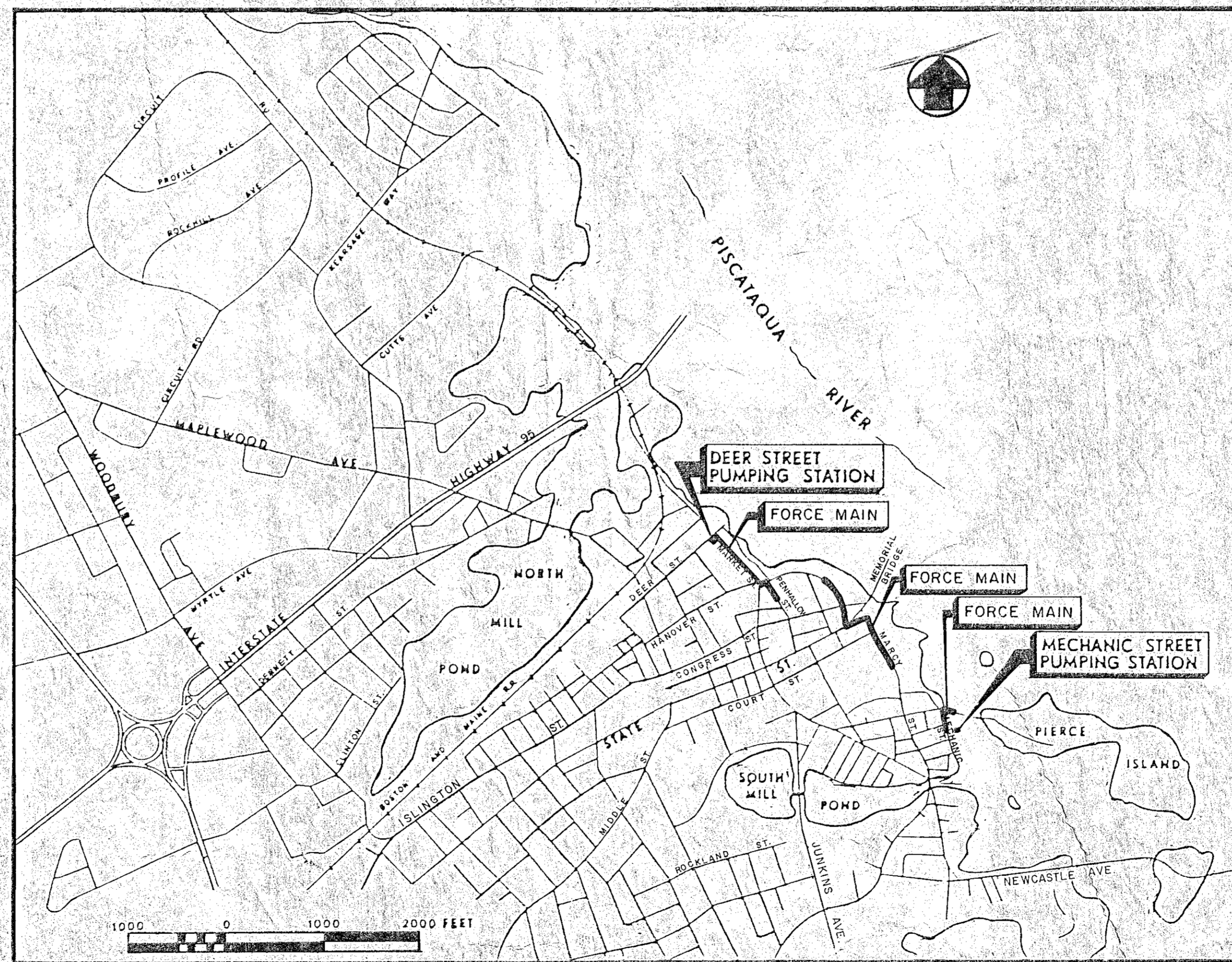


RENOVATIONS TO DEER STREET AND MECHANIC STREET PUMPING STATIONS PORTSMOUTH, N. H.

BID PROPOSAL No.6
CONTRACT No.4
JULY, 1990

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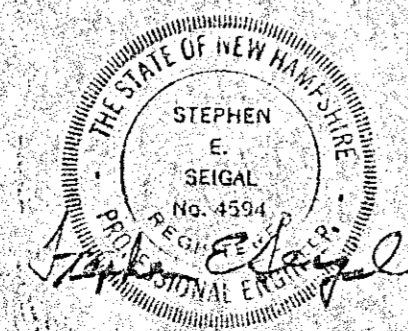
LOCUS PLAN

GENERAL NOTES

Locations of all utilities and sub-surface structures are from survey and records of Town, Corporations, etc., and are considered approximate both as to size and location and are indicated on these drawings to give bidders a general idea of existing conditions to be investigated by the bidder. It is understood and agreed that each bidder will not rely upon these drawings for such information, but that each bidder shall make examinations in the field by various available methods and shall obtain information from utility corporations and individuals as to the location of all sub-surface structures.

All elevations refer to U.S.G.S. Mean Sea Level.

All exterior piping shall have a minimum of five feet of cover. In instances where this requirement cannot be met, piping shall be installed and jacketed in accordance with the specifications.



WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

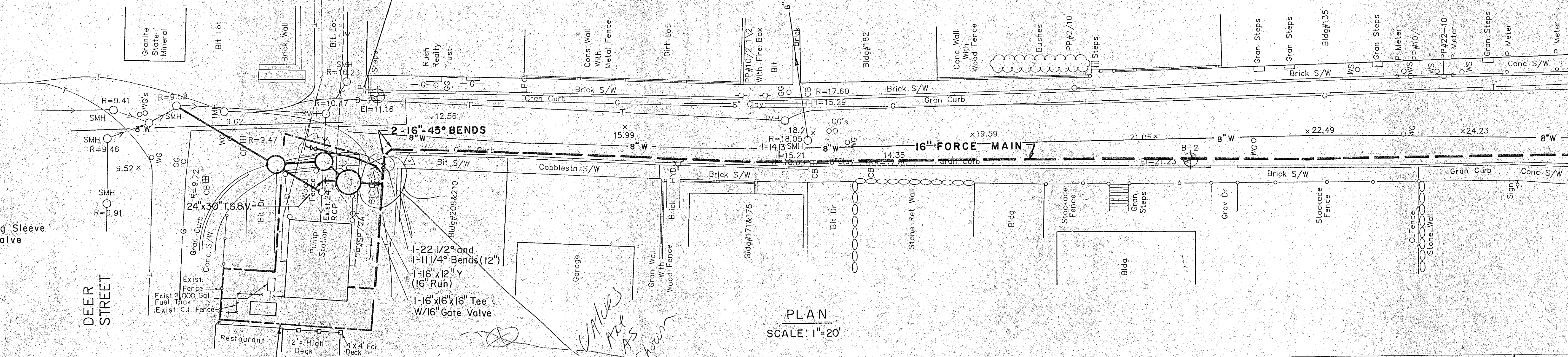
RECORD PLAN

MARKET STREET

8' Dia. Manhole For Temporary By-pass Pumping. Used As A Drain Manhole For The Force Main After Completion Of By-pass Pumping. (Schematic Only; Actual Location And Fittings May Be Different.) Provide Standard 30" Ø Manhole Frame And Cover After Completion Of By-pass Pumping (Specified In Section 02601)

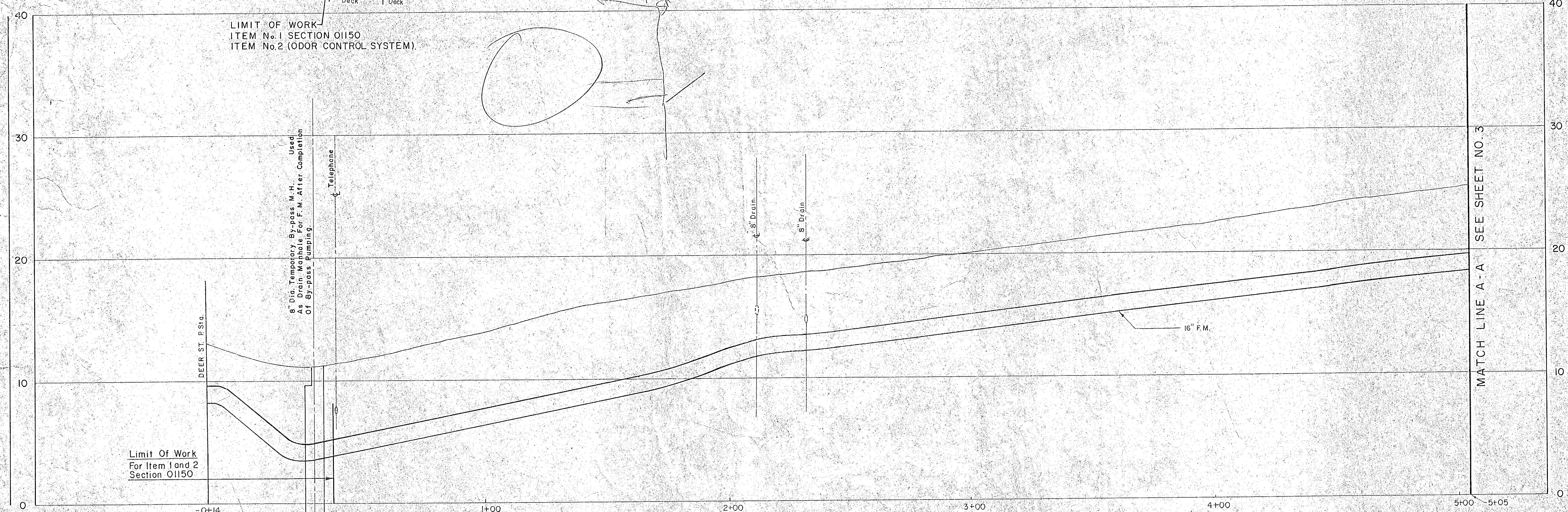
NOTE:
T.S. & V. - Tapping Sleeve And Valve

MATCH LINE A-A SEE SHEET NO. 3



PLAN
SCALE: 1"=20'

LIMIT OF WORK
ITEM No. 1 SECTION 01150
ITEM No. 2 (ODOR CONTROL SYSTEM).

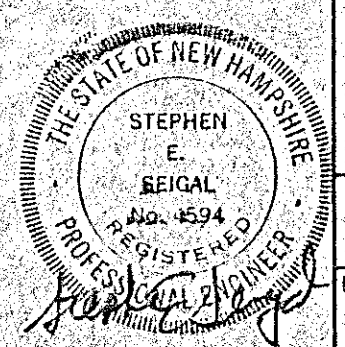


PROFILE
SCALE: HORIZ. 1"=20'
VERT. 1"=4'

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised to Record Plan	10/91

WHITMAN & HOWARD, INC.
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ORIGINAL FULL SIZE DRAWING = 4"
REPRODUCTIONS MAY BE REDUCED SIZE

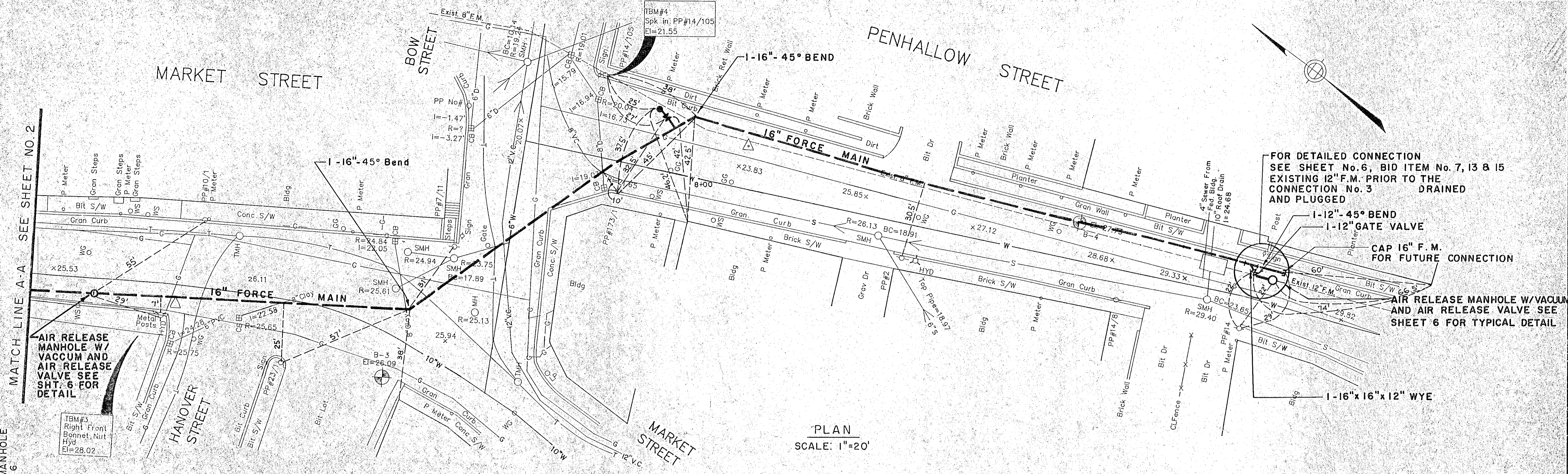
DRAWING NO. **FM-1**
JOB NO. 89-131
CONTRACT NO. 4

RENOVATIONS TO DEER ST AND MECHANIC STREET PUMPING STATIONS

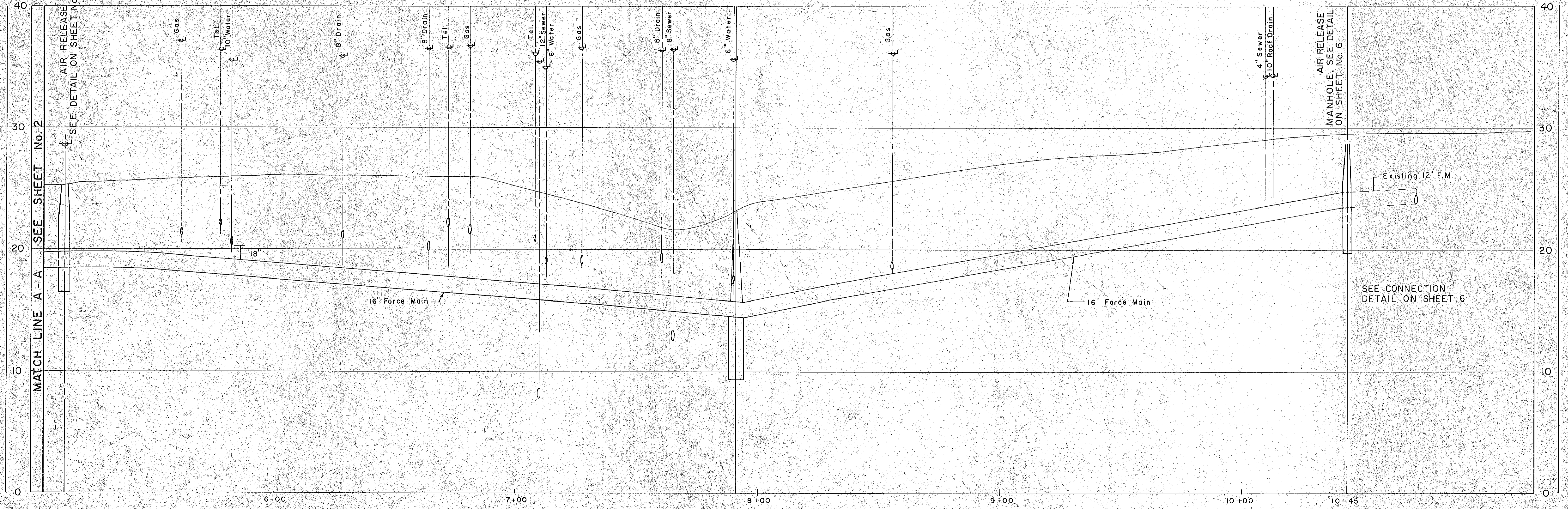
PORTSMOUTH, N.H.

FORCE MAIN
PLAN AND PROFILE

DESIGNED DRAWN CHECKED SCALE AS NOTED DATE JULY 1990 SHEET 2 OF 29 SHEETS



PLAN
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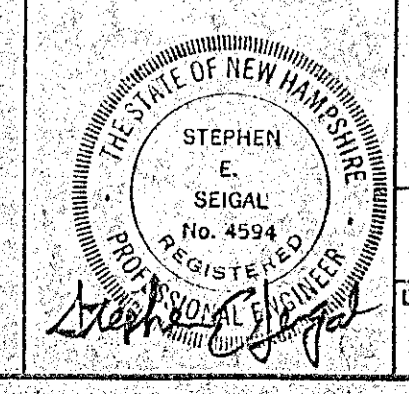


PROFILE
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VERT. 1"=4'

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised to Record Plan	10/91

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



ORIGINAL FULL SIZE DRAWING = 4"
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APPROVED
DESIGNED DRAWN CHECKED SCALE DATE
AS NOTED JULY 1990

DRAWING NO.
FM-2

JOB NO. 89-131

CONTRACT NO. 4

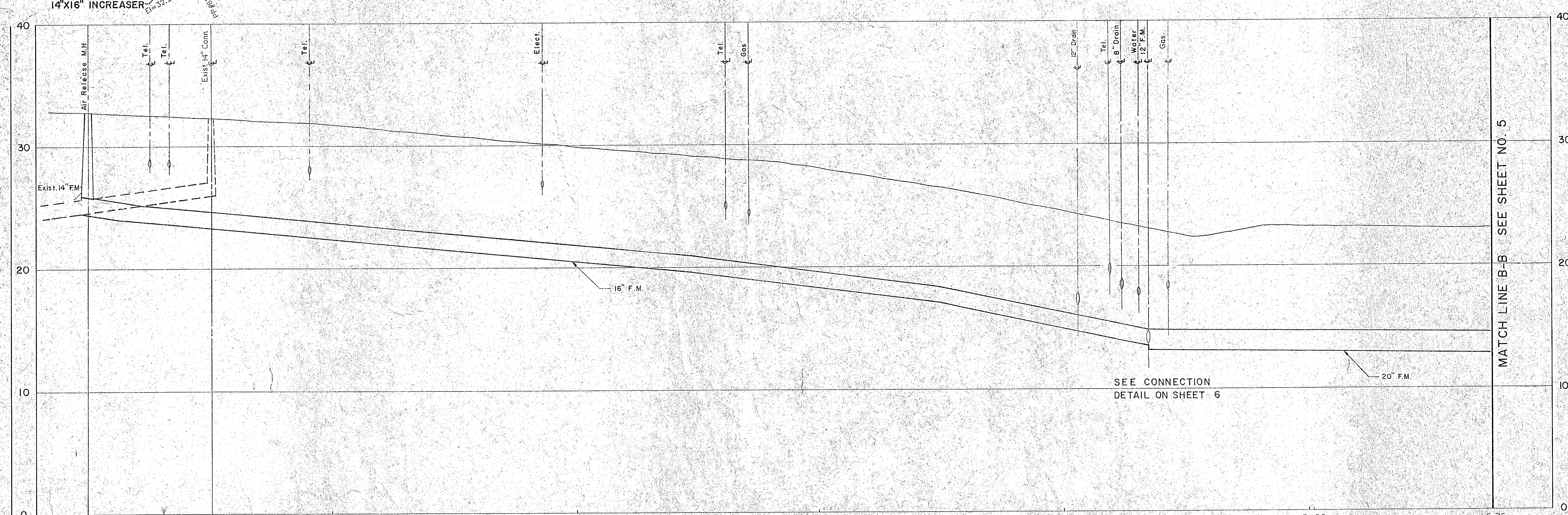
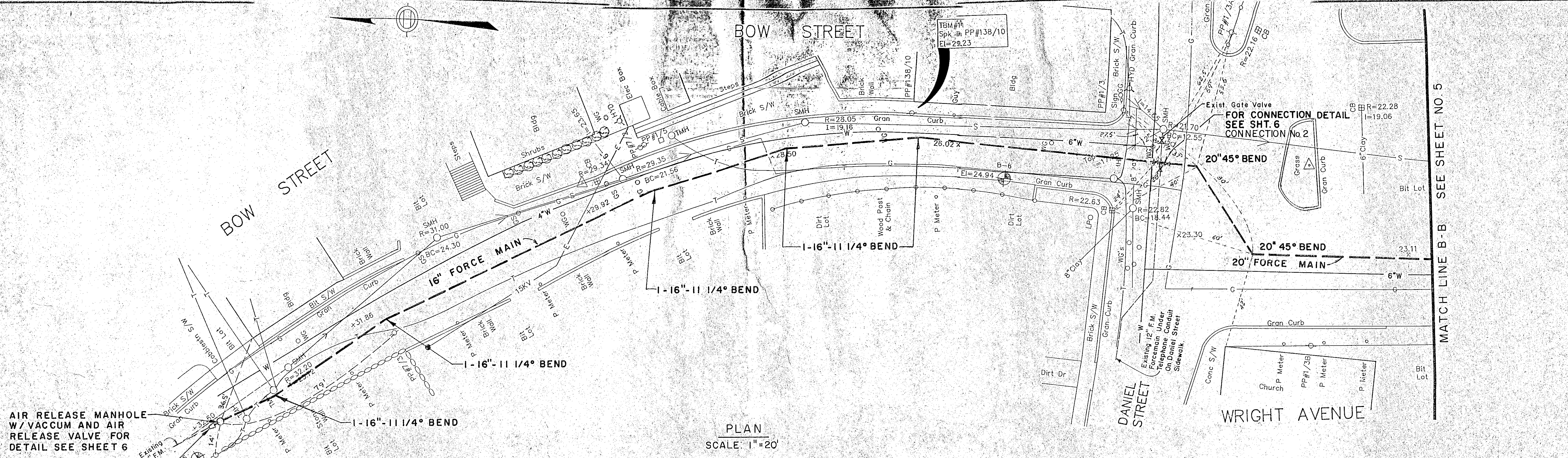
SHEET 3 OF 29 SHEETS

RENOVATIONS TO DEER ST. AND
MECHANIC STREET PUMPING STATIONS

PORTSMOUTH, N.H.

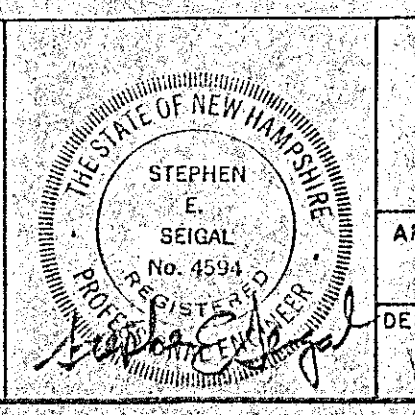
FORCE MAIN
PLAN AND PROFILE

FOTOBEAM/BROOKSIDE 267-2436



NO.	DESCRIPTION	DATE
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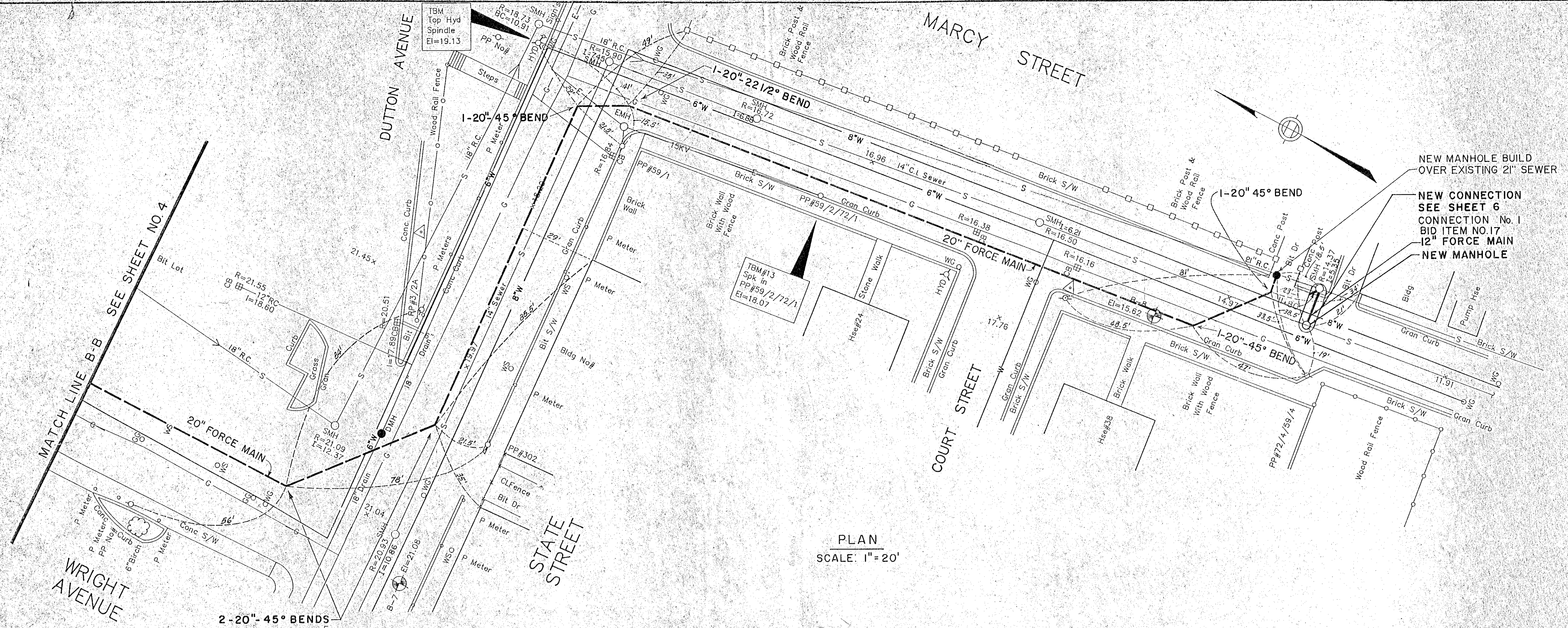
WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



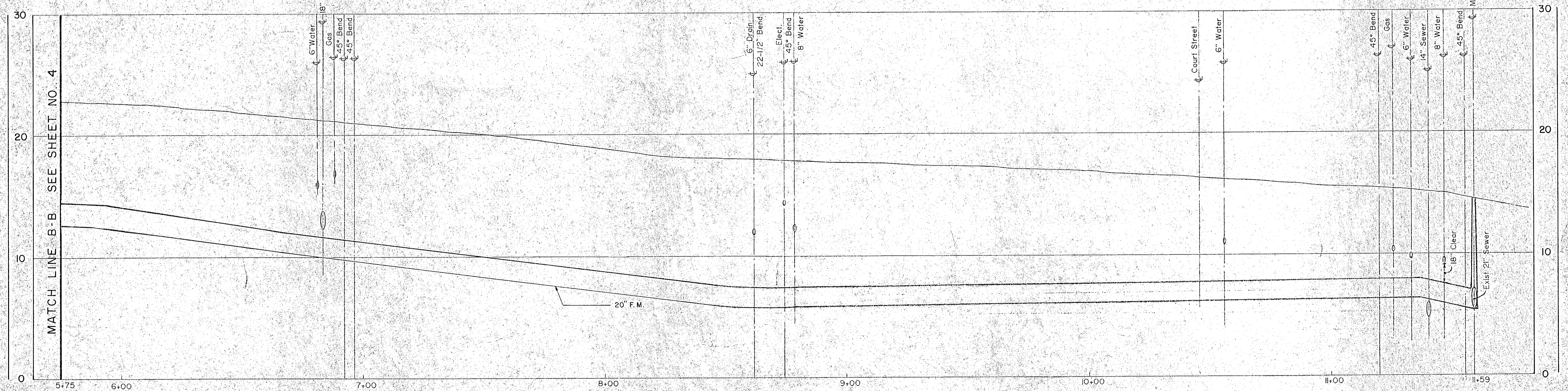
APPROVED
DESIGNED DRAWN
CHECKED
SCALE
AS NOTED
DATE
JULY 1990

DRAWING NO.
FM-3
JOB NO.
89-131
CONTRACT NO.
4
SHEET 4 OF 29 SHEETS

RECORD PLAN
RENOVATIONS TO DEER ST. AND MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
FORCE MAIN
PLAN AND PROFILE



PLAN
SCALE: 1" = 20'

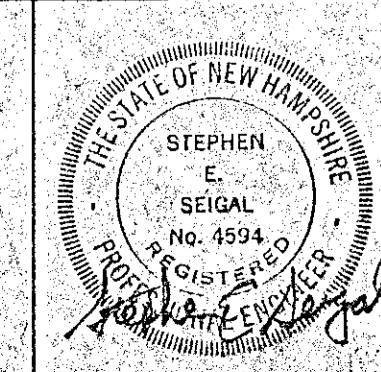


PROFILE
SCALE: HORIZ. 1" = 20'
VERT. 1" = 4'

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised to Record Plan	10/91

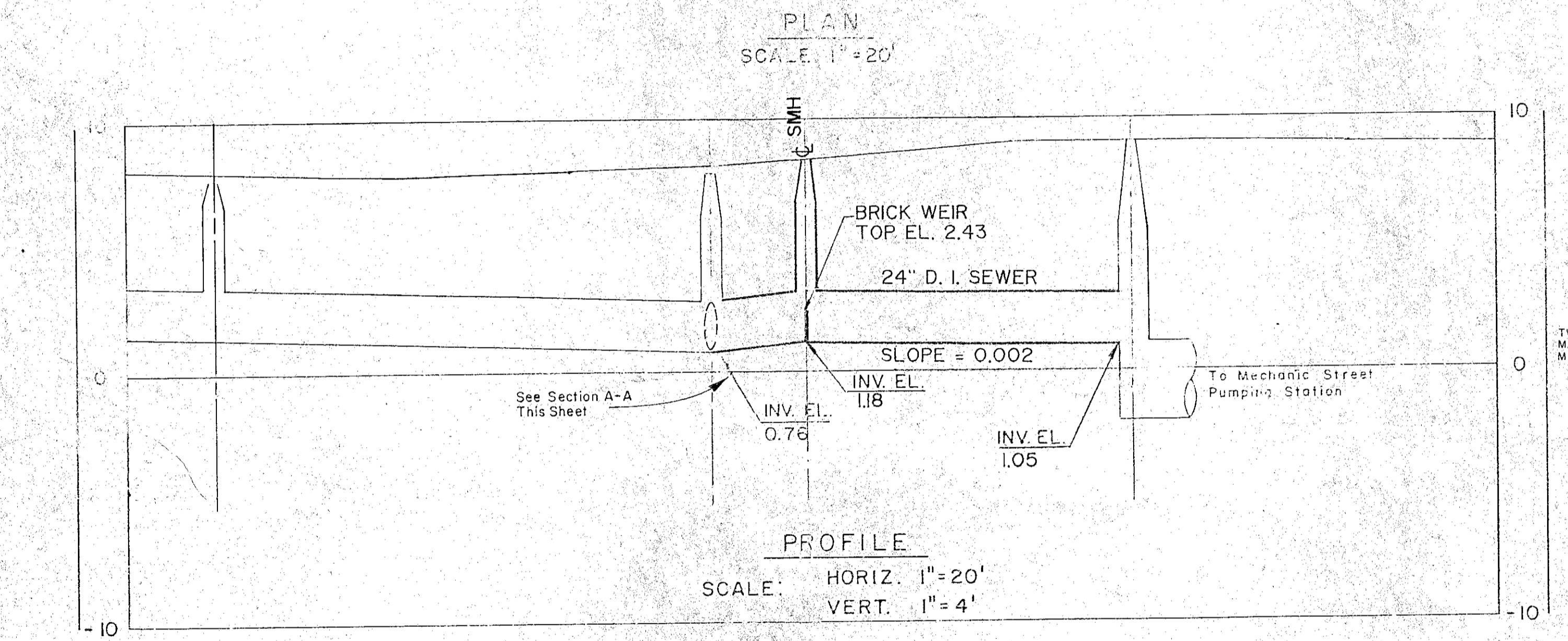
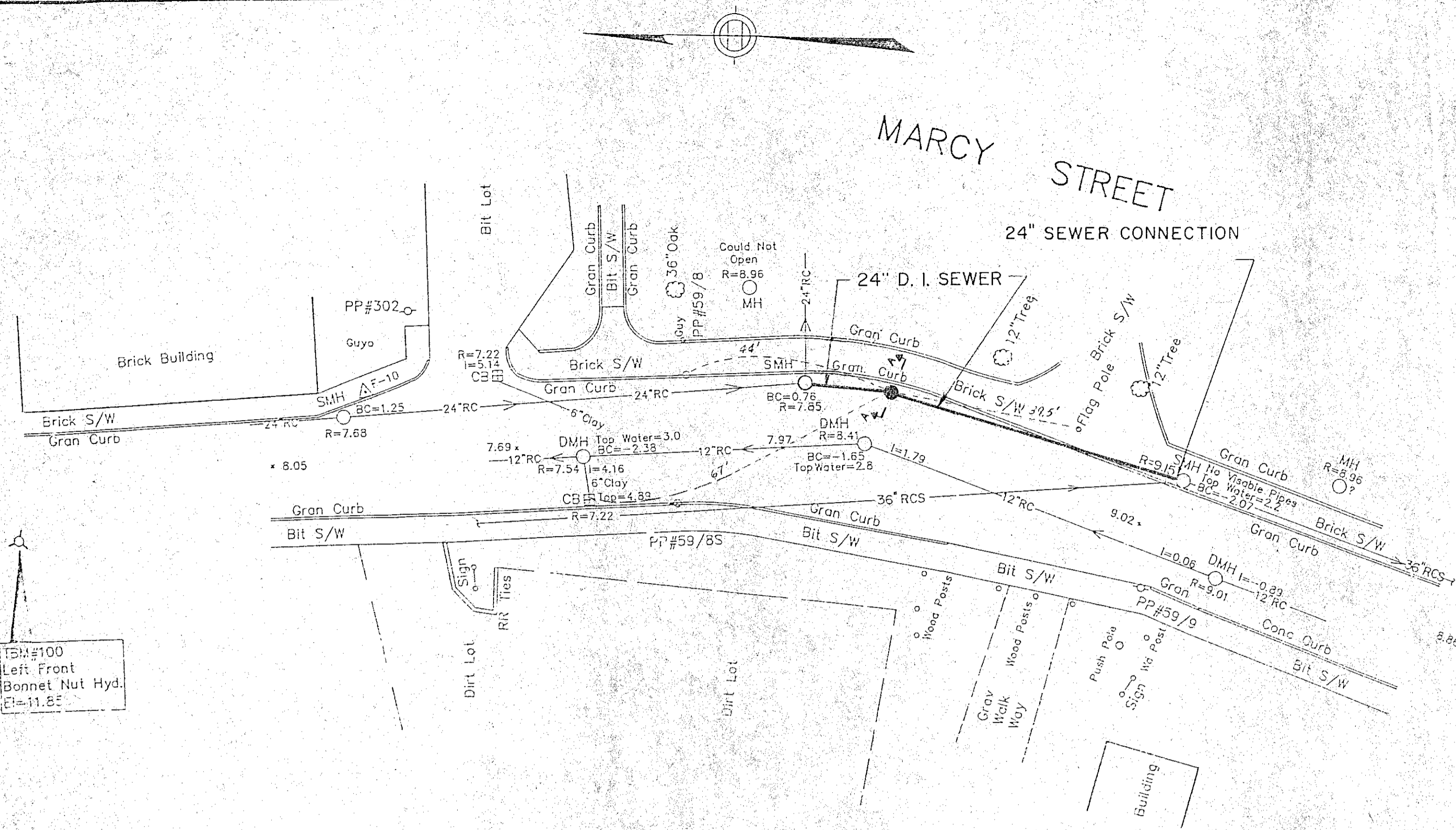
WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



DESIGNED DRAWN CHECKED SCALE AS NOTED DATE JULY 1990

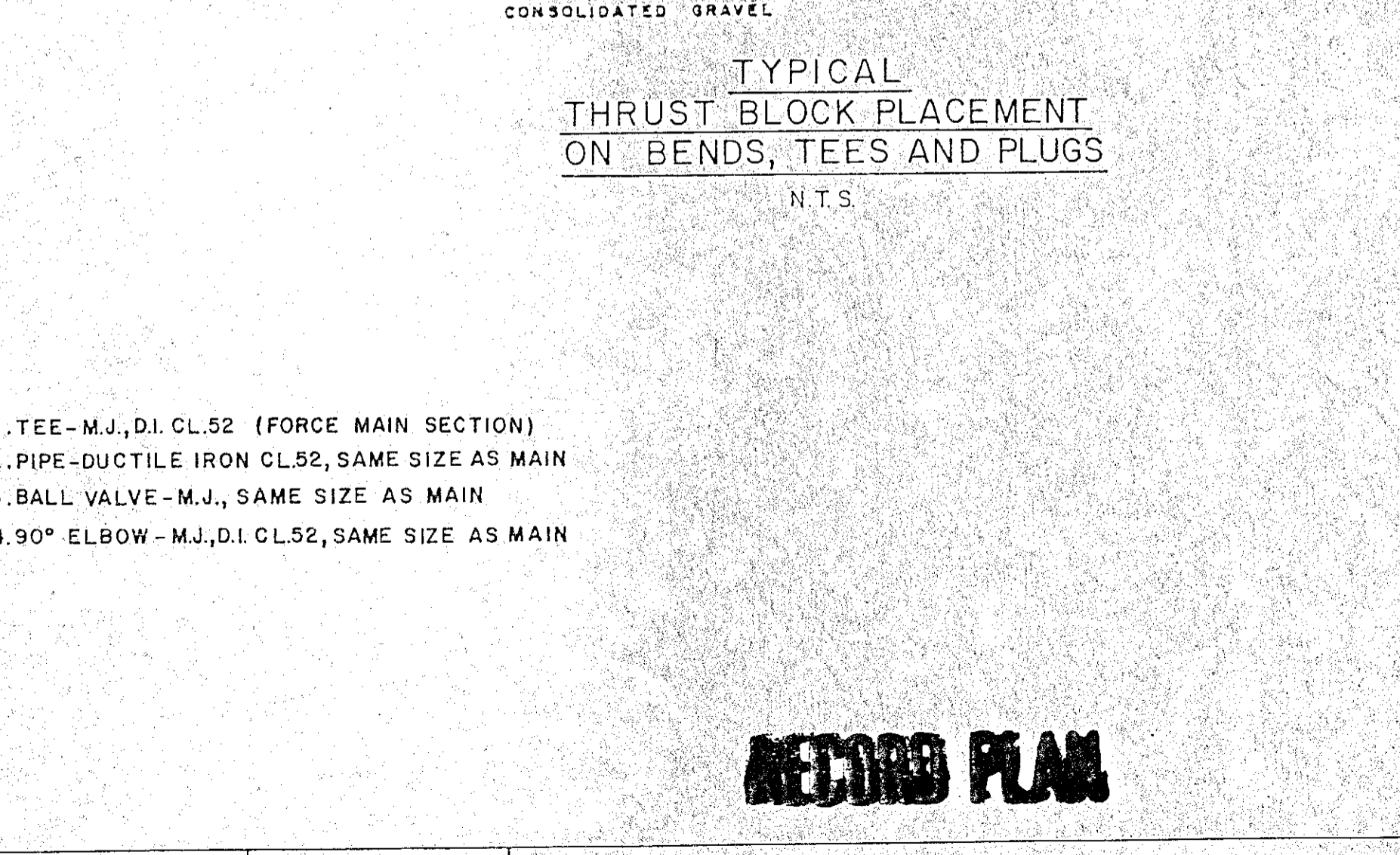
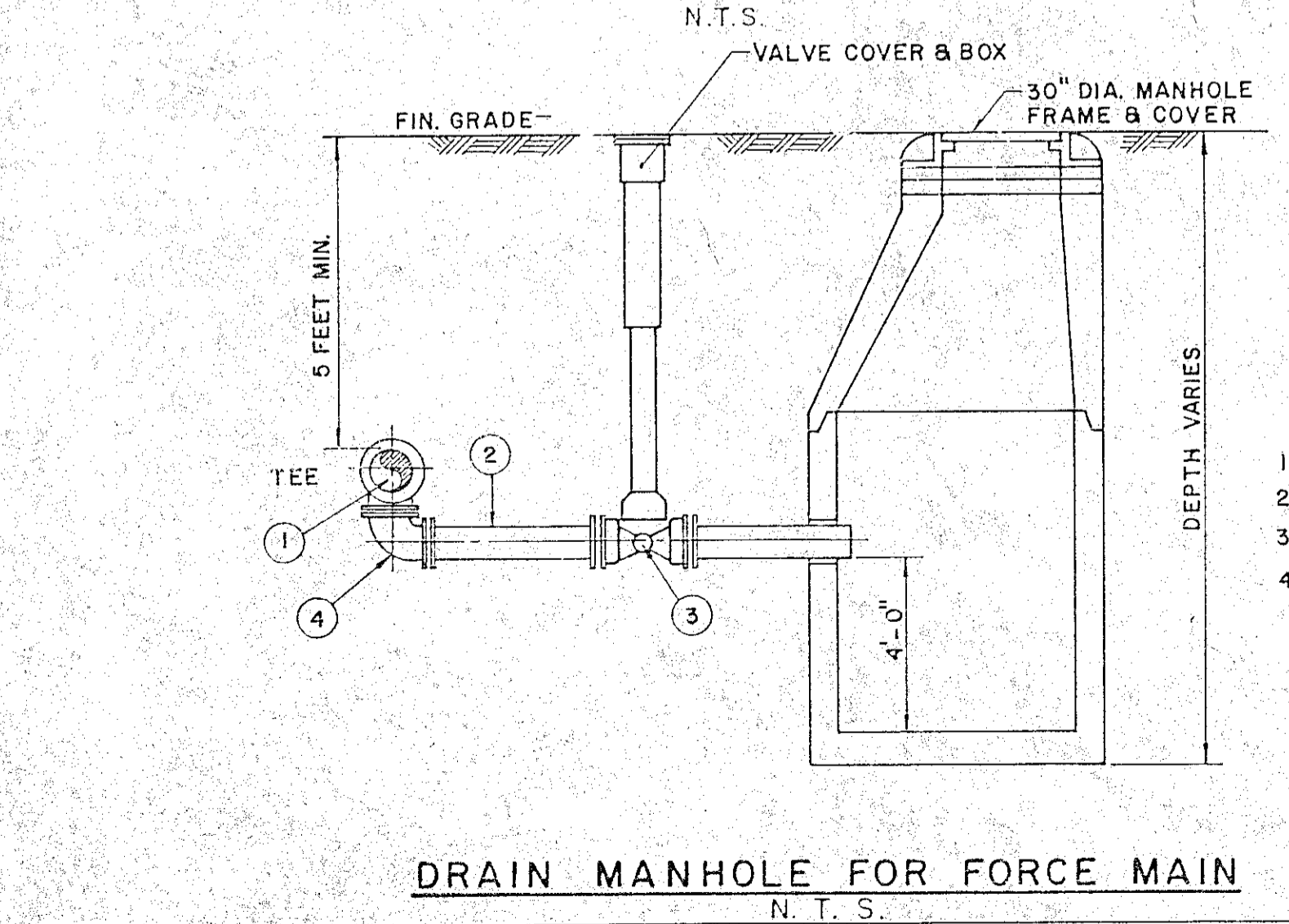
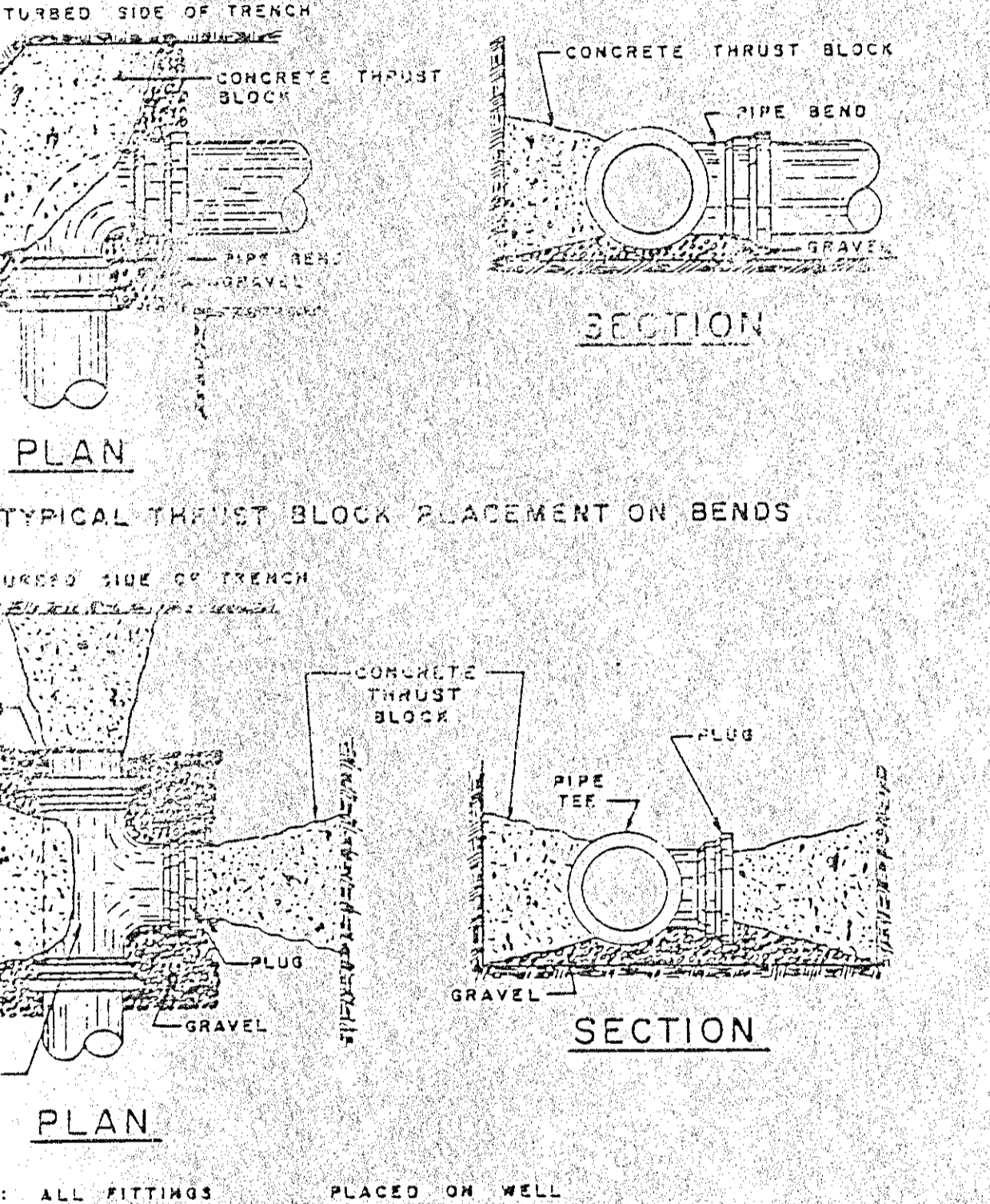
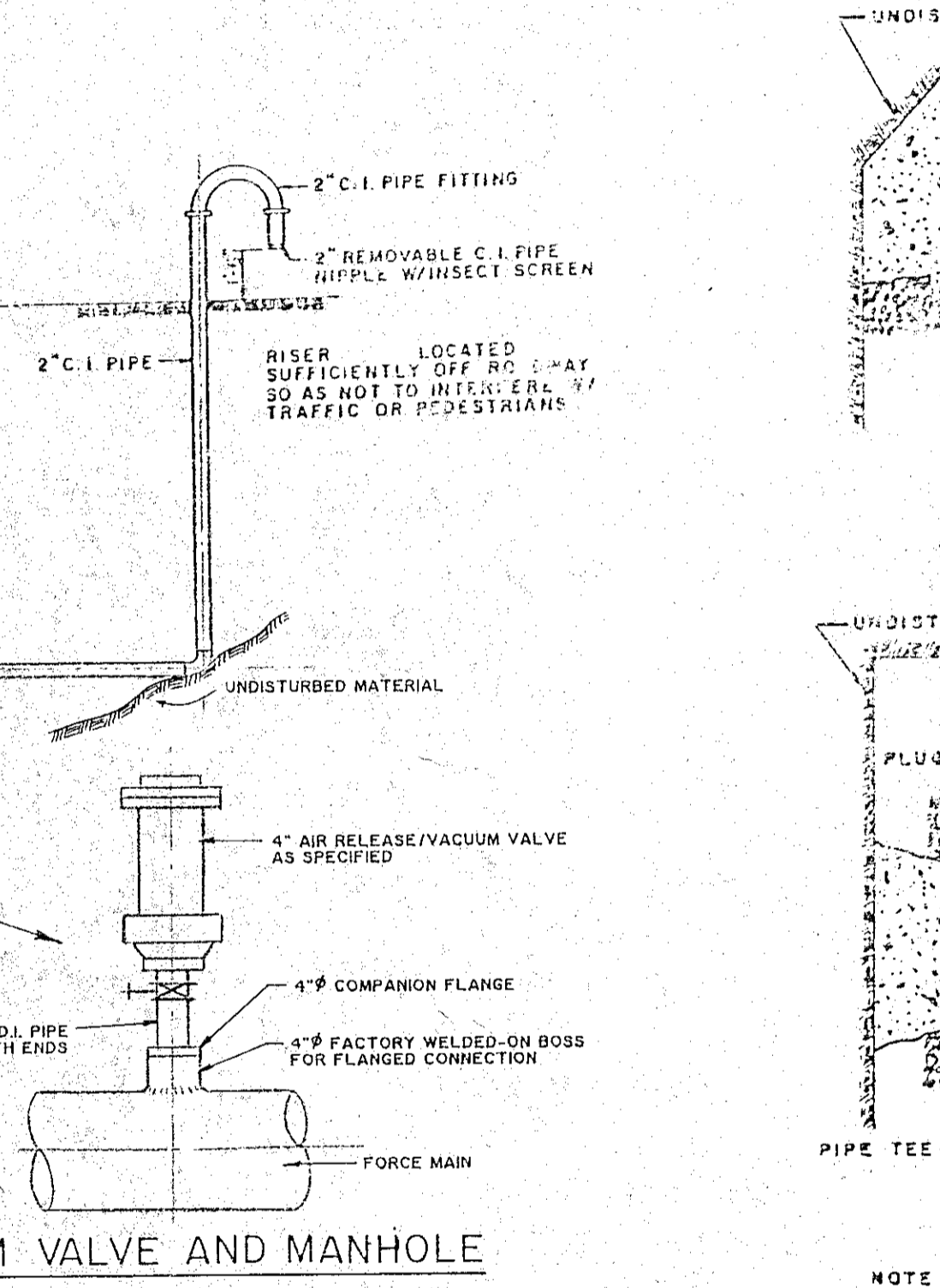
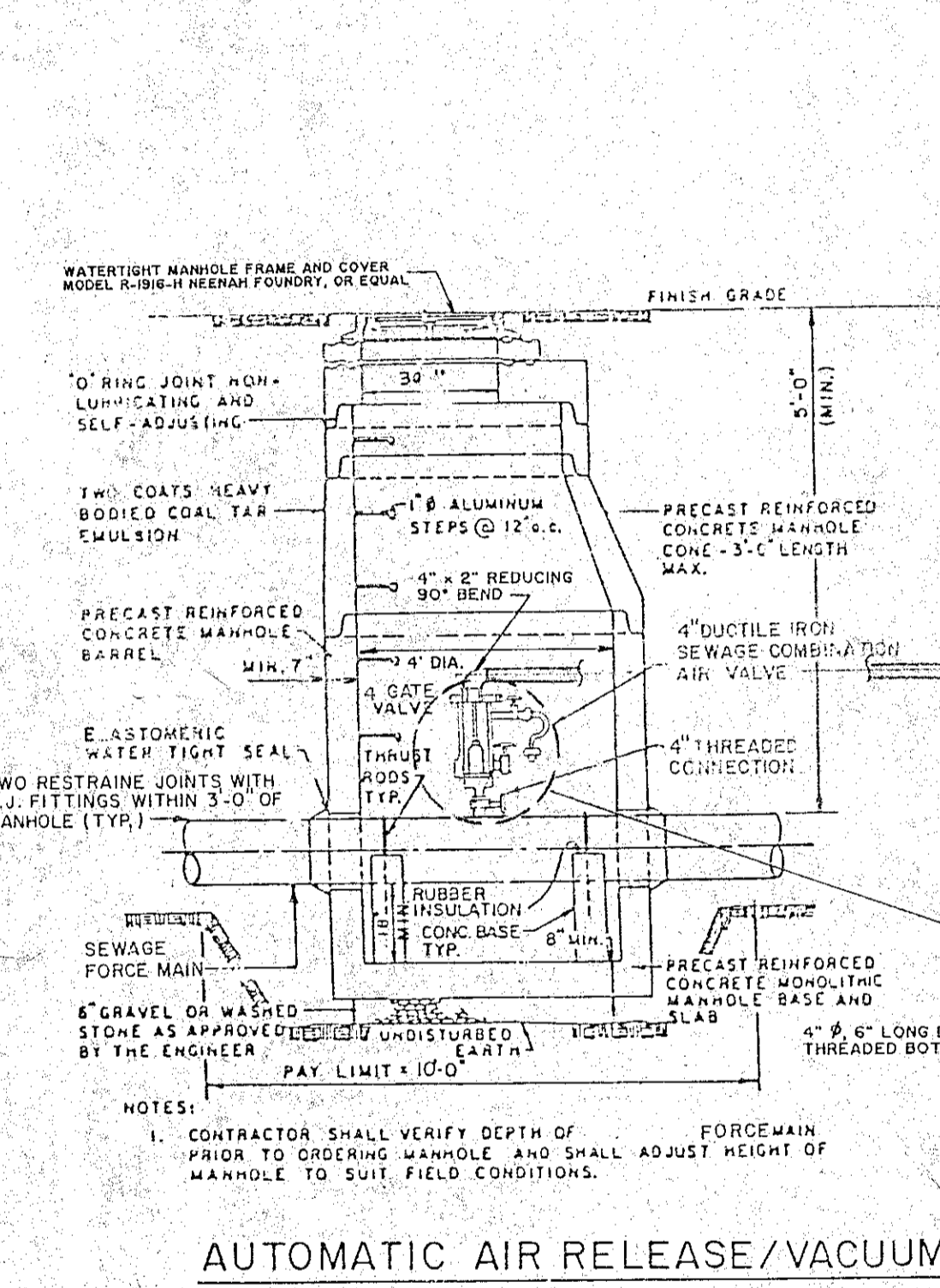
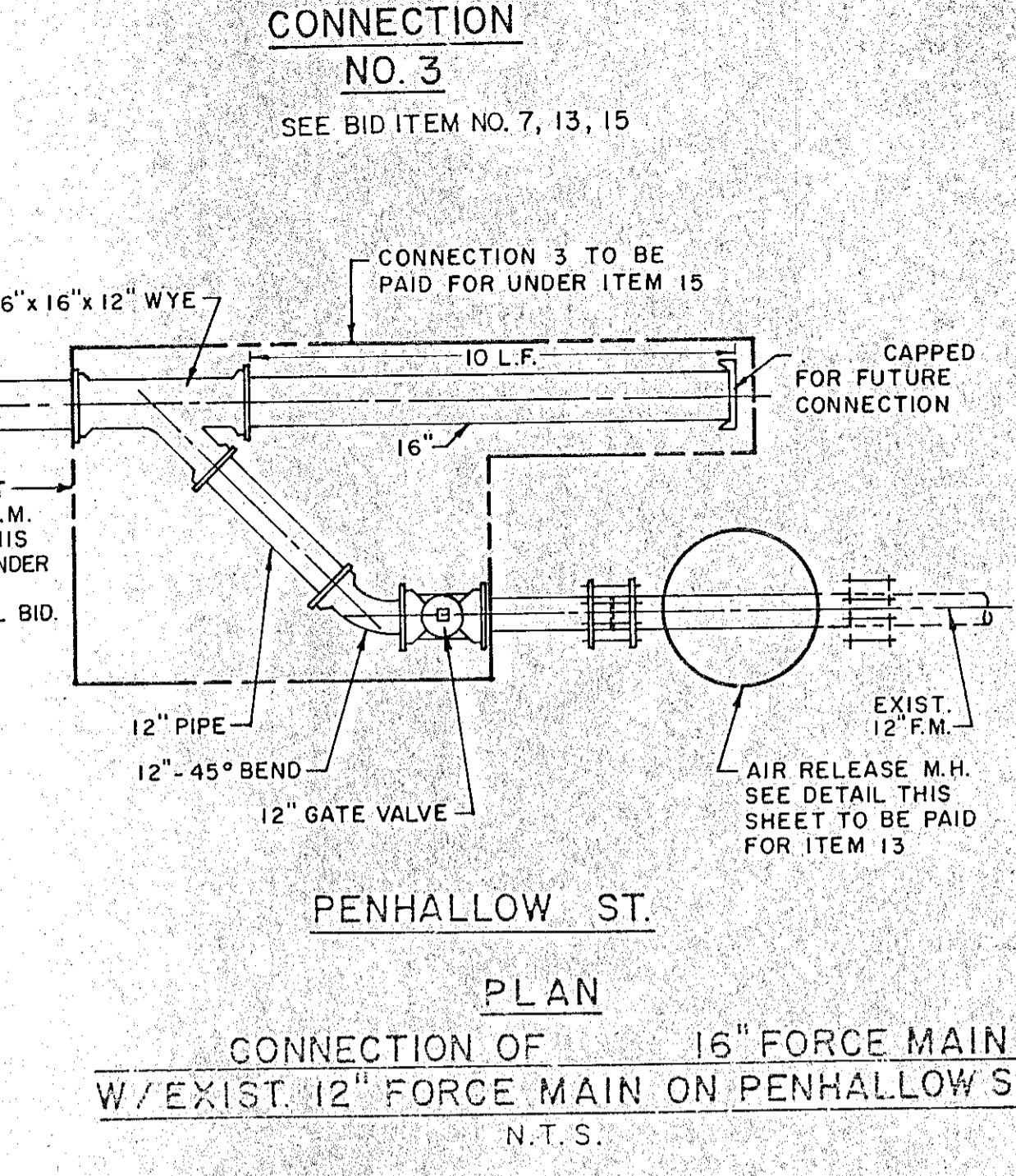
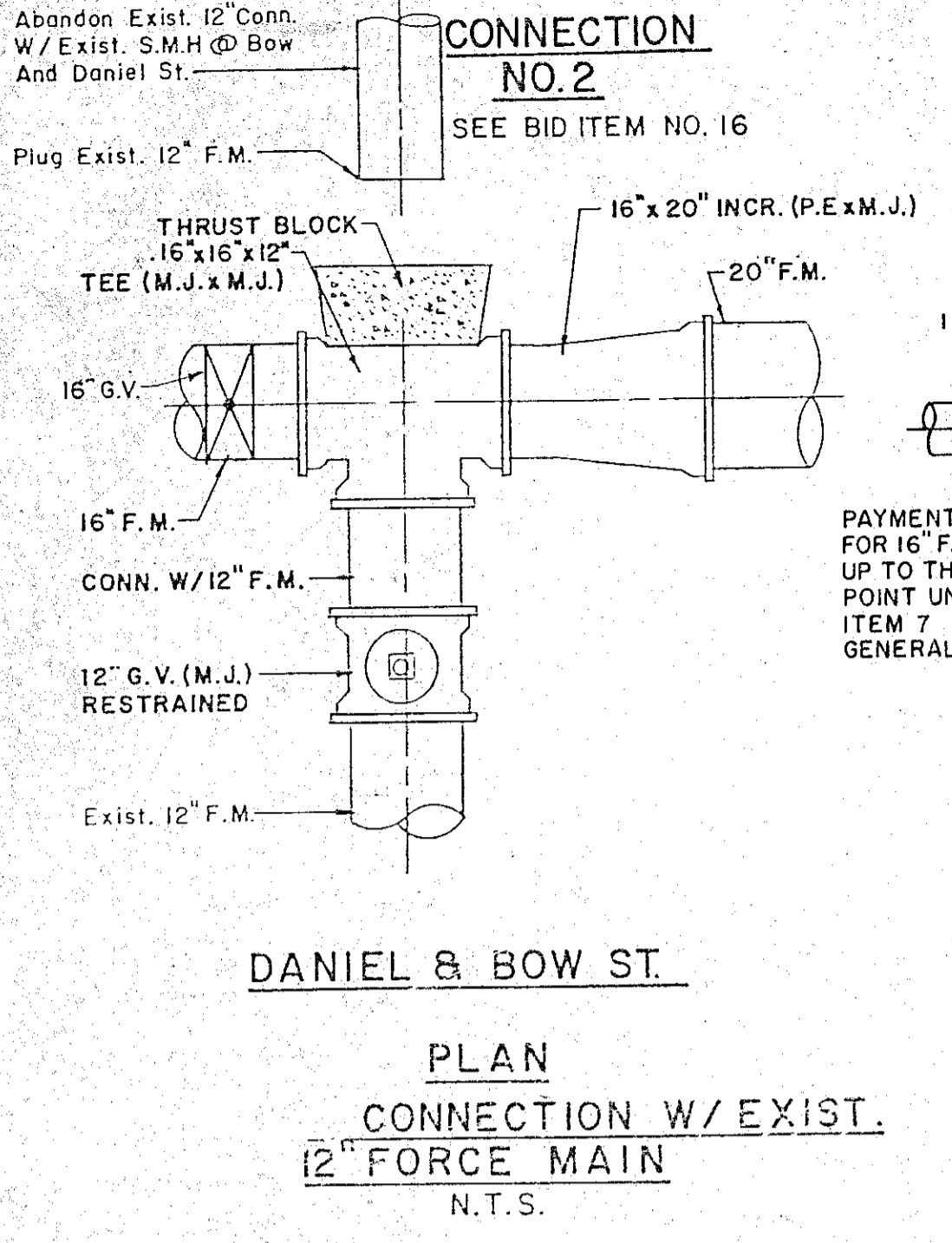
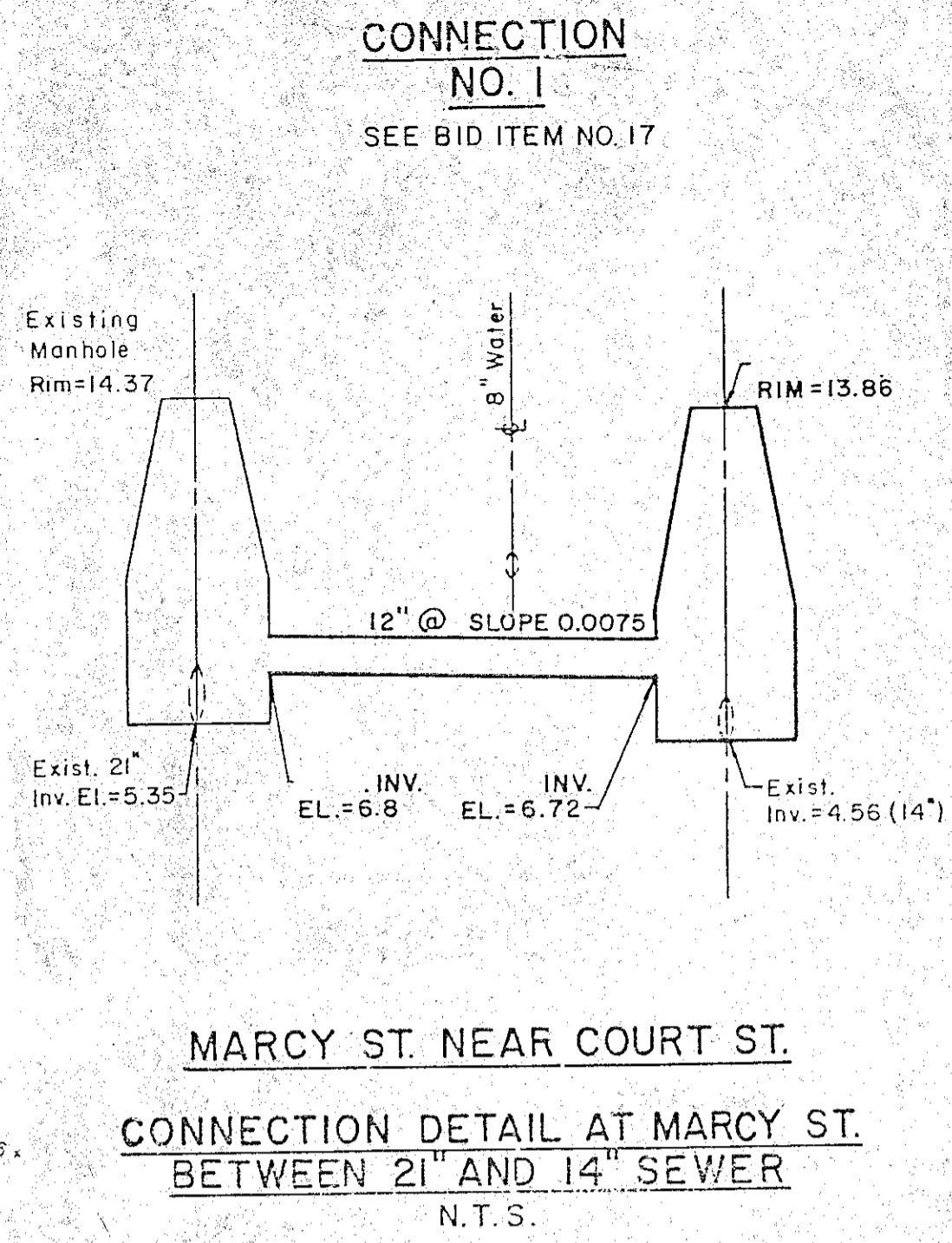
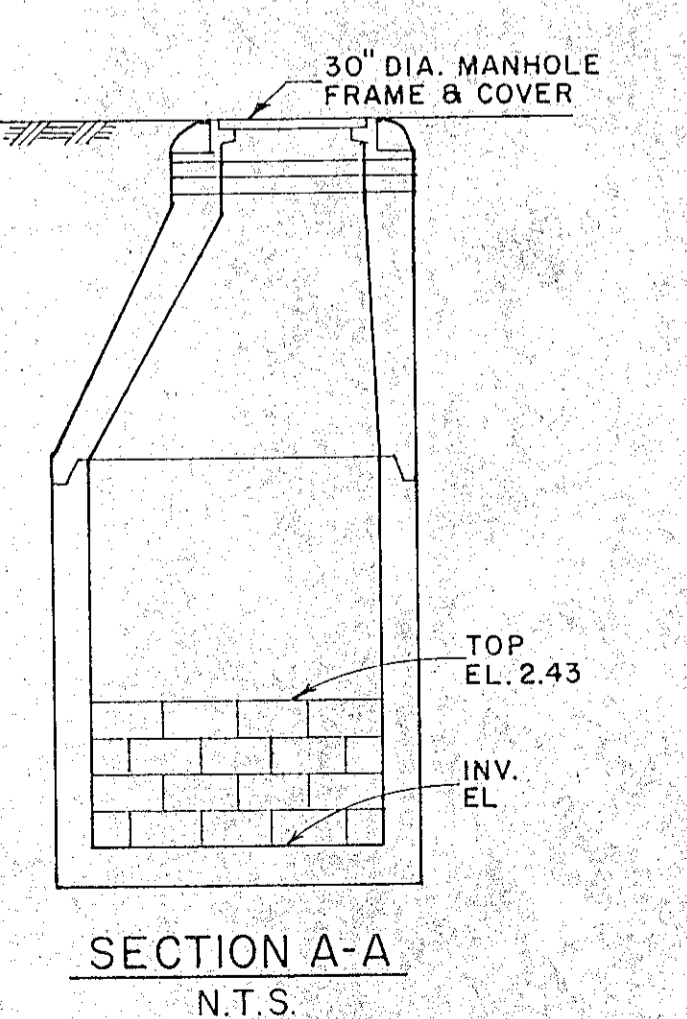
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JOB NO. 89-131
CONTRACT NO. 4
SHEET 5 OF 29 SHEETS

RENOVATIONS TO DEER ST AND MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
FORCE MAIN PLAN AND PROFILE



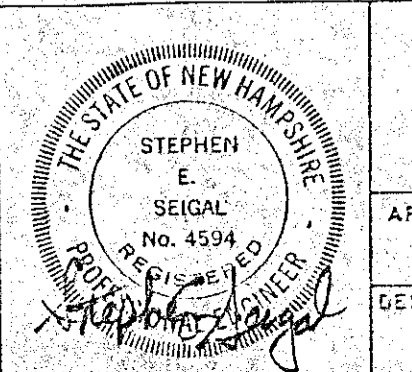
- GENERAL NOTES**
- SEE SPECIAL CONDITIONS OF SPECIFICATIONS FOR REQUIREMENTS GOVERNING THE RELATIONSHIP OF SEWER LINES TO WATER LINES.
 - WHERE SHOWN THE CONTRACTOR SHALL DIG EXPERIMENTAL EXCAVATIONS IN ORDER TO VERIFY CRITICAL ELEVATIONS BEFORE PROCEEDING WITH THE WORK.

- NOTES**
- WEIR CONSTRUCTED FROM FIRST QUALITY, WHOLE, SOUND, GRADE SS BRICK CONFORMING TO ASTM C32, 8" BRICK 2 WYTHES DOUBLE FLEMISH BOND.
 - MORTAR ONE PART PORTLAND CEMENT TO TWO PARTS OF SAND WITH 20% HYDRATED LIME. CEMENT SHALL CONFORM TO ASTM C150 SAND SHALL CONFORM TO ASTM C144 HYDRATED LIME SHALL CONFORM TO ASTM C207
 - SEE BID ITEM NO. 11



NO.	DESCRIPTION	DATE
1	Revised to Record Plan	10/91

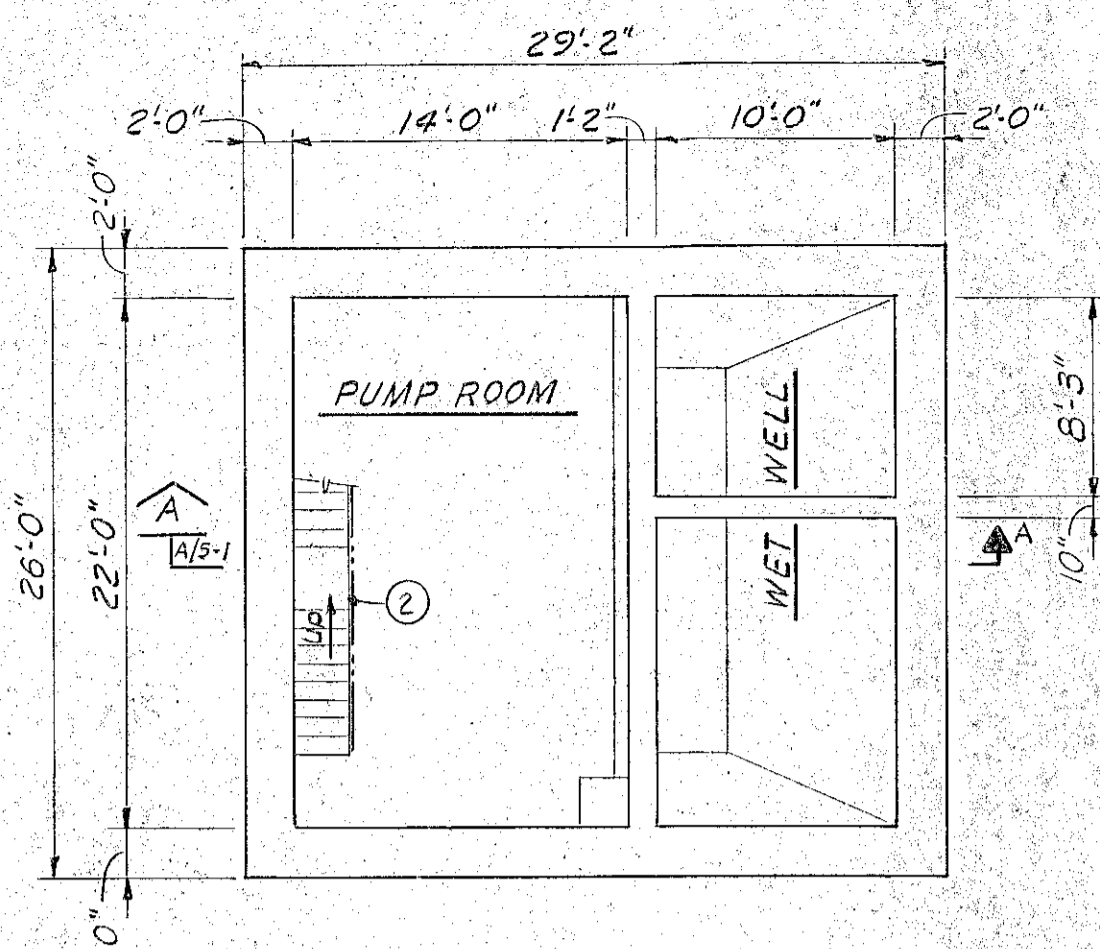
WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



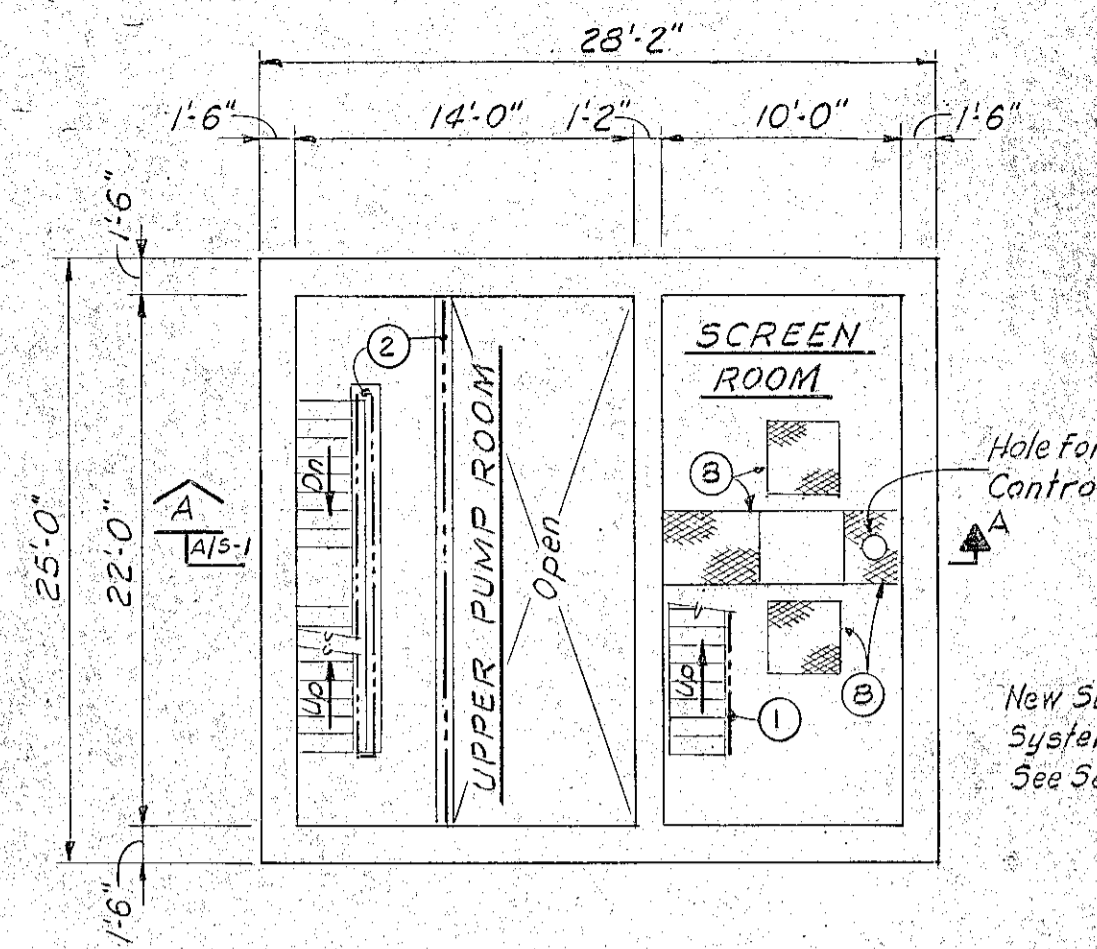
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			AS NOTED	JULY 1990	6 OF 29 SHEETS

DRAWING NO. **FM-5**
JOB NO. 89-131
CONTRACT NO. 4
RENOVATIONS TO DEER ST. AND MECHANIC STREET PUMPING STATIONS.
PORTSMOUTH, N.H.
FORCE MAIN - PLAN AND PROFILE AND DETAILS

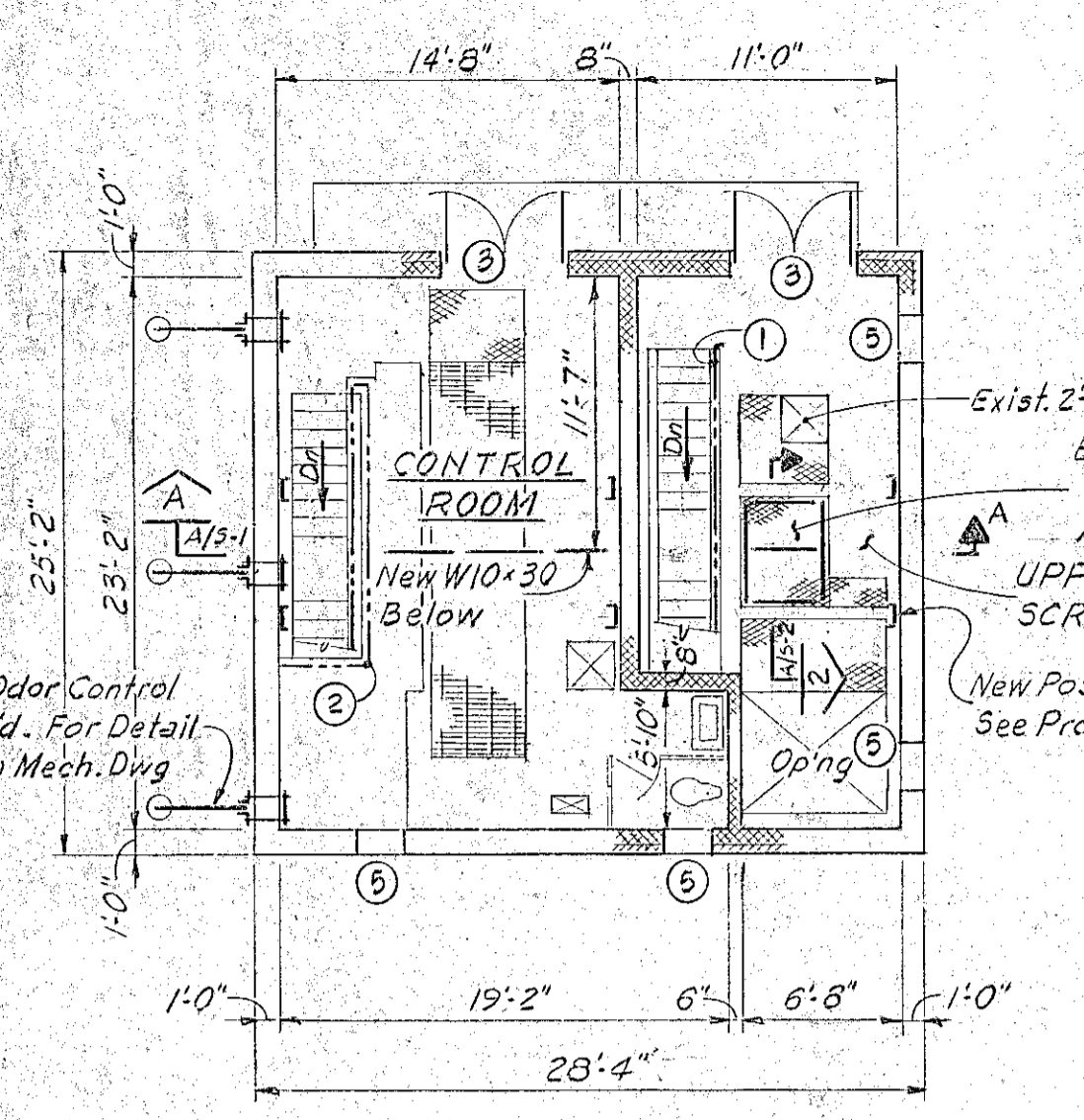
RECORD PLAN



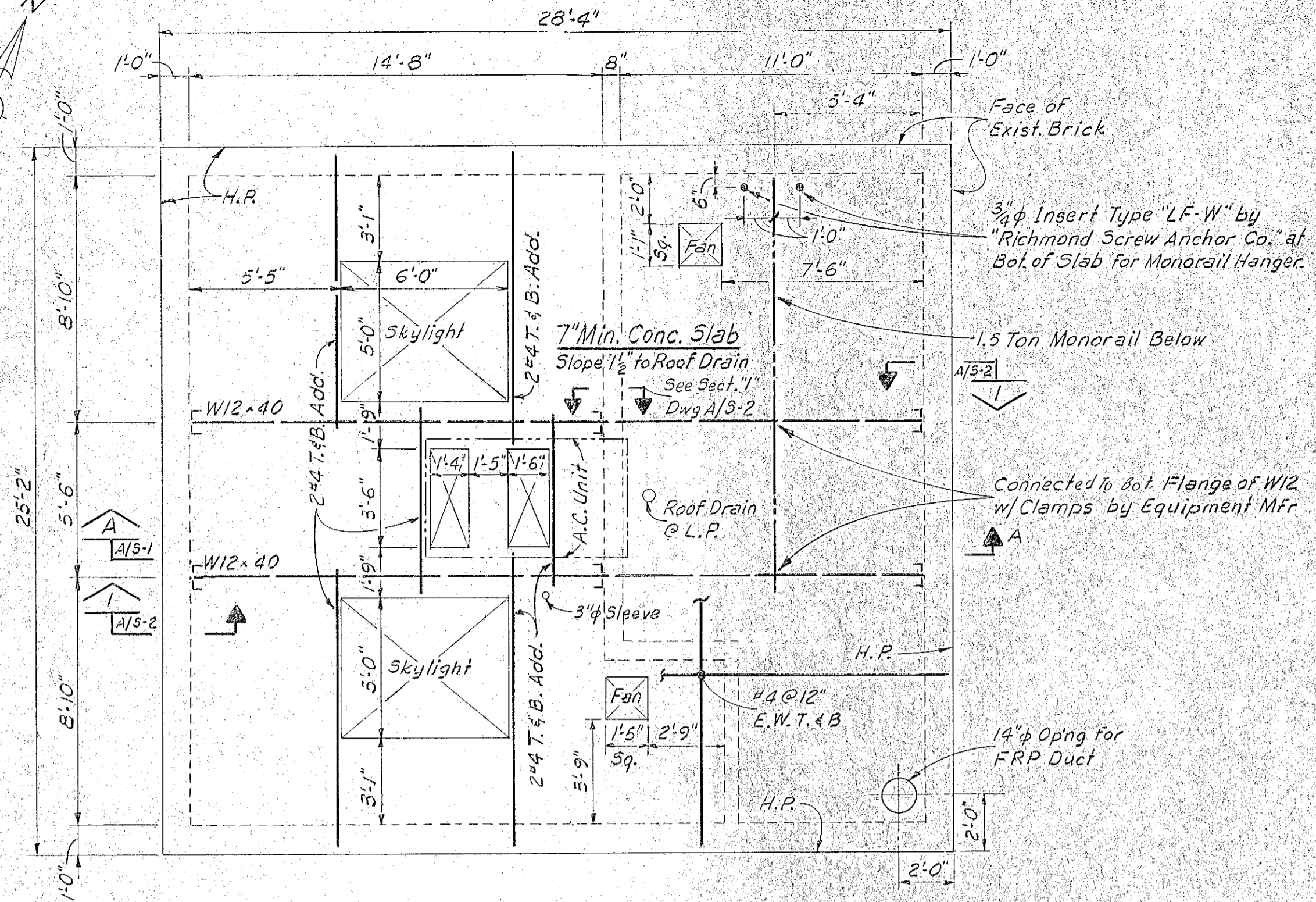
EXIST. BASEMENT PLAN
1/8"=1'-0"



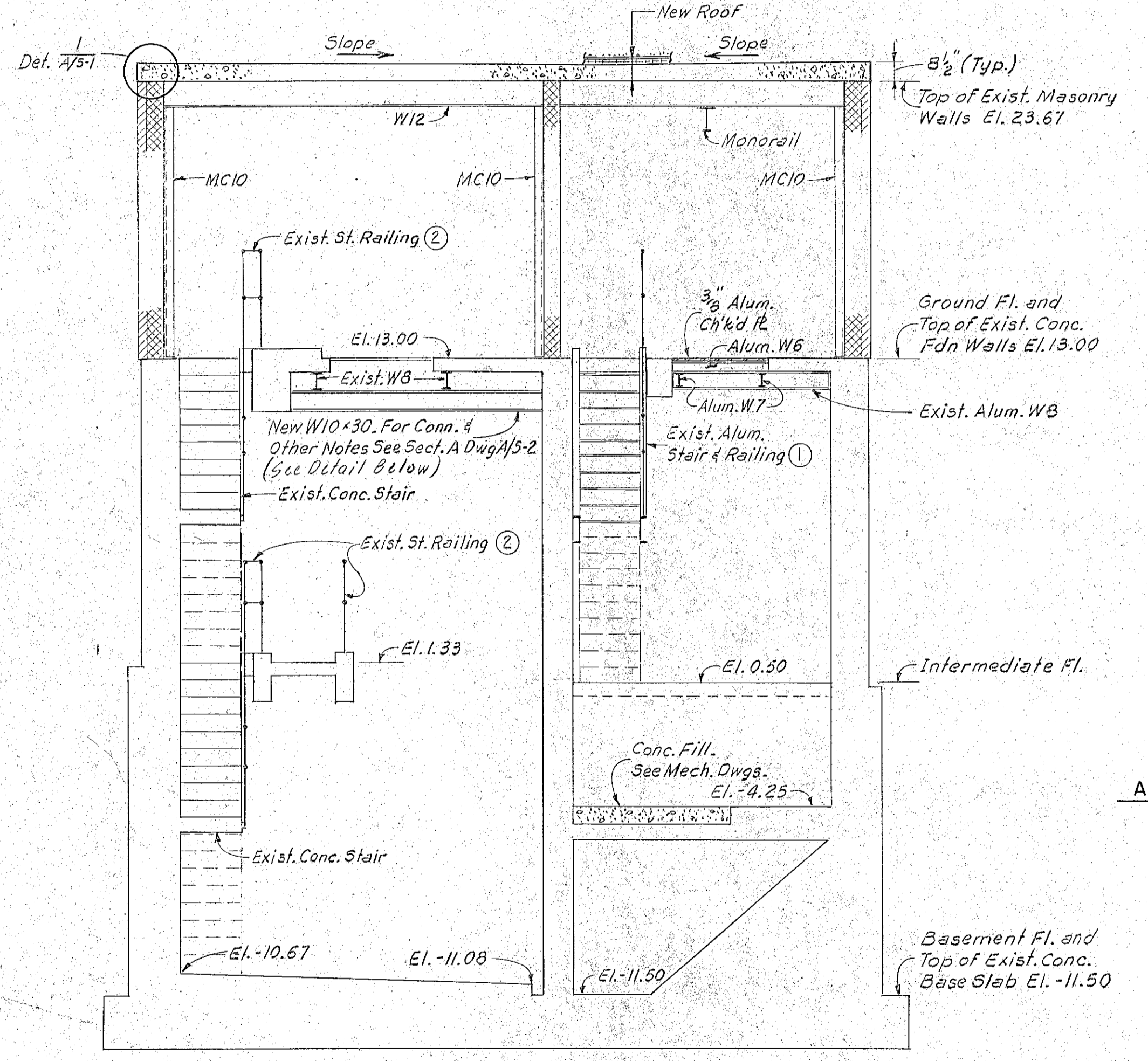
EXIST. INTERMEDIATE FLOOR PLAN
1/8"=1'-0"



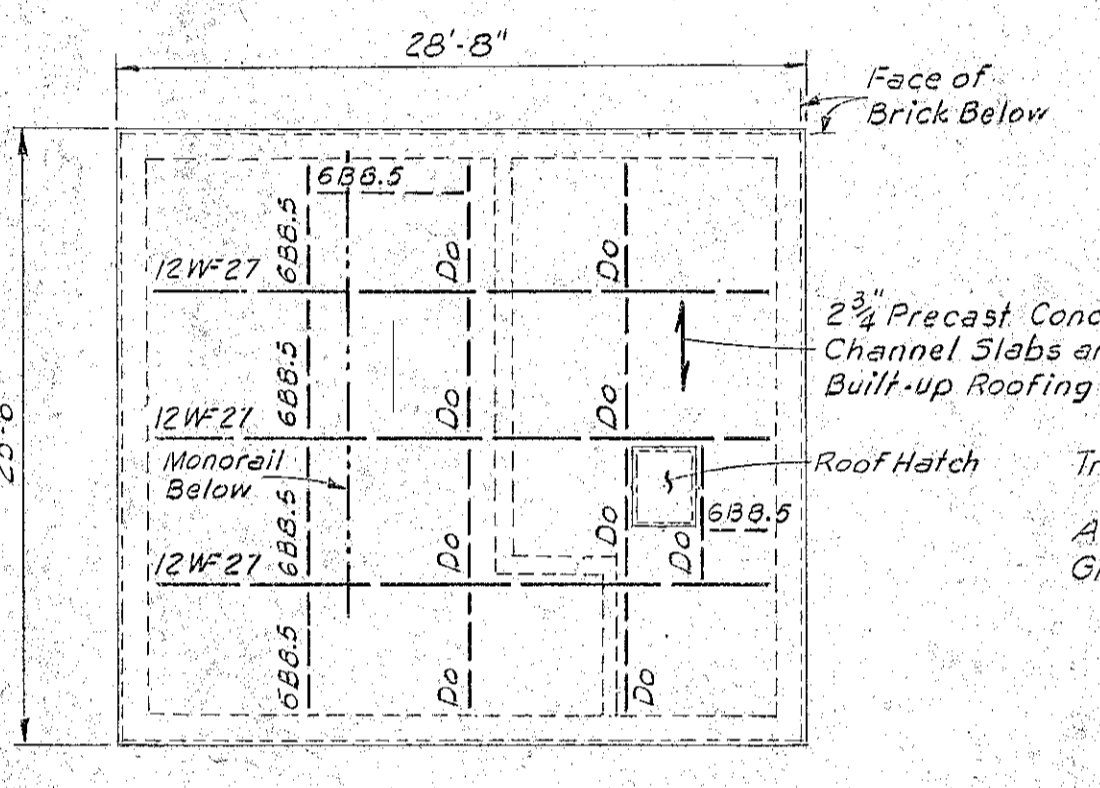
EXIST. GROUND FLOOR PLAN
1/8"=1'-0"



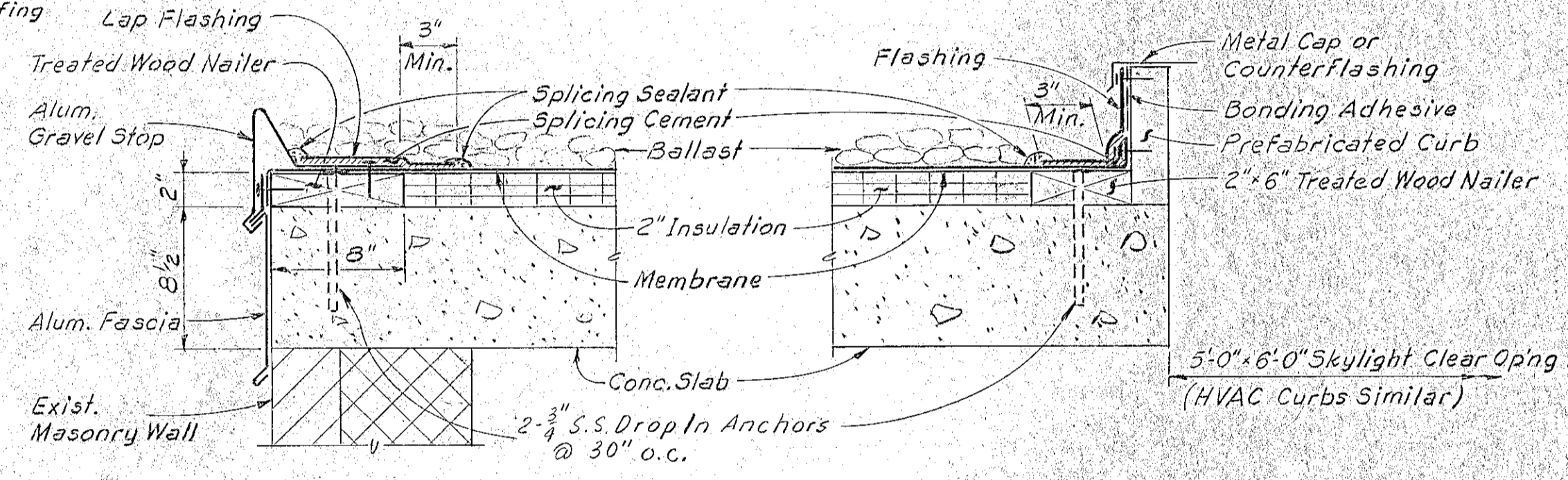
ROOF PLAN
1/4"=1'-0"



SECTION A-A
1/4"=1'-0"

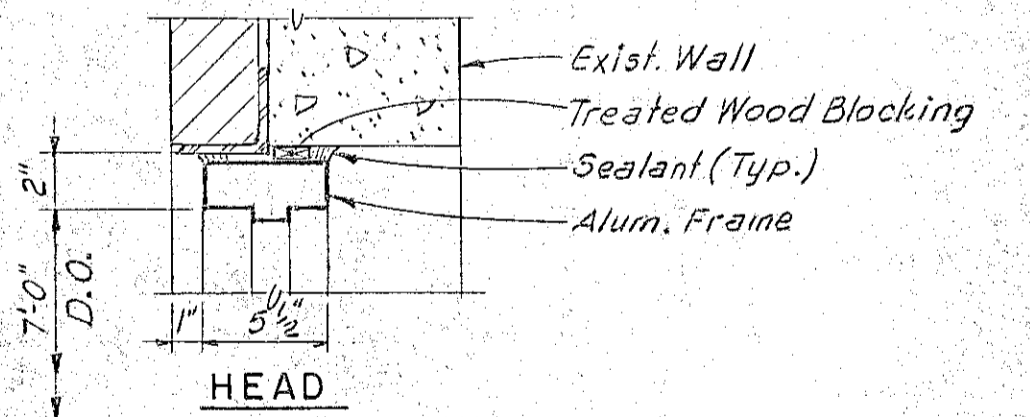


EXIST. ROOF PLAN
1/8"=1'-0"

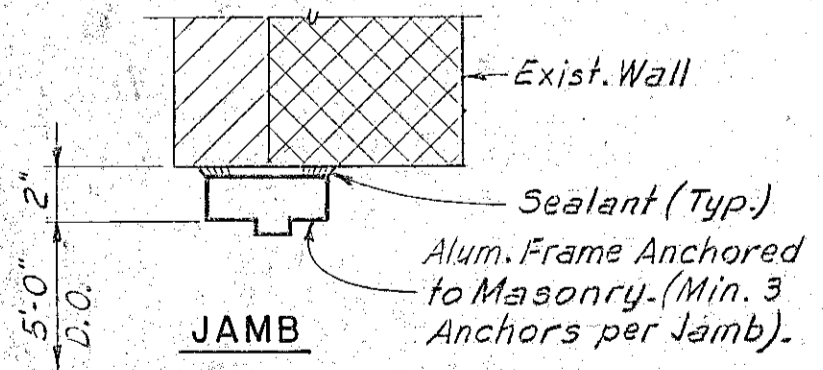


CURB AND SKYLIGHT DETAIL
1/2"=1'-0"

DETAIL 1
A/S-1
1 1/2"=1'-0"

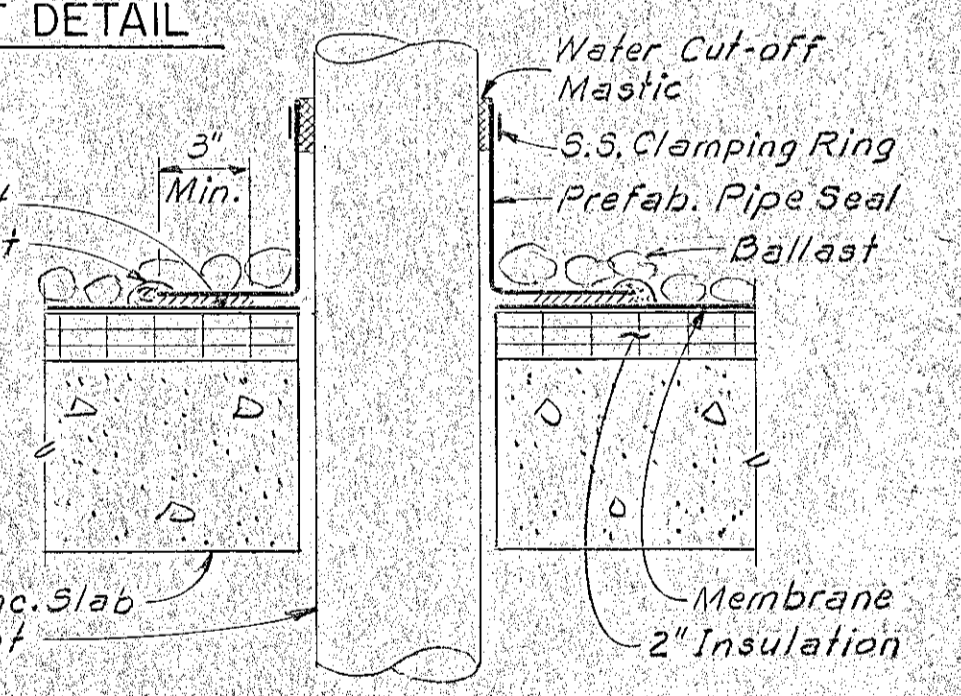


HEAD



JAMB

DOOR DETAILS
1 1/2"=1'-0"



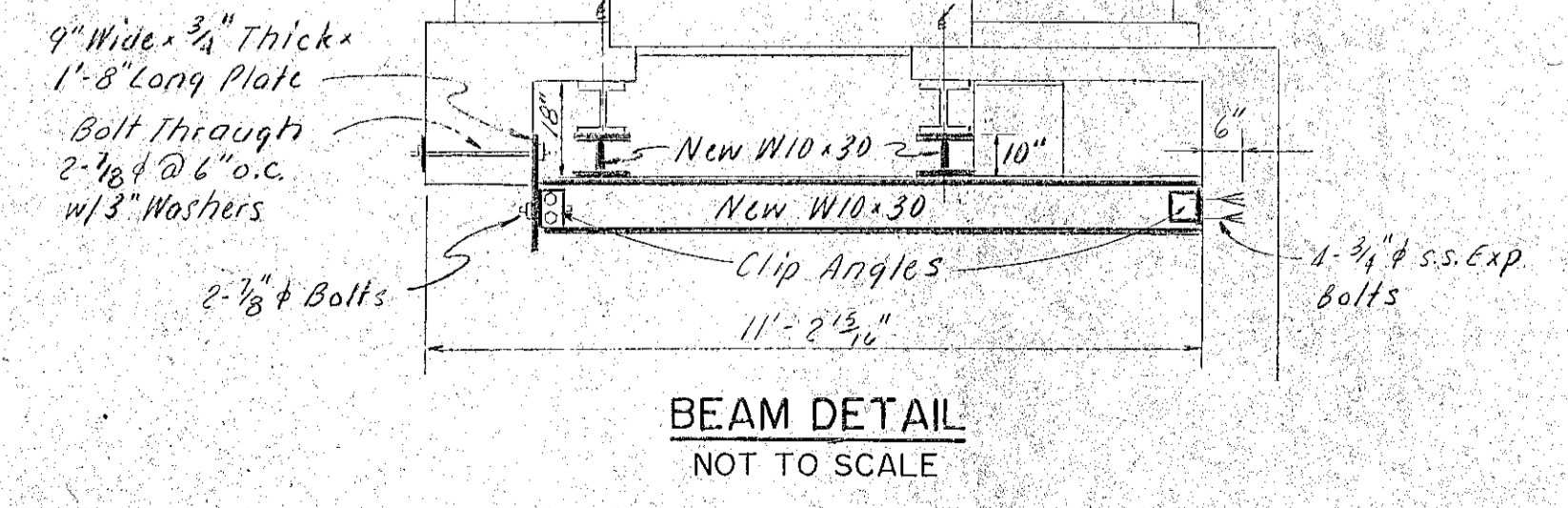
VENT PIPE FLASHING DETAIL
1/2"=1'-0"

- LEGEND:
- ③ Architectural and Structural Note
 - Aluminum Grating
 - Aluminum Checkered Plate

ALL MATERIALS TO BE NEW UNLESS NOTED OTHERWISE

ARCHITECTURAL AND STRUCTURAL NOTES

- ① Existing pipe rail removed and replaced with new aluminum railing per Specifications Section 05500.
- ② Existing steel railing to remain and repainted per Specifications Section 09900.
- ③ Removed existing doors and frames, replace with new flush aluminum doors, frames, and hardware per Specifications Section 08120.
- ④ The following surfaces of both Deer and Mechanic Street Pump Stations, both existing and new painted per Specifications Section 09900:
concrete walls and ceilings, concrete blocks, ferrous metals, galvanized steel.
- ⑤ Provided insulated aluminum closure and attach to inside face of existing stationary louvers.
- ⑥ Disconnect existing railing post from concrete stair; saw-cut railing to suit new location of post; weld and grind smooth railing to post at new location; reconnect post to concrete stair.
- ⑦ Removed all existing aluminum nosings and replaced with new abrasive aluminum nosings per Specification Section 05500.
- ⑧ Covered existing opening with new 3/8" aluminum checkered plate supported by aluminum angles 3 x 2 x 3/8, four sides. Fasten plate to supports with 1/4" S.S. countersunk screws, two each side. Bolt angles to existing concrete with 5/8" S.S. expansion bolts at 1'-6" o.c. (2 minimum) and minimum 5" embedment. Bolt angles to existing framing with 3/8" S.S. bolts at 1'-6" o.c. or minimum 2 bolts per connection.



BEAM DETAIL
NOT TO SCALE

RECORD PLAN

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

Professional Engineer Seal for Stephen E. Seigel, No. 4994, State of New Hampshire. Includes signature and date.

ORIGINAL FULL SIZE DRAWING = 4"
REPRODUCTIONS MAY BE REDUCED SIZE

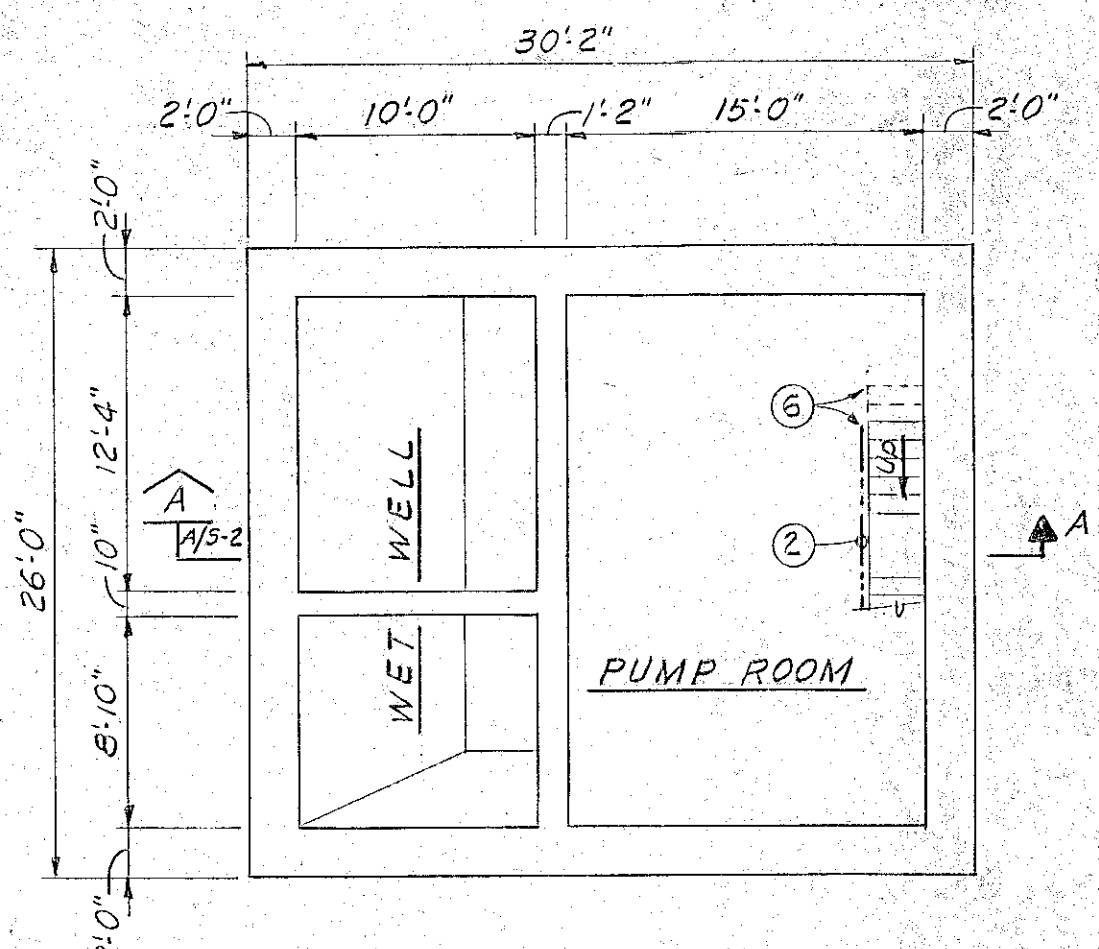
DRAWING NO. A/S-1
JOB NO.
CONTRACT NO. 4

RENOVATIONS TO DEER ST. AND MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.

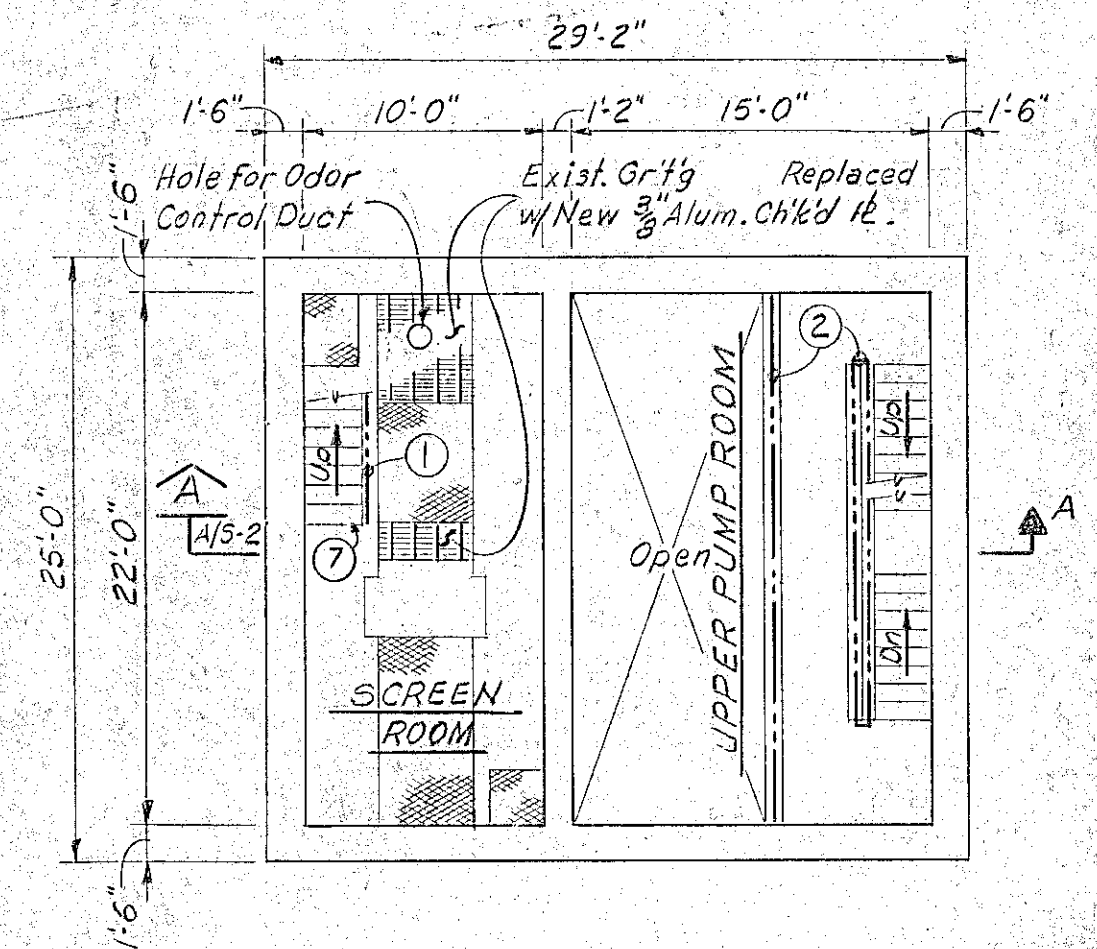
NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

DESIGNED DRAWN: [Signature] CHECKED: [Signature] SCALE: AS NOTED DATE: JULY 1990 SHEET 7 OF 29 SHEETS

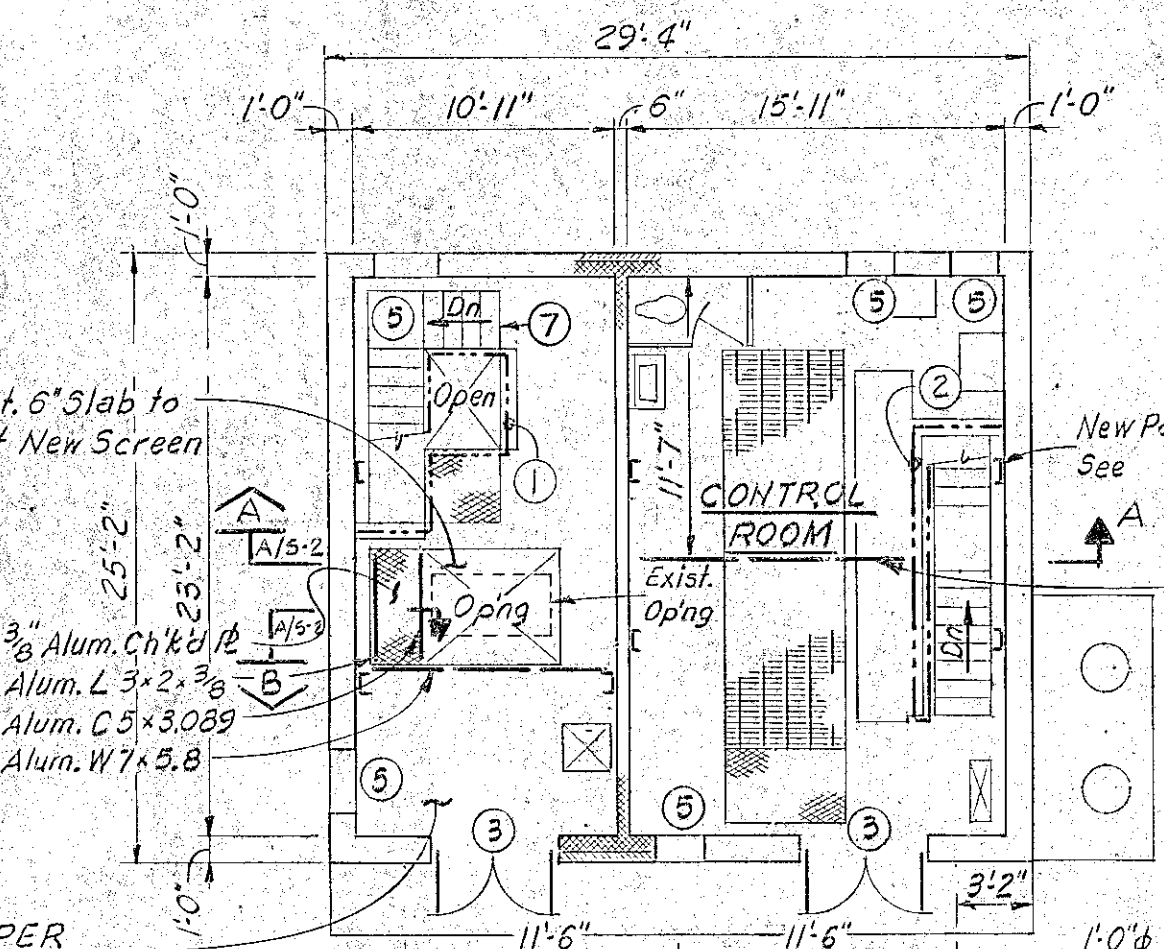
ARCHITECTURAL/STRUCTURAL PLANS SECTIONS & DETAILS
DEER STREET PUMPING STATION



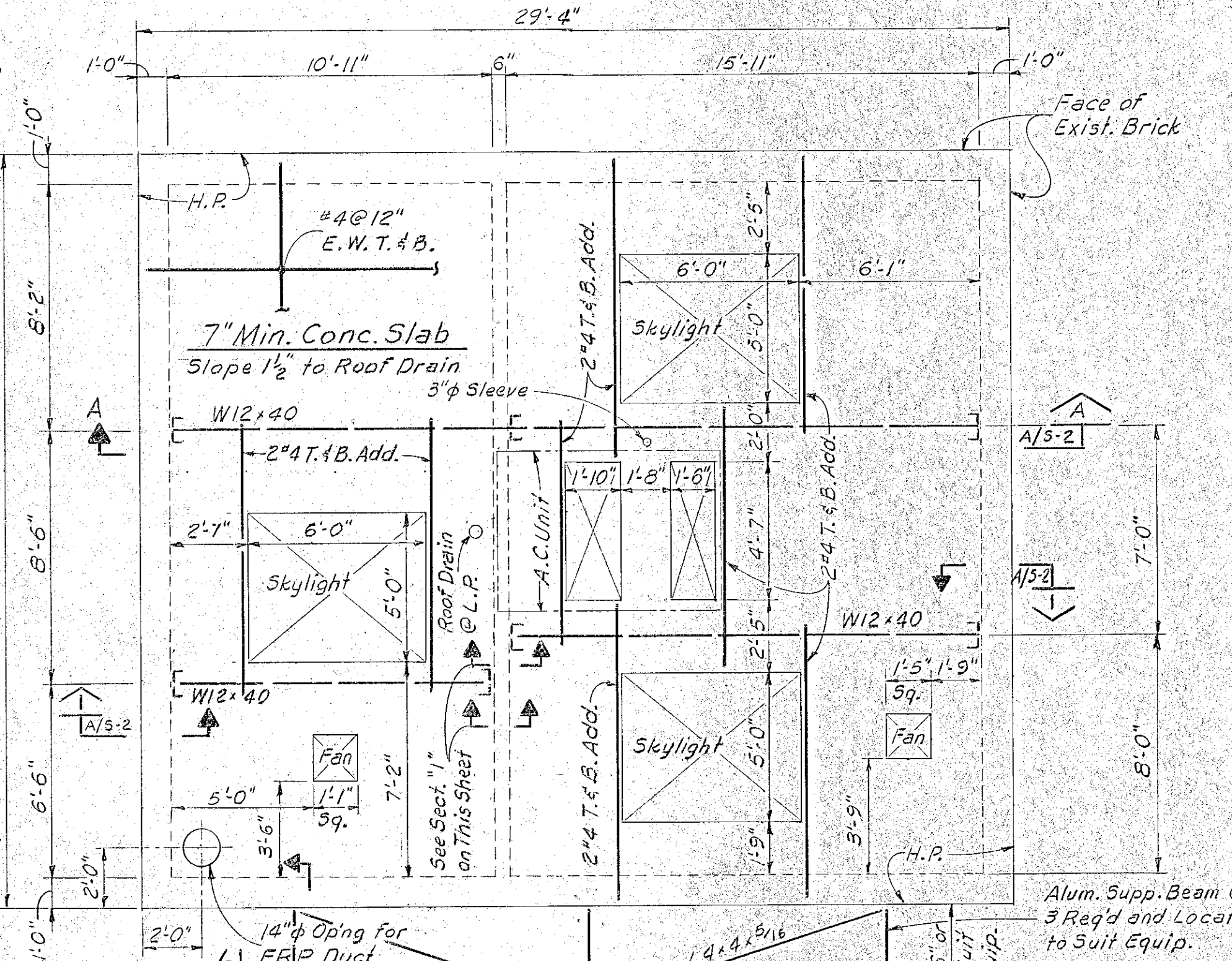
EXIST. BASEMENT PLAN
1/8"=1'-0"



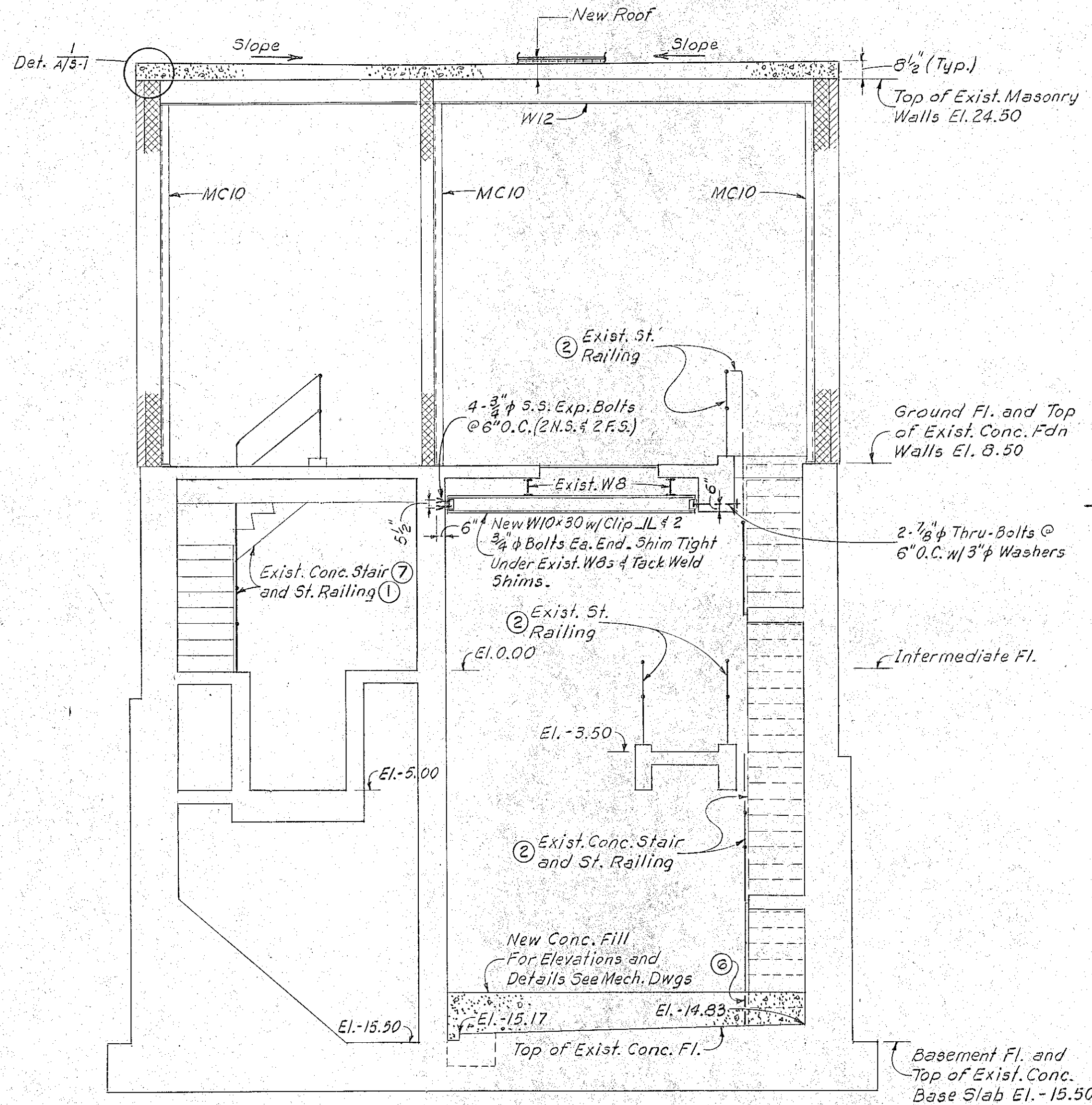
EXIST. INTERMEDIATE FLOOR PLAN
1/8"=1'-0"



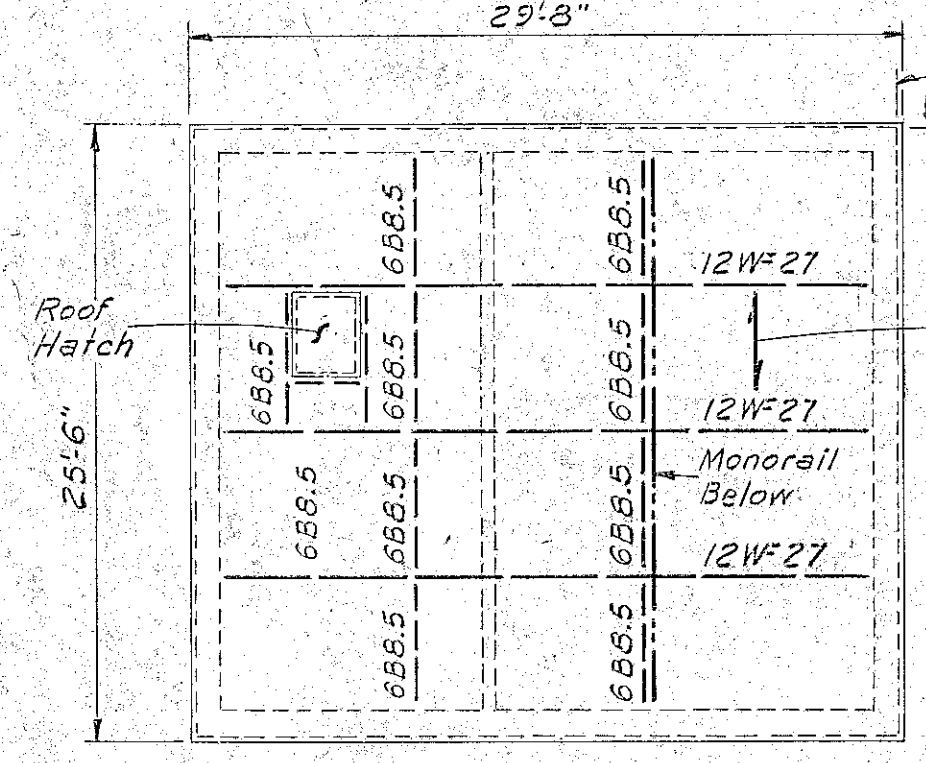
EXIST. GROUND FLOOR PLAN
1/8"=1'-0"



ROOF PLAN

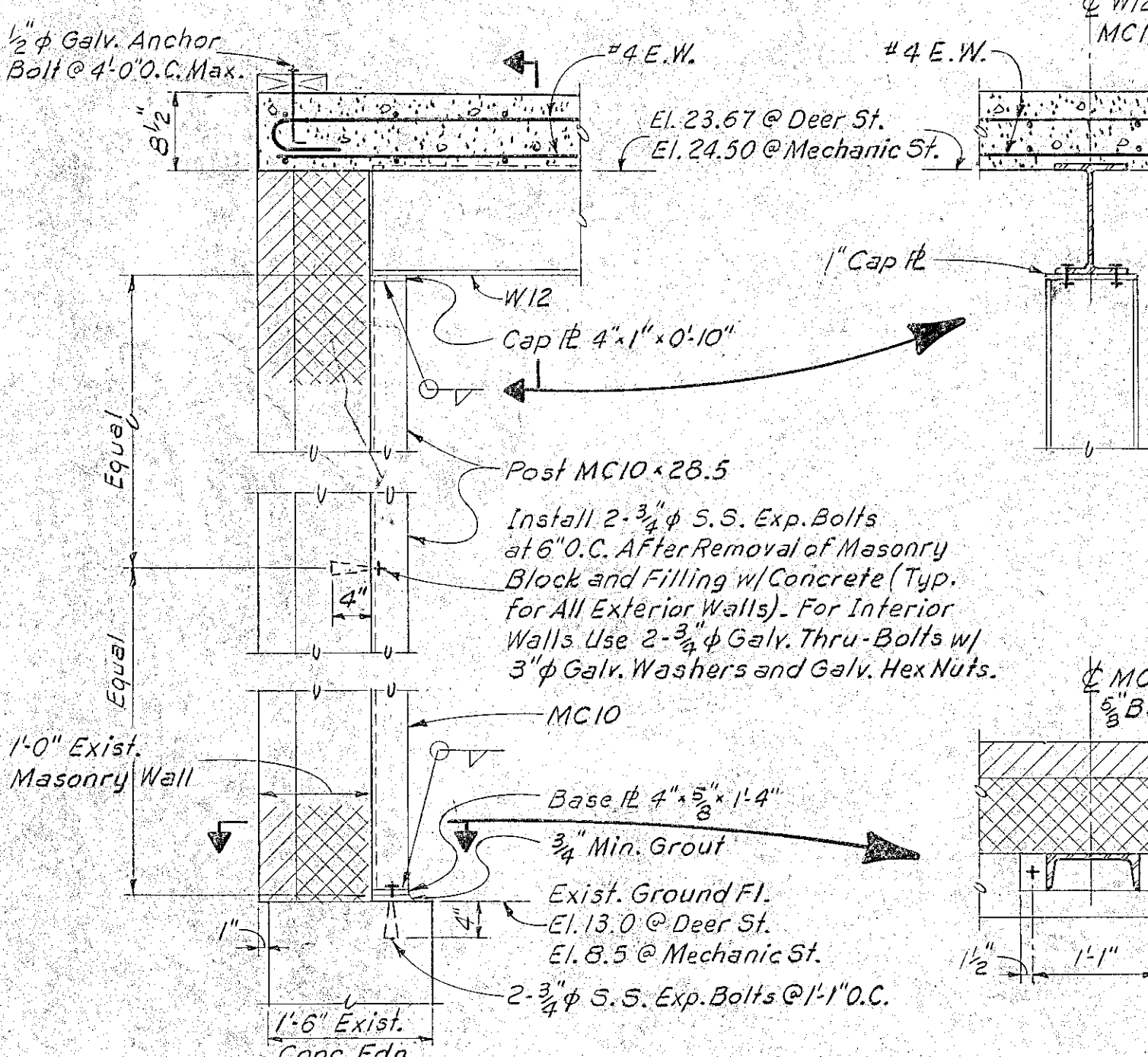


SECTION A/A5-2
1/4"=1'-0"

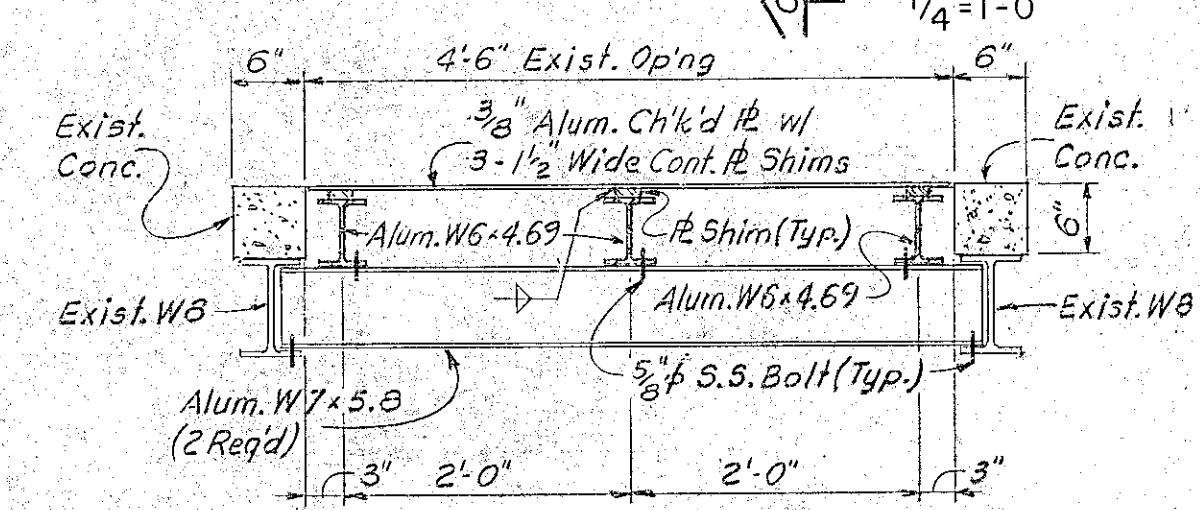


EXIST. ROOF PLAN
1/8"=1'-0"

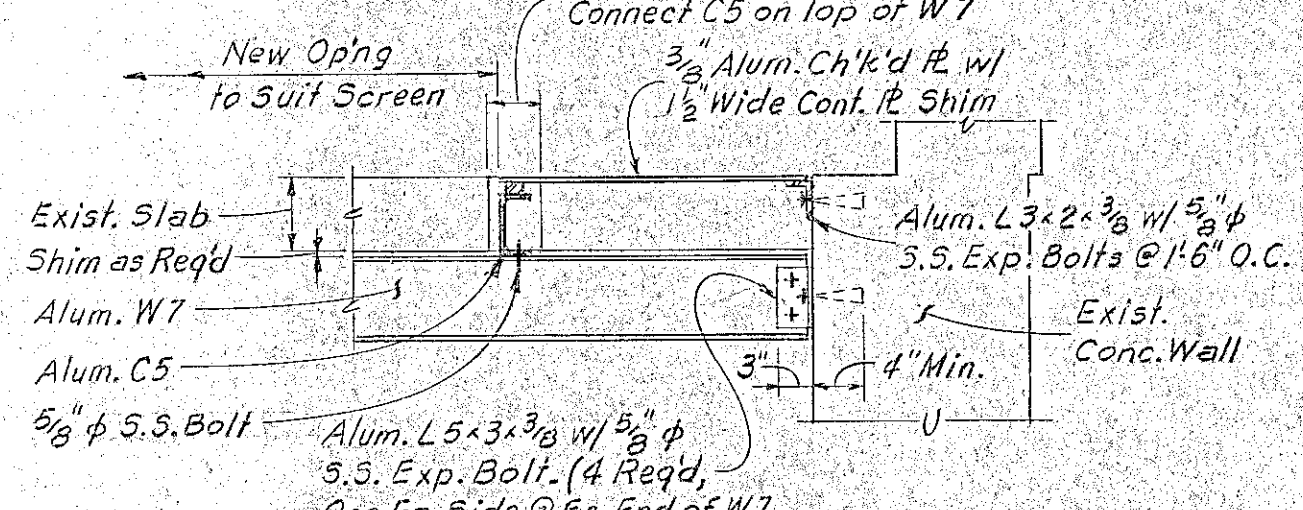
ALL MATERIALS TO BE NEW UNLESS NOTED OTHERWISE



SECTION A/A5-2
3/4"=1'-0"



SECTION A/A5-1
3/4"=1'-0"



SECTION A/A5-2
3/4"=1'-0"

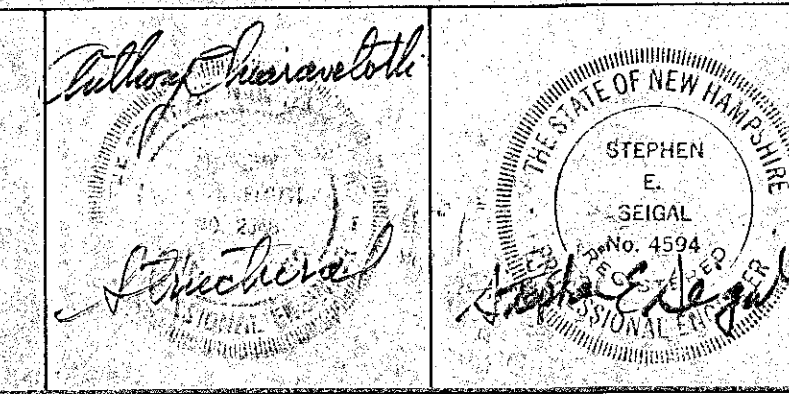
GENERAL NOTES

- All penetrations through wet well separation wall made gas-tight.
- Cut pockets in wet well separation wall for new steel beams and made gas-tight.
- Horizontal joint between top of wet well separation wall and new concrete slab made gas-tight.
- Concrete pads to suit new equipment placed on roughened existing concrete with epoxy bonding compound, Sikastix Hi-Mod Epoxy, by Sika Chemical Corp., or equal.
- Floor areas where existing equipment pads are removed be ground smooth.
- Fill/void all existing beam pockets in block wall with concrete.
- Existing concrete slabs and walls received new concrete fill roughened and received an application of Epoxy bonding compound.
- Verify all dimensions in the field before fabrication.

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

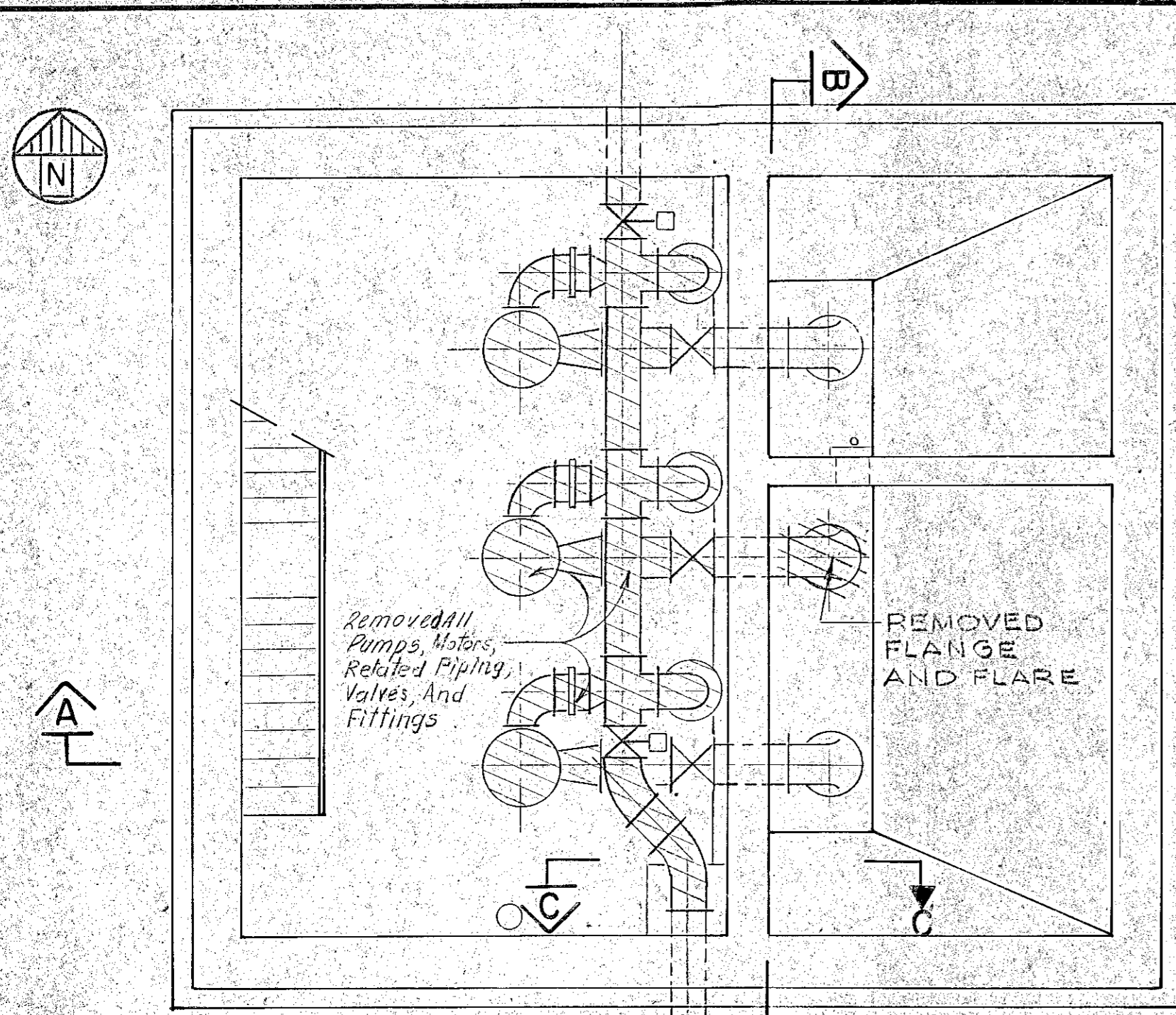


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REPRODUCTIONS MAY BE REDUCED SIZE

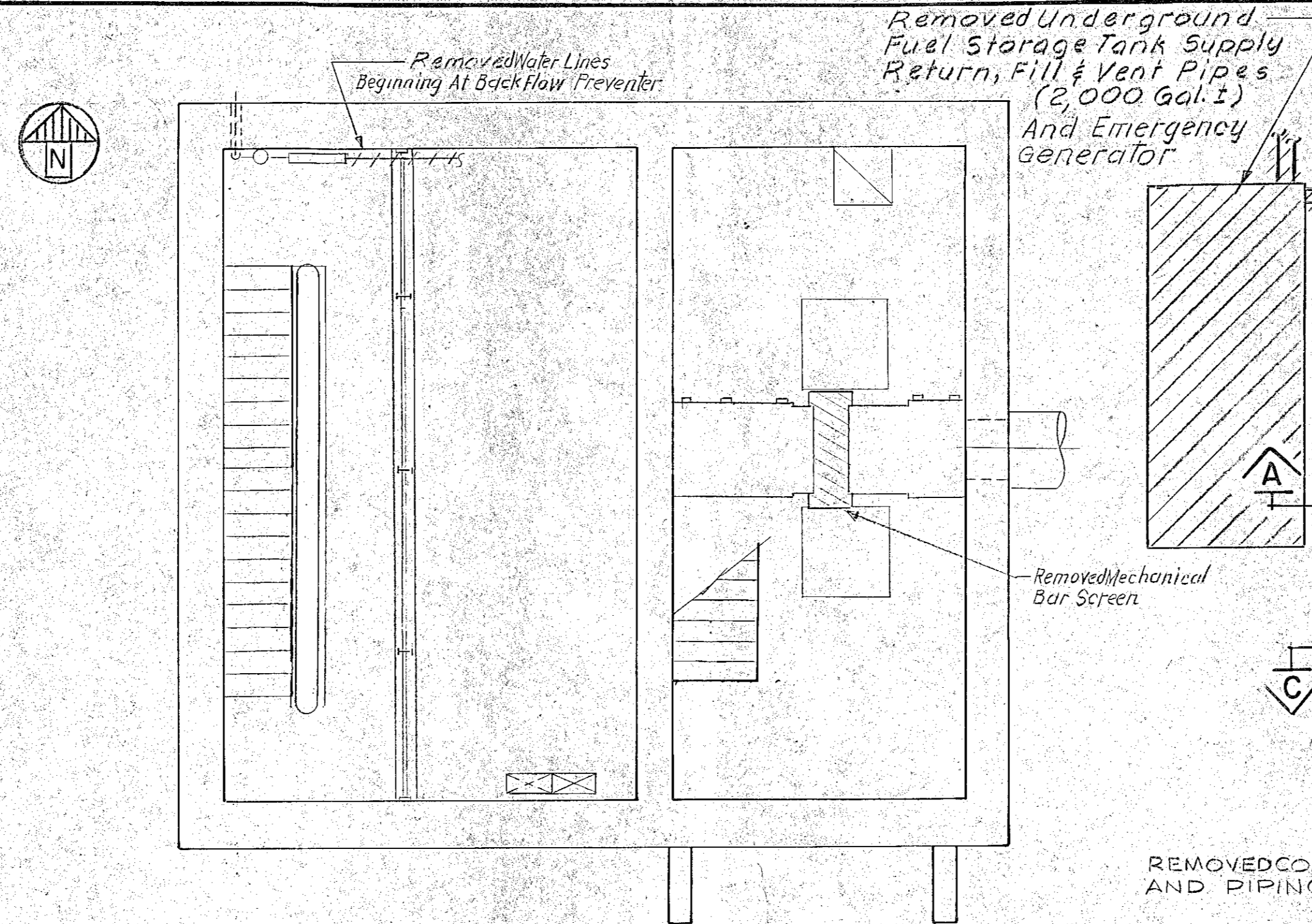
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			AS NOTED	JULY 1990

DRAWING NO.	A/S-2
JOB NO.	
CONTRACT NO.	4

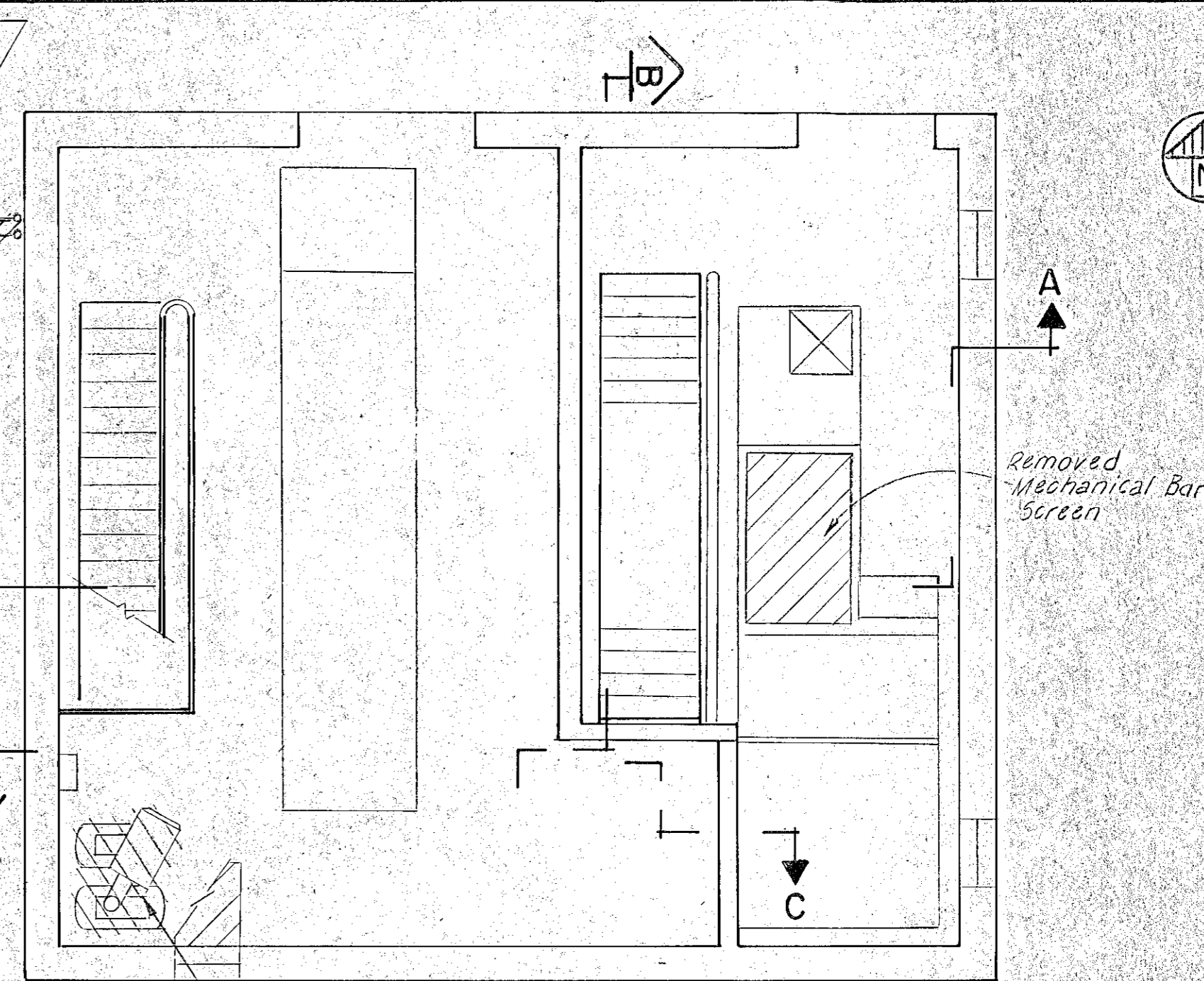
RENOVATIONS TO DEER ST. AND MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
ARCHITECTURAL/STRUCTURAL PLANS SECTIONS & DETAILS
MECHANIC STREET PUMPING STATION



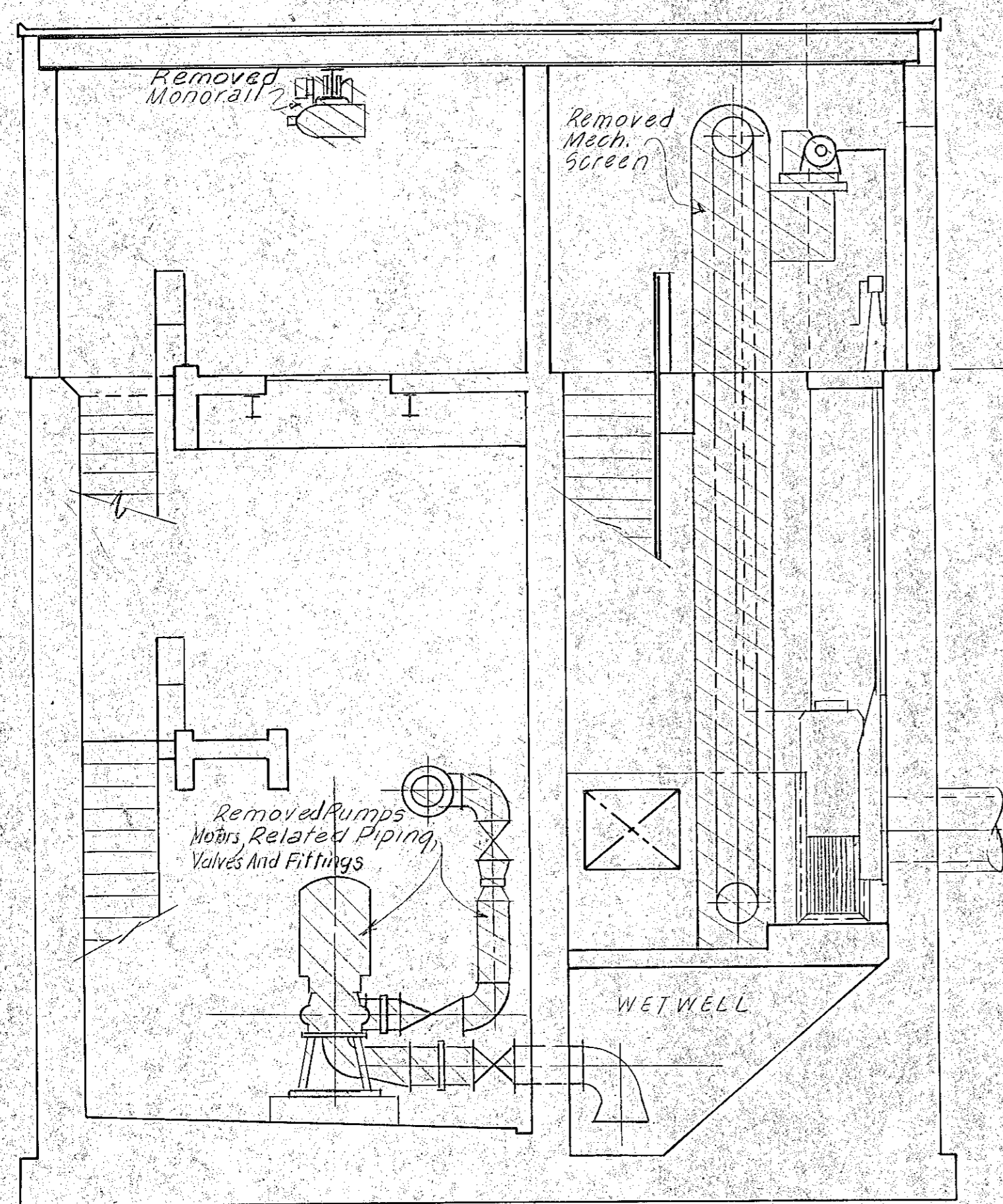
PLAN- PUMP ROOM
SCALE 1/4"=1'-0"



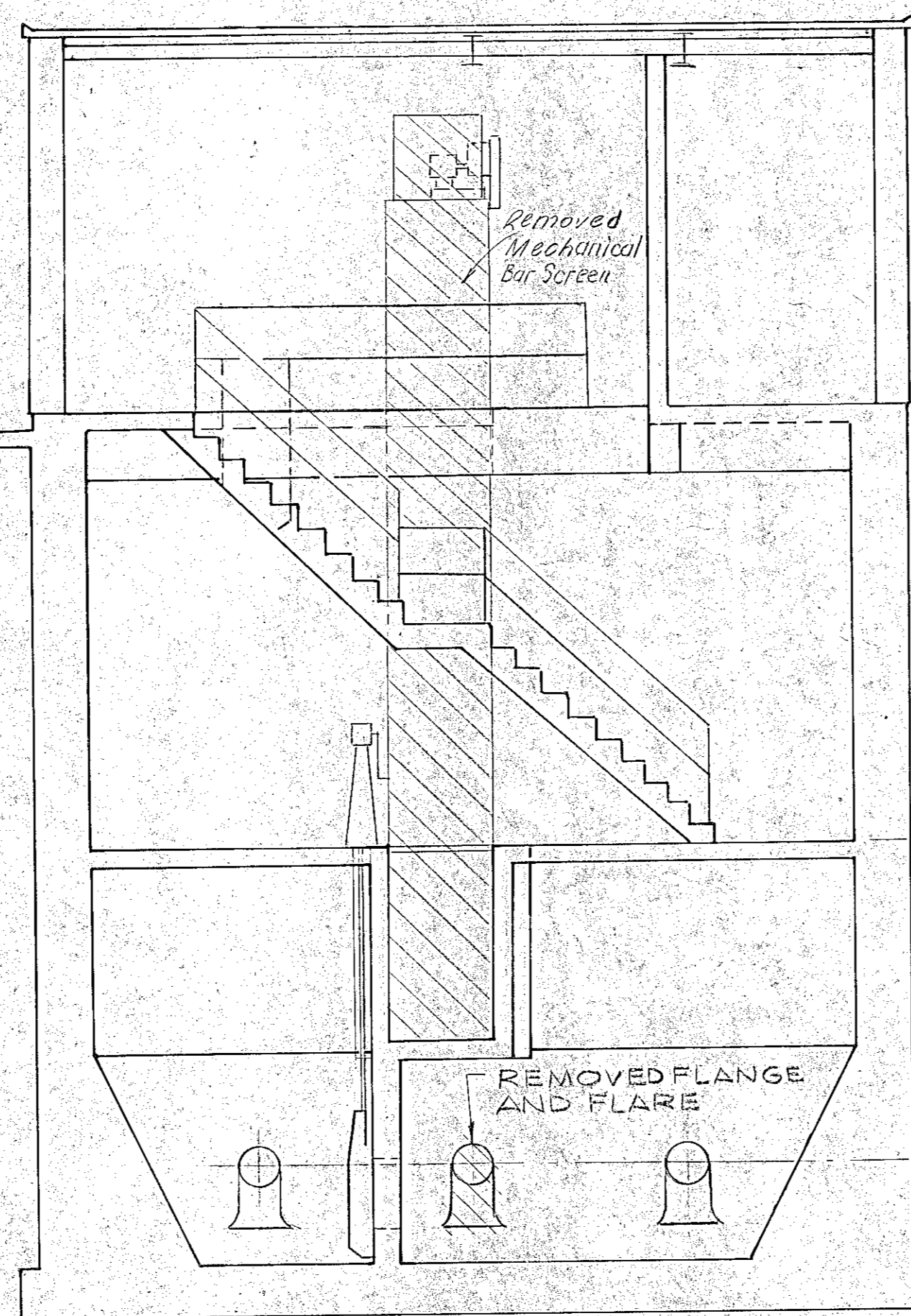
PLAN-INTERMEDIATE LEVEL
SCALE 1/4"=1'-0"



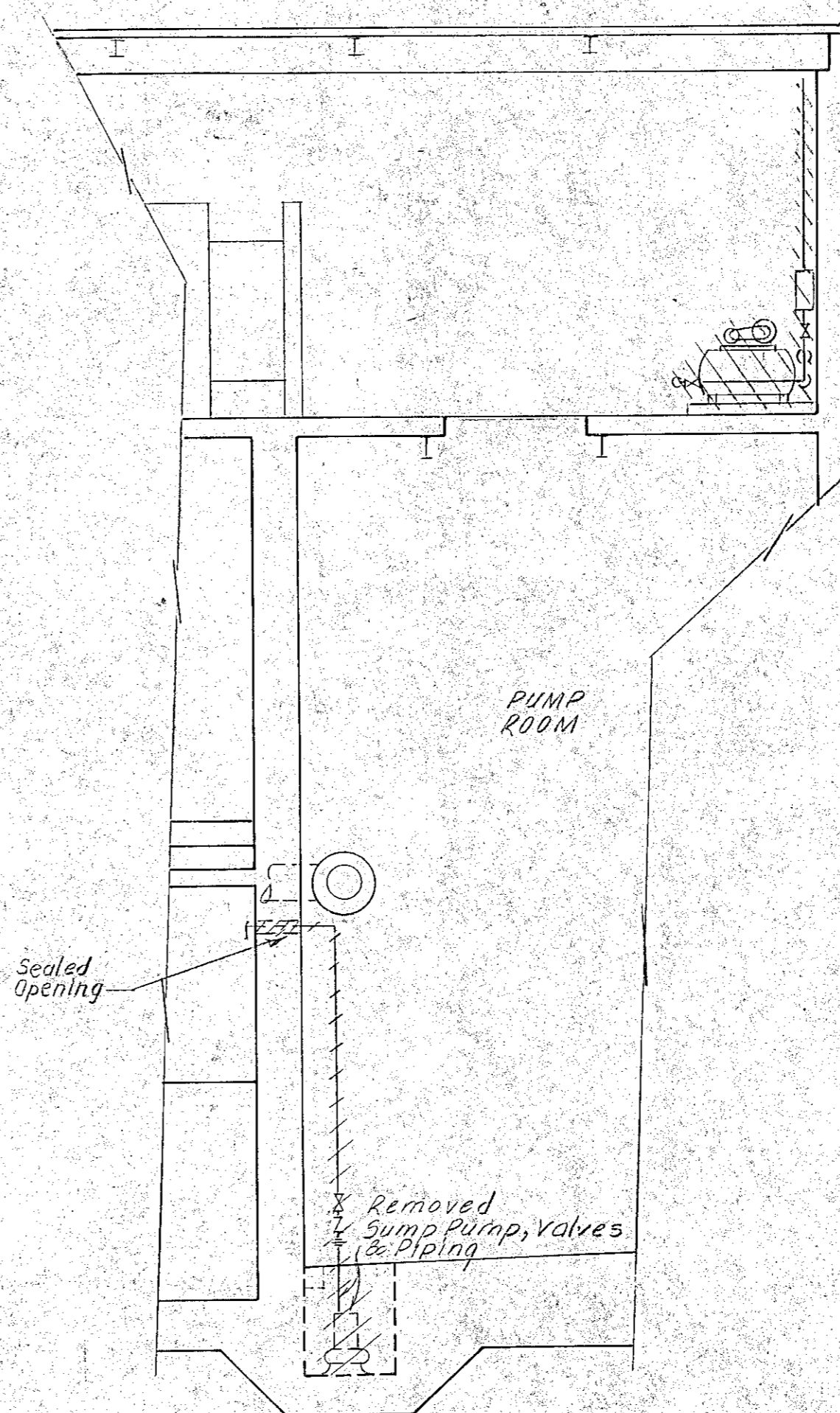
PLAN-GROUND FLOOR
SCALE 1/4"=1'-0"



SECTION A
SCALE 1/4"=1'-0"



SECTION B
SCALE 1/4"=1'-0"



SECTION C
SCALE 1/4"=1'-0"

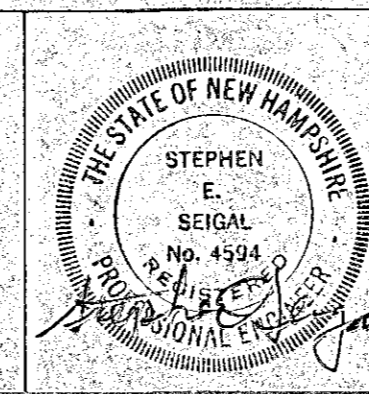
NOTES:

1. ALL REQUIRED ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND HVAC DEMOLITION DETAILED ELSEWHERE.
2. RECONNECTED ROOF DRAINS TO EXISTING.
3. ITEMS RETURNED TO THE OWNER DESCRIBED IN SPECIFICATIONS.
4. TEMPORARY BYPASS PUMPING PROVIDED IN ACCORDANCE WITH THE SPECIFICATIONS.
5. SEALED ALL EXISTING ABANDONED WALL AND FLOOR PENETRATIONS WITH BLIND FLANGES, CAPS, DRY PACK ETC.

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



ORIGINAL FULL SIZE DRAWING = 4"
REPRODUCTIONS MAY BE REDUCED SIZE

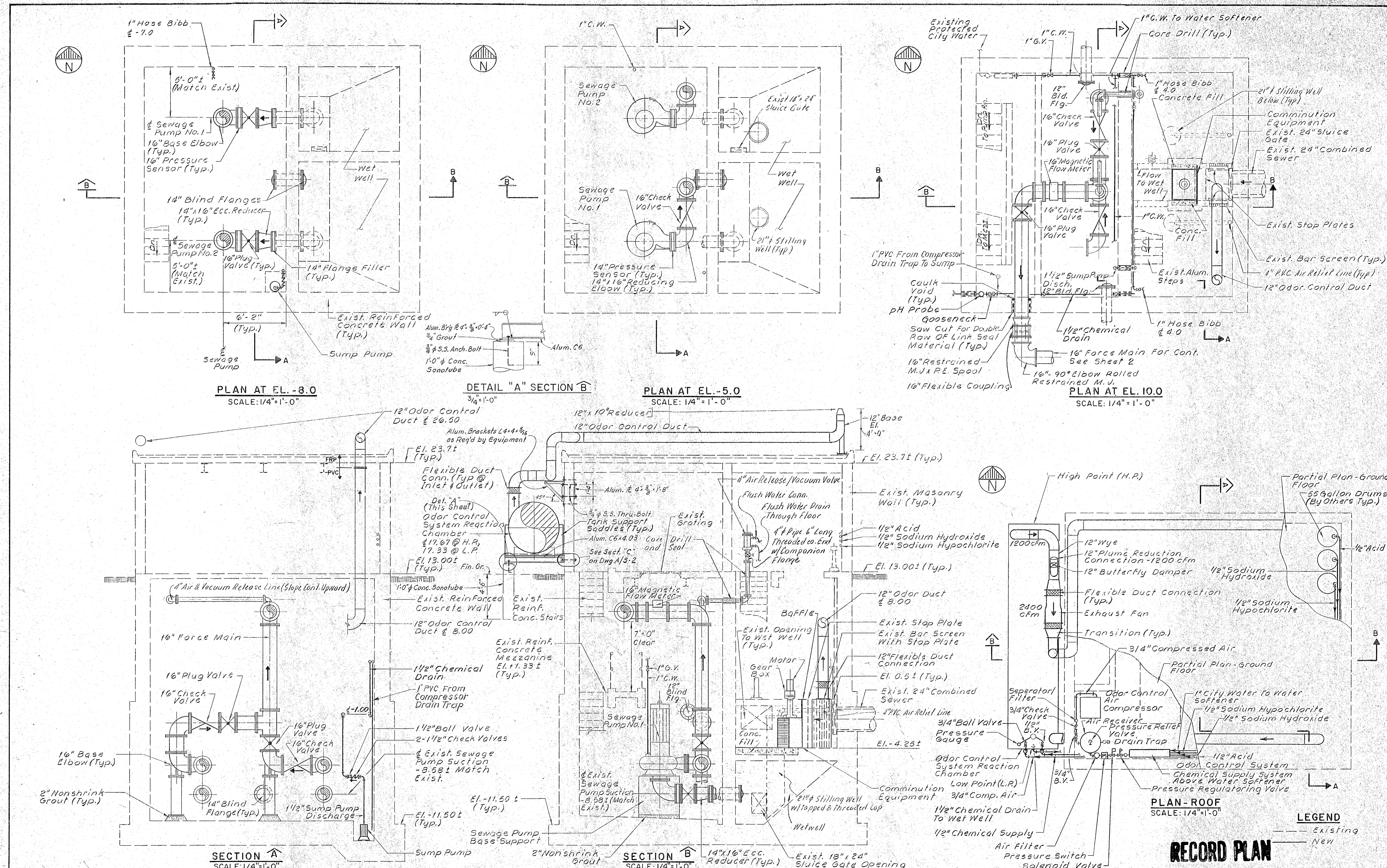
DESIGNED	DRAWN	CHECKED	SCALE	DATE
			AS NOTED	JULY 1990

DRAWING NO.	M-1
JOB NO.	89-131
CONTRACT NO.	4

RENOVATIONS TO DEER STREET
AND MECHANIC STREET PUMPING STATIONS

PORTSMOUTH, N.H.

MECHANICAL DEMOLITION PLAN AND SECTIONS
DEER STREET PUMPING STATION



PLAN AT EL. -8.0
SCALE: 1/4"=1'-0"

DETAIL "A" SECTION B
3/4"=1'-0"

PLAN AT EL. -5.0
SCALE: 1/4"=1'-0"

PLAN AT EL. 10.0
SCALE: 1/4"=1'-0"

SECTION A
SCALE: 1/4"=1'-0"

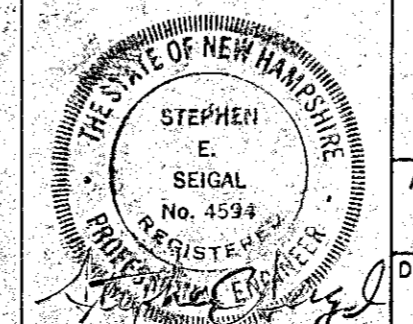
SECTION B
SCALE: 1/4"=1'-0"

PLAN-ROOF
SCALE: 1/4"=1'-0"

LEGEND
--- Existing
--- New

RECORD PLAN

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



ORIGINAL FULL SIZE DRAWING - 4"
REPRODUCTIONS MAY BE REDUCED SIZE

DRAWING NO. **M-2**

RENOVATIONS TO DEER ST. AND MECHANIC STREET PUMPING STATIONS

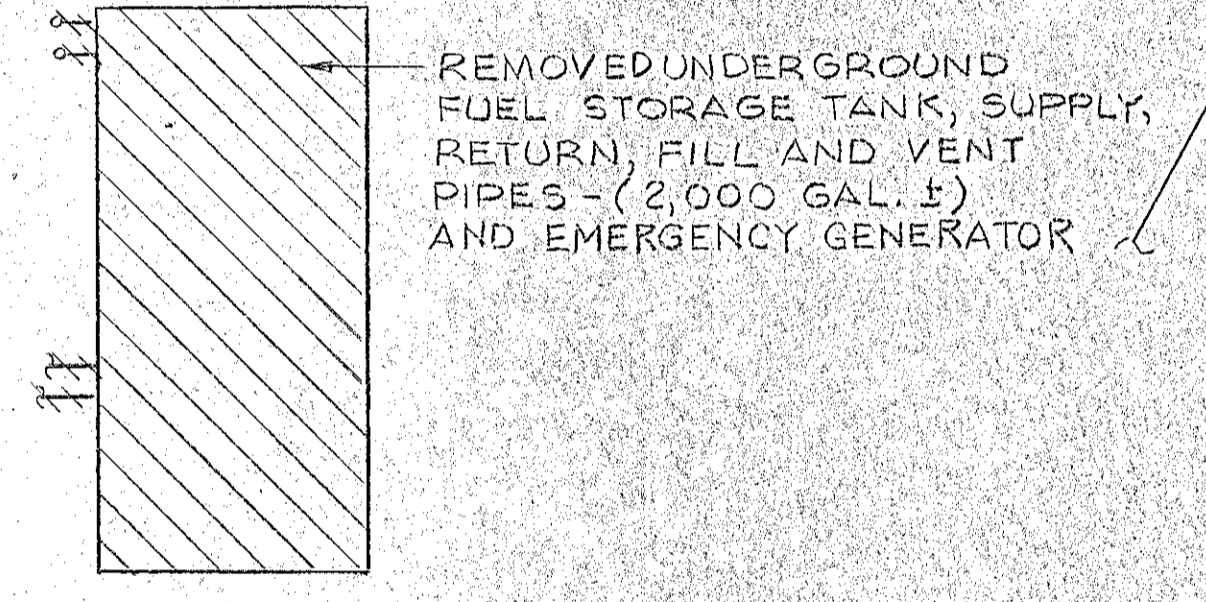
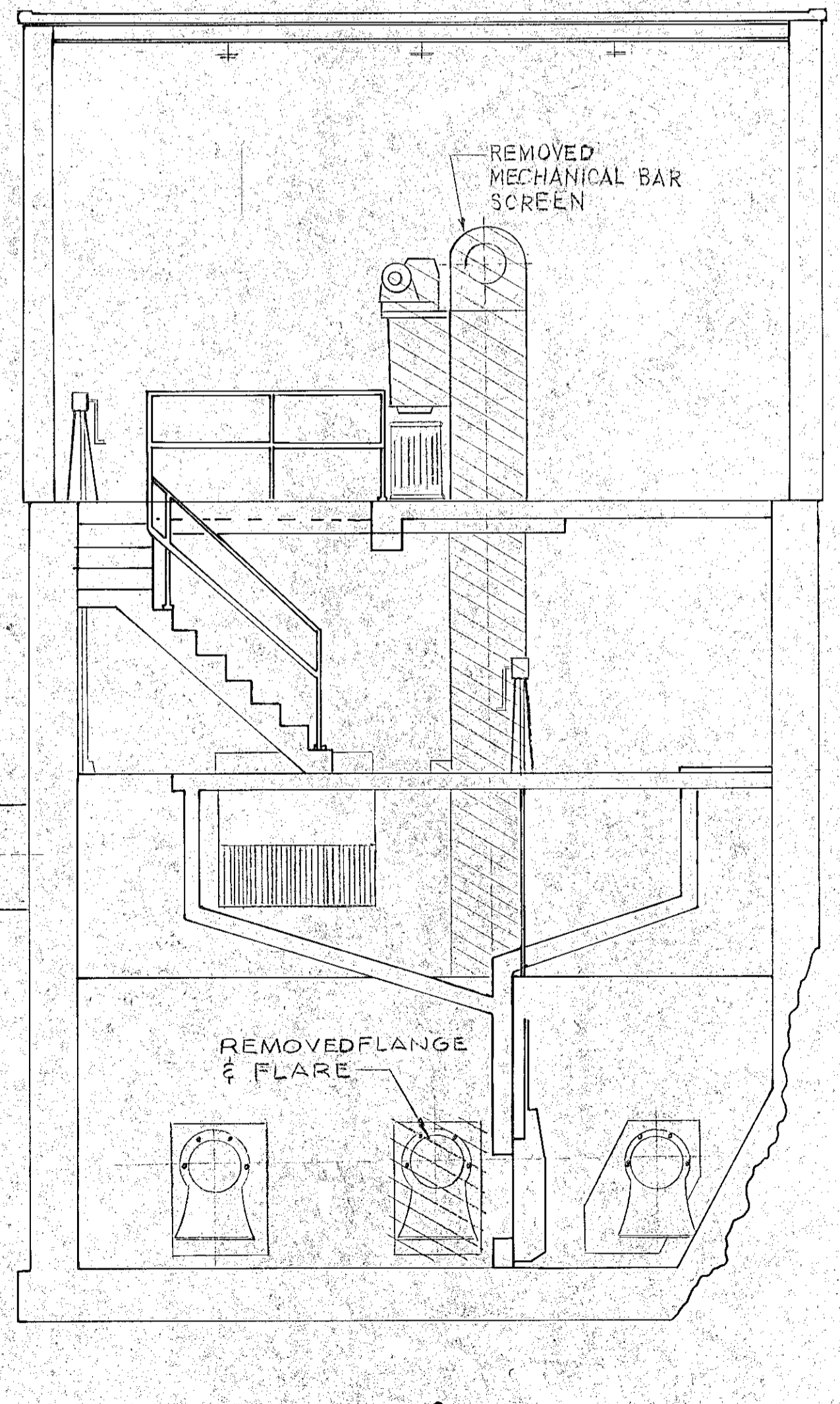
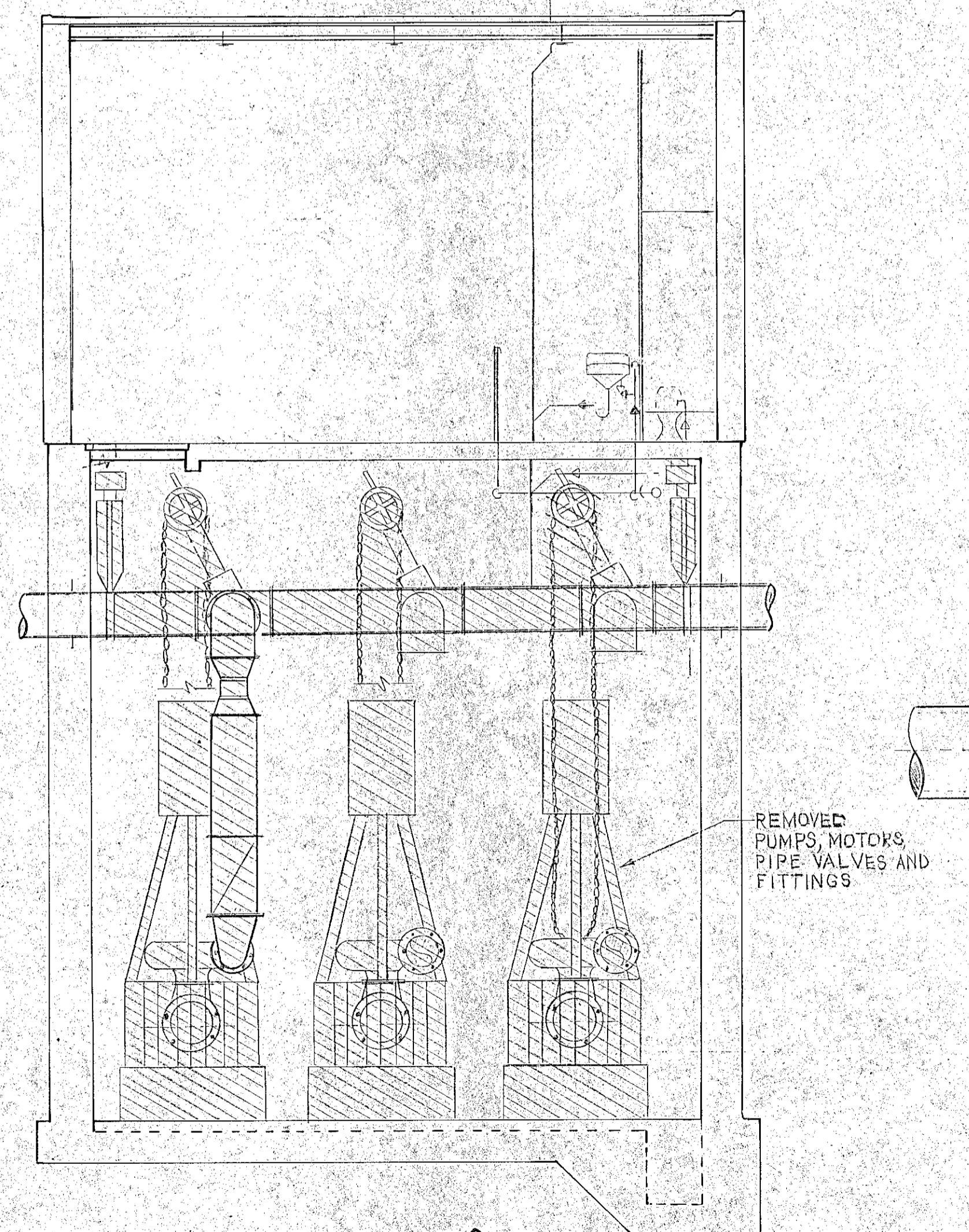
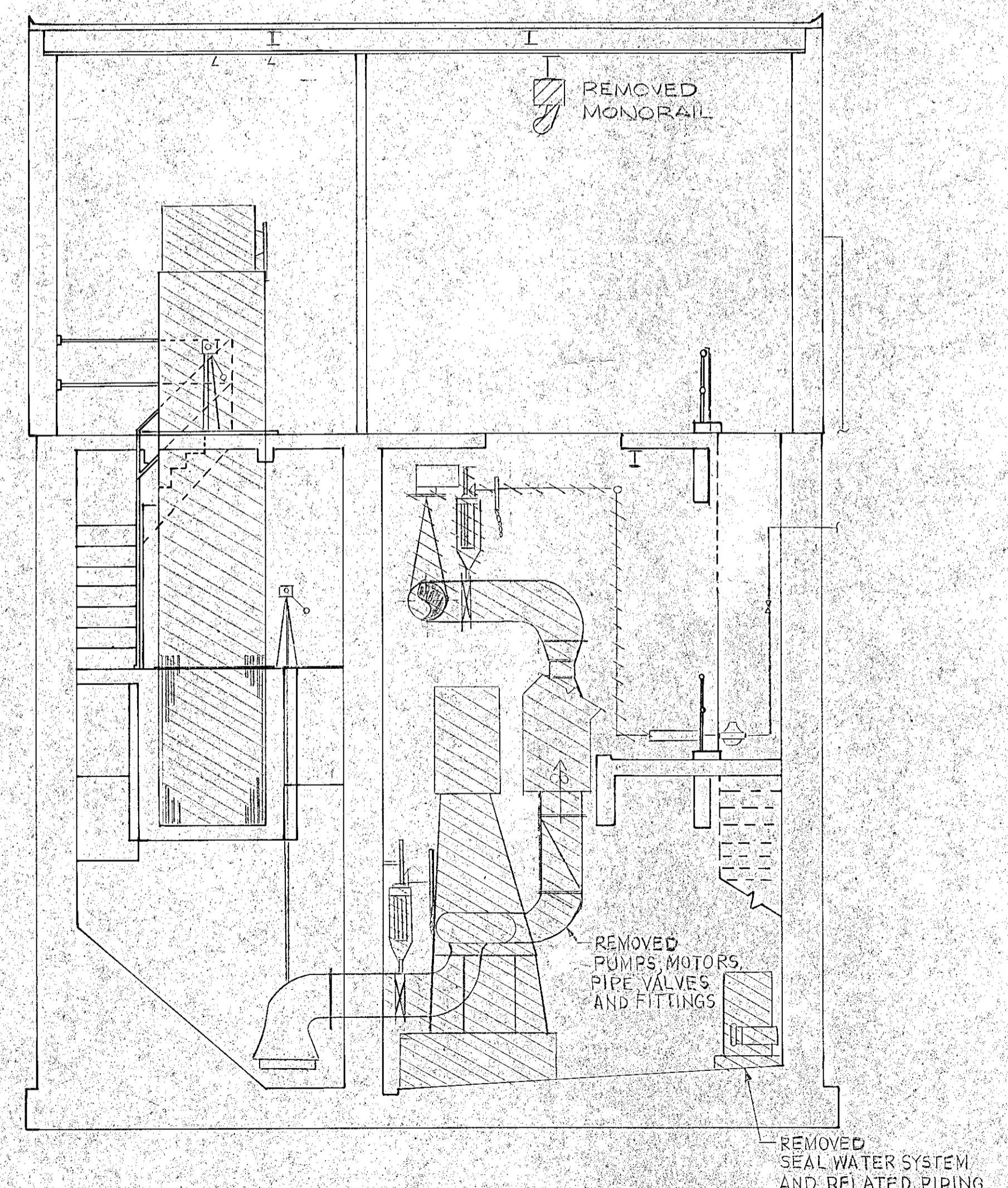
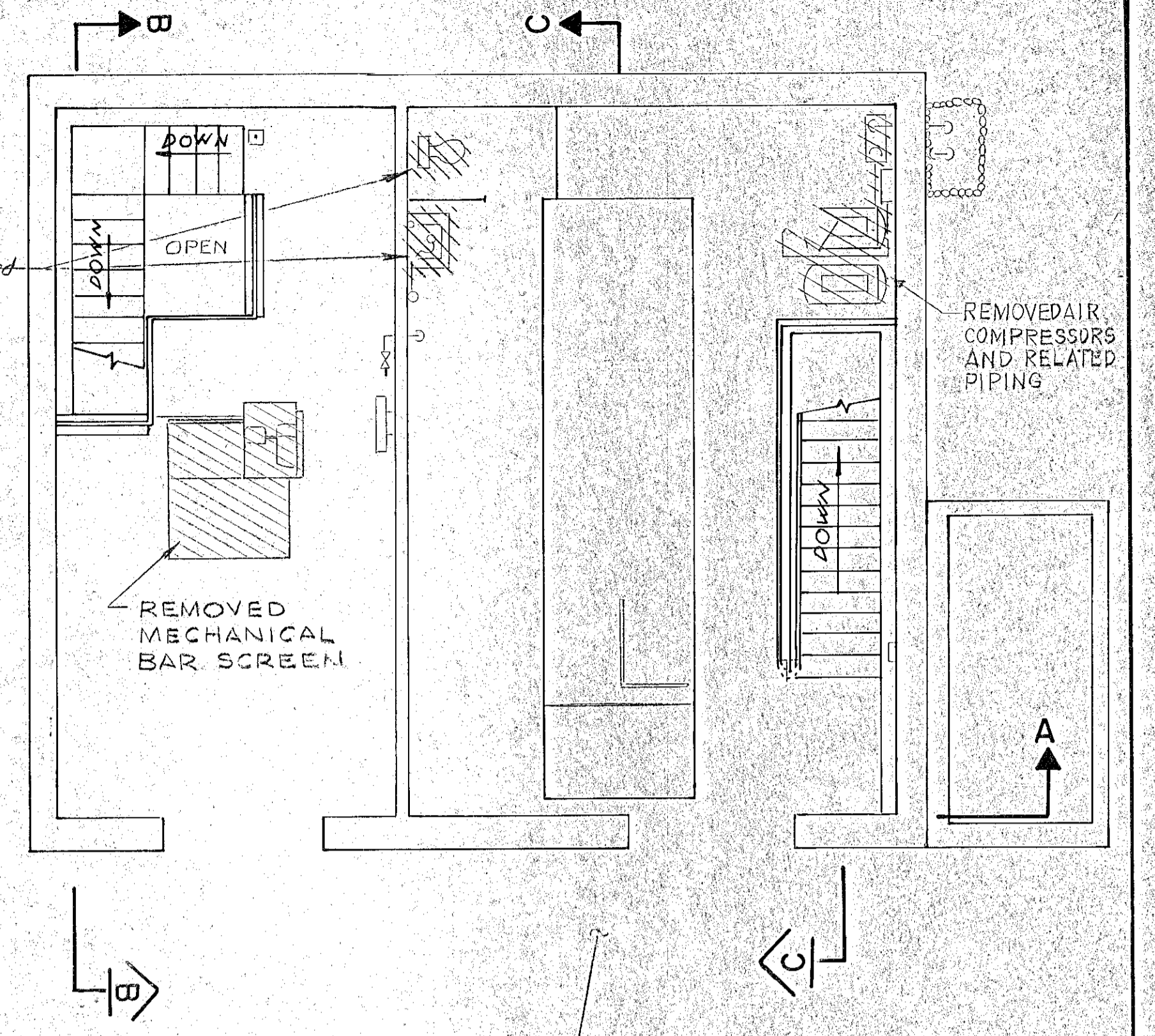
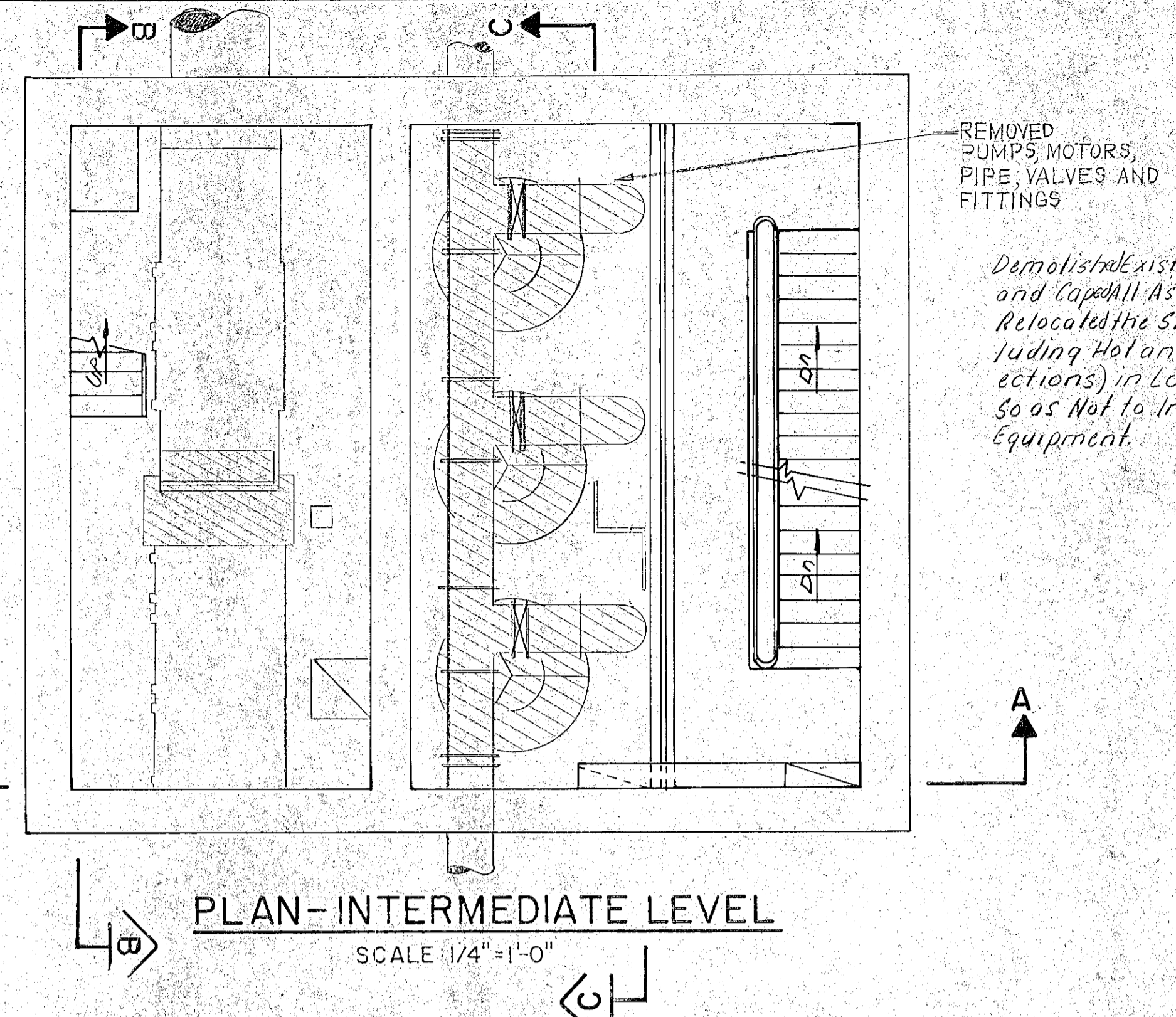
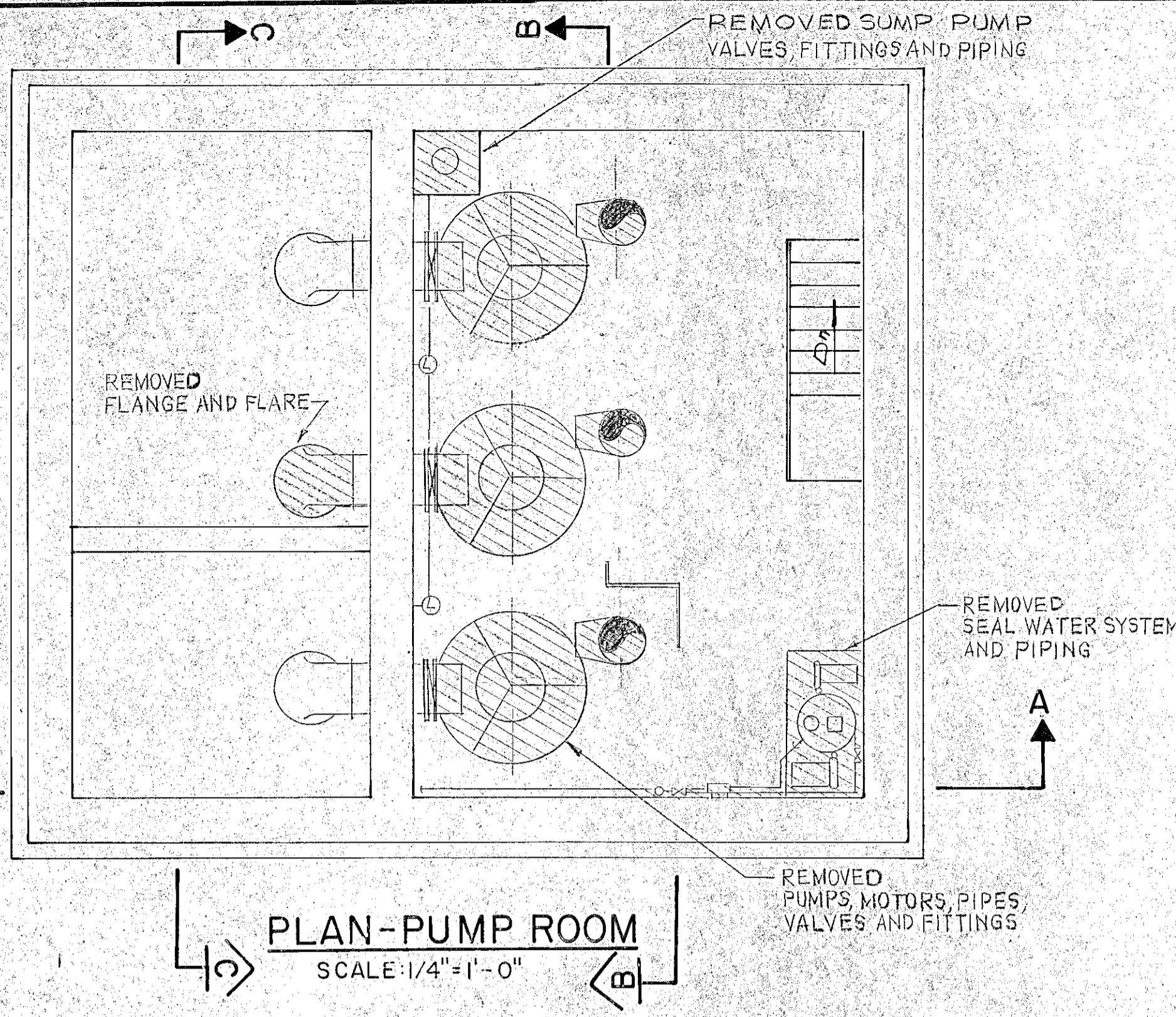
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91
REVISIONS		

DESIGNED	DRAWN	CHECKED	SCALE	DATE
			AS NOTED	JULY 1990

JOB NO.	89-131
CONTRACT NO.	4
SHEET 10 OF 29 SHEETS	

MECHANICAL PLAN AND SECTIONS
DEER STREET PUMPING STATION



PLAN-GROUND FLOOR
SCALE: 1/4"=1'-0"

- NOTES:**
1. ALL REQUIRED ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND HVAC DEMOLITION DETAILED ELSEWHERE.
 2. RECONNECTED ROOF DRAINS TO EXISTING.
 3. ITEMS RETURNED TO OWNER ARE DESCRIBED IN THE SPECIFICATIONS.
 4. TEMPORARY BYPASS PUMPING PROVIDED IN ACCORDANCE WITH THE SPECIFICATIONS.
 5. SEALED ALL EXISTING ABANDONED WALL AND FLOOR PENETRATIONS WITH BLIND FLANGES, CAPS, DRY PACK ETC.

RECORD PLAN

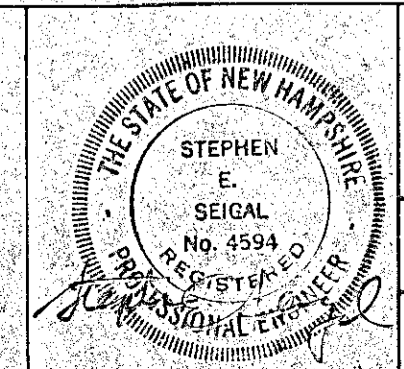
SECTION A
SCALE 1/4"=1'-0"

SECTION B
SCALE 1/4"=1'-0"

SECTION C
SCALE 1/4"=1'-0"

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

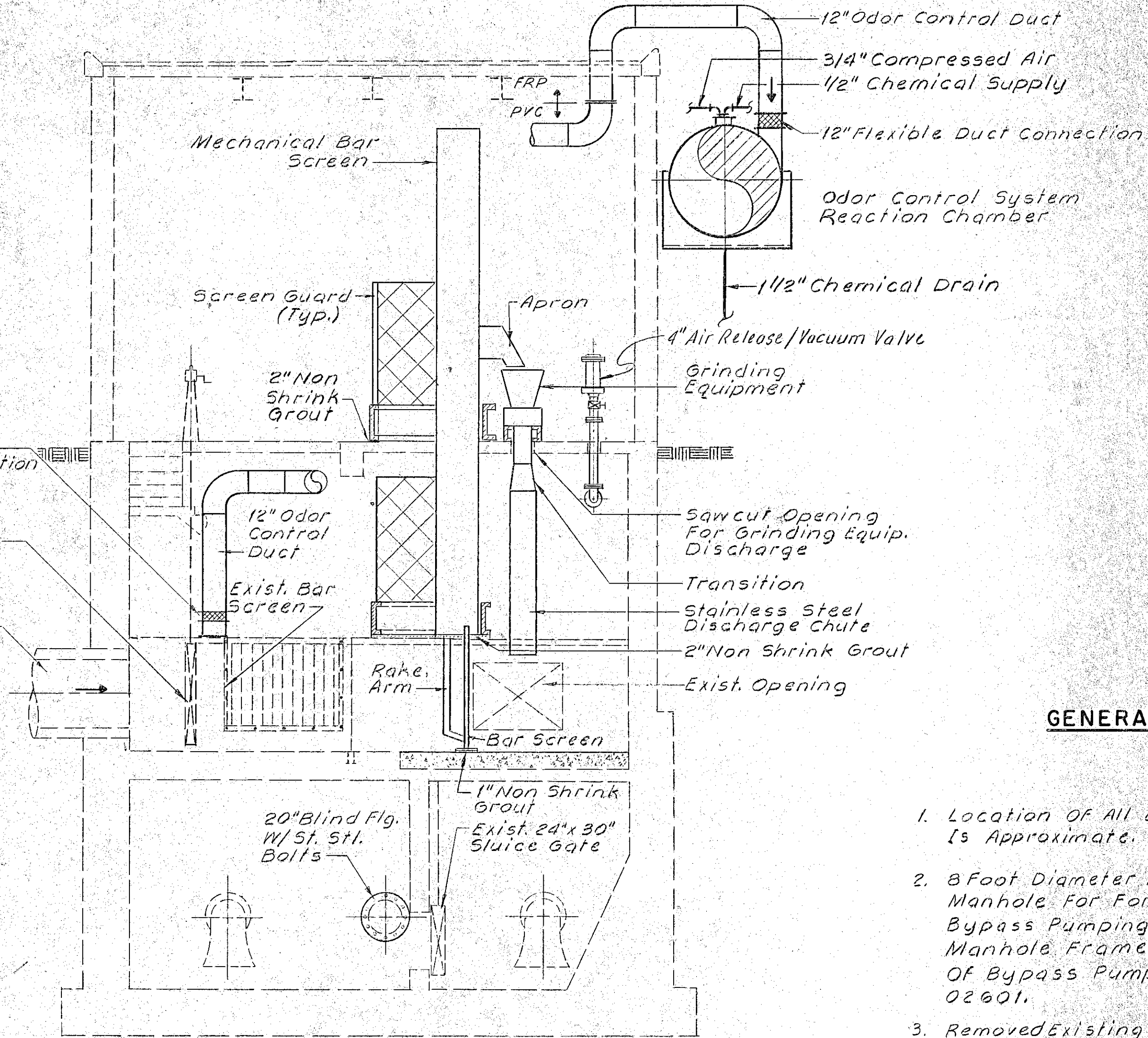
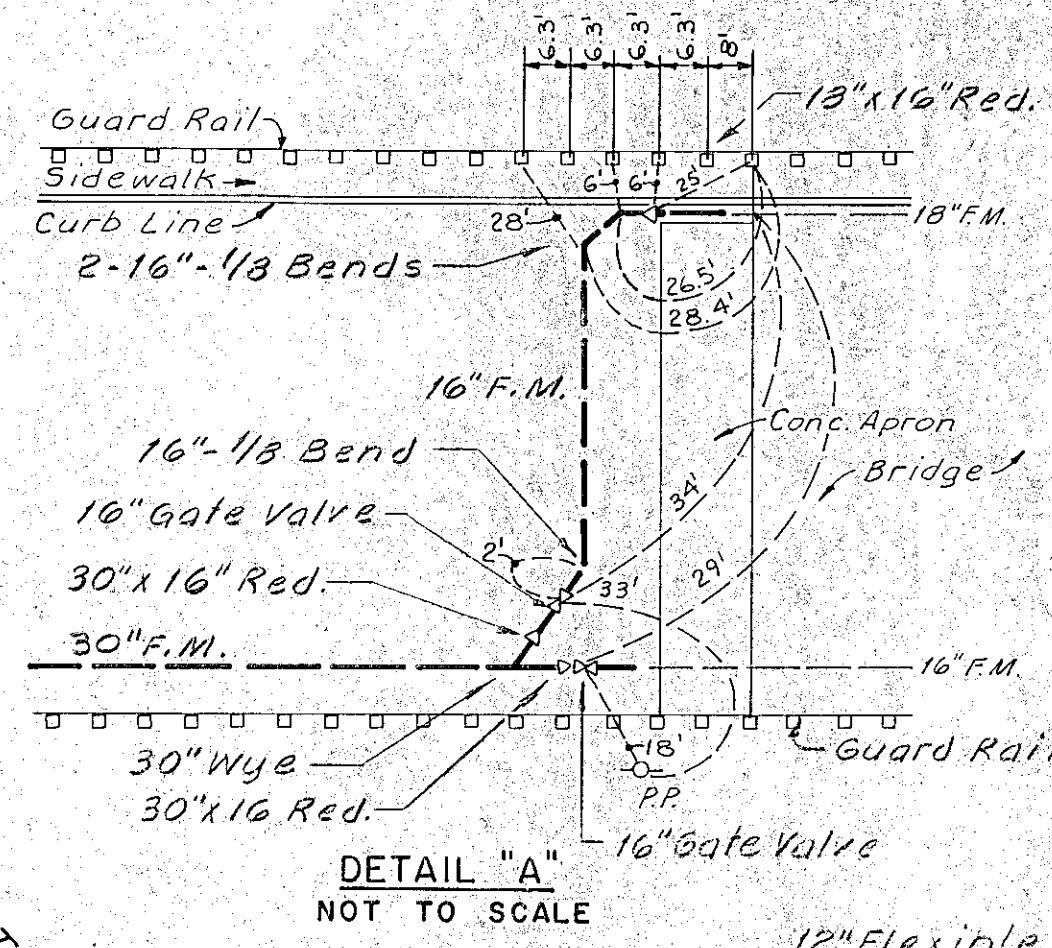
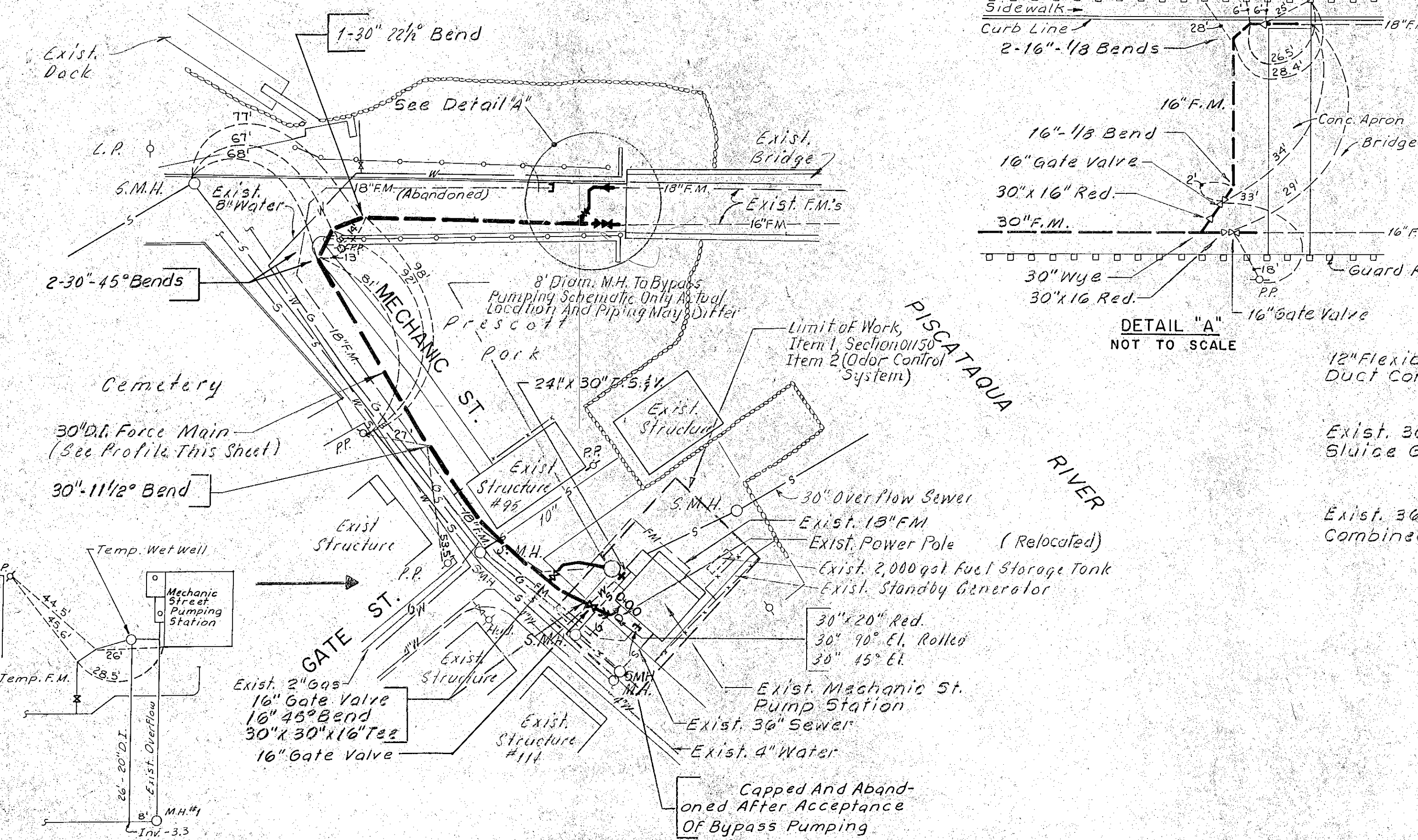


ORIGINAL FULL SIZE DRAWING = 4"
REPRODUCTIONS MAY BE REDUCED SIZE

DESIGNED	DRAWN	CHECKED	SCALE	DATE
			AS NOTED	JULY 1990

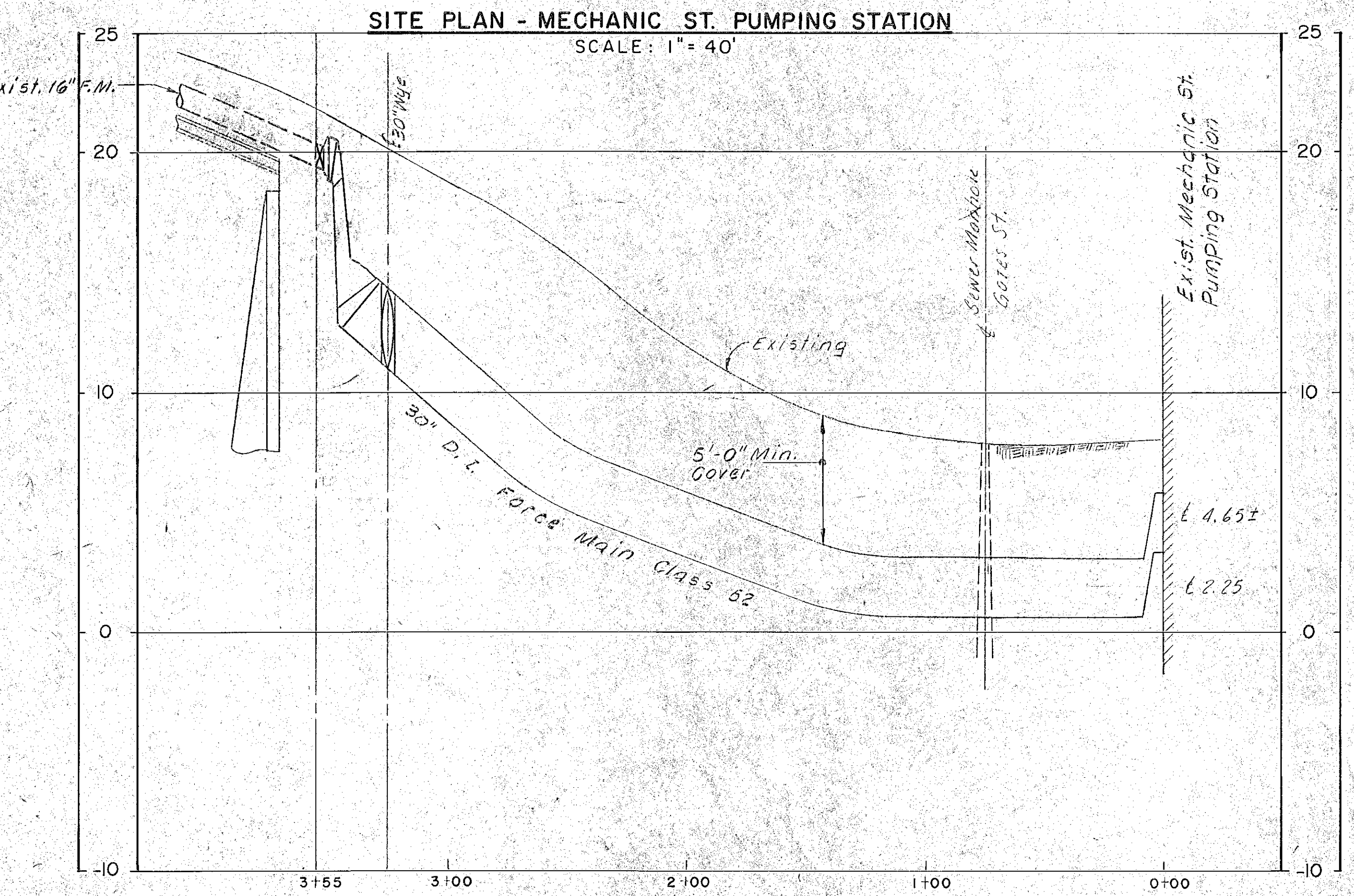
DRAWING NO. **M-3**
JOB NO. 89-131
CONTRACT NO. 4

RENOVATIONS TO DEER STREET & MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
MECHANICAL DEMOLITION PLAN AND SECTIONS
MECHANIC STREET PUMPING STATION



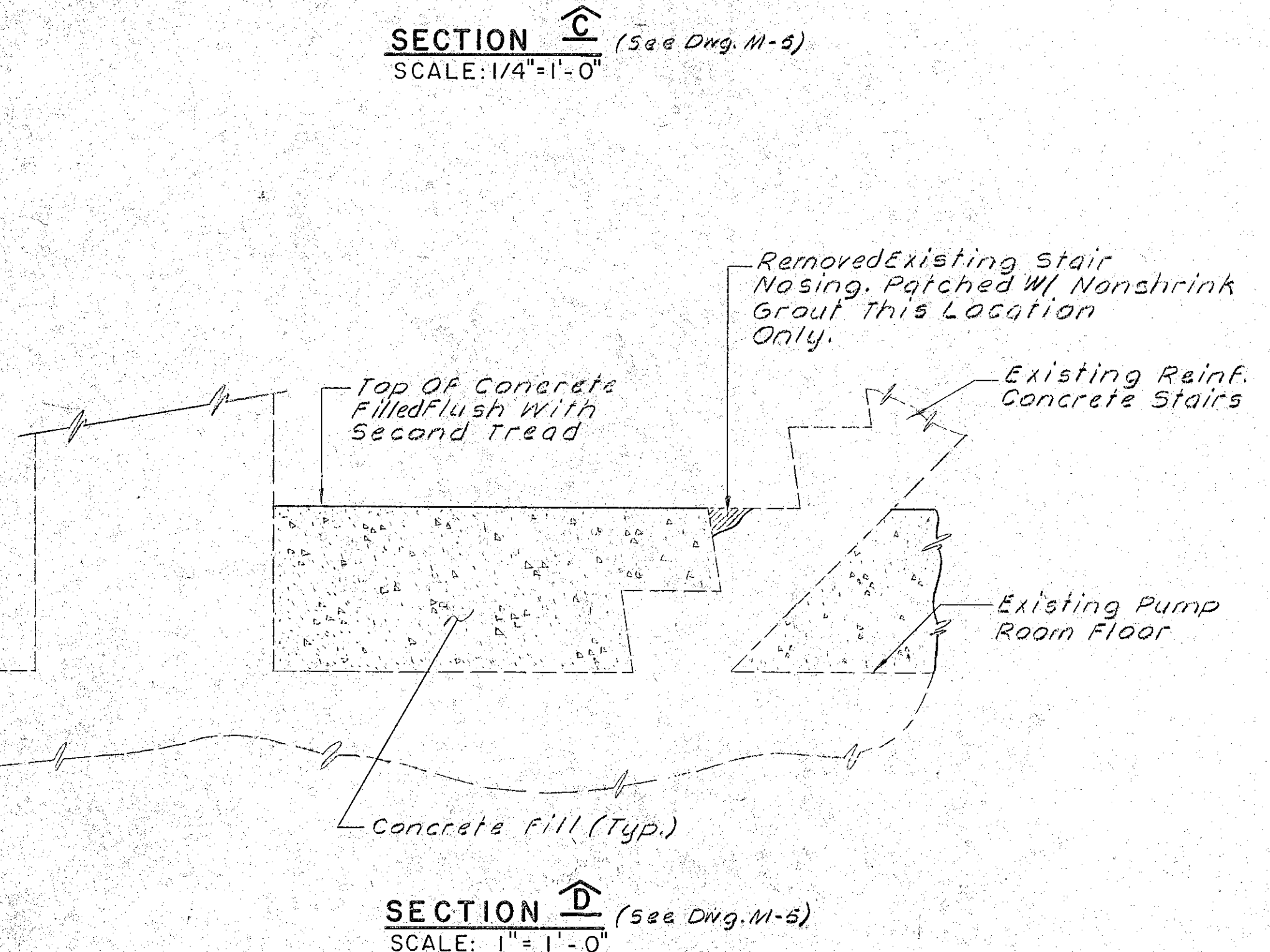
GENERAL NOTES

1. Location Of All Existing Underground Utilities Is Approximate.
2. 8 Foot Diameter Manhole Used As A Drain Manhole For Force Main After Completion Of Bypass Pumping. 30" Provide Standard Manhole Frame And Cover After Completion Of Bypass Pumping Specified In Section 02601.
3. Removed Existing 18" F.M. And Installed 30" Force Main In Same Trench.



PROFILE - 30" F.M.
 SCALE: HORIZ. 1" = 40'
 VERT. 1" = 4'

NOTE:
 All Bends on Force Main Have Concrete Thrust Blocks Unless Restrained Mechanical Joint Piping Used.

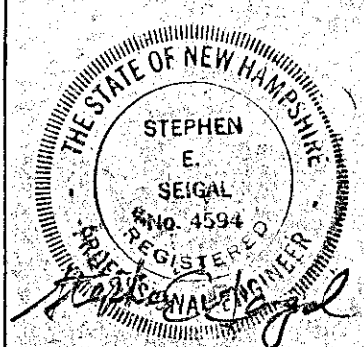


SECTION D (See Dwg. M-5)
 SCALE: 1" = 1'-0"

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

WHITMAN & HOWARD, INC.
 45 WILLIAM STREET, WELLESLEY, MASS.



ORIGINAL FULL SIZE DRAWING = 4"
 REPRODUCTIONS MAY BE REDUCED SIZE

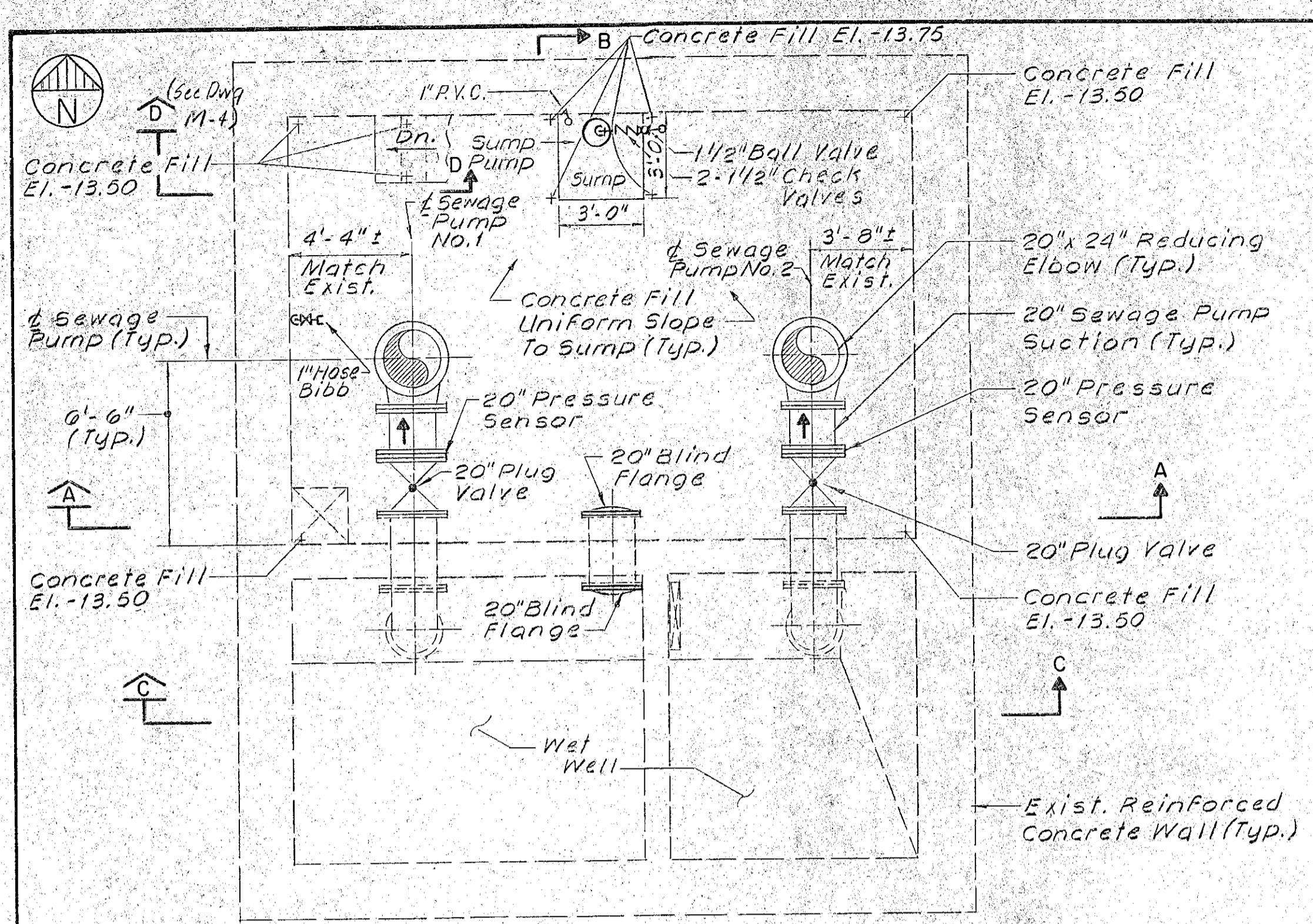
DESIGNED	DRAWN	CHECKED	SCALE	DATE
			AS NOTED	JULY 1990

DRAWING NO. **M-4**
 JOB NO. 89-131
 CONTRACT NO. 4

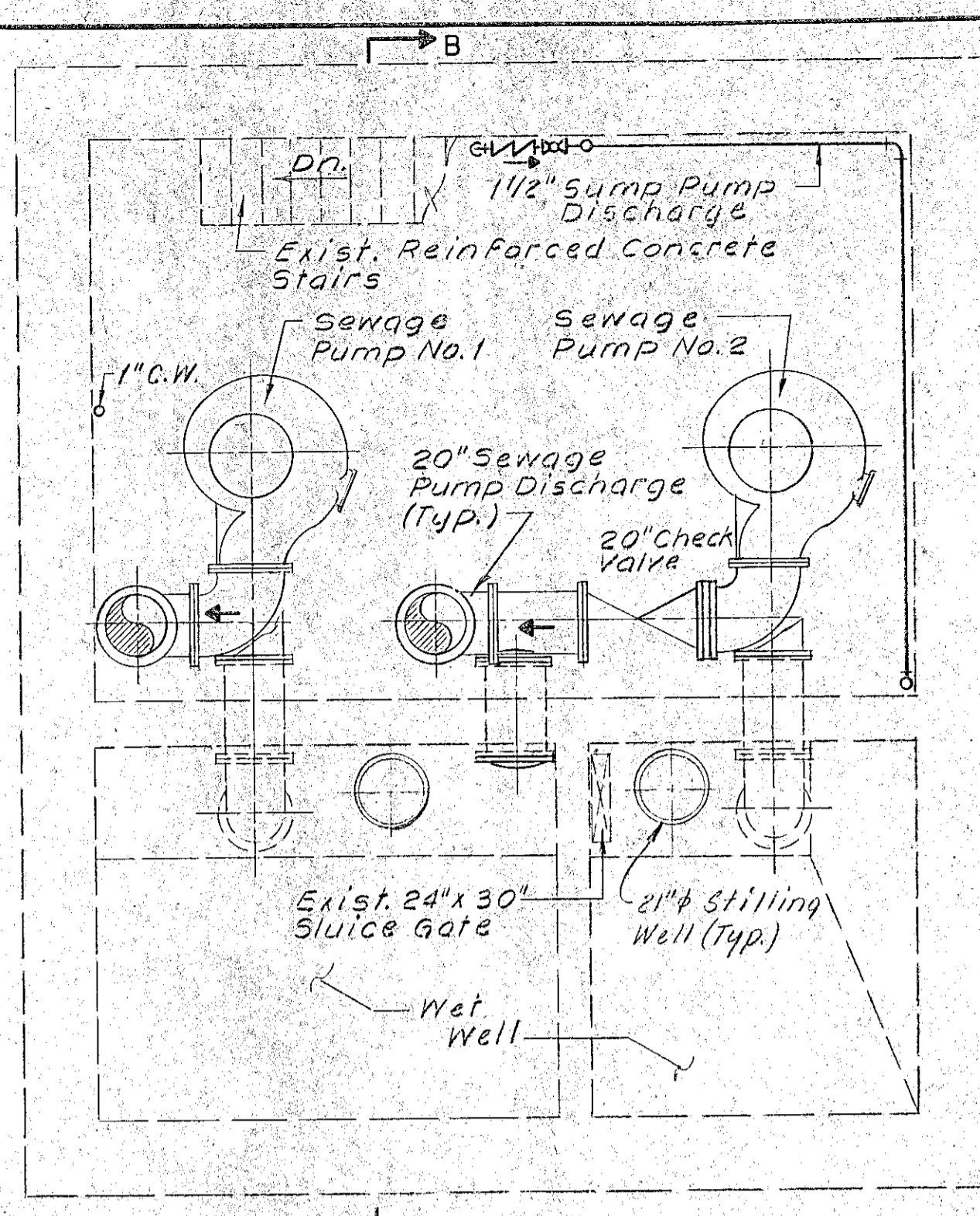
RENOVATIONS TO DEER STREET & MECHANIC STREET PUMPING STATIONS

PORTSMOUTH, N.H.

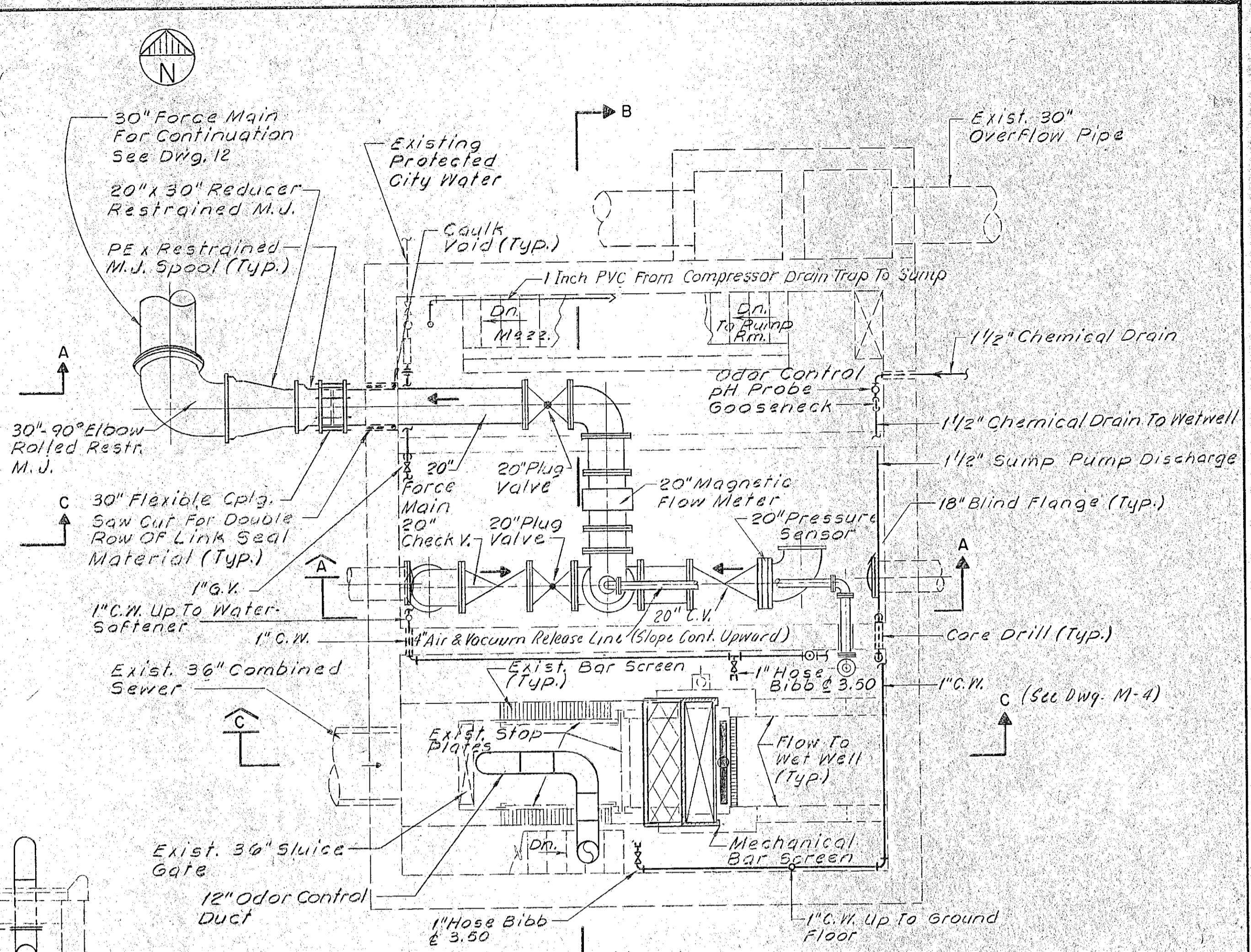
SITE PLAN, PROFILE, AND DETAILS
 MECHANIC STREET PUMPING STATION



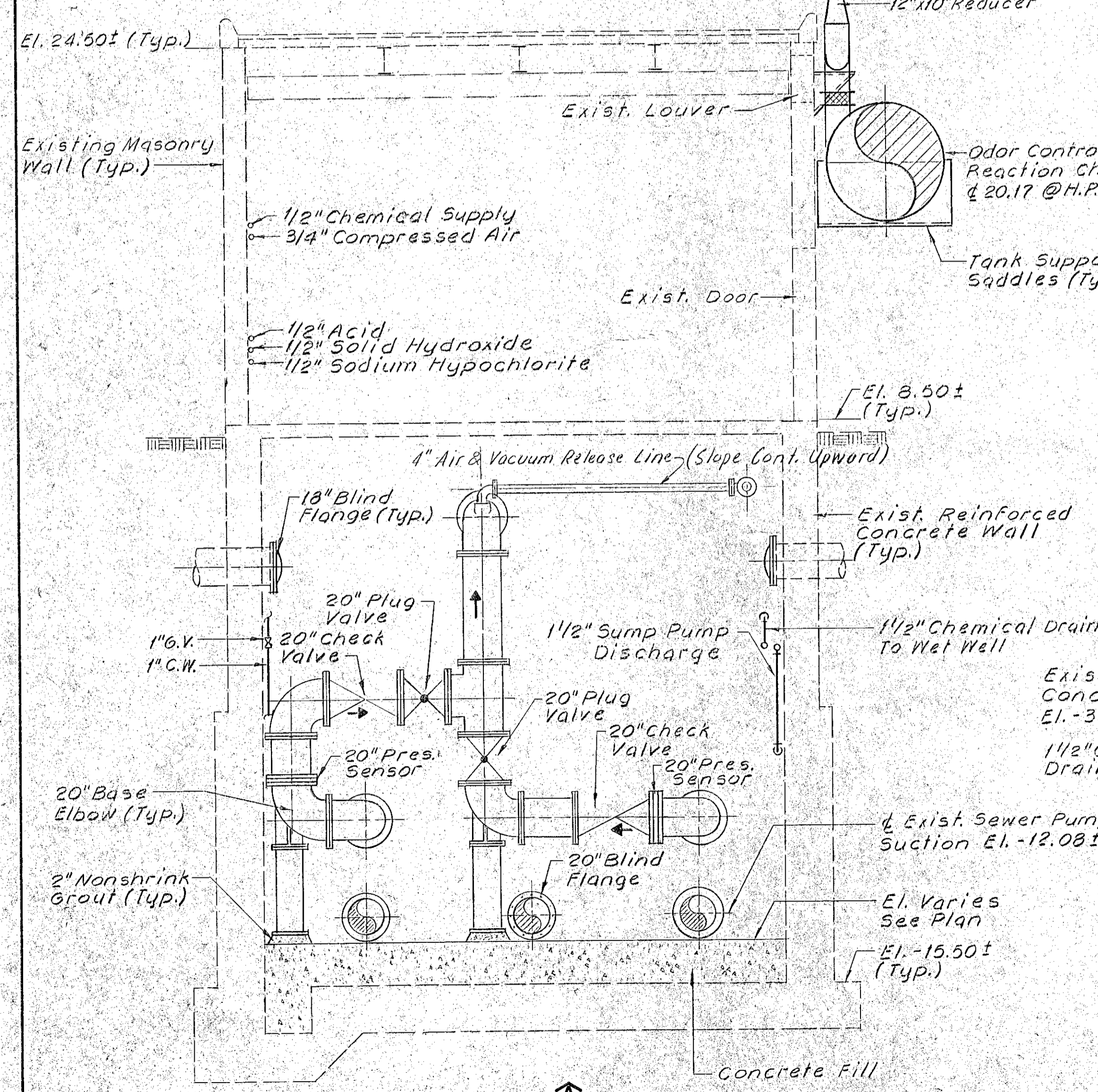
PLAN AT EL. -12.0
SCALE: 1/4"=1'-0"



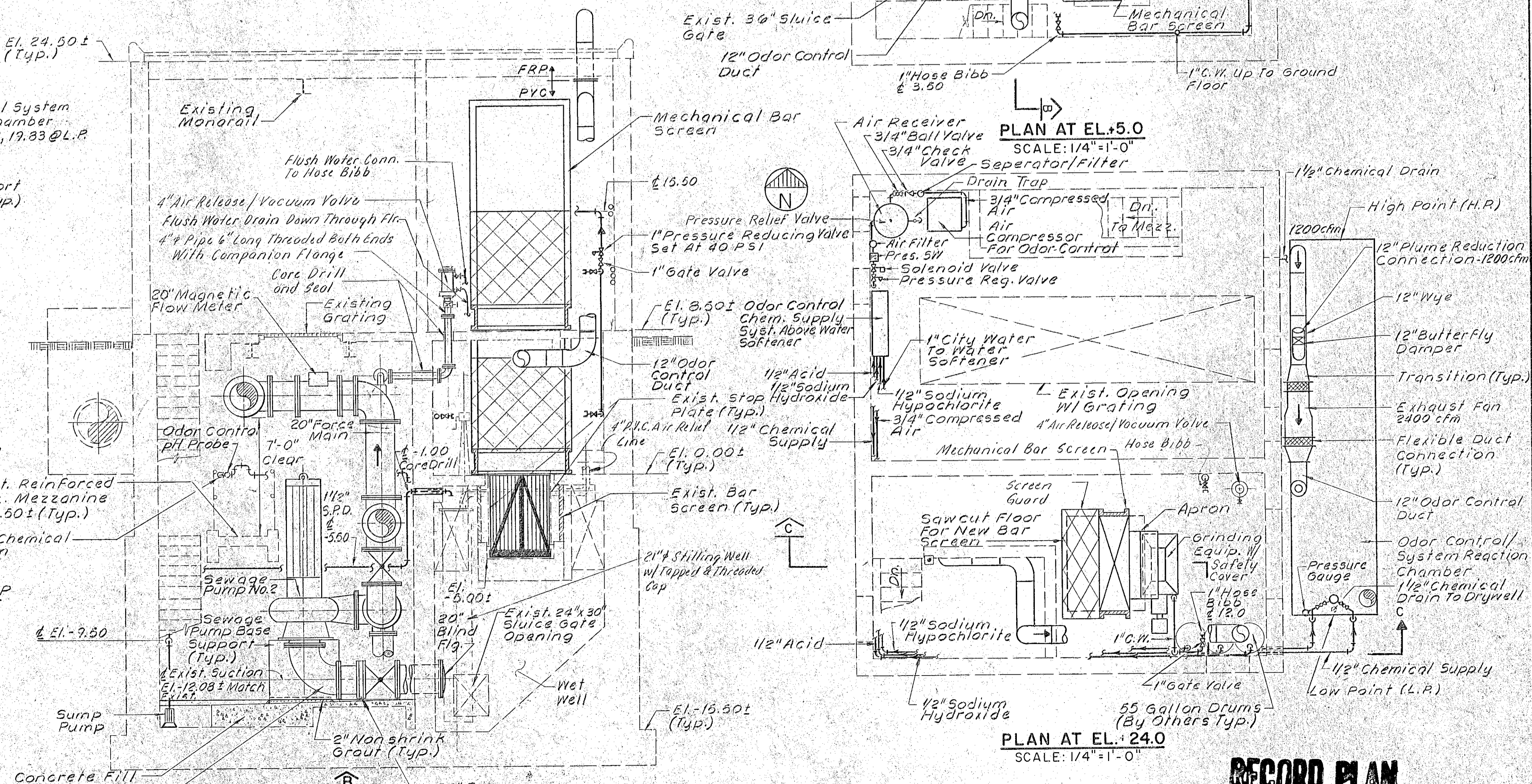
PLAN AT EL. -8.0
SCALE: 1/4"=1'-0"



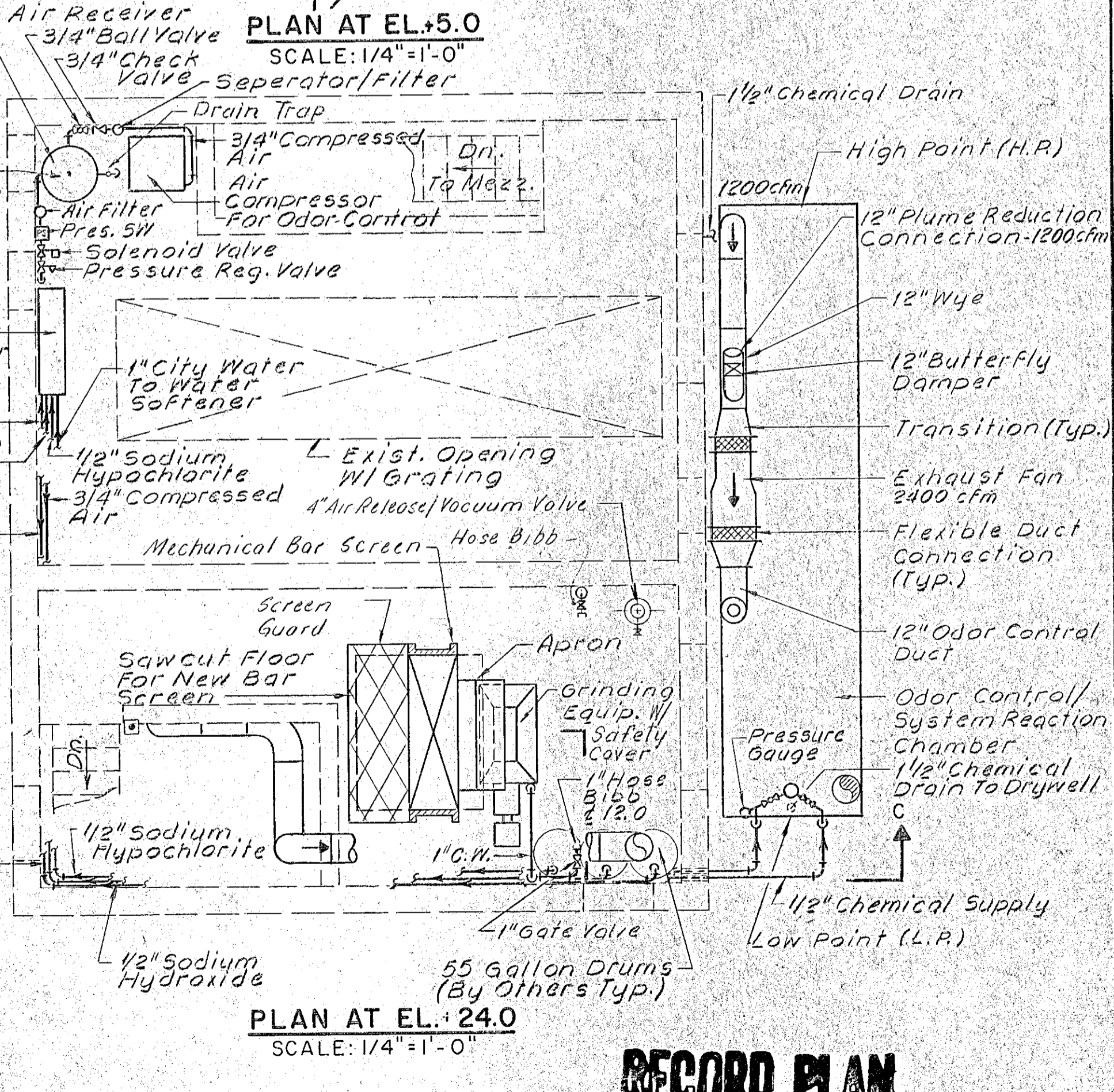
PLAN AT EL. +5.0
SCALE: 1/4"=1'-0"



SECTION A
SCALE: 1/4"=1'-0"



SECTION B
SCALE: 1/4"=1'-0"

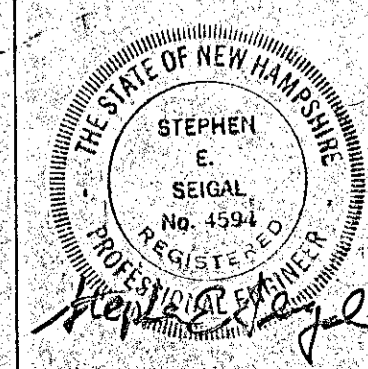


PLAN AT EL. +24.0
SCALE: 1/4"=1'-0"

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

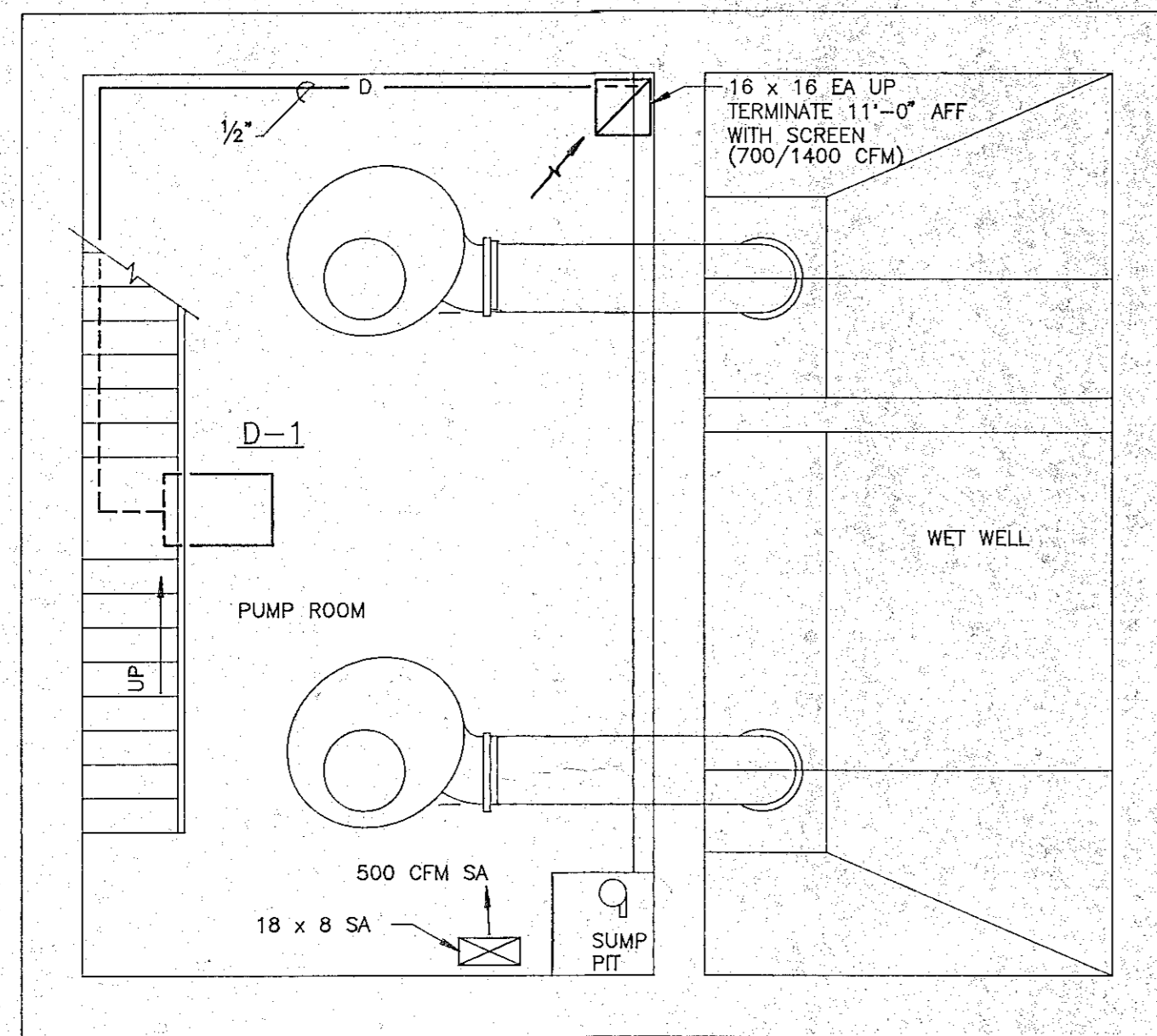
WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



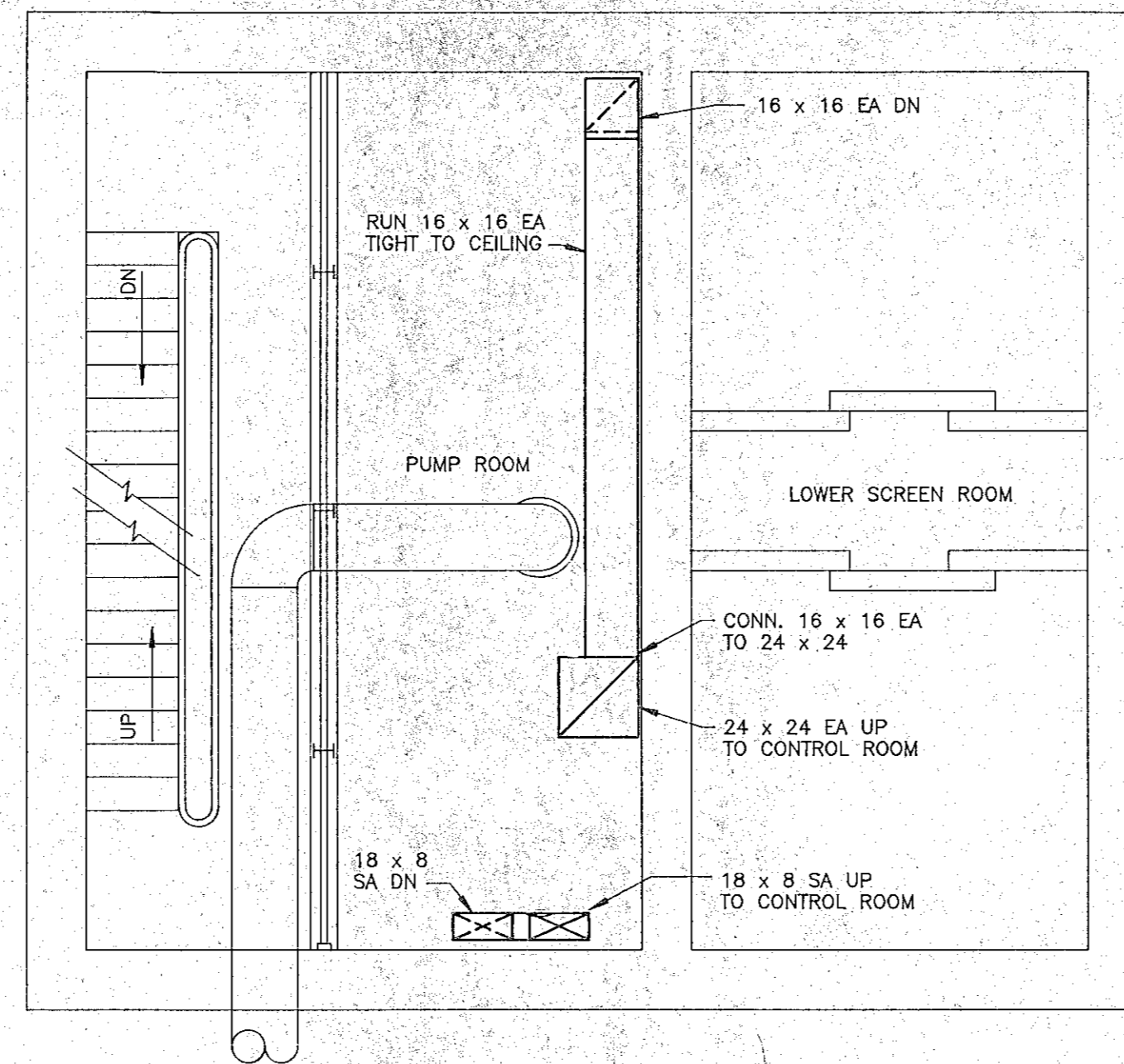
DESIGNED	DRAWN	CHECKED	SCALE	DATE
			AS NOTED	JULY 1990

DRAWING NO.	M-5
JOB NO.	89-131
CONTRACT NO.	4

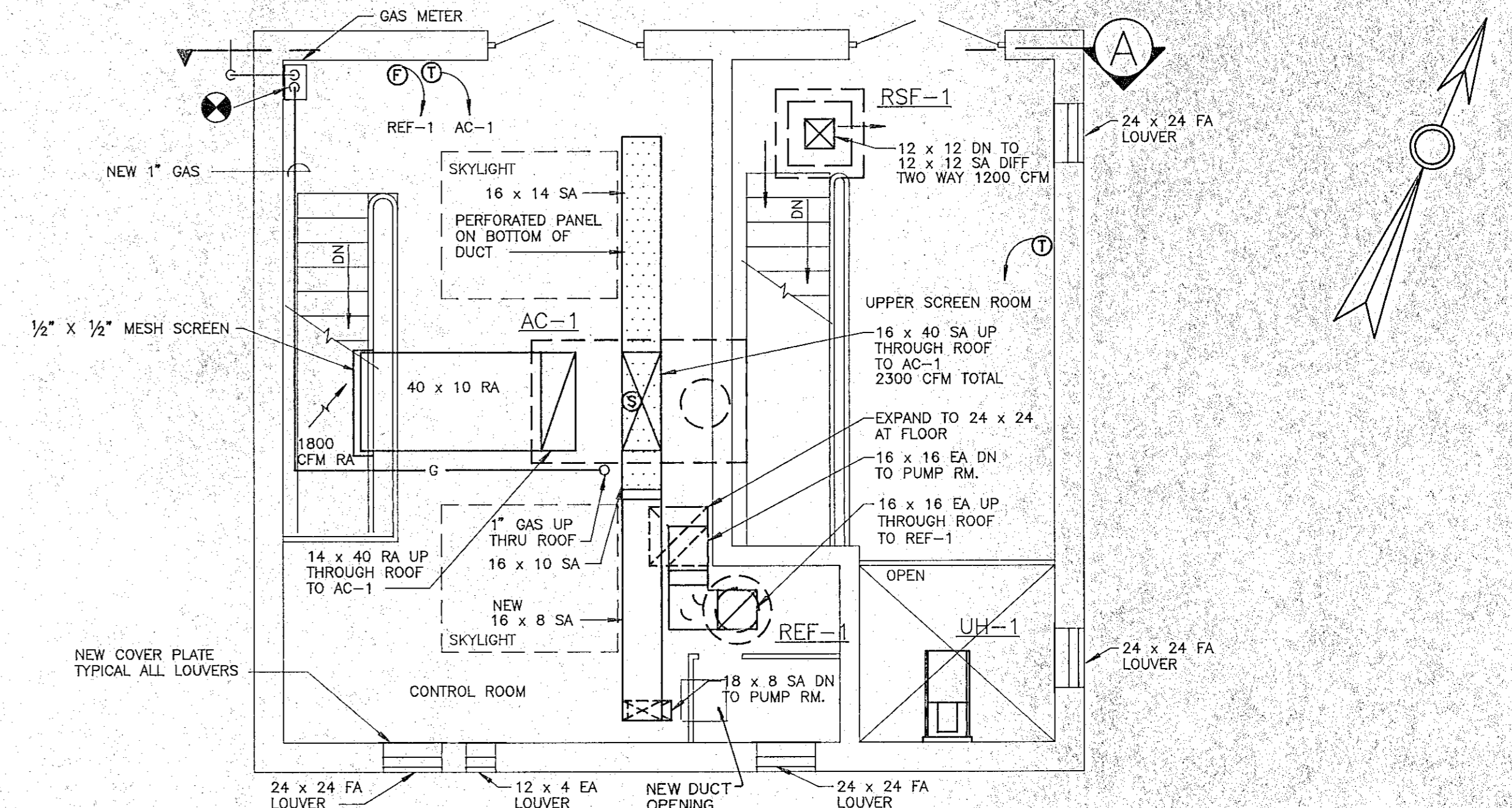
RENOVATIONS TO DEER ST. AND MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
MECHANICAL PLAN AND SECTIONS
MECHANIC STREET PUMPING STATION



BASEMENT FLOOR PLAN
1/4" = 1'-0"

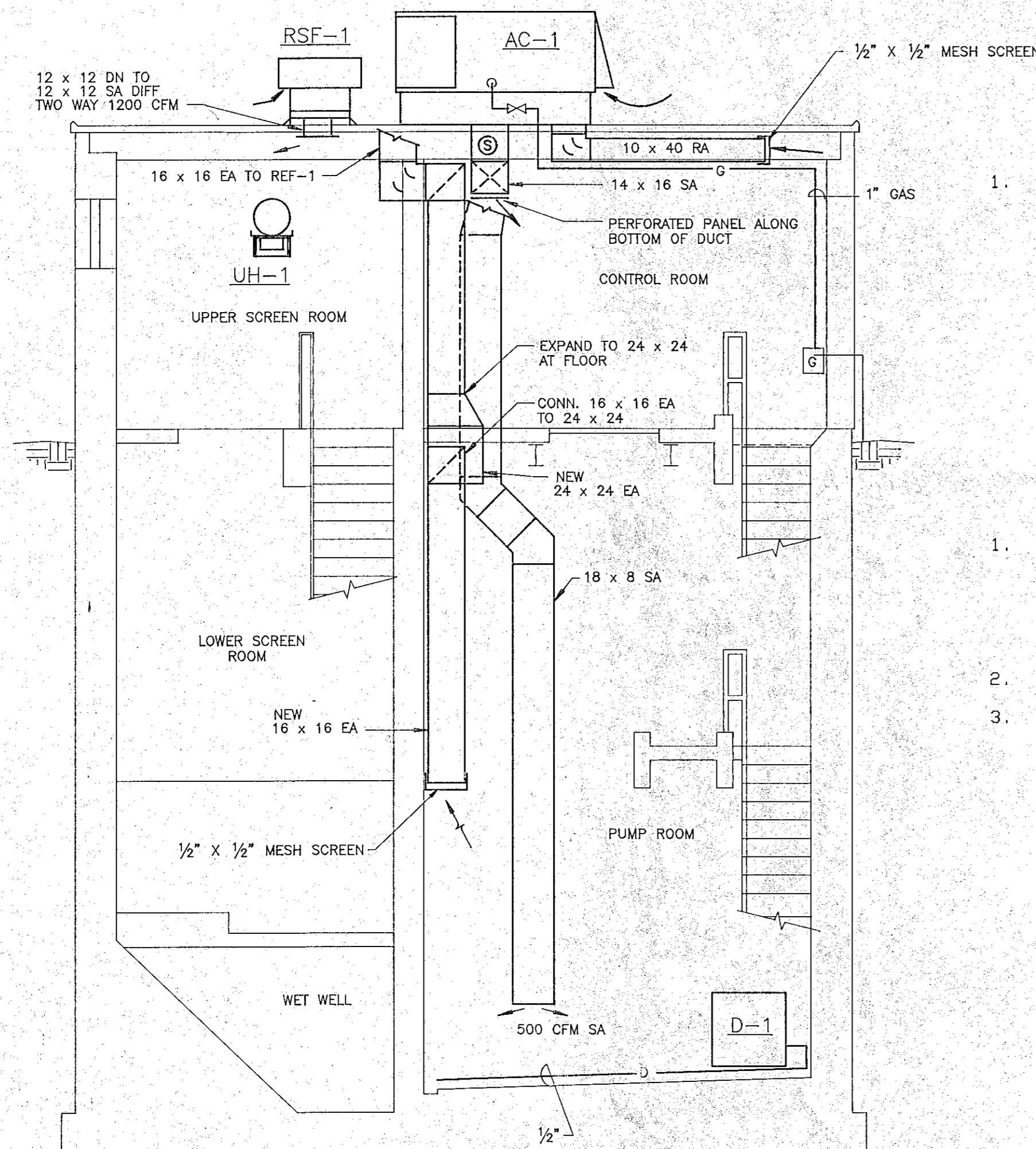


INTERMEDIATE FLOOR PLAN
1/4" = 1'-0"



GROUND FLOOR PLAN
1/4" = 1'-0"

NEW WORK PLANS



SECTION "A - A"
1/4" = 1'-0"

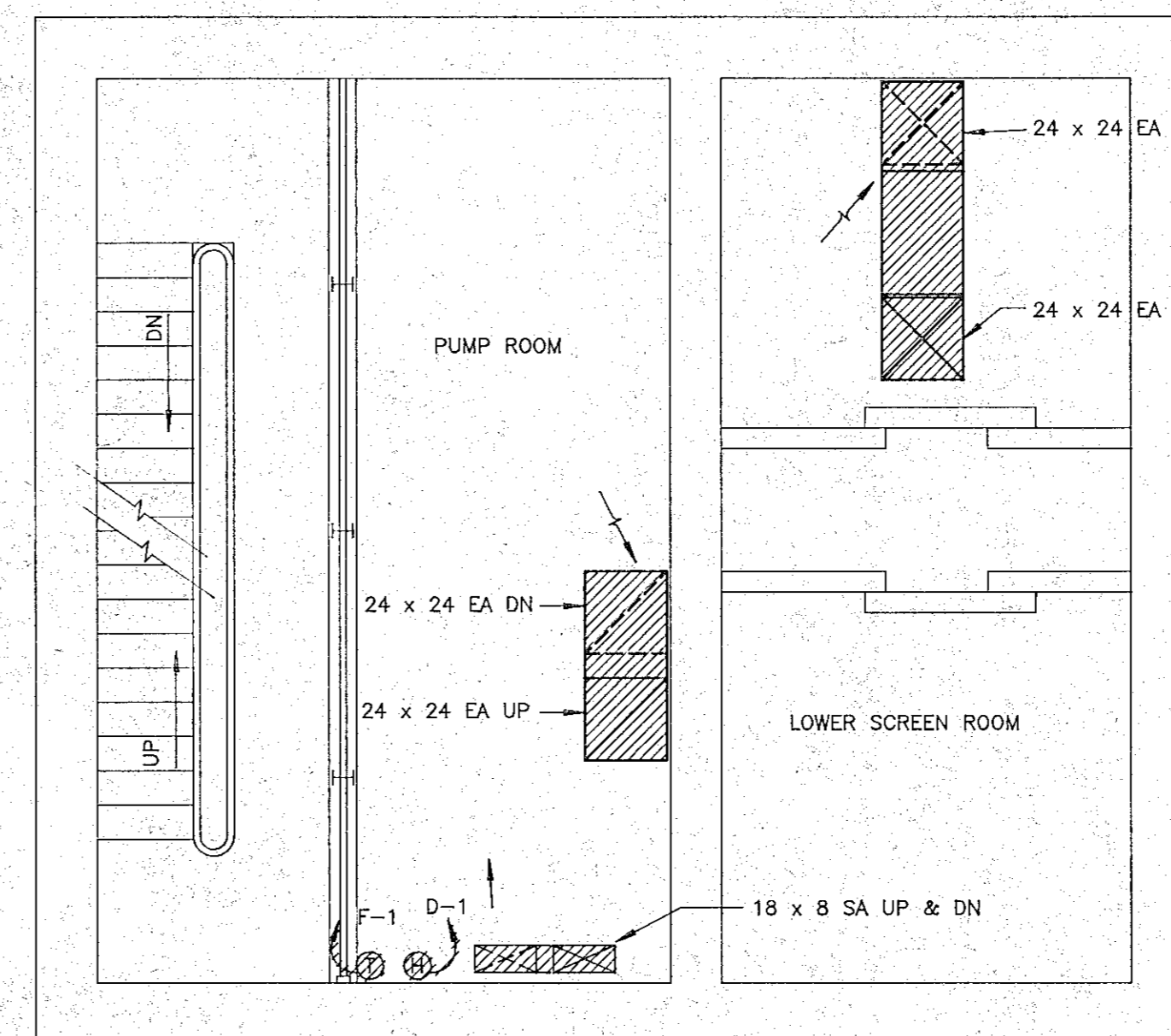
NEW CONSTRUCTION NOTES *

1. BLANK OFF ALL FRESH AIR LOUVERS WITH ALUMINUM PLATE AND ALUMINUM FASTENERS, CAULK AIR TIGHT.

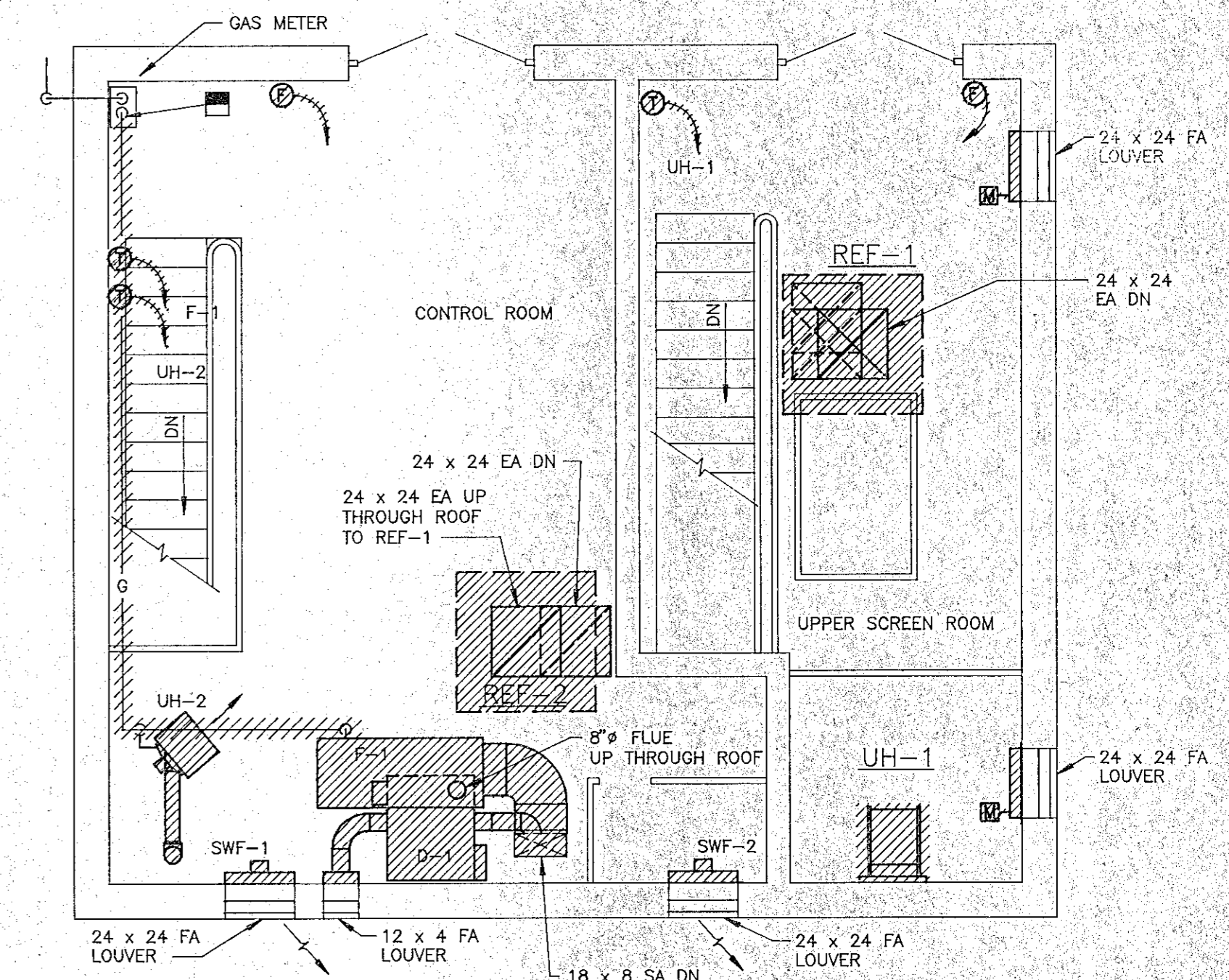
DEMOLITION NOTES *

1. REMOVE ALL HEATING AND VENTILATING EQUIPMENT. EQUIPMENT TO BE REMOVED SHALL INCLUDE ALL FANS, UNIT HEATERS, FURNACE, BREECHING, FLUE, DEHUMIDIFIER AND DUCTS, EXHAUST DUCTWORK, MOTOR DAMPERS, DAMPER SHROUDS CONTROLS AND CONTROL WIRING.
2. REMOVE GAS PIPING AND RUNOUTS BACK TO GAS METER.
3. FRESH AIR LOUVERS TO REMAIN.

* CONTRACTOR HAS COMPLIED WITH THESE NOTES.



INTERMEDIATE FLOOR PLAN
1/4" = 1'-0"



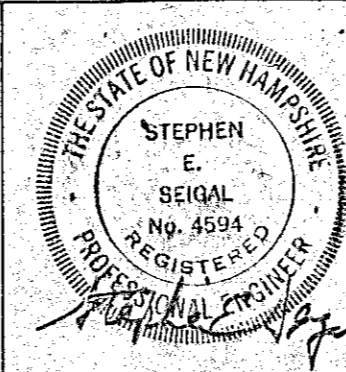
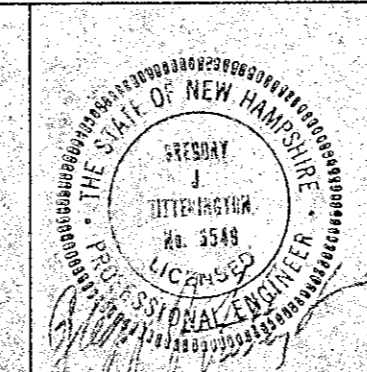
GROUND FLOOR PLAN
1/4" = 1'-0"

DEMOLITION PLANS

RECORD PLAN

RICHARD D. KIMBALL CO., INC.
580 Main Street
Reading, Massachusetts 01867
(617) 942-0130

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



ORIGINAL FULL SIZE DRAWING = 4"
REPRODUCTIONS MAY BE REDUCED SIZE

DESIGNED	DRAWN	CHECKED	SCALE	DATE
SAH	SAH	GJT	1/4" = 1'-0"	JULY 1990

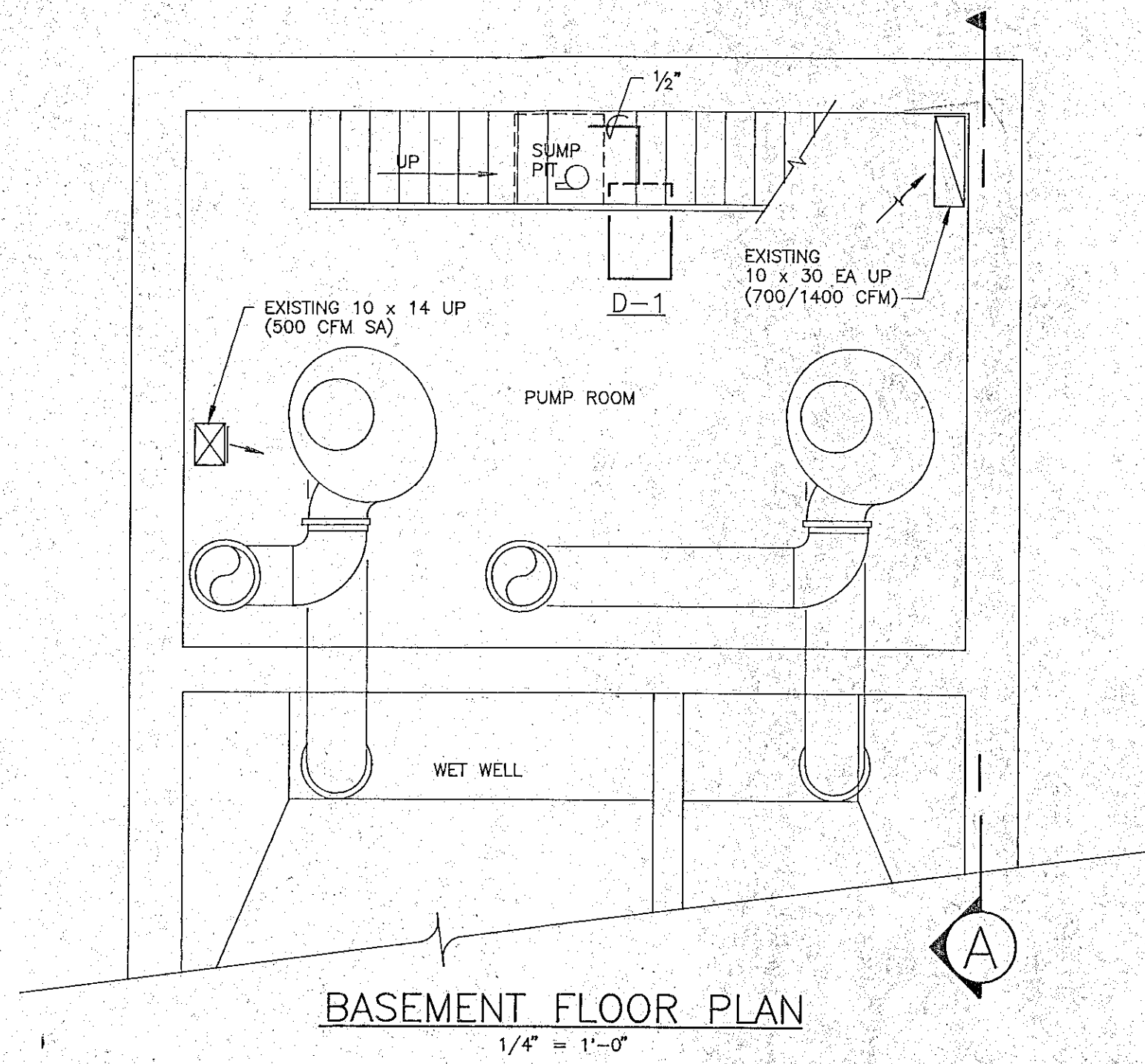
DRAWING NO. HVAC-1
JOB NO. 89-131
CONTRACT NO. 4

RENOVATIONS TO DEER STREET & MECHANIC STREET PUMPING STATIONS

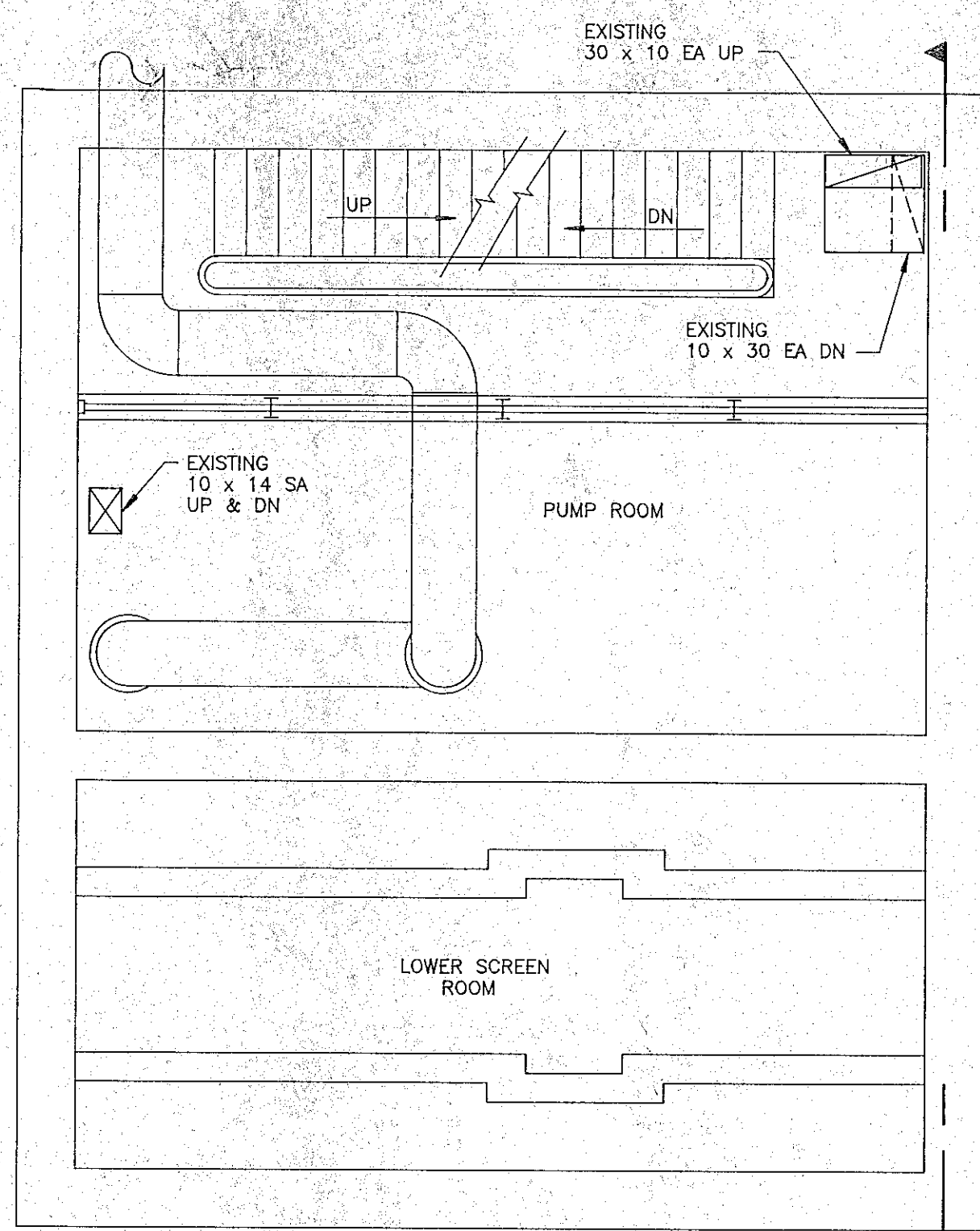
PORTSMOUTH, N.H.

HEATING/COOLING PLANS
DEER STREET STATION

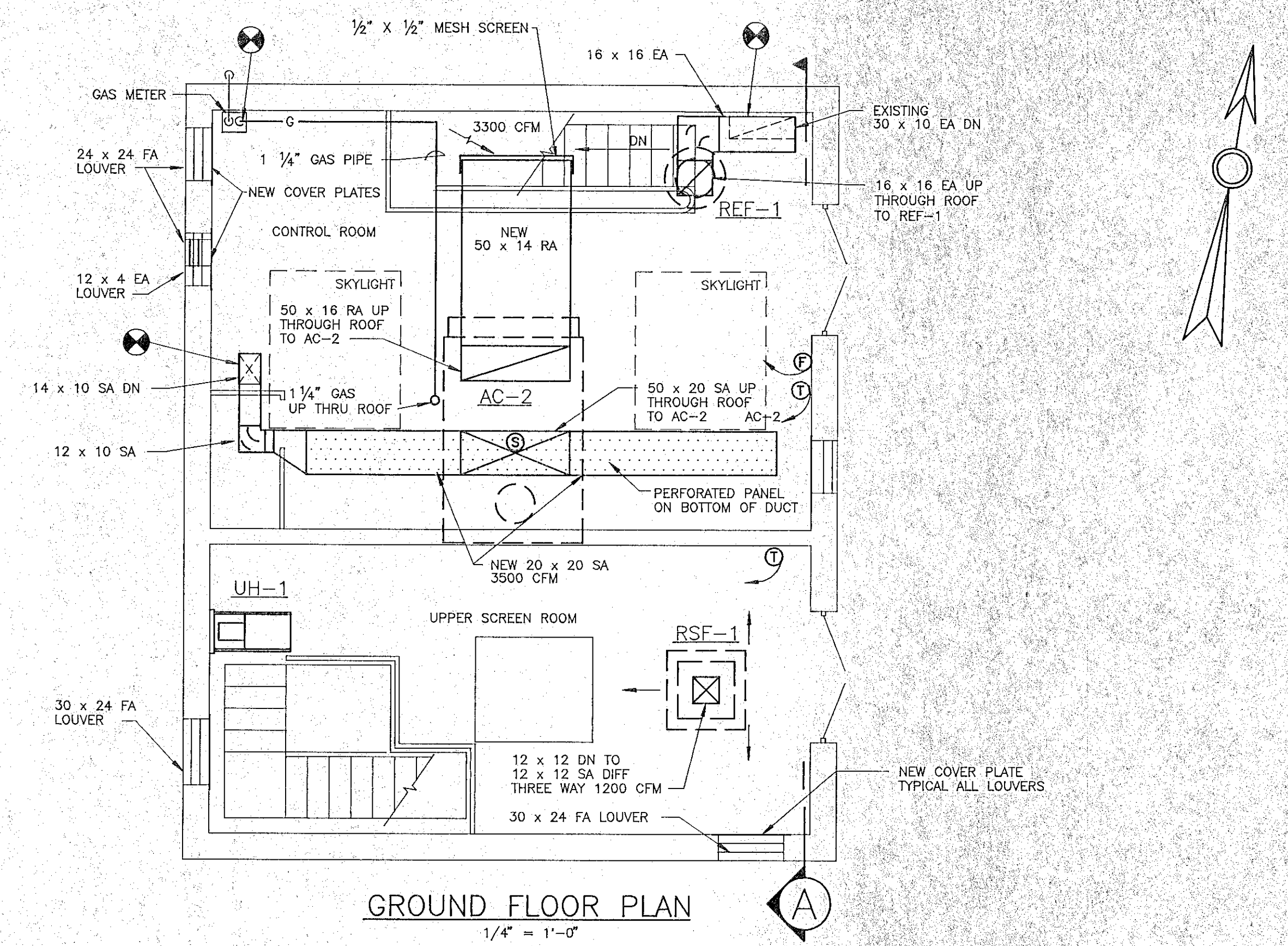
NO.	DESCRIPTION	DATE
1	Revised to Record Plan	10/91



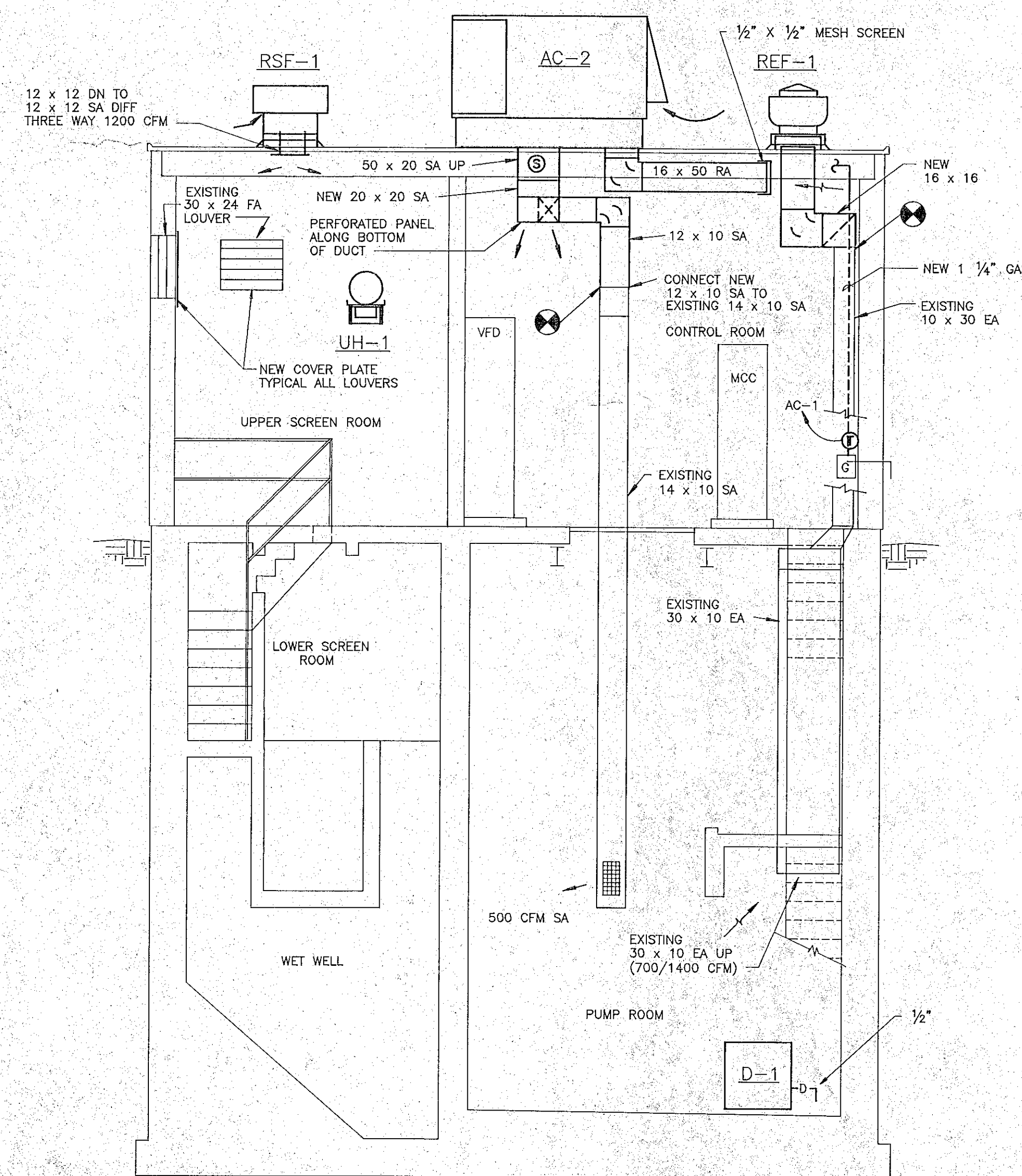
BASEMENT FLOOR PLAN
1/4" = 1'-0"



INTERMEDIATE FLOOR PLAN
1/4" = 1'-0"



GROUND FLOOR PLAN
1/4" = 1'-0"



SECTION "A - A"
1/4" = 1'-0"

NEW WORK PLANS

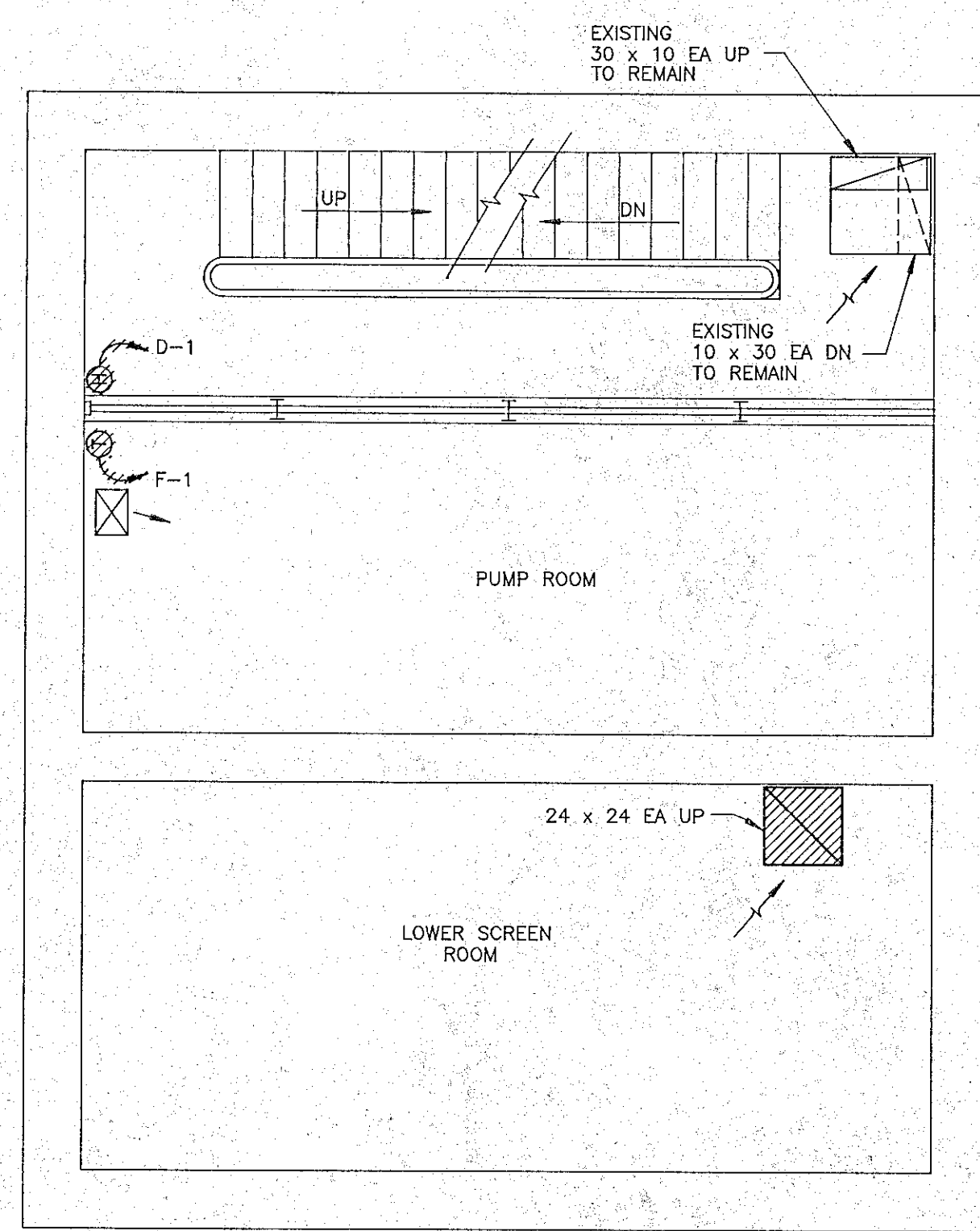
NEW CONSTRUCTION NOTES *

1. BLANK OFF ALL FRESH AIR LOUVERS WITH ALUMINUM PLATE AND ALUMINUM FASTENERS, CAULK AIR TIGHT.

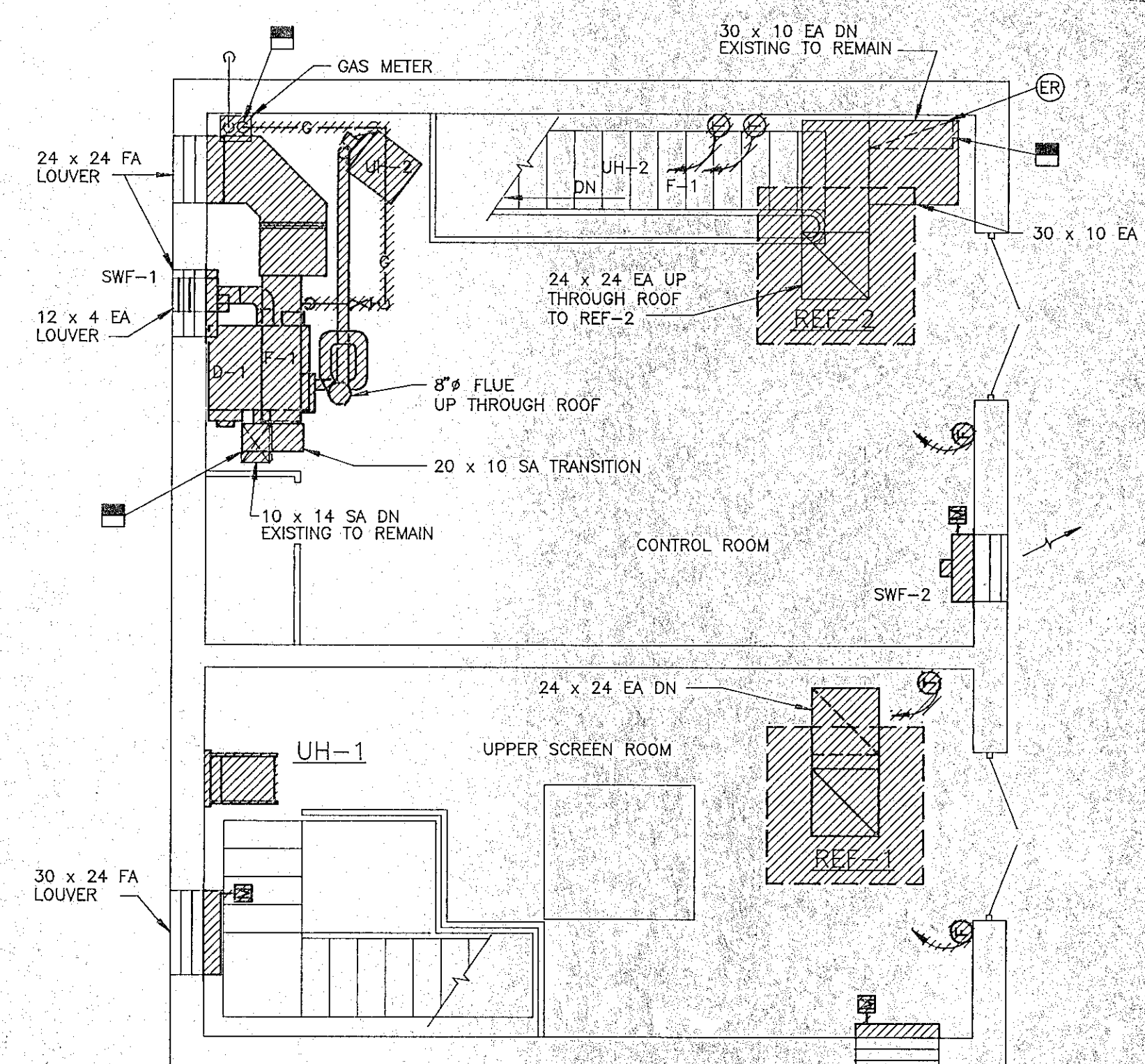
DEMOLITION NOTES *

1. REMOVE ALL HEATING AND VENTILATING EQUIPMENT EXCEPT NOTED SUPPLY DUCTWORK FROM F-1 AND EXHAUST DUCTWORK TO REF-1. EQUIPMENT TO BE REMOVED SHALL INCLUDE ALL FANS, UNIT HEATERS, FURNACE, BREECHING, FLUE, DEHUMIDIFIER & DUCTS, EXHAUST DUCTWORK, MOTOR DAMPERS, DAMPER SHROUDS CONTROLS AND CONTROL WIRING.
2. REMOVE GAS PIPING AND RUNOUTS BACK TO GAS METER.
3. FRESH AIR LOUVERS TO REMAIN.

* CONTRACTOR HAS COMPLIED WITH THESE NOTES.



INTERMEDIATE FLOOR PLAN
1/4" = 1'-0"



GROUND FLOOR PLAN
1/4" = 1'-0"

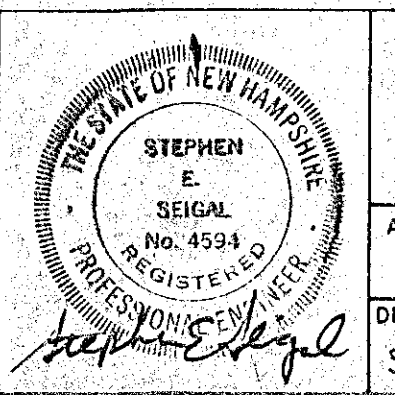
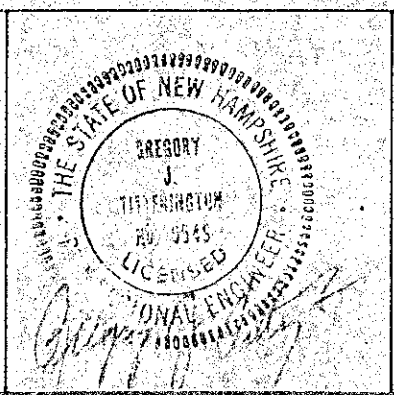
DEMOLITION PLANS

RECORD PLAN

RICHARD D. KIMBALL CO., INC.
580 Main Street
READING, MASSACHUSETTS 01867
(617) 942-0130

NO.	DESCRIPTION	DATE
1	Revised to Record Plan	10/91

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



ORIGINAL FULL SIZE DRAWING = 4"
REPRODUCTIONS MAY BE REDUCED SIZE

DESIGNED	DRAWN	CHECKED	SCALE	DATE
SAH	SAH	GJT	1/4" = 1'-0"	JULY 1990

DRAWING NO.
HVAC-2
JOB NO.
89-131
CONTRACT NO.
4

RENOVATIONS TO DEER STREET & MECHANIC STREET PUMPING STATIONS

PORTSMOUTH, N.H.

HEATING/COOLING PLANS
MECHANIC STREET STATION

PACKAGE AIR CONDITIONING UNIT SCHEDULE																								
TAG No.	LOCATION	MANUFACTURER	MODEL No.	TYPE	COOLING DATA				HEATING CAPACITY				FAN DATA						ELECTRICAL DATA					REMARKS
					COOLING TOTAL	COOLING SENSIBLE	EAT (°F) DB/WB	LAT (°F) DB/WB	CFM	INPUT MBH	OUTPUT MBH	O.A. CFM	R.A. CFM	TYPE	RPM	ESP(IN)	TSP(IN)	FILTERS	VOLTS	PHASE	AIR HANDLER FAN No./HP	CONDENSER FAN No./HP	COMPRESSOR MTR No./RLA	
AC-1	DEER ST. ROOF	TRANE	YC075A4	GAS RFTP	70.3	50.3	88/66	68/56	2300	205	163	700	1800	FC	850	.30	0.50	2' TA	490	3	1 / 3/4	1 / 1/2	1 / 13	
AC-2	MECH. ST ROOF	TRANE	YCD120A4	GAS RFTP	105.4	85.4	89/66	69/56	4000	250	201	700	3300	FC	760	.30	0.50	2' TA	480	3	1 / 2	1 / 1	1 / 8.6	

SUPPLY FAN SCHEDULE											
TAG No.	LOCATION	MANUFACTURER	MODEL No.	TYPE	FAN DATA			ELECTRICAL DATA			REMARKS
					CFM	RPM	SP(IN)	VOLTS	PHASE	HP	
RSF-1*	WET WELL ROOF	GREENHECK	RSF-9	FILTERED	1200	593	.125	230	1	1/6	EXPLOSION PROOF DIRECT DRIVE

* QUANTITY 2

EXHAUST FAN SCHEDULE												
TAG No.	LOCATION	MANUFACTURER	MODEL No.	TYPE	FAN DATA			ELECTRICAL DATA			REMARKS	
					CFM	RPM	SP(IN)	VOLTS	PHASE	HP		
REF-1*	DRY WELL ROOF	GREENHECK	CUBE-140-4	UPBLAST	1400/700	99	1.95	.375	460	3	1	TWO SPEED/SINGLE WINDING

* QUANTITY 2

DEHUMIDIFIER SCHEDULE												
TAG No.	LOCATION	MANUFACTURER	MODEL No.	TYPE	DEHUMIDIFIER DATA				ELECTRICAL DATA			REMARKS
					DESIGN COND. DB(°F)	WATER REMOVAL %RH	WATER REMOVAL PINTS / HOUR	AIR CAPACITY CFM	VOLTS	PHASE	WATTS	
D-1*	PUMP ROOM	MSI	D20	REFRIGERANT	75	40	2.5	435	230	1	2450	

* QUANTITY 2

ELECTRIC UNIT HEATER SCHEDULE														
TAG No.	LOCATION	MANUFACTURER	MODEL No.	TYPE	AIR DATA			ELECTRIC CAPACITY			ELECTRICAL DATA			REMARKS
					CFM	EAT(°F)	LAT(°F)	MBH	KW	CKT'S	VOLTS	PHASE	AMPS	
UH-1*	WET WELL	CHROMALOX	CUH-1502EP	WALL MTD.	1450	37	40	51.2	15	1	480	3	18.0	EXPLOSION PROOF CORROSION PROTECTION

* QUANTITY 2

HVAC LEGEND

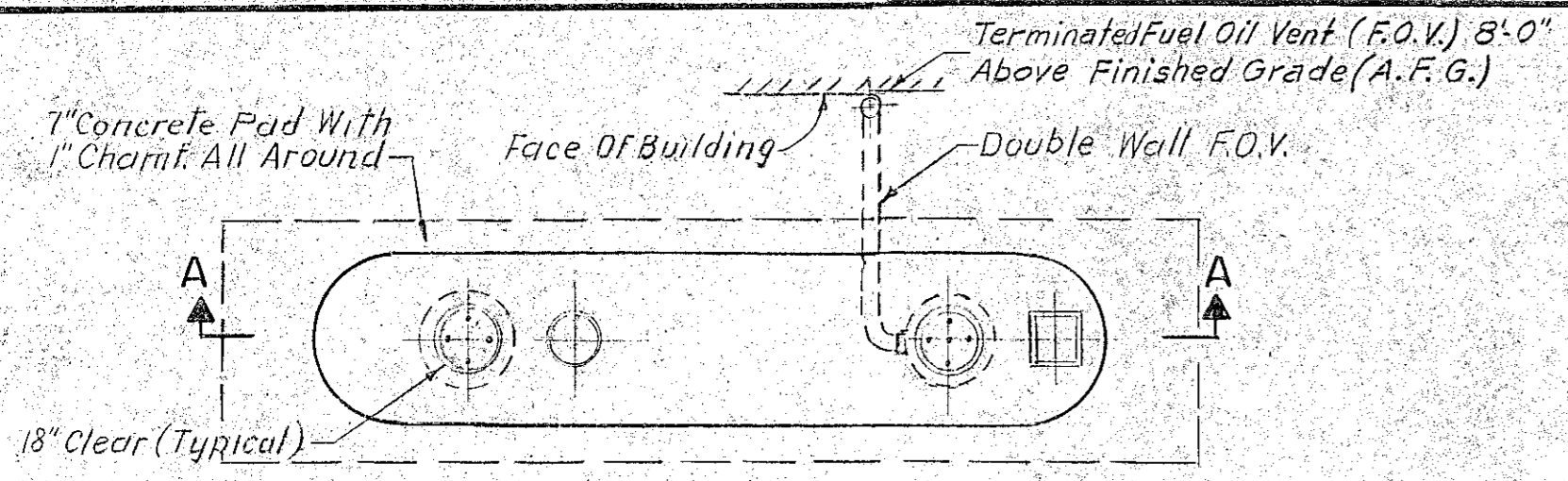
- CONNECT TO EXISTING
- POINT WHERE DEMOLITION STOPS
- EXISTING TO REMAIN
- THERMOSTAT, ELECTRIC
- FAN SWITCH
- SMOKE DETECTOR
- DRAIN
- GAS
- SUPPLY DUCT UP
- SUPPLY DUCT DOWN
- RETURN DUCT UP
- RETURN DUCT DOWN
- TURNING VANES
- TRANSITION
- EQUIPMENT REMOVED

ABBREVIATION LIST

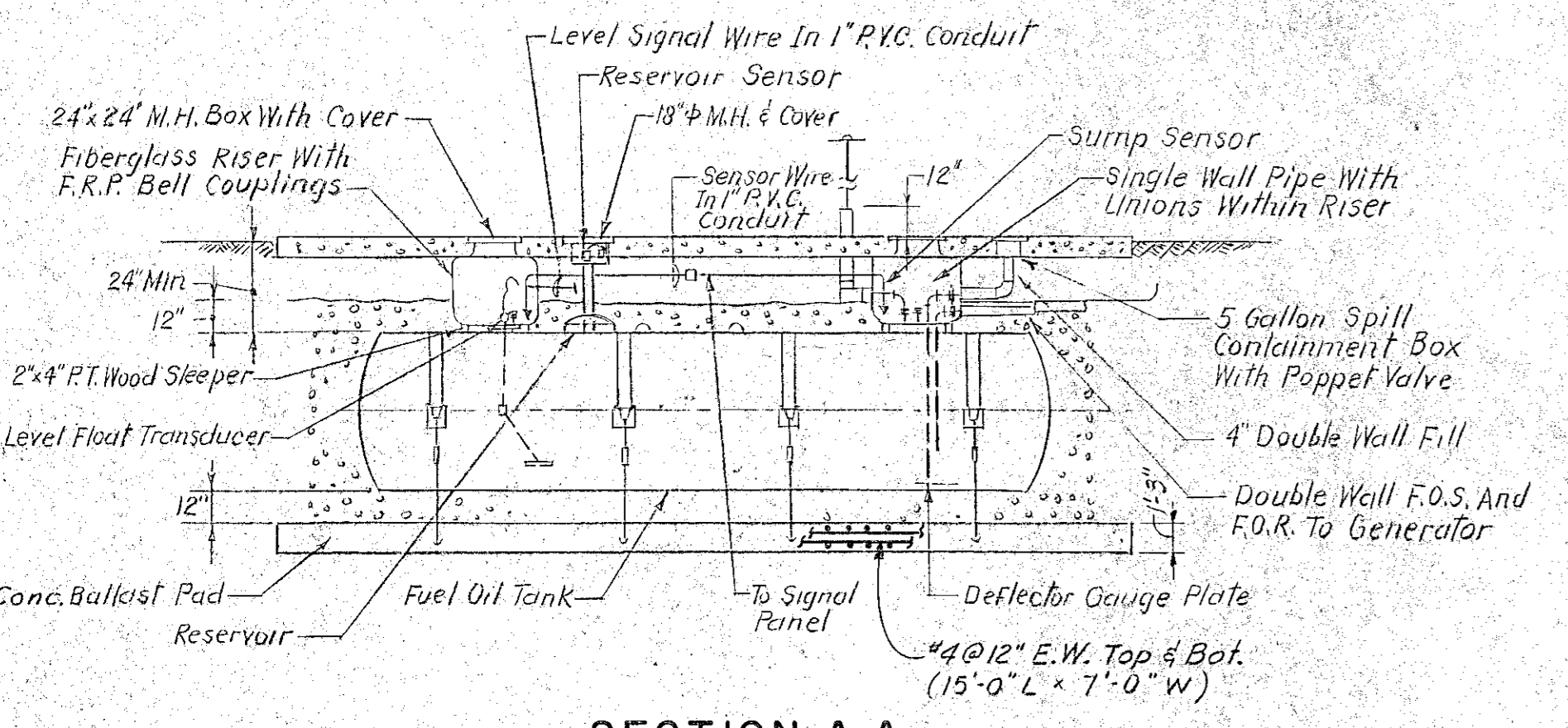
- AFF ABOVE FINISHED FLOOR
- APD AIR PRESSURE DIFFERENCE
- ATR AIR TEMPERATURE RISE
- BTUH BRITISH THERMAL UNIT'S PER HOUR
- CFH CUBIC FEET PER HOUR
- CFM CUBIC FEET PER MINUTE
- CKT'S CIRCUITS
- CL CENTERLINE
- DB DRYBULB
- DIA DIAMETER
- DIFF DIFFUSER
- DN DOWN
- DX DIRECT EXPANSION
- EA EXHAUST AIR
- EAT ENTERING AIR TEMPERATURE
- ESP EXTERNAL STATIC PRESSURE
- F FAHRENHEIT
- FA FRESH AIR
- FC FORWARD CURVE
- FLA FULL LOAD AMPS
- FPM FEET PER MINUTE
- FT FEET
- H HEIGHT
- HP HORSEPOWER
- IN INCHES
- IPS INSIDE PIPE SCREW
- KW KILOWATT
- L LENGTH
- LAT LEAVING AIR TEMPERATURE
- MBH 1000xBTUH
- MIN MINIMUM
- MTD MOUNTED
- MTR MOTOR
- ND NUMBER
- OA OUTSIDE AIR
- QTY QUANTITY
- PSIG POUNDS PER SQUARE INCH, GAUGE
- RA RETURN AIR
- RH RELATIVE HUMIDITY
- RLA RUNNING LOAD AMPS
- RPM REVOLUTIONS PER MINUTE
- SA SUPPLY AIR
- SF SQUARE FEET
- SHC SENSIBLE HEAT CAPACITY
- SP STATIC PRESSURE
- TA THROW AWAY
- TC TOTAL CAPACITY
- TSP TOTAL STATIC PRESSURE
- TYP TYPICAL
- VEL VELOCITY
- W WIDTH
- WB WET BULB
- WC WATER COLUMN

RECORD PLAN

RICHARD D. KIMBALL CO., INC. 580 Main Street READING, MASSACHUSETTS 01867 (617) 942-0130	<table border="1"> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> <tr> <td>1</td> <td>Revised To Record Plan</td> <td>10/91</td> </tr> </table>	NO.	DESCRIPTION	DATE	1	Revised To Record Plan	10/91	WHITMAN & HOWARD, INC. 45 WILLIAM STREET, WELLESLEY, MASS.			ORIGINAL FULL SIZE DRAWING = 4" REPRODUCTIONS MAY BE REDUCED SIZE	DRAWING NO. HVAC-3	RENOVATIONS TO DEER STREET & MECHANIC STREET PUMPING STATIONS
		NO.	DESCRIPTION	DATE									
1	Revised To Record Plan	10/91											
JOB NO. 89-131	PORTSMOUTH, N.H.												
APPROVED: SAH SAH GJT						CONTRACT NO. 4	HVAC LEGEND AND SCHEDULES						
DESIGNED DRAWN CHECKED SCALE DATE SAH SAH GJT 1/4" = 1'-0" JULY 1990						SHEET 16 OF 29 SHEETS							



PLAN



SECTION A-A

FUEL OIL STORAGE TANK SCHEDULE					
LOCATION	MODEL	GAL.	F.O.S.	F.O.R.	REMARKS
MECHANIC ST.	DOUBLE WALL	2500	1"	1"	DESIGN BASED ON XERXES, OWENS CORNING FIBERGLASS OR APPROVED EQUAL.
DEER ST.	DOUBLE WALL	2500	1"	1"	

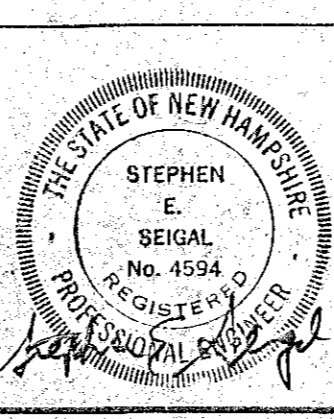
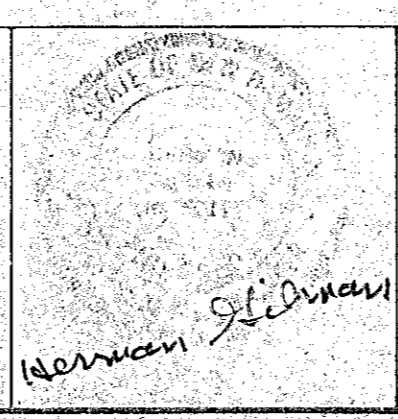
GENERAL NOTES

- FUEL OIL TANK, PIPING, ACCESSORIES, MONITORING SYSTEMS, OIL FILL PROTECTION, DOUBLE WALL PIPING, ETC. INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND CONFORM TO STATE AND LOCAL REGULATIONS, NATIONAL FIRE PROTECTION ASSOCIATION AND UNDERWRITERS STANDARDS.
- CONCRETE PAD 7 INCHES THICK WITH NO. 4 STEEL REINFORCING BARS ON 12 INCH CENTERS EACH WAY MID DEPTH. (TOP PAD 15'-0" L x 7'-0" W)
- ALL FUEL TANKS PROVIDED WITH TWO (2) FLANGED MANWAYS AND DEFLECTOR GAUGE PLATE.
- ALL PIPING SUCH AS, BUT NOT LIMITED TO, FUEL OIL SUPPLY AND RETURN, FILL, VENT, ETC. PITCH IN THE DIRECTION OF THE FIBER GLASS RISERS AND ARE DOUBLE WALL.
- FURNISHED/INSTALLED ALL NECESSARY ACCESSORIES SUCH AS, BUT NOT LIMITED TO, FUSIBLE VALVES, CHECK VALVES, DUPLEX STRAINERS, VALVES, ETC., AS REQUIRED CONFORMING TO LOCAL AND STATE REGULATIONS.
- SUCTION PUMP SYSTEMS HAVE ONE (1) CHECK VALVE ONLY, AS CLOSE AS POSSIBLE TO THE PUMP.
- FOR LOCATION OF FUEL OIL STORAGE TANKS SEE SITE PLANS ON SHEET 2 OF 29 AND SHEET 12 OF 29.
- MONITORING SYSTEM PANELS INSTALLED AT LOCATIONS SHOWN ON SITE PLANS.

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



ORIGINAL FULL SIZE DRAWING = 4"
REPRODUCTIONS MAY BE REDUCED SIZE

APPROVED

DESIGNED DRAWN CHECKED SCALE DATE
AS NOTED JULY 1990

DRAWING NO. **HVAC-4**
JOB NO. 89-131
CONTRACT NO. 4

SHEET 17 OF 29 SHEETS

RENOVATIONS TO DEER ST AND MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
FUEL STORAGE TANKS / DEER STREET & MECHANIC STREET STATIONS

LIGHTING PANEL SCHEDULE -- LP1						
CKT N'S	CURCUIT BREAKER			HP	KW	APPLICATION
	FRAME	TRIP	POLES			
1	100	20	1	.50	CONTRD RM AND OUTDOOR - LIGHTING	
2	100	20	1	.30	CONTRD RDM - RECEPTACLES	
3	100	20	1	.70	INTERMEDIATE FLOOR - RECEPTACLES	
4	100	20	1	.20	INTERMEDIATE FLOOR - LIGHTING	
5	100	20	1	.30	BASEMENT FLOOR - LIGHTING	
6	100	20	1	.30	BASEMENT FLOOR - RECEPTACLES	
7	100	20	1	.30	MAGNETIC FLOW METER	
8	100	20	1	1.20	SUMP PUMP	
9	100	20	2	2.60	DEHUMIDIFIER	
10	100	20	1	1.00	UPPER SCREEN ROOM - RECEPTACLES	
11	100	20	1	.70	UPPER SCREEN ROOM - LIGHTING	
12	100	20	1	.10	PUMP STATION HIGH WATER LEVEL PROBE	
13	100	20	1	.10	SMOKE ALARM - VENTILATION	
14	100	20	1	.50	ROOF SUPPLY FAN RSF-1	
15	100	20	1	-	ROOFTOP RECEPTACLE	
16	100	40	2	9	LOAD CENTER - GENERATOR ENCLOSURE	
17	100	20	1	.30	LOWER SCREEN ROOM-LIGHTING	
18	100	20	1	.70	SCREEN ROOM-RECEPTACLES	
19-23	100	20	1	-	SPARES	
24-29	100	40	2	-	SPACES	

LIGHTING PANEL SCHEDULE -- LP2						
CKT N'S	CURCUIT BREAKER			HP	KW	APPLICATION
	FRAME	TRIP	POLES			
1	100	20	1	.50	CONTROL RM AND OUTDOOR - LIGHTING	
2	100	20	1	.30	CONTROL RDM - RECEPTACLES	
3	100	20	1	.70	INTERMEDIATE FLOOR - RECEPTACLES	
4	100	20	1	.20	INTERMEDIATE FLOOR - LIGHTING	
5	100	20	1	.30	BASEMENT FLOOR - LIGHTING	
6	100	20	1	.30	BASEMENT FLOOR - RECEPTACLES	
7	100	20	1	.30	MAGNETIC FLOW METER	
8	100	20	1	1.20	SUMP PUMP	
9	100	20	2	2.60	DEHUMIDIFIER	
10	100	20	1	1.00	UPPER SCREEN ROOM - RECEPTACLES	
11	100	20	1	.70	UPPER SCREEN ROOM - LIGHTING	
12	100	20	1	.10	PUMP STATION HIGH WATER LEVEL PROBE	
13	100	20	1	.10	SMOKE ALARM - VENTILATION	
14	100	20	1	.50	ROOF SUPPLY FAN RSF-1	
15	100	20	1	-	ROOFTOP RECEPTACLE	
16	100	40	2	9	LOAD CENTER - GENERATOR ENCLOSURE	
17	100	20	1	.50	LOWER SCREEN ROOM-LIGHTING	
18	100	20	1	.60	SCREEN ROOM-RECEPTACLES	
19-23	100	20	1	-	SPARES	
24-29	100	40	2	-	SPACES	

LIGHTING FIXTURE SCHEDULE								
FIXT. TYPE	MANUFACTURE	CATALOG NO.	WATTS FIXT.	FIXTURE			REMARKS	
				TYPE	MTG.	LAMPS		
A	BENJAMIN MFG.	FE - 1724 - 4	100	FLOOR	SURF	2- 40W	120	GASKETED
B	APPLETON	VRW 1ST	100	INCAND.	PEND.	1-100W	120	VAPORTIGHT W/DOME
C	HOLOPHANE	WP1A1501N120GR	150	INCAND.	WALL	1-150W	120	W/GUARD
D	APPLETON	AP1550C	150	INCAND.	PEND.	1-150W	120	X-PLSION PROOF
E	EMERGENCY BATTERY UNIT - SEE SPECIFICATIONS FOR REQUIREMENTS							
F	BENJAMIN MFG.	7502-BX	100	INCAND.	WALL	1-100W	120	X-PLSION PROOF

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91
REVISIONS		

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

GENERAL NOTES: *

- THE POWER COMPANY SHALL FURNISH AND INSTALL THE POLE-MOUNTED TRANSFORMER(S) AT THE SERVICE RISER POLE. THIS CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT, WIRING AND TERMINATIONS AS SPECIFIED AND AS REQUIRED BY THE POWER COMPANY. SEE SPECIFICATIONS FOR DETAILS. ALL WORK SHALL BE COORDINATED AND INSTALLED PER THE POWER COMPANY REQUIREMENTS.
- PACK END BELL WITH DUCT SEAL TO MAKE WATERTIGHT.
- GROUNDING GRID TO BE INSTALLED 1'-8" BELOW FINISHED GRADE AND ALL UNDERGROUND CONNECTIONS SHALL BE CADWELDED.
- PLYWOOD BACKBOARD SHALL BE 3/4" EXTERIOR GRADE PAINTED WITH TWO (2) COATS OF GRAY ENAMEL PAINT (TYPICAL FOR ALL BACKBOARDS TO BE INSTALLED). PROVIDE 2" GALVANIZED STEEL CHANNEL SUPPORTS 18" ON CENTER AND EXTEND THE ENTIRE HEIGHT OF BACKBOARD FROM TOP TO BOTTOM.
- CONTRACTOR SHALL FURNISH AND INSTALL METERING CABINET AND METER SOCKET PER POWER COMPANY REQUIREMENTS. METER SHALL BE FURNISHED AND INSTALLED BY THE POWER COMPANY.
- SEE SPECIFICATIONS FOR NUMBER OF CONTACTS REQUIRED AND FUNCTION AS DESCRIBED FOR THESE CONTACTS.
- ALL ELECTRICAL EQUIPMENT TO BE FURNISHED AND INSTALLED WITHIN THIS AREA SHALL BE RATED EXPLOSION PROOF FOR CLASS I, DIVISION I, GROUP C&D. ALL CONDUITS ENTERING AND LEAVING THIS AREA SHALL BE SEALED EXPLOSION-PROOF AND GASTIGHT WITH SEALING FITTINGS 1'-8" INSIDE AND OUT.
- PROVIDE THRU-WALL SEALING FITTINGS FOR ALL CONDUITS ENTERING PUMPING STATION FROM OUTSIDE AND BELOW GRADE. ALL PENETRATIONS TO STATION SHALL BE WATERTIGHT.
- THIS CONTRACTOR MAY RE-USE EXISTING CONDUITS WHERE THIS IS APPLICABLE. THIS MUST BE APPROVED BY THE ENGINEER PRIOR TO ANY WORK BEING PERFORMED. IF APPROVED, CONDUITS SHALL BE THOROUGHLY CLEANED AND SWABBED PRIOR TO THEIR USE.
- DUE TO THE LIMITED SPACE WITHIN THE PUMPING STATION THIS CONTRACTOR SHALL CLOSELY COORDINATE ALL EQUIPMENT LOCATIONS AND INSTALLATIONS. IF A CONFLICT SHOULD ARISE THIS SHOULD BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
- RADIO TELEMETRY SYSTEM SHALL BE FURNISHED AND INSTALLED UNDER ANOTHER CONTRACT. THIS CONTRACTOR SHALL PROVIDE ALL REMOTE CONNECTIONS TO THIS EQUIPMENT AS NOTED ON THE PLANS.
- THE POWER COMPANY SHALL FURNISH AND INSTALL NEW SERVICE RISER POLE AND SERVICE TRANSFORMERS. THE FINAL NEW SERVICE RISER POLE LOCATION SHALL BE DETERMINED IN THE FIELD BY THE POWER COMPANY. THIS CONTRACTOR SHALL COORDINATE FINAL POLE LOCATION WITH THE POWER COMPANY AND SHALL BE RESPONSIBLE FOR EXACT LENGTHS OF SERVICE CONDUITS AND CABLES.
- THE GENERAL CONTRACTOR SHALL MODIFY THE EXISTING CONCRETE PAD TO SUIT THE NEW ELECTRICAL DISTRIBUTION EQUIPMENT. POUR NEW CONCRETE TO EXTEND LIMITS OF EXISTING CONCRETE PAD. ALSO PROVIDE NEW ADDITIONAL SECTION OF CONCRETE PAD WHERE NEW EQUIPMENT EXTENDS BEYOND LIMITS OF EXISTING PAD.

DEMOLITION NOTES: *

- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF ALL EXISTING ELECTRICAL EQUIPMENT LOCATED AT THIS LOCATION IN ITS ENTIRETY AND AS SHOWN AND NOTED ON THE CONTRACT DRAWINGS. THE DRAWINGS DO NOT INTEND TO SHOW EACH AND EVERY DEVICE AND IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO VISIT THESE SITES TO DETERMINE THE EXTENT OF HIS/HER WORK. SEE SPECIFICATION "WORK IN EXISTING STRUCTURES" FOR FURTHER INFORMATION. EQUIPMENT TO BE DISCONNECTED AND REMOVED IS SHOWN CROSSHATCH ONLY FOR THE LARGER EQUIPMENT. ALL OTHER EQUIPMENT IS ALSO TO BE DISCONNECTED AND REMOVED IN ITS ENTIRETY ALTHOUGH NOT CROSSHATCHED. THESE DEVICES TO BE DISCONNECTED AND REMOVED INCLUDE THERMOSTATS, SWITCHES, CONTROL PANELS, AND CONTROLS FOR EQUIPMENT WITHIN STATIONS.
- ALL EXISTING EQUIPMENT TO BE DISCONNECTED AND REMOVED SHALL BE TURNED OVER TO THE OWNER. ANY EXISTING EQUIPMENT WHICH THE OWNER REJECTS SHALL BE REMOVED FROM THE SITE BY THIS CONTRACTOR. SEE SPECIFICATIONS FOR DETAILS.
- DISCONNECT AND REMOVE EXISTING ENGINE GENERATOR, OUTDOOR ENCLOSURE, UNDERGROUND SERVICE CONDUITS AND CABLES, PULLBOXES, AUTOMATIC TRANSFER SWITCH AND OTHER ASSOCIATED EQUIPMENT WITH THIS PORTION OF THE SYSTEM.
- DISCONNECT AND REMOVE INCOMING SERVICE CONDUITS AND CABLES FROM EXISTING RISER POLE AND UNDERGROUND TO STATION. DISCONNECT AND REMOVE ALL PULLBOXES, MAIN CIRCUIT BREAKER AND ASSOCIATED EQUIPMENT WITH THIS PORTION OF THE SYSTEM.
- EXISTING TELEPHONE SERVICES SHALL BE DISCONNECTED AND REMOVED.
- DISCONNECT AND REMOVE ALL ASSOCIATED CONDUITS, WIRES, BOXES, FITTINGS AND ASSOCIATED DEVICES IN THEIR ENTIRETY FOR THE ASSOCIATED EQUIPMENT.
- CONCEALED CONDUITS TO BE DISCONNECTED AND REMOVED AND EXTENDING FROM CONCRETE FLOORS, WALLS OR CEILINGS SHALL BE CUT FLUSH WITH THAT SURFACE AND GROUTED SMOOTH.
- PATCH ALL HOLES, OPENINGS, ETC. WHICH WERE AFFECTED BY THE WORK OF THIS SECTION AND CONTRACT.
- EXISTING OVERHEAD PRIMARY ELECTRICAL SERVICE SHALL REMAIN.
- EXISTING SERVICE RISER POLE SHALL BE MODIFIED BY THE POWER COMPANY FOR EACH OF THE SERVICES TO THE PUMPING STATIONS. THE POWER COMPANY SHALL FURNISH AND INSTALL NEW TRANSFORMERS AND NEW POWER POLES FOR EACH OF THE SERVICES. COORDINATE ALL WORK WITH THE POWER COMPANY.
- THE CONTRACTOR SHALL DISCONNECT AND REMOVE ALL CONTROL PANELS INSTRUMENTATION EQUIPMENT, MECHANICAL EQUIPMENT CONTROLS AND OTHER EQUIPMENT DEVICES FOR A COMPLETE DEMOLITION.

* CONTRACTOR HAS COMPLIED WITH THESE NOTES.

LEGEND

- MOLDED CASE CIRCUIT BREAKER: TOP NUMBER INDICATES FRAME SIZE; BOTTOM NUMBER INDICATES TRIP SIZE; NUMBER TO THE RIGHT INDICATES NO. OF POLES.
- JUNCTION BOX
- ELECTRIC UNIT HEATER (FURNISHED UNDER DIVISION 15)
- GROUNDING SYSTEM
- CABLE GROUNDING LUG
- DUPLEX RECEPTACLE (G.F.C.I. AND WEATHERPROOF)
- SHADED AREA DENOTES EQUIPMENT TO BE DISCONNECTED AND REMOVED
- LIGHTNING PROTECTION UNIT
- AMMETER
- AMMETER SWITCH
- VOLTMETER
- VOLTMETER SWITCH
- CHECK VALVE LIMIT SWITCH
- LEAK DETECTOR (FURNISHED UNDER DIVISION 11)
- MOISTURE SENSOR (FURNISHED UNDER DIVISION 11)
- MOTOR OVER-TEMPERATURE SENSOR (FURNISHED UNDER DIVISION 11)
- HOMERUN TO PANEL "LP-1", CIRCUIT NO. 1 (2 #12 IN 3/4" CONDUIT UNLESS OTHERWISE NOTED)
- MOTOR; NUMBER INDICATES HORSEPOWER
- WALL-MOUNTED LIGHTING FIXTURE "B" FIXTURE TYPE "1" CIRCUIT NUMBER "d" SWITCH CONTROL
- CEILING FIXTURE (SURFACE OR PENDANT MOUNTED)
- FLUORESCENT LIGHTING FIXTURE NOTATIONS SAME AS NOTED ABOVE
- MAGNETIC MOTOR STARTER
- HAND OFF AUTOMATIC SELECTOR SWITCH
- PHOTO CELL
- POWER PANEL
- SURFACE-MOUNTED LIGHTING PANEL
- MANUAL MOTOR STARTER
- SOLID NEUTRAL
- COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC STARTER AS FOLLOWS:
2S2W = 2 SPEED, 2 WINDING
2S1W = 2 SPEED, 1 WINDING
RVNR = REDUCED VOLTAGE, NON-REVERSING, AUTO TRANSFORMER
FVR = FULL VOLTAGE REVERSING
- REVERSE-OFF-FORWARD SELECTOR SWITCH
- WEATHERPROOF
- POWER FACTOR CORRECTION CAPACITOR
- THERMOSTAT (FURNISHED UNDER DIVISION 15)
- SINGLE POLE SWITCH CONTROLLING LIGHTS "d" DENOTES SWITCHING CONTROL
- FLEXIBLE LIQUIDTIGHT CONDUIT
- REMOTE WALL-MOUNTED BATTERY LIGHT HEADS
- EMERGENCY BATTERY UNIT
- FUSE
- NON-FUSED DISCONNECT SWITCH 30 AMPERE RATED-"F" WITHIN SQUARE BOX INDICATES FUSED
- TIME DELAY RELAY
- SPECIAL PURPOSE RECEPTACLE 230V., 10, 20A, 3 PRONG
- PUSHBUTTON STOP LOCKOUT

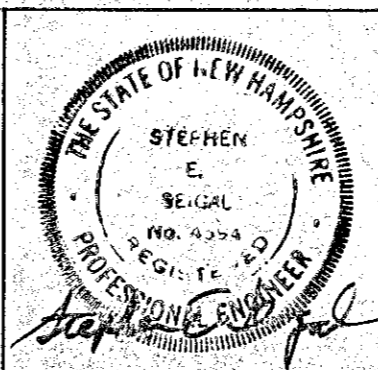
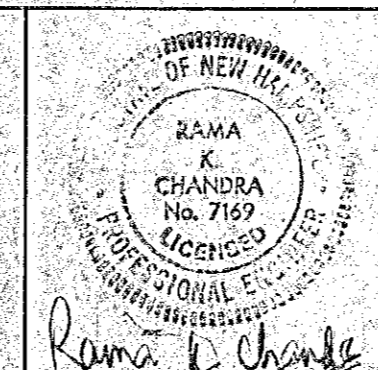
ORIGINAL FULL SIZE DRAWING=4"
REPRODUCTIONS MAY BE REDUCED SIZE

DRAWING NO. **E-1**
JOB NO. 89-131
CONTRACT NO. 4

RENOVATIONS TO DEER STREET AND MECHANIC STREET PUMPING STATIONS

PORTSMOUTH, N.H.

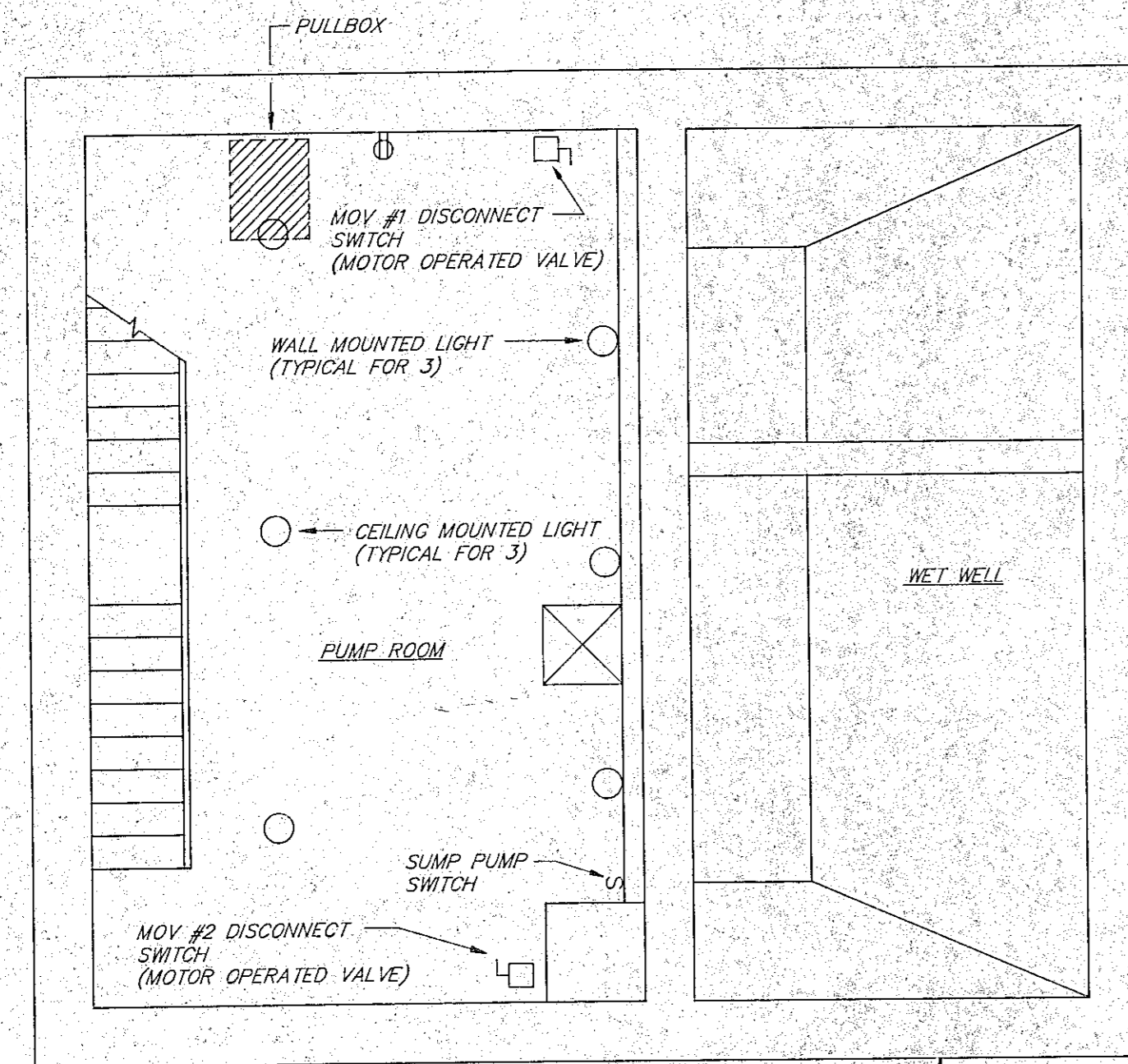
ELECTRICAL LEGEND, NOTES AND SCHEDULES



DESIGNED	DRAWN	CHECKED	SCALE	DATE
		KCC	AS NOTED	JULY 1990

SHEET 18 OF 25 SHEETS

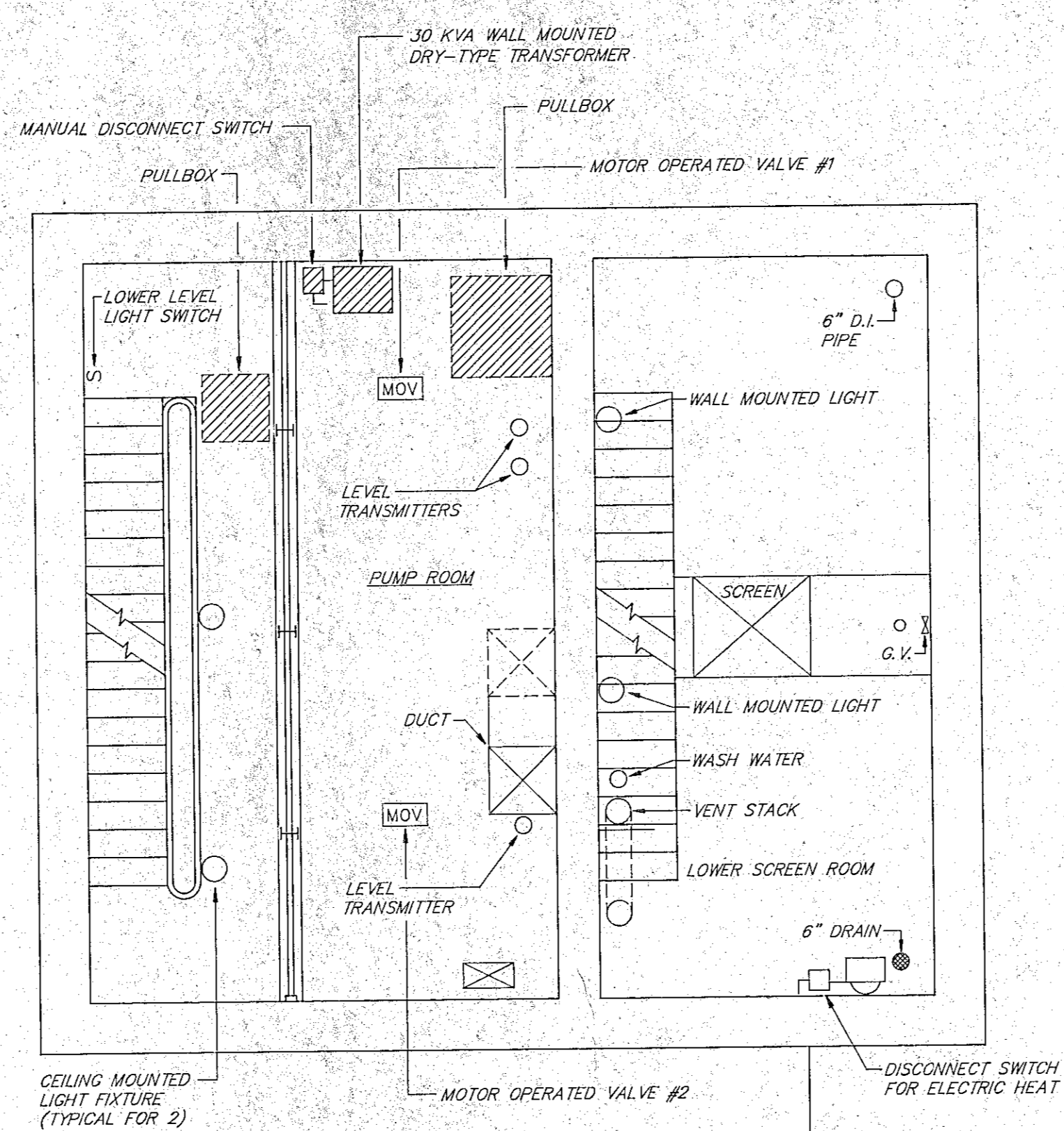
RECORD PLAN



BASEMENT FLOOR PLAN

SCALE: 1/4" = 1'-0"

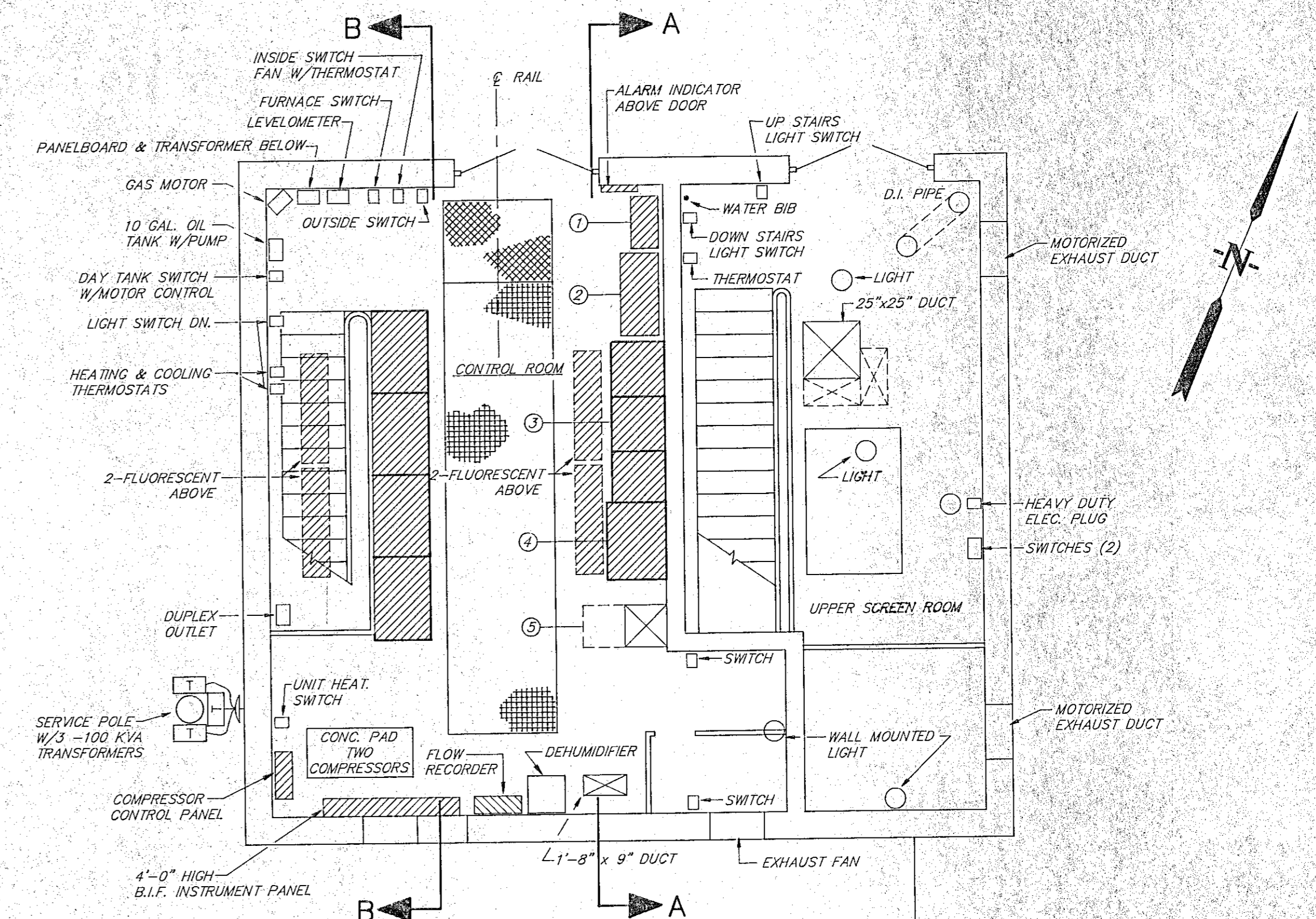
SEE DEMOLITION NOTES FOR DISCONNECTION AND REMOVAL OF ALL ELECTRICAL EQUIPMENT



INTERMEDIATE FLOOR PLAN

SCALE: 1/4" = 1'-0"

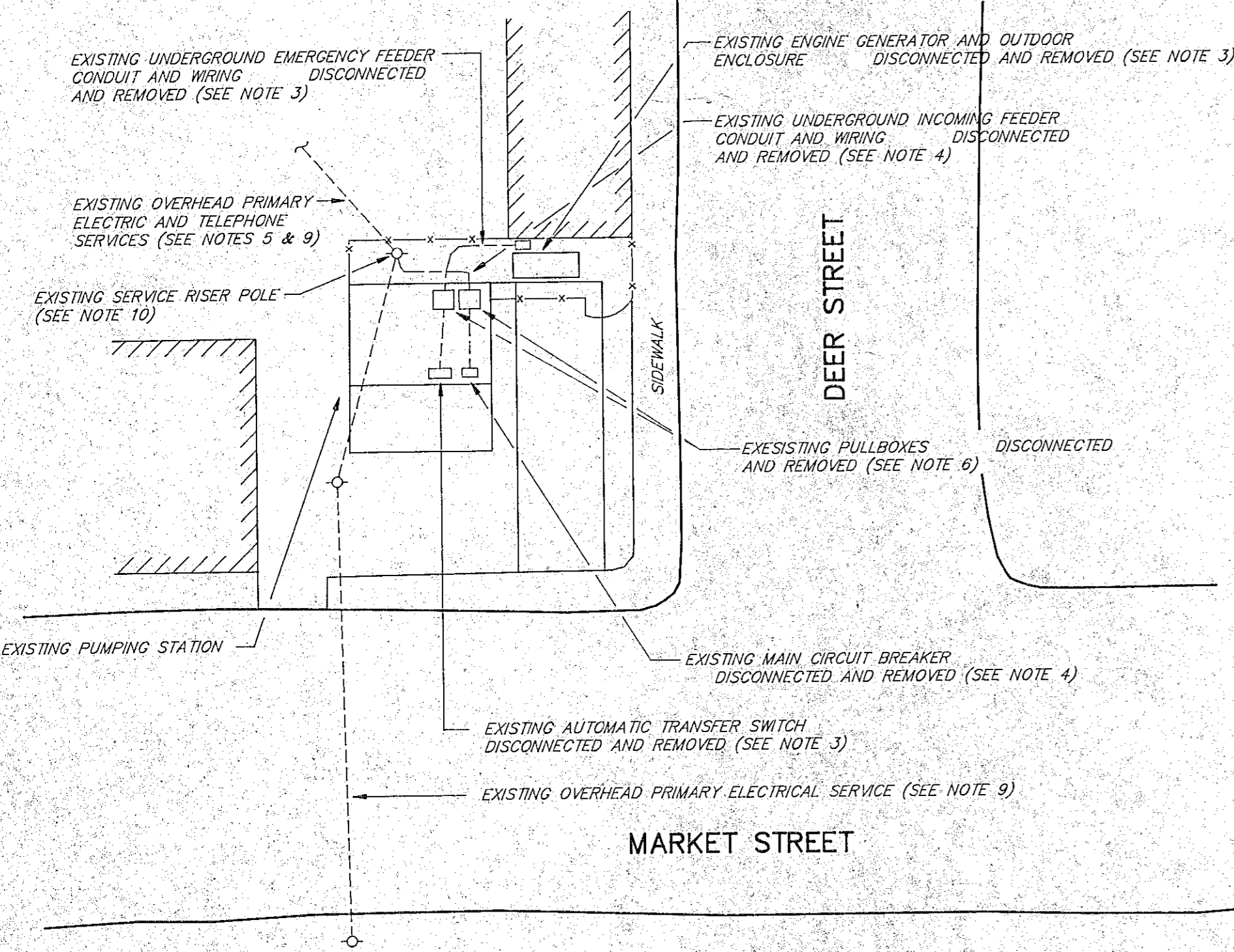
SEE DEMOLITION NOTES FOR DISCONNECTION AND REMOVAL OF ALL ELECTRICAL EQUIPMENT



GROUND FLOOR PLAN

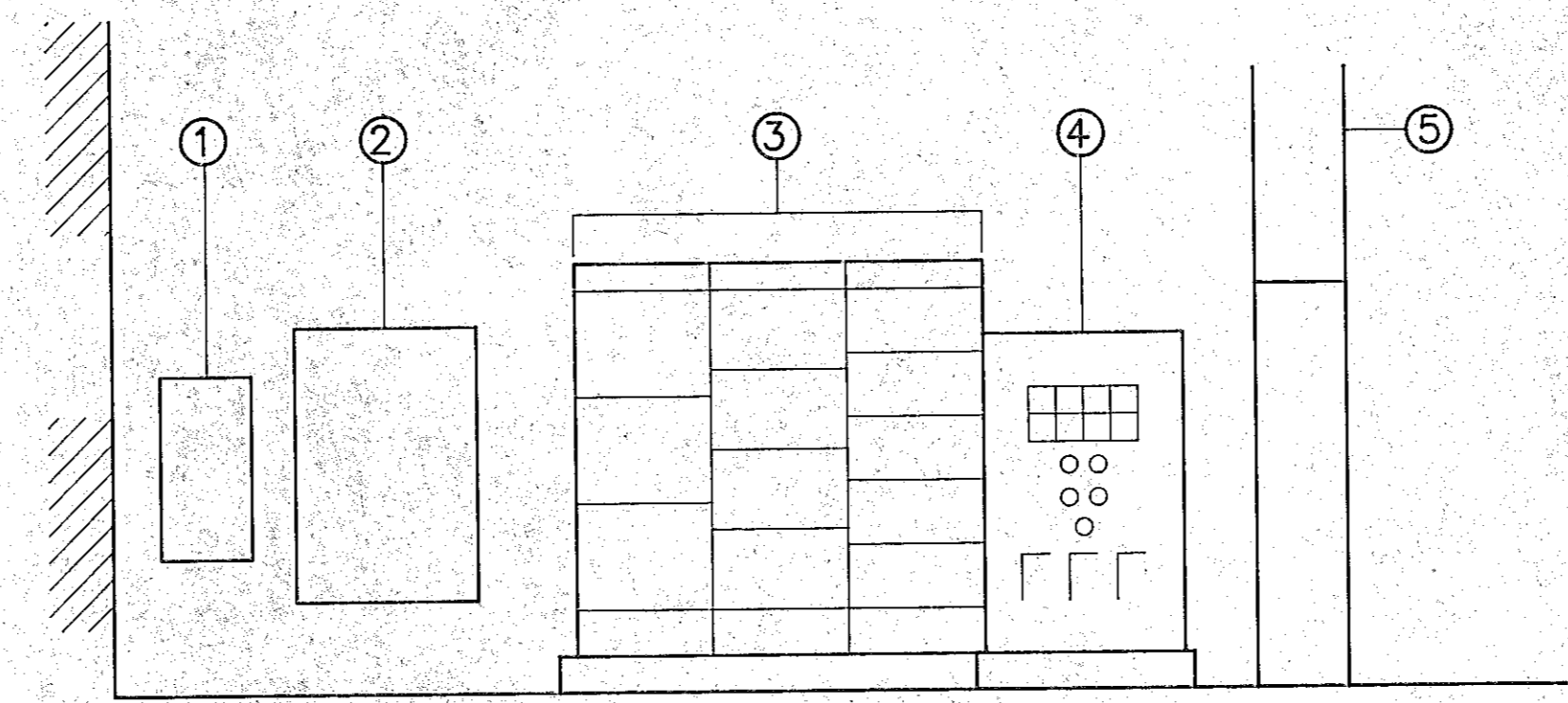
SCALE: 1/4" = 1'-0"

SEE DEMOLITION NOTES FOR DISCONNECTION AND REMOVAL OF ALL ELECTRICAL EQUIPMENT



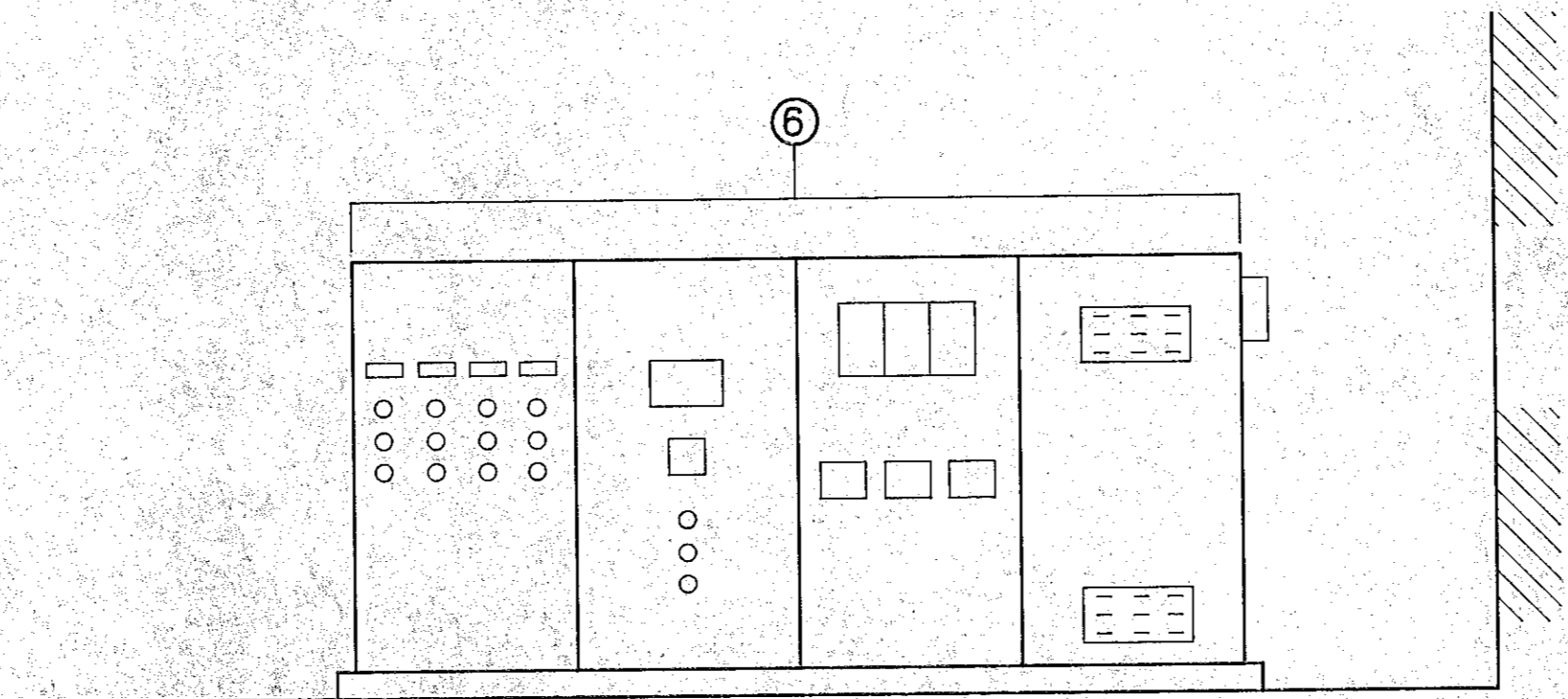
SITE PLAN

SCALE: 1" = 10'±



**SECTION A-A
(EXISTING) ELECTRICAL SERVICE DISTRIBUTION EQUIPMENT**

N.T.S.



**SECTION B-B
(EXISTING) VARIABLE SPEED DRIVE SYSTEM EQUIPMENT**

N.T.S.

EXISTING EQUIPMENT LEGEND

- ① MAIN CIRCUIT BREAKER
- ② AUTOMATIC TRANSFER SWITCH
- ③ MOTOR CONTROL CENTER
- ④ BUBBLER SYSTEM CONTROLS AND ALARMS
- ⑤ HEATING DUCT
- ⑥ VARIABLE SPEED DRIVES AND CONTROLS

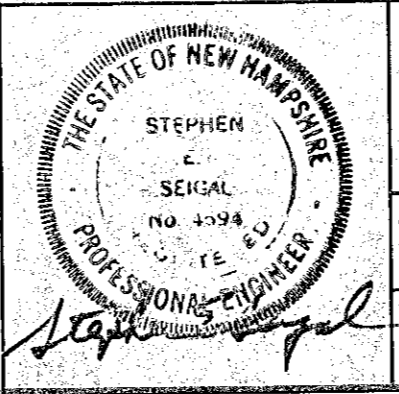
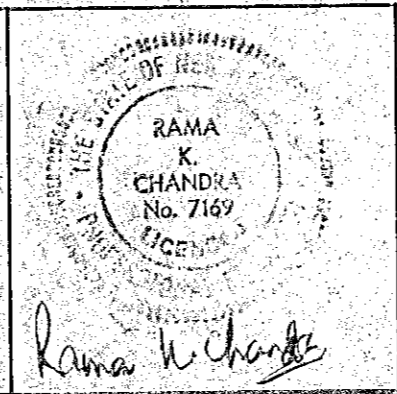
GENERAL NOTES

1. REFER TO DRAWING E-1 FOR LEGEND, NOTES AND DEMOLITION NOTES.

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91
REVISIONS		

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

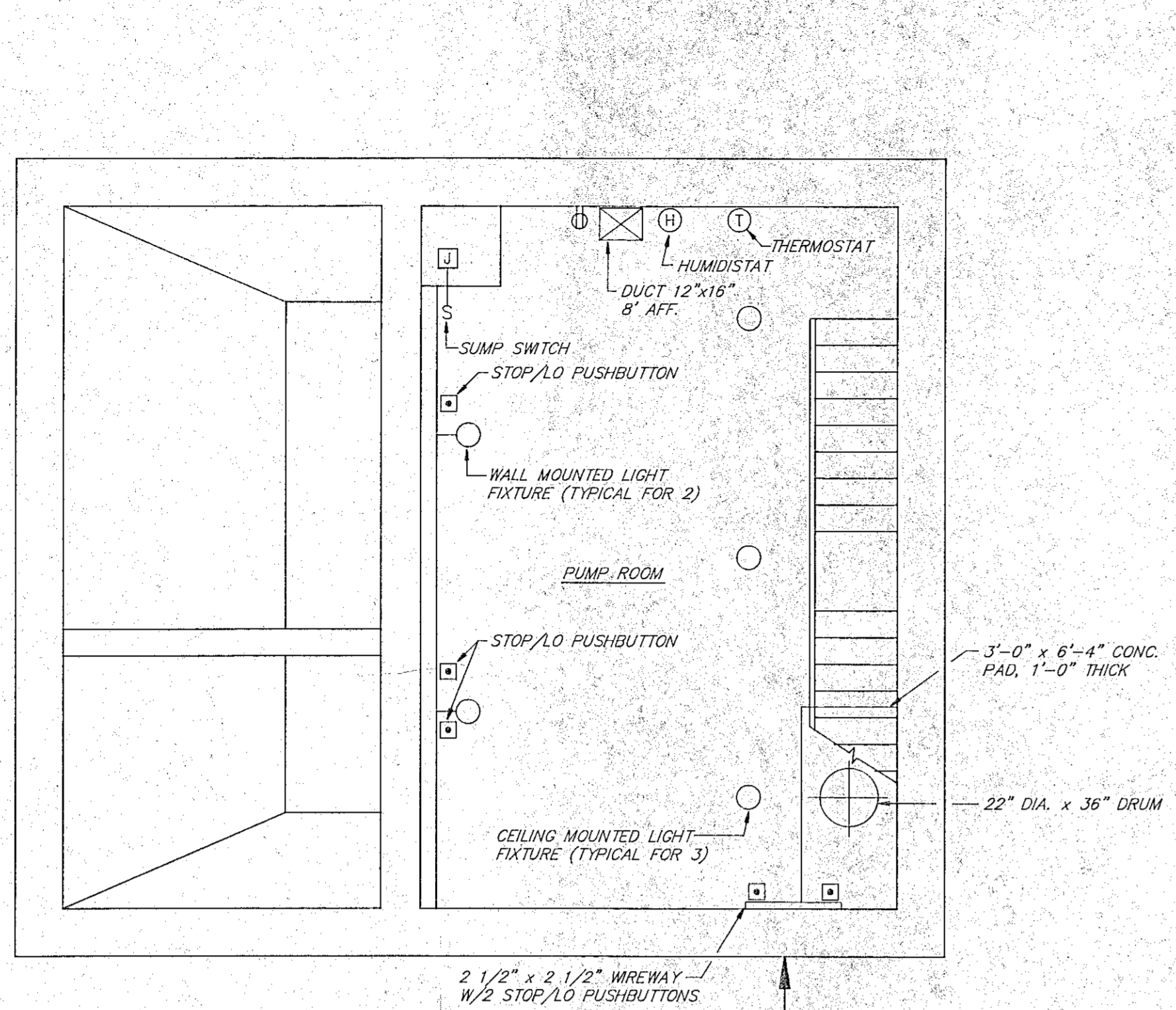


ORIGINAL FULL SIZE DRAWING=4"
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APPROVED	DESIGNED	DRAWN	CHECKED	SCALE	DATE	SHEET
			lee	AS NOTED	JULY, 1990	19 OF 25 SHEETS

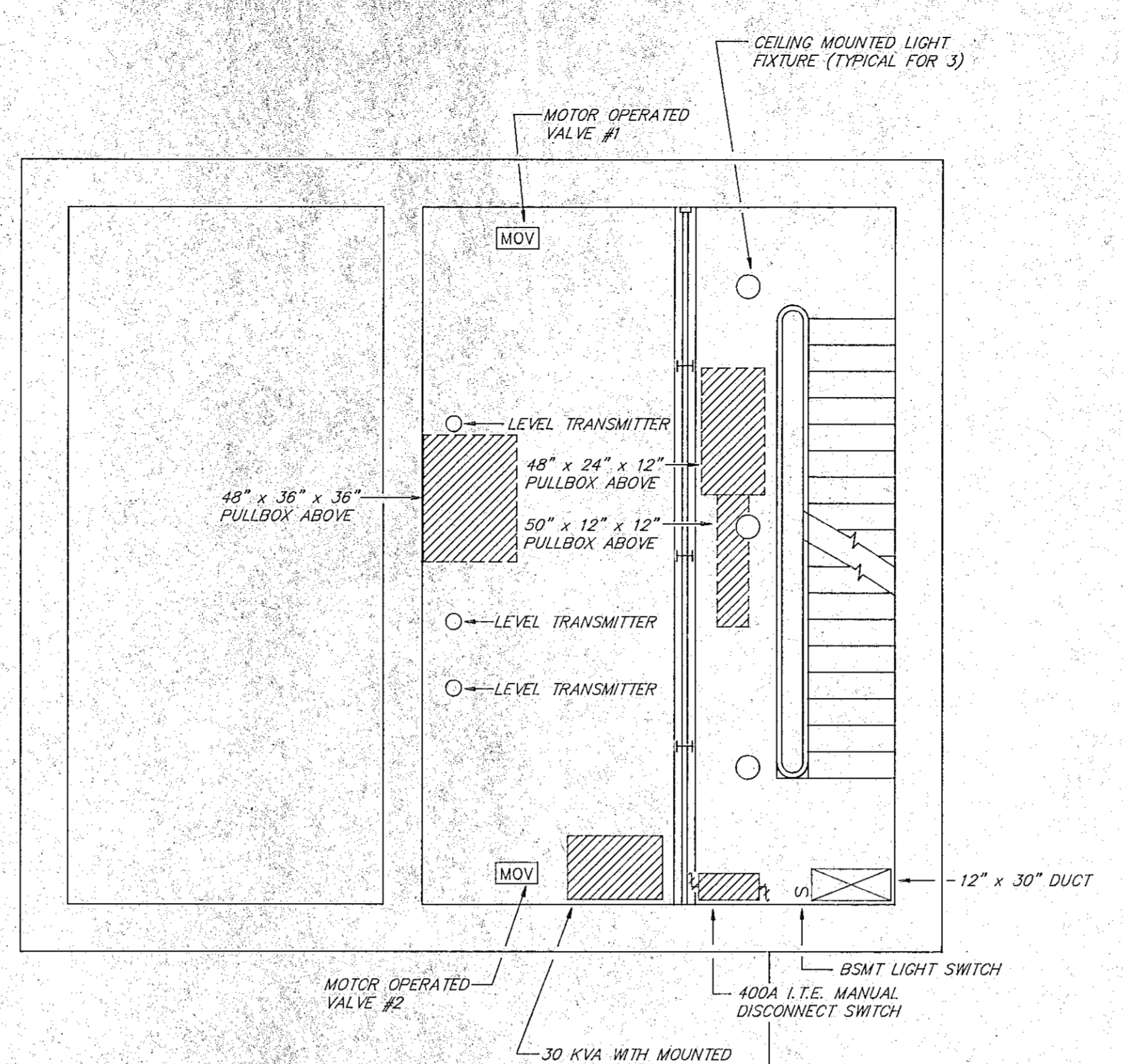
DRAWING NO.	E-2
JOB NO.	89-131
CONTRACT NO.	4

RENOVATIONS TO DEER STREET AND MECHANIC STREET PUMPING STATION
PORTSMOUTH, N.H.
ELECTRICAL DEMOLITION PLAN
DEER STREET



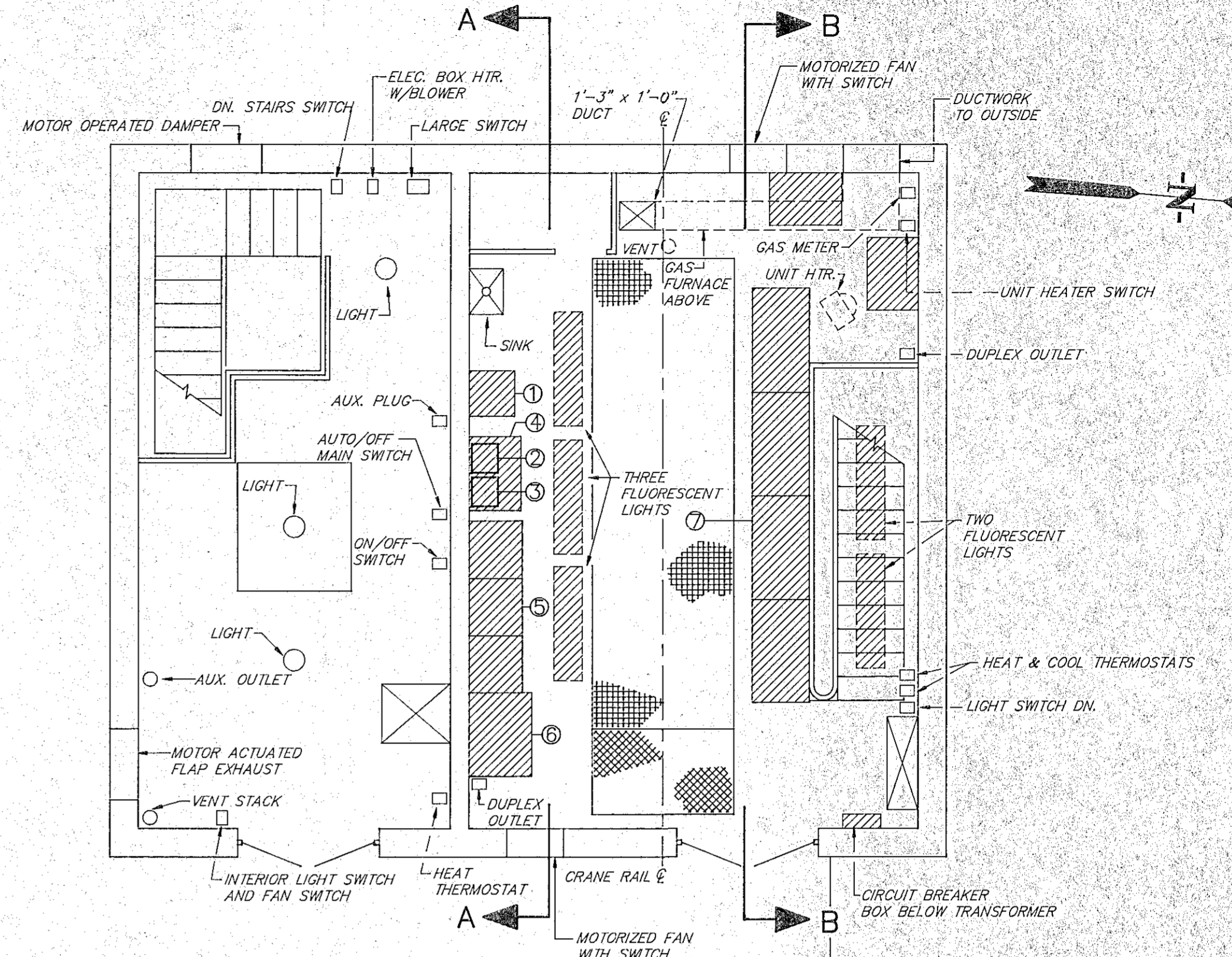
BASEMENT FLOOR PLAN
SCALE: 1/4" = 1'-0"

SEE DEMOLITION NOTES FOR DISCONNECTION AND REMOVAL OF ALL ELECTRICAL EQUIPMENT



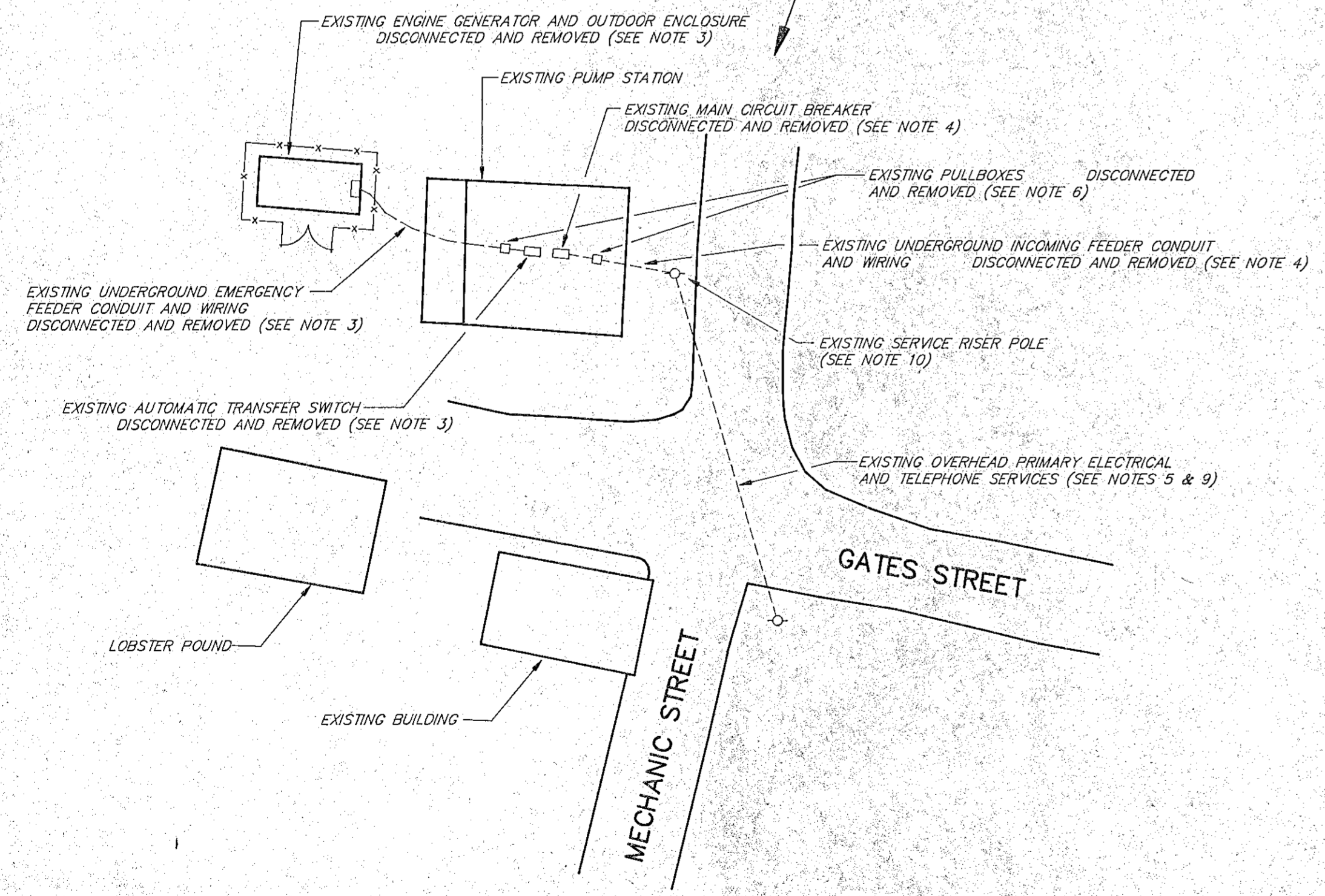
INTERMEDIATE FLOOR PLAN
SCALE: 1/4" = 1'-0"

SEE DEMOLITION NOTES FOR DISCONNECTION AND REMOVAL OF ALL ELECTRICAL EQUIPMENT

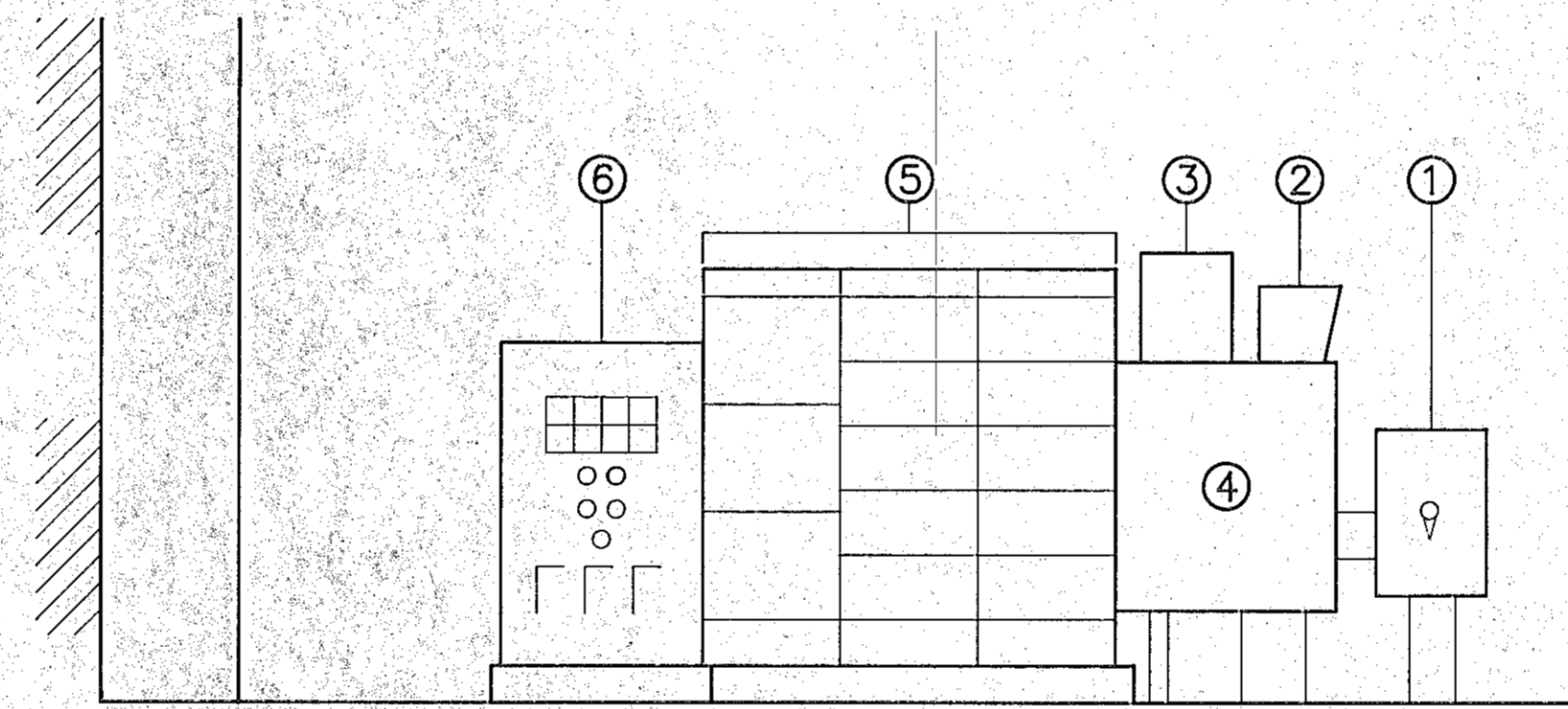


GROUND FLOOR PLAN
SCALE: 1/4" = 1'-0"

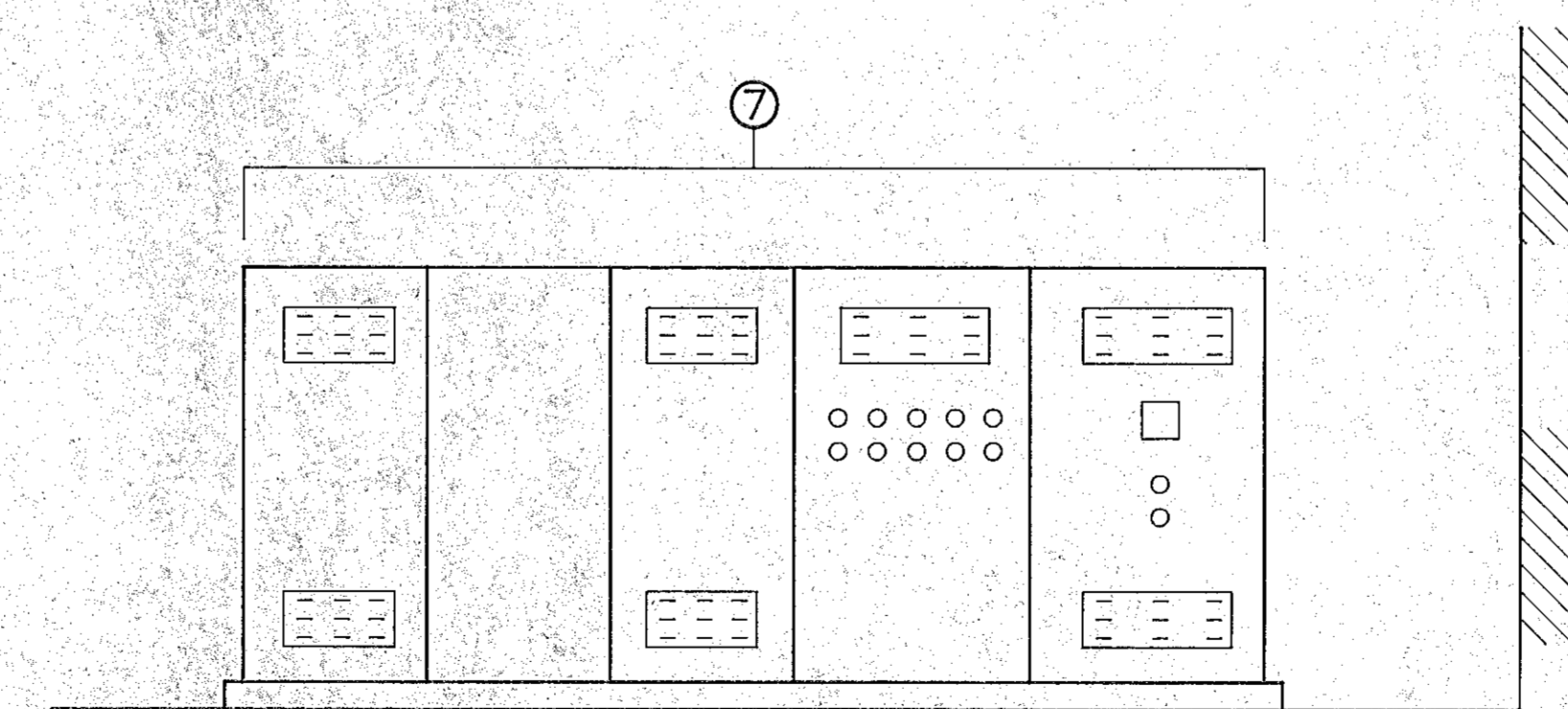
SEE DEMOLITION NOTES FOR DISCONNECTION AND REMOVAL OF ALL ELECTRICAL EQUIPMENT



SITE PLAN
SCALE: 1" = 10'±



SECTION A-A
(EXISTING) ELECTRICAL SERVICE DISTRIBUTION EQUIPMENT
N.T.S.



SECTION B-B
(EXISTING) VARIABLE SPEED DRIVE SYSTEM EQUIPMENT
N.T.S.

EXISTING EQUIPMENT LEGEND

- ① MAIN CIRCUIT BREAKER
- ② AUTOMATIC TRANSFER SWITCH CONTROLS
- ③ AUTOMATIC TRANSFER SWITCH CONTROLS
- ④ AUTOMATIC TRANSFER SWITCH
- ⑤ MOTOR CONTROL CENTER
- ⑥ BUBBLER SYSTEM CONTROLS AND ALARMS
- ⑦ VARIABLE SPEED DRIVES AND CONTROLS

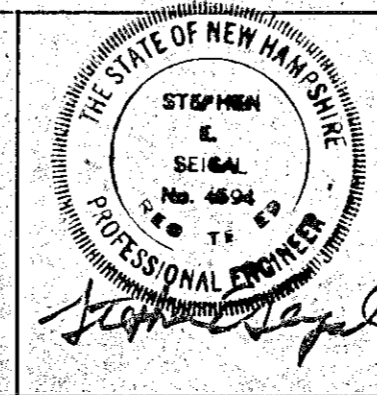
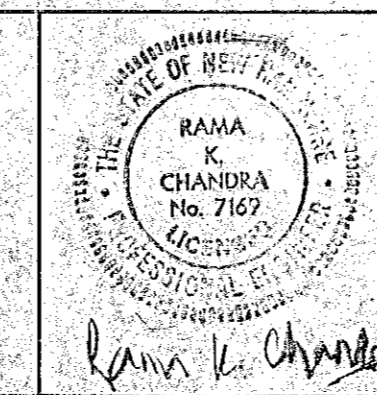
GENERAL NOTES

1. REFER TO DRAWING E-1 FOR LEGEND, NOTES AND DEMOLITION NOTES.

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

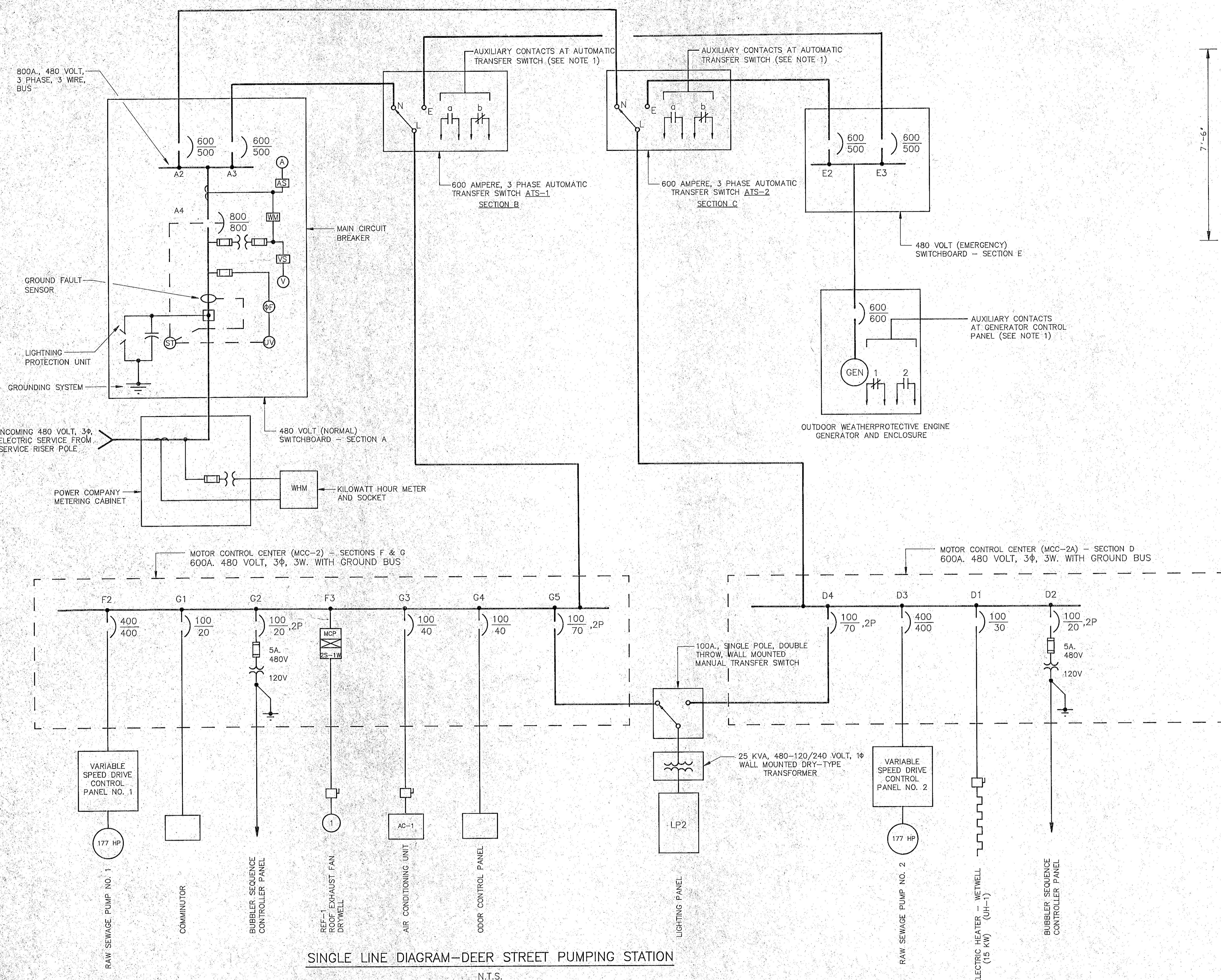
WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



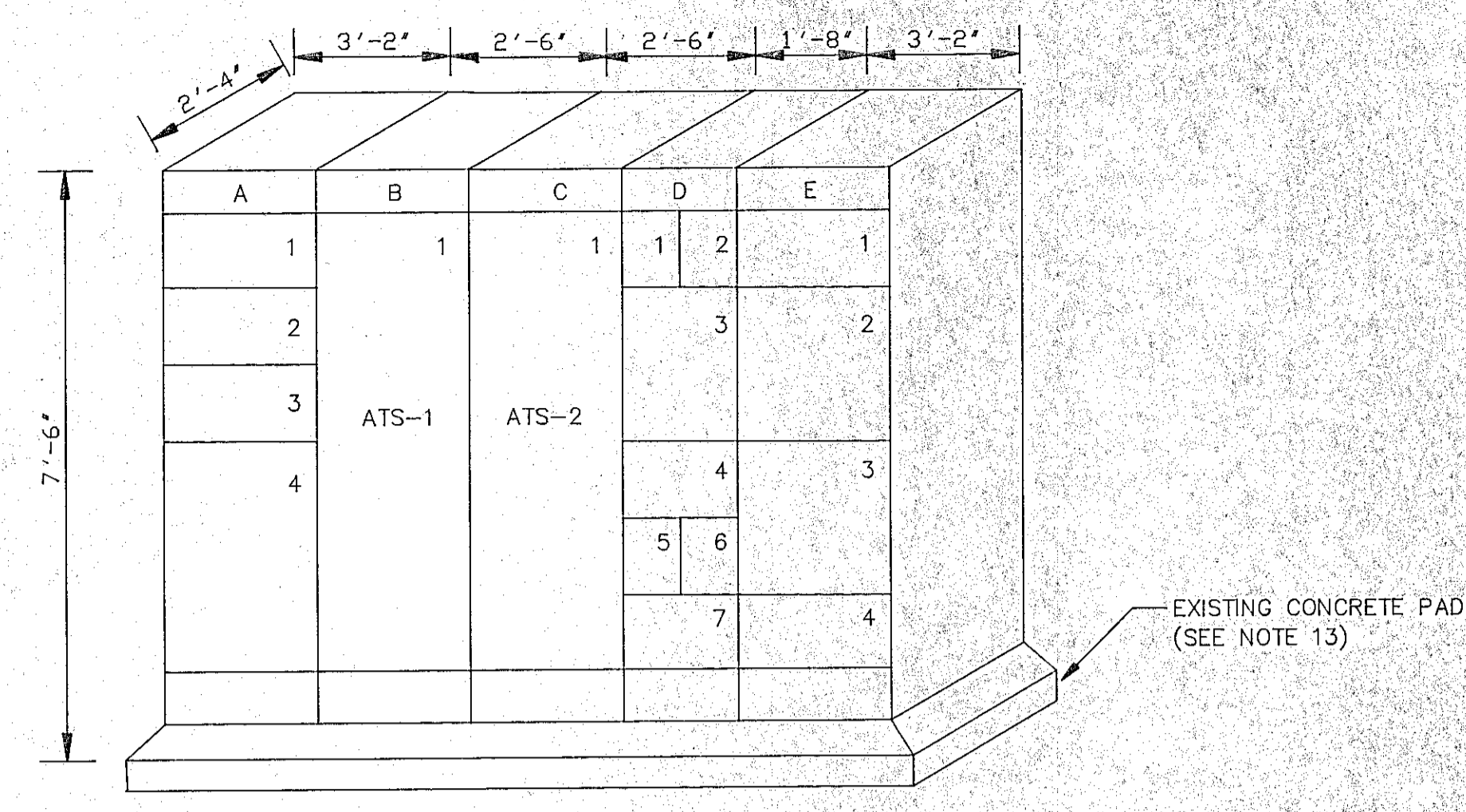
ORIGINAL FULL SIZE DRAWING=4"					DRAWING NO. E-3	
REPRODUCTIONS MAY BE REDUCED SIZE					JOB NO. 89-131	
APPROVED					CONTRACT NO. 4	
DESIGNED	DRAWN	CHECKED	SCALE	DATE	SHEET 20 OF 25 SHEETS	
		REC	AS NOTED	JULY, 1990		

DRAWING NO.	E-3
JOB NO.	89-131
CONTRACT NO.	4

RENOVATIONS TO DEER STREET AND MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
ELECTRICAL DEMOLITION PLAN
MECHANICS STREET



SINGLE LINE DIAGRAM—DEER STREET PUMPING STATION
N.T.S.



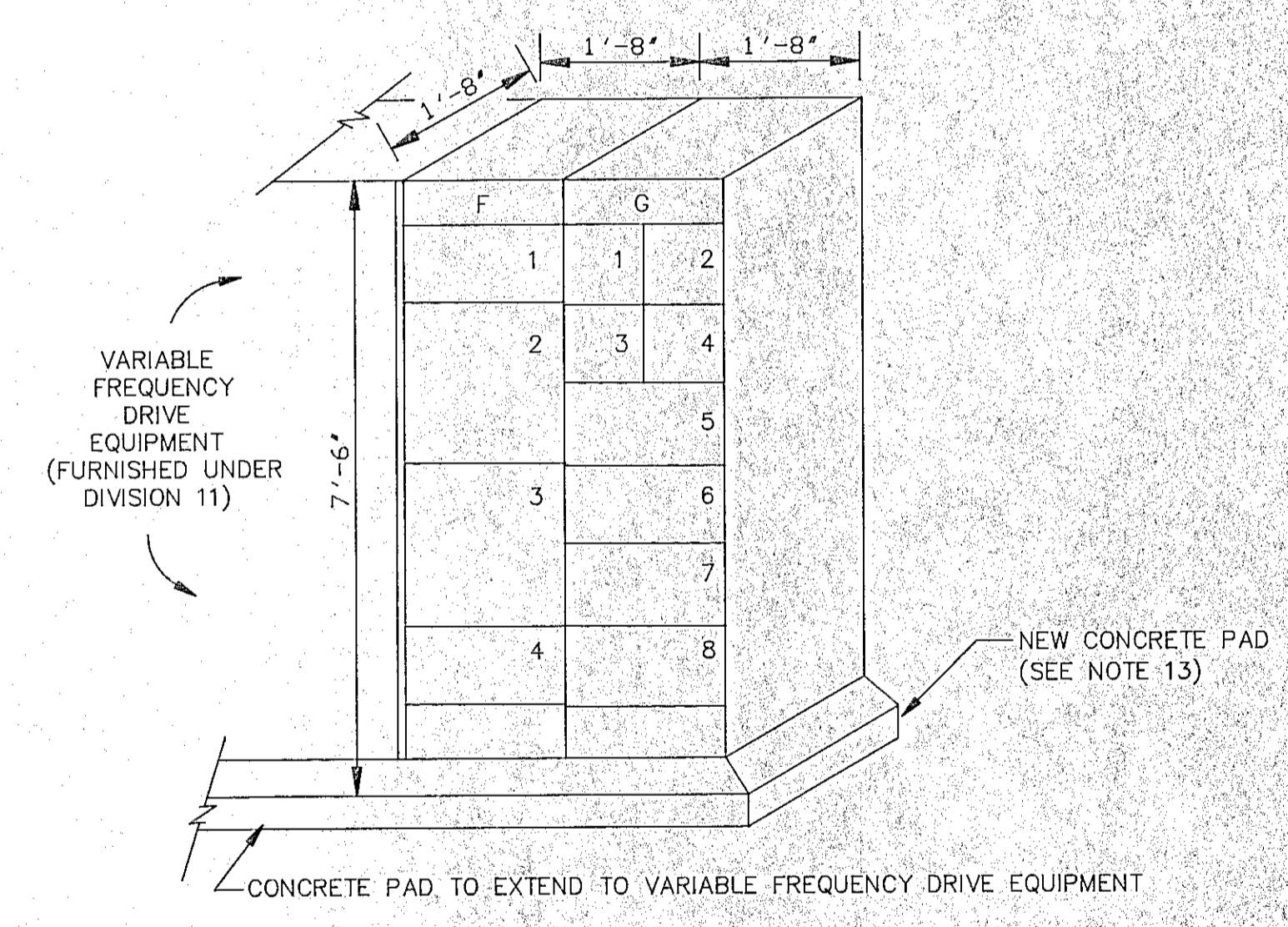
FRONT ELEVATION
480 VOLT SWITCHBOARDS AND
MOTOR CONTROL CENTER
N.T.S.

NOTE:
A. SECTIONS B, C AND D ONLY ARE TO 1'-8" IN DEPTH. ALL OTHER SECTIONS ARE 2'-4" IN DEPTH AS SHOWN

EQUIPMENT LEGEND

- SECTION A - 480 VOLT (NORMAL) SWITCHBOARD
- SECTION B - AUTOMATIC TRANSFER SWITCH (ATS-1)
- SECTION C - AUTOMATIC TRANSFER SWITCH (ATS-2)
- SECTION D - MOTOR CONTROL CENTER - MCC-2A
- SECTION E - 480 VOLT (EMERGENCY) SWITCHBOARD

NOTE
EQUIPMENT DIMENSIONS INDICATED ON ELEVATIONS ARE MAXIMUM ALLOWABLE AND CANNOT BE EXCEEDED.



FRONT ELEVATION
MOTOR CONTROL CENTER MCC-2

GENERAL NOTES

1. REFER TO DRAWING E-1 FOR LEGEND AND NOTES.
2. ALL CIRCUIT BREAKERS SHALL BE 3-POLE UNLESS OTHERWISE NOTED.

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91
REVISIONS		

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

ORIGINAL FULL SIZE DRAWING=4"
REPRODUCTIONS MAY BE REDUCED SIZE

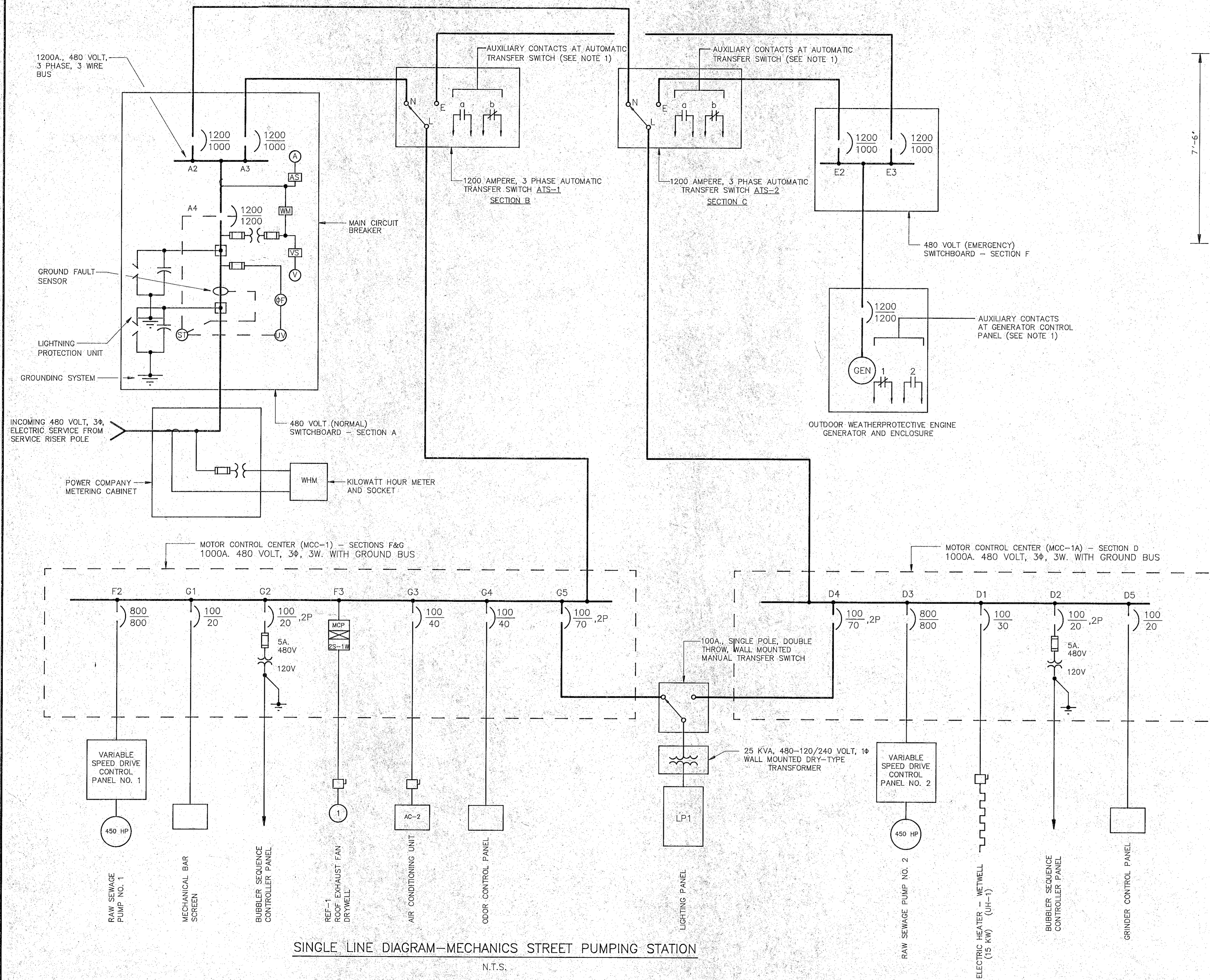
APPROVED

DESIGNED DRAWN CHECKED SCALE DATE
AS NOTED JULY, 1990

DRAWING NO. **E-4**
JOB NO. 89-131
CONTRACT NO. 4

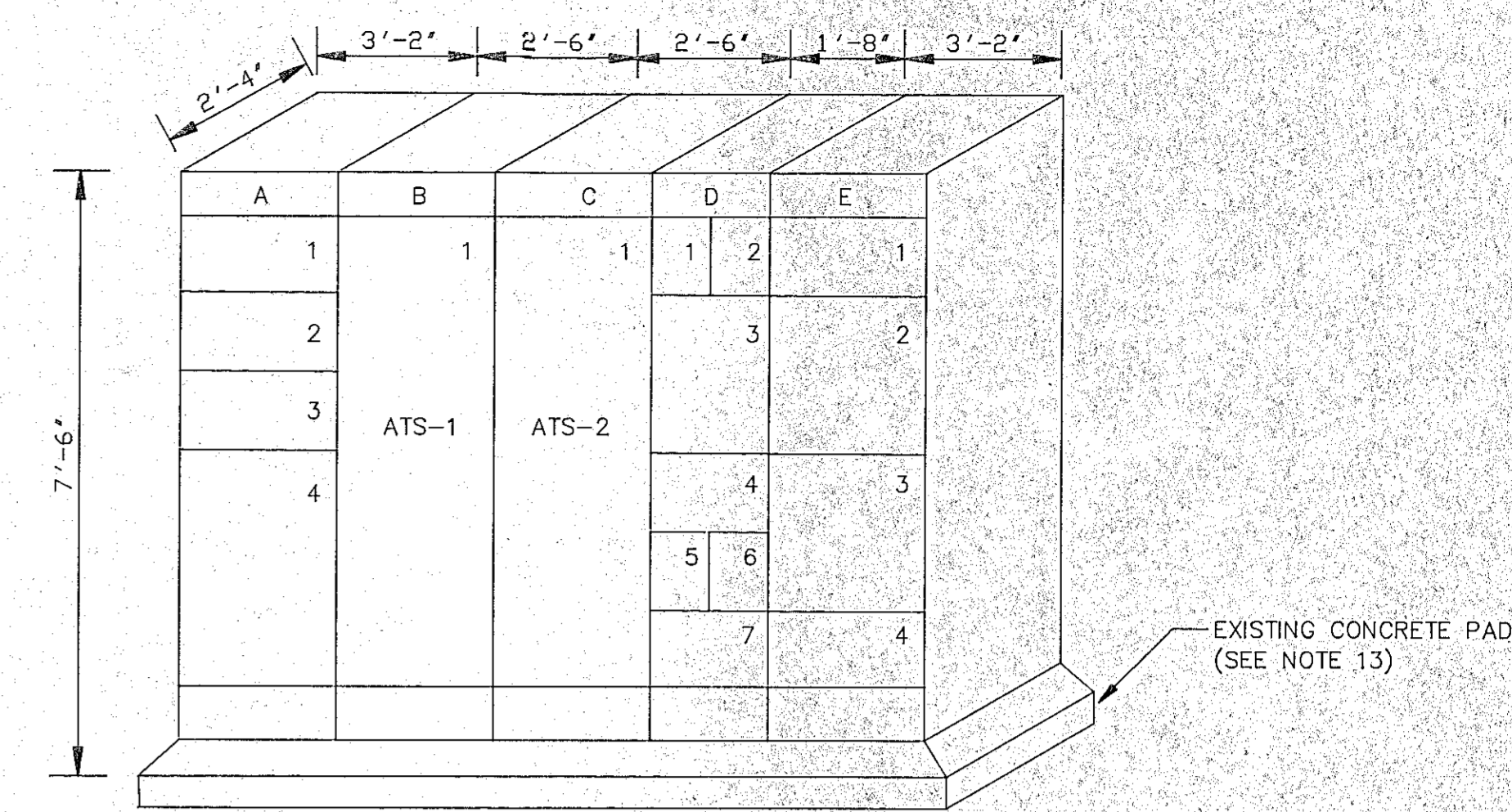
SHEET 21 OF 25 SHEETS

RENOVATIONS TO DEER STREET AND
MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
ELECTRICAL SINGLE LINE DIAGRAM
DEER STREET



SINGLE LINE DIAGRAM—MECHANICS STREET PUMPING STATION

N.T.S.

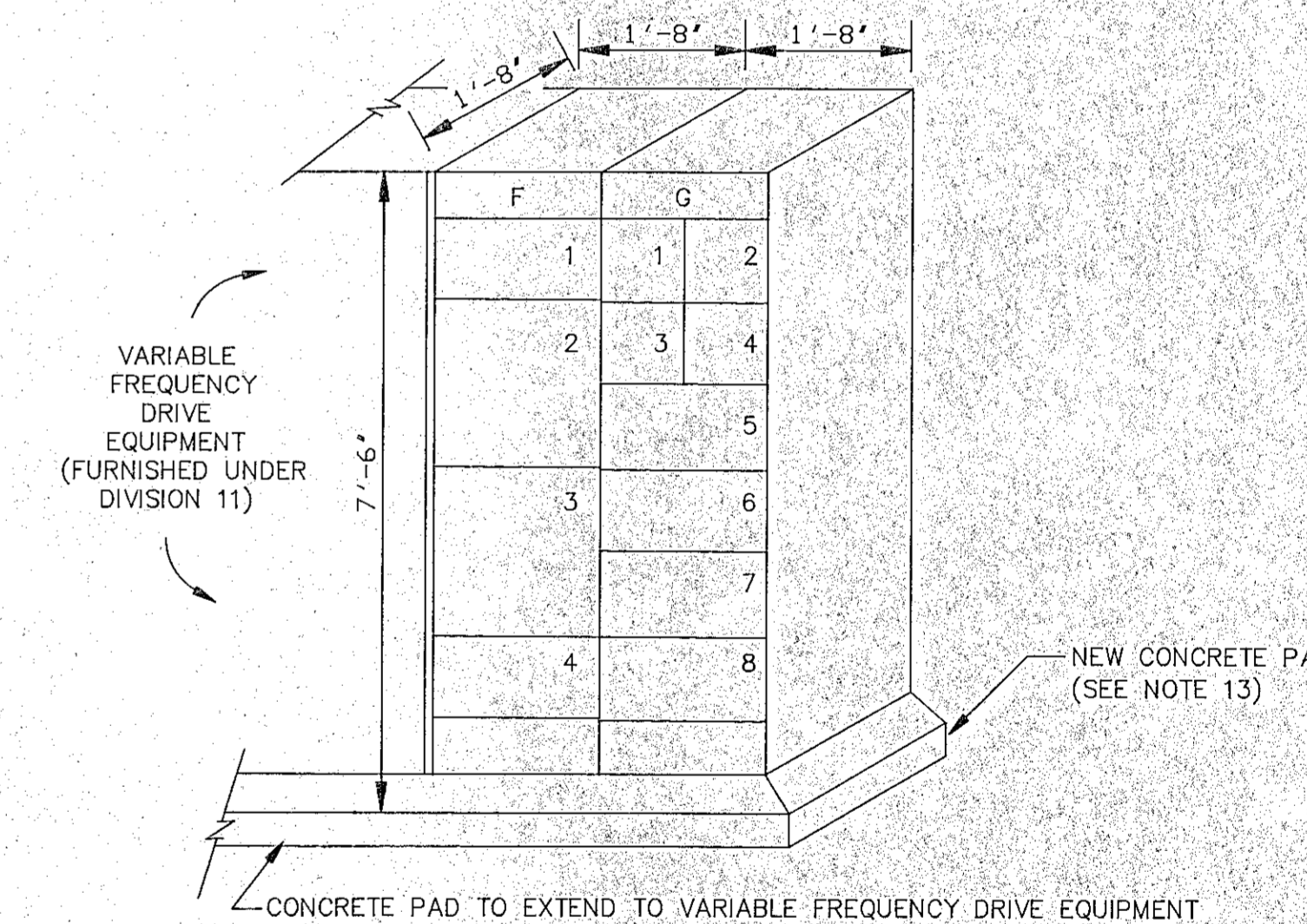


FRONT ELEVATION
480 VOLT SWITCHBOARDS AND
MOTOR CONTROL CENTER
N.T.S.

NOTE:
A. SECTIONS B,C AND D ONLY ARE TO 1'-8" IN DEPTH. ALL OTHER SECTIONS ARE 2'-4" IN DEPTH AS SHOWN

EQUIPMENT LEGEND

- SECTION A - 480 VOLT (NORMAL) SWITCHBOARD
 - SECTION B - AUTOMATIC TRANSFER SWITCH (ATS-1)
 - SECTION C - AUTOMATIC TRANSFER SWITCH (ATS-2)
 - SECTION D - MOTOR CONTROL CENTER - MCC-1A
 - SECTION E - 480 VOLT (EMERGENCY) SWITCHBOARD
- NOTE: EQUIPMENT DIMENSIONS INDICATED ON ELEVATIONS ARE MAXIMUM ALLOWABLE AND CANNOT BE EXCEEDED.



FRONT ELEVATION
MOTOR CONTROL CENTER MCC-1

GENERAL NOTES

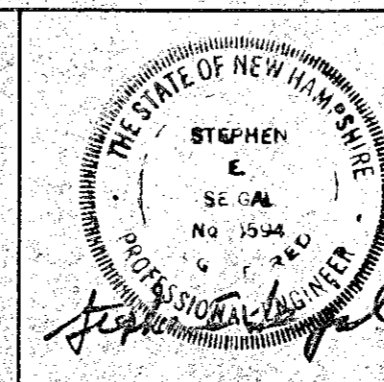
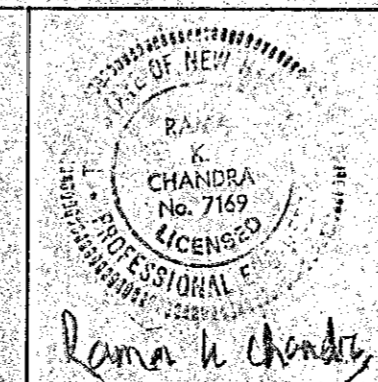
1. REFER TO DRAWING E-1 FOR LEGEND AND NOTES.
2. ALL CIRCUIT BREAKERS SHALL BE 3-POLE UNLESS OTHERWISE NOTED.

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

WHITMAN & HOWARD, INC.

45 WILLIAM STREET, WELLESLEY, MASS.



ORIGINAL FULL SIZE DRAWING=4"
REPRODUCTIONS MAY BE REDUCED SIZE

APPROVED

DESIGNED

DRAWN

CHECKED

SCALE

DATE

JULY, 1990

SHEET

22

OF 25 SHEETS

DRAWING NO.

E-5

JOB NO.

89-131

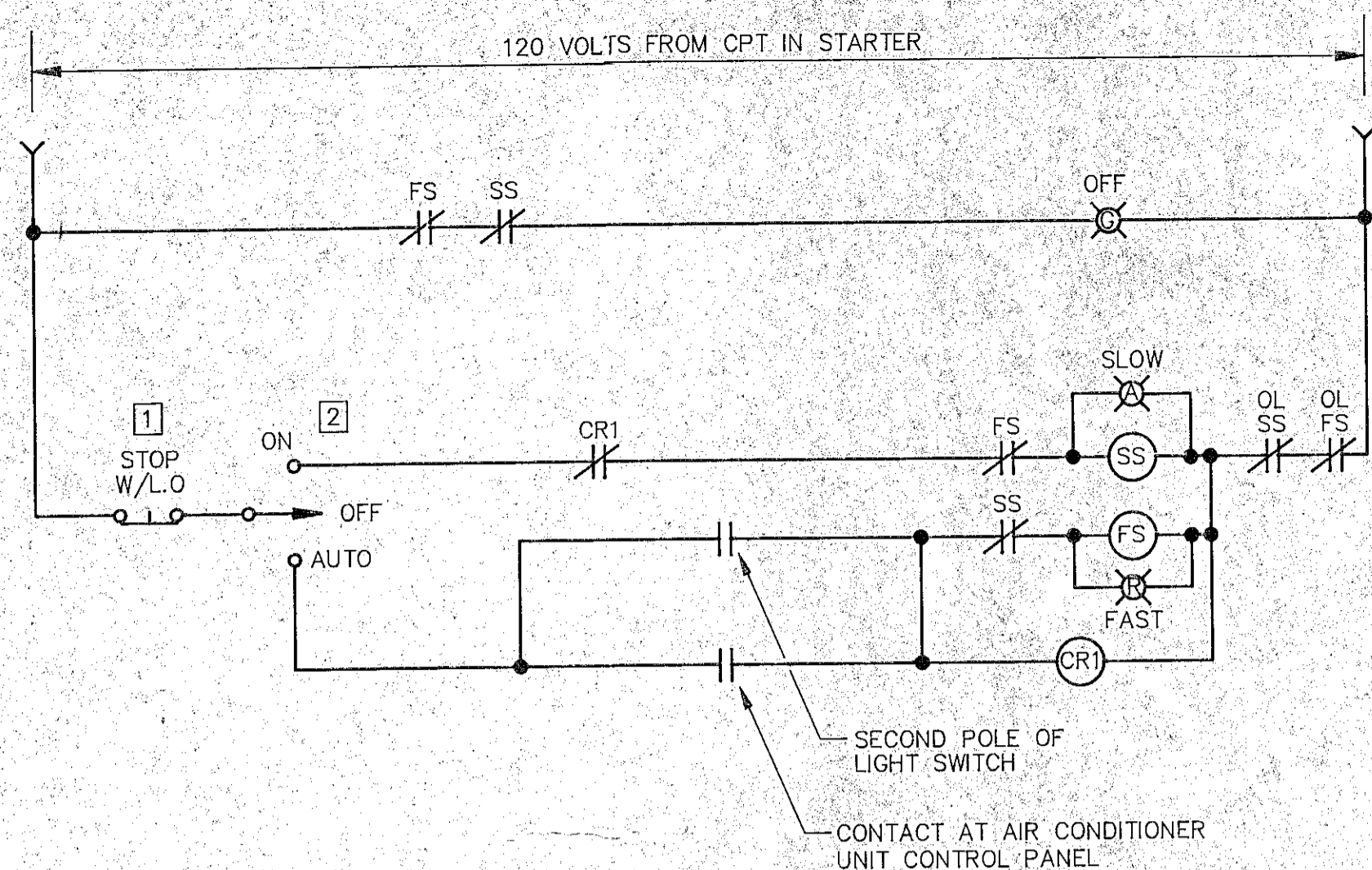
CONTRACT NO.

4

RENOVATIONS TO DEER STREET AND
MECHANIC STREET PUMPING STATIONS

PORTSMOUTH, N.H.

ELECTRICAL SINGLE LINE DIAGRAM
MECHANIC STREET



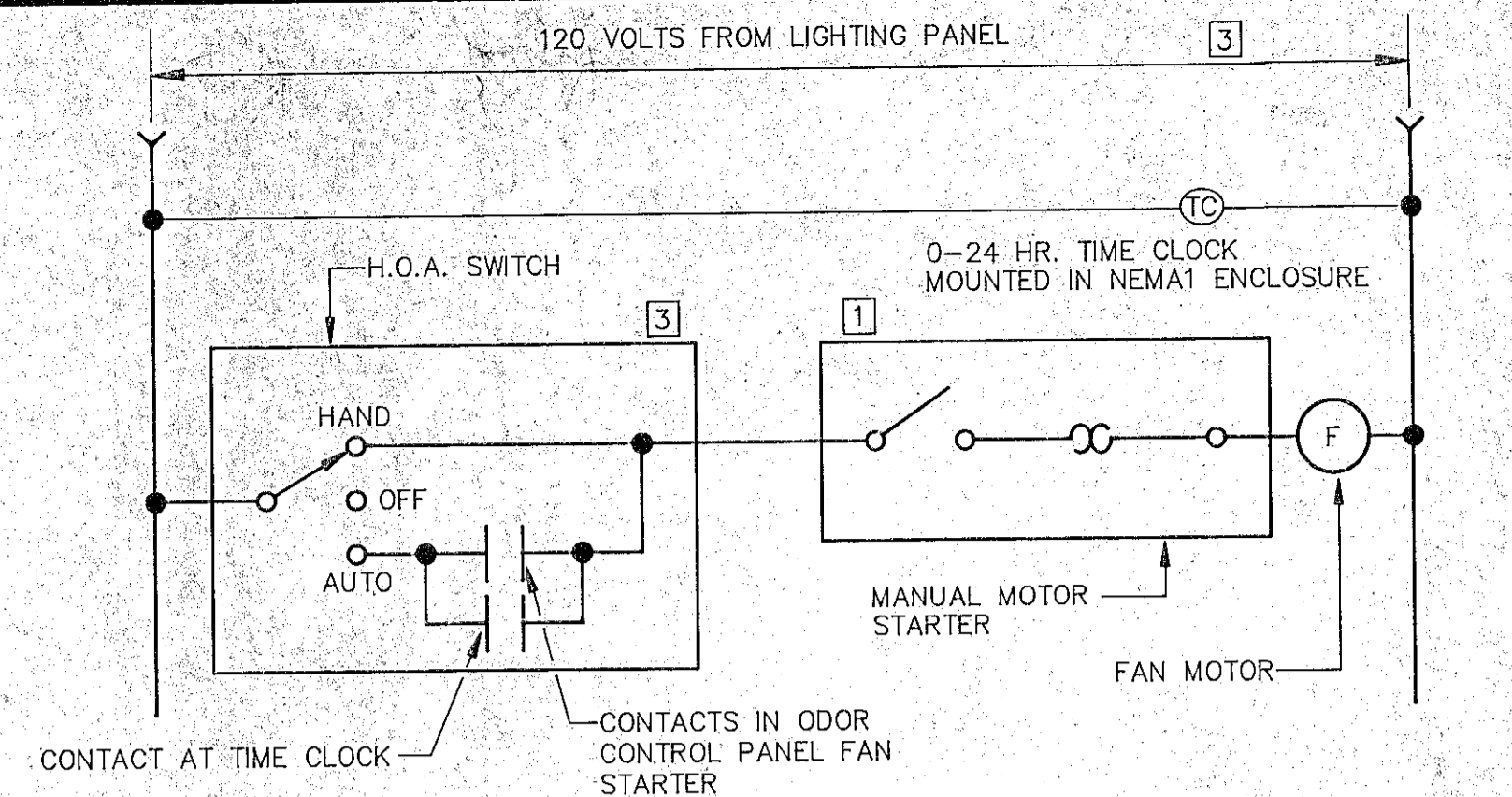
ROOF EXHAUST FAN (REF-1) DRYWELL AREA-WIRING DIAGRAM

N.T.S.

ALL EQUIPMENT AS SHOWN INSTALLED WITHIN AND PART OF MOTOR CONTROL CENTER STARTER

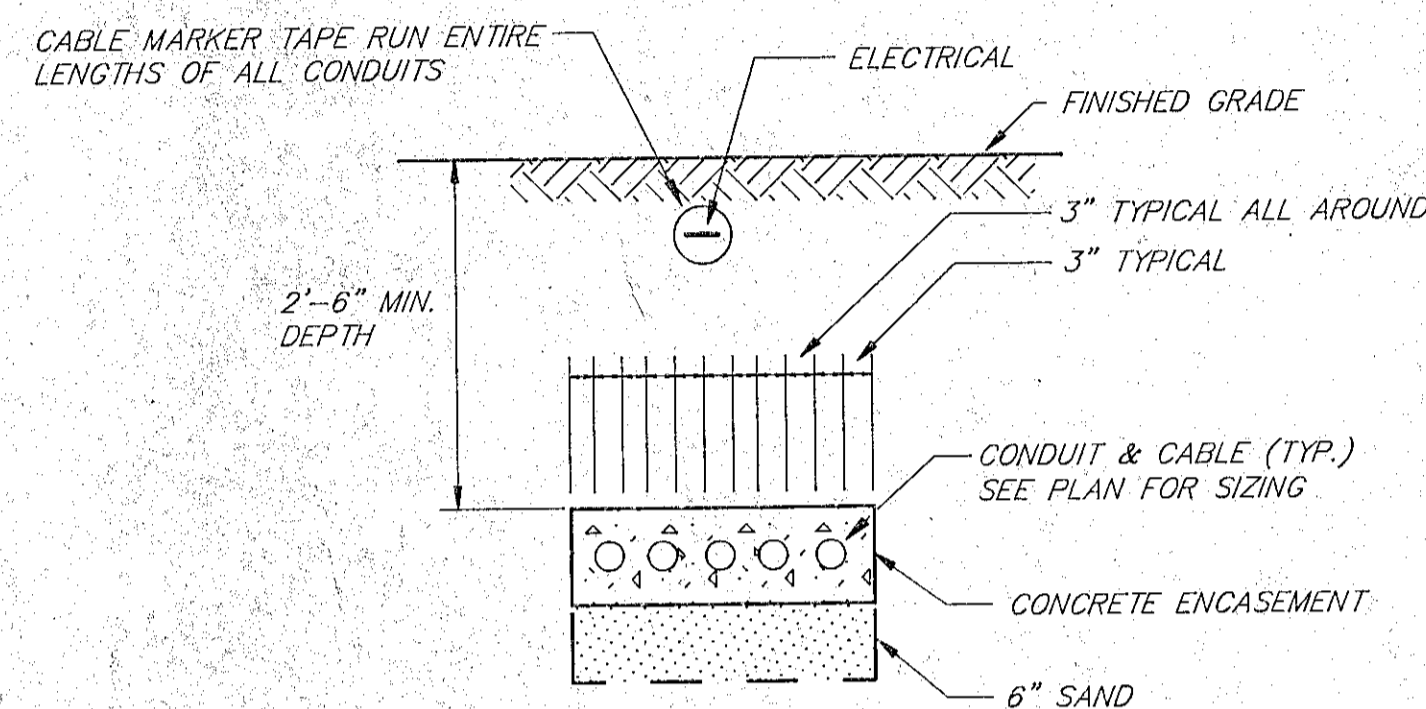
SYMBOL LEGEND

- 1 LOCATED AT OR NEAR MOTOR
- 2 LOCATED AT MOTOR CONTROL CENTER
- 3 LOCATED IN CONTROL ROOM AREA-GROUND FLOOR (EXACT LOCATION DETERMINED IN FIELD)

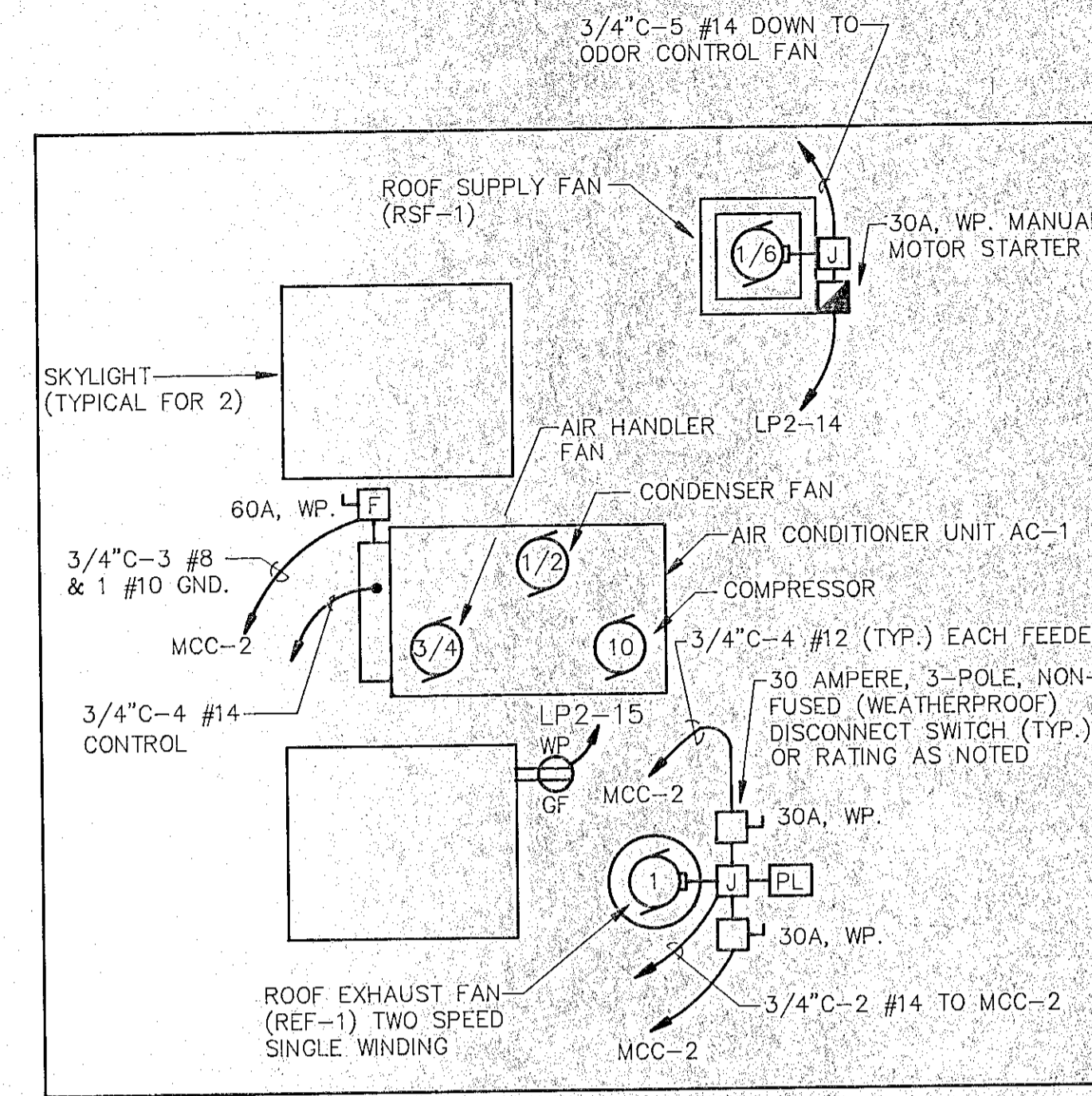


ROOF SUPPLY FAN (RSF-1) WETWELL AREA-WIRING DIAGRAM

N.T.S.

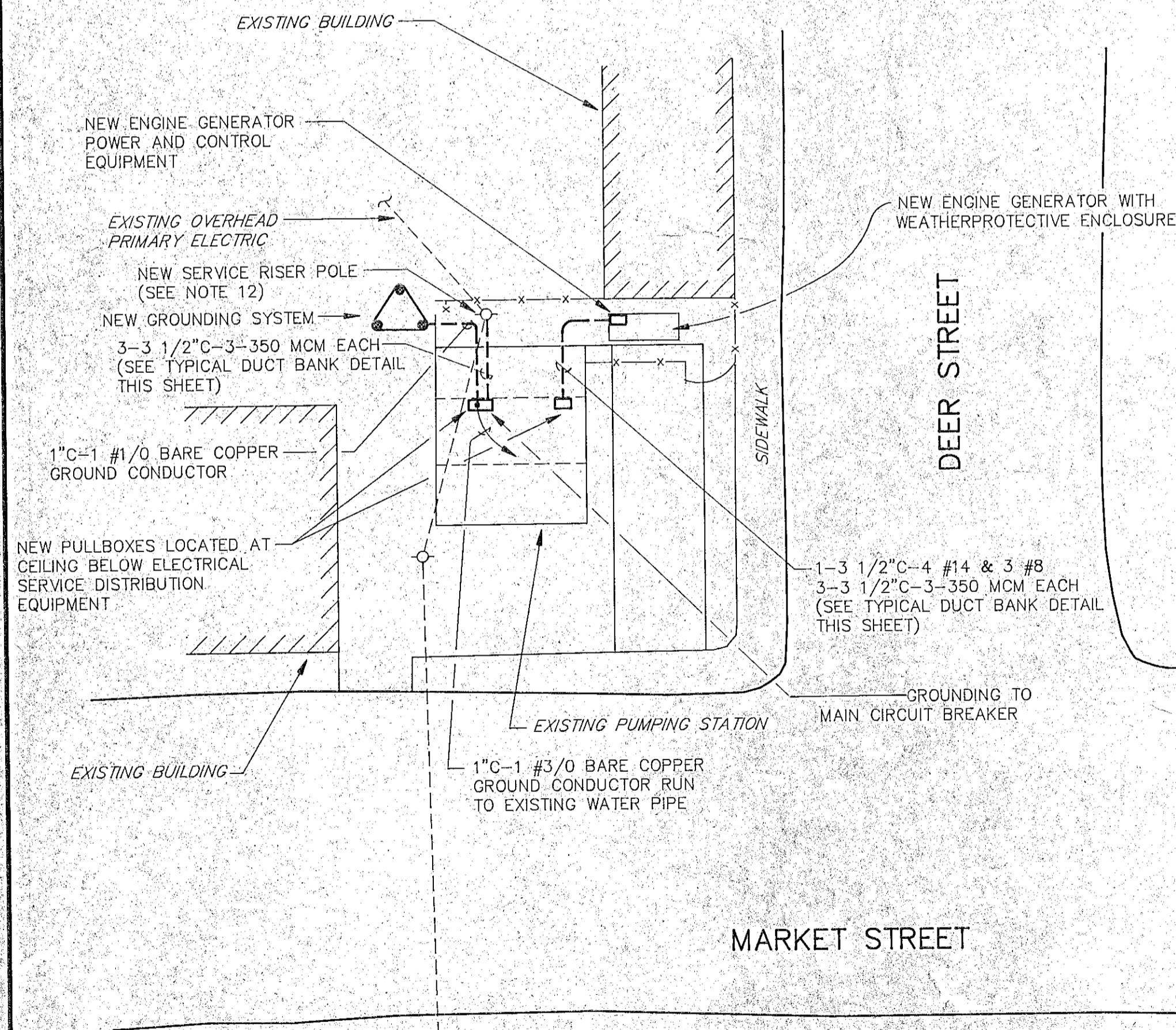


SECTION
DUCT BANK SECTIONS
NOT TO SCALE



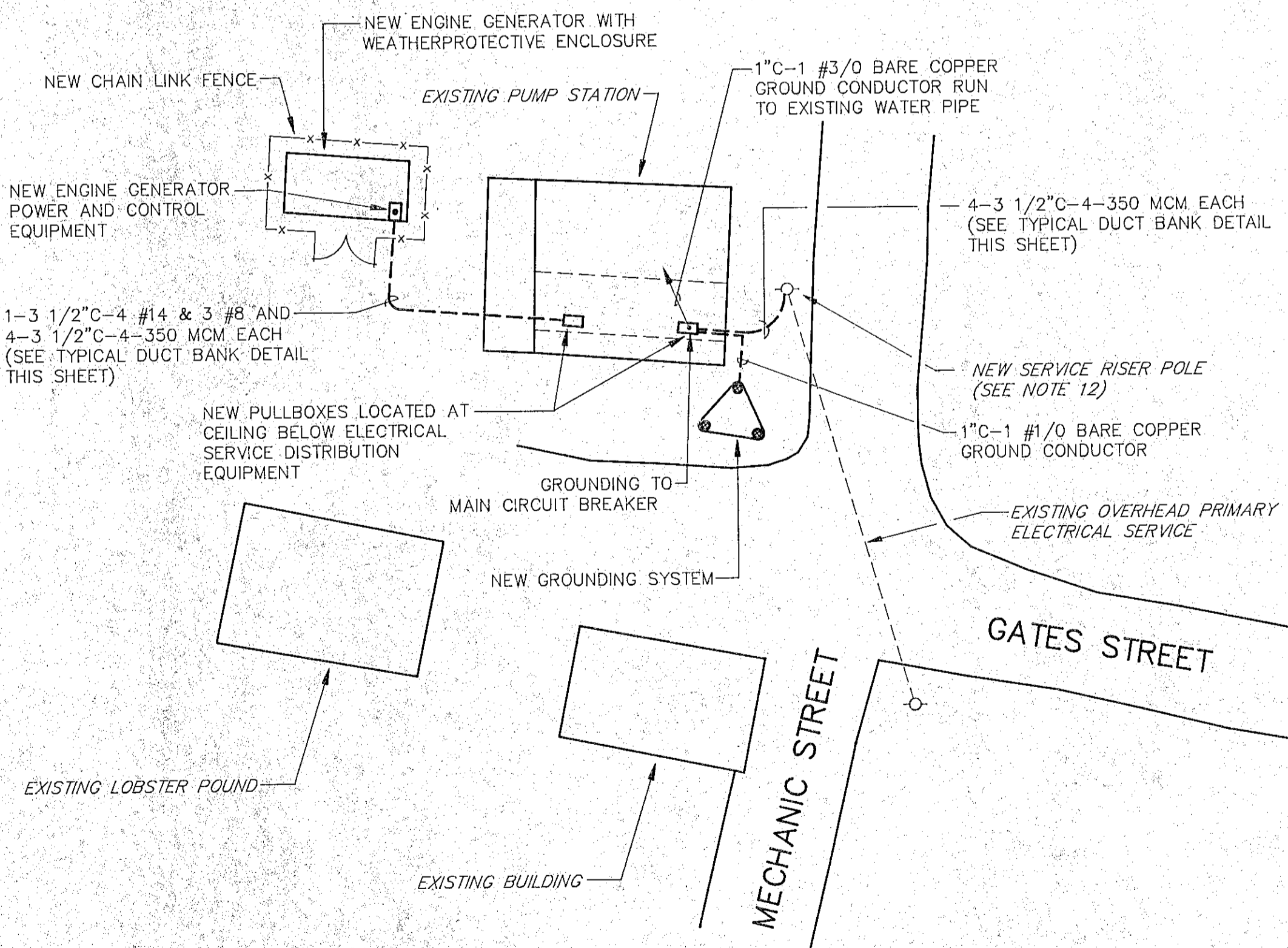
ROOF PLAN-DEER STREET

SCALE: 1/4" = 1'-0"



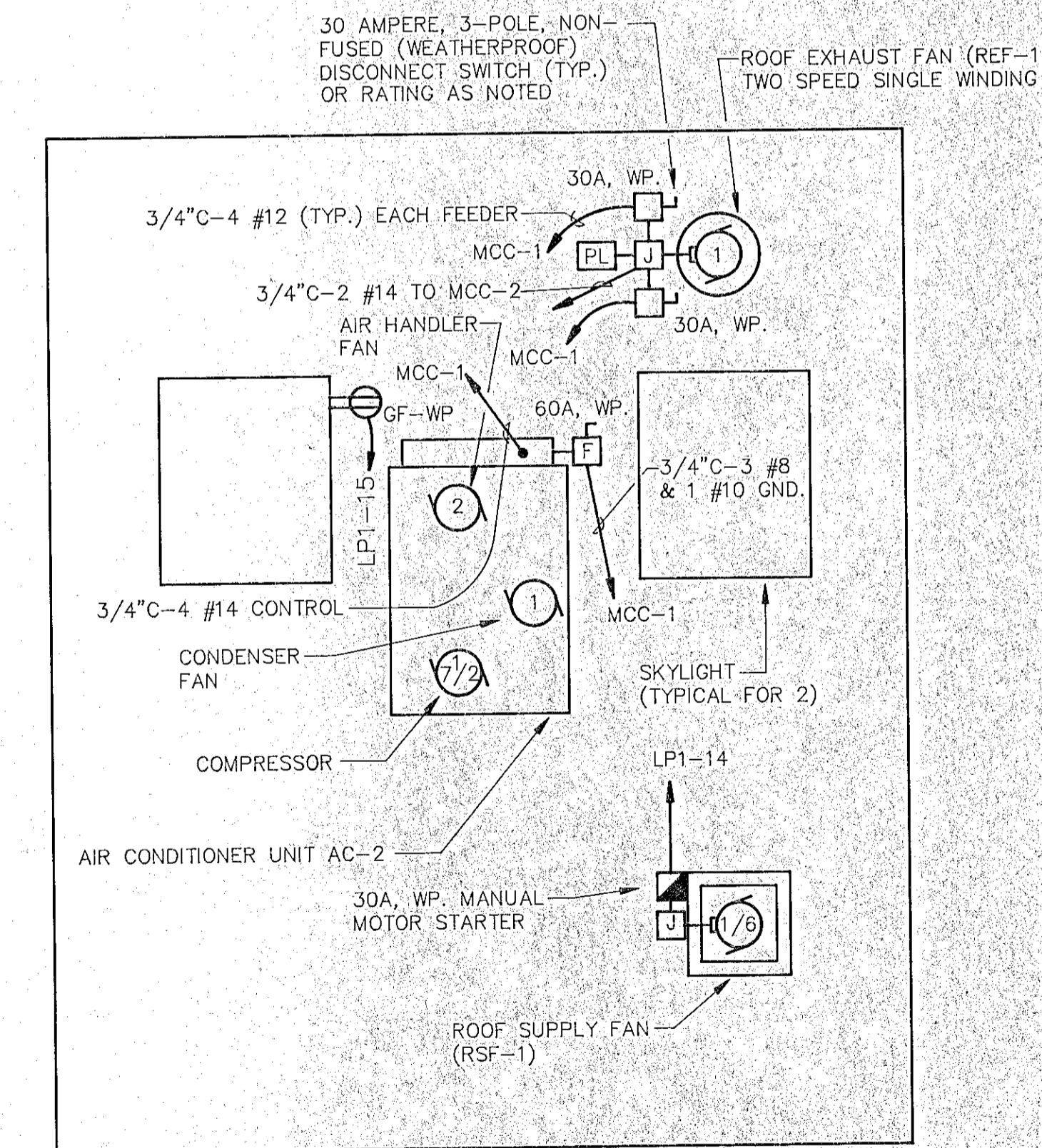
SITE PLAN DEER STREET PUMPING STATION

SCALE: 1"=10'±



SITE PLAN-MECHANIC STREET PUMPING STATION

SCALE: 1" = 10'±



ROOF PLAN-MECHANIC STREET

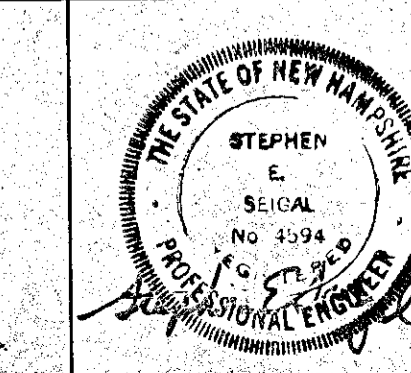
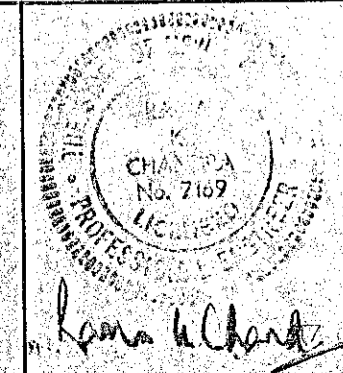
SCALE: 1/4" = 1'-0"

RECORD PLAN

NO.	DESCRIPTION	DATE
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WHITMAN & HOWARD, INC.

45 WILLIAM STREET, WELLESLEY, MASS.



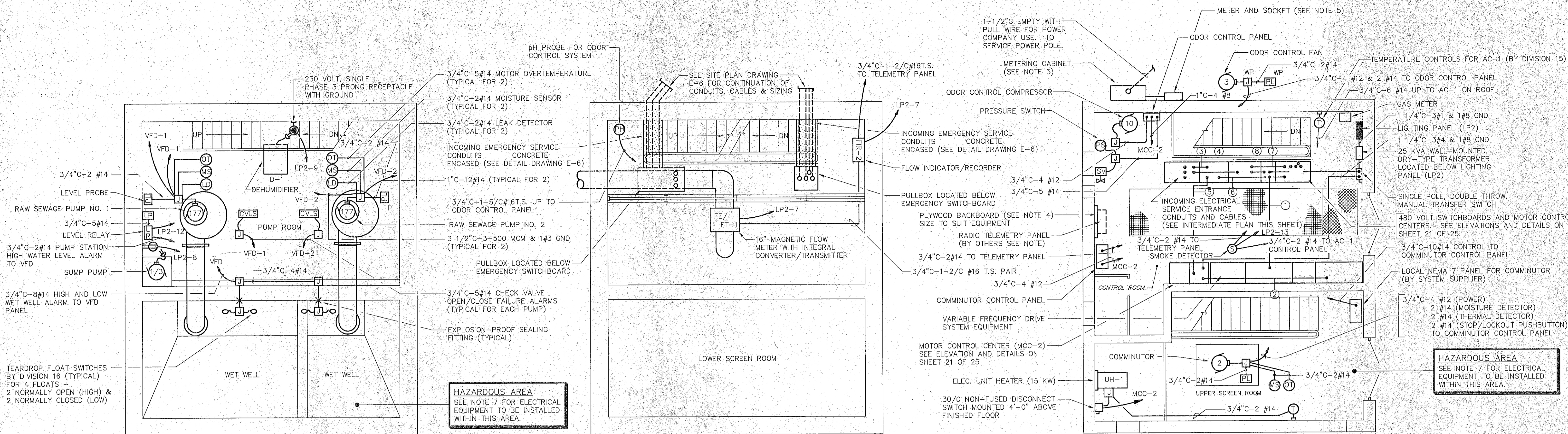
APPROVED		DESIGNED	DRAWN	CHECKED	SCALE	DATE
					AS NOTED	JULY, 1990

DRAWING NO.	E-6
JOB NO.	89-131
CONTRACT NO.	4

RENOVATIONS TO DEER STREET AND MECHANIC STREET PUMPING STATIONS

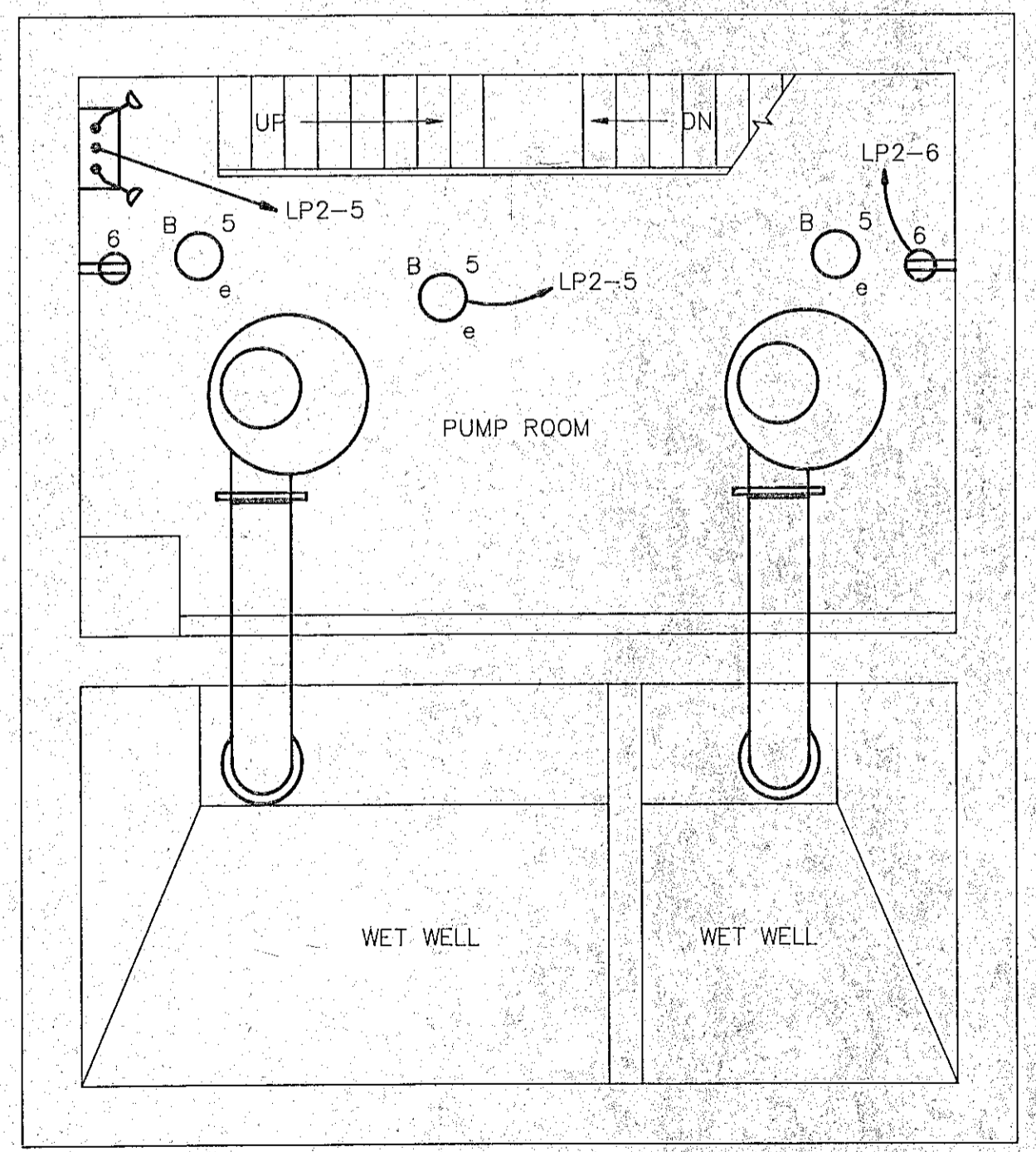
PORTSMOUTH, N.H.

ELECTRICAL CONTROL SCHEMATICS, SITE PLANS AND MISCELLANEOUS PLANS



BASEMENT FLOOR PLAN-POWER

SCALE : 1/4" = 1'-0"

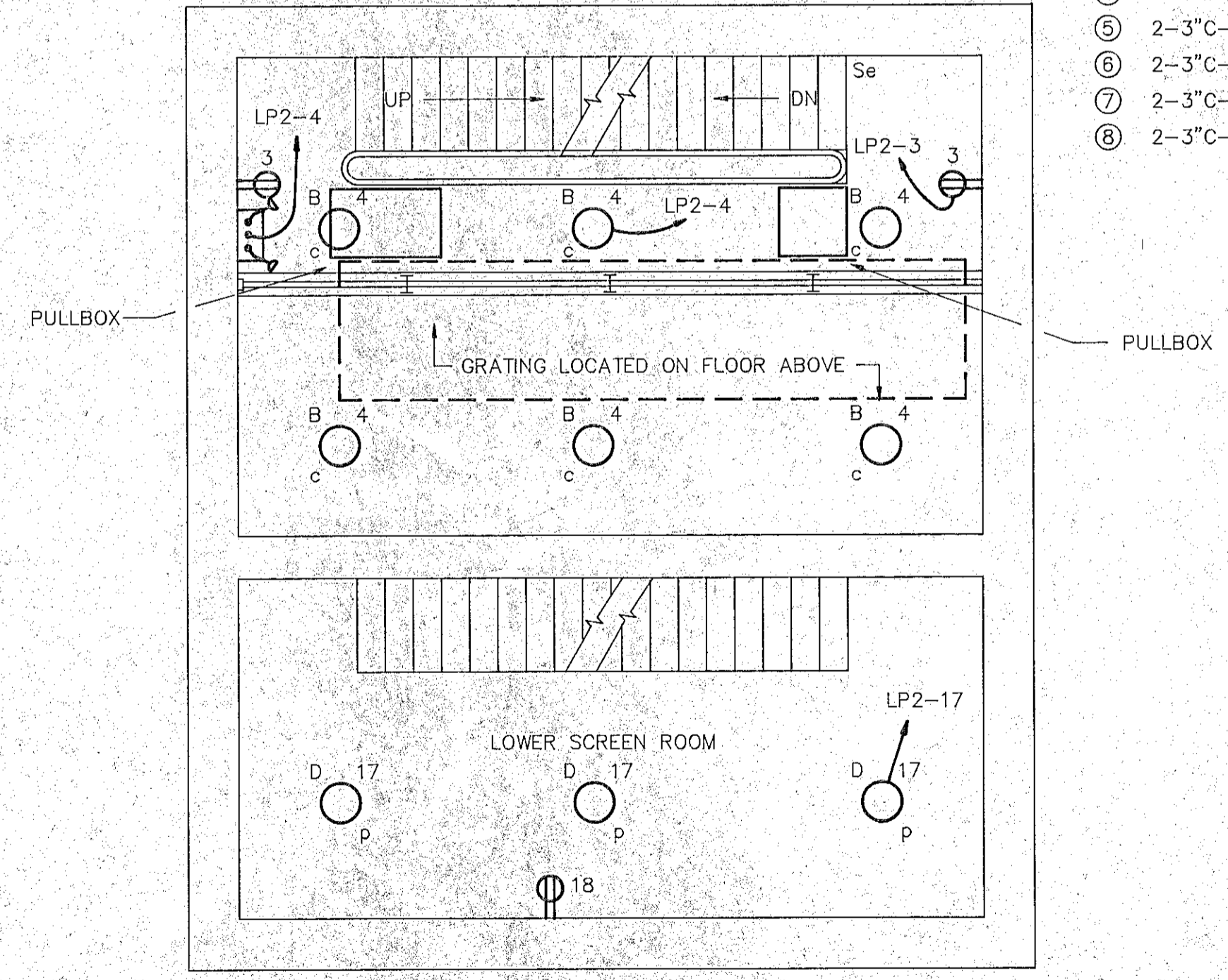


BASEMENT FLOOR PLAN-LIGHTING

SCALE : 1/4" = 1'-0"

INTERMEDIATE FLOOR PLAN-POWER

SCALE : 1/4" = 1'-0"



INTERMEDIATE FLOOR PLAN-LIGHTING

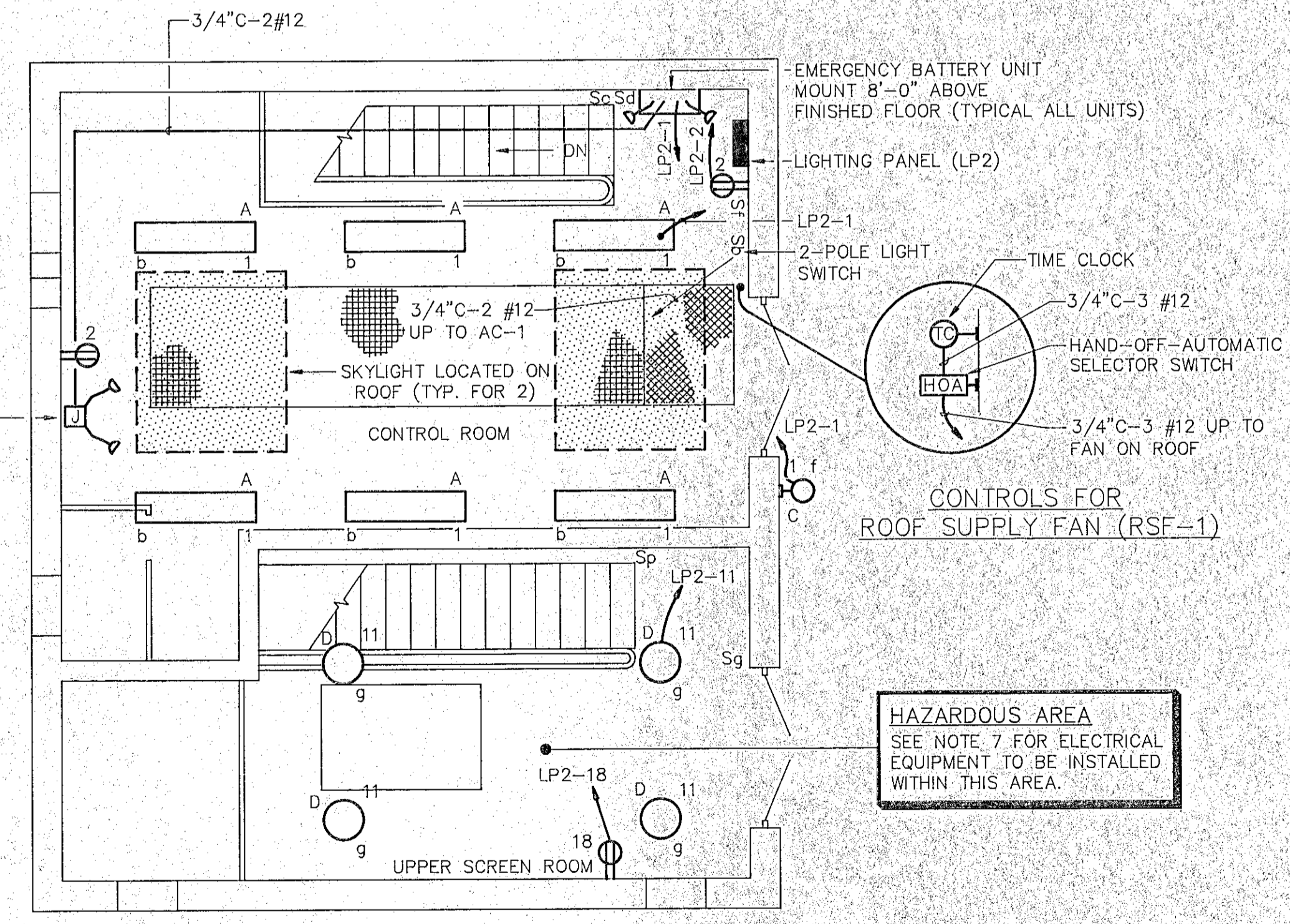
SCALE : 1/4" = 1'-0"

CONDUIT AND WIRE SCHEDULE - GROUND FLOOR PLAN

- ① 3"C-3-500 MCM & 1#3 GND AND 3/4"C-3#12
- ② 3"C-3-500 MCM & 1#3 GND AND 3/4"C-3#12
- ③ 2-3"C-3-350 MCM & 1#1 GND EACH
- ④ 2-3"C-3-350 MCM & 1#1 GND EACH
- ⑤ 2-3"C-3-350 MCM & 1#1 GND EACH
- ⑥ 2-3"C-3-350 MCM & 1#1 GND EACH
- ⑦ 2-3"C-3-350 MCM & 1#1 GND EACH
- ⑧ 2-3"C-3-350 MCM & 1#1 GND EACH

GROUND FLOOR PLAN-POWER

SCALE : 1/4" = 1'-0"



GROUND FLOOR PLAN-LIGHTING

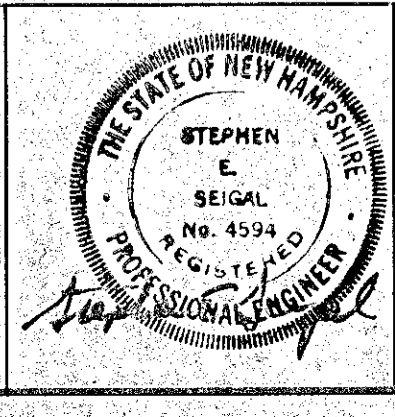
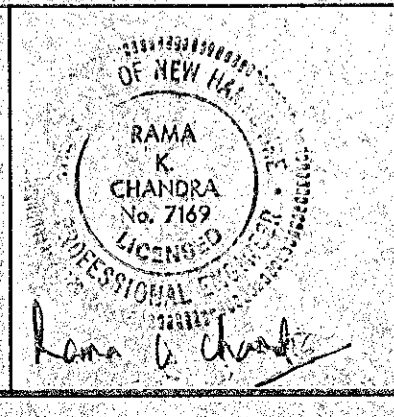
SCALE : 1/4" = 1'-0"

GENERAL NOTES
1. REFER TO DRAWING E-1 FOR LEGEND AND NOTES.

RECORD PLAN

No.	DESCRIPTION	DATE
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REVISIONS		

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.

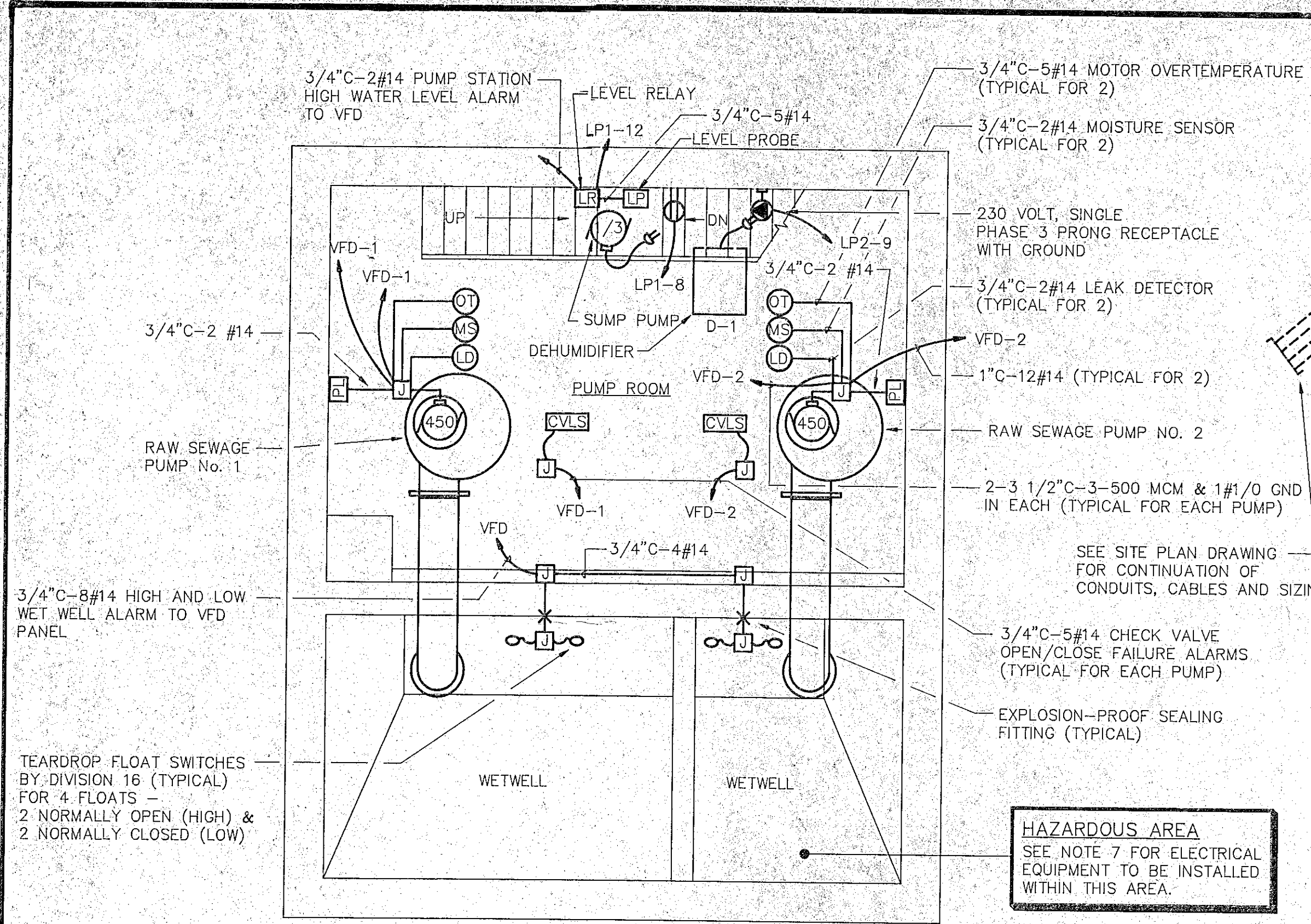


ORIGINAL FULL SIZE DRAWING=4"
REPRODUCTIONS MAY BE REDUCED SIZE

DESIGNED	DRAWN	CHECKED	SCALE	DATE
		lvs	AS NOTED	JULY 1990
APPROVED				
SHEET 24 OF 25 SHEETS				

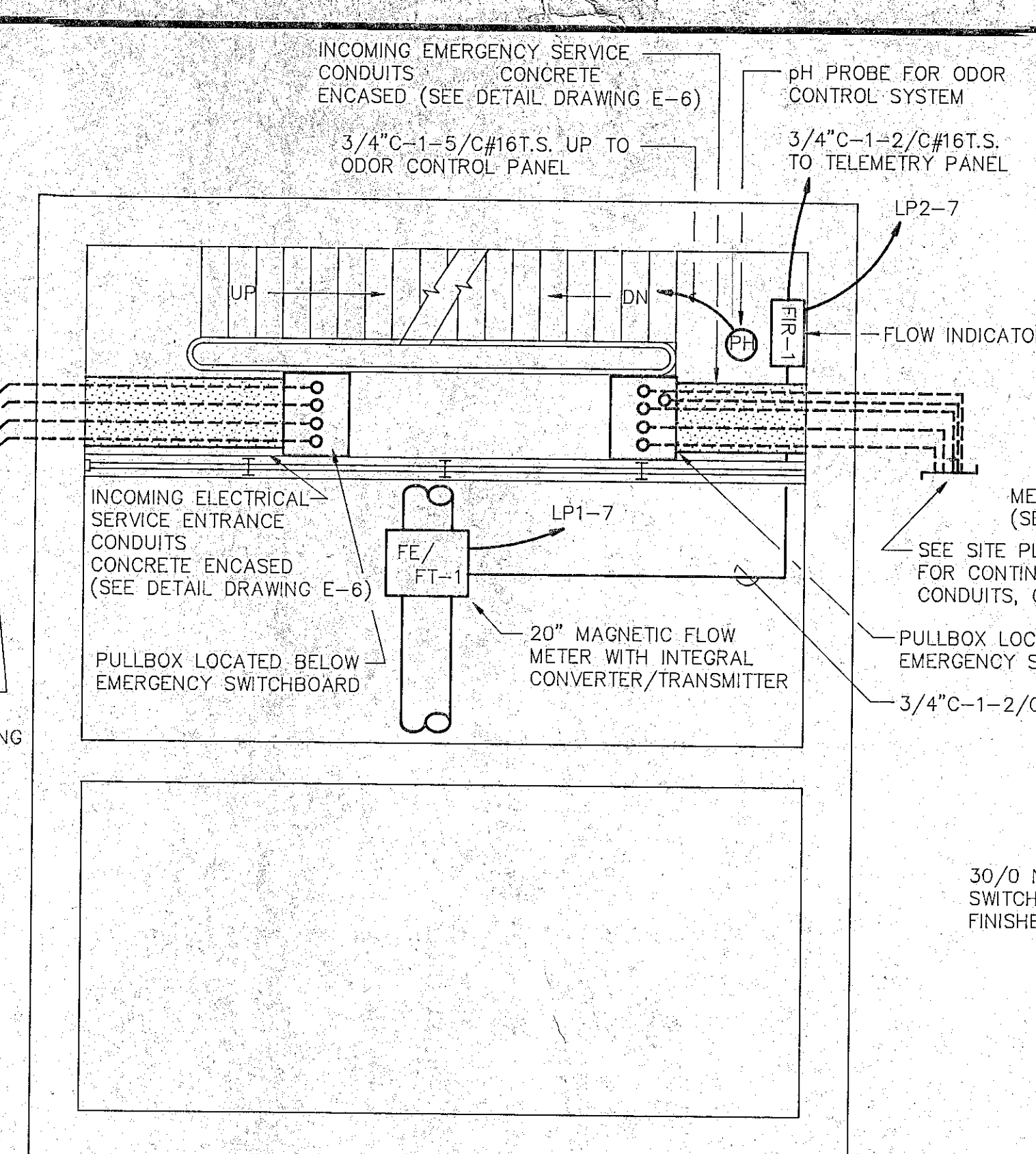
DRAWING NO. **E-7**
JOB NO. 89-131
CONTRACT NO. 4

RENOVATIONS TO DEER STREET AND MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
ELECTRICAL POWER AND LIGHTING PLAN
DEER STREET



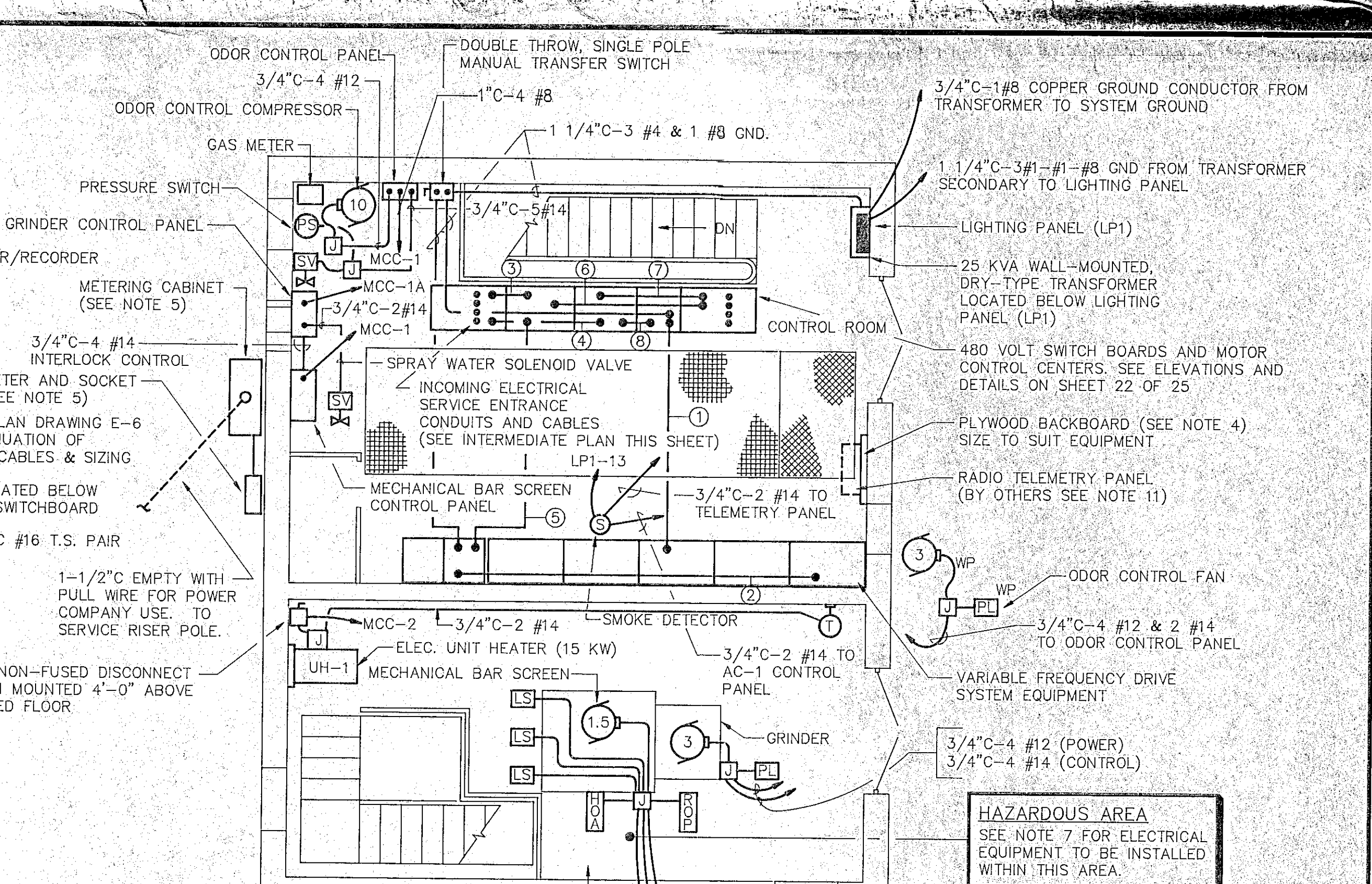
BASEMENT FLOOR PLAN-POWER

SCALE : 1/4" = 1'-0"



INTERMEDIATE FLOOR PLAN-POWER

SCALE : 1/4" = 1'-0"

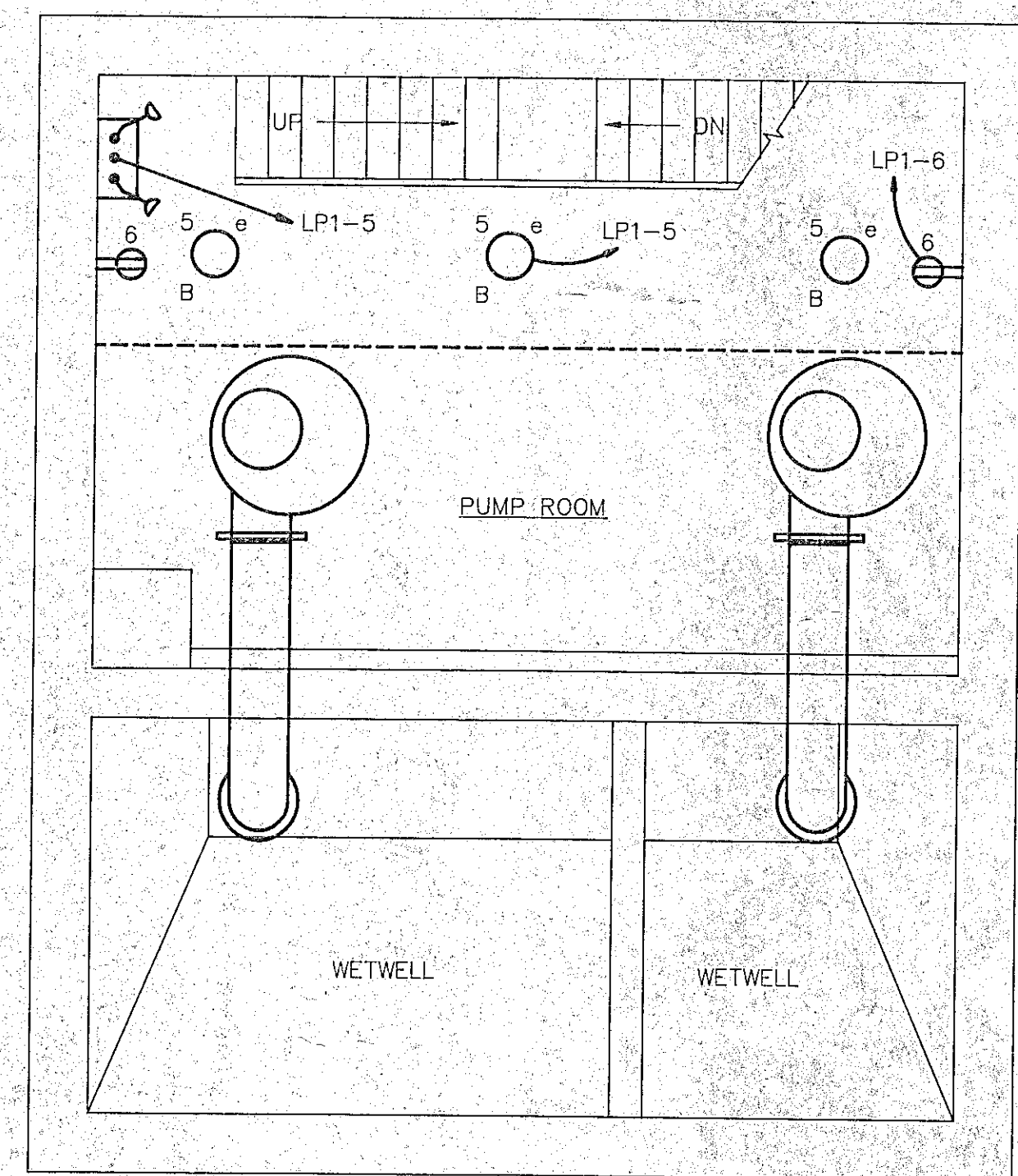


GROUND FLOOR PLAN-POWER

SCALE : 1/4" = 1'-0"

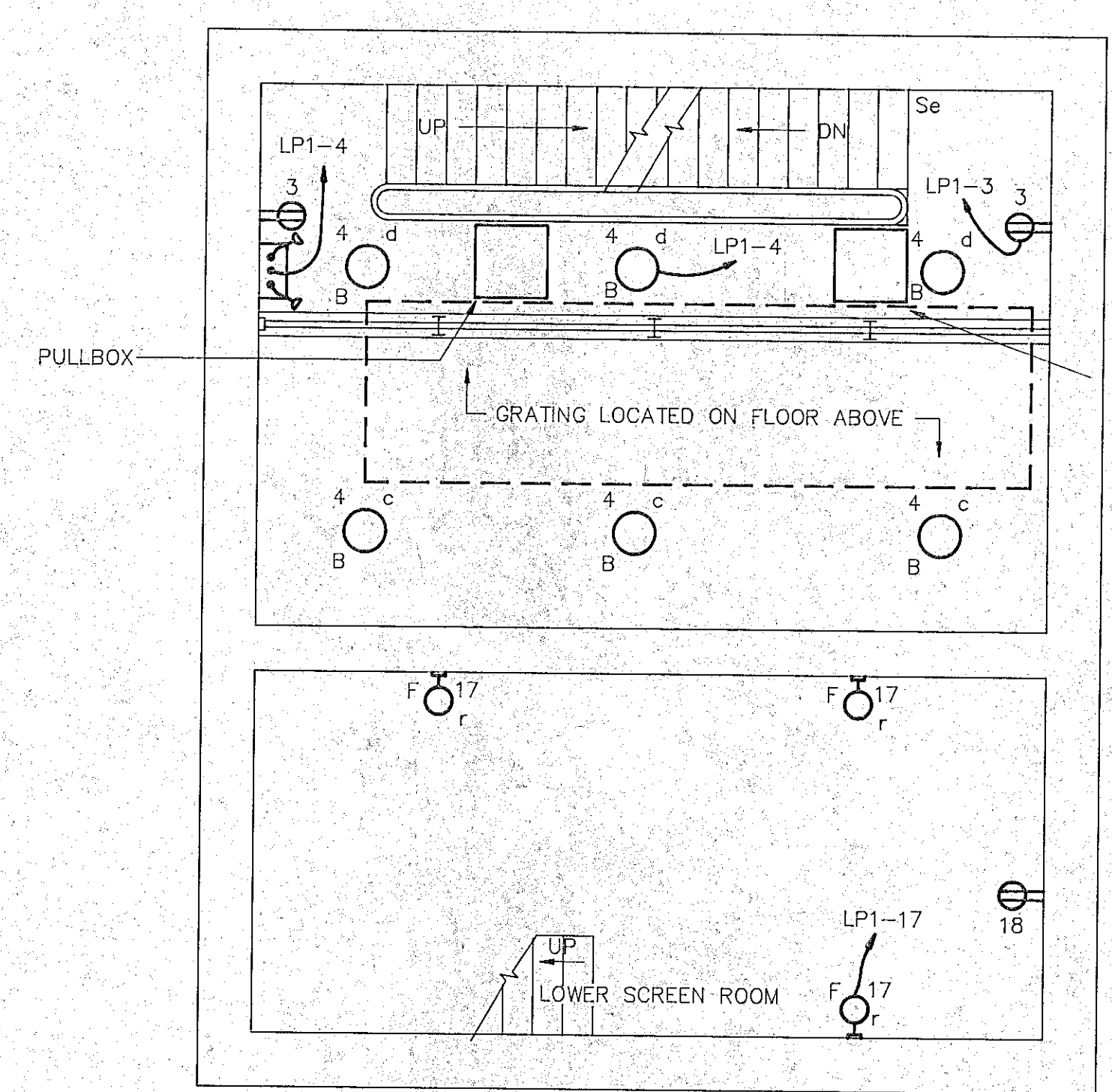
CONDUIT AND WIRE SCHEDULE -- GROUND FLOOR PLAN

- ① 2-3 1/2" C-3-500 MCM & 1#1/0 GND EACH AND 3/4" C-3#12
- ② 2-3 1/2" C-3-500 MCM & 1#1/0 GND EACH AND 3/4" C-3#12
- ③ 4-3" C-3-350 MCM & 1#3/0 GND EACH
- ④ 4-3" C-3-350 MCM & 1#3/0 GND EACH
- ⑤ 4-3" C-3-350 MCM & 1#3/0 GND EACH
- ⑥ 4-3" C-3-350 MCM & 1#3/0 GND EACH
- ⑦ 4-3" C-3-350 MCM & 1#3/0 GND EACH
- ⑧ 4-3" C-3-350 MCM & 1#3/0 GND EACH



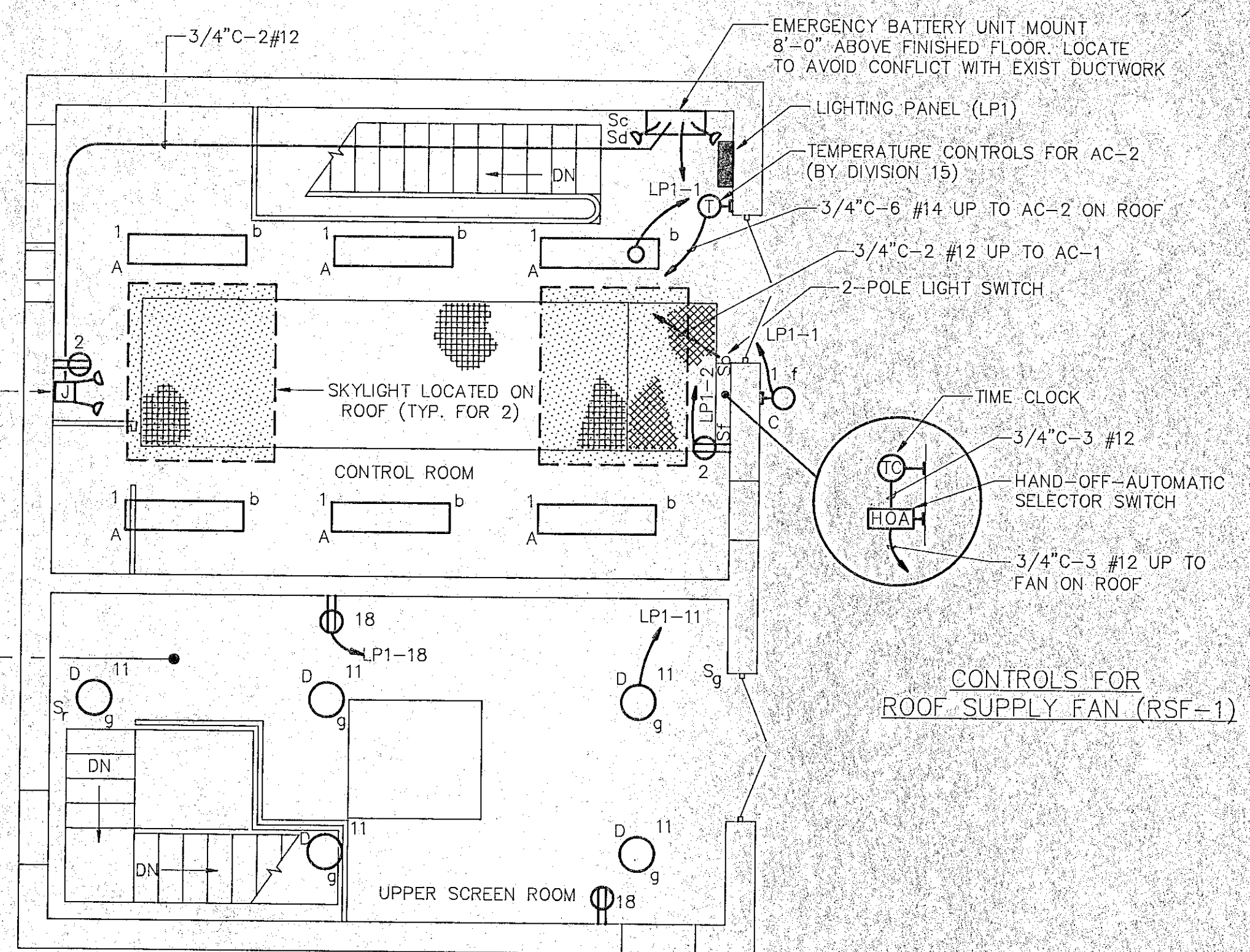
BASEMENT FLOOR PLAN-LIGHTING

SCALE : 1/4" = 1'-0"



INTERMEDIATE FLOOR PLAN-LIGHTING

SCALE : 1/4" = 1'-0"



GROUND FLOOR PLAN-LIGHTING

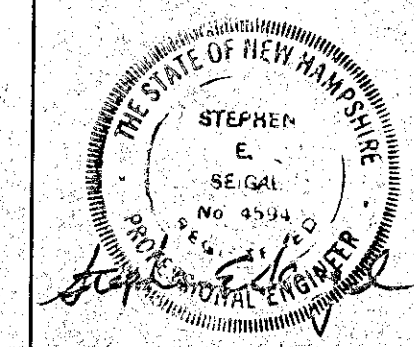
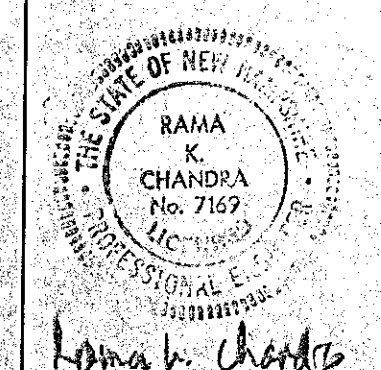
SCALE : 1/4" = 1'-0"

GENERAL NOTES
1. REFER TO DRAWING E-1 FOR LEGEND AND NOTES.

RECORD PLAN

NO.	DESCRIPTION	DATE
1	Revised To Record Plan	10/91

WHITMAN & HOWARD, INC.
45 WILLIAM STREET, WELLESLEY, MASS.



ORIGINAL FULL SIZE DRAWING=4"
REPRODUCTIONS MAY BE REDUCED SIZE

DESIGNED	DRAWN	CHECKED	SCALE	DATE
		REC	AS NOTED	JULY 1990

DRAWING NO.	E-8
JOB NO.	89-131
CONTRACT NO.	4

RENOVATIONS TO DEER STREET AND MECHANIC STREET PUMPING STATIONS
PORTSMOUTH, N.H.
ELECTRICAL POWER AND LIGHTING PLAN
MECHANICS STREET

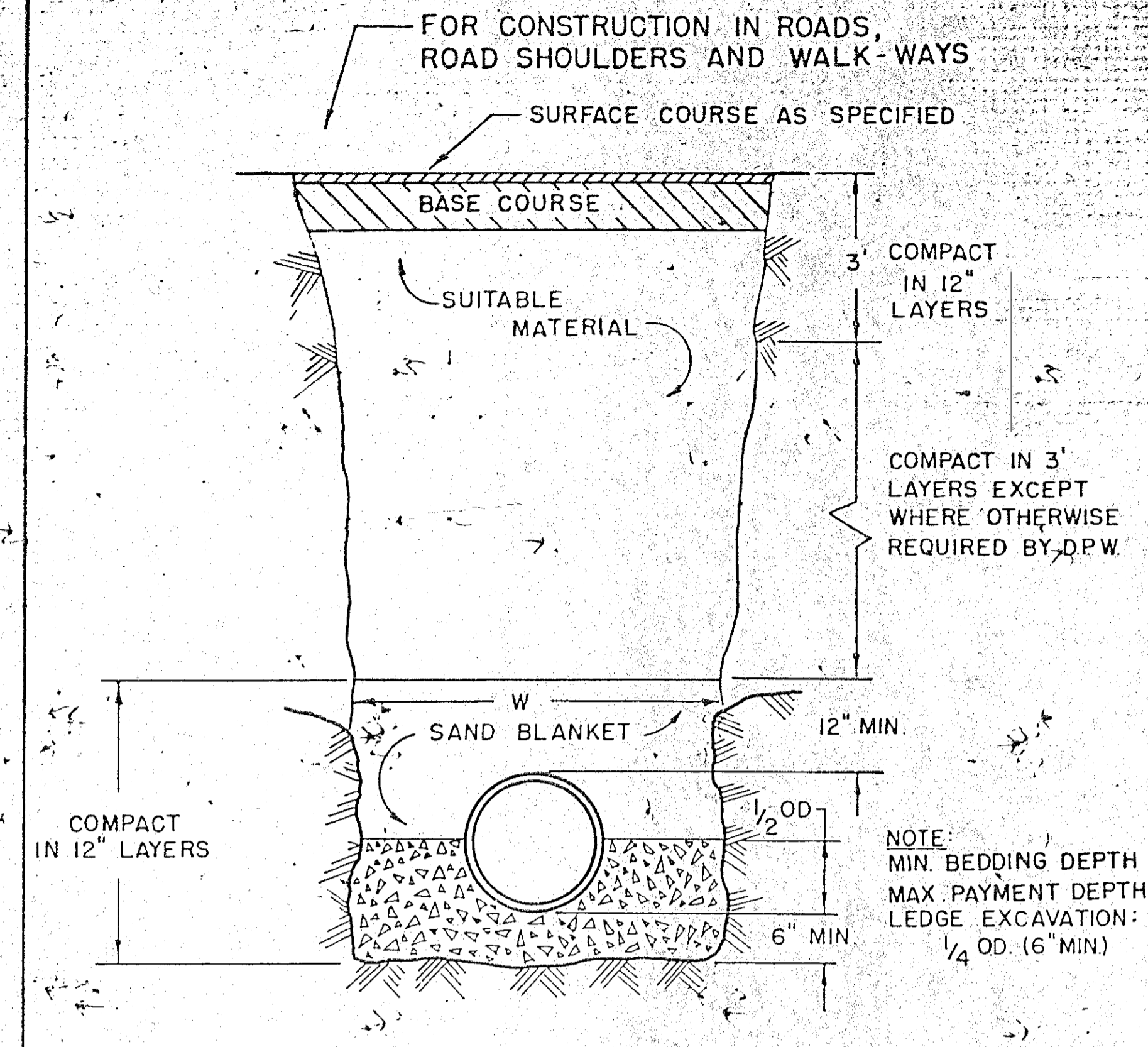
- NOTES:
- ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. SEE ALSO NOTE 7.
 - BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C-33 STONE SIZE NO. 67.

100% PASSING	1 INCH SCREEN
90-100% PASSING	3/4 INCH SCREEN
20-55% PASSING	3/8 INCH SCREEN
0-10% PASSING	# 4 SIEVE
0-5% PASSING	# 8 SIEVE

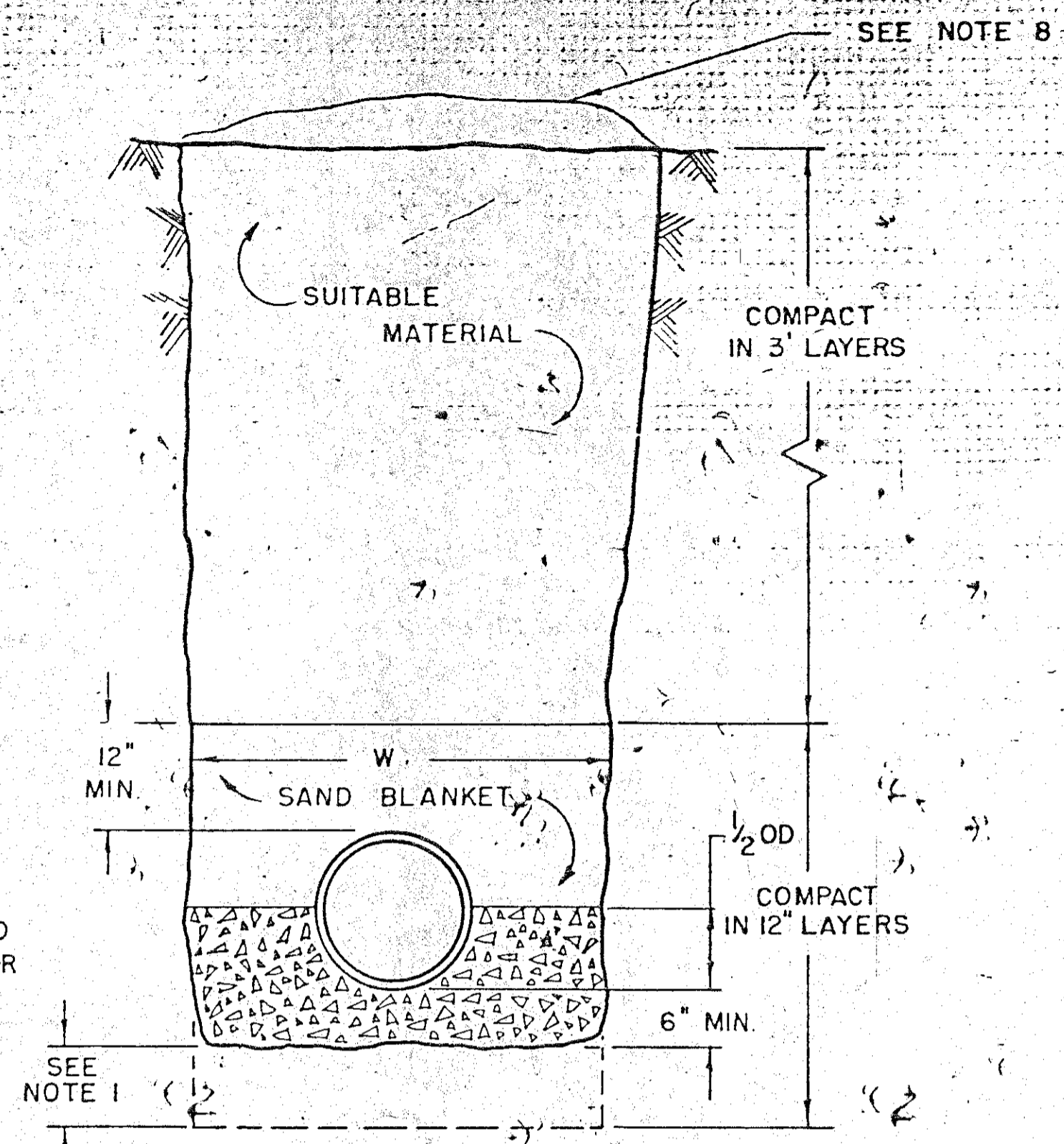
 WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1 1/2 INCH SHALL BE USED.
 - SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER, SO GRADED THAT 90-100% PASSES A 1/2 INCH SIEVE, AND NOT MORE THAN 15% WILL PASS A # 200 SIEVE. BLANKET MAY BE OMITTED FOR CAST-IRON, DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED, HOWEVER, THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE.
 - SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALK-WAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX IN. IN LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.

IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY WILL BE PRESERVED.
 - BASE COURSE, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS.
 - WOOD SHEETING, IF REQUIRED, WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
 - W= MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
 - FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUND TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
 - CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000#) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:

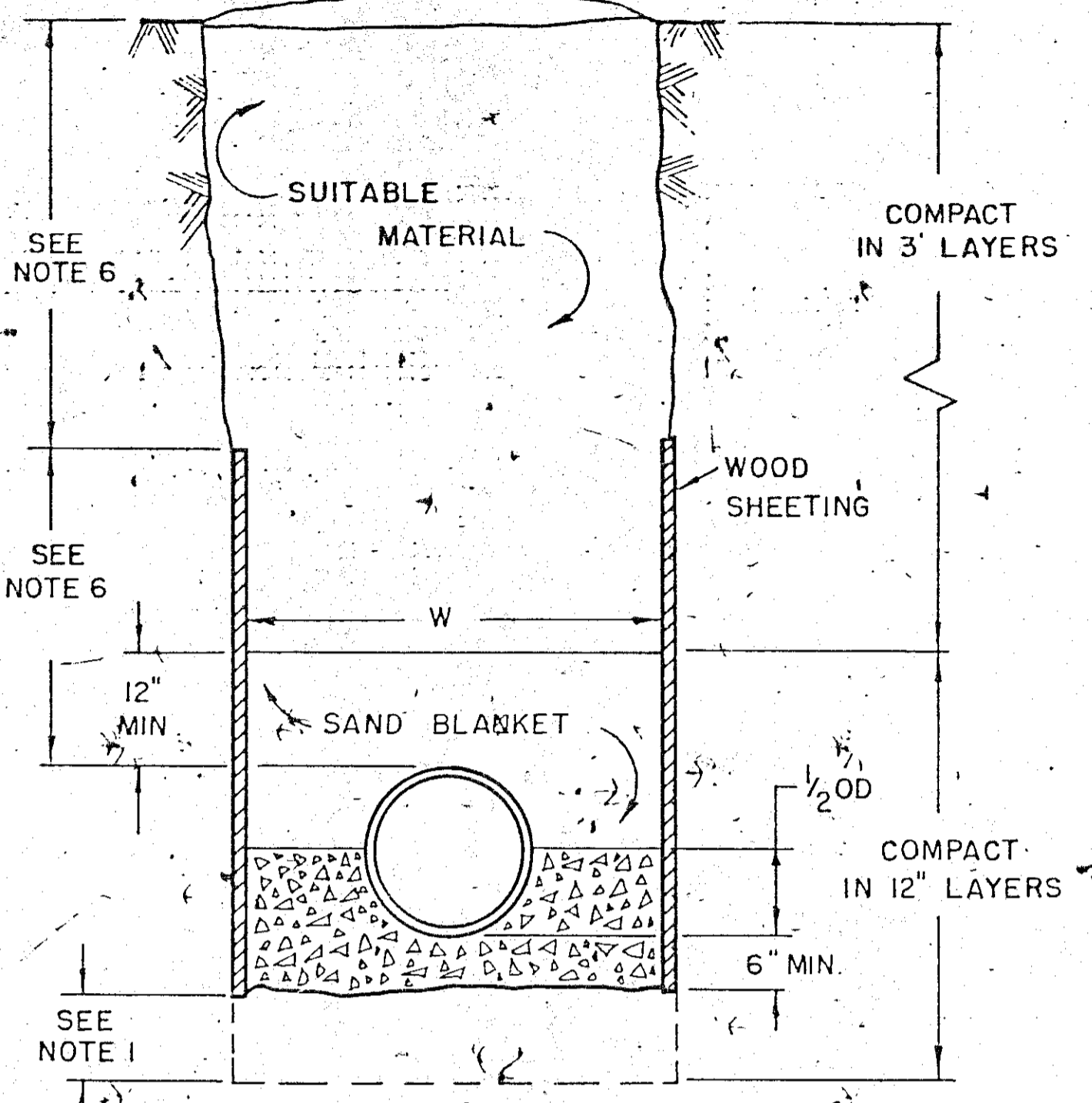
CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG CEMENT
MAXIMUM SIZE OF AGGREGATE: 1 INCH



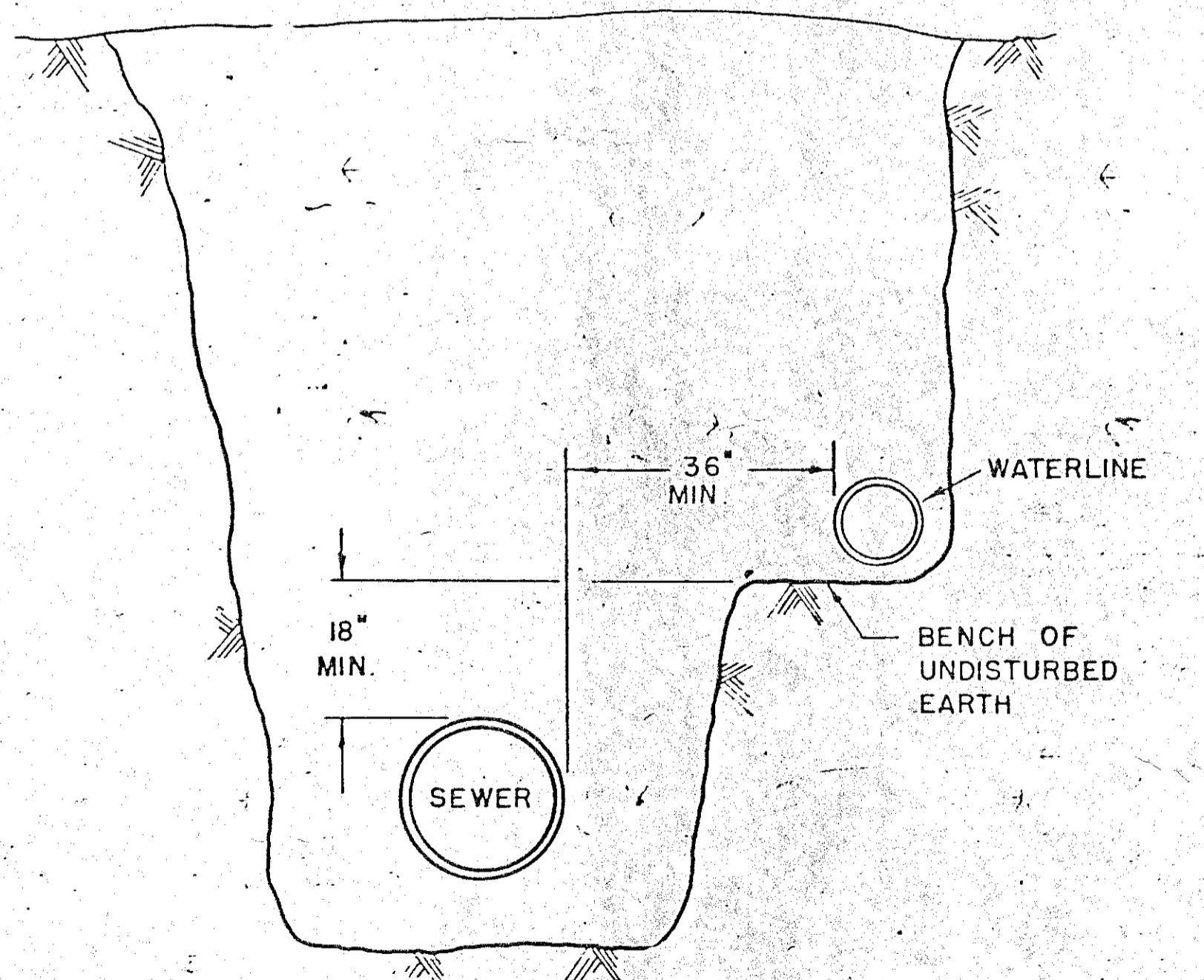
LEDGE CONSTRUCTION



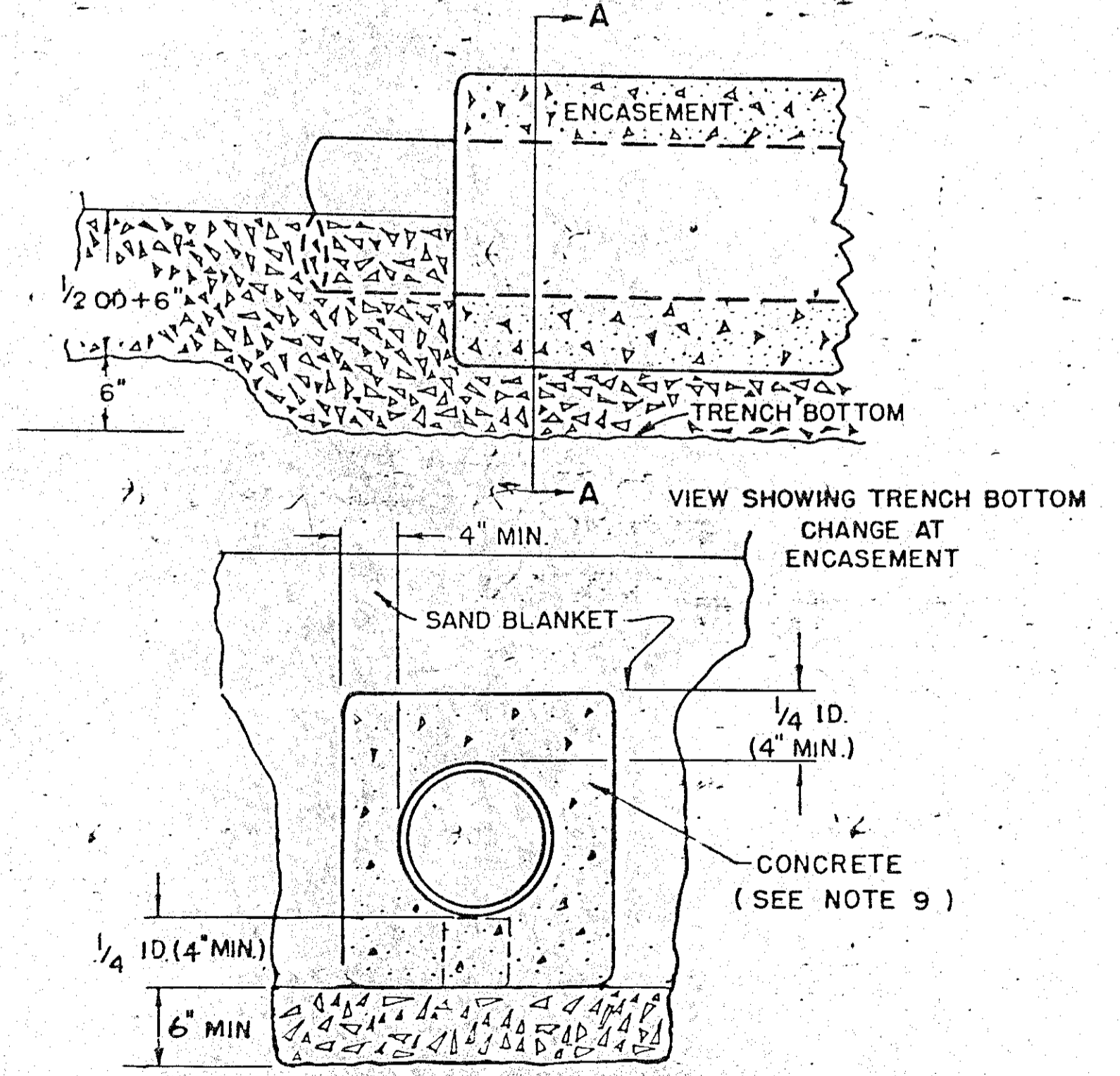
EARTH CONSTRUCTION



EARTH CONSTRUCTION WITH SHEETING



WATER AND SEWER IN SAME TRENCH
(SPECIAL CONDITIONS SEE NOTE 10)



CONCRETE FULL ENCASEMENT
(SEE NOTE 11)
SECTION A-A

NOTES CONT'D:

- NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION DESIGN STANDARDS REQUIRE 10 FT. SEPARATION. HOWEVER, SHOULD CONSTRUCTION OPERATIONS REVEAL OR EXPOSE A WATERLINE (MAIN OR SERVICE) RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FT. HORIZONTALLY FROM THE PROPOSED SEWER INSTALLATION AND WHERE IT IS NOT PRACTICABLE TO RELOCATE THE SEWER, THE FOLLOWING METHODS OF PROTECTION MUST BE EMPLOYED.
 - IF THE WATERLINE CAN BE KEPT AT LEAST 18 IN. ABOVE AND 3 FT. TO ONE SIDE OF THE SEWER, AS SHOWN AND SUPPORTED ON A BENCH OF ORIGINAL SOIL, NO OTHER PROTECTION IS REQUIRED.

RECORD PLAN

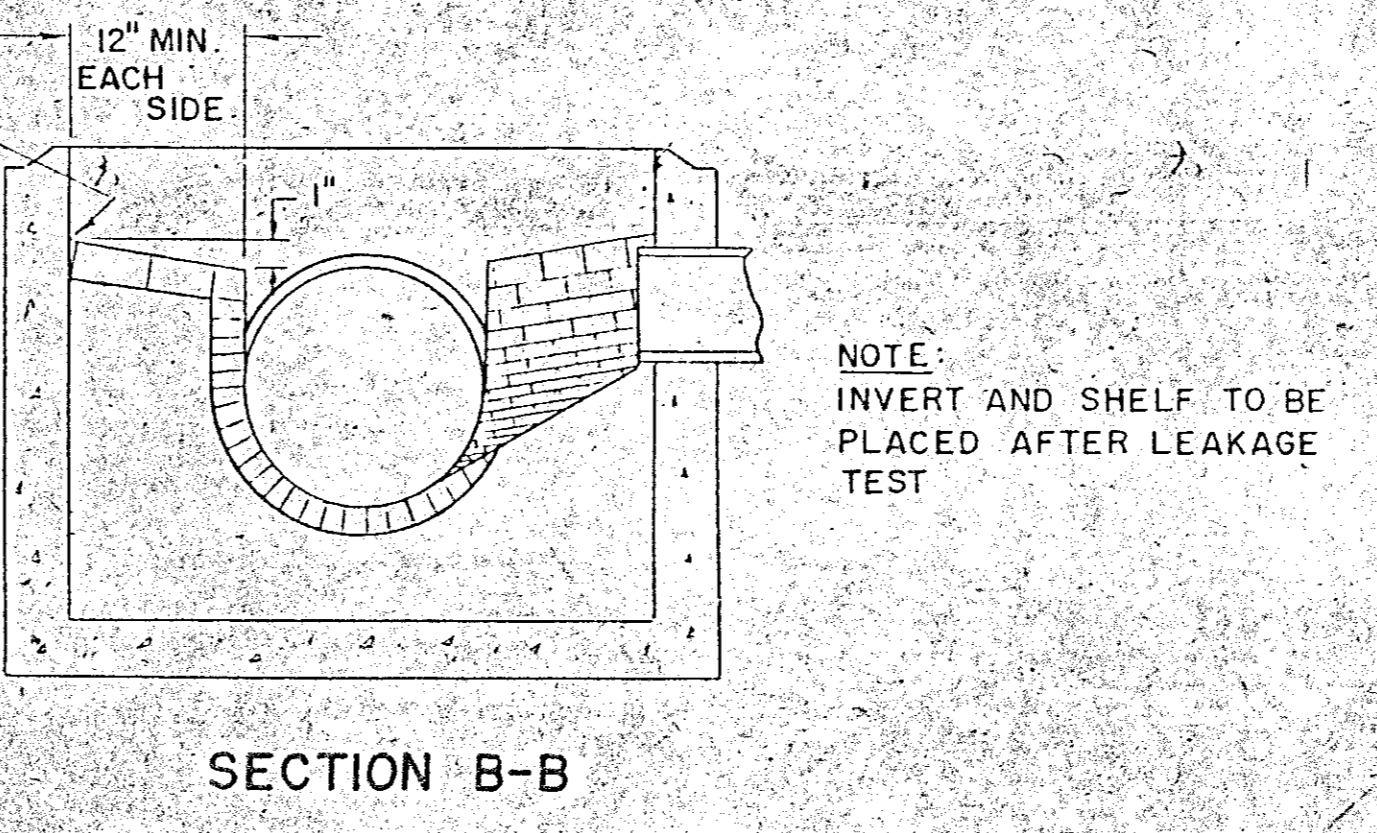
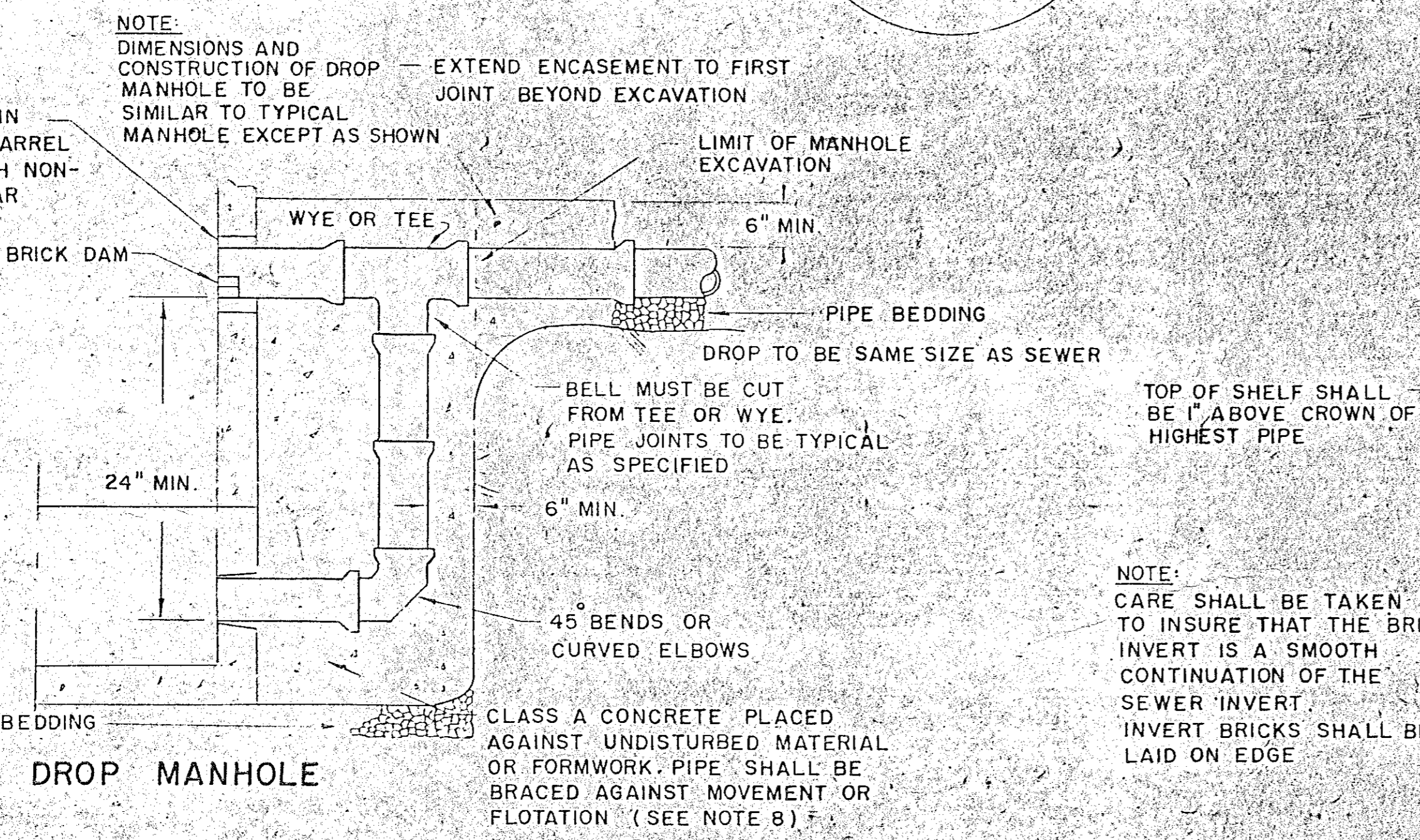
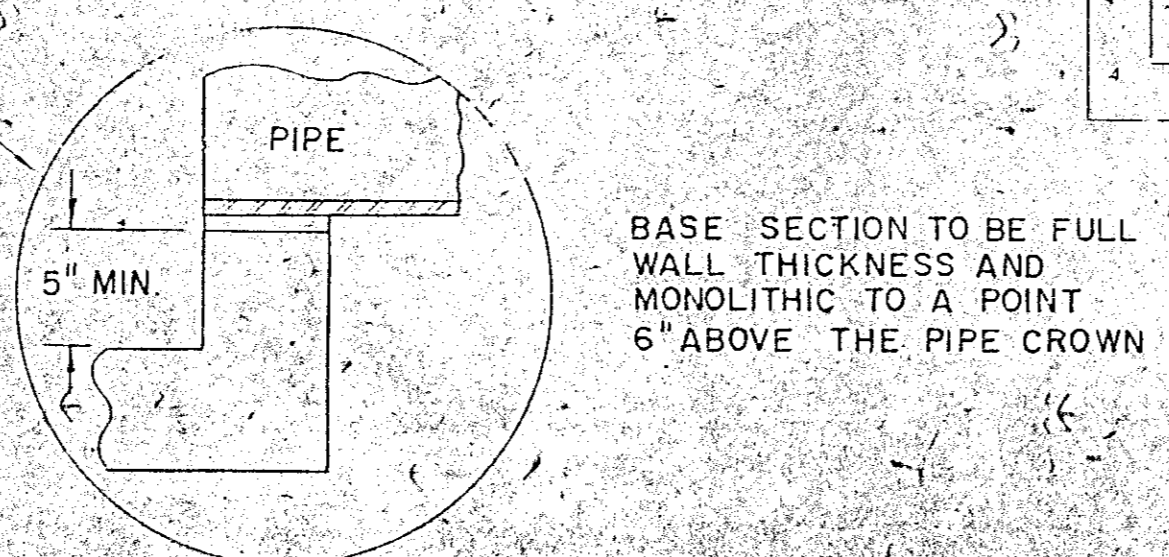
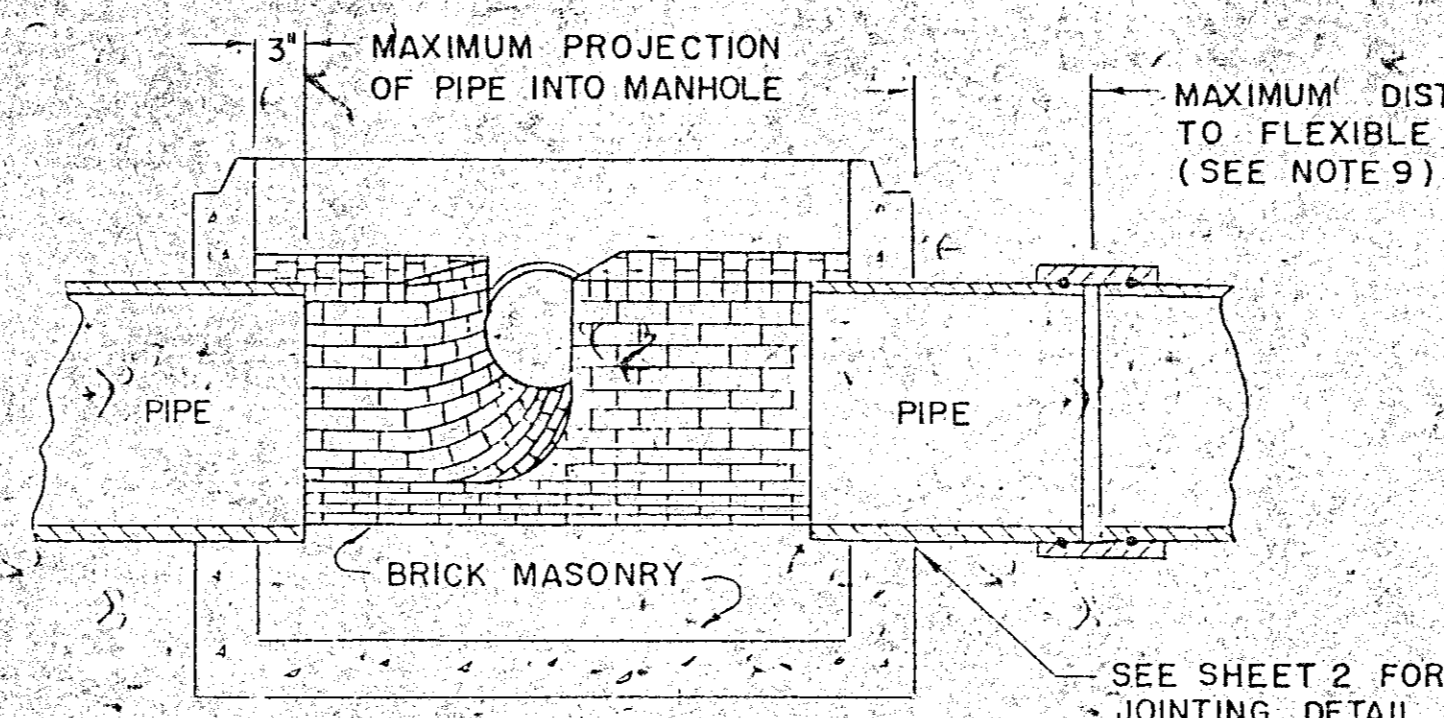
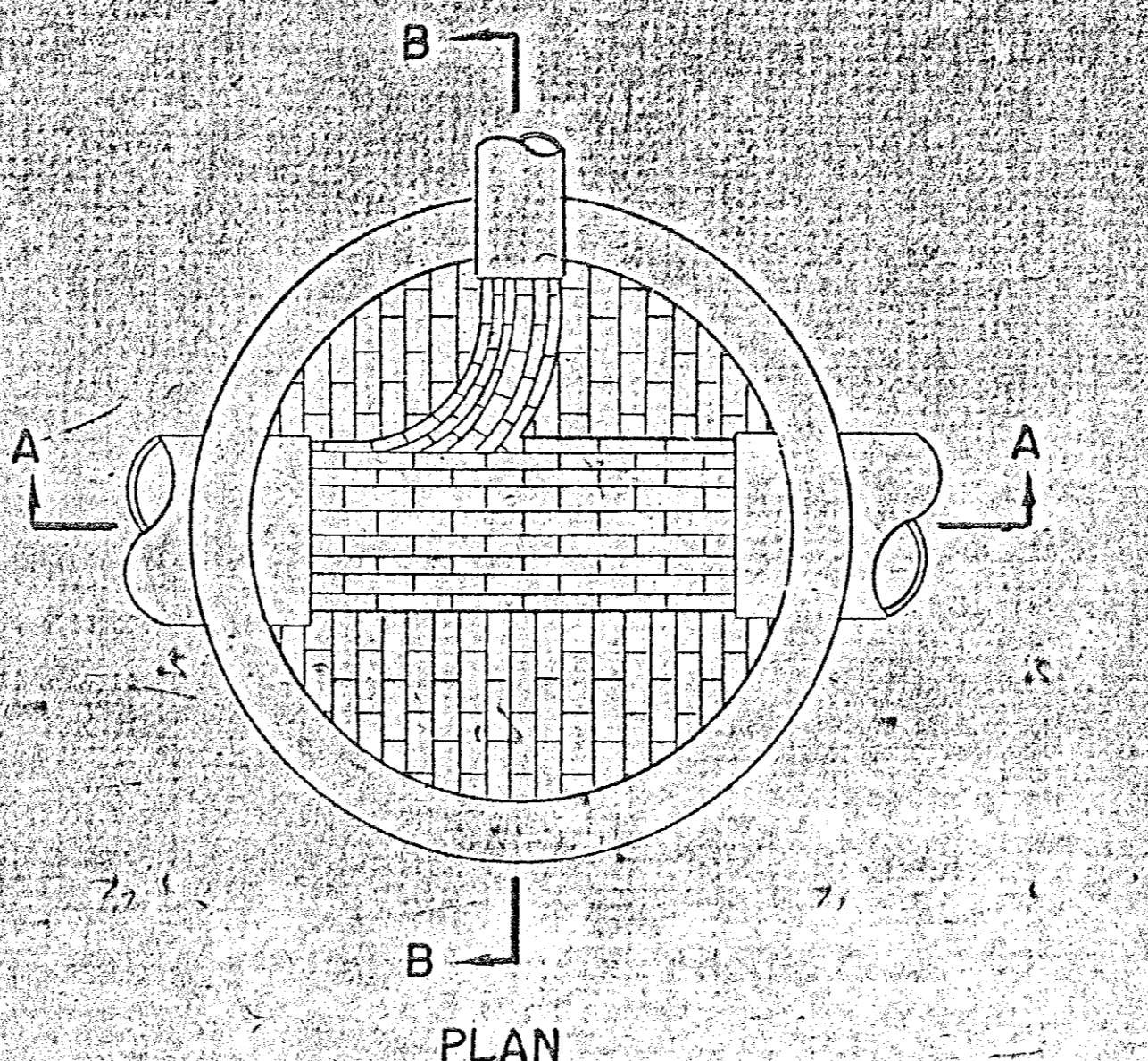
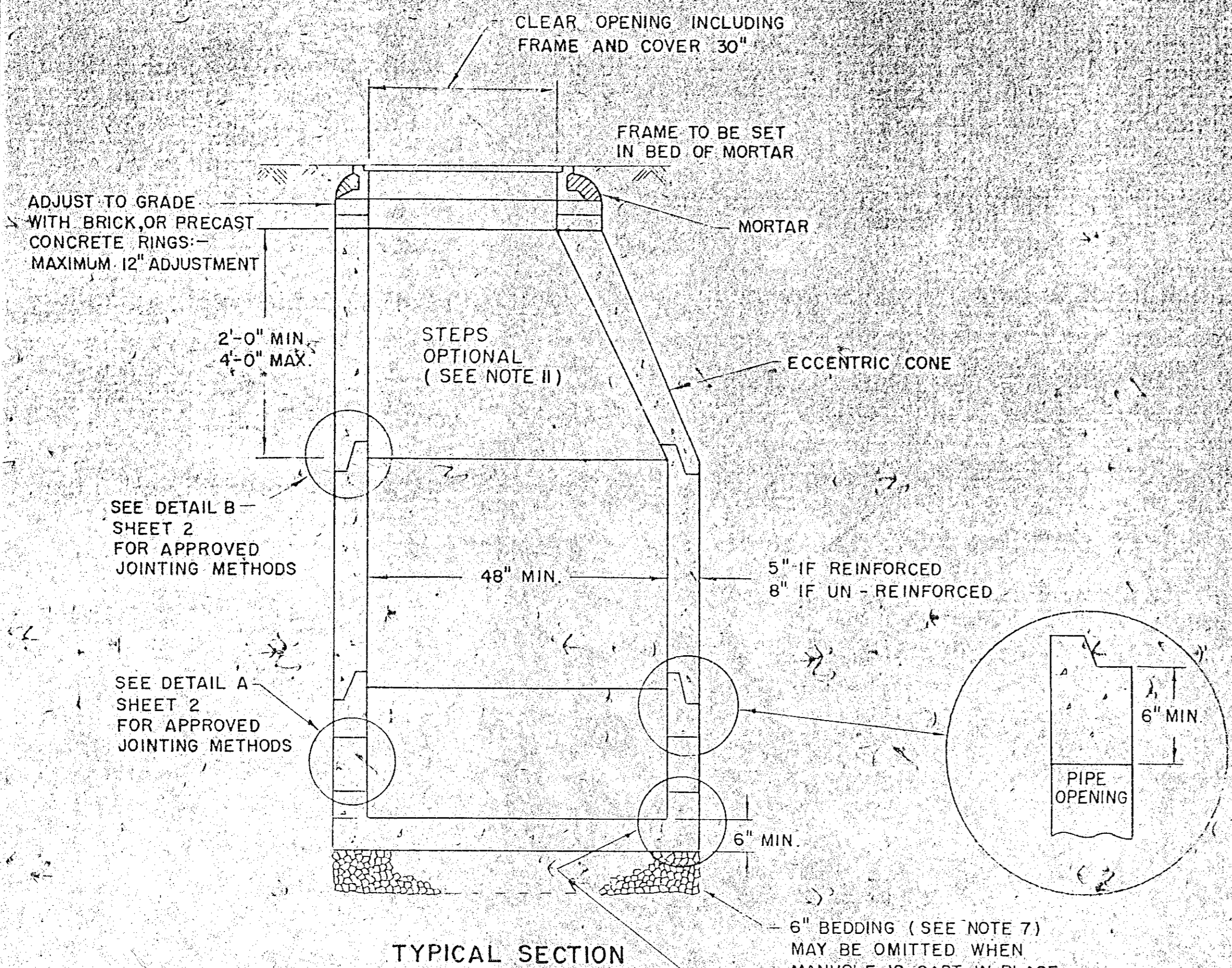
- IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS

REVISIONS	
DATE	CHANGE
AUG. 74	SAND BLANKET SPECIFICATION; MINOR CHANGES IN DESCRIPTION
DEC. 74	REVISED LAST PARAGRAPH IN NOTE 10 B
JAN. 76	ADDED NOTE 11
DEC. 77	FULL ENCASEMENT SHOWN REPLACING ARCH

NEW HAMPSHIRE
WATER SUPPLY & POLLUTION CONTROL
COMMISSION

STANDARD TRENCH SECTION

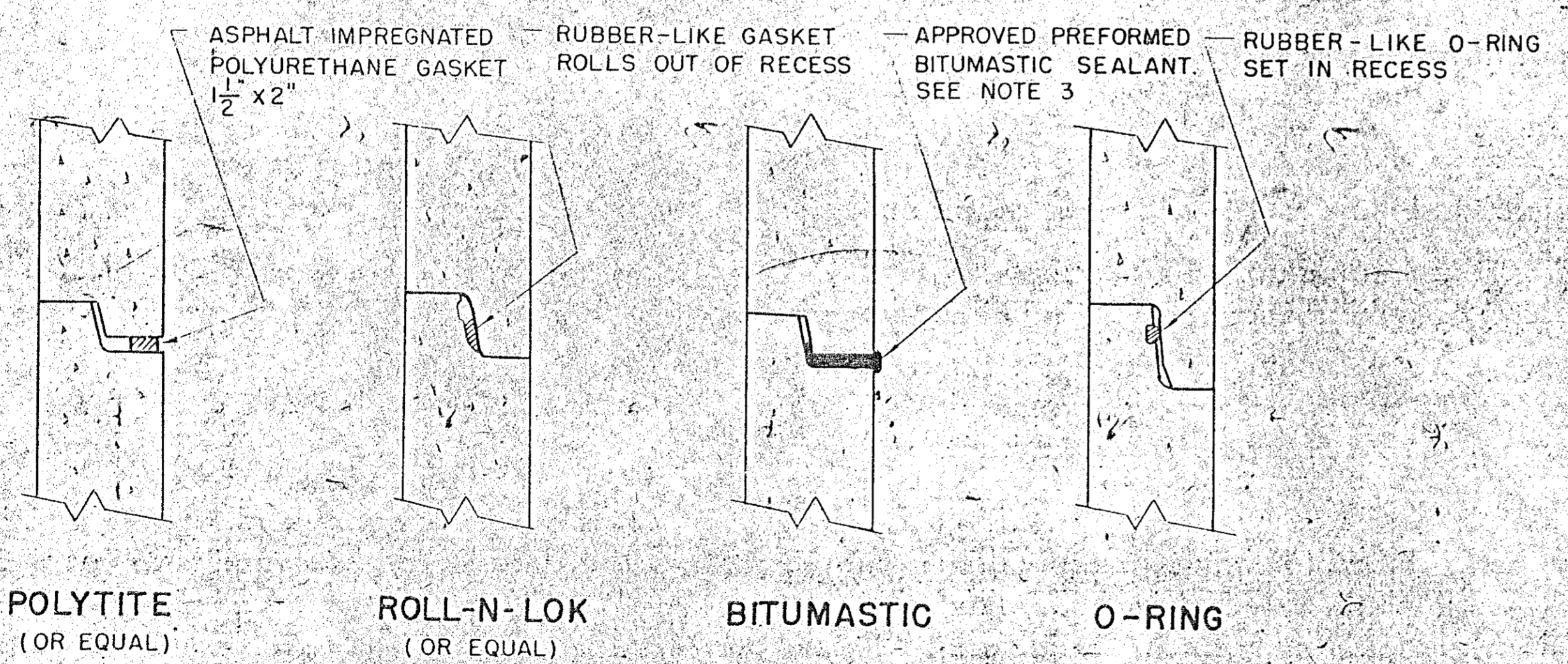
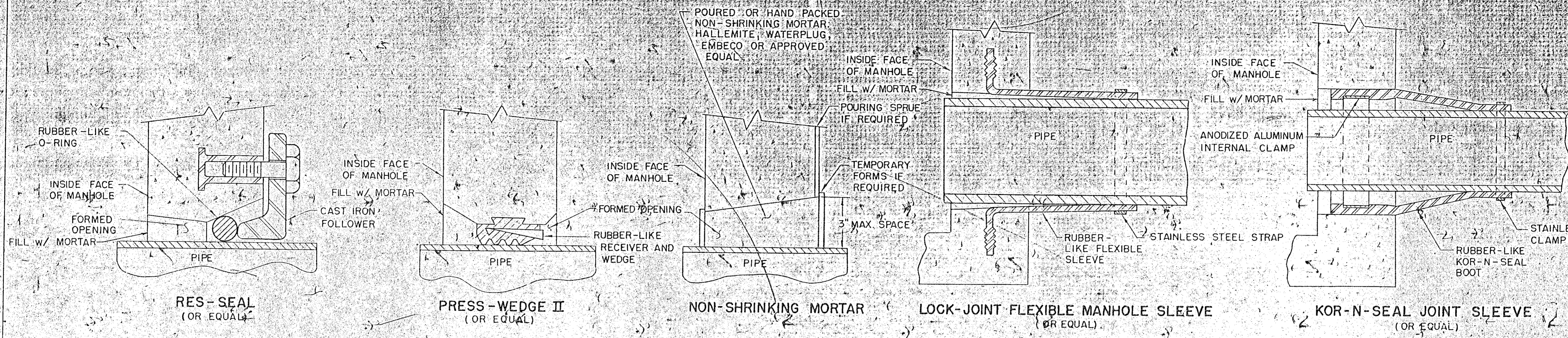
SCALE: NONE DATE: JULY 1990



- NOTES:**
- IT IS THE INTENTION OF THE COMMISSION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY BY THE COMMISSION, FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES MAY BE AN ASSEMBLY OF PRECAST SECTIONS, WITH OR WITHOUT STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE, WITH OR WITHOUT REINFORCEMENT. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
 - BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED OR NON-REINFORCED CONCRETE, OR POURED IN PLACE REINFORCED OR NON-REINFORCED CONCRETE.
 - PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.
 - LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS.
 - INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
 - FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) LETTER "S" FOR SEWERS OR "D" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
 - BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33
 100% PASSING 1 INCH SCREEN 0-10% PASSING #4 SIEVE
 90-100% PASSING 3/4 INCH SCREEN 0-5% PASSING #8 SIEVE
 20-55% PASSING 3/8 INCH SCREEN
 WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1 1/2 INCH TO 1/2 INCH SHALL BE USED.
 - CONCRETE FOR DROP SUPPORT SHALL CONFORM TO THE REQUIREMENT FOR CLASS A (3000*) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:
 CEMENT: 6.0 BAGS PER CUBIC YARD
 WATER: 5.75 GALLONS PER BAG CEMENT
 MAXIMUM SIZE OF AGGREGATE: 1 INCH
 - FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:
 RCP & CI PIPE - ALL SIZES - 48"
 AC & VC PIPE - UP THROUGH 12" DIA - 18"
 AC & VC PIPE - LARGER THAN 12" DIA - 36"
 - SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.
 - MANHOLE STEPS MAY BE PERMITTED UPON REQUEST BY THE OWNER AS SECONDARY ADDITIONAL SAFETY FEATURE SUPPLEMENTARY TO THE PRIMARY PORTABLE LADDER ENTRY AND WHEN INSTALLED UNDER THE FOLLOWING CONDITIONS:
 1. THE STEPS SHALL BE MANUFACTURED OF 5/8 INCH ROUND STAINLESS STEEL OR FORGED ALUMINUM ALLOY. THEY SHALL BE SHAPED SO THAT THEY CANNOT BE PULLED OUT OF THE CONCRETE WALL IN WHICH THEY ARE EMBEDDED.
 2. THE STEPS SHALL BE EMBEDDED IN THE CONCRETE BY THE MANUFACTURER DURING MANUFACTURE OR IMMEDIATELY FOLLOWING REMOVAL OF THE FORMS. SECURING THE STEPS WITH MORTAR IN DRILLED OR CAST HOLES WILL NOT BE ACCEPTABLE.
 3. THE STEPS SHALL BE OF THE DROP TYPE WITH A DEPRESSED SECTION FOR HANDHOLD, APPROXIMATELY 14" X 10" IN DIMENSION.

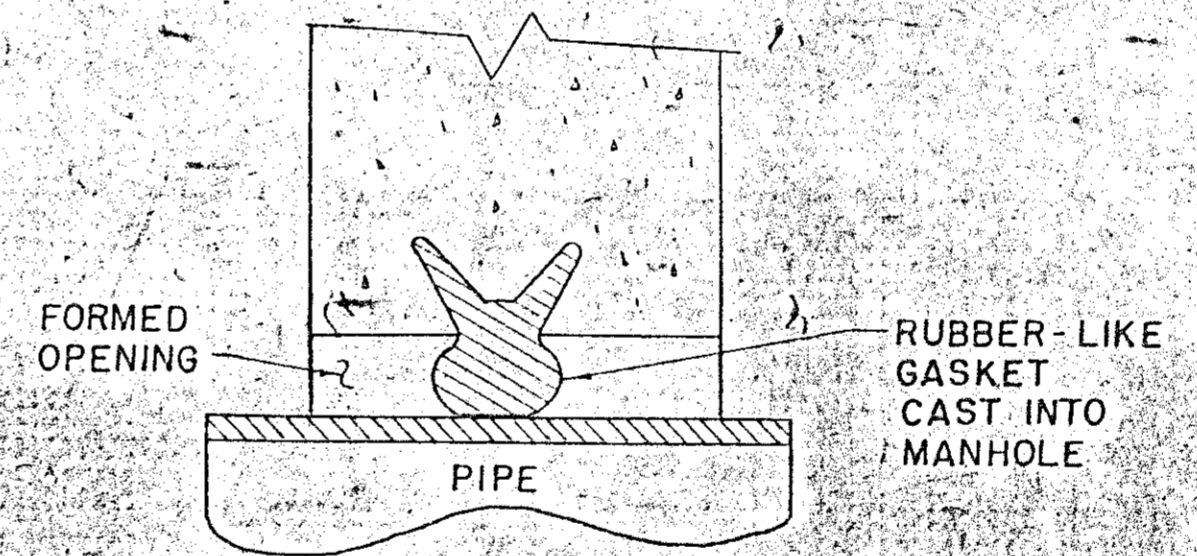
RECORD PLAN

REVISIONS	
DATE	CHANGE
DEC '74	ADDED NOTE II & BLOWUP OF MH BASE AT PIPE SECTION
NEW HAMPSHIRE WATER SUPPLY & POLLUTION CONTROL COMMISSION	
STANDARD MANHOLE	
SCALE: NONE	DATE: JULY 1990



NOTE: ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

DETAIL-B



A-LOK (OR EQUAL)

NOTE: ALL GASKETS, SEALANTS, MORTAR ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

DETAIL-A

NOTES:

1. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE COMMISSION, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATERTIGHTNESS UPON AN ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE COMMISSION AND IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON EITHER AN APPROVED NON-SHRINKING MORTAR OR ELASTOMERIC SEALANT.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY. APPROVED BITUMASTIC SEALANTS: RAM-NEK, KENT SEAL NO. 2.

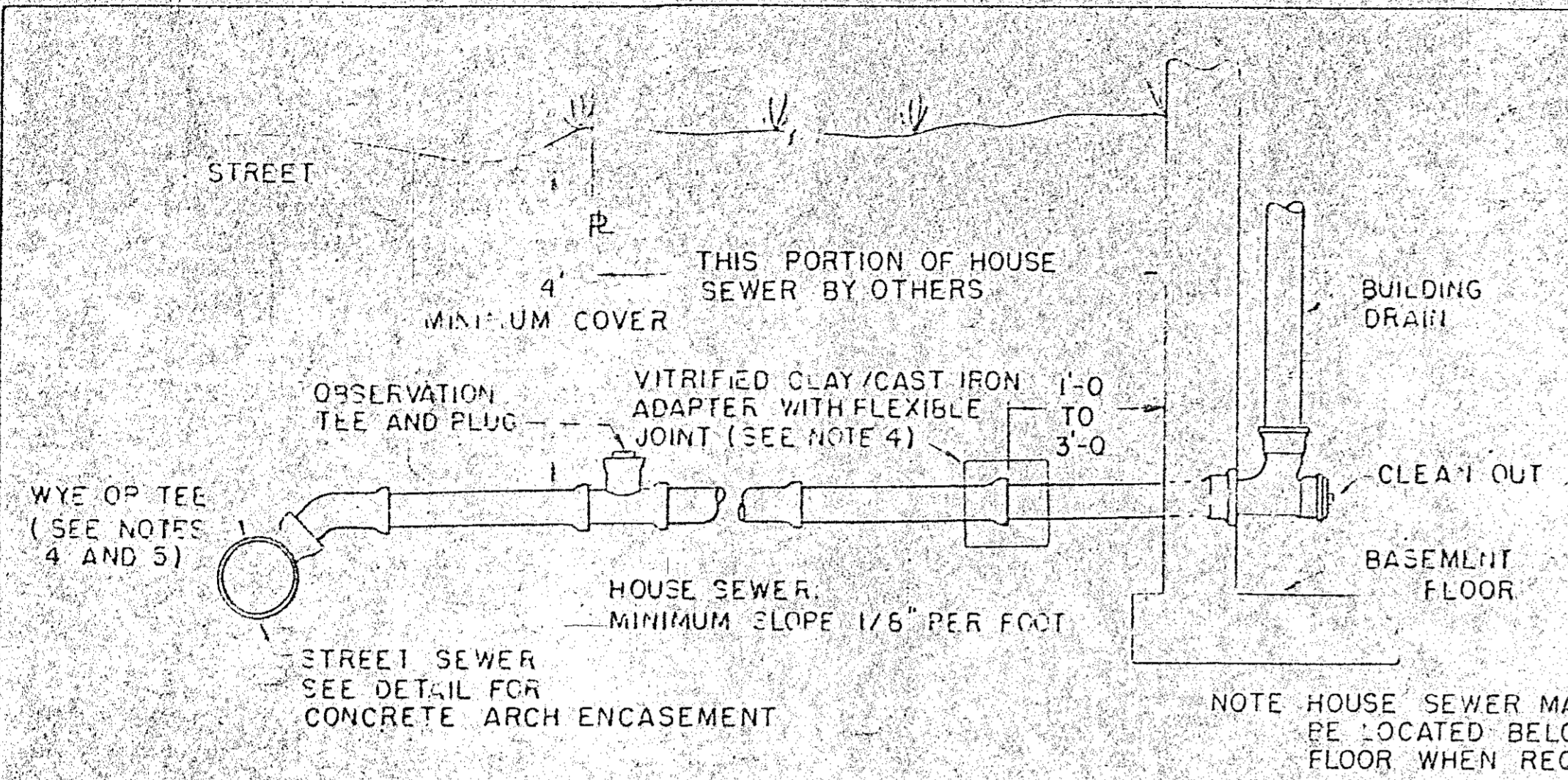
REVISIONS	
DATE	CHANGE
MARCH 74	ADDED "A-LOK" DETAIL
JANUARY 76	ADDED "FILL W/ MORTAR"

NEW HAMPSHIRE
WATER SUPPLY & POLLUTION CONTROL
COMMISSION

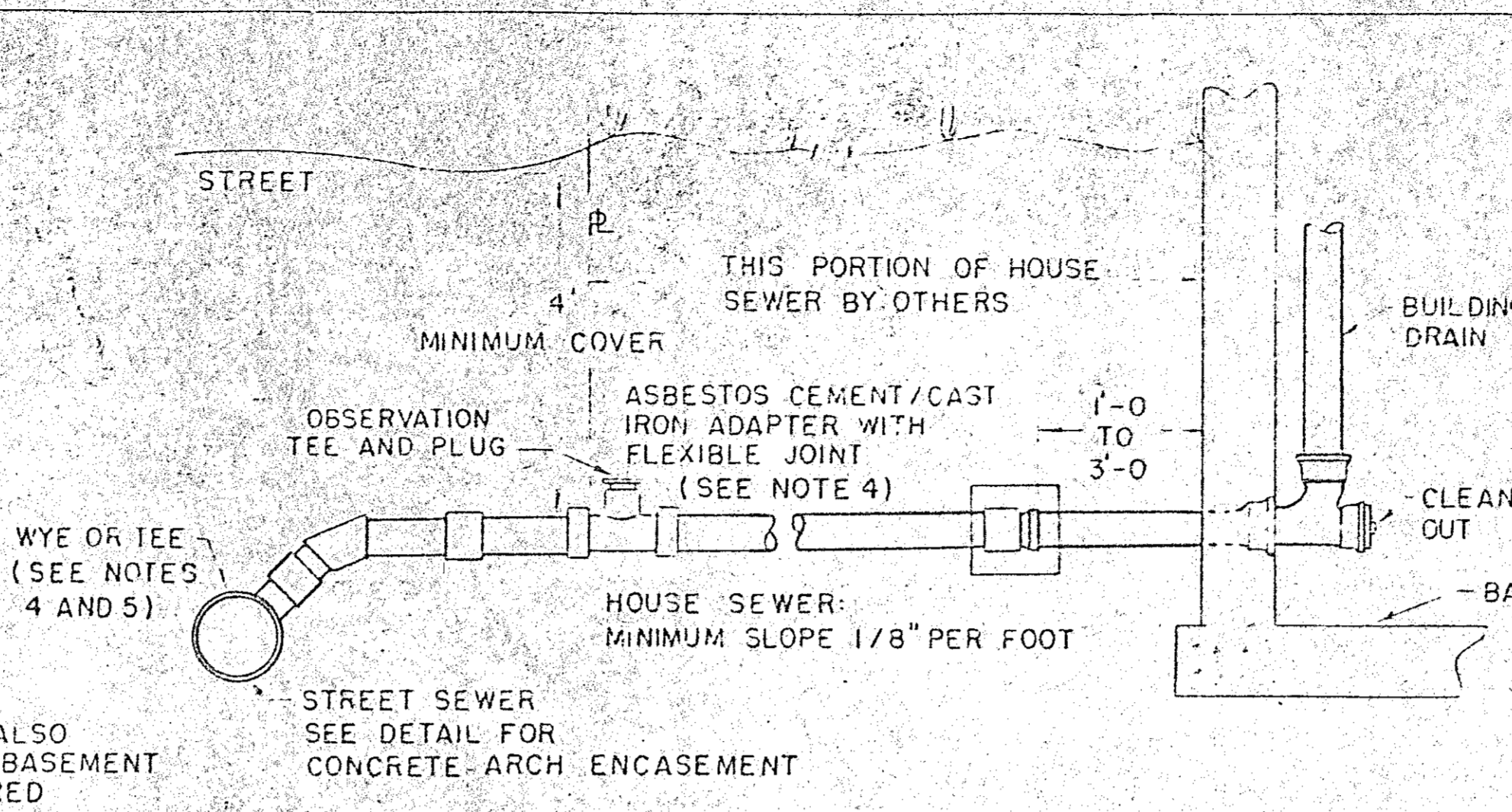
STANDARD MANHOLE

SCALE: NONE DATE: JULY 1990

RECORD PLAN



VITRIFIED CLAY SEWER AND HOUSE SEWER



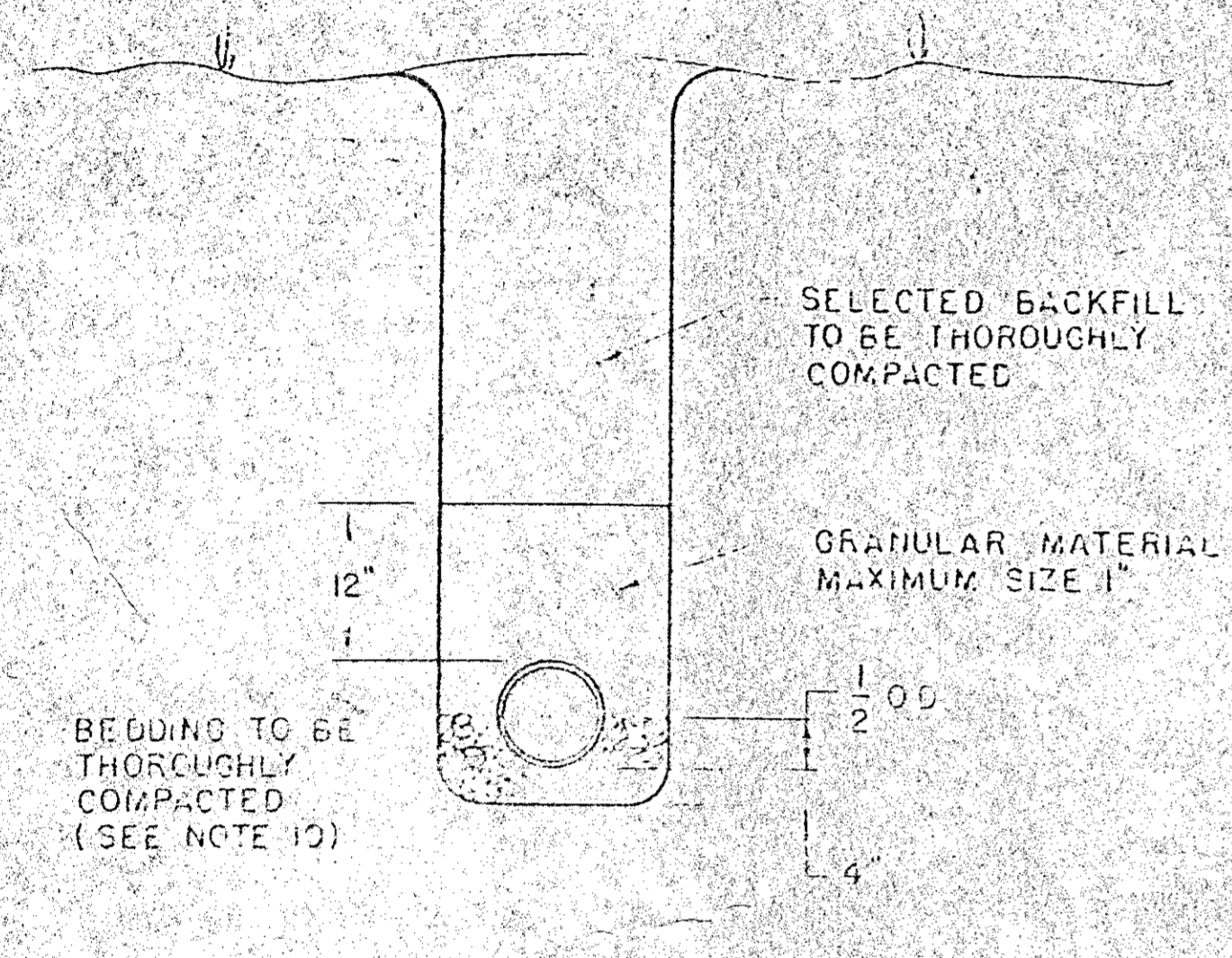
ASBESTOS CEMENT SEWER AND HOUSE SEWER

NOTES:

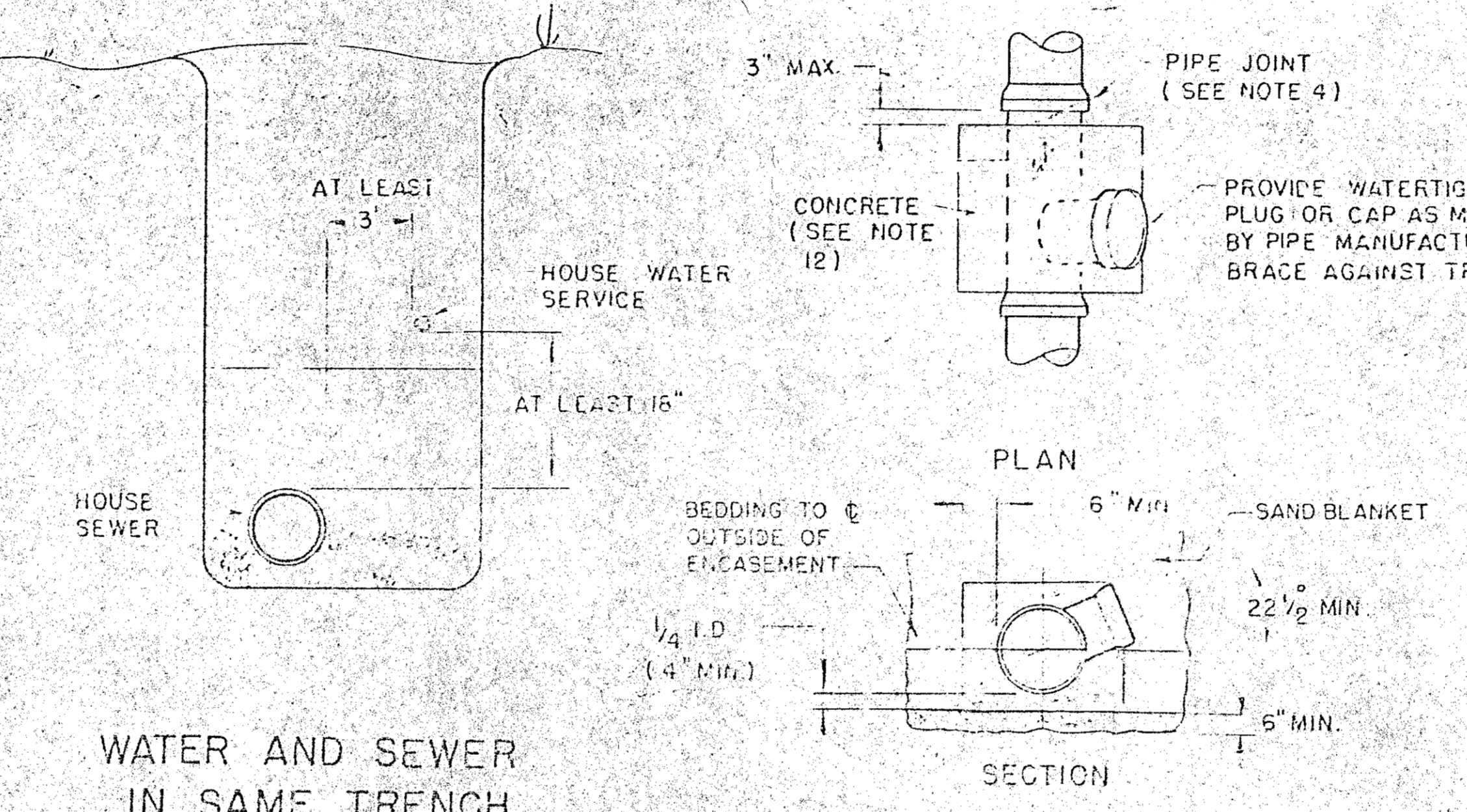
- 1- MINIMUM SIZE PIPE FOR HOUSE SERVICE SHALL BE FOUR INCHES
- 2- PIPE AND JOINT MATERIALS
 - A. VITRIFIED CLAY PIPE
 - 1- PIPE AND FITTINGS SHALL BE EXTRA STRENGTH CLAY PIPE CONFORMING TO THE REQUIREMENTS OF ASTM C-700
 - 2- JOINTS SHALL BE MADE WITH OIL RESISTANT GASKETS IN ACCORDANCE WITH ASTM C-425 TYPE II. MANUFACTURERS INSTRUCTIONS FOR INSTALLATION SHALL BE FOLLOWED
 - B. ASBESTOS-CEMENT-NON-PRESSURE SEWER PIPE
 - 1- PIPE AND FITTINGS SHALL CONFORM TO ASTM TENTATIVE SPECIFICATIONS C644 TYPE II
 - 2- JOINTS SHALL BE OF THE SLEEVE-COUPLING TYPE CONFORMING TO ASTM SPECIFICATIONS C644 TYPE II. COMPRESSION RINGS SHALL BE OF OIL RESISTANT RUBBER TYPE OR ELASTOMERIC MATERIAL AND SHALL CONFORM TO ASTM SPECIFICATION D1869. MANUFACTURERS INSTRUCTIONS FOR INSTALLATION SHALL BE FOLLOWED
 - C. CAST IRON PIPE FITTINGS AND JOINTS
 - 1- CAST IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE:
 - A211 THICKNESS DESIGN OF CAST IRON PIPE
 - A214 CEMENT MORTAR LINING FOR CAST IRON PIPE AND FITTINGS
 - A216 CAST IRON PIPE CENTRIFUGALLY CAST IN METAL MOLDS FOR WATER OR OTHER LIQUIDS
 - A218 CAST IRON PIPE CENTRIFUGALLY CAST IN SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS
 - A210 CAST IRON FITTINGS, 2 INCHES THROUGH 48 INCHES FOR WATER AND OTHER LIQUIDS
 - 2- JOINTS SHALL BE OF THE MECHANICAL OR PUSH-ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO:
 - A211 RUBBER GASKET JOINTS FOR CAST IRON PRESSURE PIPE AND FITTINGS
 - D. DUCTILE-IRON PIPE, FITTINGS AND JOINTS
 - 1- DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE:
 - A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536 DUCTILE IRON CASTINGS
 - A21.51 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS
 - 2- JOINTS SHALL BE AS SPECIFIED IN C2 ABOVE, CAST IRON PIPE JOINTS
- 3- DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE
- 4- JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER-TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED
- 5- TEES OR WYES WHERE A TEE OR WYE IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE, FOLLOWING MANUFACTURERS INSTRUCTIONS USING A BOLTED, CLAMPED, OR EPOXY-CEMENTED SADDLE TAPPED INTO A SMOOTHLY DRILLED OR SAWN OPENING IN THE SEWER. THE PRACTICE OF BREAKING AN OPENING WITH A SLEDGE HAMMER, STUFFING CLOTH OR OTHER SUCH MATERIAL AROUND THE JOINT, OR APPLYING MORTAR TO HOLD THE CONNECTION, AND ANY OTHER SIMILAR CRUDE PRACTICES OR INEPT OR HASTY IMPROVISATIONS WILL NOT BE PERMITTED. THE CONNECTION SHALL BE CONCRETE ENCASED AS SHOWN IN THE DETAIL UP TO AND INCLUDING 15" DIAMETER.
- 6- PIPE INSTALLATION, THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND RE-LAYER FOR A DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.

THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE HOUSE FOUNDATION AT A GRADE OF NOT LESS THAN 1/8 INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.
- 7- TESTING. THE COMPLETED HOUSE SEWER SHALL BE SUBJECTED TO A LEAKAGE TEST IN ANY OF THE FOLLOWING MANNERS (PRIOR TO BACKFILLING)
 - A. AN OBSERVATION TEE SHALL BE INSTALLED AS SHOWN AND, WHEN READY FOR TESTING, AN INFLATABLE BLADDER OR PLUG SHALL BE INSERTED JUST UPSTREAM FROM THE OPENING IN THE TEE. AFTER INFLATION, WATER SHALL BE INTRODUCED INTO THE SYSTEM ABOVE THE PLUG TO A HEIGHT OF 5 FEET ABOVE THE LEVEL OF THE PLUG.
 - B. THE PIPE SHALL BE LEFT EXPOSED AND LIBERALLY HOSED WITH WATER TO SIMULATE, AS NEARLY AS POSSIBLE, WET TRENCH CONDITIONS OR, IF THE TRENCH IS WET, THE GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. INSPECTIONS FOR LEAKS SHALL BE MADE THROUGH THE CLEANOUT WITH A FLASHLIGHT.

F. DOES NOT APPLY TO INSTALLATIONS WHERE 'T' & 'Y' ARE USED.



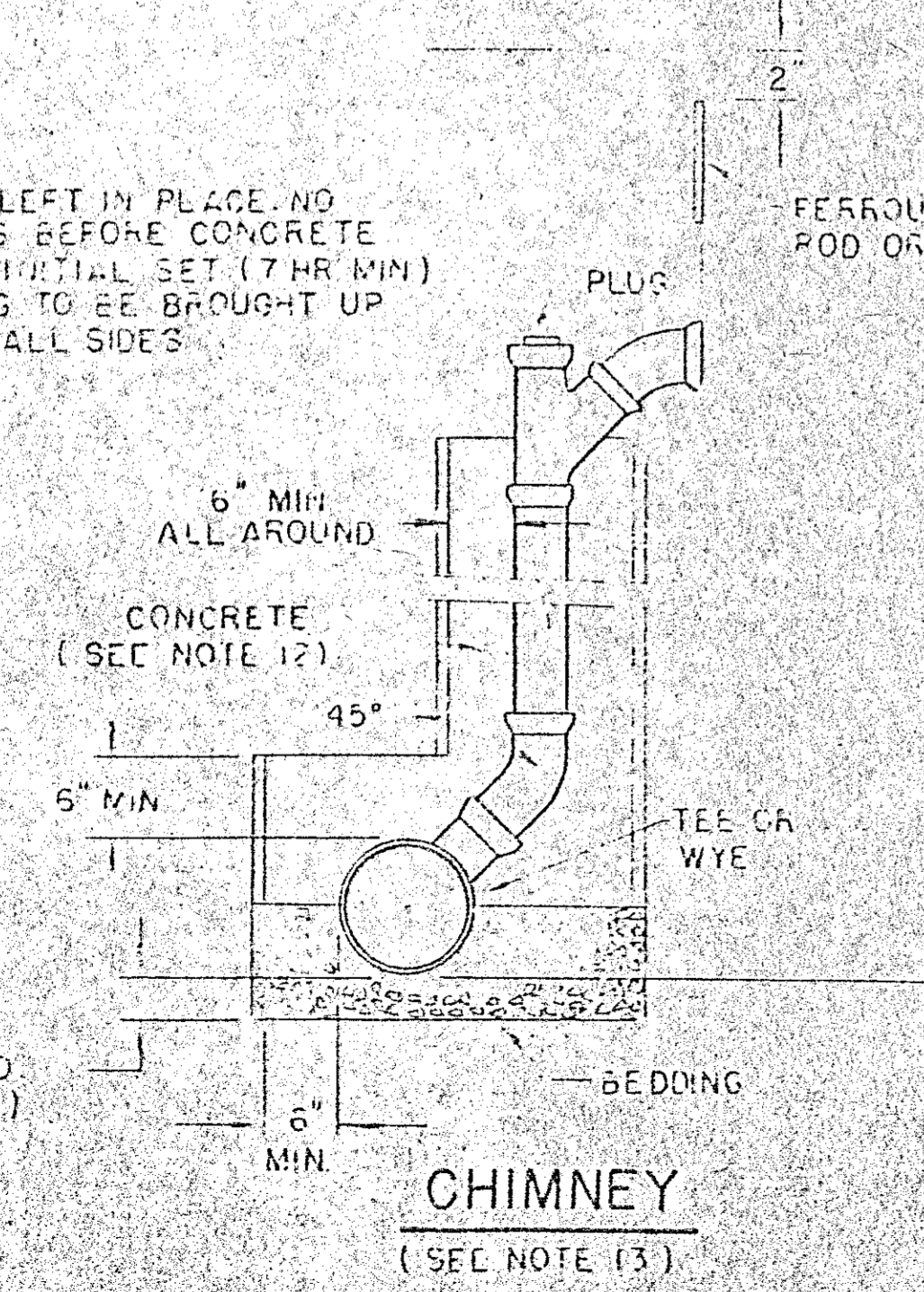
TRENCH CROSS-SECTION



WATER AND SEWER IN SAME TRENCH

CONCRETE FULL ENCASEMENT

FORMWORK LEFT IN PLACE. NO BACKFILLING BEFORE CONCRETE HAS TAKEN INITIAL SET (7 HR MIN). BACKFILLING TO BE BROUGHT UP EVENLY ON ALL SIDES.



CHIMNEY (SEE NOTE 13)

NOTES CONT'D:

- 7- C. DRY FLUORESCENCE DYE SHALL BE SPRINKLED INTO THE TRENCH OVER THE PIPE. IF THE TRENCH IS DRY, THE PIPE SHALL BE LIBERALLY HOSED WITH WATER, OR IF THE TRENCH IS WET, GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. OBSERVATION FOR LEAKS SHALL BE MADE IN THE FIRST DOWNSTREAM MANHOLE.
- LEAKAGE OBSERVED IN ANY OF THE ABOVE ALTERNATE TESTS SHALL BE CAUSE FOR NON-ACCEPTANCE AND THE PIPE SHALL BE DUG-UP IF NECESSARY AND RE-LAID SO AS TO ASSURE WATER-TIGHTNESS
- 8- ILLEGAL CONNECTION. NOTHING BUT SANITARY WASTE FLOW FROM HOUSE TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS OR SUMP PUMPS OR ANY OTHER SIMILAR CONNECTION CARRYING RAIN WATER, DRAINAGE, OR GROUND WATER, SHALL NOT BE PERMITTED.
- 9- HOUSE WATER SERVICE SHOULD NOT BE LAID IN SAME TRENCH AS SEWER SERVICE, BUT WHEN NECESSARY, SHALL BE PLACED ABOVE AND TO ONE SIDE OF THE HOUSE SEWER AS SHOWN
- 10- BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATERIAL AND MEETING ASTM C33-67
 - 100% PASSING 1 INCH SCREEN
 - 90-100% PASSING 3/4 INCH SCREEN
 - 20-55% PASSING 3/8 INCH SCREEN
 - 0-10% PASSING #4 SIEVE
 - 0-5% PASSING #8 SIEVE

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1/2 INCH SHALL BE USED
- 11- LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL CHIMNEY DETAIL TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPEFINDER.
- 12- CONCRETE CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:
 - CEMENT 6.0 BAGS/C.Y.
 - WATER 5.75 GALS / BAG CEMENT
 - AGGREGATE 1 1/2" MAX.
- 13- CHIMNEYS: IF VERTICAL DROP INTO SEWER IS GREATER THAN 4', A CHIMNEY SHALL BE CONSTRUCTED FOR THE HOUSE CONNECTION.

REVISIONS	
DATE	CHANGE
1/74	MISCELLANEOUS NOTES ADDED OR CORRECTED
1/75	RELOCATED OBSERVATION TEE & PLUG ADDED. NOTE 6 & 7
2/77	ARCH ENCASEMENT REPLACED BY FULL CONCRETE ENCASEMENT
	TO CLASS 'A' INSTEAD OF 'B' SIZE LIMIT ADDED

NEW HAMPSHIRE WATER SUPPLY & POLLUTION CONTROL COMMISSION	
HOUSE SEWER DETAILS	
SCALE: NONE	DATE: JULY 1990

RECORD PLAN