

Sanitary Sewer Relocation  
For

**BOEING MILITARY AIRPLANE COMPANY**  
WICHITA, KANSAS

**INDUSTRIAL WASTEWATER  
TREATMENT PLANT IMPROVEMENTS**

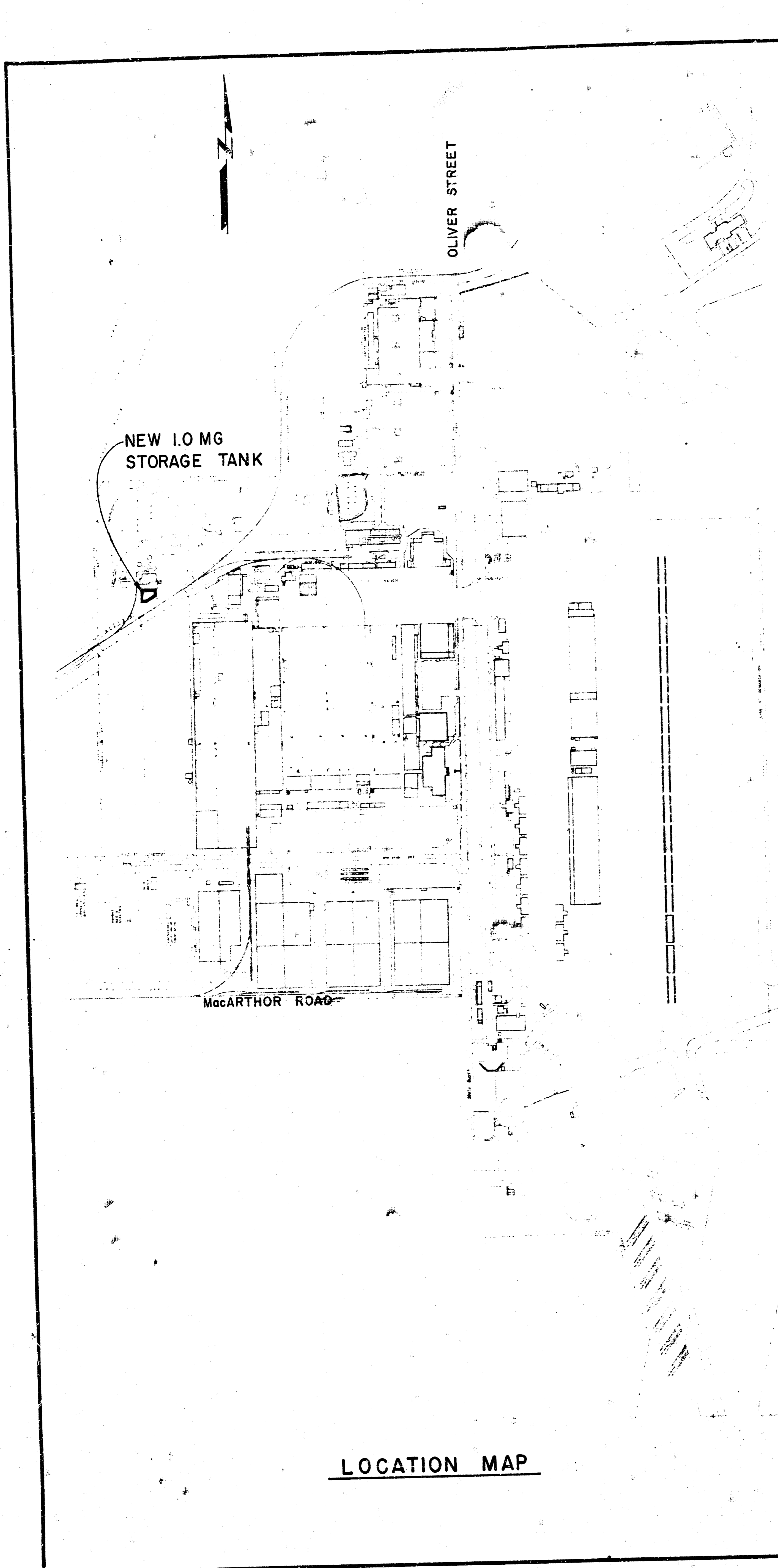
**1.0 MILLION GALLON  
WASTEWATER STORAGE TANK**

**BLACK & VEATCH ENGINEERS-ARCHITECTS**  
KANSAS CITY, MISSOURI  
PROJECT NO. 11903.001  
1984

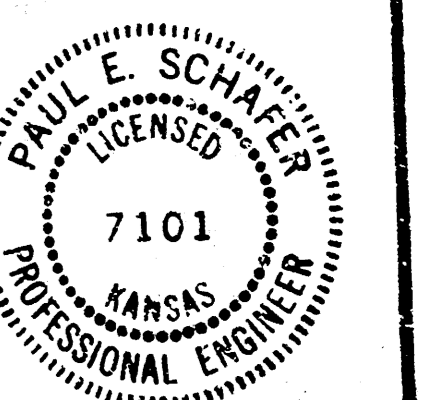
**SHEET LIST:**

1. GENERAL LAYOUT
2. STORAGE TANK - PLAN AND SECTIONAL PLAN
3. STORAGE TANK - REINFORCING PLANS
4. STORAGE TANK - CONCRETE SECTIONS AND DETAILS
5. PUMP STATION AND FLOW CONTROL M.H. - SECTIONS AND DETAILS
6. STANDARD CONCRETE DETAILS
7. MISCELLANEOUS DETAILS
8. ELECTRICAL - PLAN VIEWS
9. ELECTRICAL - SCHEMATICS AND ONE-LINES

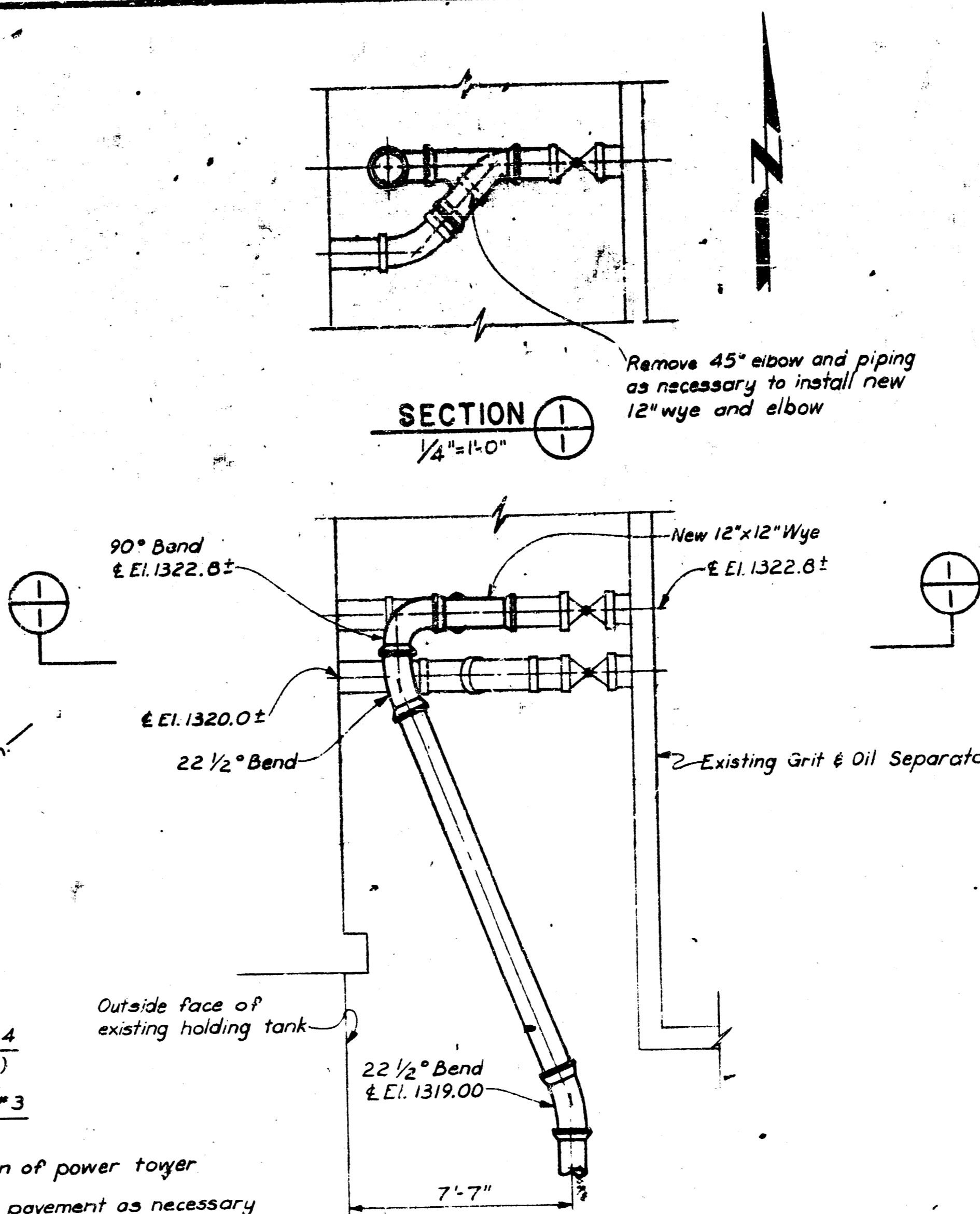
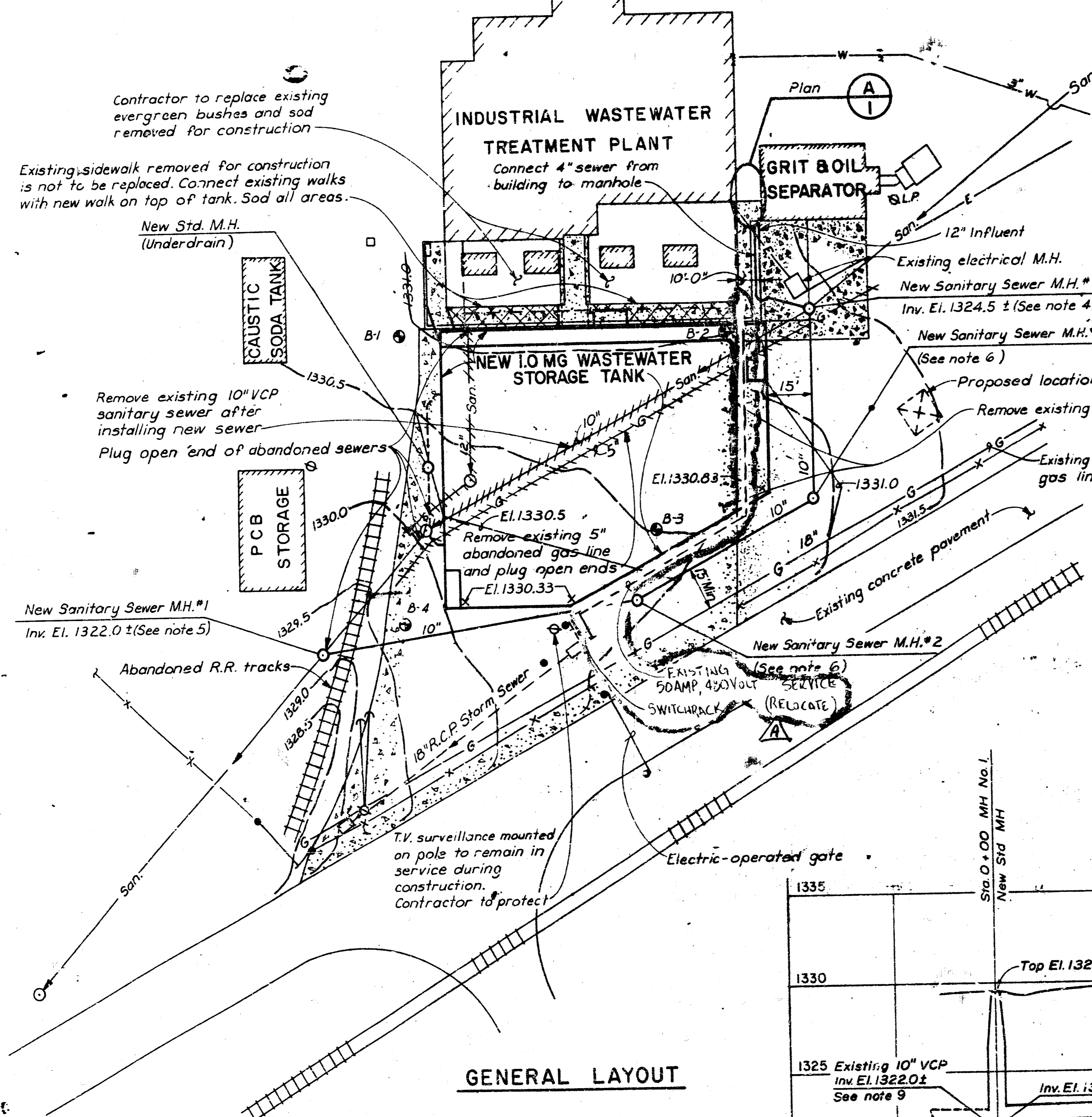
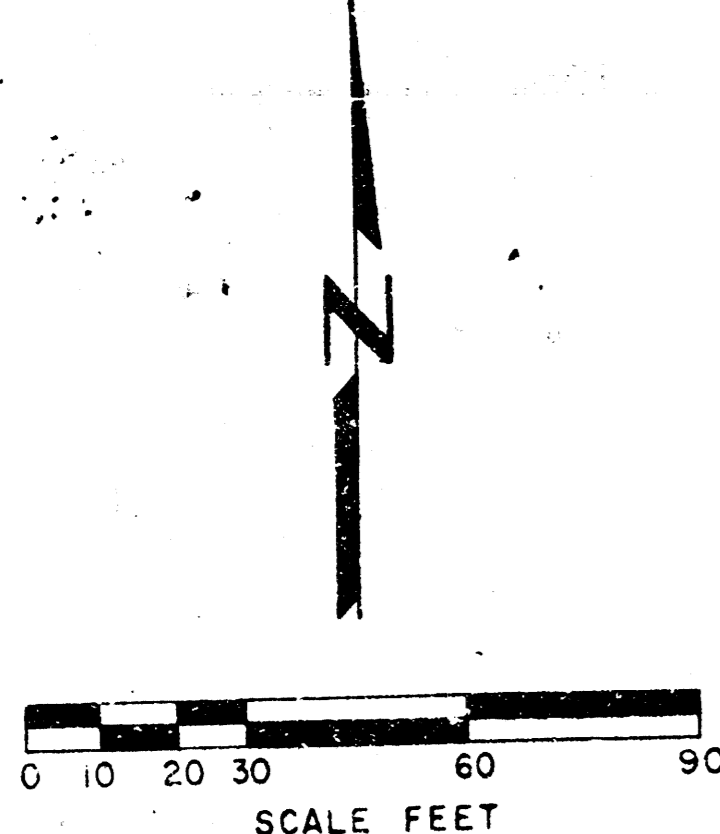
PROJECT No. 468-76-245-80001-000-000-033



**LOCATION MAP**

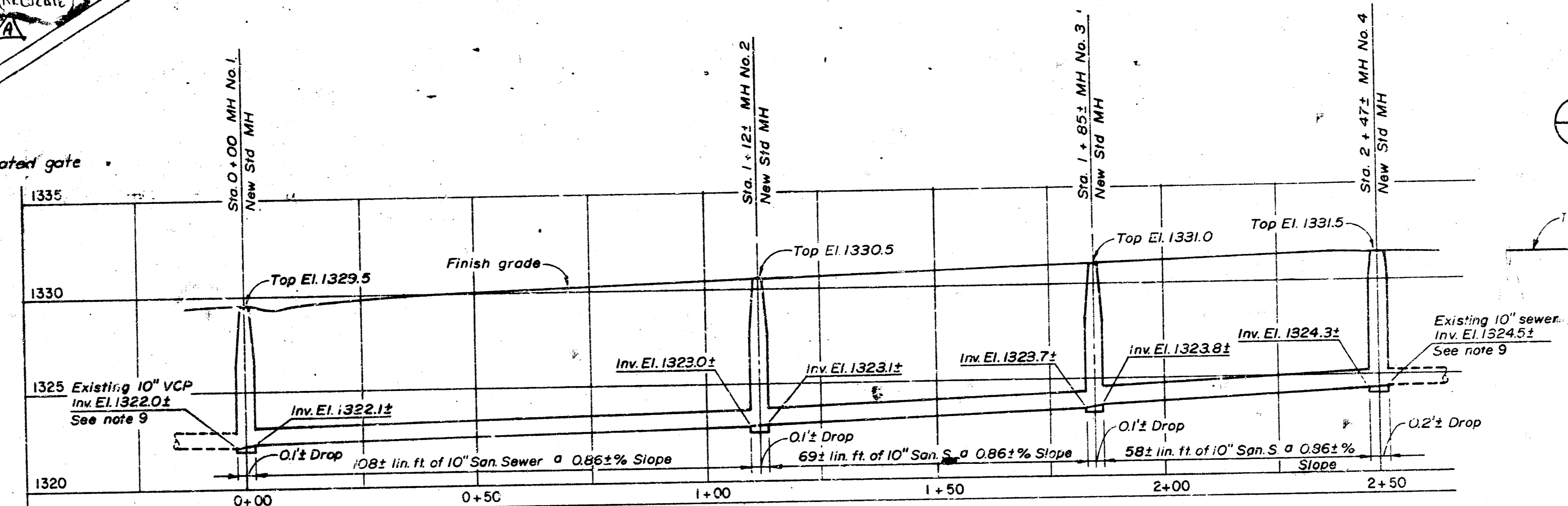


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Notes:  
 1. The area between the existing building and the existing grit and oil separation building is congested with electrical duct bank, 4" sewer, small drain lines, small water lines, etc. Extensive hand excavation may be necessary.  
 2. Rotate bends and deflect pipe as necessary to change elevation.

CONNECTION PLAN A 1/4"=1'-0"



NEW SANITARY SEWER PROFILE  
 Horizontal Scale 1"=20'-0"  
 Vertical Scale 1"=5'-0"

GENERAL NOTES

- All existing elevations and location of M.H. and pipelines pertaining to new construction shall be verified by the Contractor prior to construction.
- All concrete pavement, sidewalks, bushes, sod and gravel surfacing removed by Contractor shall be replaced to a equal or better condition.
- For details of Sanitary Sewer Manholes see Sheet 7.
- New Sanitary Manhole to be built over existing sewer. Inv. El out to be 0.1 below existing sewer.
- New Sanitary Manhole to be built over existing sewer. Inv. El of 1322.01, the new incoming sewer Inv. El is to be set 0.1 foot above the existing outgoing sewer.
- Contractor to provide uniform slope on relocated sewer line between new manholes #1 and #4 with 0.1 foot of fall across manholes #2 and #3.
- Contractor to saw cut existing concrete pavement at edge of excavation. Provide expansion joint material between new and existing pavement sections and between new pavement and concrete structures.
- Diversion of flow in the existing Sanitary Sewer during construction is the responsibility of the Contractor. Contractor to provide pumps, piping, etc. as necessary to handle the Sanitary Sewerage until the final relocated sewer is installed and accepted.
- The invert elevations of the existing sewer is to be determined in the field by the Contractor.
- The sewer invert elevation on this profile were developed from as built drawings. Final invert elevations and slopes may vary, as determined by the Engineer, after Contractor verifies the existing sewer invert at MH No. 1 and MH No. 4.

ABBREVIATIONS

Alum	Aluminum
L	Angle
B	Beam
B-102	Beam Number
CI	Cast Iron
CI/MH	Cast Iron Manhole
C	Centerline
Conc	Concrete
Cr	Course
Dia	Diameter
El	Elevation
EF	Each Face
EW	Each Way
G	Gas
HDPE	High Density Polyethylene
Inv	Invert
LP	Light Pole
MH	Manhole
MJ	Mechanical Joint
Min	Minimum
Max	Maximum
OD	Outside Diameter
PE	Plain End
PVC	Polyvinyl Chloride
RCP	Reinforced Concrete Pipe
Reint	Reinforcing
San	Sanitary
Sh	Sheet
Std	Standard
SS	Stainless Steel
Sq	Square
SE	South East
SW	South West
Typ	Typical
VCP	Vitrified Clay Pipe
WWF	Welded Wire Fabric
W	With
W	Water

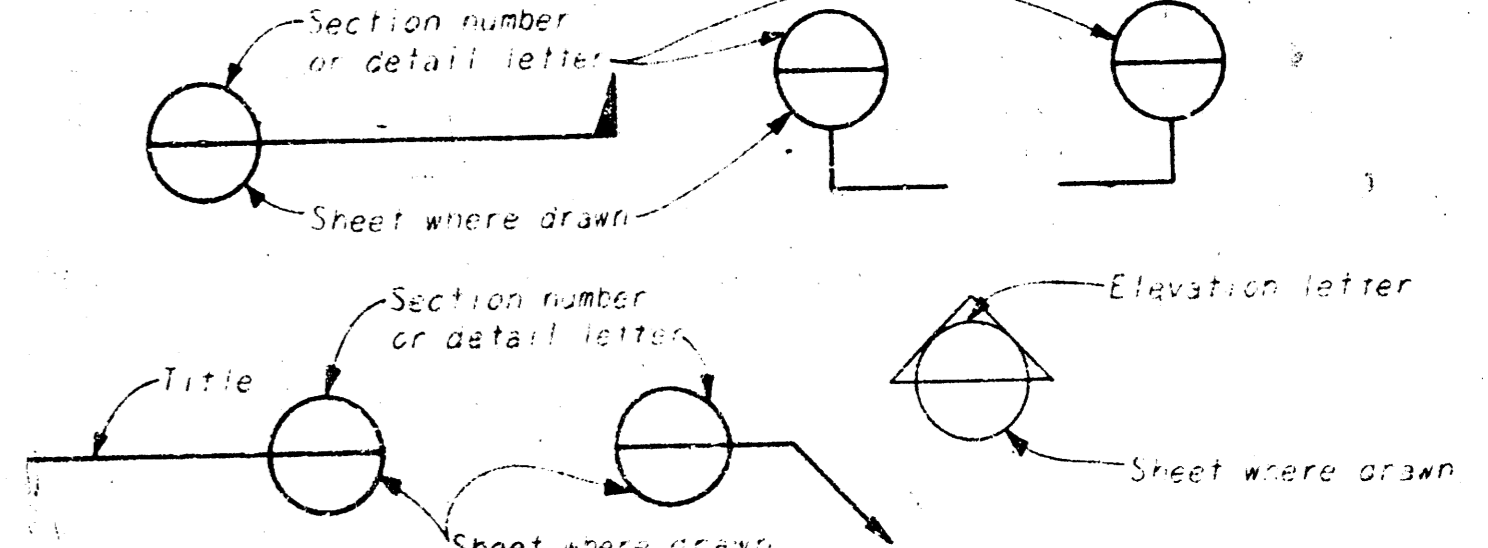
GENERAL SYMBOLS

[Symbol]	New structure
[Symbol]	Existing structure above ground
[Symbol]	Existing structure below ground
[Symbol]	New gravel surfacing
[Symbol]	Existing gravel surfacing
[Symbol]	Existing concrete pavement and sidewalks
[Symbol]	New concrete sidewalk and pavement
[Symbol]	Existing contour
[Symbol]	Finish grade contour
[Symbol]	Grill test hole or number
[Symbol]	Existing piping
[Symbol]	Existing piping to be removed or abandoned
[Symbol]	New piping
[Symbol]	Finish grade or pavement spot elevation
[Symbol]	Power pole
[Symbol]	Existing chain link fence
[Symbol]	Underground electrical duct bank

MATERIALS LEGEND

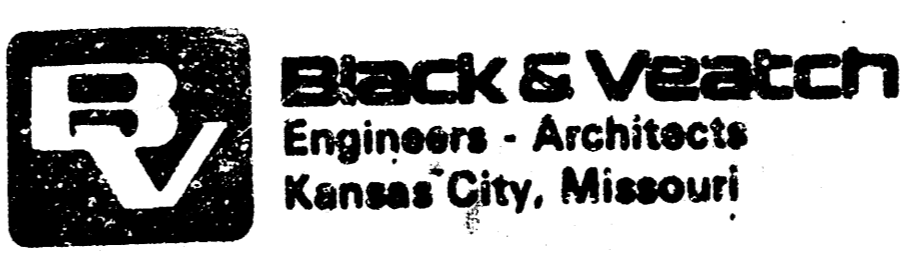
[Symbol]	New concrete (in section)
[Symbol]	Existing concrete (in section)
[Symbol]	Metal
[Symbol]	Compacted granular fill
[Symbol]	Finish grade

REFERENCE SYMBOLS



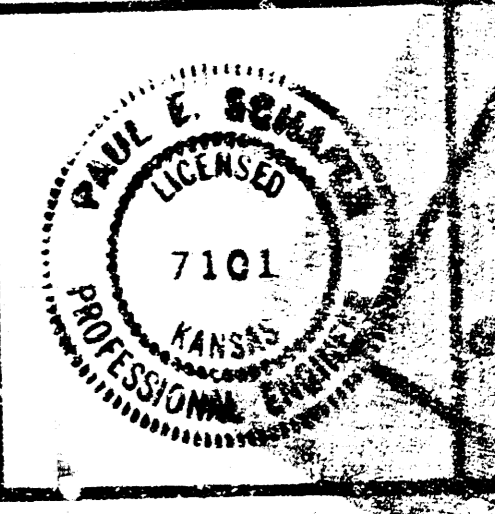
DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
7/24/85	REFERENCED FEEDER TO GATE #16 FOR RELOCATION	A	JL		

DESIGNED	MPS
DETAILED	SCH
CHECKED	RAM
APPROVED	[Signature]
DATE	3/20/84

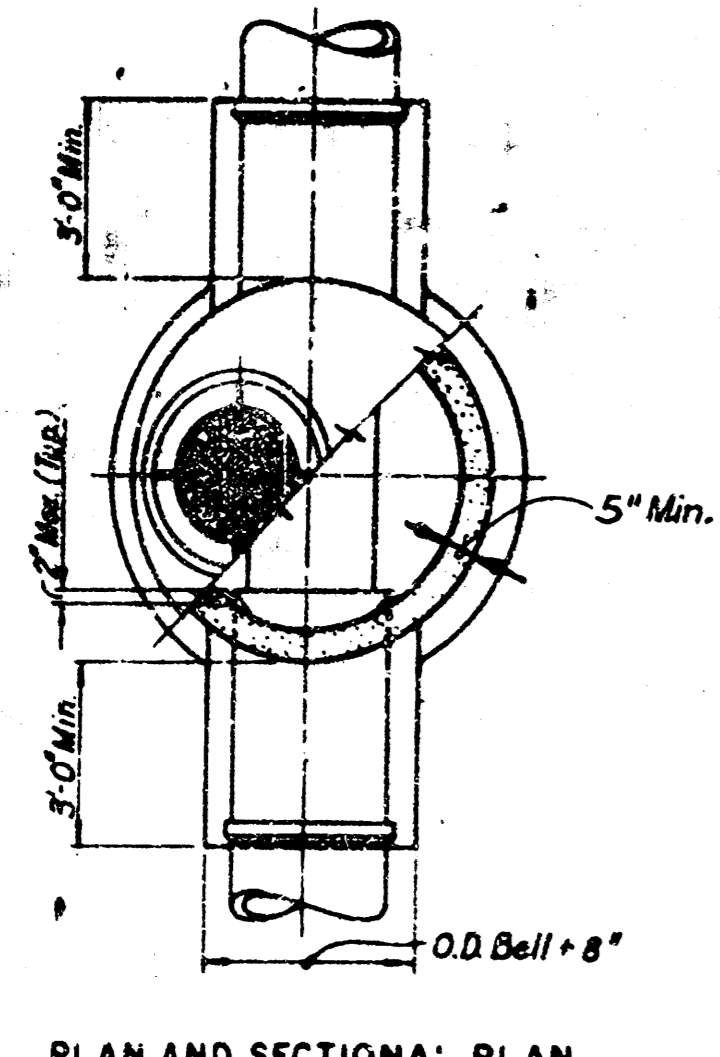


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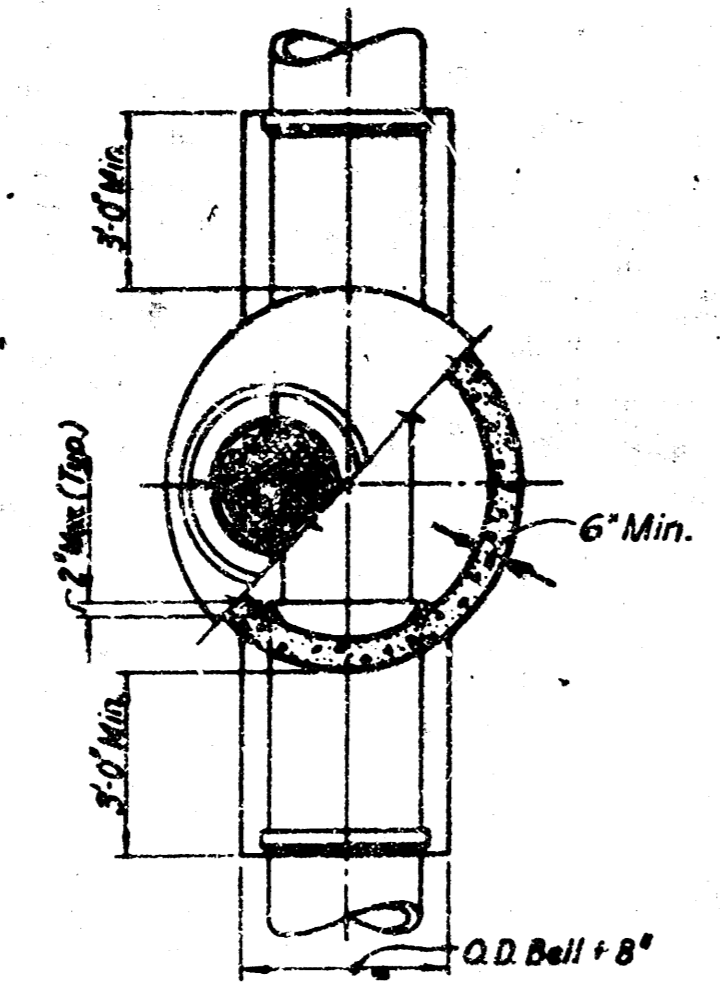
BOEING MILITARY AIRPLANE CO.  
INDUSTRIAL WASTEWATER PLANT IMPROVEMENTS  
GENERAL LAYOUT  
LEGEND



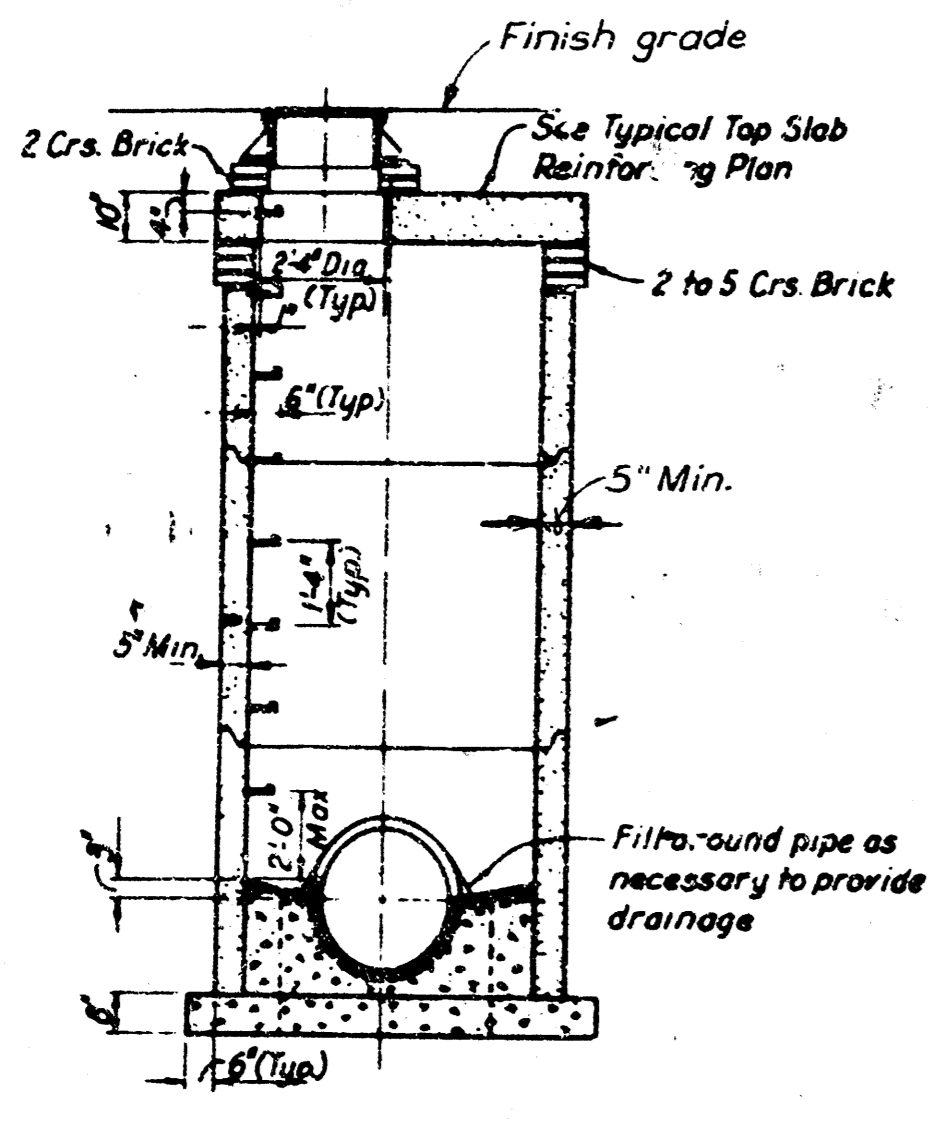
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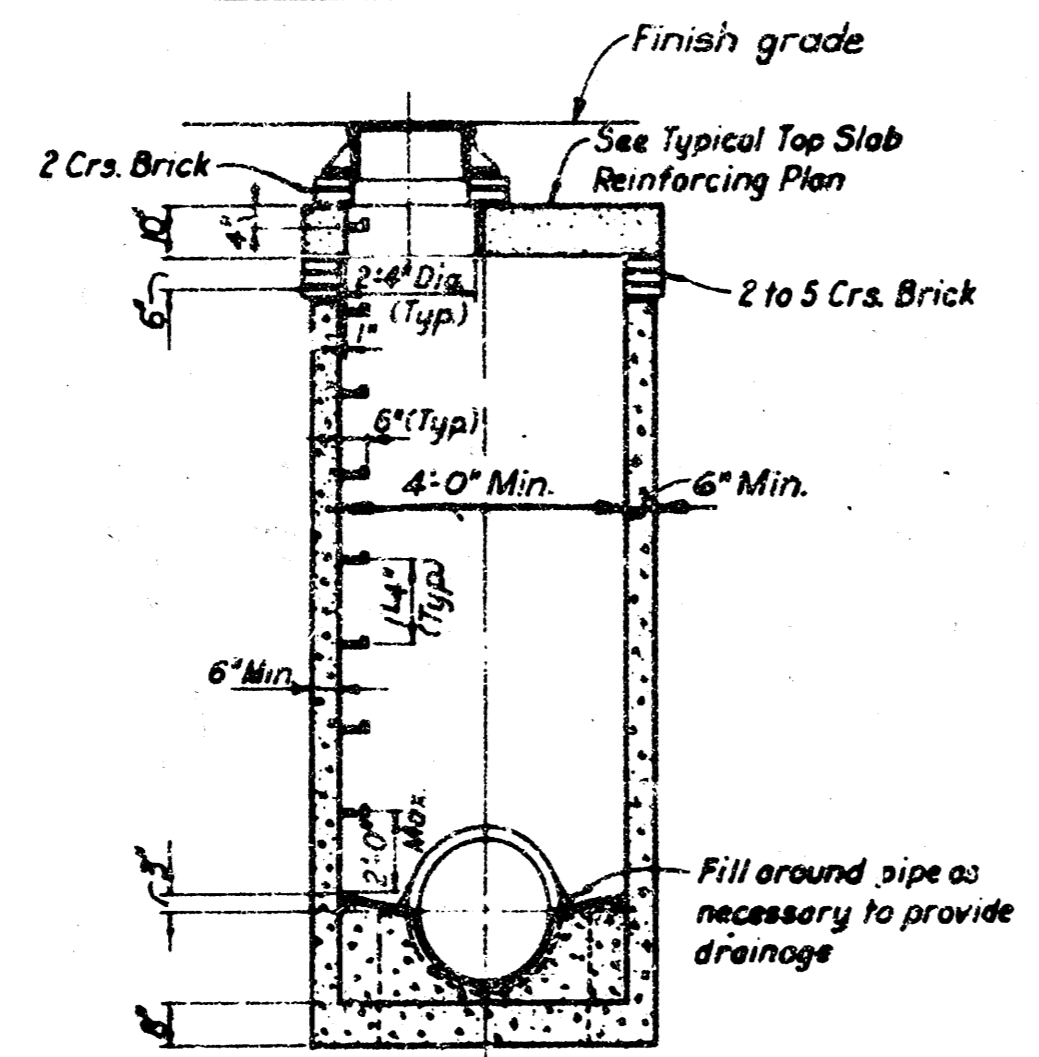
PLAN AND SECTIONAL PLAN



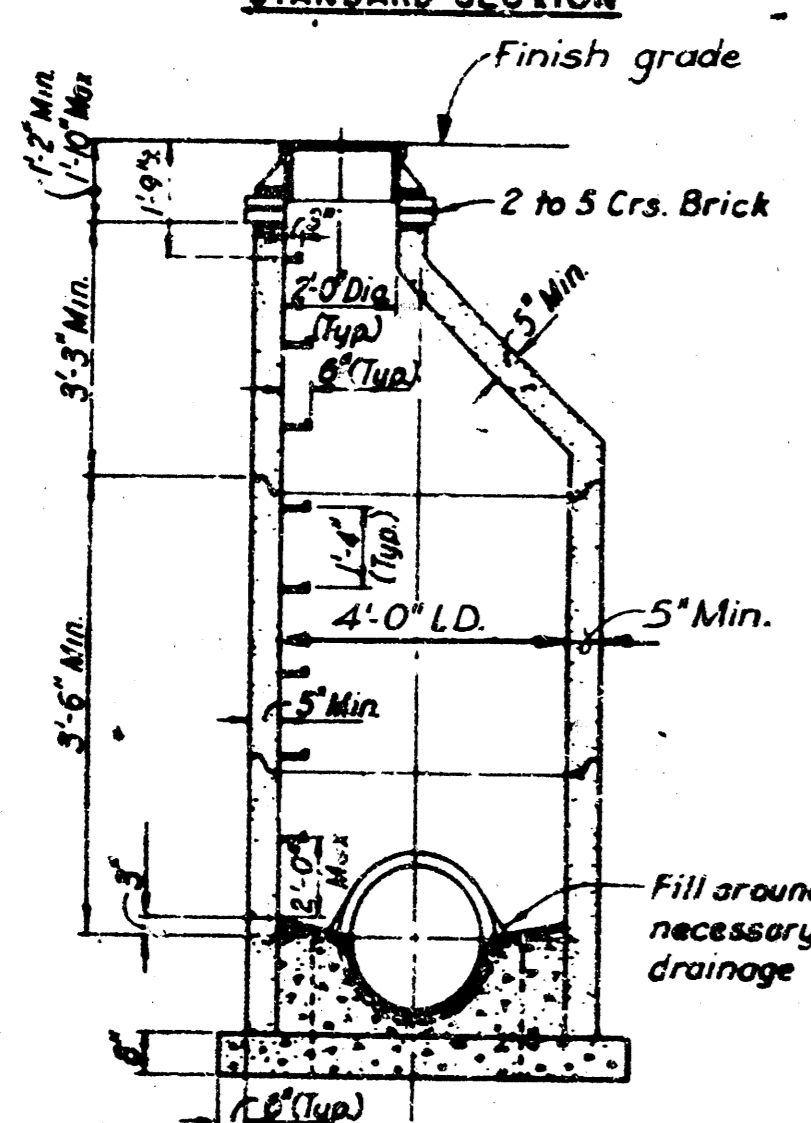
PLAN AND SECTIONAL PLAN



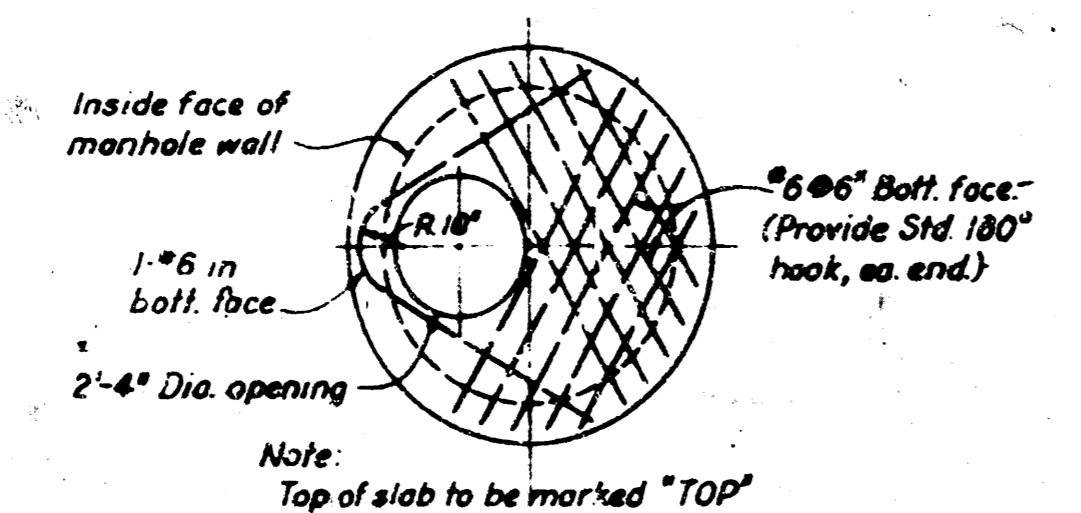
STANDARD SECTION



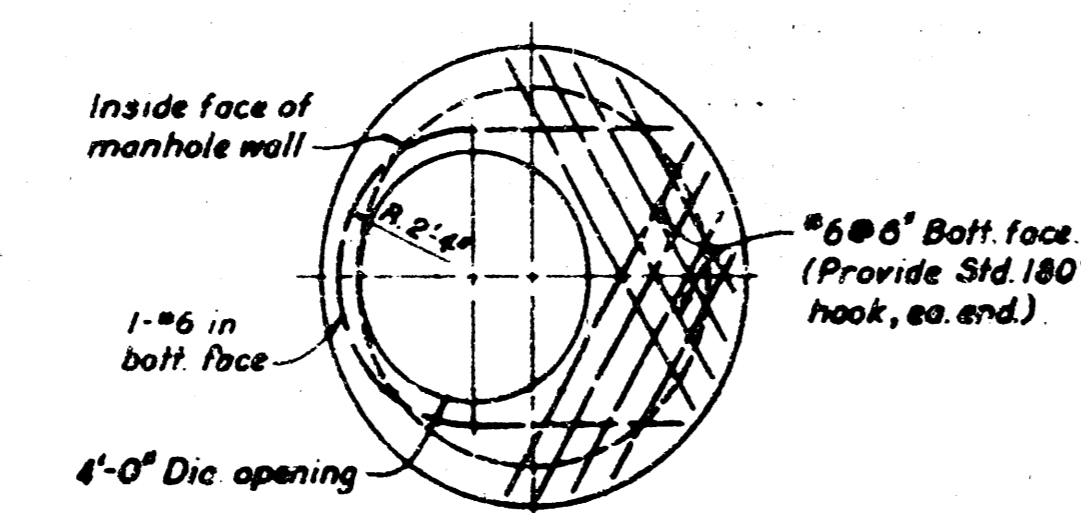
STANDARD SECTION  
CONCRETE POURED IN PLACE MANHOLE



ALTERNATIVE STANDARD SECTION



TYPICAL TOP SLAB REINFORCING PLAN



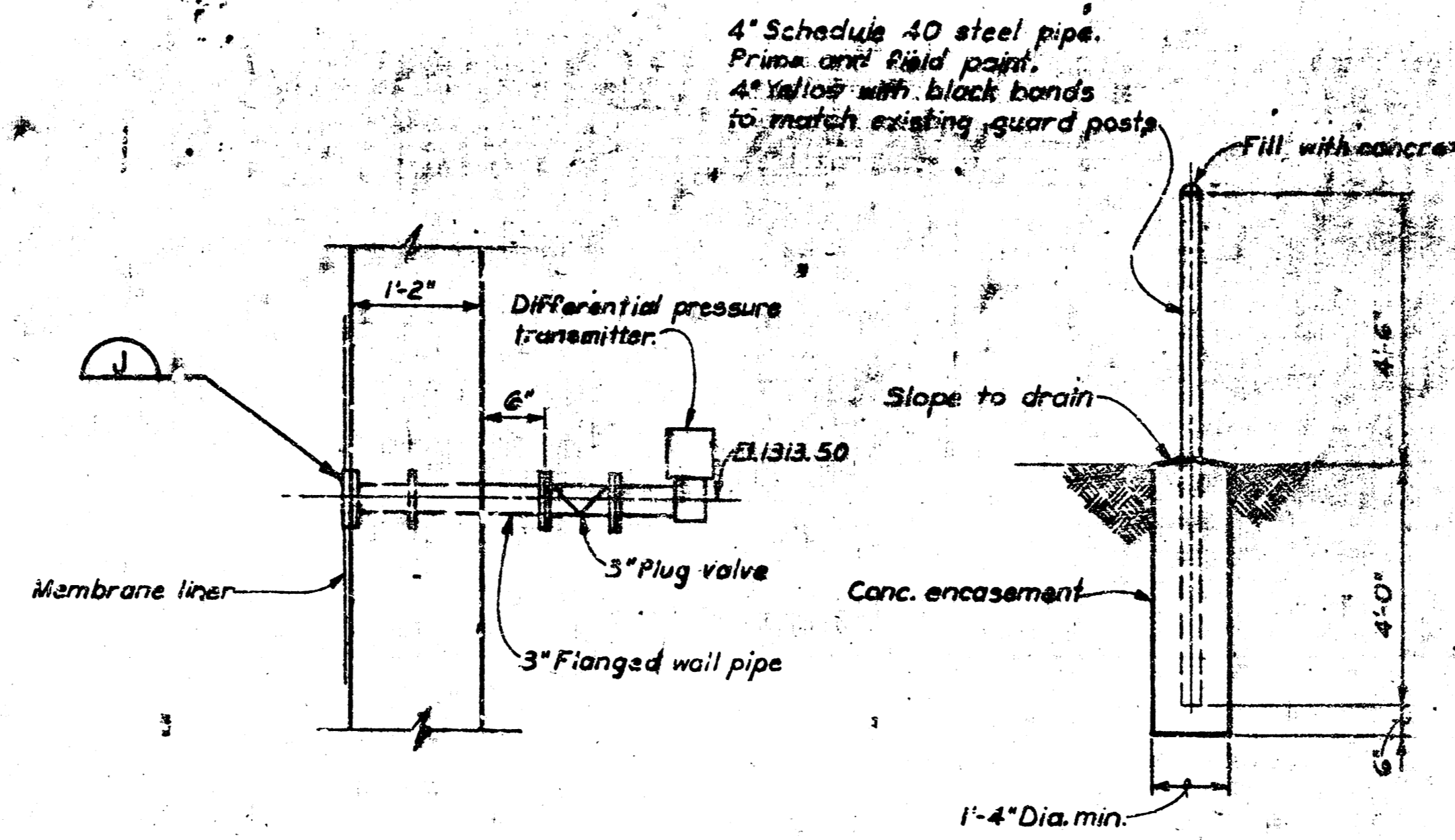
TYPICAL REDUCER SLAB REINFORCING PLAN

**GENERAL MANHOLE NOTES**

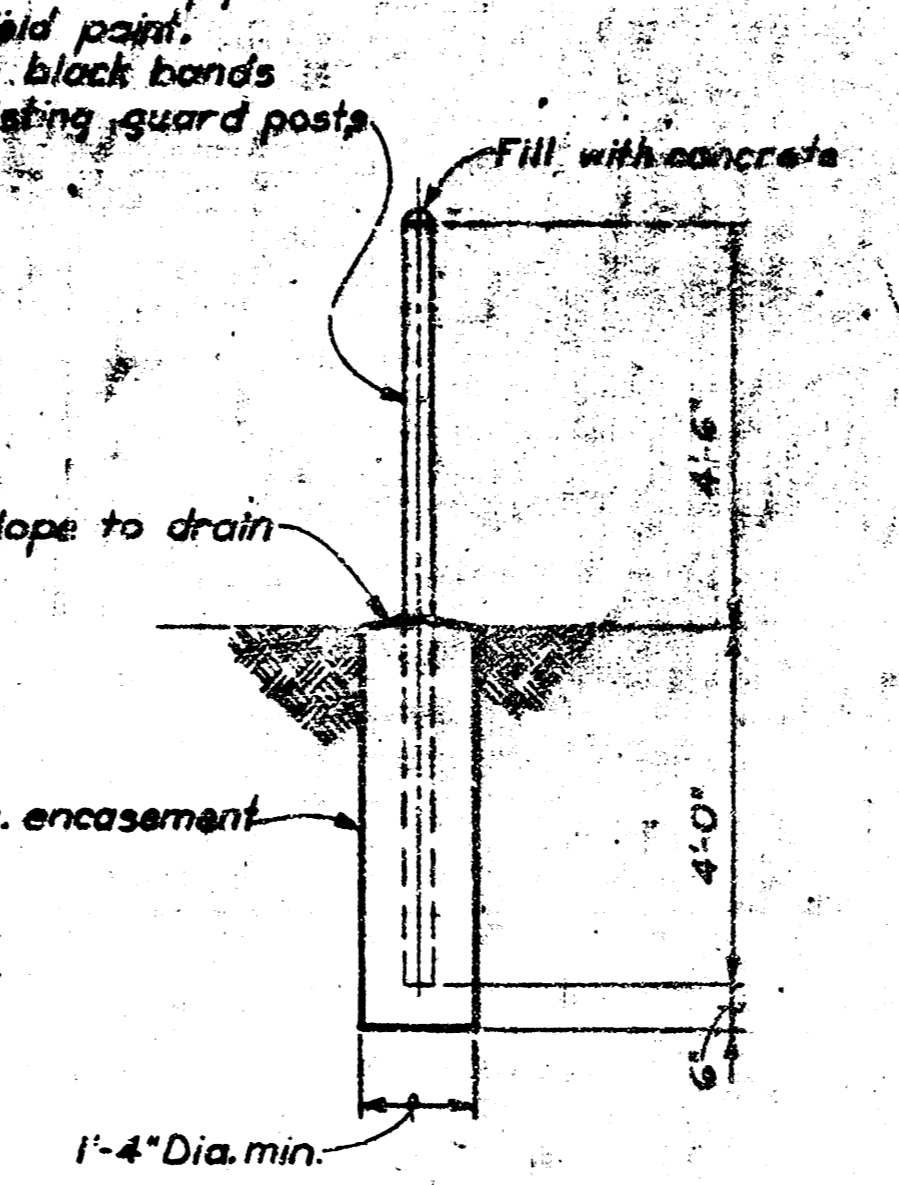
- All manhole rings to be set in mortar.
- Any material excavated beneath pipe entering or leaving manholes shall be replaced with concrete; such concrete fill shall extend to the center of the pipe for a distance of at least 3'-0" from face of manhole and shall terminate at c bell.
- Wall reinforcing in precast manhole circular sections to be ASTM C-76 Class III.
- Manhole steps in precast manholes to be grouted in with expanding grout.
- Manhole inverts shown as poured concrete. At contractor's option, inverts may be built up using brick and mortar. Provide 1" minimum cement mortar finish, all inverts.

**LEGEND**

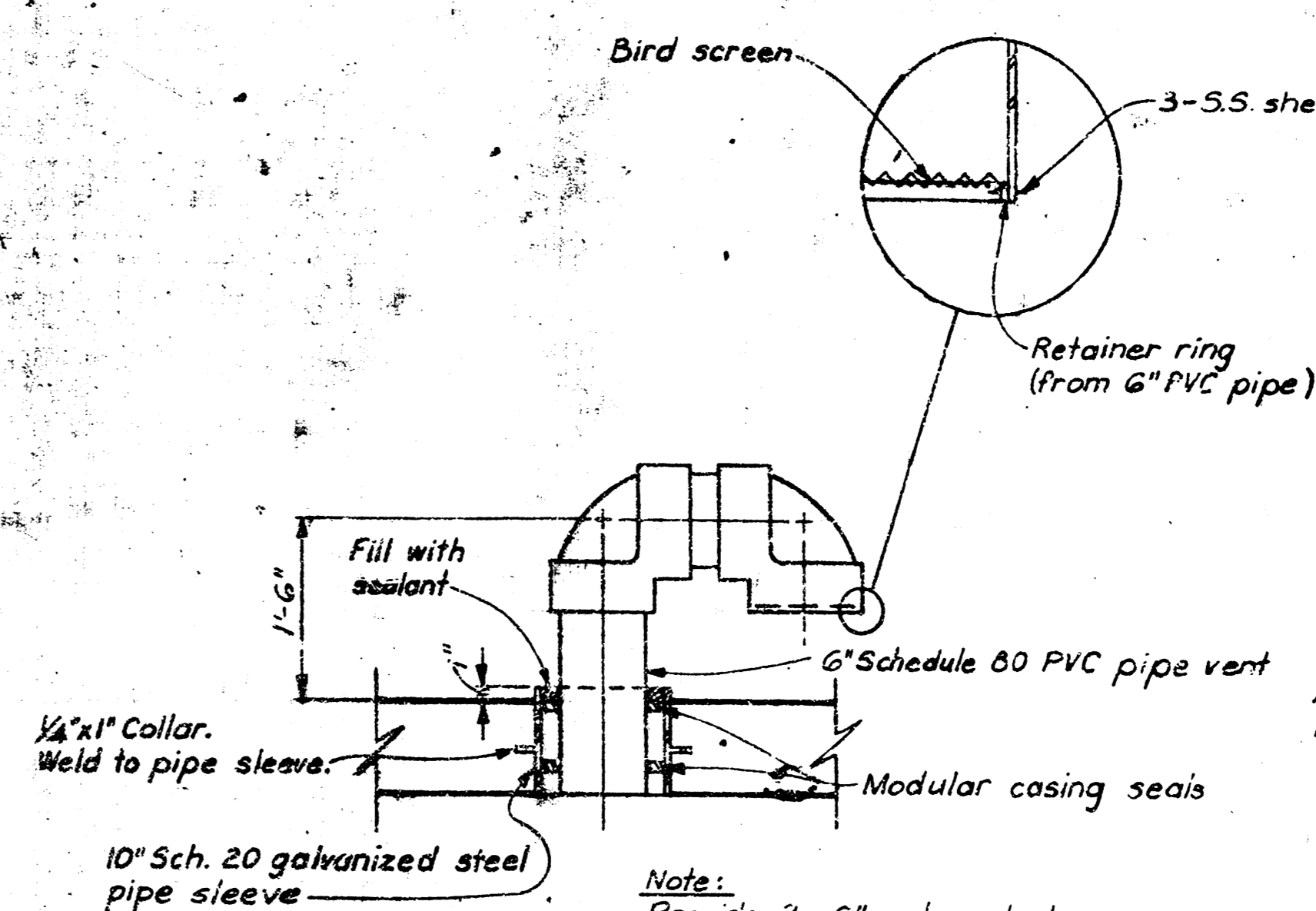
- Concrete poured in place
- Precast concrete
- Brick masonry



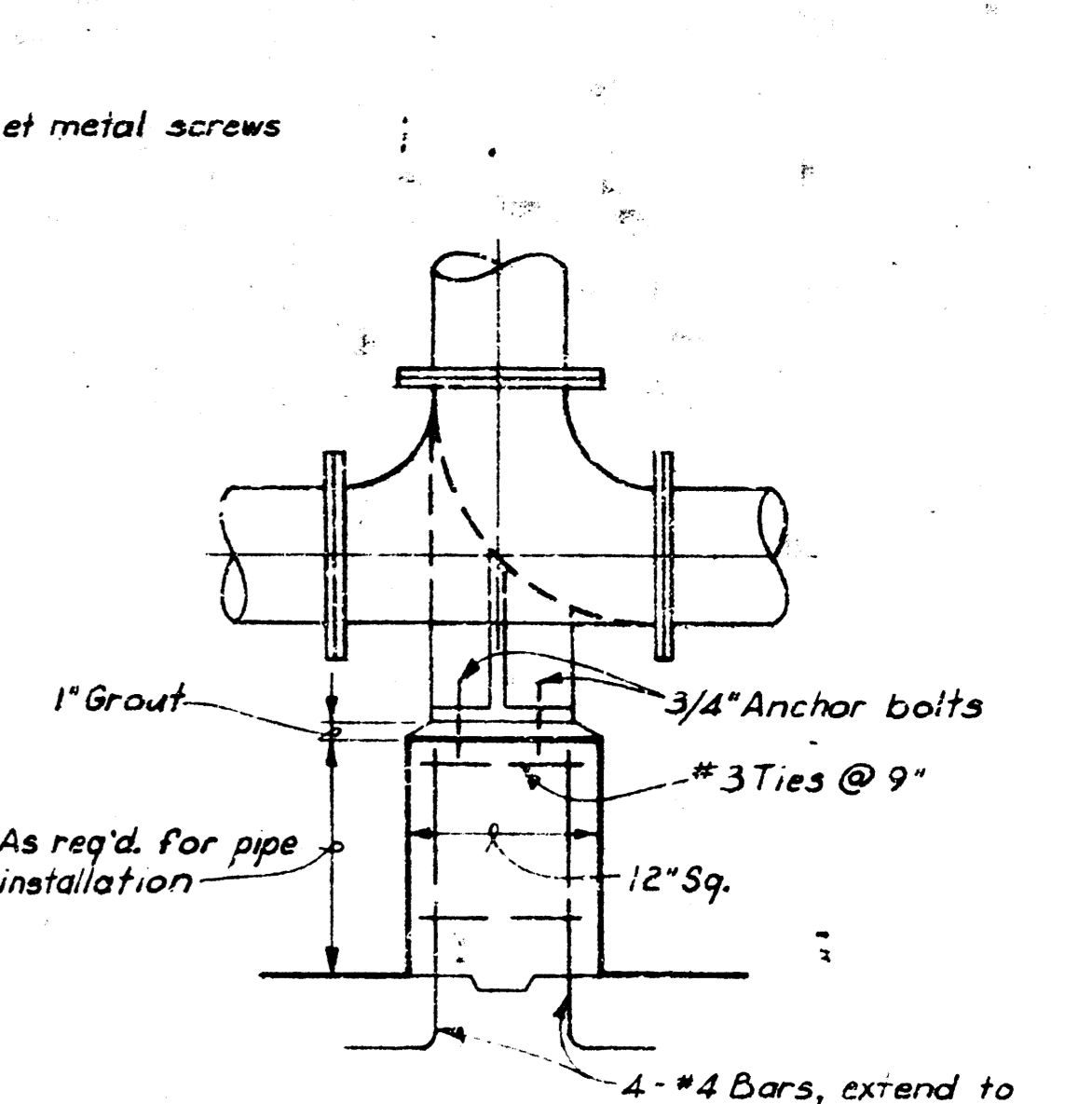
DIFFERENTIAL PRESSURE TRANSMITTER DETAIL (A) No Scale



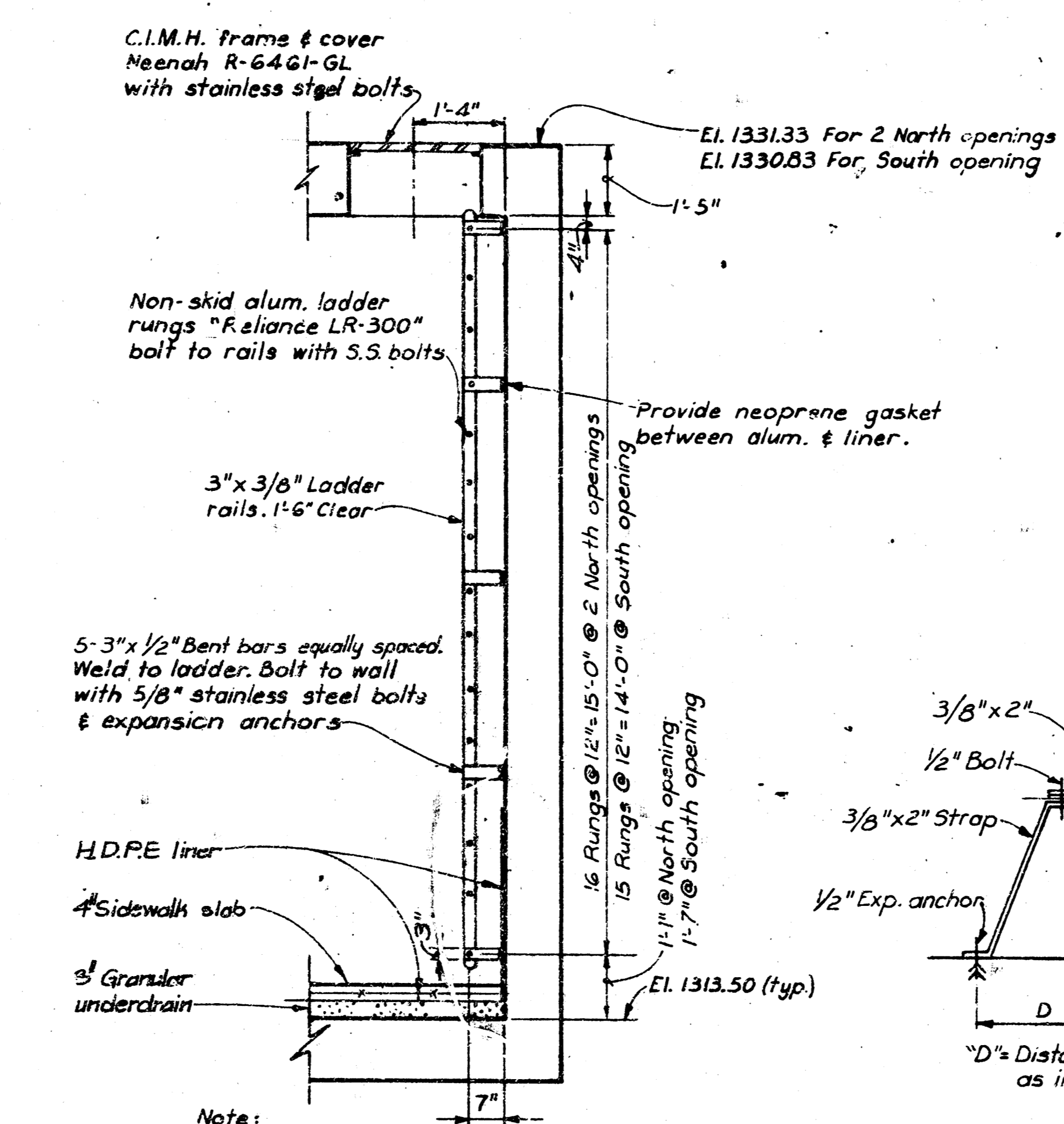
GUARD POST DETAIL (B) No Scale



VENT DETAIL (C) 1'-10" 2,5



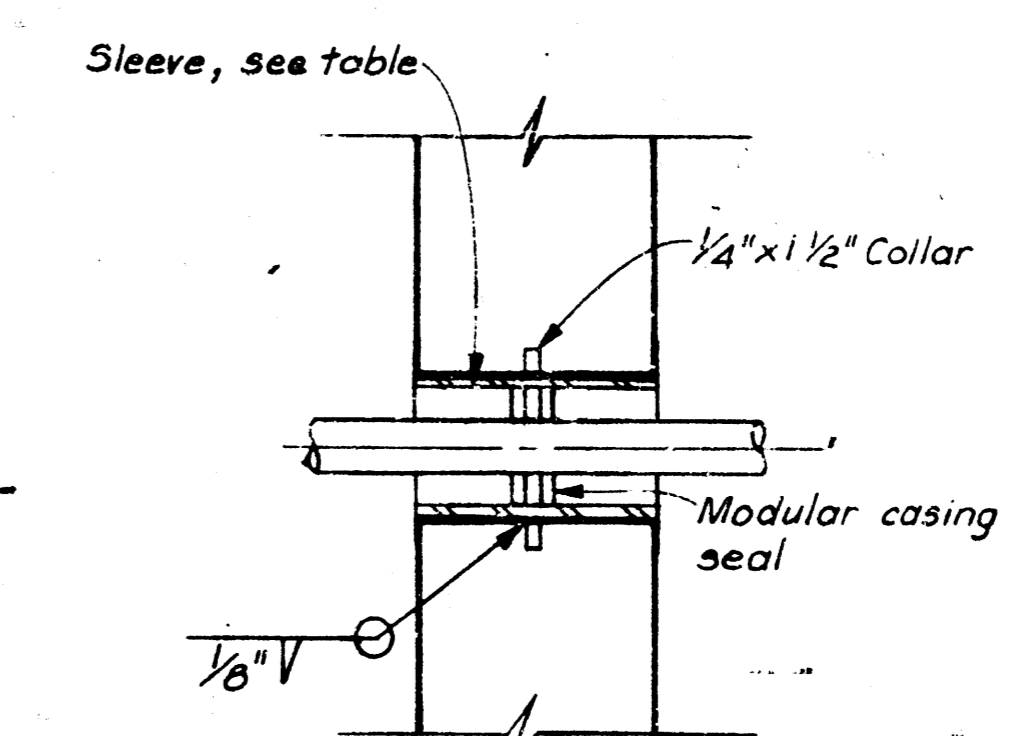
PIPE SUPPORT DETAIL (D) No Scale



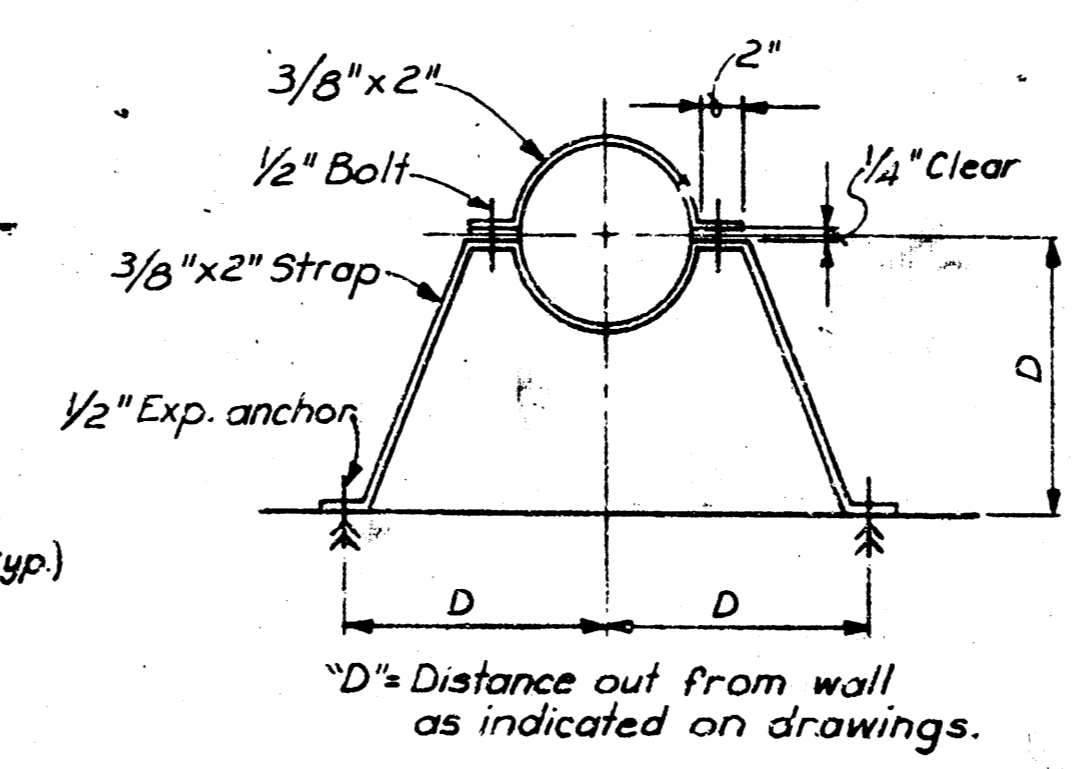
LADDER DETAIL (E) No Scale

PIPE SIZE	SLEEVE SIZE
1/2"	* 2"
3/4" & 1"	* 3"
1 1/4" & 1 1/2"	* 3 1/2"
2" & 2 1/2"	* 4"
3" & 3 1/2"	* 5"
4"	* 6"

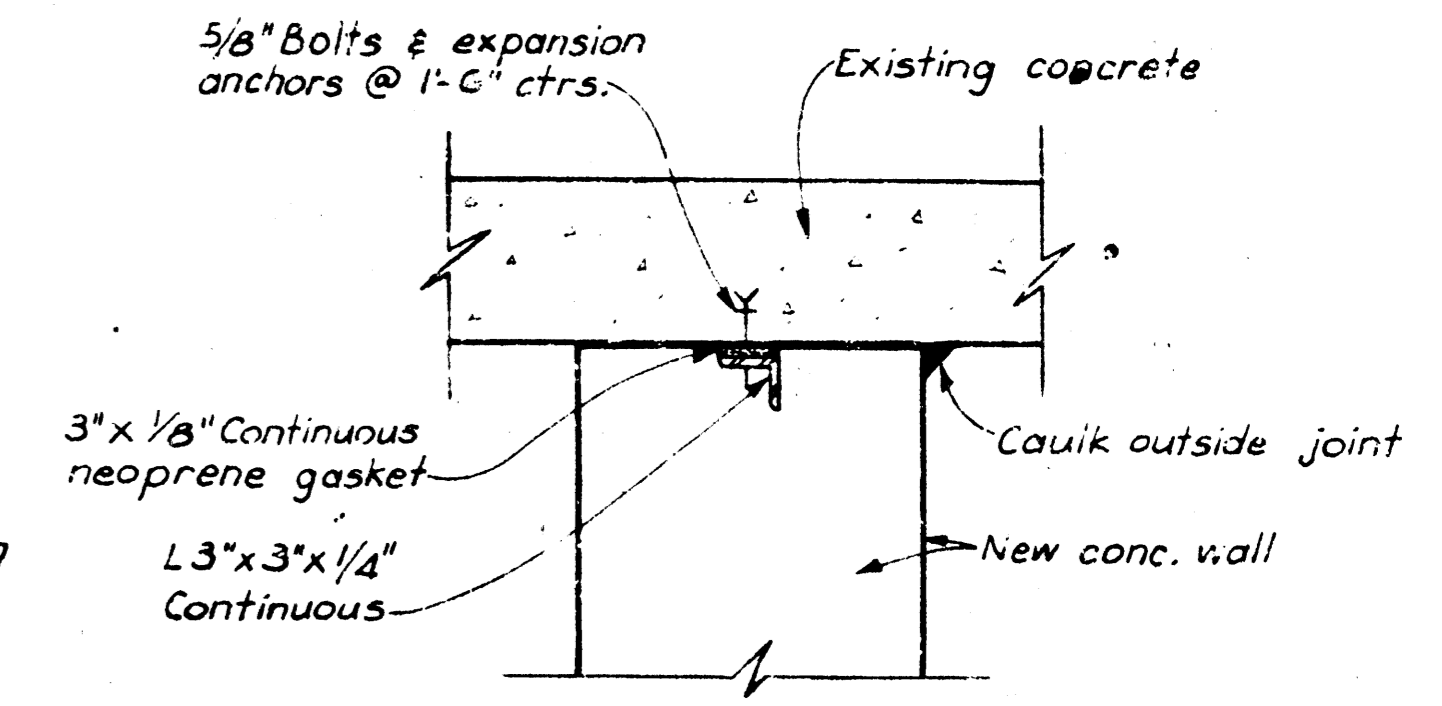
Larger than 4" Pipe OD + 2" (1)  
\* Schedule 40 std. size pipe  
(1) Fabricate with 1/4" Plate



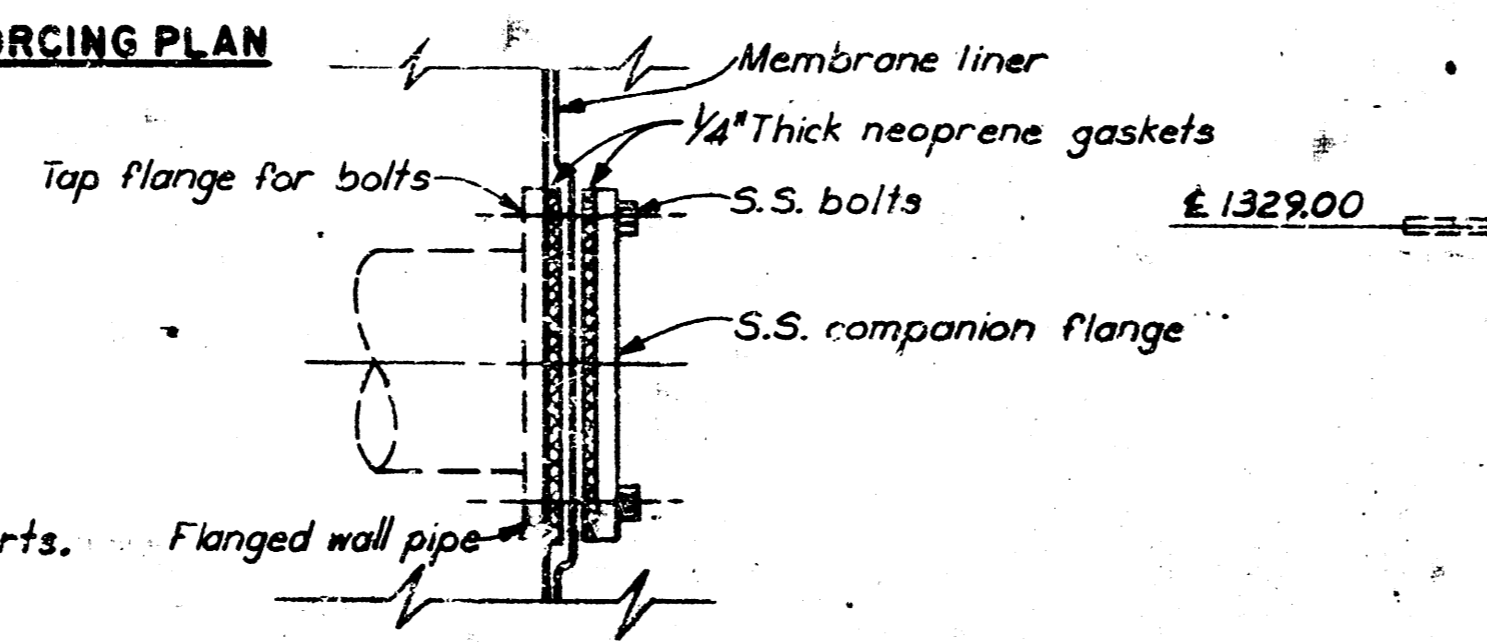
SLEEVE DETAIL (F) No Scale 4,5



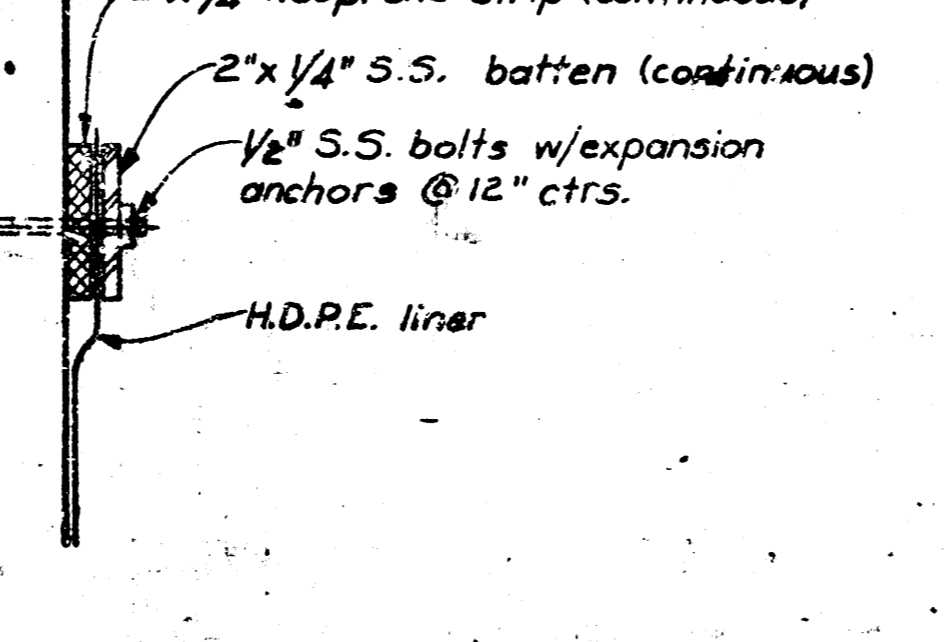
PIPE SUPPORT DETAIL (H) No Scale 4



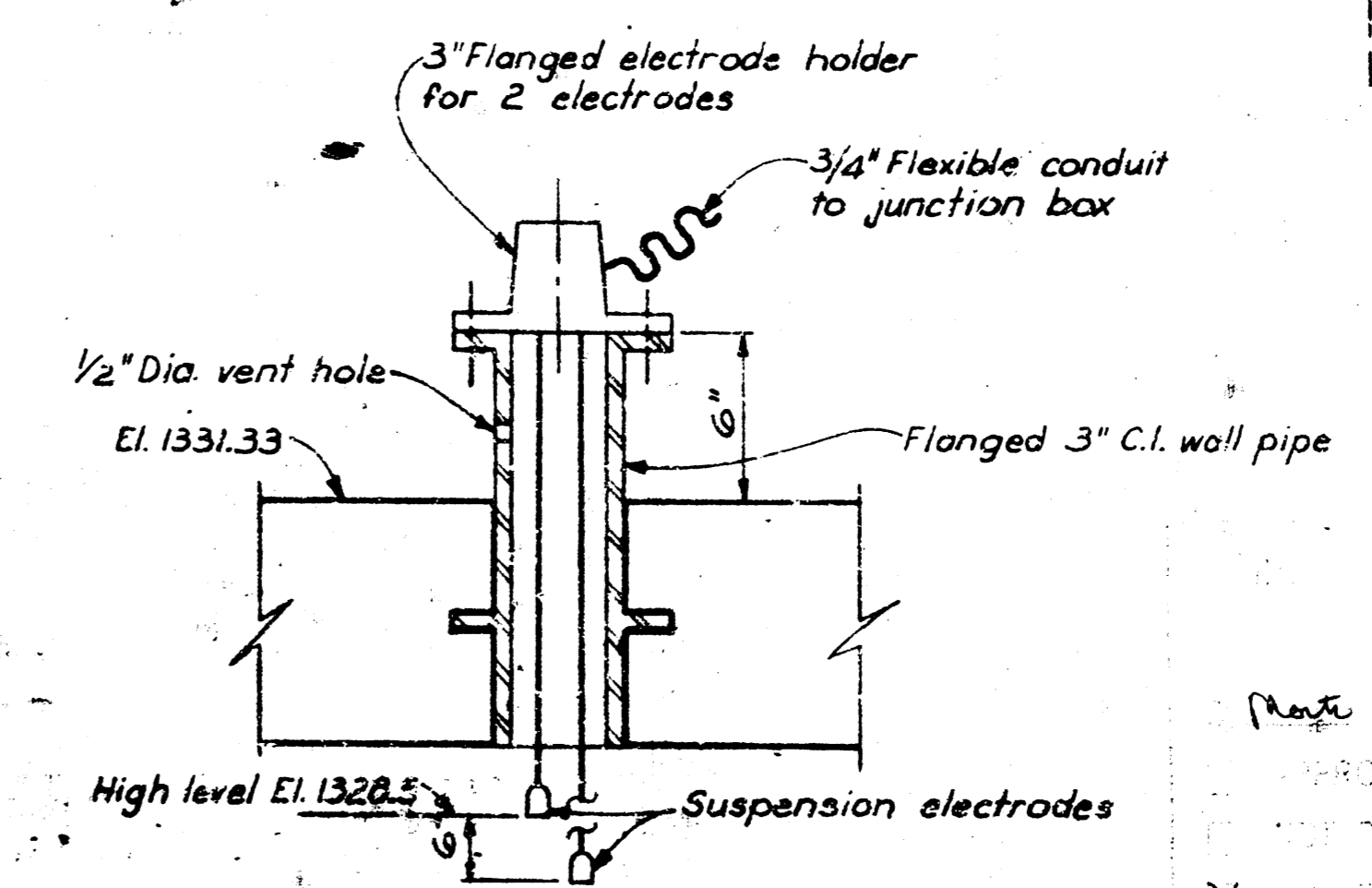
CONNECTION DETAIL (G) No Scale 5



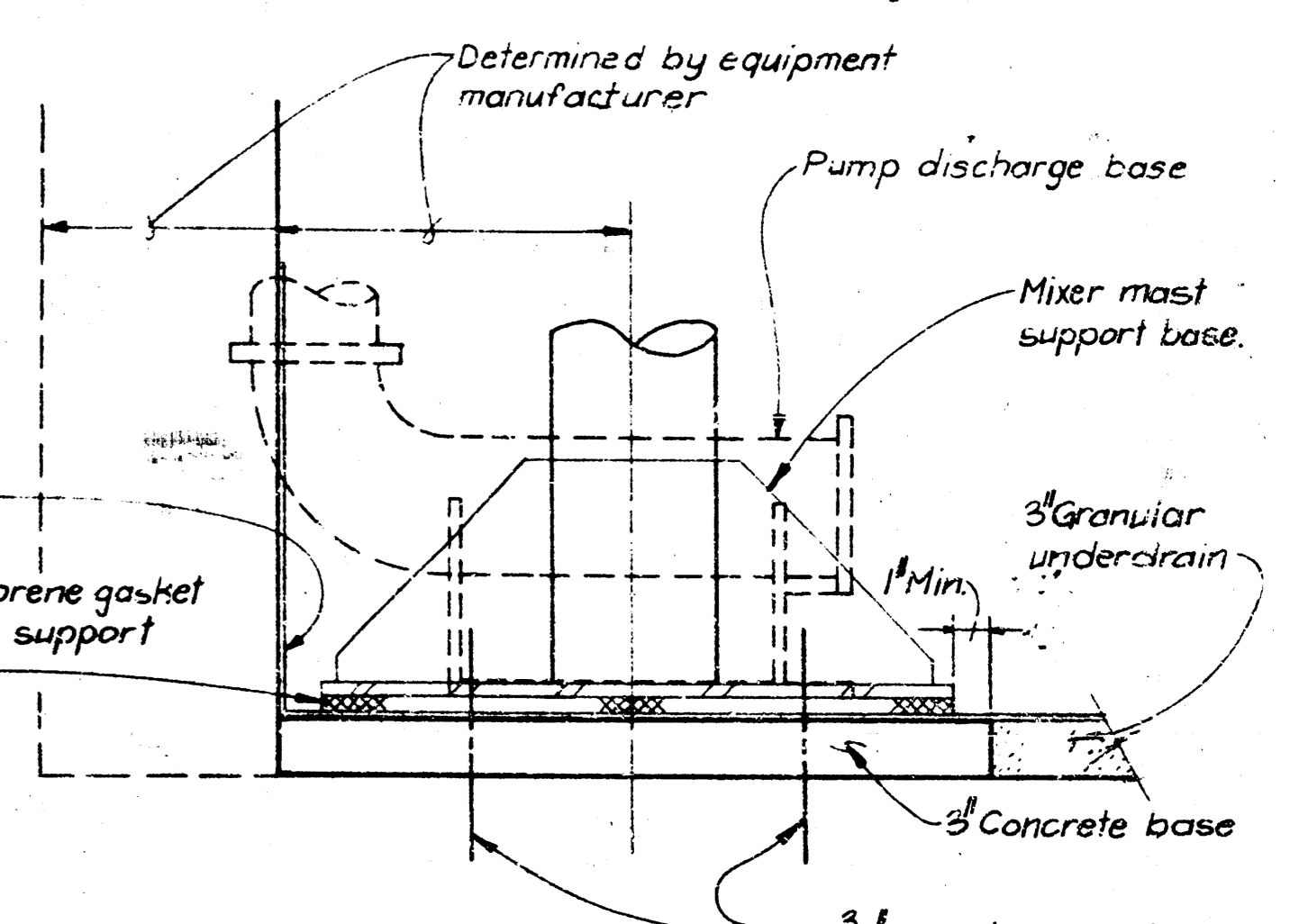
PIPE CONNECTIONS



TOP OF WALL



HIGH WATER ELECTRODE DETAIL (K) No Scale 2



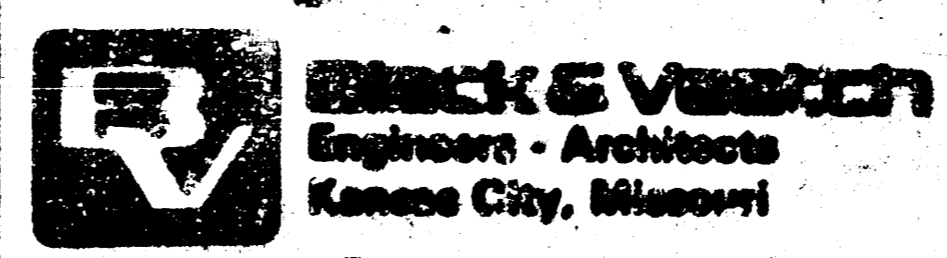
BASE DETAIL (L) No Scale 2,5

**MEMBRANE LINER CONNECTION DETAILS (J) No Scale 4,5**

CHECKED BY: L.C.  
DATE: 7-2-85

NO.	BY	CHK	APP	DATE	REVISIONS AND RECORD OF ISSUES

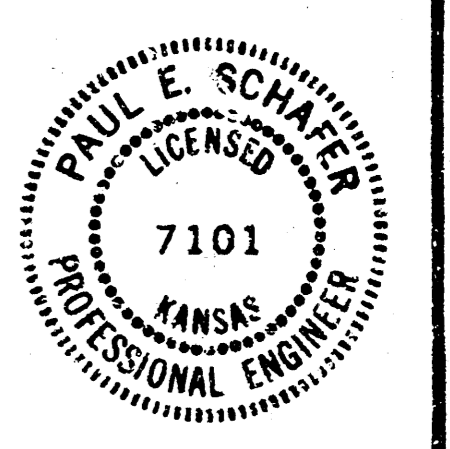
DESIGNED: M.P.S.  
DETAILED: S.C.H.  
CHECKED: R.A.M.  
APPROVED: [Signature]  
DATE: 3/22/85



PROJECT NO. 11903.001

BOEING MILITARY AIRPLANE CO.  
INDUSTRIAL WASTEWATER PLANT IMPROVEMENTS

MISCELLANEOUS DETAILS



SHEET 7 OF 9

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