SURVEYORS · PLANNERS
HAYWOOD ROAD POST OFFICE BOX 5287
GREENVILLE, SOUTH CAROLINA 29606

PHONE 803 - 288 - 5190

TRANSMITTAL

JOB NO. PAGE NO. DATE PURCHASE ORDER NO.	A/E Contract No. N62470-82-C-770	82005-00-2-01
	Construction Contract N62470-82-C-4551	1 | 1
	Camp Lejeune, North Carolina	May 17, 1983
	Replacing Water Wells Marine Corps Base	OURS | YOURS <input type="checkbox"/> <input type="checkbox"/>

THE FOLLOWING INFORMATION AND/OR ATTACHMENTS ARE FOR DISTRIBUTION AS INDICATED BELOW:

COMPANY	TITLE	NO.	REV. NO.	ISSUE	EQT. OR MTR. NUMBER	ACTION																				
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60	AE																									
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Mortar Sand				(A)	Revwd.																					
Masonry Units				(A)	Revwd.																					
Chet Adams Company	Exhaust Fans			(AN)	FC																					
	Electric Heaters			(AN)	FC																					
	Louvers			(AN)	FC																					
Steelcraft Corbin	Hollow Metal Shops			(D)	Rejctd																					
	Hardware Schedule			(D)	Rejctd																					

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Dept. of the Navy Officer in Charge of Const Naval Facilities Engr. Command Camp Lejeune, N.C. 28542	1	6						CIVIL & SANITARY			
								ELECTRICAL			
								INSTRUMENTATION			
								H VAC			
								PROJECT MANAGER	1	0	
								RESIDENT ENGINEER			
								STRUCTURAL			
File	1	1									

REMARKS

Revwd. - Reviewed (A - Approved)
 FC - Furnish as Corrected (AN - Approved as Noted)
 Rejctd. - Rejected (D - Disapproved)

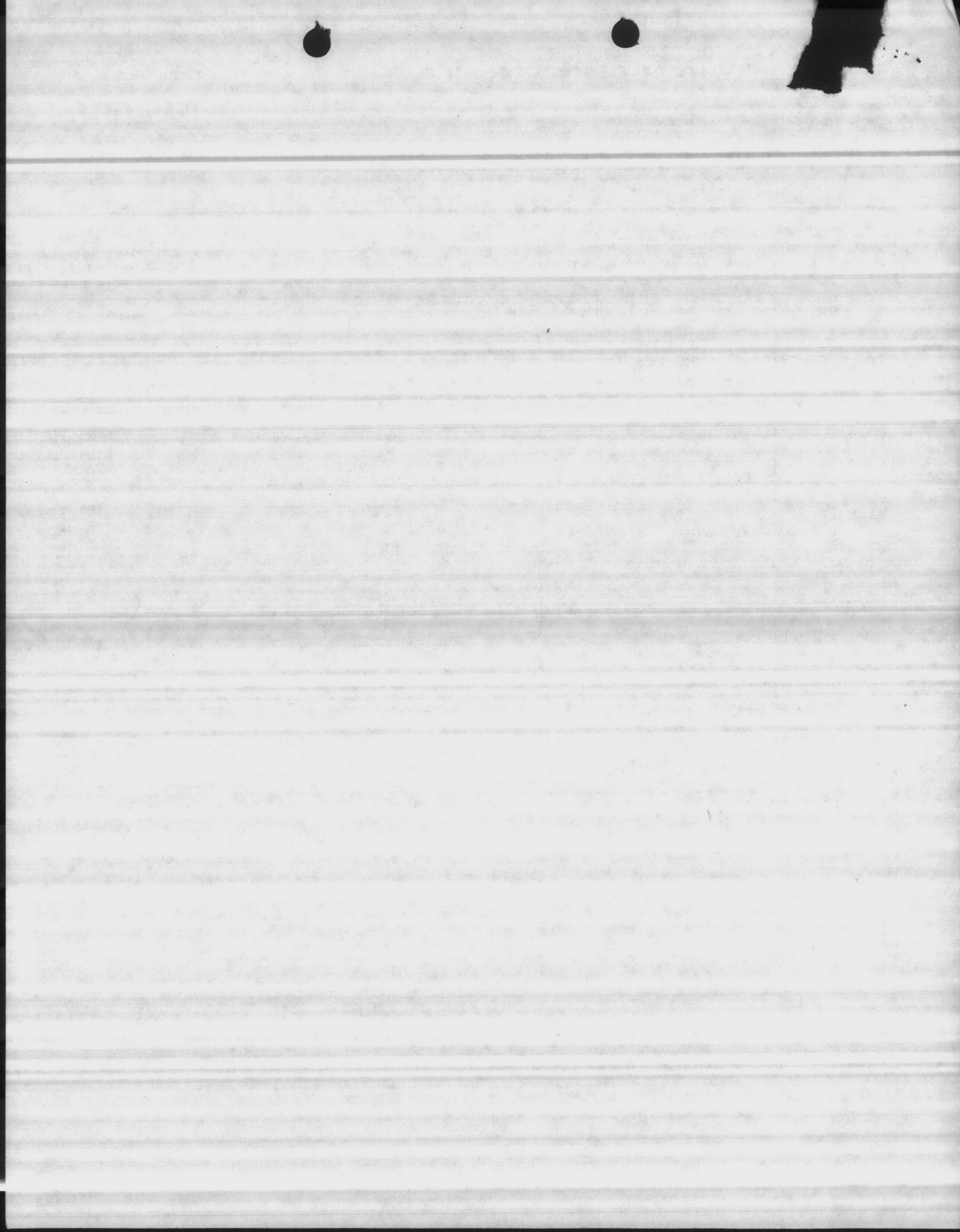
ACTION CODES

A - APPROVED
 AN - APPROVED AS NOTED
 RC - RETURNED FOR CORRECTION

ABBREVIATIONS
 T - TRANSMITTAL ONLY
 P - PRINT
 SEP - SEPIA

BY Bill Foster

enwright associates, inc.



MAY 20 11 14 AM '83

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Steelcraft®

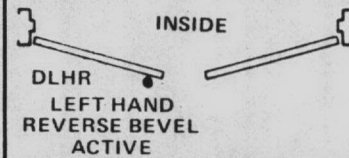
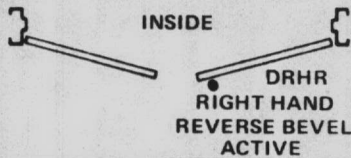
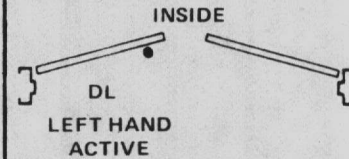
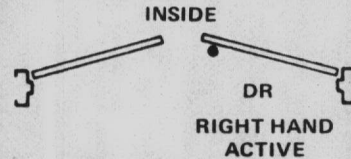
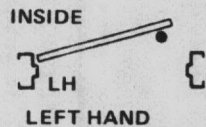
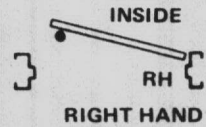
An American-Standard Company

9017 BLUE ASH ROAD CINCINNATI, OHIO 45242

DOOR HANDING CHART

SINGLE DOORS

PAIRS OF DOORS



REVISION

DATE

DISTRIBUTOR

DON EDWARDS



C.H. EDWARDS, Incorporated

P.O. Box 775
Highway 11 South
Greenville, N.C. 27834

Office
(919) 756-8500
TELEX 802 807

JOB

Replace Water Wells

Buildings 601, M168, & B343

LOCATION

Marine Corp. Base

Camp Lejeune, N.C.

ARCHITECT

CONTRACTOR

EAST COAST CONTRACTOR
229 Center Street
PO Box 2004 Jacksonville, NC 28540

DRAWN BY

Don Edwards

SHEET

OF 6

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STEEL DOORS AND FRAMES

COVER SHEET
APP. DWG. NO. 1 2/78

PRINTED IN U.S.A.



GENERAL NOTES:

1. Material shown on these drawings will be fabricated only after formal approval by the architect, receipt of approved hardware schedule and all necessary hardware templates.
2. Doors and frames will be reinforced for surface mounted hardware as required. Drilling and tapping for attaching of surface mounted hardware by others. Doors and frames will be prepared and reinforced for mortised hardware. Holes for this hardware will be drilled and tapped at the factory except for trim mounting holes.
3. All doors and frames will be phosphatized and receive one coat of baked on prime paint.
4. All frames will be supplied with jamb and base anchors as shown.
5. All frames will be furnished with three rubber bumpers per strike jamb for single frames or two per head for double frames. Bumpers are omitted when unitized weatherstripping is furnished.
6. Installation of glass and glazing by others.
7. All frames in masonry construction to be filled with grout. If anti-freeze additives are used in the mortar, the inside of the jamb members shall be coated with a bituminous asphalt material in the field, by the contractor.
8. Unless otherwise indicated hardware will be furnished by C. H. Edwards, Inc.
9. All doors and frames will be marked with Building #.
10. The hardware columns of the door and frame schedule sheets are for future shop fabrication purposes only and are determined after receipt of the approved hardware schedule furnished by the hardware contractor.
11. The hardware locations indicated on the door and frame elevations are Steelcraft's standard location for "standard type" hardware only. Other hardware, such as deadlocks, will be located at Steelcraft's standard locations for that specific hardware. Panic exit devices will be located per the paper templates received.
12. When steel doors or frames are used in conjunction with aluminum or structural steel products, it will be the responsibility of the General Contractor to coordinate hardware locations.
13. Frames to be full welded.

DOOR OR FRAME SERIES AND GAGE DESIGNATION

EXAMPLES:

- DW18 = DRYWALL FRAME, 18 GA.
- F16 = FLUSH FRAME, 16 GA.
- FE16 = DOUBLE EGRESS FRAME, 16 GA.
- FN14 = 1" FACE FLUSH FRAME, 14 GA.
- FS16 = FLUSH FRAME, 16 GA., STAINLESS STEEL
- K18 = EASY-SET™ FRAME, 18 GA.
- MU16 = MULTI-USE FRAME, 16 GA.
- L18 = FLUSH DOOR, 18 GA.
- LS18 = FLUSH DOOR, 18 GA., STAINLESS STEEL
- MS16 = MEDIUM STILE & RAIL DOOR, 16 GA.
- S16 = STILE & RAIL DOOR, 16 GA.
- SRD = SOUND RATED DOOR & FRAME

ABBREVIATIONS

- ABO = ALUMINUM BY OTHERS
- B/L = BORROWED LITE
- CIF = CHANNEL IRON FRAME
- CO = CASED OPENING
- D = DOUBLE (PAIR)
- DA = DOUBLE ACTING (SINGLE)
- KD = KNOCKED DOWN
- NIC = NOT IN CONTRACT
- S/L = SIDELITE
- SUA = SET UP ARCWELD
- T = TRANSOM

- TFW/OTB = TRANSOM FRAME WITHOUT TRANSOM BAR
- T/S = TRANSOM SIDELITE
- WBO = WOOD BY OTHERS
- 4 = 1-3/4" THICK DOOR
- 8 = 1-3/8" THICK DOOR



← SECTION OR DETAIL
← SHEET NUMBER

GENERAL INFORMATION AND NOTES

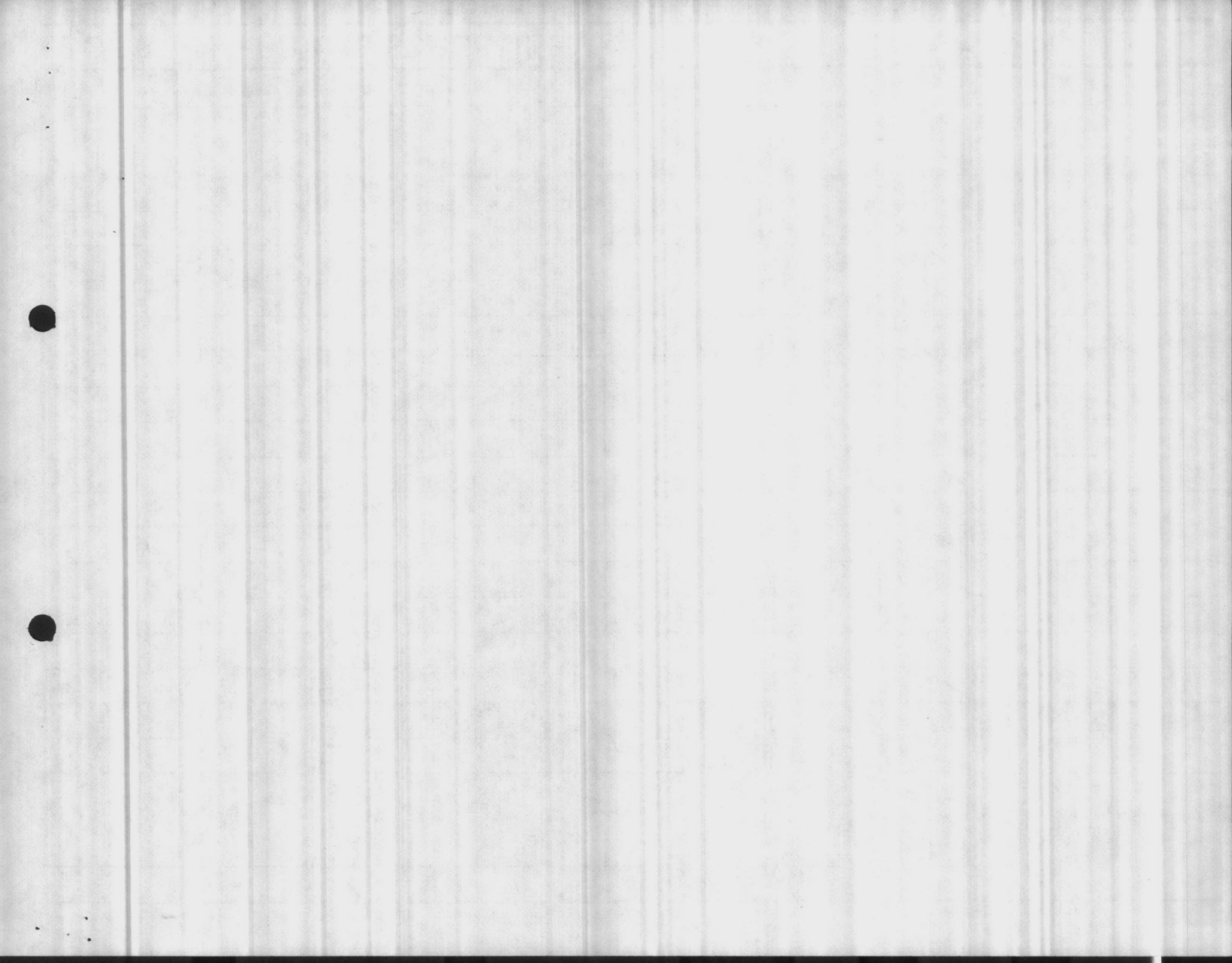
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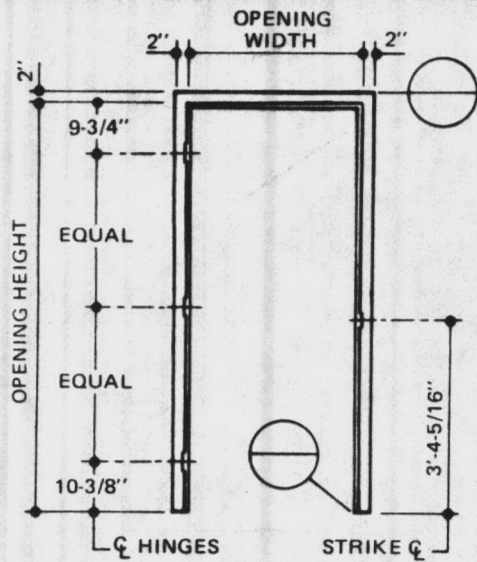


LINE NO.	LOCATION			QUANTITY	DOOR AND FRAME DATA										REMARKS	HARDWARE						
	FROM OR TO		ARCHITECT'S OPENING NO.		FRAME SERIES	DOOR SERIES	LABEL	DOOR THK.	JAMB DEPTH	DOOR OPENING SIZE	DOOR TYPE	HANDING	LOUVERS (DOOR)	FRAME ELEV. SHEET			ANCHOR DET. SHEET	DOOR ELEV. SHEET				
1	Exterior	F	Well Bldg.	Bldg. 601	1	F16	L18		4	5 ³ / ₄	PR2670	4	LHR		4	B	6	F	S	4" Head, 1, 2		
2	Exterior	F	Well Bldg.	Bldg. M168	1	F16	L18		4	5 ³ / ₄	PR2670	4	LHR		4	B	6	F	S	4" Head, 1, 2		
3	Exterior	F	Well Bldg.	Bldg. B843	1	F16	L18		4	5 ³ / ₄	PR2670	4	LHR		4	B	6	F	S	4" Head, 1, 2		
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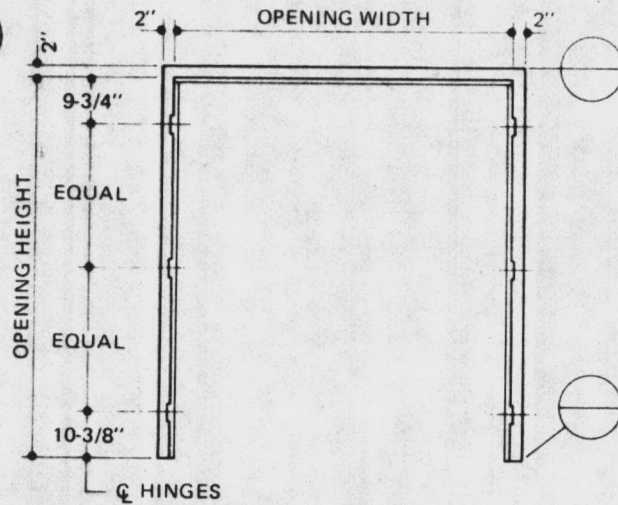
DOOR AND FRAME SCHEDULE

DATE _____ DRAWN BY _____ SHEET - 3 OF -

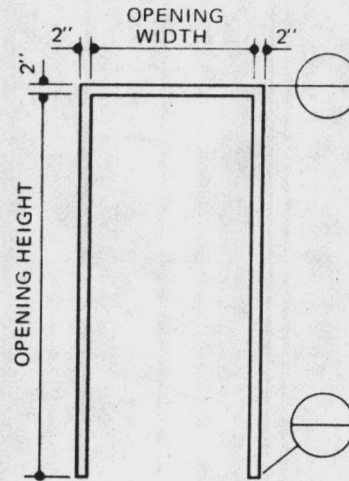




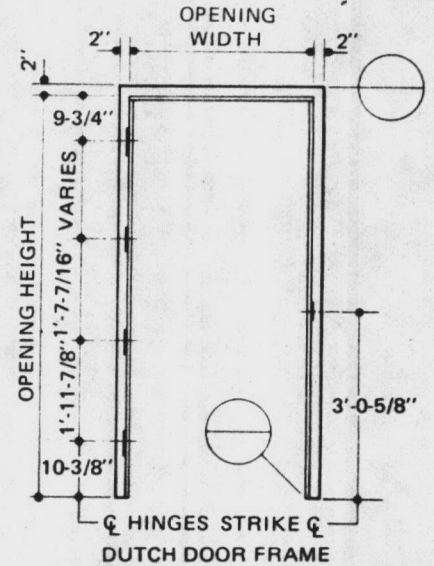
ELEVATION A



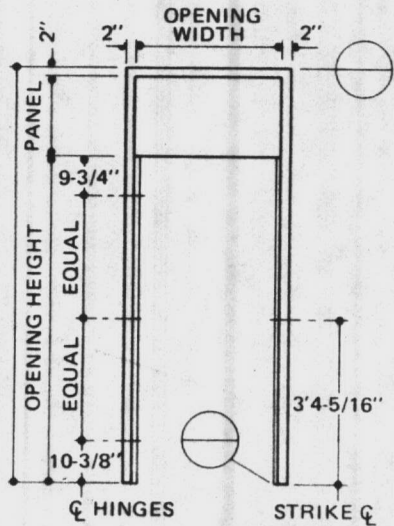
ELEVATION B



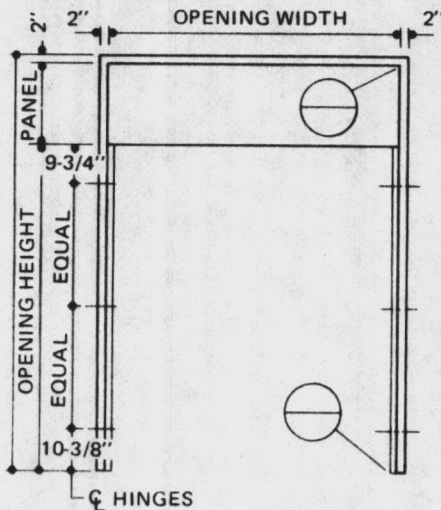
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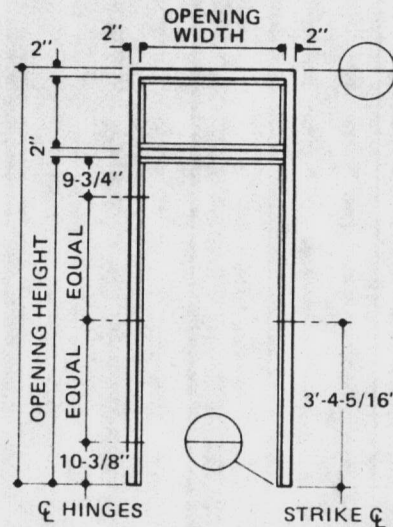
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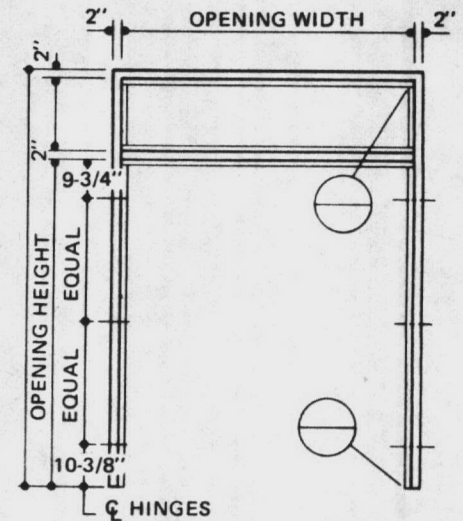
ELEVATION _____



ELEVATION _____



ELEVATION _____



ELEVATION _____

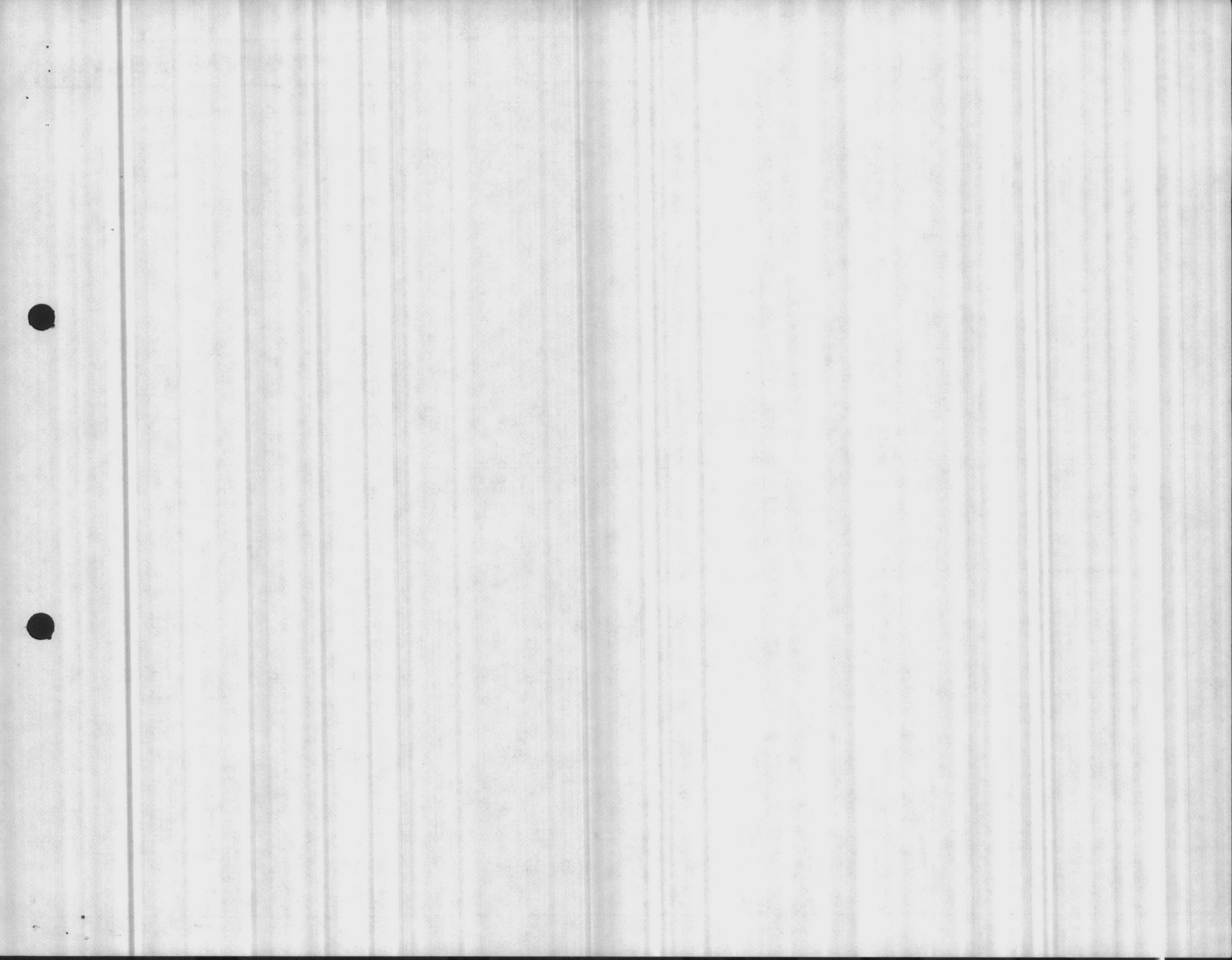
1. OMIT CENTER HINGE ON 1-3/8" THICK, 6' 8" NOMINAL HEIGHT DOORS: FOR DOORS OVER 7' 6" NOMINAL HEIGHT, 2 PAIRS OF HINGES ARE USED.

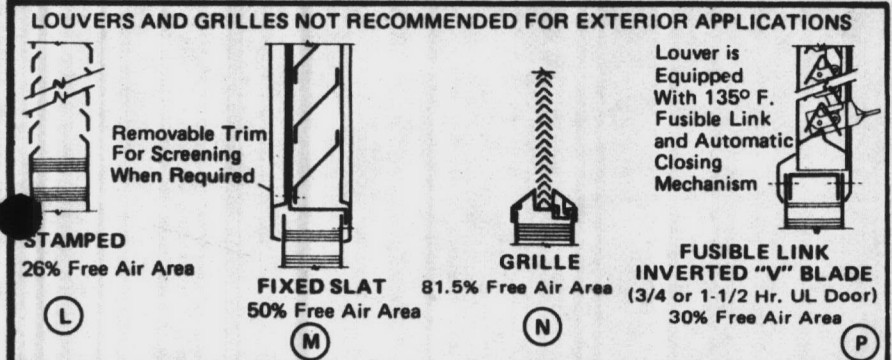
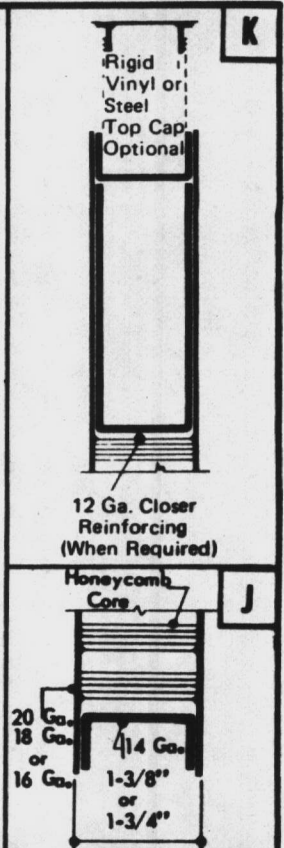
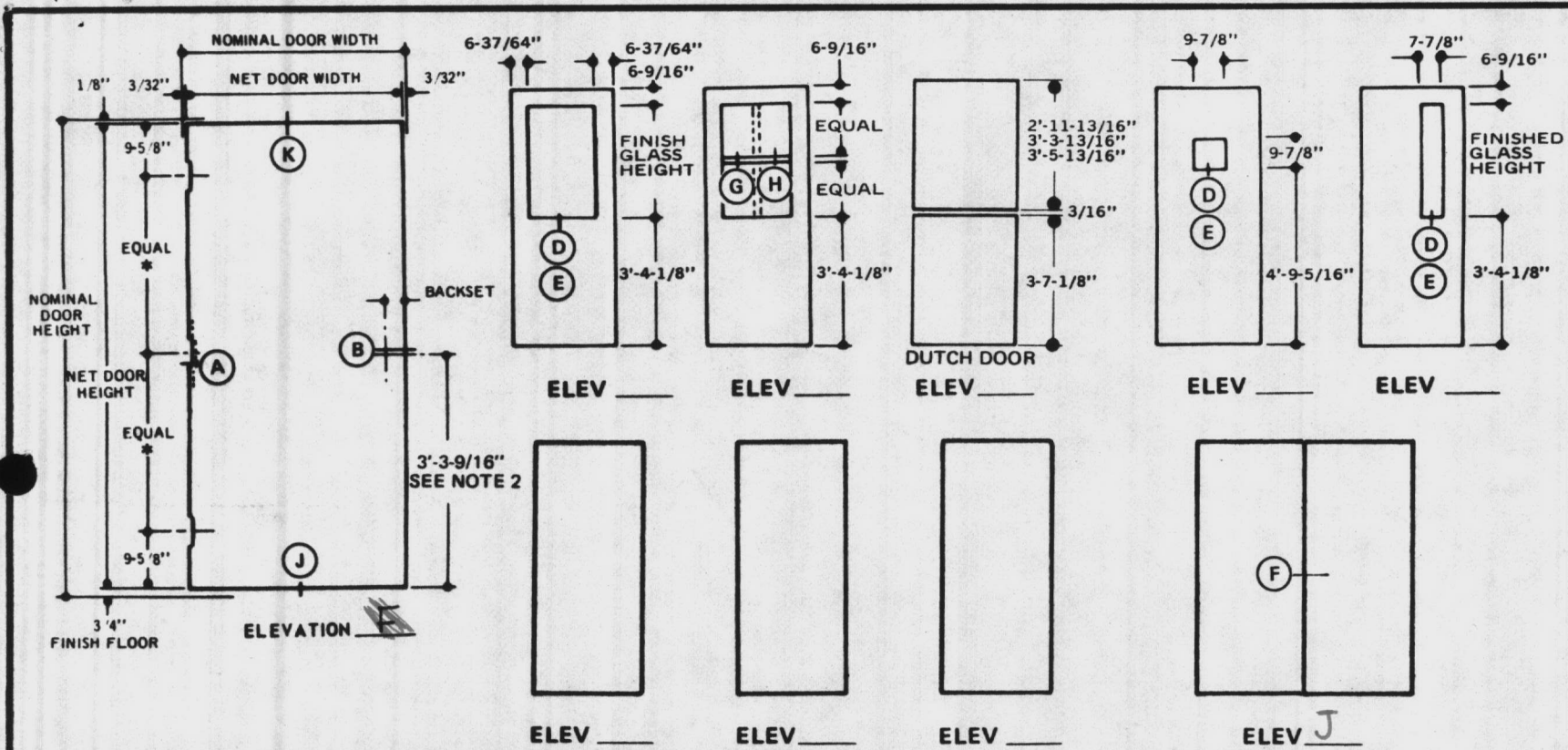
FRAME ELEVATIONS

DATE _____ DRAWN BY _____

SHEET - 4

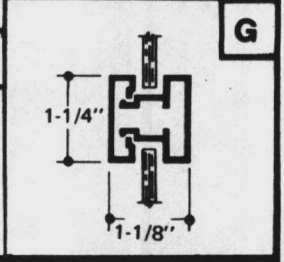
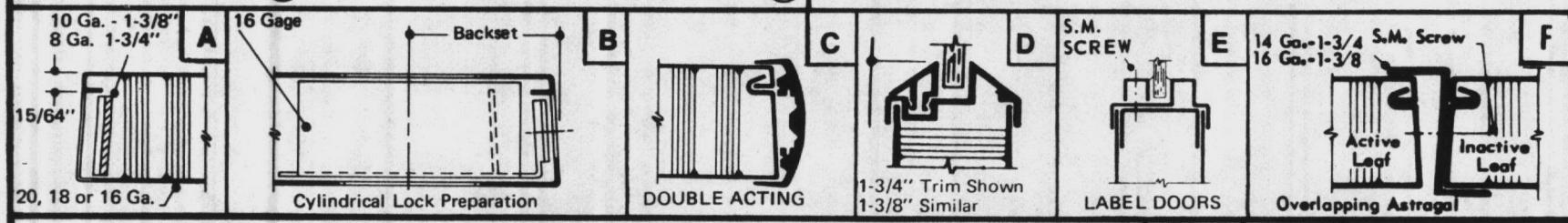
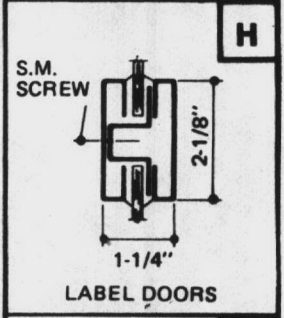
OF - 6

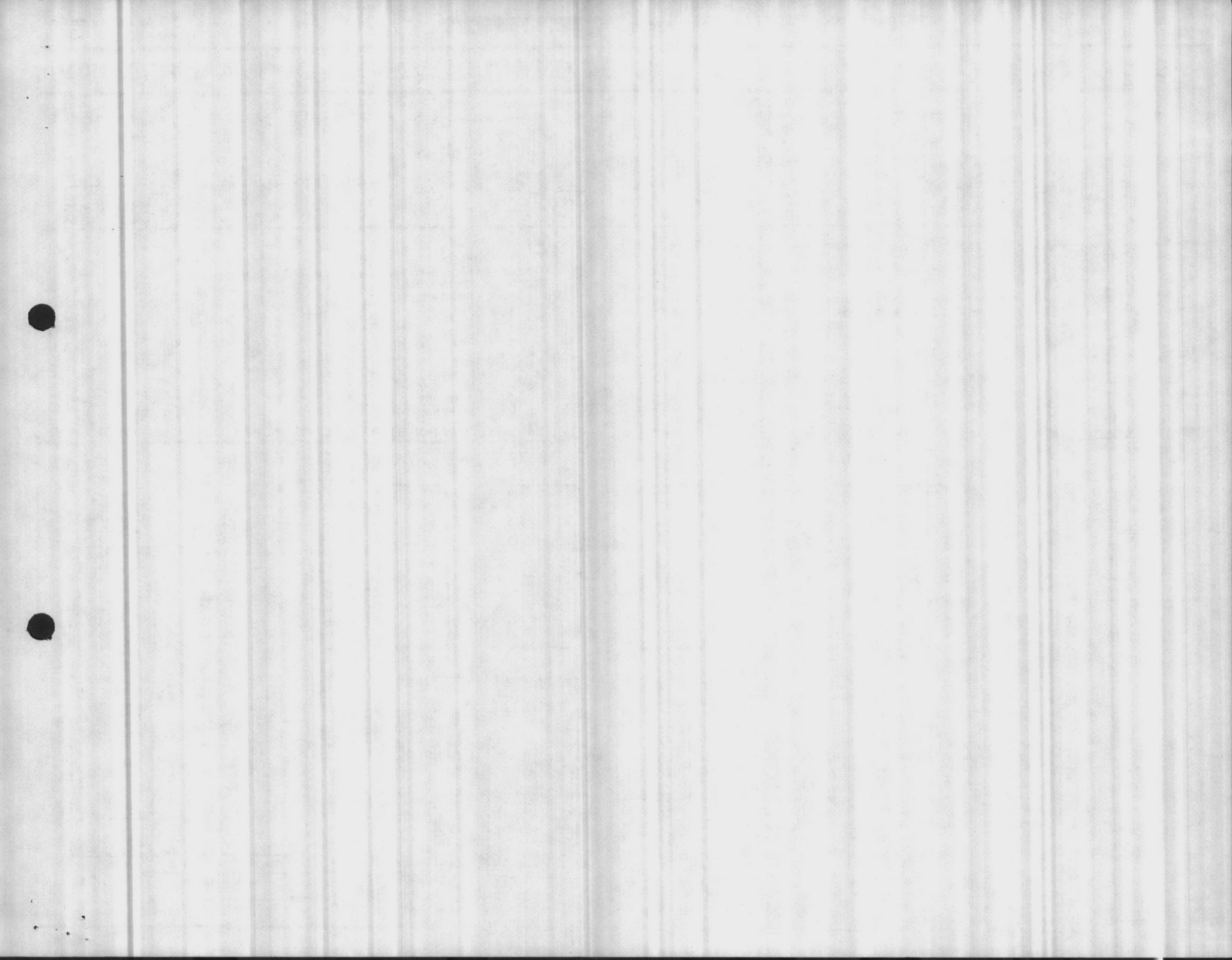




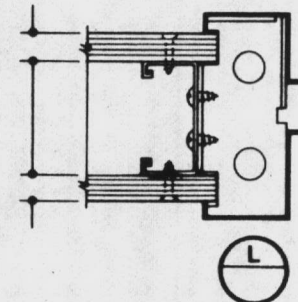
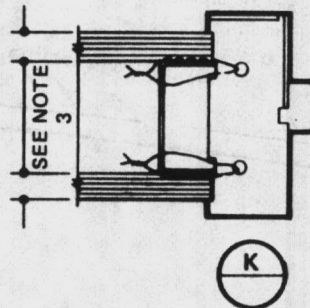
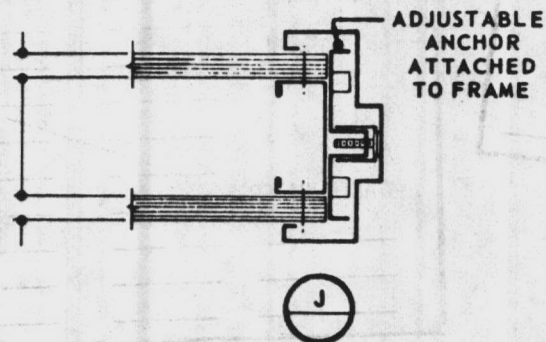
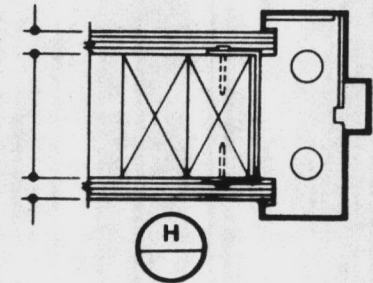
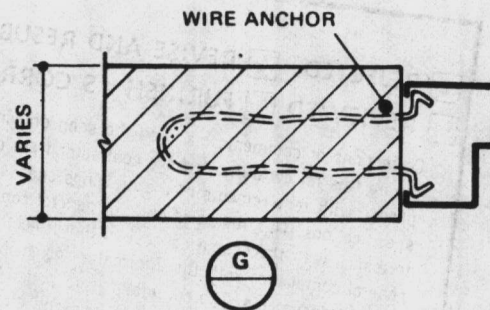
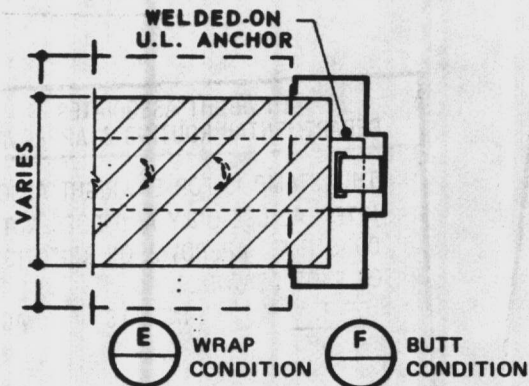
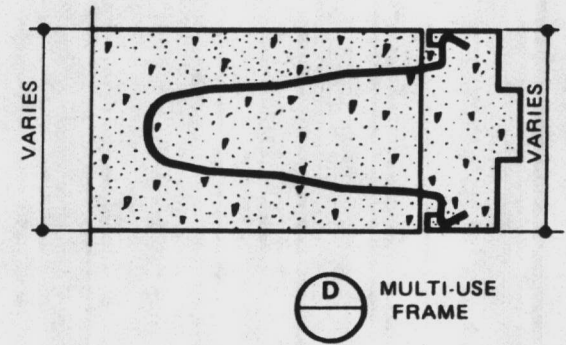
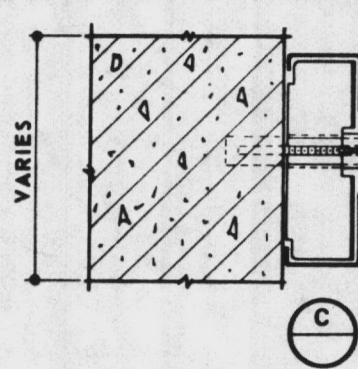
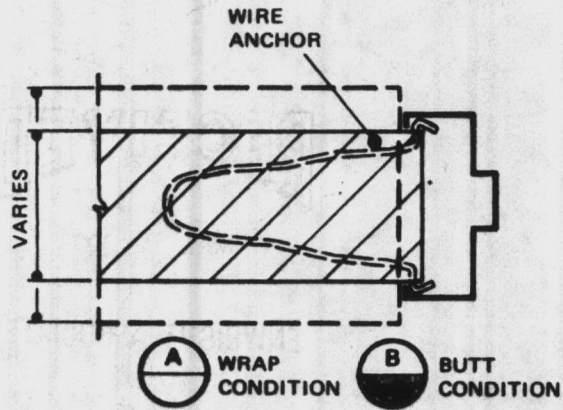
NOTES

1. 1 Pair of hinges standard on 1-3/8" thick, 6'8" nominal height doors. 2 Pair of hinges on all doors over 7'6" nominal height.
2. Dimension shown for lock prep. is for Gov't 160-4, 160, 161, 140 and unit locks. When Gov't 86 lock is to be used (ANSI A115.1) dimension to center of lock is 3/8" less than indicated.
3. 1/2", 5/8" & 3/4" thick insulated glass uses trim similar to Section E.





ANCHOR FOR EXISTING MASONRY WALL FURNISHED WITH F.H. MACH. SCREWS AND EXPANSION SHIELDS, 3/8 - 16 x 4" FURNISHED WITH ANCHOR FOR LABEL. 1/4 - 20 x 4" FURNISHED BY (STEELCRAFT OR OTHERS) _____ FOR NON-LABEL.



NOTES: 1) ALL ANCHORS EXCEPT AS OTHERWISE INDICATED ARE SHIPPED LOOSE FOR FIELD INSTALLATION. (ALL U.L. ANCHORS ARE WELDED IN AT THE FACTORY).
2) FOR EXACT WALL CONDITIONS, SEE ARCHITECT'S PLANS.

3) DIMENSION OF OPEN STEEL STUD MUST BE INDICATED.
4) ANCHORING A, B, C, E, F, H, K, & L SIMILAR FOR DOUBLE EGRESS FRAMES.

DOOR FRAME ANCHORING DETAILS

DATE _____ DRAWN BY

DE

SHEET - 6

OF - 6

RECEIVED

MAY 9 1983

ENWRIGHT ASSOCIATES

- REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
Greenville, South Carolina

Date: 5-17-83 By: A.L.T.

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
<u>ARCH</u>	<u>LB</u>	<u>REJ.</u>
_____	_____	_____
_____	_____	_____

BUILDING PROJECT Replace Water Wells, Bldgs 601, M168, BB43

LOCATION Marine Corp. Base, Camp Lejeune, N.C., Jacksonville, N.C.

ARCHITECT

CONTRACTOR East Coast Construction

CONTRACT NO.

PREPARED BY Don Edwards

DATE April 28, 1983

PRESENTED BY Don Edwards

RECEIVED

MAY 9 1983

ENWRIGHT ASSOCIATES

SECURING THE NATION SINCE 1930 ENWRIGHT ASSOCIATES

DEPARTMENTAL ROUTING & APPROVALS

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DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
PLUMBER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
ARCH	LB	REJ.
_____	_____	_____
_____	_____	_____

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

C. H. EDWARDS, INCORPORATED
 P. O. Box 775 Highway 11 South
 GREENVILLE, N. C. 27834
 Phone: (919) 756-8500

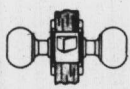
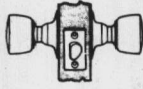
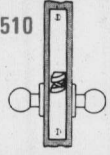
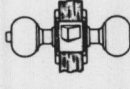
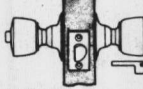
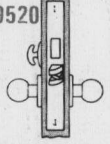
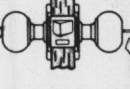
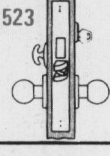
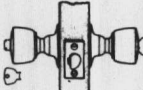
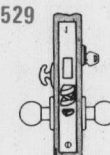
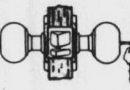
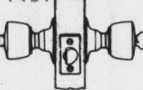
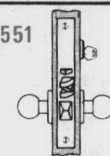
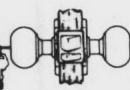
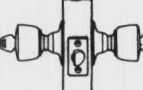
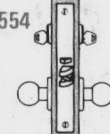
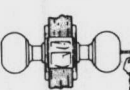
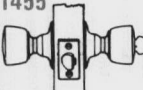
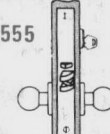
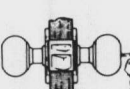

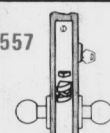
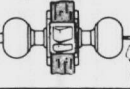
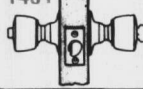
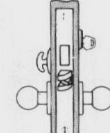
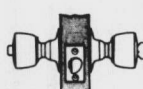
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enwright associates

SCHEDULE OF ARCHITECTURAL HARDWARE



LOCK ILLUSTRATIONS SHOW INSIDE KNOB ON THE LEFT AND OUTSIDE KNOB ON THE RIGHT

FUNCTIONS	UNIT	H.D. CYL.	DESCRIPTION	MORTISE	DESCRIPTION
Passage or Closet Latch	310 	410 1410 	Latch bolt by knob either side.	9510 	Latch bolt by knob either side.
Privacy Lock	320 	420 1420 	Latch bolt by knob either side EXCEPT when Push Button inside locks outside knob. Push Button released by turning inside knob or closing door. EMERGENCY RELEASE: Push Button also released by turning emergency release through hole in outside knob by means of emergency key, or similar instrument, such as a screwdriver.	E9520 	Latch bolt by knob either side EXCEPT WHEN outside knob is locked by projecting dead bolt. Dead bolt by turnpiece inside and emergency key outside. When dead bolt is projected a turn of inside knob retracts latch and dead bolts simultaneously — automatically unlocking outside knob.
Store Door Lock	323D 		Latch bolt by knob either side. Dead bolt by key outside or turn Button inside. Dead bolt has hardened steel inserts.	9523 	Latch bolt by knob either side. Dead bolt by key outside and turnpiece inside.
Hotel Room Lock		429 1429 	Latch bolt by knob inside or key outside. Outside knob always RIGID. Push Button shuts out all keys except emergency key and projects Occupancy Indicator in face of cylinder. Push Button released by turning inside knob or closing door. UNLESS Push Button has been fixed in locked position by special Spanner Key furnished. SHUT-OUT FEATURE: When Push Button is fixed by Spanner Key, lock is operable only by Emergency or Display Key. Dead locking latch.	9529 	Latch bolt by knob inside and guest or master key outside. Outside knob always RIGID. Dead bolt by turnpiece inside and emergency key only outside. A turn of inside knob retracts latch and dead bolt simultaneously. Emergency Key shuts out all other keys. Auxiliary latch deadlocks latch bolt. Furnished with occupancy indicator when so ordered.
Entrance or Office Lock	351 	451 1451 	Latch bolt by knob either side EXCEPT when Turn Button locks outside knob. Key outside retracts latch bolt. Dead locking latch.	9551 	Latch bolt by key outside and knob either side unless outside knob is locked by toggle-action stop. Auxiliary latch deadlocks latch bolt and prevents manipulation of locked toggle-action stop.
Public Restroom or Office Lock	354 	454 	Latch bolt by knob either side EXCEPT when Key inside locks outside knob. Key outside retracts latch bolt. Inside cylinder operated by Master Key only — unless otherwise specified. Dead locking latch.	9554 	Latch bolt by knob either side unless outside knob is locked by master key from inside. When outside knob is locked, latch bolt by key outside and knob inside. Auxiliary latch deadlocks latch bolt. When so specified, will be furnished with change key to operate inside cylinder.
Entrance or Classroom Lock	355 	455 1455 	Latch bolt by knob either side EXCEPT when Key outside locks outside knob. Dead locking latch.	9555 	Latch bolt by key outside and knob either side unless outside knob is locked by key outside. Inside knob always free. Auxiliary latch deadlocks latch bolt.
Storeroom or Closet Lock	357 	457 1457 	Latch bolt by knob inside only. Outside knob always RIGID. Key outside retracts latch bolt. Dead locking latch.	9557 	Latch by knob inside and key outside. Outside knob always RIGID. Auxiliary latch deadlocks latch bolt.
Office Lock	361 	461 1461 	Latch bolt by key outside or knob either side EXCEPT when Push Button locks outside knob. Push Button released by turning inside knob or by Key in outside knob. Closing door DOES NOT release Push Button. Dead locking latch.	9565 	Latch bolt by knob either side. Dead bolt by key outside and turnpiece inside. When dead bolt is projected, latch bolt is deadlocked and outside knob is locked. A turn of inside knob retracts latch and dead bolt simultaneously — automatically unlocking outside knob.
Dormitory Lock		475 	Latch bolt by knob either side EXCEPT when Push Button or Key locks outside knob. Push Button released by turning inside knob, closing door or by turn of Key in outside knob. Should the Push Button be held in locked position, Key in outside knob will retract latch bolt. Dead locking latch.		

JOB

Replace Water Wells
Bldgs 601, M168, & BB43

LOCATION

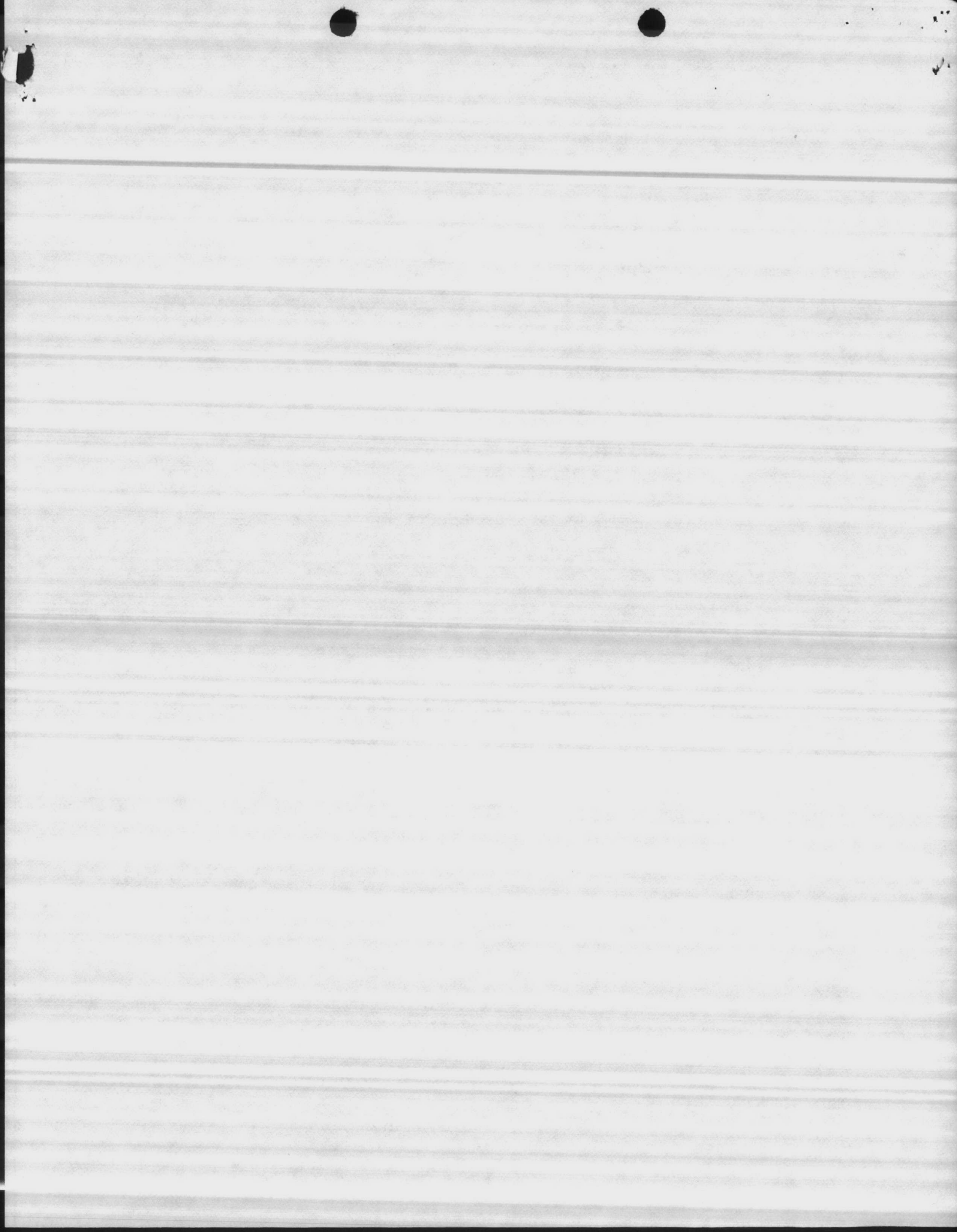
Marine Corp. Base
Camp Lejeune, N.C.
Jacksonville, N.C.

CONTRACTOR

East Coast Construction
229 Center Street
P.O. Box 5004
Jacksonville, N.C. 28540

PREPARED BY

Don Edwards



Keying:

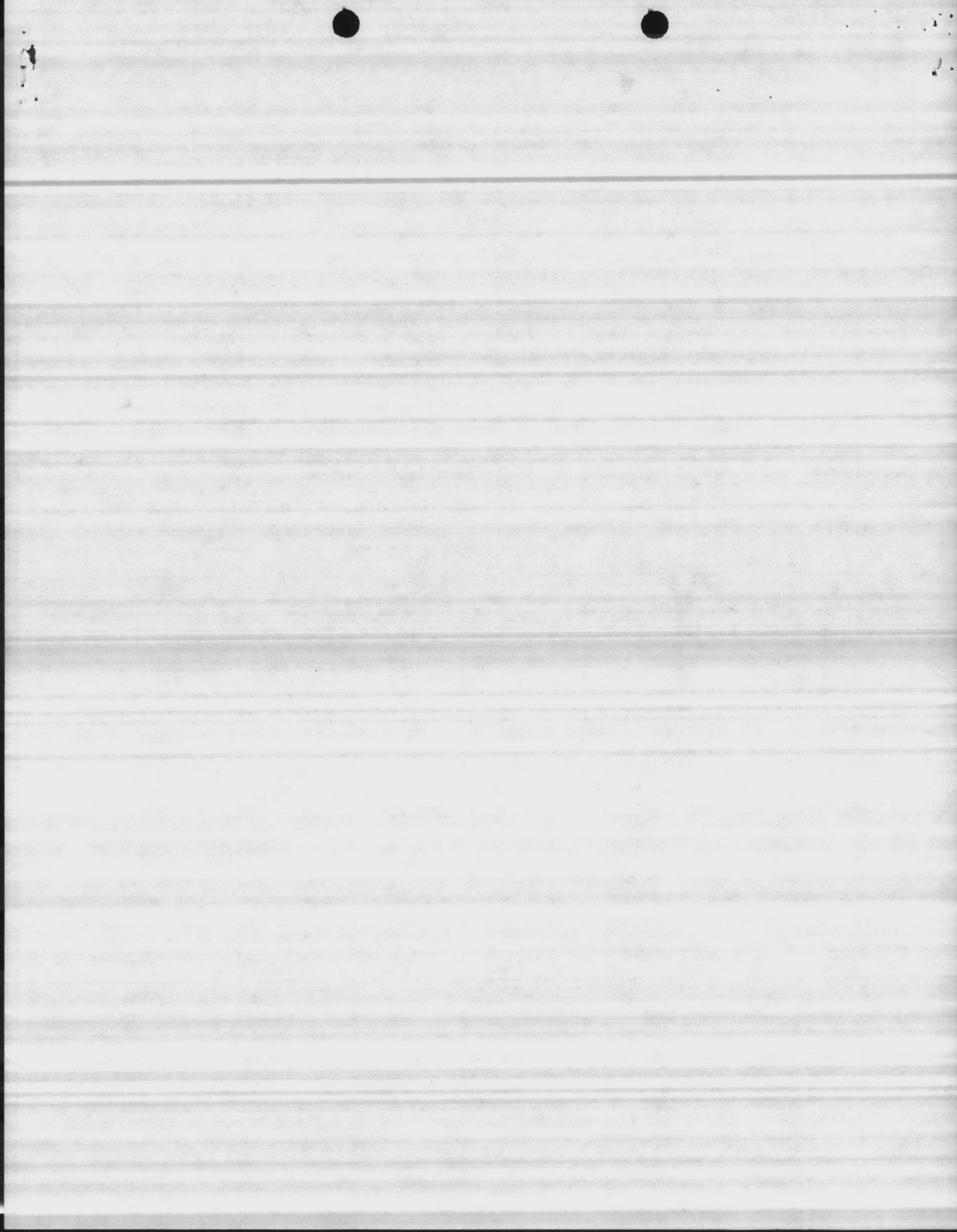
Locks to be keyed individually and master keyed to the existing key system. Furnish 3 keys per lock.

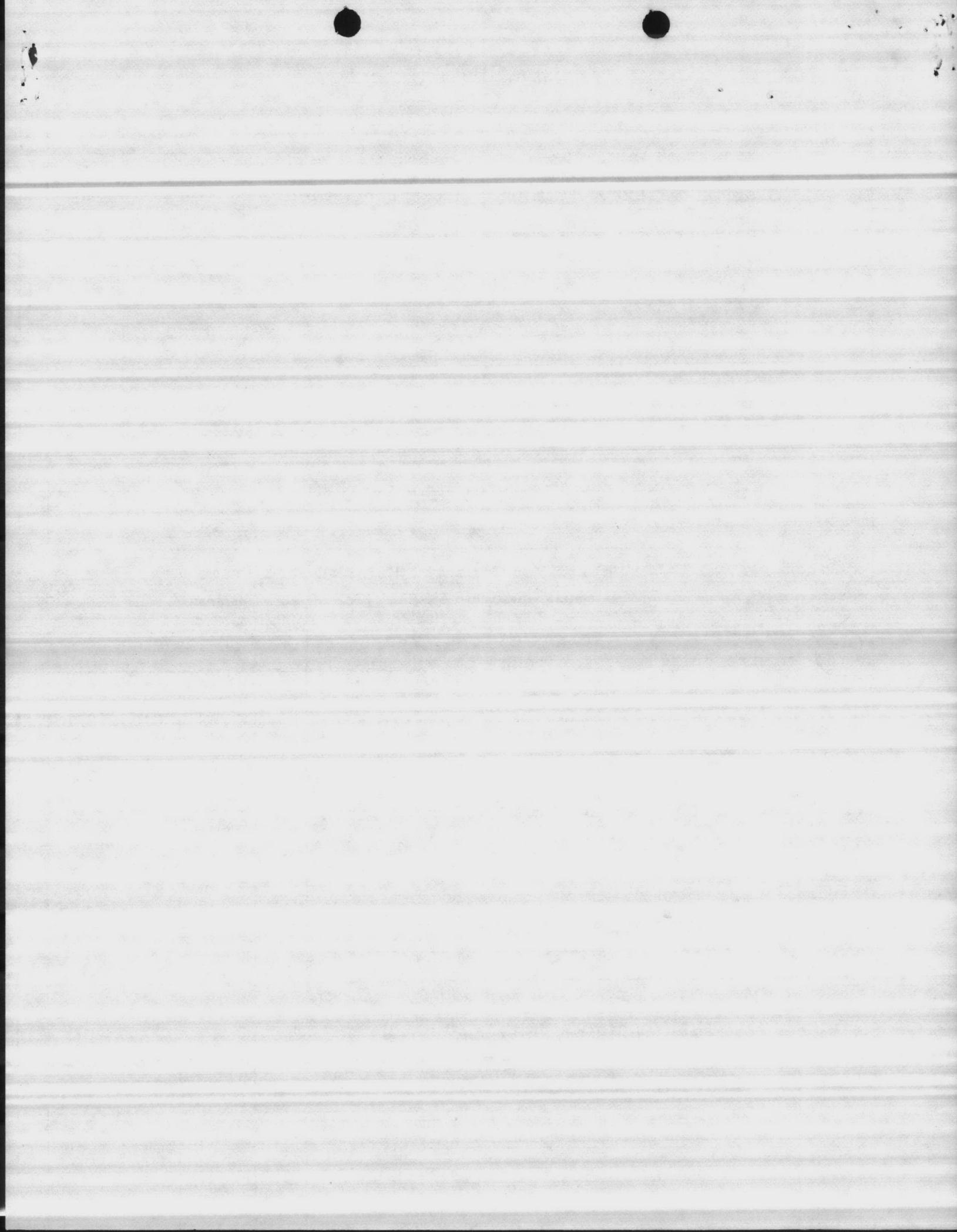
Contractor to furnish C.H. Edwards, Inc. with a master key of the existing system.

MFG

C	Corbin
H	Hager
P	Pemko
GJ	Glyn Johnson

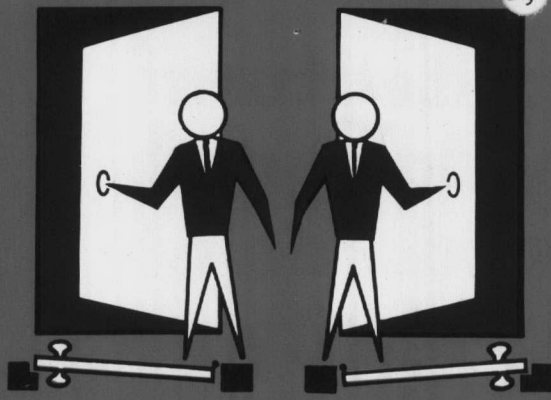
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1	BB1279 4 ² NRP	H	A8112
2	710 x 463-9557	C	1000 Grd 2 F07
3	P110-3	C	C02012 PT4C
4	181A	C	As spec.
5	316AV 26 x 70	P	As spec.
6	GJ64	GJ	L03011





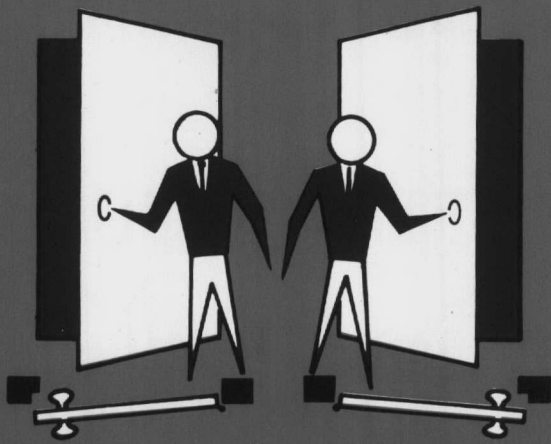
Handing

(Always take hand from outside)



Hand of door:
right hand (RH)

Hand of door:
left hand (LH)



Hand of door: right
hand reverse (RHR)

Hand of door: left
hand reverse (LHR)

RULES

1. The hand of a door is always determined from the outside.
2. The outside of an exterior door is the street or entrance side.
3. The outside of a room door is the corridor or hall side.
4. The outside of a closet door is the room, corridor or hall side.

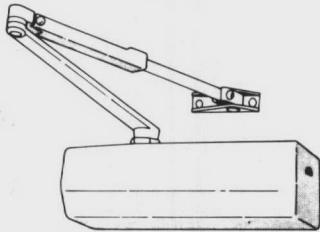
For hardware locations
check architects recommendations

Frequently Used Hardware

Abbreviations

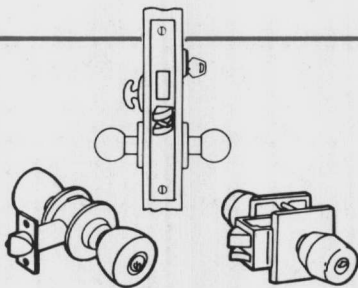
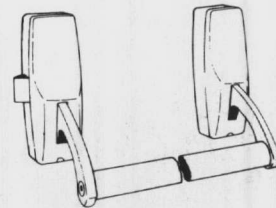
- $\frac{1}{2}$ When used with screws as $\frac{1}{2}$ MS or $\frac{1}{2}$ WS, indicates that half of the required screws shall be of the type designated, the remaining half shall be as regularly packed.
- $\frac{1}{8}$ " on 2"..... Standard door edge bevel of $\frac{1}{8}$ inch on 2 inches. Also used: $\frac{1}{8}$ in 2.
- A**
- Act..... Active.
- AF..... Armored front (of a lock).
- AMS..... All Machine screws.
- ASA..... American Standard Association. (The "ASA Strike" is the one designated in American Standard A115-61.
- AWS..... All Wood Screws.
- B**
- B3E..... Beveled on 3 edges usually top and 2 sides. (Kick, mop and armor plates.)
- BEV..... Beveled (as lock front or door stile).
- B.S..... Backset (of a lock); distance from front to center of hub or cylinder.
- BTB..... Back to back (as pulls). Also used: B. to B.
- C**
- CFC..... Cut for cylinder. Also used: C for Cyl, C/C and Cut/Cyl.
- CFT..... Cut for turn knob. Also used: c/tk, CFTT, c. for T.K.
- CB..... Cast Box Strike.
- CI..... Channel iron.
- CYL..... Cylinder (of a lock).
- D**
- DEG..... Degree.
- DT..... Dummy Trim.
- E**
- EM..... Emergency masterkeyed (hotel lock). Also used: EMK.
- F**
- FH..... Flat head screws.
- F..... Fusible link (on a closing device).
- G**
- GA..... Gauge (e.g. 16 Ga., 14 Ga., Etc.).
- GGMK..... Great Grand Masterkey.
- GMKC..... Construction Grand Masterkey.
- H**
- H..... Prefix for holdback locks).
- HO..... Hold open . . . as in door holders. Designates degree of hold open.
- HM..... Hollow Metal.
- HM..... Hotel Keyed (used with locks).
- K**
- KA..... Keyed alike; operable by identical change keys.
- KAL..... Kalamein.
- KD..... Keyed different; operable by different change keys.
- L**
- L..... Lip (of lock Strike).
- LC..... Less cylinder; denotes lock without cylinder.
- LH..... Left hand.
- LHR..... Left hand reverse bevel.
- LL..... Lead Lining (of a door).
- LS..... Lead Shield.
- M**
- M..... Masterkeyed.
- MK..... Masterkeys.
- MKC..... Construction Masterkeyed.
- MxM..... Metal by metal; denotes metal door in metal frame. Also used M-M, HMxHM.
- MS..... Machine Screws.
- N**
- NB..... No bottom rod (of a vertical rod type exit device).
- NR..... No Rose.
- NTM..... No trademark.
- O**
- OBS..... Open back strike; lock strike with back cut away for use on pairs of doors permitting inactive leaf to be opened independently, also used: OBST.
- O.H..... Oval Head (screws); overhead.
- OSKP..... Outside knob pinned.
- P**
- PH..... Phillips Head (Screw) also used: PH. H.
- PR..... Pair.
- R**
- RAB or R..... Rabbeted.
- RC..... Rounded Corners.
- RF..... Rounded (or radius) front; denotes lock or flush bolt with convex front for application in door having rounded edge also used: RD. FR.
- RFS..... Rounded front and strike; for use with pairs of doors having rounded meeting edges. Also used: RD. FR. & ST: RF&S, RDF & S.
- REG..... Regular.
- REM. MUL..... Removable Mullion (for use with Exit device).
- RH..... Round Head (screws). Also used: RD, HD, RD. H.
- RH..... Right Hand.
- RHR..... Right hand reverse bevel.
- S**
- STR..... Strike — Also used: S., Stk., St.
- SGL..... Single.
- SNB..... Sex Nut and Bolt. Also used SBN.
- SP. HD..... Spanner Head (Screw). Also used: S. H.
- SS..... Stainless Steel.
- STMS..... Strike to template with machine screws. Also used; STR. TMS.
- STS..... Self-Tapping Screws.
- SW..... Swivel Spindle.
- T**
- TB..... Through Bolts.
- TBGN..... Through Bolts and Grommet Nuts.
- TBN..... Through Bolts and Nuts.
- T.K..... Turn Knob.
- TMS..... To template with machine screws.
- U**
- UL..... Underwriter's Laboratories.
- W**
- WB..... Wrought box Strike. Also used: WBX.
- WD..... Wood.
- WS..... Wood Screws.

The **CORBIN** line of Architectural Hardware is specifically designed to meet the highest standards of Safety, Security and Durability



DOOR CLOSERS Versatile Nonhanded Design - Rugged Cast Iron Alloy Case - "Quick-Mount" Installation Bracket - UL Listed - ANSI Listed.

EXIT DEVICES Rim, Mortise and Vertical Devices - Reversible - Matching active and inactive cases - Versatile elliptical crossbar - UL Listed for Fire & Safety. ANSI Listed.

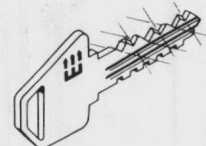


LOCKSETS Complete line of Unit Locks, Cylindrical Locks, Mortise Locks: Deadlocks. UL Listed. ANSI Listed.



DOOR HOLDERS Overhead Friction Door Holders, Overhead Stays and Holders.

EMHART HIGH SECURITY LOCKING SYSTEM with Interlocking Pin Tumblers. Our "Interlock" cylinder is virtually "pick-proof" because of unique locking principle. The cylinder has tumblers that rotate and interlock with the drivers. This unique "twist and interlock" principle makes the cylinder virtually impregnable against any known burglary picking techniques or devices.



HARDWARE GROUP, CORBIN DIVISION
Berlin, Connecticut, 06037

EMHART



K874 R77



enwright associates, inc.

ENGINEERS · SURVEYORS · PLANNERS
 HAYWOOD ROAD POST OFFICE BOX 5287
 GREENVILLE, SOUTH CAROLINA 29606

Caster

PHONE

TRANSMITTAL

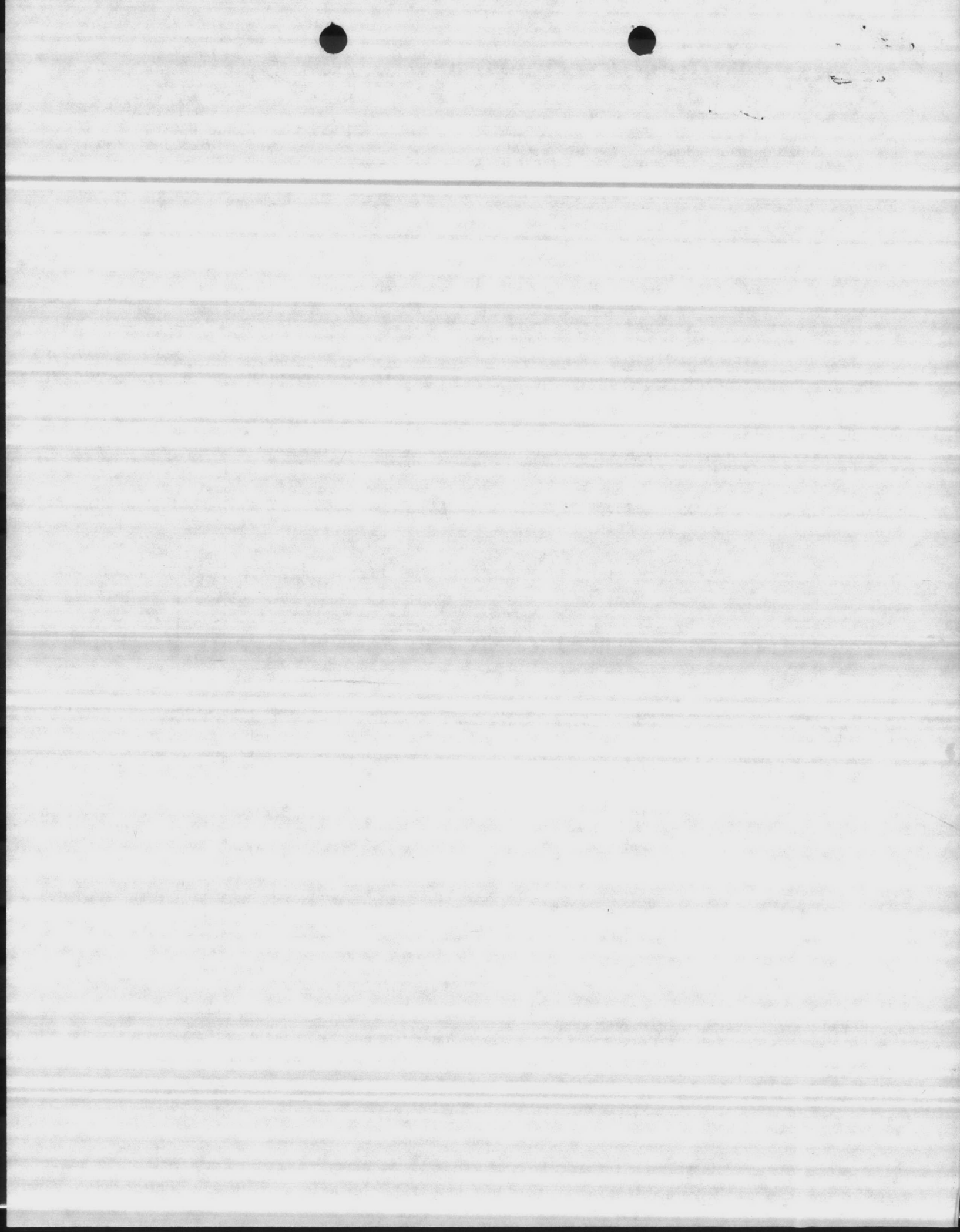
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	PAGE NO.	Construction Contract N62470-82-C-4551		1
				OF PAGES 1
	DATE	Camp Lejeune, North Carolina		May 17, 1983
Replacing Water Wells Marine Corps Base		PURCHASE ORDER NO.	OURS <input type="checkbox"/> YOURS <input type="checkbox"/>	

THE FOLLOWING INFORMATION AND/OR ATTACHMENTS ARE FOR DISTRIBUTION AS INDICATED BELOW:

COMPANY	TITLE	NO.	REV. NO.	ISSUE	EQT. OR MTR. NUMBER	ACTION																																							
The Riverton Corp.	Type M Mortar	<table border="1"> <tr> <td colspan="2">ROUTING ORDER</td> <td colspan="2">INT</td> </tr> <tr> <td>1</td> <td>60</td> <td>9</td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td></td> <td></td> <td></td> </tr> <tr> <td>8</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">RETURN TO</td> <td colspan="2">02</td> </tr> </table>	ROUTING ORDER		INT		1	60	9		2				3				4				5				6				7				8				RETURN TO		02				(A) Revwd. (A) Revwd. (A) Revwd.
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Chet Adams Company	Exhaust Fans					(AN) FC																																							
	Electric Heaters					(AN) FC																																							
	Louvers					(AN) FC																																							
Steelcraft Corbin	Hollow Metal Shops					(D) Rejctd																																							
	Hardware Schedule					(D) Rejctd																																							

I/O	DISTRIBUTION	T	P	SEP	I/O	DISTRIBUTION	T	P	SEP	I/O	DISTRIBUTION			
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✓	Dept. of the Navy Officer in Charge of Const Naval Facilities Engr. Command Camp Lejeune, N.C. 28542	1	6									CIVIL & SANITARY		
												ELECTRICAL		
												INSTRUMENTATION		
												H VAC		
												PROJECT MANAGER	1	0
												RESIDENT ENGINEER		
												STRUCTURAL		
												File	1	1

REMARKS
 Revwd. - Reviewed (A - Approved)
 FC - Furnish as Corrected (AN - Approved as Noted)
 Rejctd. - Rejected (D - Disapproved)



CONTRACTOR'S SUBMITTAL TRANSMITTAL

5ND LANTDIV 4-4355/3 (Rev. 6/76)

3

CONTRACT NO. 82-C-4551	TRANSMITTAL NO. 4	DATE 5-04-83
---------------------------	----------------------	-----------------

FROM CONTRACTOR
East Coast Construction Co., Inc.
To Enwright Associates, Inc.
P.O.Box 5287, Station B Greenville, S.C.29606

PROJECT TITLE AND LOCATION
Replace 3 water wells
MCB, Camp Lejeune, N. C.

<p align="center">CONTRACTOR USE ONLY</p> <p align="center">*List only one specification division per form.</p> <p align="center">List only one of the following categories on each transmittal form, and indicate which is being submitted</p> <p><input type="checkbox"/> Contractor Approved <input type="checkbox"/> OICC Approval <input type="checkbox"/> Deviation/Substitution For OICC Approval</p>	<p align="center">REVIEWER USE ONLY</p> <p align="center">**ACTION CODES</p> <p>A-Approved D-Disapproved AN-Approved as noted RA-Receipt acknowledged. C-Comments R-Resubmit</p>
---	---

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	04200-2.2	Type M Mortar	7		
2	04200-2.2.4	Mortar Sand	7		
3	04200.2.1	Masonry units	7		

RECEIVED
MAY 9 1983

ENWRIGHT ASSOCIATES

CONTRACTOR'S COMMENTS

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE (Signature)
James H. Boehm

DATE RECEIVED BY REVIEWER FROM (Reviewer) TO

- Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.
- Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on ONE COPY of the transmittal form.

REVIEWER'S COMMENTS

1	ROUTING	
2	ORDER	
3	INT	
4		
5		
6		
7		
8		

RETURN TO 02

BOICD VVXMCY
RECEIVED

COPIES TO: ROICC (2) LANTDIV (1) A-E (1)	DATE	SIGNATURE
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MAY 20 11 13 AM '83

RECEIVED
ROICC JAXNCA

NEW BERN BUILDING SUPPLY COMPANY

BETTER PRODUCTS FOR BETTER CONSTRUCTION

P. O. BOX 2305, NEW BERN, N. C. 28560 • PHONE (919) 638-5861

April 26, 1983

East Coast Construction Co., Inc.
P.O. Box 5004
Jacksonville, N.C. 28540

Re: 3 Water Wells Job 199
MCB Camp Le Jeune, N.C.
N62470-82-C-4551

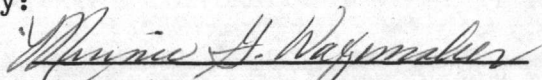
Gentlemen:

This certifies that the Mortar Sand which we propose to furnish for the referenced project will meet ASTM Specification C-144-76 for Masonry Sand.


Respectfully submitted:

NEW BERN BUILDING SUPPLY CO.

By:


Minnie G. Wagemaker

Sworn to and subscribed before me this 26 day of April, 1983.


Notary Public

My Commission expires 12-12-84.

RECEIVED

MAY 9 1983

ENWRIGHT ASSOCIATES

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correcting all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
Greenville, South Carolina

Date 5-17-83 By A.P.P.

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
Mechanical	_____	_____
Electrical	_____	_____
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
<u>ARCH</u>	<u>LB</u>	<u>REV.</u>
_____	_____	_____
_____	_____	_____

RIVERTON

April 26, 1983

General Wholesale Building Supply
P. O. Box 2304
New Bern, North Carolina 28560

Attention: Mr. Hank Toler

General Contractor: East Coast Construction Company, Inc.

Project: N62470-82-C-4551
Camp LeJune, North Carolina

Gentlemen:

We are pleased to certify that the Flamingo BRICK-MIX Masonry Cement Type M produced by Riverton Corporation will produce a Type M mortar in compliance with ASTM C-270 when mixed and tested in accordance therewith.

Very truly yours,

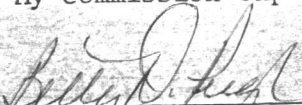
RIVERTON CORPORATION



John Melander
Manager, Quality Control

bdp

Subscribed and sworn to before me this 26th day of April, 1983.
My commission expires on the 28th day of February, 1987.



BETTY D. PUGH, Notary Public
Commonwealth of VIRGINIA

RECEIVED

MAY 9 1983

ENWRIGHT ASSOCIATES

REJECTED REVISE AND RESUBMIT
 REVIEWED FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: determining and correcting all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

enwright associates
Greenville, South Carolina

Date 5-17-83 By H.H.K.

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
WATER	_____	_____
AIR	_____	_____
WASTE WATER	_____	_____
<u>ARCH</u>	<u>LB</u>	<u>REV.</u>
_____	_____	_____
_____	_____	_____

STEVENSON BRICK & BLOCK COMPANY

DURA-LITE CONCRETE AND LIGHTWEIGHT PRODUCTS

P. O. BOX 2304, NEW BERN, N. C. 28560 • PHONE (919) 638-5855

April 26, 1983

East Coast Construction, Inc.
P.O. Box 5004
Jacksonville, N.C. 28540

Re: 3 Water Wells Job 199
MCB Camp Le Jeune, N.C.
N62470-82-C-4551

Gentlemen:

This certifies that the Masonry Units which we propose to furnish for the referenced project will meet ASTM Specifications C-90-75 for Hollow Load Bearing Masonry Units.

Respectfully submitted:

STEVENSON BRICK AND BLOCK COMPANY

By: *H. W. Toler*

H. W. Toler

Sworn to and subscribed before me this 26 day of April, 1983.

L. D. [Signature]
Notary Public

My Commission expires 12-12-84.

RECEIVED

MAY 9 1983

ENWRIGHT ASSOCIATES

- REJECTED
- REVISE AND RESUBMIT
- REVIEWED
- FURNISH AS CORRECTED

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correcting all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

Enwright associates
Greenville, South Carolina

Date _____

By _____

ENWRIGHT ASSOCIATES
DEPARTMENTAL ROUTING & APPROVALS

THIS STAMP IS FOR ENWRIGHT ASSOC.
INTERNAL USE ONLY AND DOES NOT
CONSTITUTE APPROVAL OR REJECTION
OF SHOP DRAWINGS.

DEPT.	INITIALS	ACTION
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CIVIL	_____	_____
STRUCTURAL	_____	_____
MECHANICAL	_____	_____
ELECTRICAL	_____	_____
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_____	_____	_____
_____	_____	_____



enwright associates, inc.

ENGINEERS · SURVEYORS · PLANNERS
 HAYWOOD ROAD POST OFFICE BOX 5287
 GREENVILLE, SOUTH CAROLINA 29606

PHONE 803 - 288-5190

TRANSMITTAL

JOB NO.	A/E Contract No. N62470-82-C-770		82005-00-2-01	
	PAGE NO.	Construction Contract N62470-82-C-4551		OF PAGES
		1			1
	DATE	Camp Lejeune, North Carolina		
May 17, 1983				
PURCHASE ORDER NO.	Replacing Water Wells Marine Corps Base		OURS	YOURS
			<input type="checkbox"/>	<input type="checkbox"/>

THE FOLLOWING INFORMATION AND/OR ATTACHMENTS ARE FOR DISTRIBUTION AS INDICATED BELOW:

COMPANY	TITLE	NO.	REV. NO.	ISSUE	EQT. OR MTR. NUMBER	ACTION																						
The Riverton Corp.	Type M Mortar	<table border="1"> <tr> <th colspan="2">ROUTING</th> </tr> <tr> <th>ORDER</th> <th>INT</th> </tr> <tr> <td>1</td> <td>60</td> </tr> <tr> <td>2</td> <td>AC</td> </tr> <tr> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td></td> </tr> <tr> <td>5</td> <td></td> </tr> <tr> <td>6</td> <td></td> </tr> <tr> <td>7</td> <td></td> </tr> <tr> <td>8</td> <td></td> </tr> <tr> <td colspan="2">RETURN TO 02</td> </tr> </table>	ROUTING		ORDER	INT	1	60	2	AC	3		4		5		6		7		8		RETURN TO 02					(A) Revwd.
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Masonry Units					(A) Revwd.																							
Chet Adams Company	Exhaust Fans					(AN) FC																						
	Electric Heaters					(AN) FC																						
	Louvers					(AN) FC																						
Steelcraft Corbin	Hollow Metal Shops					(D) Rejctd.																						
	Hardware Schedule					(D) Rejctd.																						

DISTRIBUTION	T	P	SEP	DISTRIBUTION	T	P	SEP	DISTRIBUTION			
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Dept. of the Navy Officer in Charge of Const Naval Facilities Engr. Command Camp Lejeune, N.C. 28542	1	6						CIVIL & SANITARY			
								ELECTRICAL			
								INSTRUMENTATION			
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								PROJECT MANAGER	1	0	
								RESIDENT ENGINEER			
STRUCTURAL											
File				1	1						

REMARKS

Revwd. - Reviewed (A - Approved)
 FC - Furnish as Corrected (AN - Approved as Noted)
 Rejctd. - Rejected (D - Disapproved)

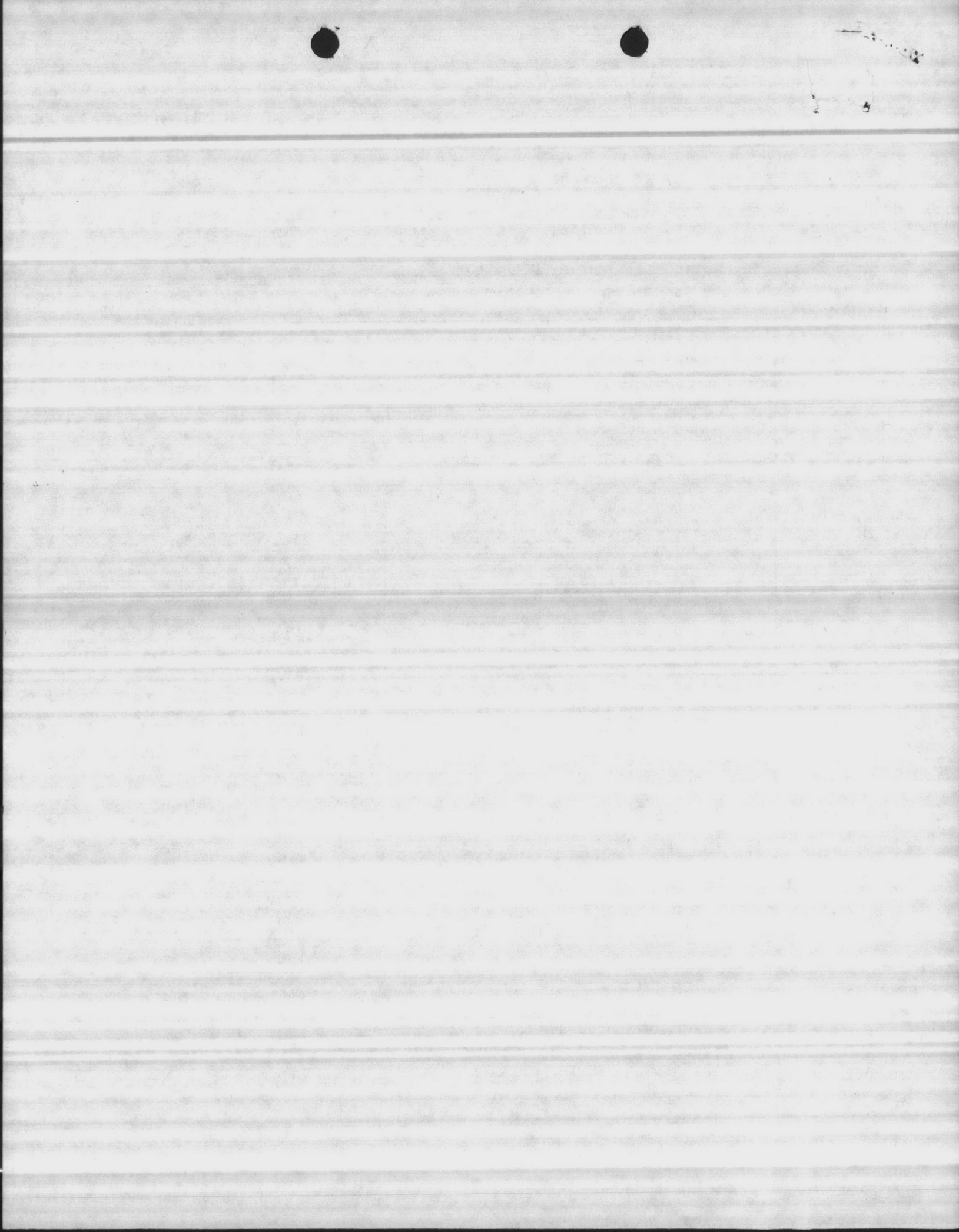
ACTION CODES

A - APPROVED
 AN - APPROVED AS NOTED
 RC - RETURNED FOR CORRECTION

ABBREVIATIONS
 T - TRANSMITTAL ONLY
 P - PRINT
 SEP - SEPIA

BY Bill Foster

enwright associates, inc.



E. COAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

Post Office Box 5004

JACKSONVILLE, NORTH CAROLINA 28540

ENVIRONMENTAL PROTECTION PLAN

ADDENDUM NO. 1

To accompany Contract No. N62470-82-C-4551

The following to be in compliance with regulations concerning the Environmental Protection Plan and the referenced project.

Within the project boundaries, the following will be enforced for the preservation of natural resources:

- 1) Reseed disturbed soil as soon as possible to prevent silt runoff.
- 2) Backfill and tamp trenches as pipe is laid to prevent soil erosion.
- 3) Where trenches cannot be backfilled immediately, erect silt fences to contain runoff.

APPROVED:

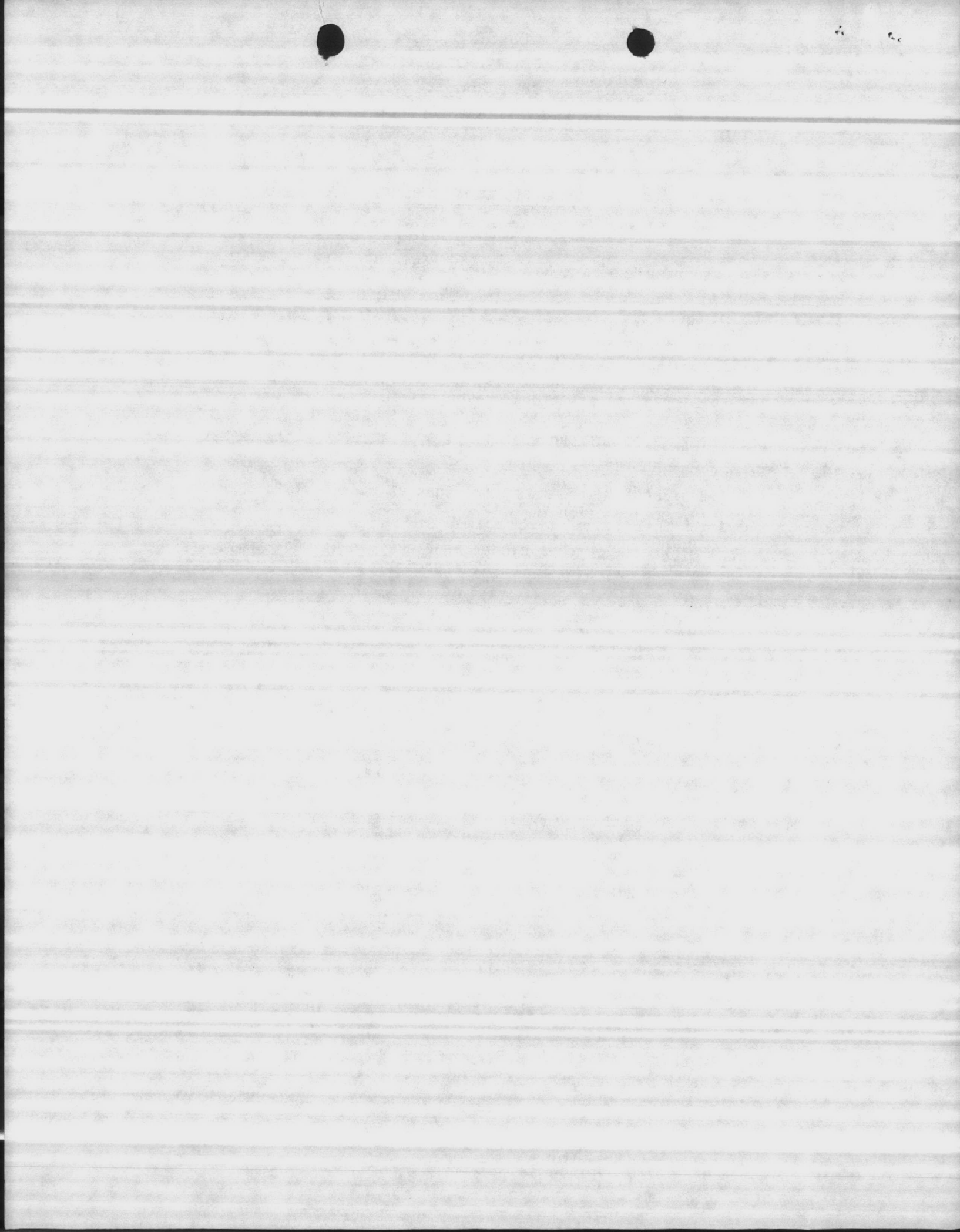
James H. Boehm
East Coast Construction Co., Inc.

20 day of April 198

APPROVED:

ROIIC - CAMP LEJEUNE, N. C.

_____ day of _____ 198



EAST COAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

Post Office Box 5004

JACKSONVILLE, NORTH CAROLINA 28540

ENVIRONMENTAL PROTECTION PLAN

It is the intention of East Coast Construction Co., Inc. during the construction phase of this project, Replace (3) Water Wells Contract No. N62470-82-C-4551, to comply fully with all Federal, State, and local regulations pertaining to water, air, solid waste, and noise pollution. Furthermore, we will keep all personnel informed of our policies and make every possible effort to prevent any unnecessary damage to the existing environment. Policy on this project shall be as follows:

- 1) Dispose of non-hazardous waste at an approved site, in covered trucks when necessary to prevent loose waste material from littering the road.
- 2) Preserve all natural resources within the project boundaries by:
 - A) Not allowing company vehicles to damage grounds where at all possible.
 - B) Using approved garbage receptors for the disposal of waste foodstuffs and any other trash.
 - C) Instruction personnel to use proper toilet facilities and providing temporary toilet facilities where necessary.
 - D) Maintaining a clean job site with daily cleanup.

APPROVED:

4-20, 19 83

APPROVED:

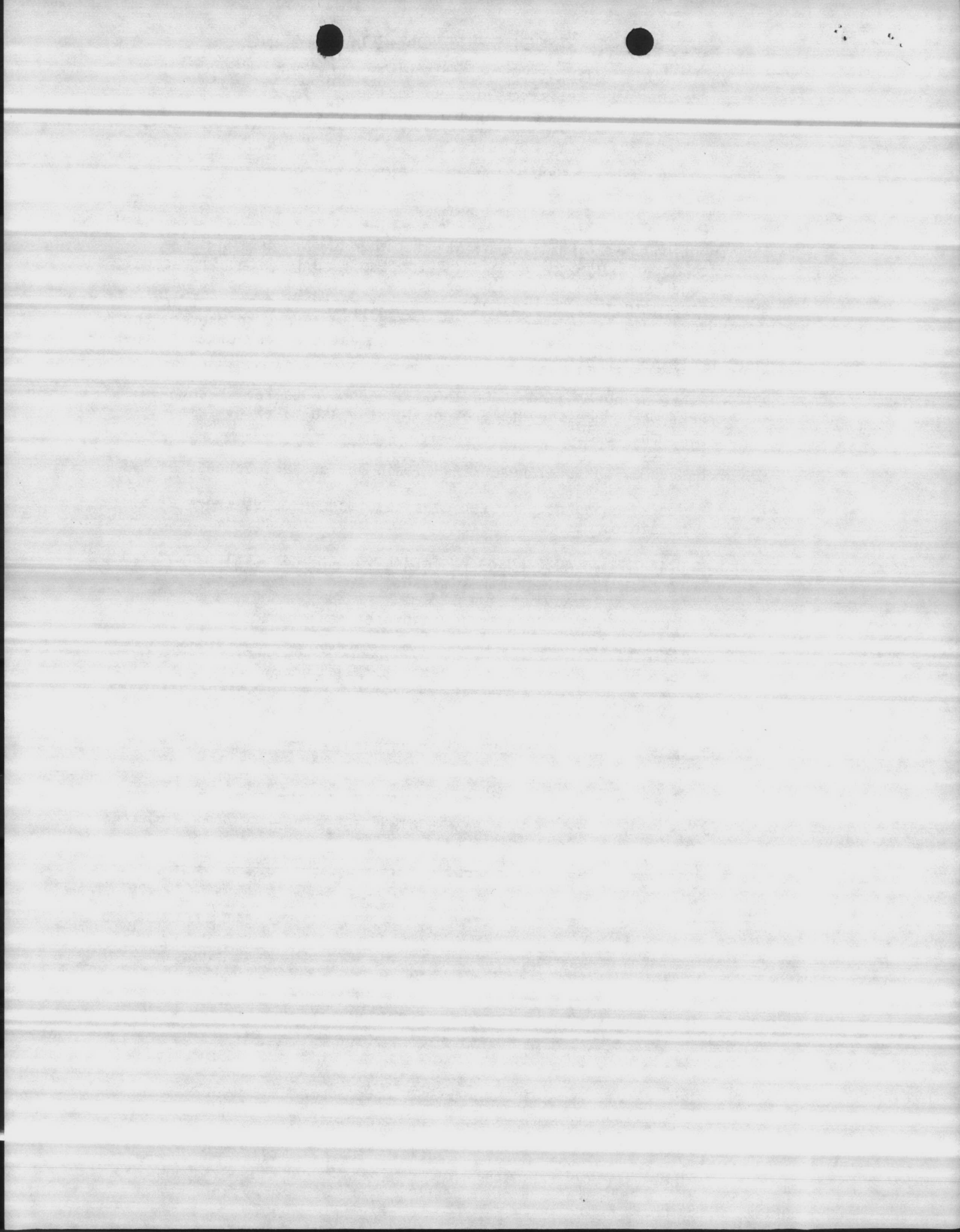
_____, 19 _____

SIGNED:

James H. Boehm
East Coast Construction Co., Inc.

SIGNED:

ROICC - Camp Lejeune, N. C.



EAST COAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

P. O. BOX 5004 — JACKSONVILLE, NORTH CAROLINA 28540

353-4479 or 353-6044

April 1, 1977

TO ALL EMPLOYEES:

RE: SAFETY PROGRAM

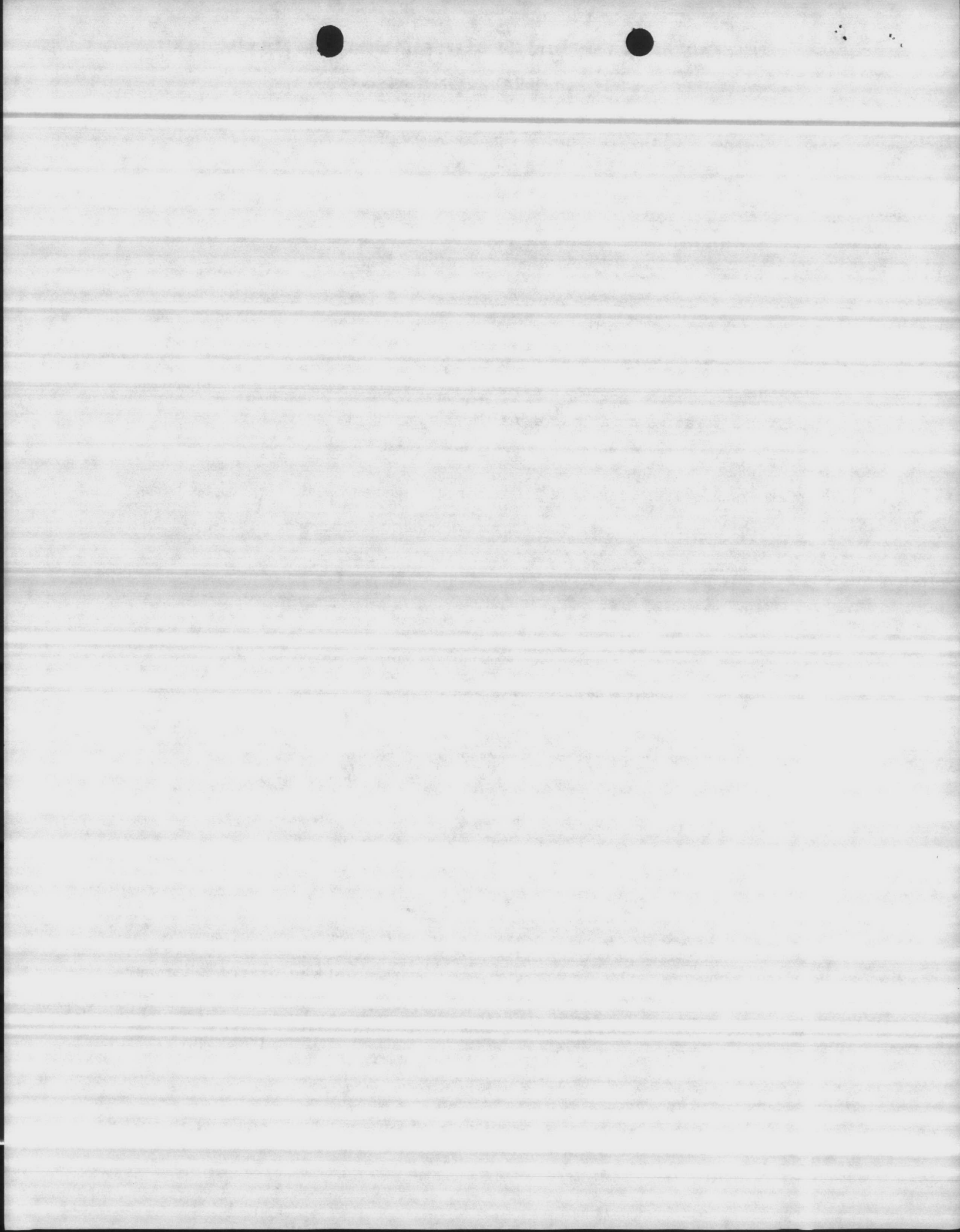
This company has established a policy to provide each of you with a healthy and safe place of employment. It is therefore a requirement upon you to abide by all safety rules and regulations that relate or pertain to the job we are doing and in accordance with all Federal and State laws. Following is a list of required responsibilities to be borne by all of us in order to keep our work "Accident-FREE" at all times.

A. Management Will:

1. Provide means to accomplish policy as stated above.
2. Enforce this policy and discharge any employee willfully disregarding it.
3. Require all subcontractors to abide by this policy.
4. Conduct safety inspections and file reports.
5. Investigate or cause to have investigated any and all accidents and file full reports on each.
6. Provide time for "tool box" safety meetings on all jobs.
7. Provide for treatment of all job injuries.
8. Provide transportation for emergency treatment.

B. Job Superintendent Will:

1. Be completely responsible for on-site safety.
2. Make available all necessary personal protective equipment and first aid supplies.
3. Instruct personnel that safe practices are to be followed and safe conditions maintained on jobsite.
4. Require all subcontractors to adhere to all safety regulations.
5. Review all accidents, file, or caused to be filed, full reports and take corrective action immediately.
6. Be familiar with the basic requirements of laws relating to safety.
7. Hold "tool box" safety meetings at least once each week.
8. See that all injuries are cared for promptly.
9. Maintain first aid certificate.

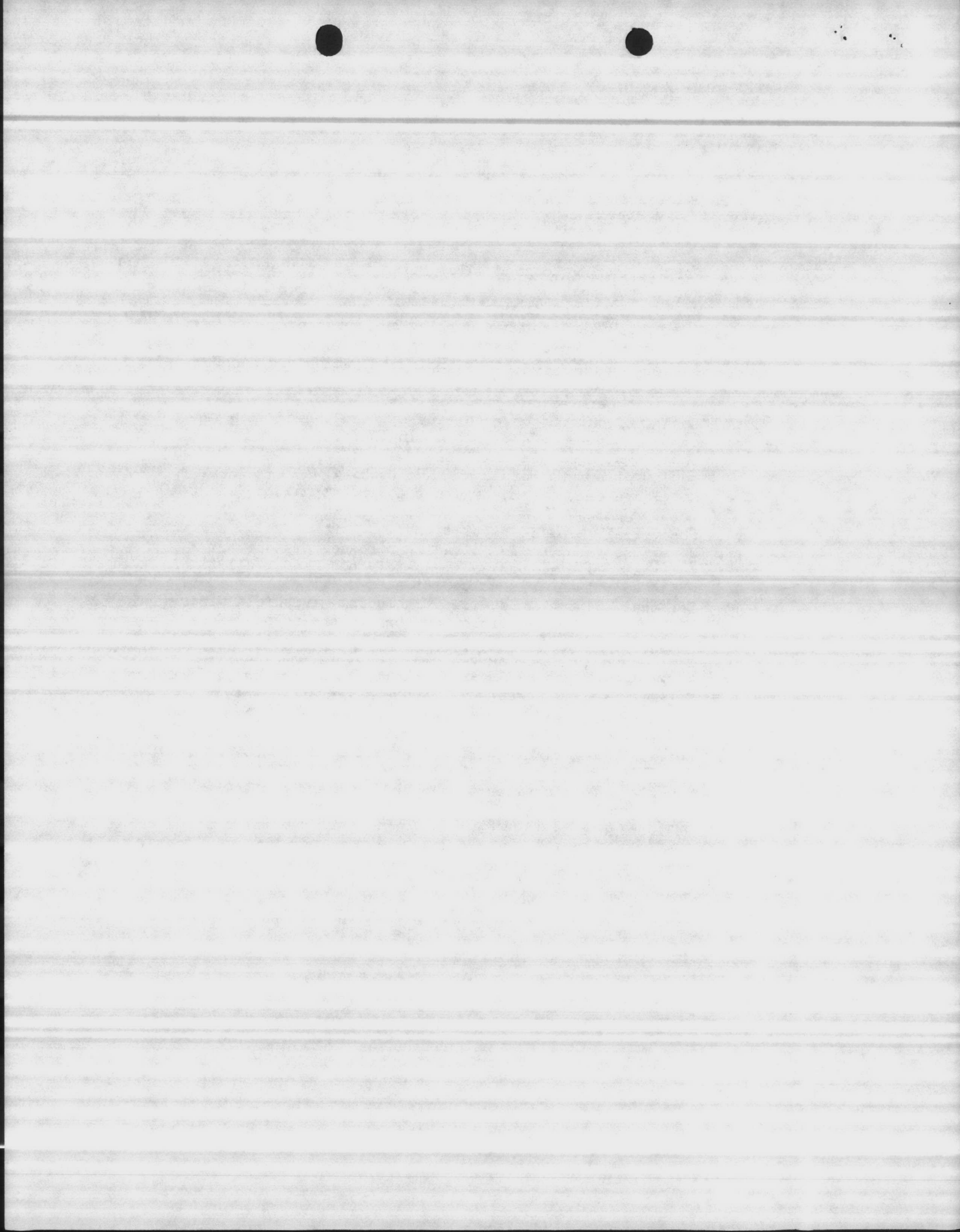


SAFETY POLICY:

page -2-

C. All Company Employees Will:

1. Work according to good safety practices as instructed.
2. Report any unsafe situations or acts to supervisor immediately.
3. Wear "hard hats" on job at all times.
4. Use utmost caution when working on frozen or muddy ground.
5. Give warning before moving near another person who is using tool, machinery, or other instrument which could cause injury.
6. Use power tool, operate equipment, or drive truck only with specific permission or supervisor.
7. Look in front of, on each side of, and behind each truck or other motor vehicle before moving same.
8. Shut down engine on all fuel (gas and/or diesel) powered equipment before refueling. No smoking while refueling.
9. Not leave car, truck, or other equipment unattended with motor running.
10. Observe all traffic regulations.
11. Never use gasoline for cleaning purposes or to start a fire.
12. See that all dump bodies are safely blocked at all times while body is in raised position.
13. See that all safety devices, including windshield wipers, lights, rear view mirrors, and brakes are inspected at the beginning of each shift and kept in safe operating condition.
14. Never jump from moving vehicle except in emergency.
15. Refrain from riding on crane hooks, in clambuckets, drag buckets, loader buckets, or other hoisting equipment.
16. Use scaffolds and ladders only when same are constructed according to Federal regulations.
17. Refrain from drinking or taking part in horseplay on jobsite.
18. Take necessary steps to protect public on all projects.
19. Use all safety devices available for their protection.
20. Assume their share of responsibility for thoughtless or deliberate acts that cause injury.
21. Report to supervisor immediately any job injury or illness.
22. Take part in and encourage fellow employees to maintain good "housekeeping" practices.



EAST COAST CONSTRUCTION COMPANY, INC.

GENERAL CONTRACTORS

Post Office Box 5004

JACKSONVILLE, NORTH CAROLINA 28540

ACCIDENT PREVENTION PLAN

This Accident prevention plan is written for : Replace Three (3)
Water Wells - CLNC Contract No N62470-82-C-4551

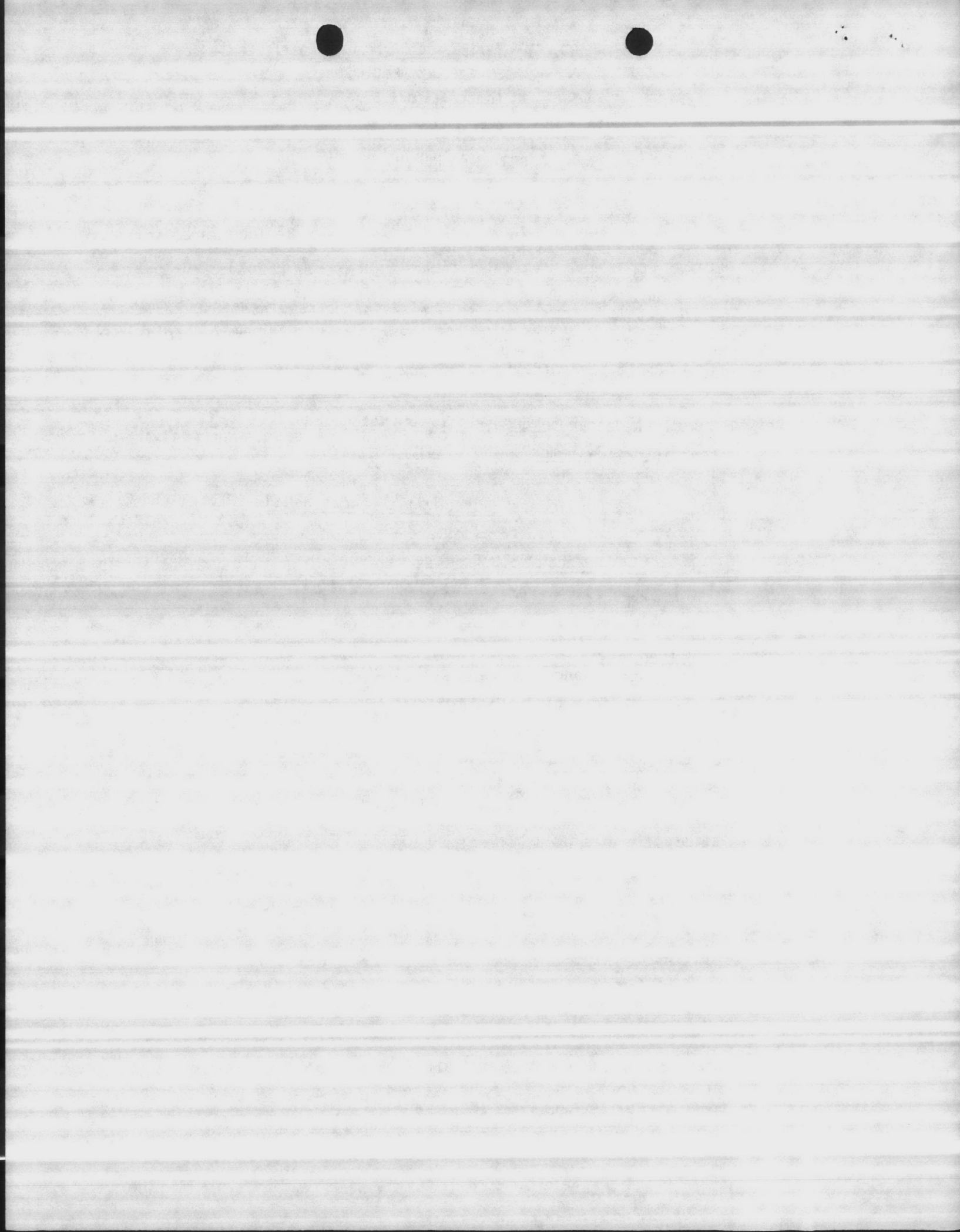
The project is hereby authorized to keep the requirements of this accident prevention plan for the duration of the project. Morris Jacobs and Roy Cagle have a valid First Aid Certificate.

The medical center to be used for emergency and treatment of any accident is Onslow Memorial Hospital . Phone: 577-2400.

The ambulance service is Jacksonville Rescue Squad. Phone: 455-2111.

Dr. Thomas W. Kitchen, 510 College St., Jacksonville, has been designated as the project physician. Phone: 347-1788.

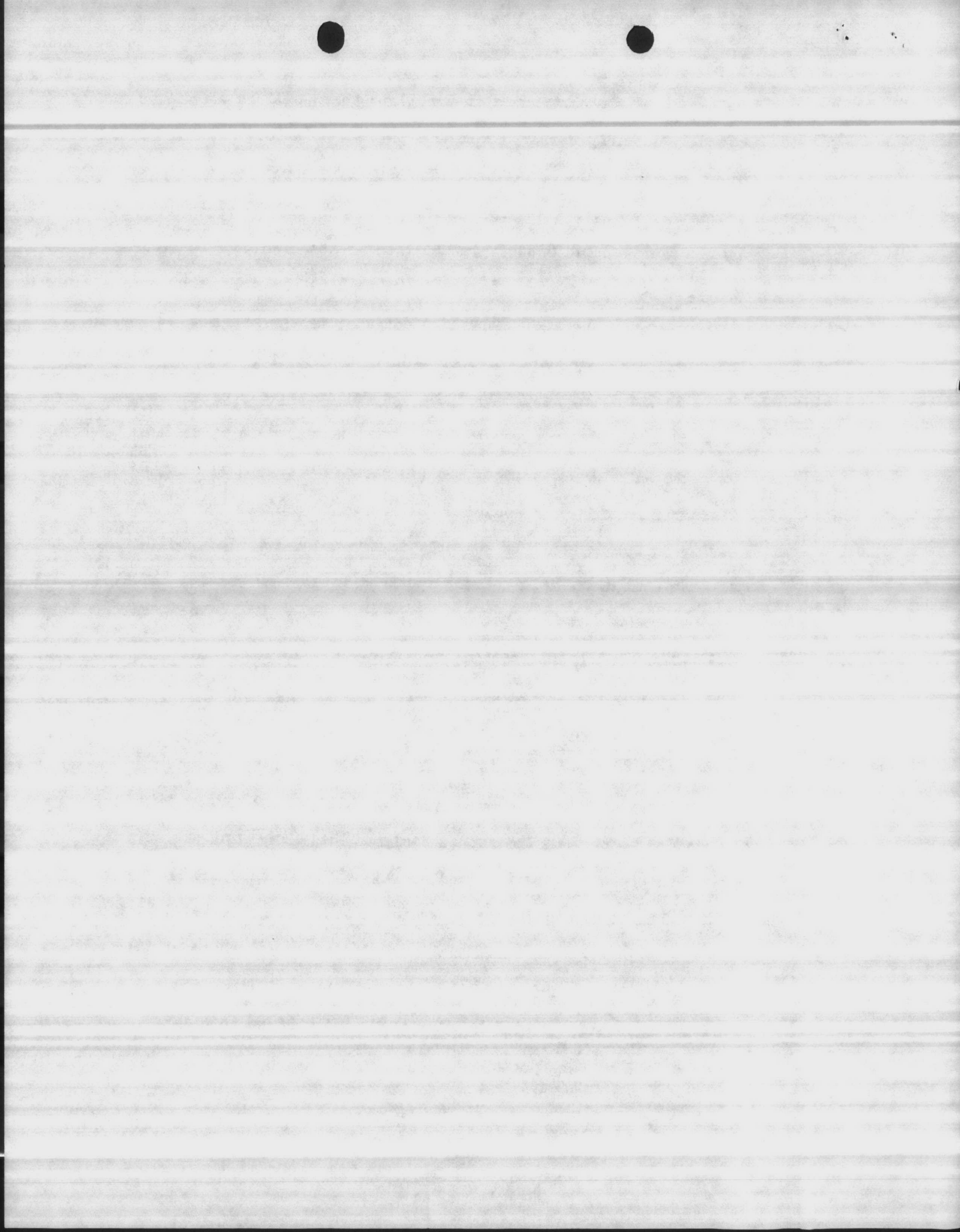
The project superintendent will provide each employee with initial safety instructions, containing instructions necessary for the Employee to perform his work in a safe manner. The initial indoctrination shall include, but not be limited to, instructions in the project safety practices, how, when, and where to report all accidents, the names of the medical facilities and where this information will be posted. Particular emphasis will be placed upon individual responsibility in an effort to have an accident-free operation.



As a part of the continuing instructions there will be a weekly (more often if deemed necessary) 5 minute on-the-job safety meeting for all workers. These meetings will be conducted by all field supervisors or foremen for their particular trades. All supervisory personnel will be certified in first aid by the American Red Cross. In addition to the hereinbefore outlined general safety meetings, specific instructions will be given those personnel whose duties include the use of specific devices, or the handling of certain materials that may cause harm or injury to himself or others. This list of items include, but not limited to, the following; (1) persons required to use or wear protective equipment; (2) persons required to handle poisons, acids or other harmful substances, and (3) persons required to handle or use flammable liquids. In addition, all persons required to use rescue or life saving equipment shall be properly instructed and trained in the proper use of that equipment. All persons required to give or receive signals shall be instructed as to the proper use of the signal system. Particular attention will be given the instructions to all persons in the required use of the emergency signals on all types of moving equipment and other emergency signals employed on this project.

No employee will be allowed to work on this project unless he is properly qualified to perform the duties assigned him. Any employee reporting to work who appears to be fatigued or ill to the extent that he may endanger himself or others will not be permitted to work. There will be a safety meeting held prior to commencing work for every new phase of this project. The particular hazards expected for that phase will be listed and means of preventing accidents will be discussed and outlined to all personnel involved in that work phase.

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A detail listing of these possible hazards appears in "Operation Command Safety".

All accidents, regardless of extent, will be reported immediately to the project superintendent or his designated administrative aide. All accidents will be investigated by the project superintendent to determine the immediate cause and how to prevent future occurrence. A copy of each accident report will be promptly submitted to the contracting officer and one copy filed in the company records.

The work on the project will be performed in accordance with the Corps of Engineers, U. S. Army, EM, 285-1-1, March 1967, as amended. In addition, the work will comply with OSHA Standards and all changes thereto, and such additional measures as the project superintendent and the contracting officer may deem to be necessary for the prevention of accidents.

The inherent hazards anticipated for this project and measures to control them are as follows.

1. FIRST AID

The required number of persons trained in first aid and holding a valid first aid card issued by the American Red Cross will be on the job while work is underway to render first aid. A first aid kit meeting the requirements of OSHA will be the minimum furnished and maintained. Certificates shall be kept current by attending seminars and scheduled classes at the Red Cross Center, located on Carroll Street, King Shopping Center, Fayetteville, N. C.

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2. SANITATION

(a) Drinking water will be dispensed in individual cups from an approved type sanitary and closed container. Non-potable water taps will be marked "Water Unfit for Drinking".

(b) Approved chemical toilets will be used and shall be kept clean. Daily cleaning of these facilities will be a minimum requirement.

3. PERSONAL PROTECTIVE EQUIPMENT

All employees shall be required to wear hard hats meeting ANSI Specifications 289.1 and 289.2. Hats will be kept on site for visitors to wear while on jobsite. Bump caps and metal hats will be prohibited. Safety goggles will be worn by employees chipping concrete, grinding or hammering concrete and for steel and in other operations where potential eye injury exists. Hard soled shoes will be required and gloves will be worn by employees handling abrasive materials. Suitable glasses and helmets shall be worn by employees exposed to welding and/or cutting rays, both electric and oxygen-acetylene.

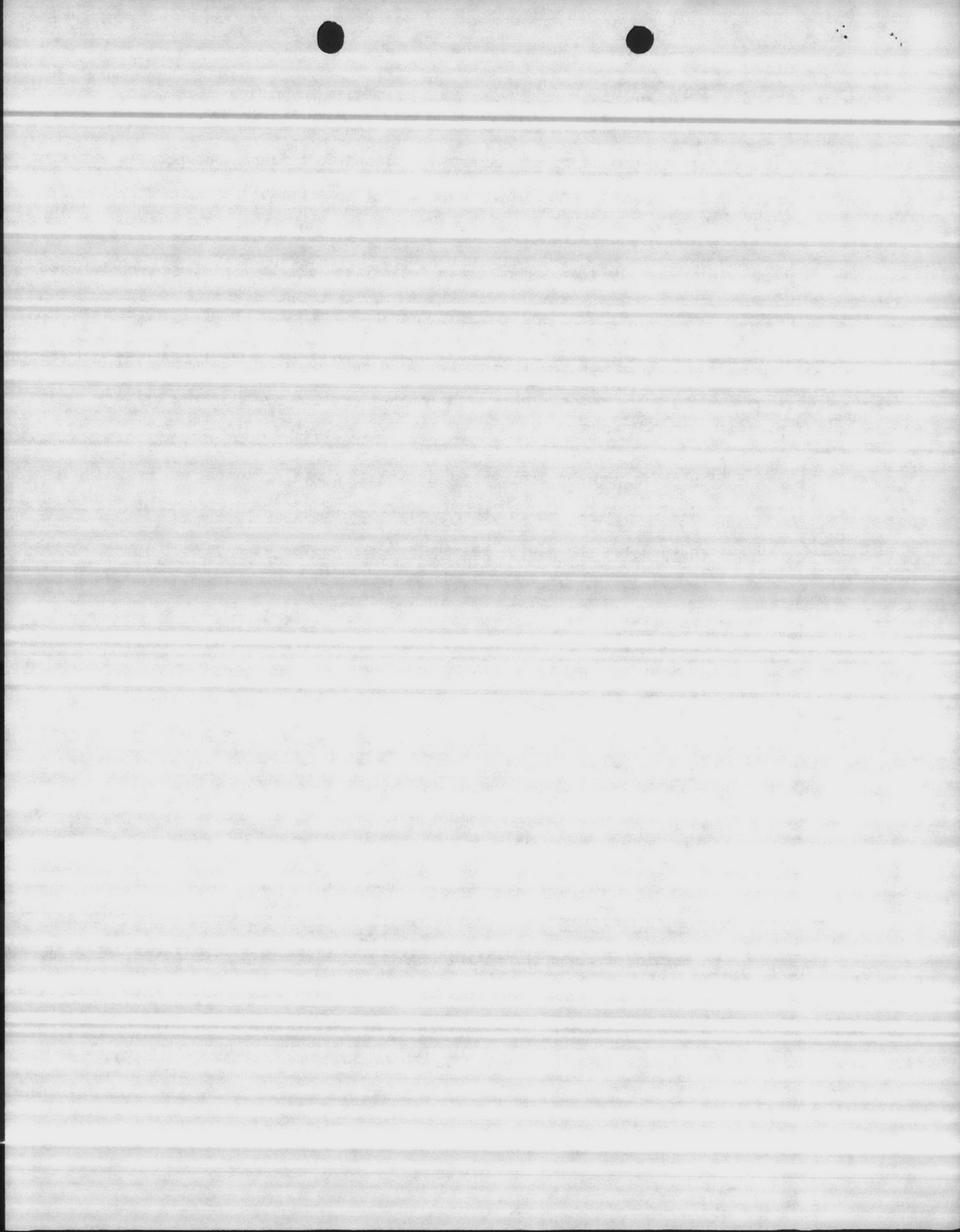
4. POSTERS AND SIGNS

"Hard Hat Area" signs shall be posted at all entry points to the jobsite. A "First Aid Room" sign will be posted outside the first aid station. Other signs and posters such as, "Do Not Remove Guardrails", "Keep Out", "Floor Opening", "Fire Extinguisher", "Men working Above" shall be posted strategically about the jobsite.

5. HOT SUBSTANCES

Heating devices or melting kettles shall be placed on level, firm foundation and protected against traffic or tipping. A compatible fire extinguisher shall be available at all locations where these things are in use, and the kettle and other heating devices shall not be left unattended.

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5. HOT SUBSTANCES

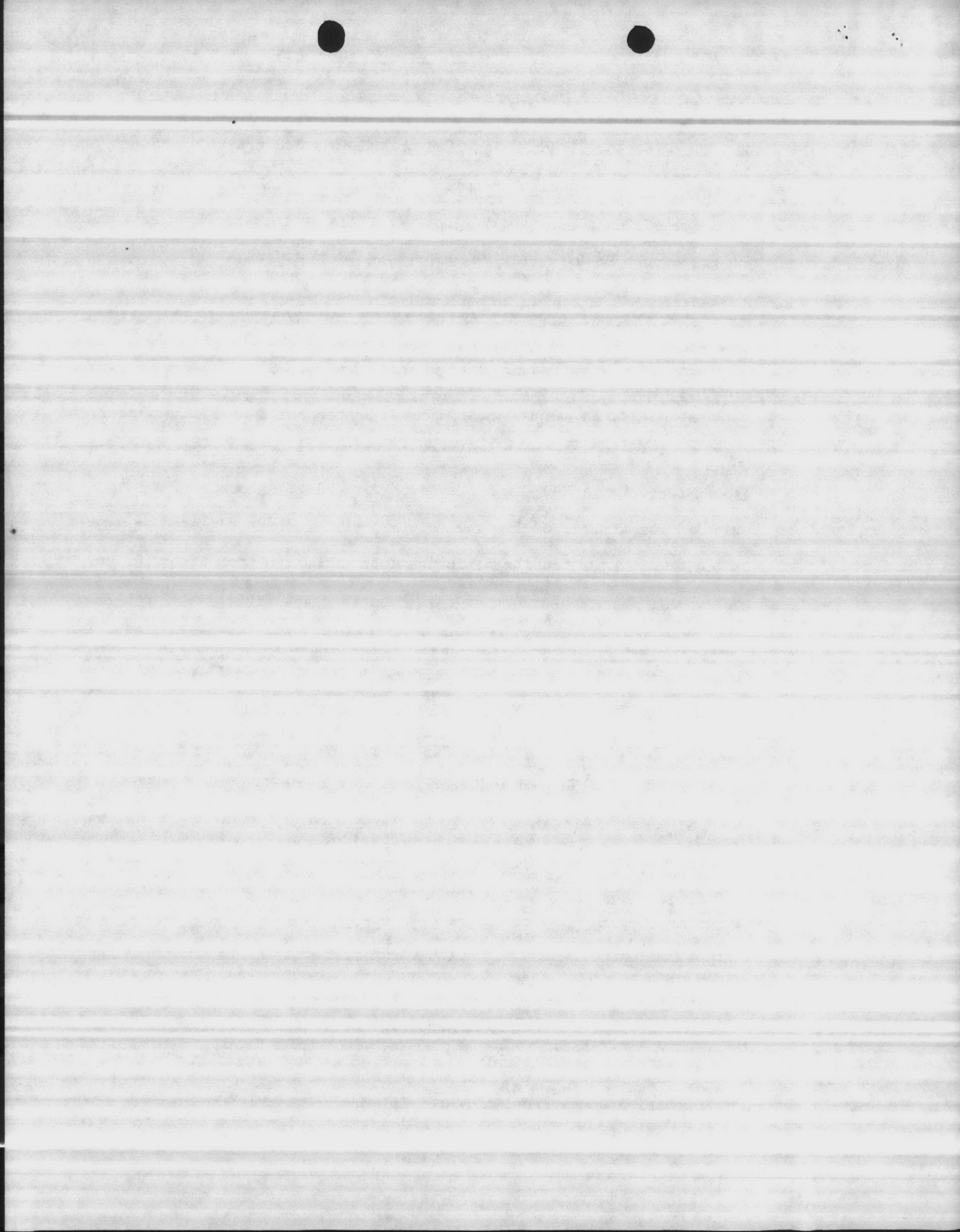
Hot substances will not be carried up and down ladders and passageways for moving these materials shall be kept free of debris. Protection will be provided for those handling hot materials against radiant heat, fumes, or glare such as face shields, gloves, good clothing.

6. MATERIALS STORAGE AND HANDLING

Materials shall be stocked or stored in designated places in such manner that there will be no sliding or collapse and will be limited in height so that unsafe movement cannot occur. Lumber shall be stacked level and supported to prevent falling or sliding. Brick will not be stacked over seven feet high and will be placed on firm, level ground. The height of masonry block shall be limited to six feet or less and placed on smooth, solid ground. Protruding nails shall be withdrawn from timber, or other material is stacked or discarded. Materials shall be located so that safe movement of personnel or equipment will be ensured. Flammable liquids shall be stored in a "No Smoking" area at least 50 feet from combustible material. Materials shall not be stored on scaffolds or stairways in excess of needs for normal operations. All stairways and accessways and rubbish shall be stored in piles for daily removal. Waste material shall not be thrown from upper levels to the ground. Chutes for debris shall be fully enclosed for entire height.

7. FIRE PROTECTION AND PREVENTION

Properly charged fire extinguisher shall be mounted in the field office, tool-shack, at flammable materials storage areas, and elsewhere as directed or required. These extinguishers will be of capacity needed for protection of area or condition involved. Approved safety cans shall be used for transporting and dispensing gasoline.



7. FIRE PROTECTION AND PREVENTION

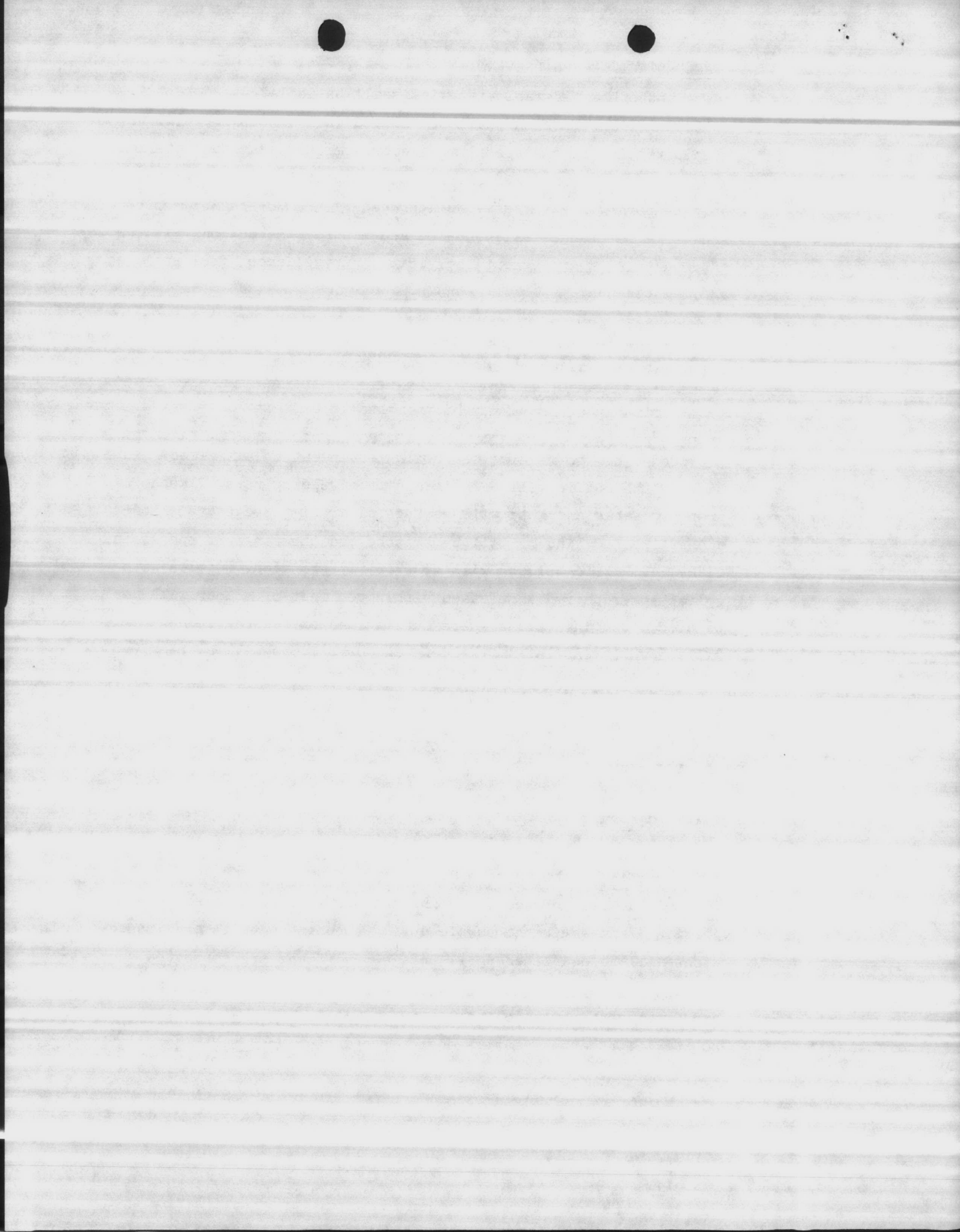
Paint and other flammable material shall be isolated and kept in containers, and rubbish shall be removed daily. Smoking will be prohibited in areas where flammable or similar hazardous materials are stored. "NO SMOKING" signs shall be posted in these areas. Only temporary heating devices approved by the Government representative in charge shall be used and his recommendations will be adhered to as to placement, servicing, surveillance, fuel storage, and maintenance.

8. WELDING AND CUTTING

All welding equipment will be inspected daily and defective equipment will be removed, repaired or replaced. Repaired equipment will be reinspected before use. A compatible fire extinguisher will be provided close to welding or cutting equipment at all times. Workmen and the public will be shielded from welding rays, flashes or sparks. Cable and hose will be kept clear of passageways, ladders and stairs. Cylinders will be kept beyond the range of sparks and flame. Electric welders will be properly grounded. Cables with splices or repaired insulation within ten feet of holder will not be used. Confined areas where cutting and/or welding is necessary will be well ventilated. Welders and/or helpers will be required to wear proper goggles, helmets, or shields while performing their work. Welding equipment will be shut down when leads are left unattended. When welding around or burning around lime tanks, respirators will be worn.

9. HEAVY EQUIPMENT

All equipment will be inspected and tested by a competent mechanic and certified to be in safe operating condition before being placed in use. Records of tests and inspections will be available on the jobsite. Any equipment unsafe during subsequent tests and inspections will be deadlined until unsafe conditions are corrected. Riding on equipment or loads will be prohibited and only qualified and designated personnel shall operate equipment. Equipment will not be left unattended with engine running.

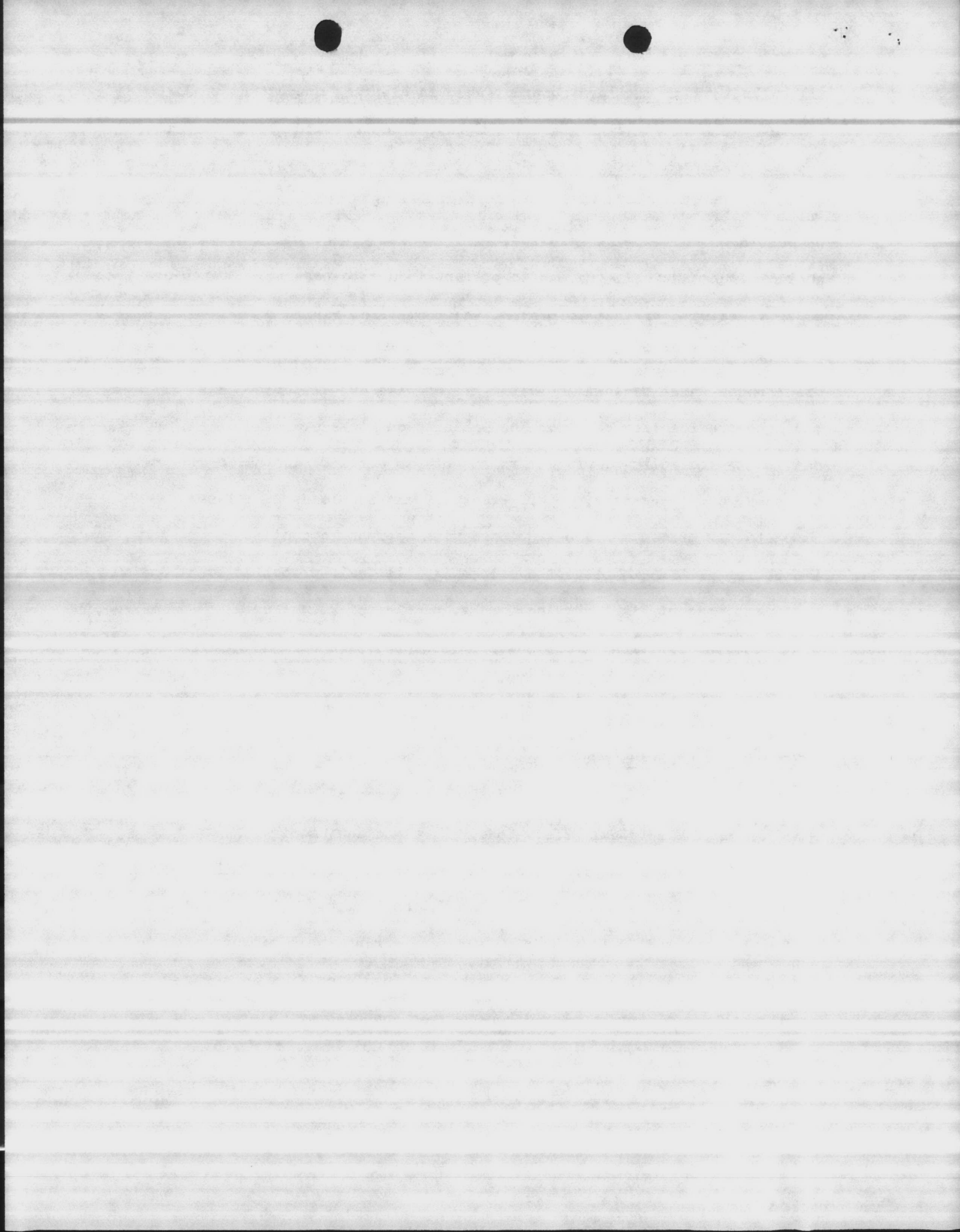


9. HEAVY EQUIPMENT

All bulldozers or similar equipment used in clearing operations shall be provided with substantial guards, shields, canopies, and grills to protect the operator from flying and/or falling objects. Equipment blades and buckets will be lowered to ground when not in use. Mechanized equipment will be shut down while being refueled. All exposed gears, pulleys, chains etc. shall be substantially guarded to prevent injury to persons. Cranes shall be provided with devices to prevent the booms from rising more than 60 degrees above the horizontal and shall be equipped with lag lines to control loads. Crane booms shall be lowered to the ground when not attended. Fire extinguishers shall be provided for each machine. Riding on hooks or buckets shall be prohibited. Seat belts and rollover protective structures shall be installed on tractors, pans, scrapers, motor graders, front-end loaders, rollers and compactors. Cranes shall be equipped with boom angle indicators and load indicating devices to prevent overloading. All self-propelled construction equipment, except light service trucks, panels, pick-ups, crawler cranes, draglines, and station wagons shall be equipped with back-up alarms which shall be audible above surrounding noise. Back-up under job conditions with equipment in backward motion.

10. ELECTRICAL WIRING AND TOOLS

All electrical wiring shall be done by a licensed electrician in accordance with National Electrical Safety Code. Wire and equipment shall be listed by the Underwriters Laboratories. All electrical circuits shall be grounded in accordance with requirements of the National Electrical Code and the National Electrical Safety Code. Temporary wiring shall be guarded by elevation to prevent contact by workmen and insulated from supports. Extension cords shall be of three colored coded wires approved by Underwriters Laboratories, Incorporated.



10. ELECTRICAL WIRING AND TOOLS

Wiring shall have vertical clearance of at least 10 feet under circuits carrying 600 volts or less. All electric powered tools shall be tested for grounding by a Tracy Ground Continuity Tester when tools are operated off 110-115 volt circuit and those tools operating from higher voltage lines shall be tested by a licensed electrician. All extension cords shall be regularly and frequently tested by a DW Circuit Tester, which will be provided and kept on the jobsite. Defective tools and/or extension cords shall be taken out of service immediately. Tools shall be inspected and retested before reuse. Extension cords found defective shall be removed from service.

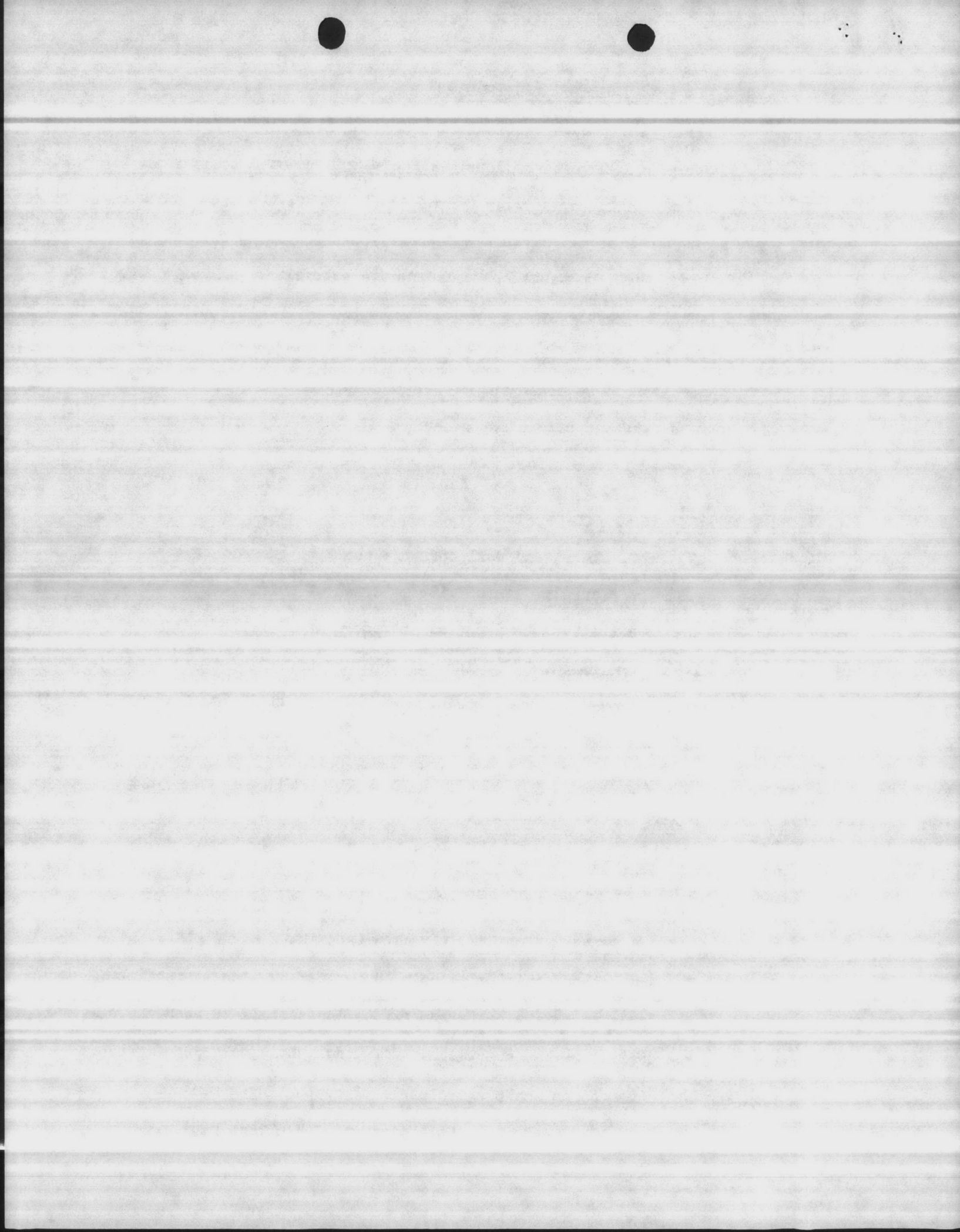
11. WALL AND FLOOR OPENINGS

All roof, floor, and wall openings shall be guarded by standard guard rails or securely covered with material of sufficient strength to support any load that may be imposed. Standard guard rails shall be of 2 x 4 lumber approximately 42 inches high with midrails and toeboards 4 inches high. Coverings for floor or roof openings shall be of plywood which will support any load imposed and will be secured to prevent displacement. All stairway or ladderway opening will be guarded by standard guardrail, mid-rail, and toeboard on all exposed sides except entrance. All openings shall be guarded if lower edge is 4 feet or more above floor or ground level.

12. SAFETY, BELTS, LIFELINES, LANYARDS AND SAFETY MATERIALS

The Contractor anticipates no need for safety nets as scaffolds, catch platforms or safety belts and safety lines shall be used where standard guardrails are not practical. Lifelines shall be secured above line operation to an anchorage capable of supporting a minimum dead weight of 5,400 lbs., and shall be a minimum of 3/4 inch Manila.

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12. SAFETY, BELTS, LIFELINES, LANYARDS AND SAFETY MATERIALS

Lanyards shall be 1/2 inch nylon with a length to provide for a fall of no greater than 6 feet.

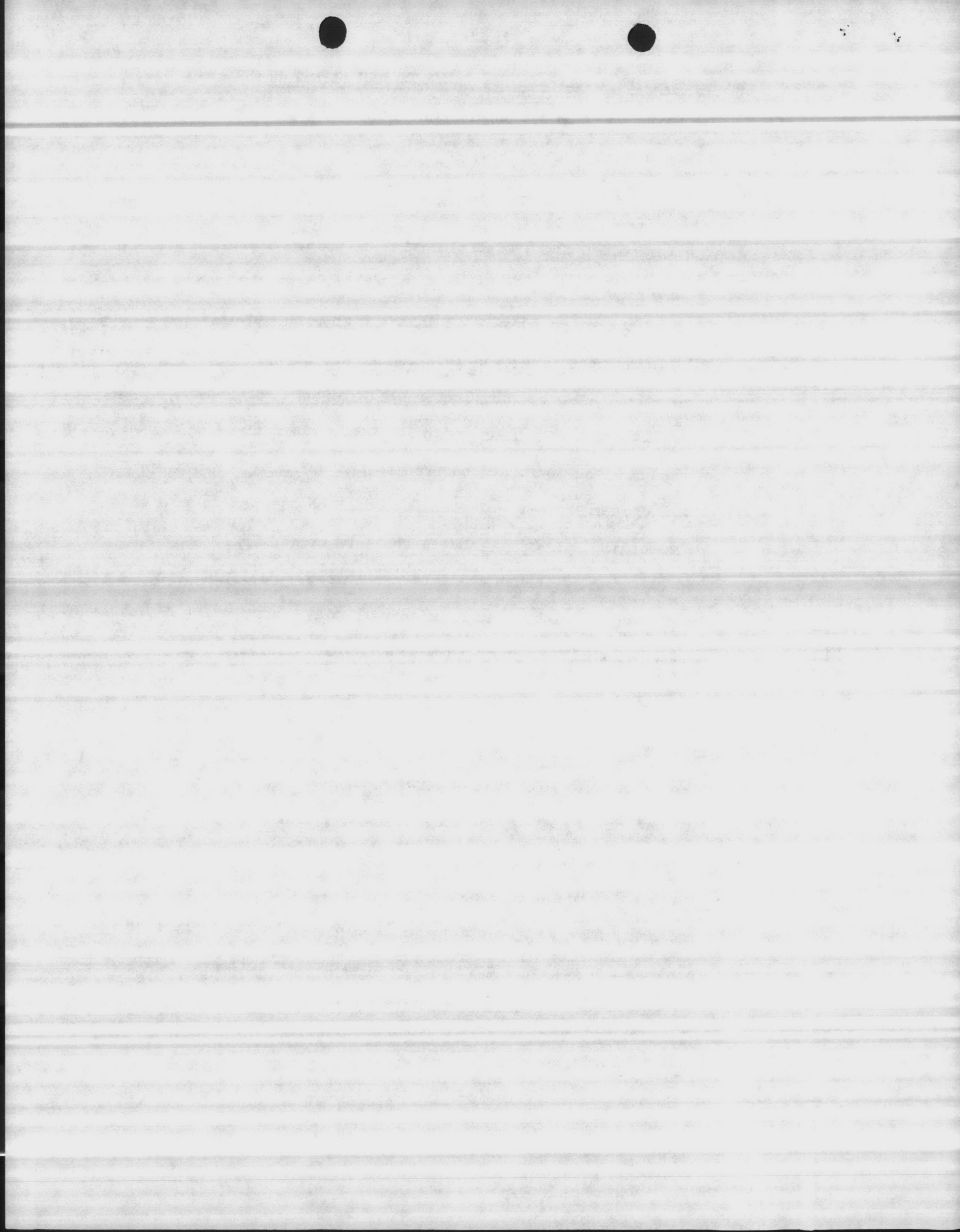
13. SCAFFOLDING

Tubular welded frame scaffolds will be used. Scaffolds shall be placed on adjustable or plain bases on mudsills, properly braced and provided with effective guardrails 42 inches high with midrails and toeboards and will be erected plumb and level under the supervision of a competent supervisor. Two by four lumber shall be used for guardrails and midrails and one by four rough for toeboards. Frames shall be placed 8 feet or less apart and secured to the building. Planking shall be 2 x 8 dressed lumber and planking shall be cleated on both ends to prevent displacement. Ladders shall be provided for access to scaffolds and climbing of frames shall be prohibited. Scaffold frames shall not be placed on brick, tile or masonry block. Guardrails, midrails and toeboards shall be provided when scaffold platforms reach a height of 6 feet.

14. SUMMARY

The Contractor will make a concentrated effort to complete this project without injury to any person. To accomplish this goal it will be necessary to instill in every employee a sense of safety awareness since safety is a personal achievement. In order to reinforce this accident plan, and to offer each employee a readable list of the contractors goals, a copy of the companys established Safety Policy is made a part of this comprehensive plan.

COPY



14. SUMMARY

A copy of this plan and this policy will be made available
to all personnel. —

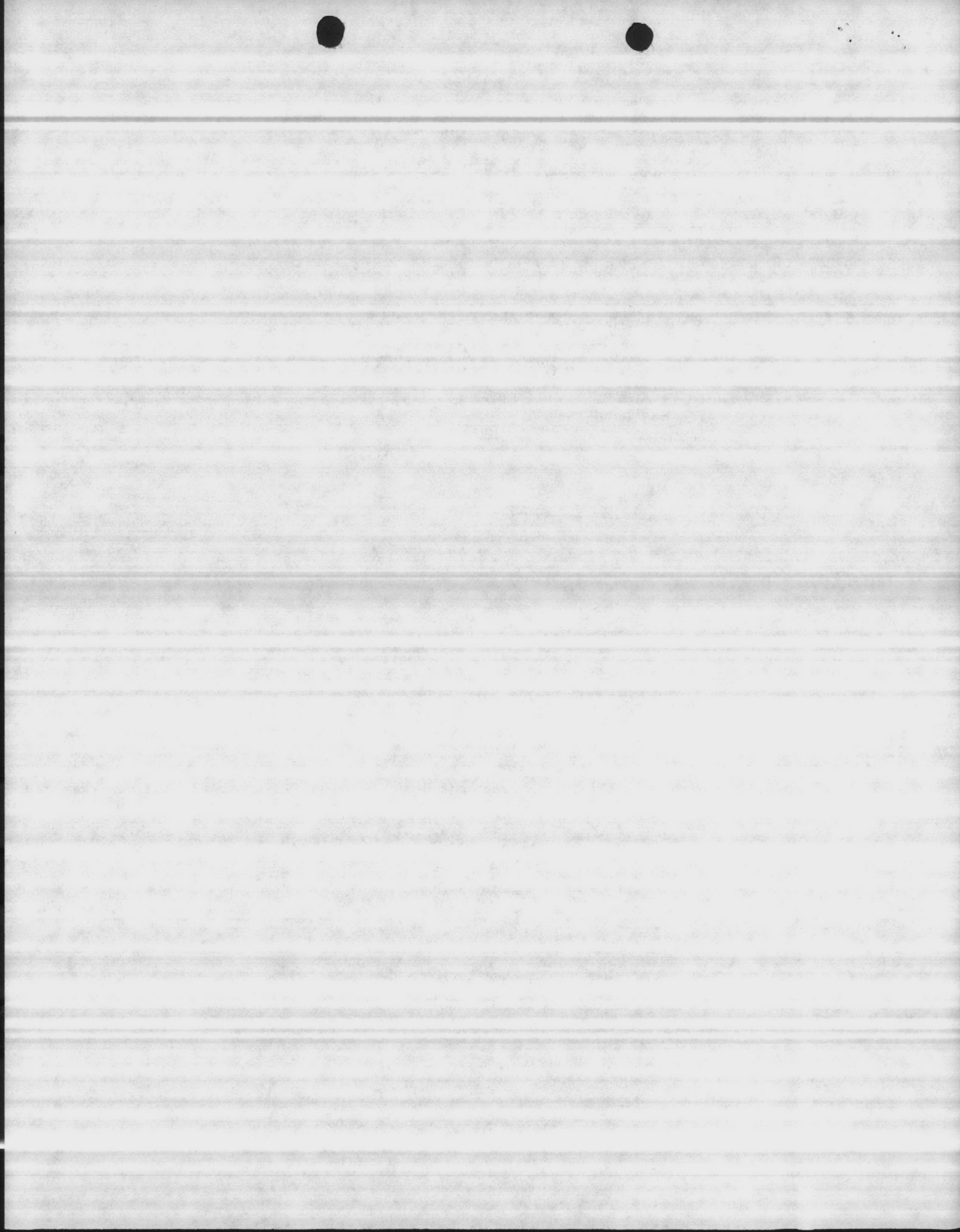
EAST COAST CONSTRUCTION COMPANY, INC.

BY: James H. Boehm

Plan has been reviewed and deemed
adequate for subject project.

ROICC

DISTRICT SAFETY OFFICER



AMENDMENT # 1 to ACCIDENT PREVENTION PLAN
by EAST COAST CONSTRUCTION CO., INC.

15 EXCAVATION and TRENCHING

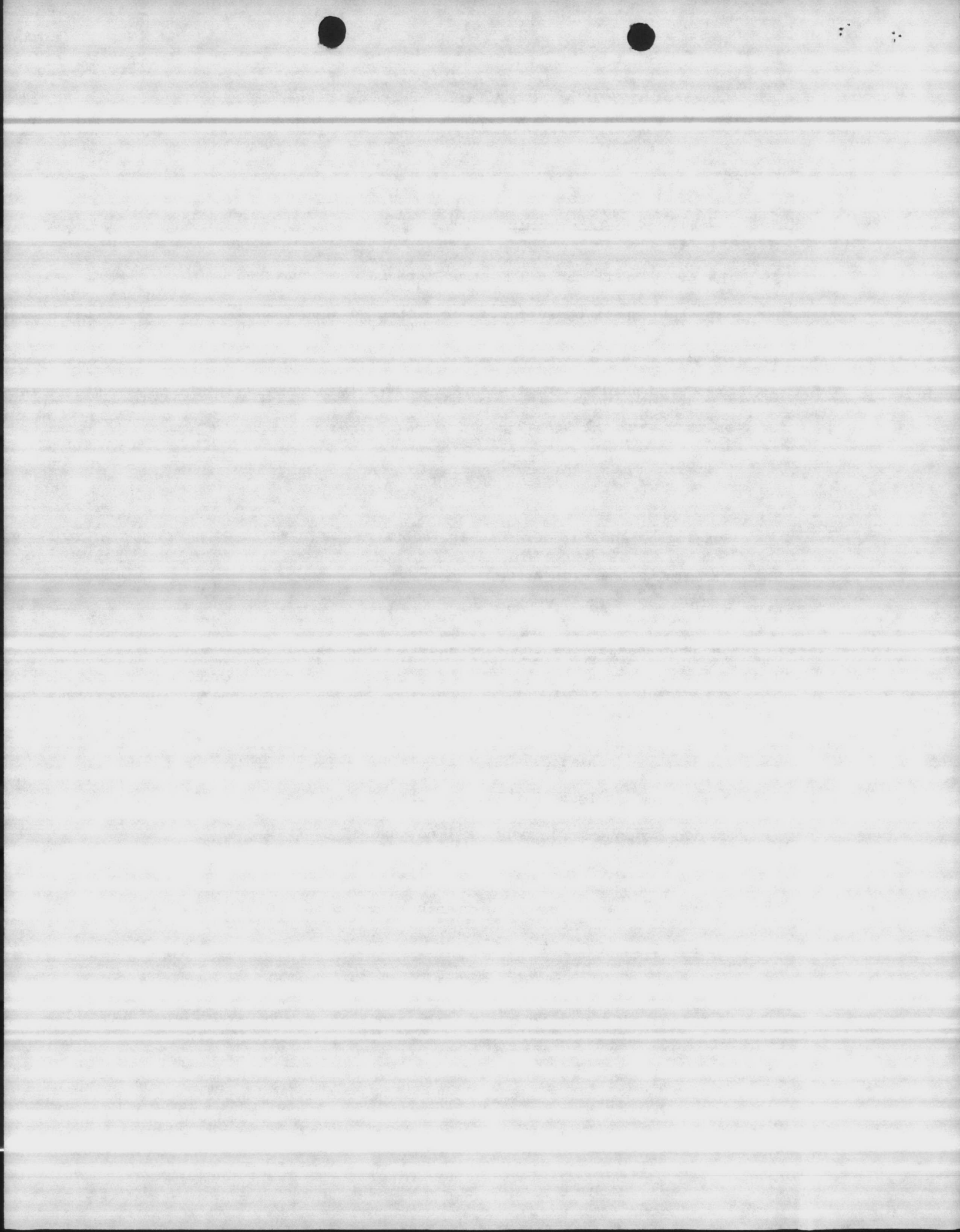
The sides of trenches 4 feet or more in depth entered by personnel shall be supported or sloped to the angle of repose. Where material is unstable and dangerous, such as fractured hard material with inclined slip planes, vertical or near vertical trench sides of any depth, shall be supported.

Bracing or shoring of trenches, where required, shall be carried along with the excavation.

Cross braces or trench jacks shall be placed in true horizontal position and secured to prevent sliding, falling, or kick-outs.

Ladders used as accessways shall extend from the bottom of the trench to not less than 3 feet above the surface. Lateral travel to an exit ladder shall not exceed 50 feet.

Backfilling and removal of trench supports should progress together from the bottom of the trench. Jacks or braces shall be released slowly and, in unstable soil, ropes shall be used to pull out the jacks or braces from above after men have cleared the trench.



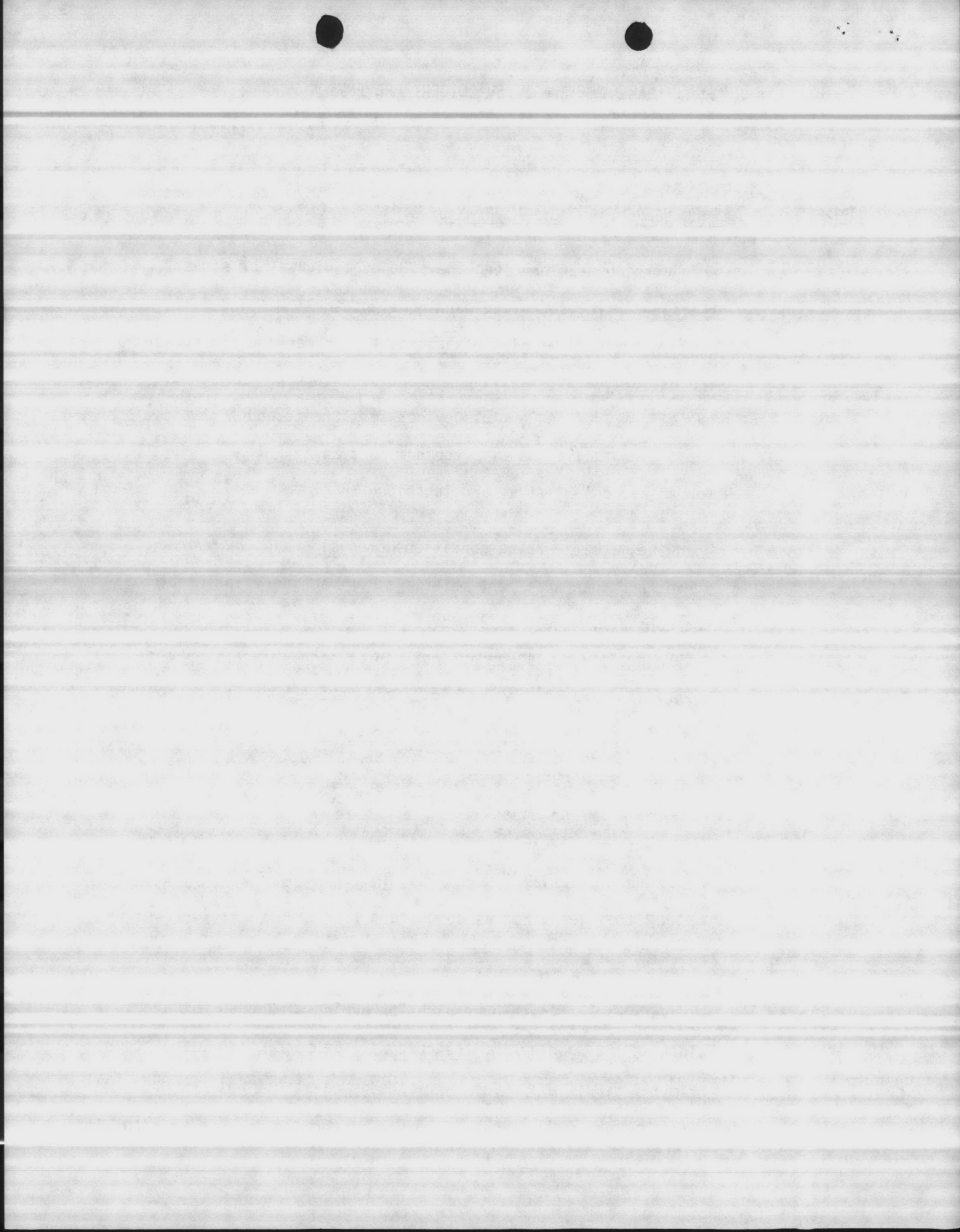
AMENDMENT # 2 to ACCIDENT PREVENTION PLAN
by EAST COAST CONSTRUCTION CO., INC.

16 WORK NEAR or ALONG a HIGHWAY or STREET

When working near or along the side of a highway or street traffic-control signs and warning signs shall be placed to provide adequate warning of hazards to workmen and the public. The use of the signs will be in conformance with the manual on uniform Traffic Control Devices for streets and highways. Traffic control signs will conform to standard highway signs for shape, color, size, and location.

When the actual working conditions alongside a highway or street are such that men, materials, or machinery interrupt the constant, regular, flow of normal traffic during construction operations there will be a signalman or signalmen assigned to direct and control the traffic. Only persons who are dependable and fully qualified by experience or training with the operations being directed shall be used as signalmen. Signalmen will be provided with and shall wear a red or orange warning garment while working. Warning garments worn at night shall be of reflectorized material. Signaling directions by flagmen shall conform to ANSI D6.1-1971, Manual on Uniform Traffic Control for Streets and Highways.

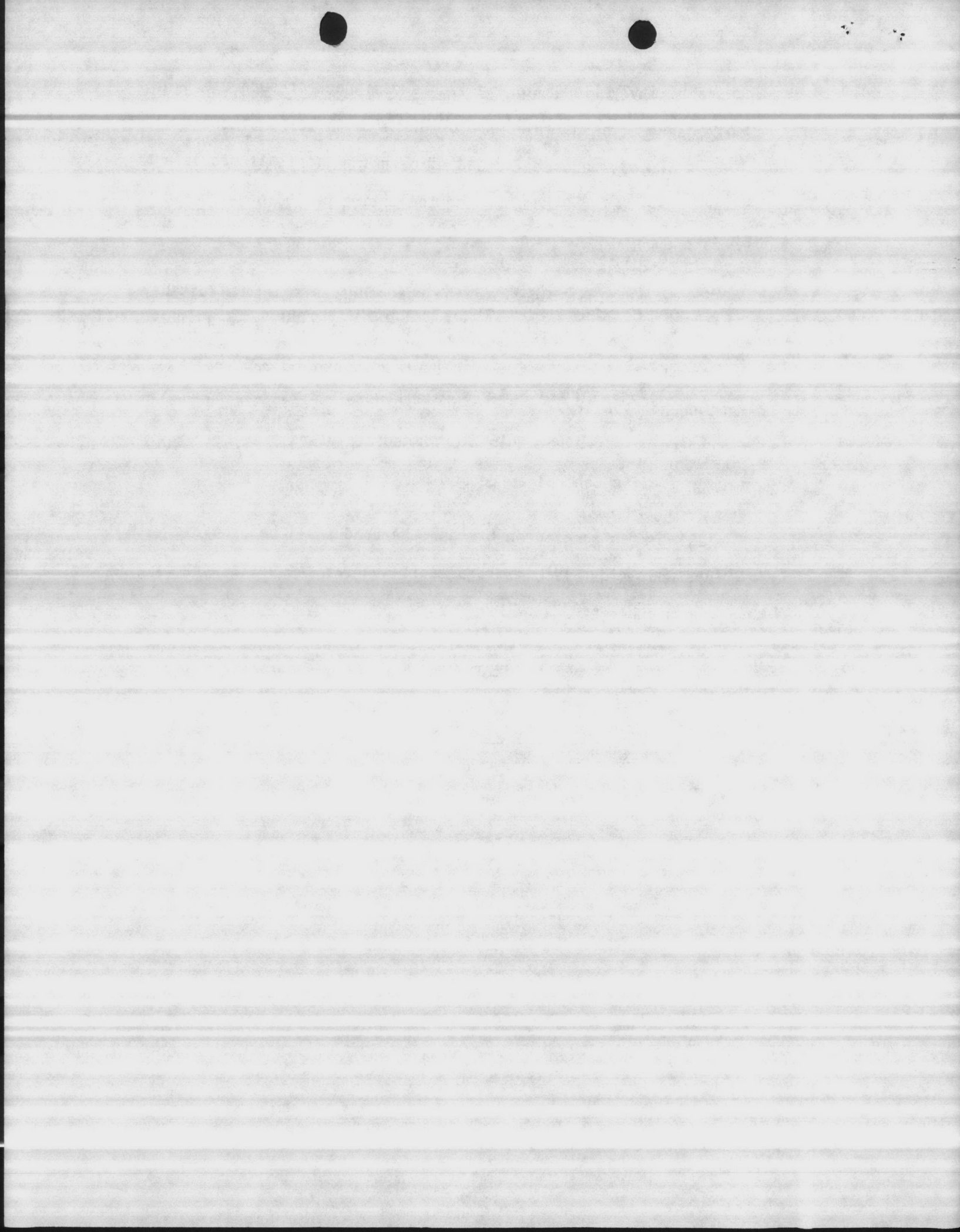
Excavations left open over night or during weekends that are close to the shoulder of the road will be barricaded with wooden or metal barricades. The barricaded excavation shall be made easily visible to a traveling motorist through the use of high



visibility yellow blinking lights designed for such use. Kerosene "flambos" placed around the perimeter of the excavation may be used instead of blinking lights if provisions are made to keep them burning the entire period construction is stopped.

Excavations that penetrate the road surface shall be suitably repaired before work is stopped so as not to interfere with normal traffic. If the road surface cannot be repaired at the end of a days work the contractor's representative shall contact the project inspector immediately and make all provisions for traffic control as deemed necessary, such as a detour route.

All workmen working on or near the road shall be provided with and wear high visibility garments such as the vests worn by the signalmen.



CONTRACTOR'S FIRE PREVENTION GUIDE

Fire Department (Fire Prevention Section), Camp Lejeune, NC

Ref: (a) NavIncks Contract Form #107. Art. 4. Para. (f) and (c)
(b) Base Fire Regulations HO 11320.1F

1. Prior to performing "Hot Work" (welding, burning, lead melting, sweating, smoldering, blow torches, tar pots, etc.) or operating other flame producing devices, the contractor shall request a written permit from the Fire Prevention Section.
2. Oil painting materials (paints, brushes, empty paint cans, rags, overalls, drop cloths, etc.) or other flammable liquids shall be removed from the building at quitting time.
3. Such painting materials and flammable liquids shall be stored outside in suitable lockers or box located at least 25' distance from any structure.
4. Accumulation of trash, paper, shavings, sawdust, excelsior, boxes and other packing material shall be removed from the building at the close of the work day.
5. Disposal of such trash on the outside should be in proper containers and away from structures.
6. The storage of lumber, roofing paper, or other combustible supplies shall be kept at least 25' distance from structures.
7. The areas outside of buildings undergoing work shall be cleaned of trash, paper or other discarded combustibles at the close of each work day.
8. All portable electric devices (saws, sanders, compressors, extension cords or lights) shall be disconnected at the close of each work day. When possible the main electric switch in the building should be deactivated.
9. Contractors when starting work in buildings or areas shall require their employees to familiarize themselves with the method of turning in a Fire Alarm. Fire Bills will be posted adjacent to working area.
10. Any fire NO MATTER HOW SMALL shall be reported to Fire Department (PHONE 3333), at Marine Corps Air Station (H) (PHONE 6333). Extinguished fires shall be promptly reported to the Fire Department.
11. Fire hose or extinguishers in buildings shall not be used for any purpose other than a fire. Fire hydrants shall not be used without special permission from the Base Maintenance Department or the Fire Department and shall not be blocked at any time by materials or supplies.
12. Smoking in buildings undergoing work shall be restricted to open areas. Smoking in attics or other concealed spaces is prohibited.
13. Prior to quitting time a reliable person delegated by the contractor should make a check of the building or area to insure compliance with the above.

NOTE: Fire Prevention Section is available for advice and assistance on any doubtful matters regarding fire prevention.

FIRE DEPARTMENT EMERGENCY PHONE	451-3333
MCAS(H) FIRE DEPARTMENT EMERGENCY PHONE	455-6333
FIRE DEPARTMENT BUSINESS PHONE	451-3004
FIRE PREVENTION SECTION	451-5037

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