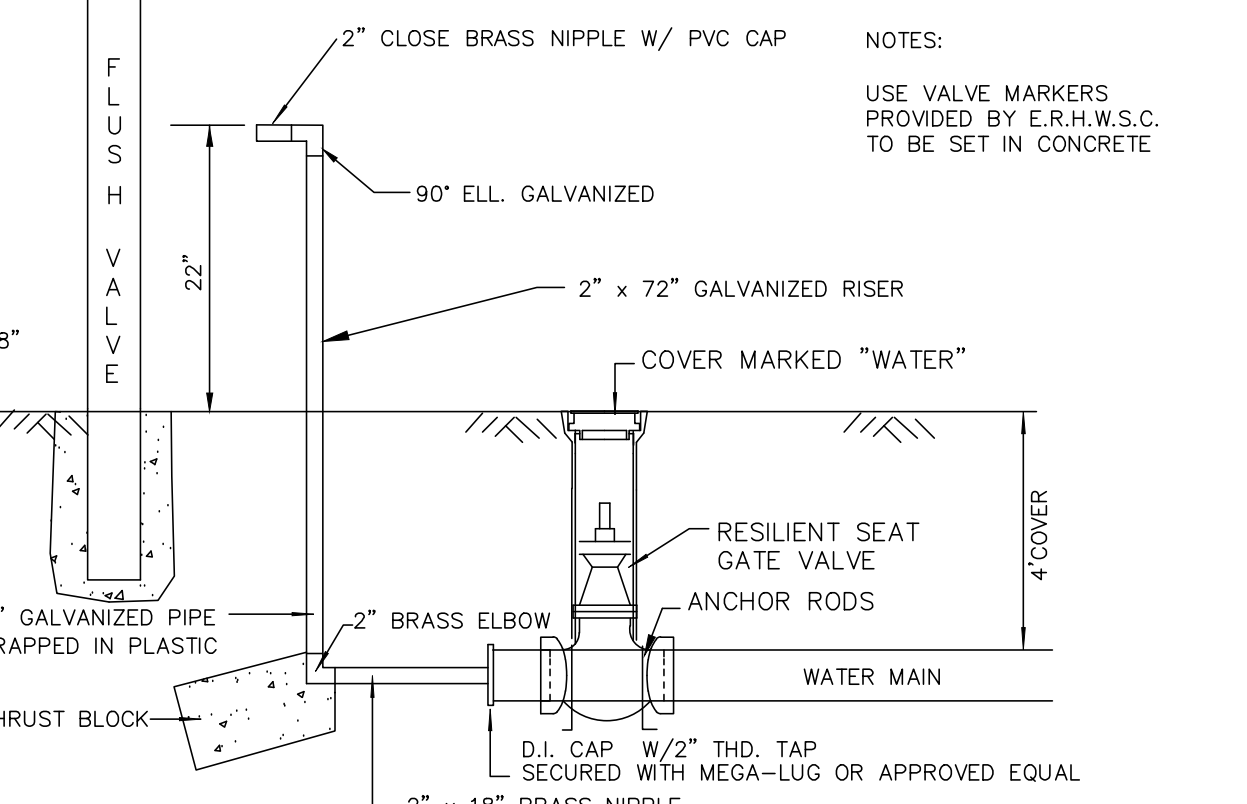
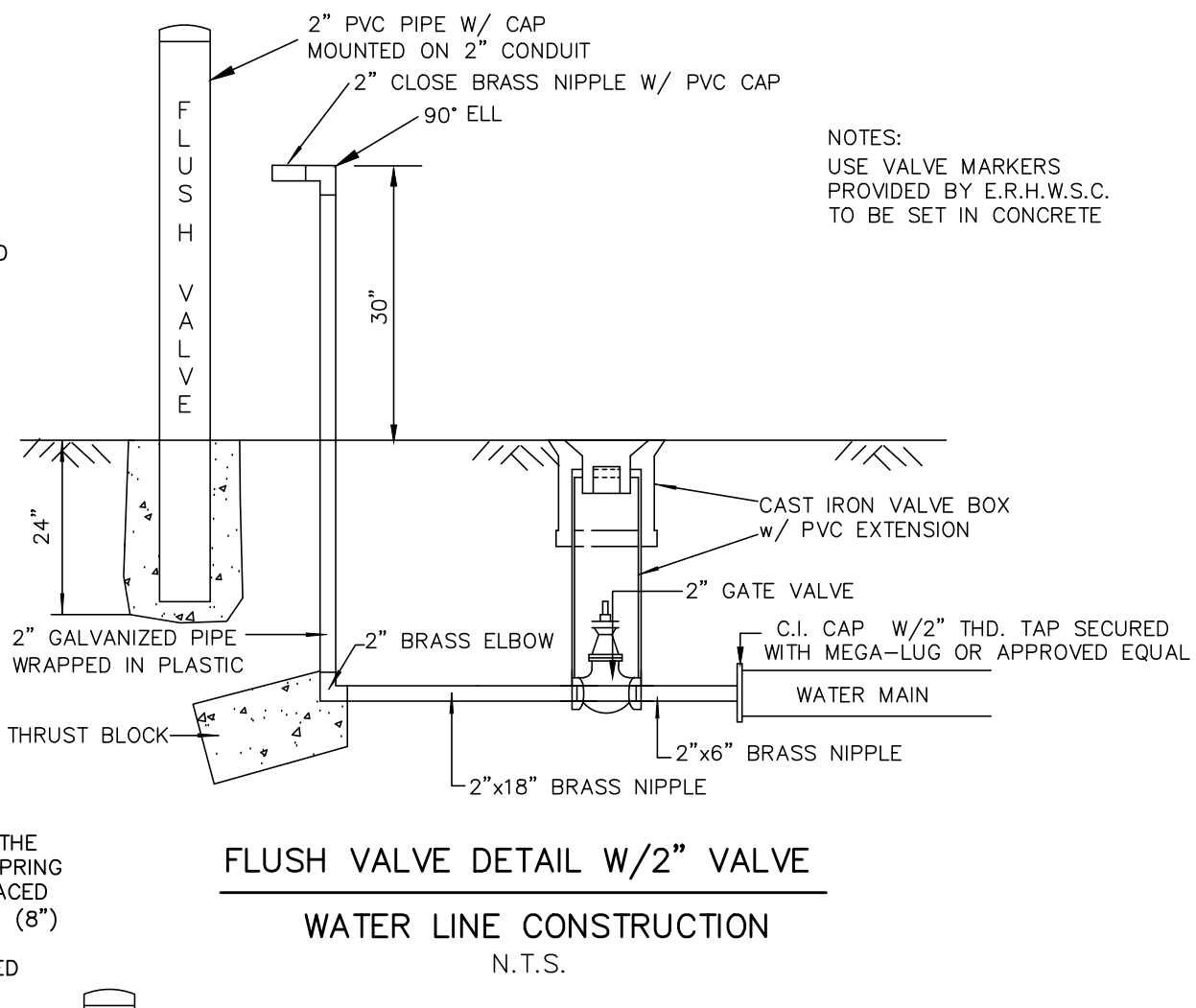
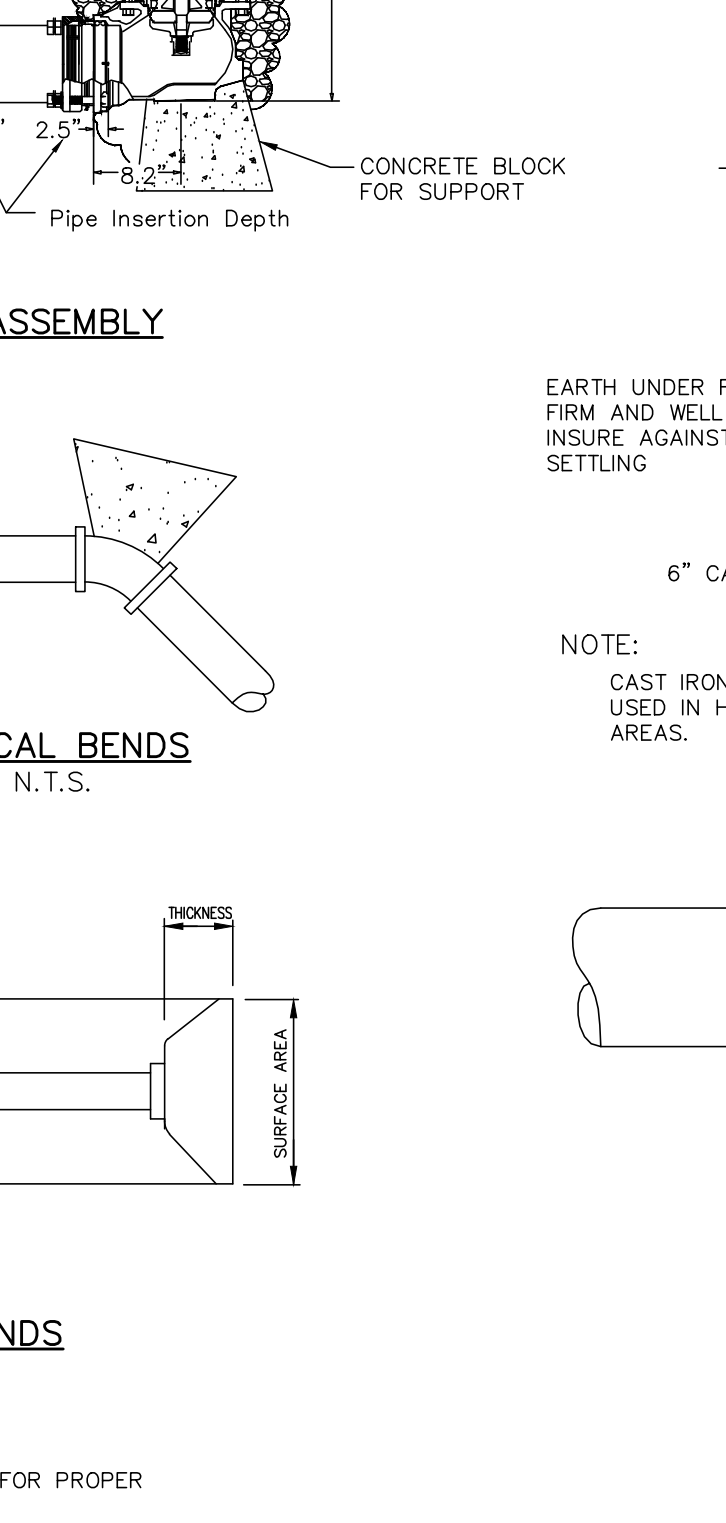
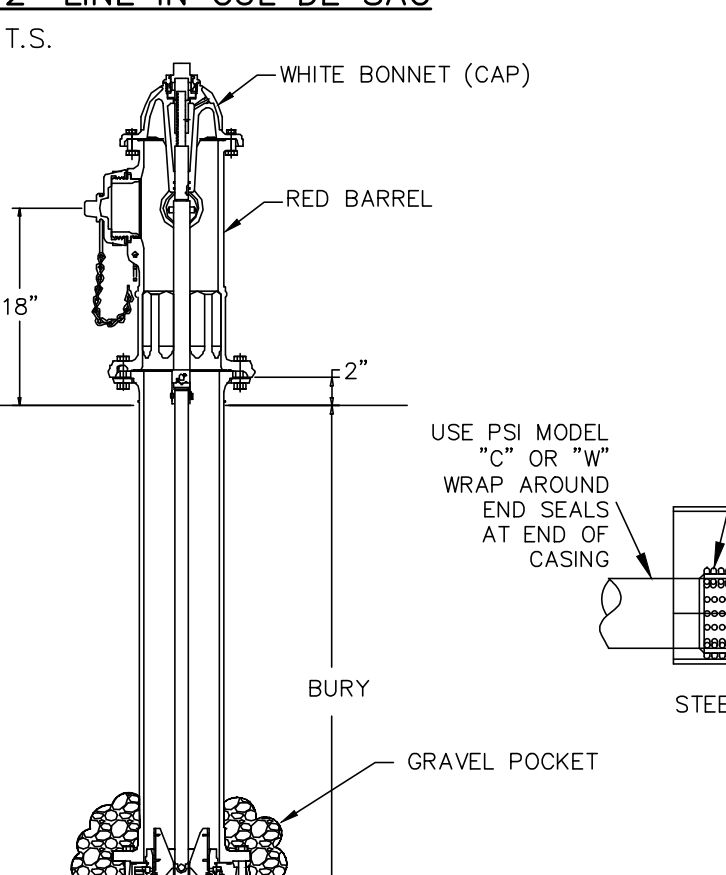
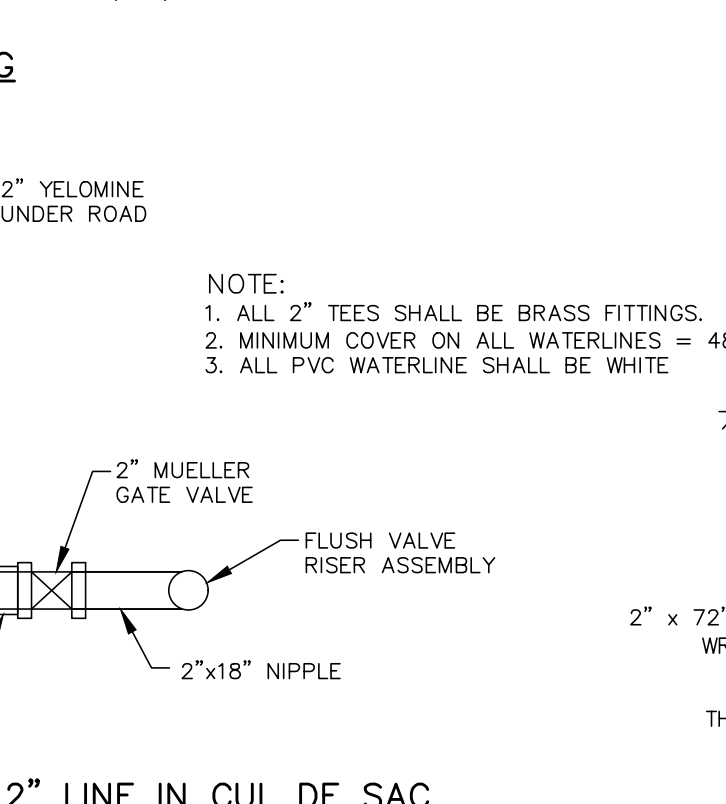
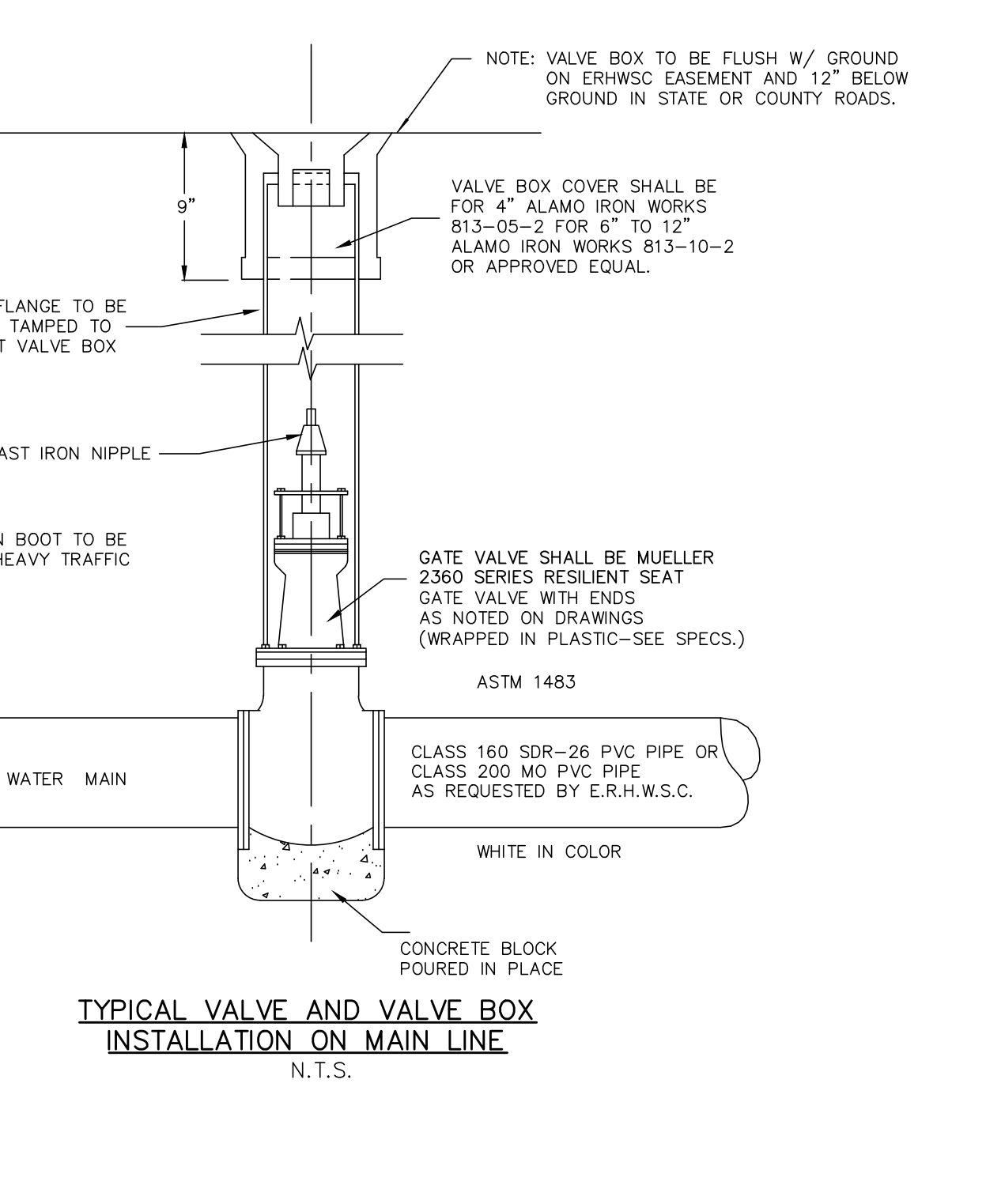


- A. BANKRUN SAND BACKFILL (SP, SW OR SM AS PER ASTM D2487) PLACED BEFORE PIPE IS LAID UP TO FLOWLINE OF PIPE. (MINIMUM DEPTH OF 6")
- B. BANKRUN SAND BACKFILL (SP, SW OR SM AS PER ASTM D2487) PLACED AFTER PIPE IS LAID FROM BOTTOM OF PIPE TO SPRING LINE OF PIPE AND HAND TAMPED OR WATER JETTED IN 4" LIFTS.
- C. BANKRUN SAND (SP, SW OR SM AS PER ASTM D2487) OR SELECT EARTH BACKFILL CLASS "A" MECHANICAL COMPACTION. (6" LIFTS) (WHERE LOCATED UNDER FUTURE PAVEMENT). COMPACTION TO 95% STD. PROCTOR DENSITY (MIN.)
- E. EARTH BACKFILL CLASS "B" MECHANICAL COMPACTION. (8" LIFTS OR WATER JETTING AT 18" LIFTS WHERE NOT UNDER FUTURE PAVEMENT). COMPACTION TO 90% STD. PROCTOR DENSITY (MIN.)
- F. FOUNDATION PREPARATION (WELLPOINTS, GRAVEL OR CEMENT STABILIZATION OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE.



NOMINAL PIPE SIZE	CASING SIZE	THICKNESS
6"	12"	1/4
8"	16"	5/16
12"	20"	3/8
16"	24"	7/16



DIAMETER OF PIPE IN INCHES	HORIZONTAL BEND		WEIGHT AT VERTICAL BENDS - LBS.
	SURFACE AREA SQ. FT.	THICKNESS IN INCHES	
<b>22-1/2 BENDS</b>			
6 or LESS	2	8	1,700
8	3	12	3,000
10	3.5	12	4,500
12	4	14	6,600
14	5	18	9,000
16	6	18	11,800
<b>45 &amp; 90 BENDS</b>			
6 or LESS	6	12	6,000
8	8	15	10,700
10	10	18	16,700
12	12	18	24,000
14	18	24	32,600
16	21	24	42,700
<b>TEES &amp; DEAD ENDS</b>			
6 or LESS	3	12	-----
8	4	15	-----
10	6	18	-----
12	8.5	18	-----
14	11.5	24	-----
16	15	24	-----

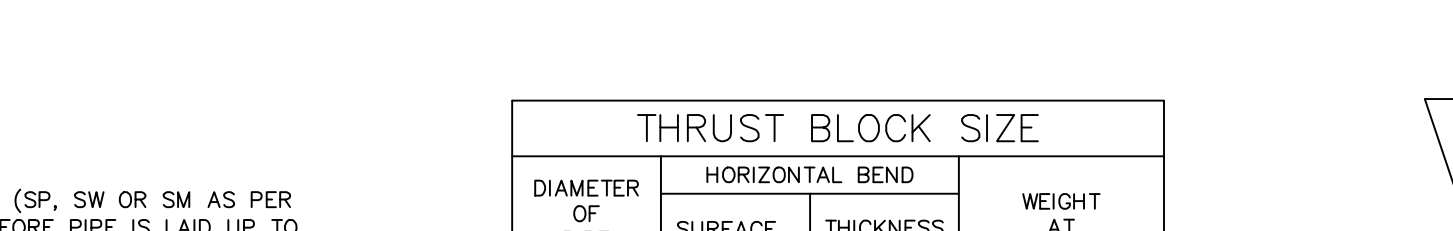
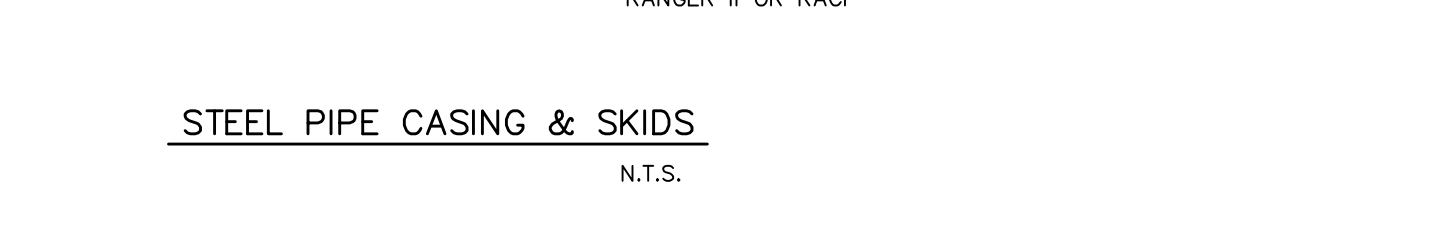
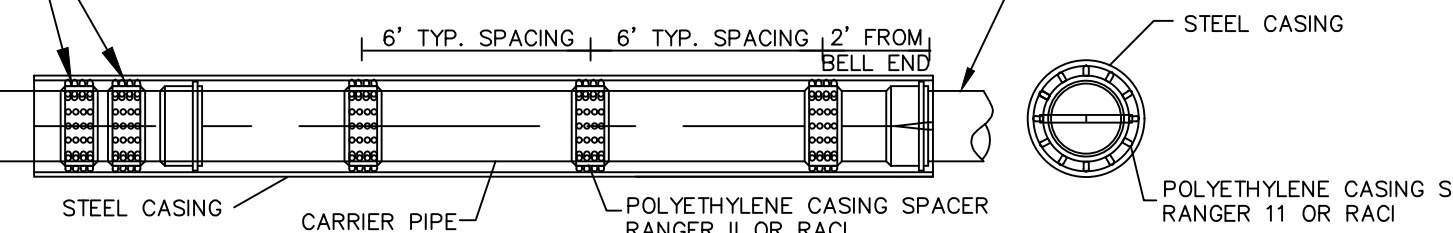
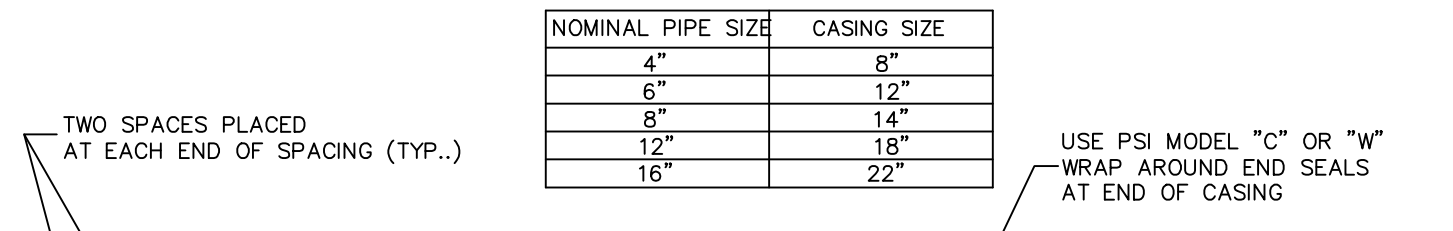
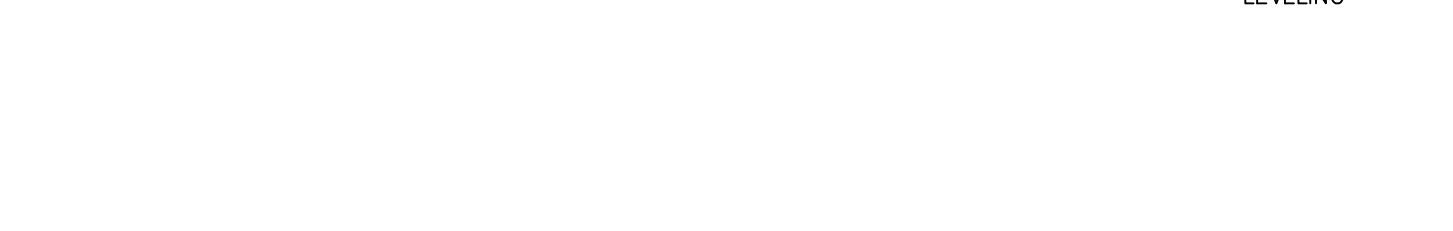
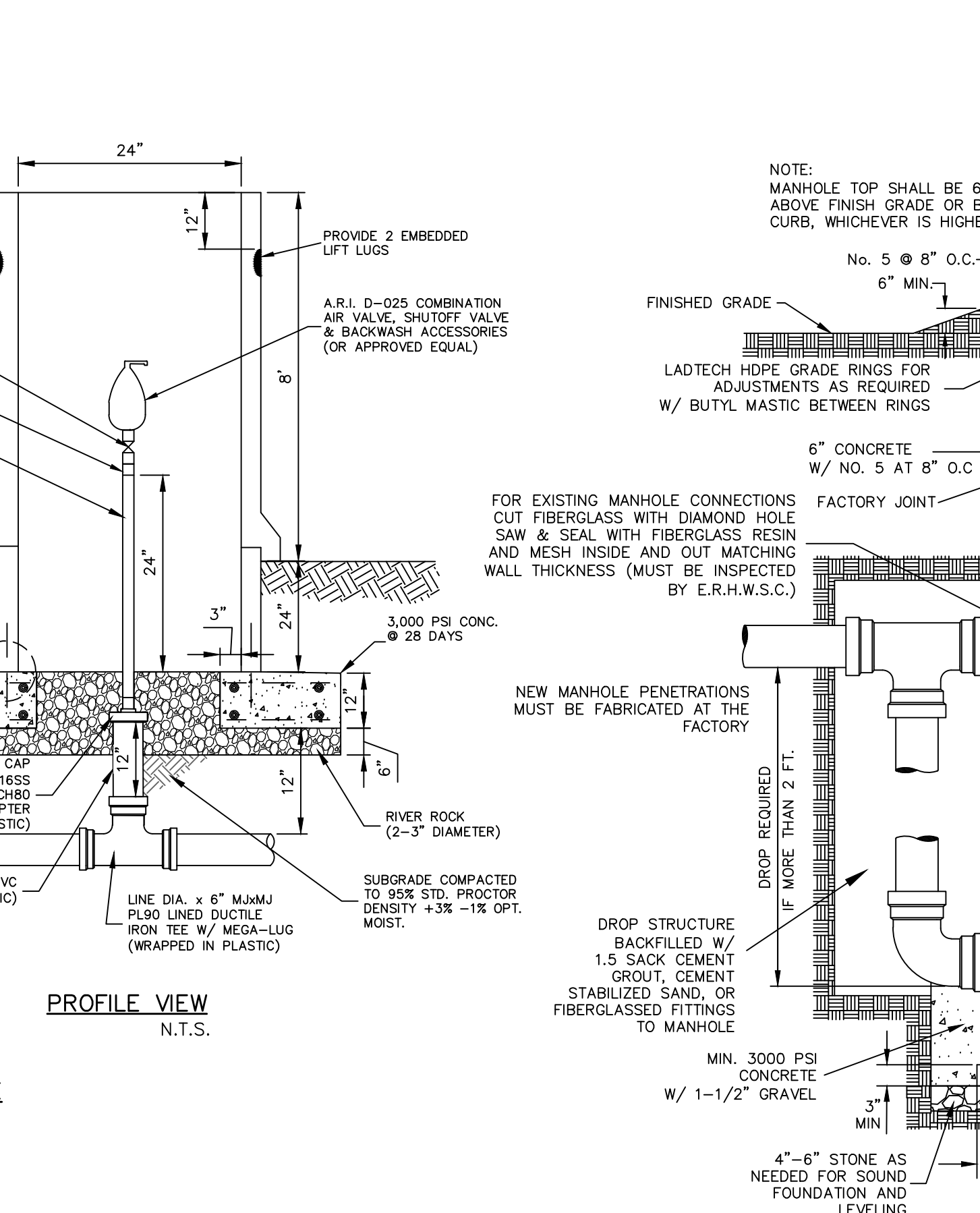
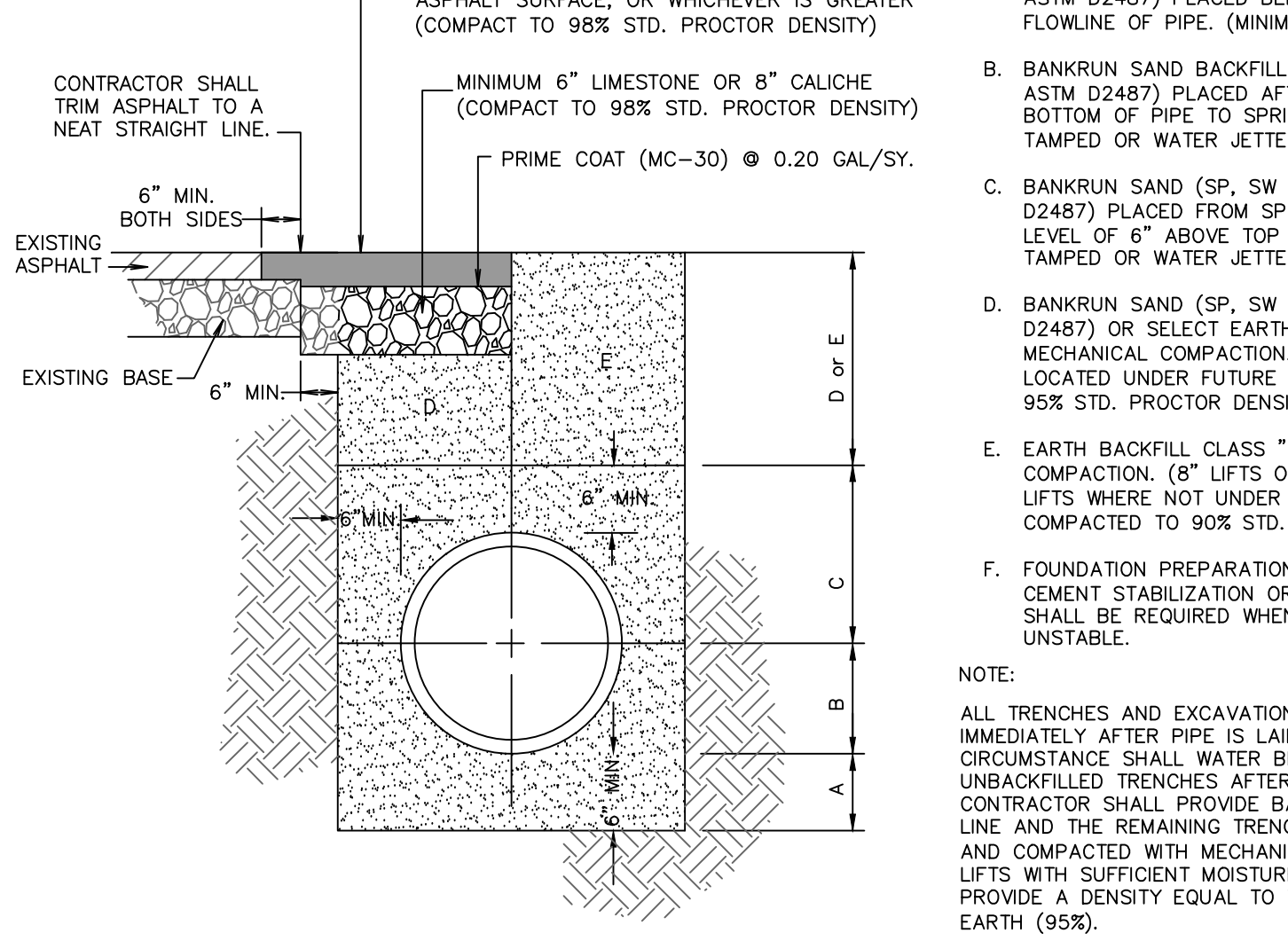
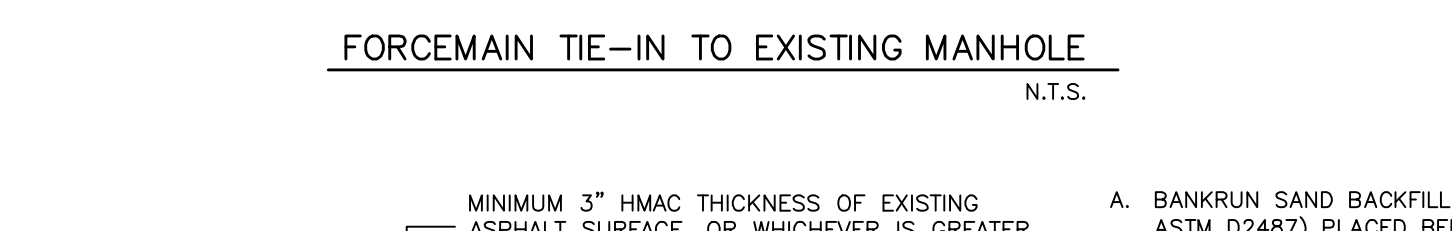
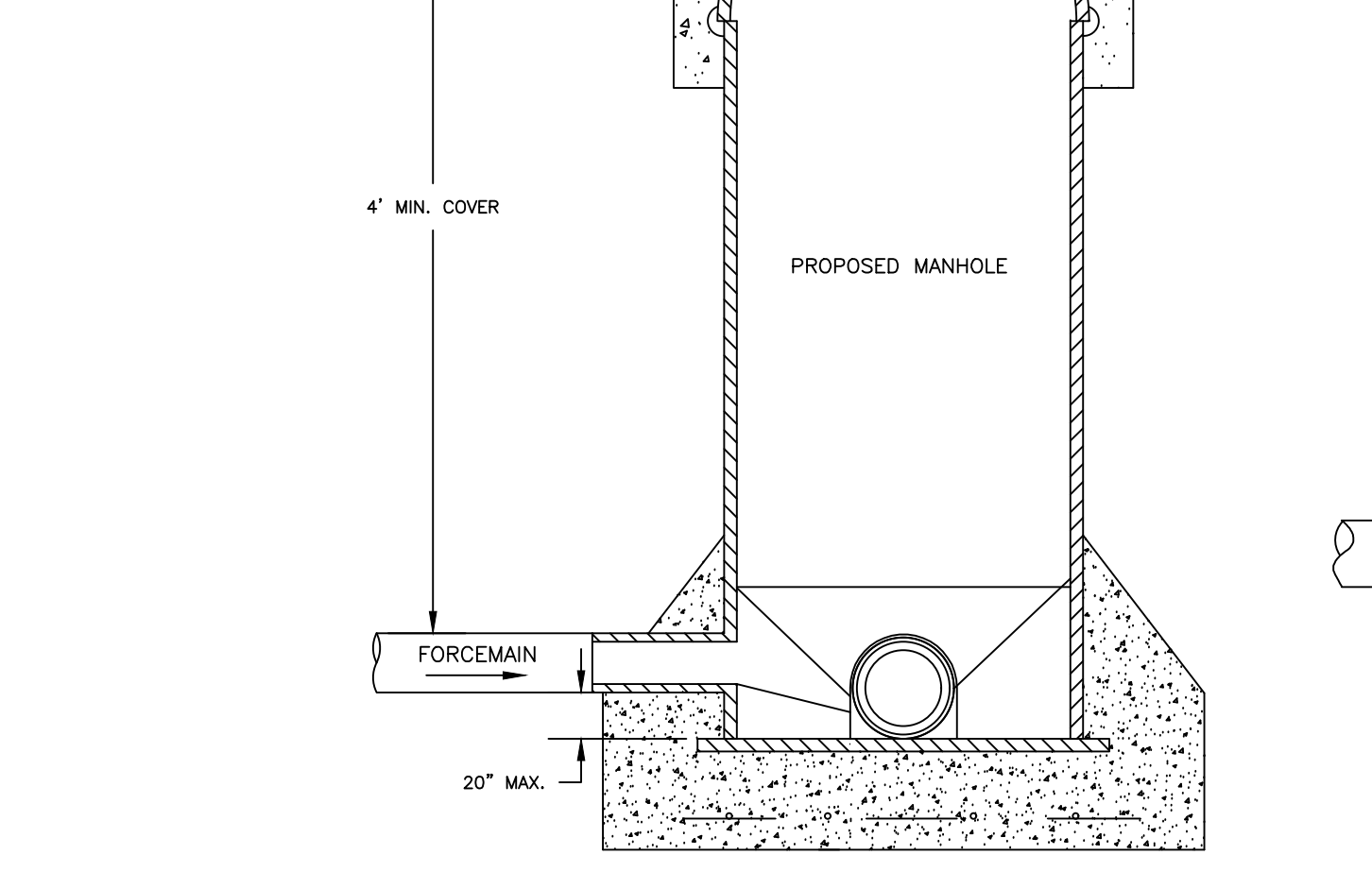
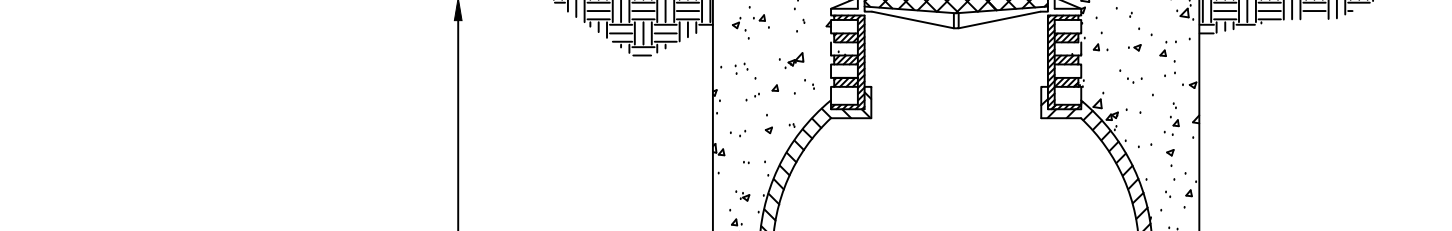
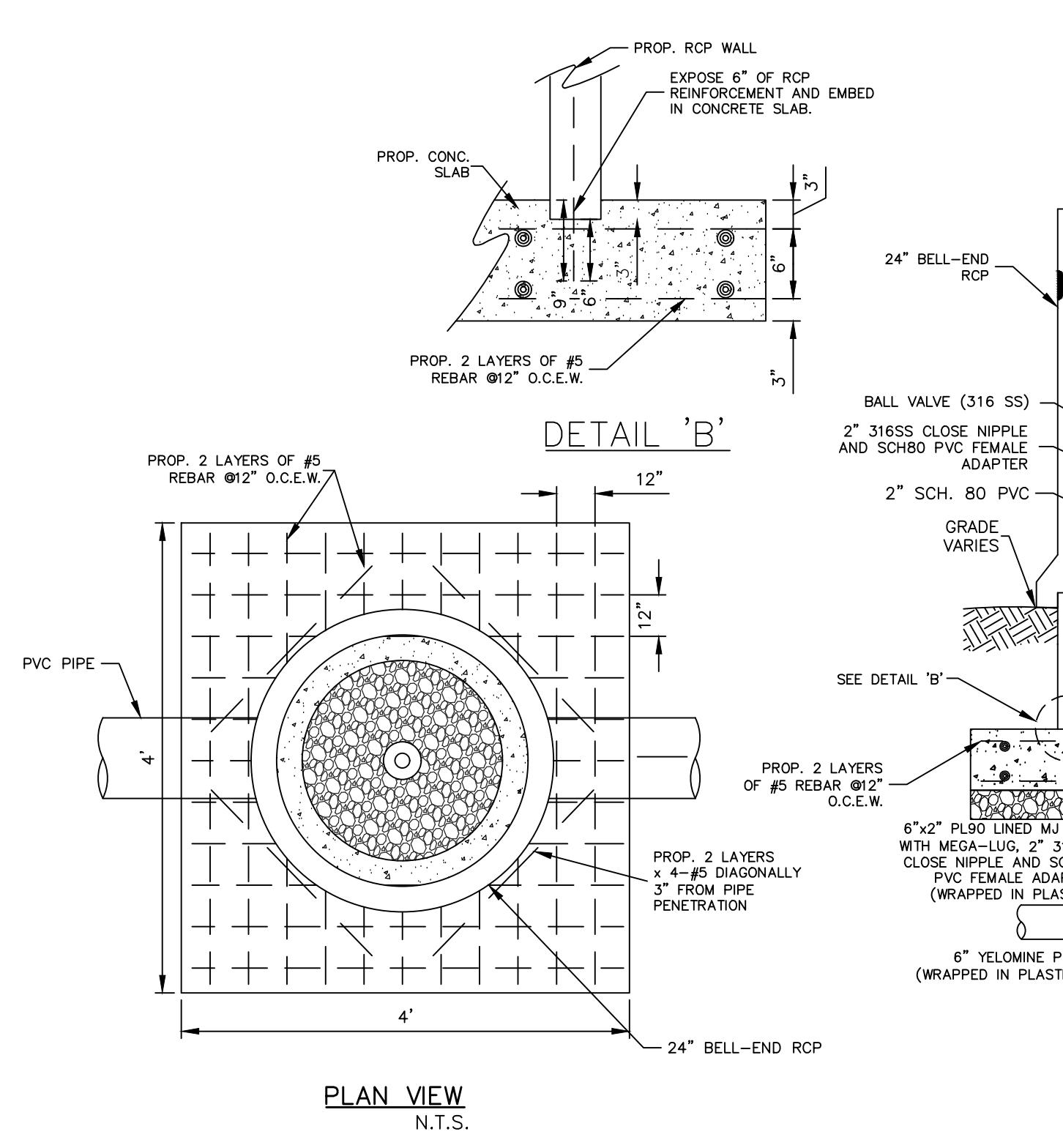
NOTE: ALL VALUES SHOWN ARE MINIMUM FOR A HYDROSTATIC PRESSURE OF 150 P.S.I. AND A SOIL RESISTANCE OF 2,000 LBS. PER SQ. FT.

Revision No.	Date	Description
1		

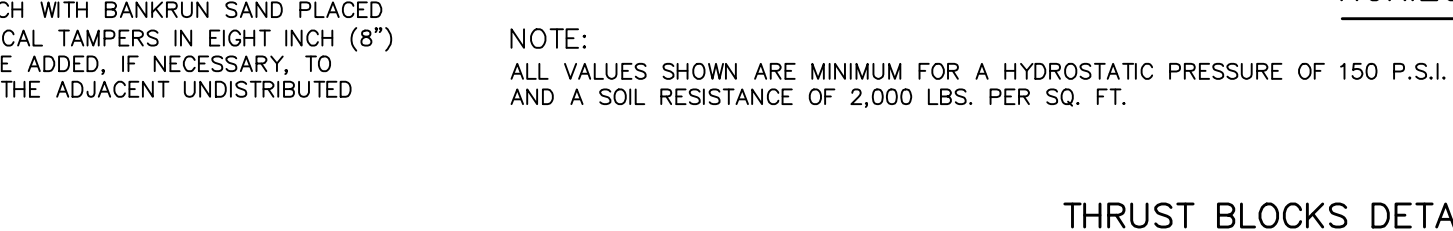
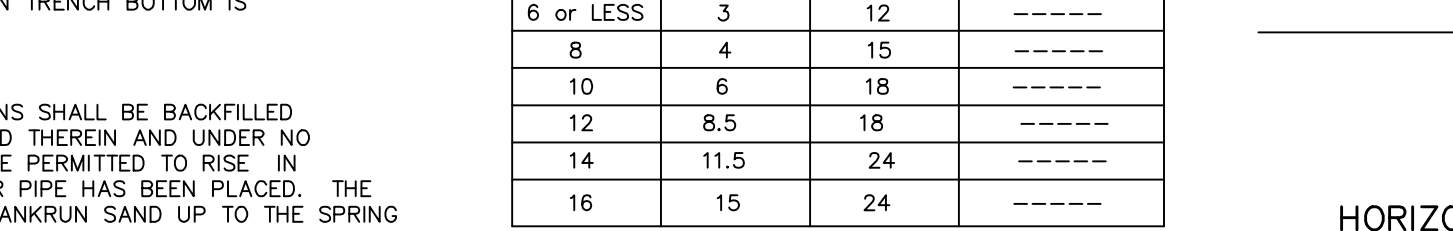
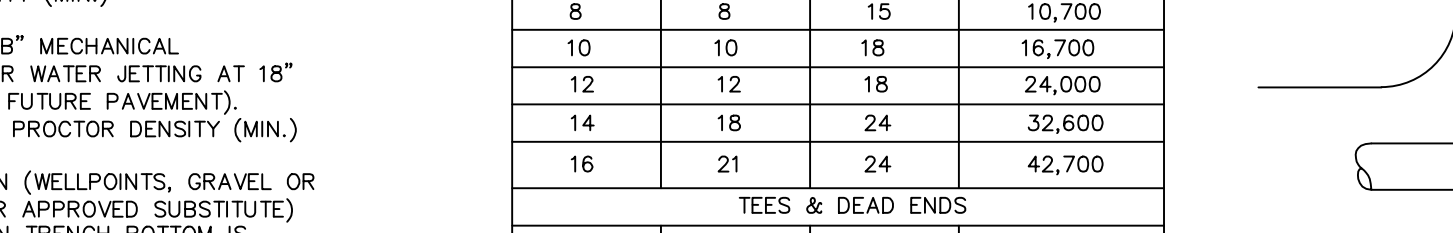
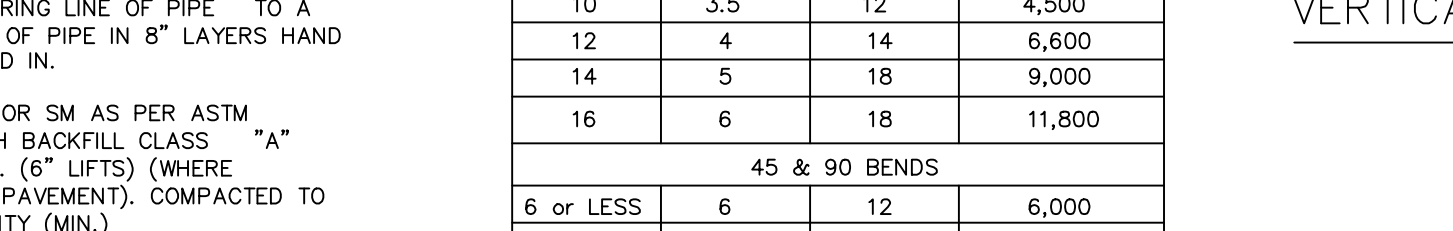
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Revision No.	Date	Description
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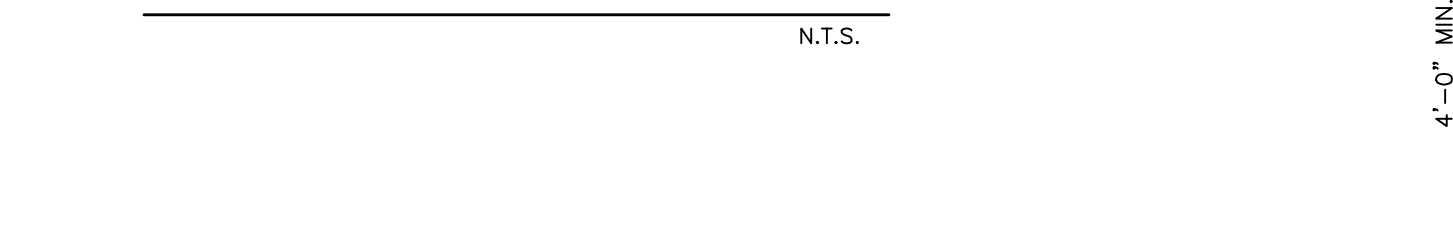
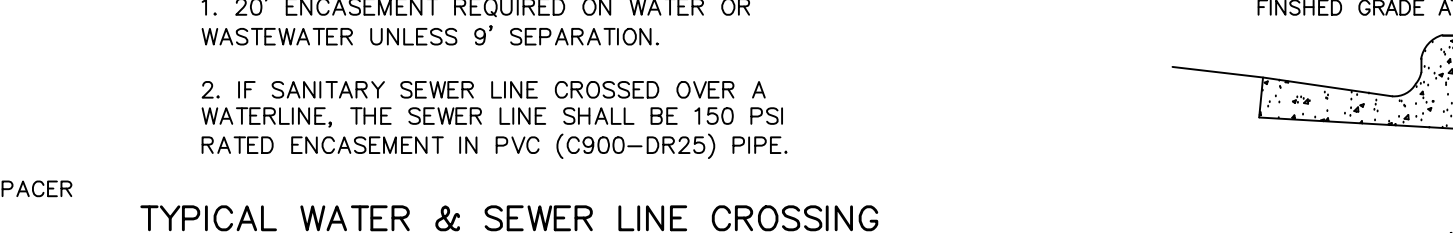
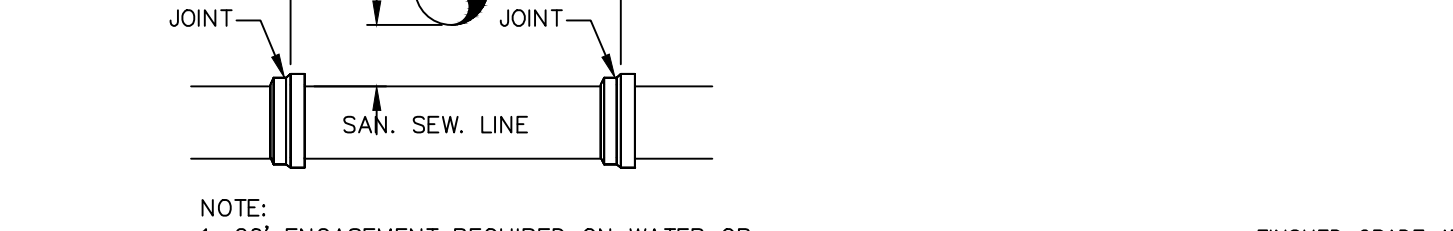
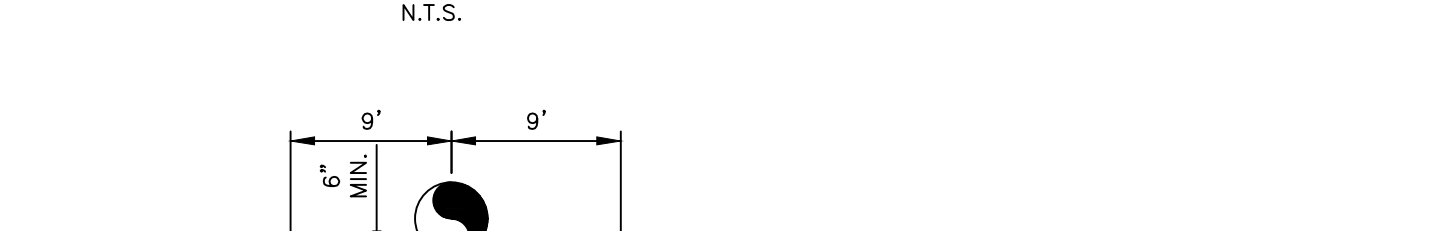
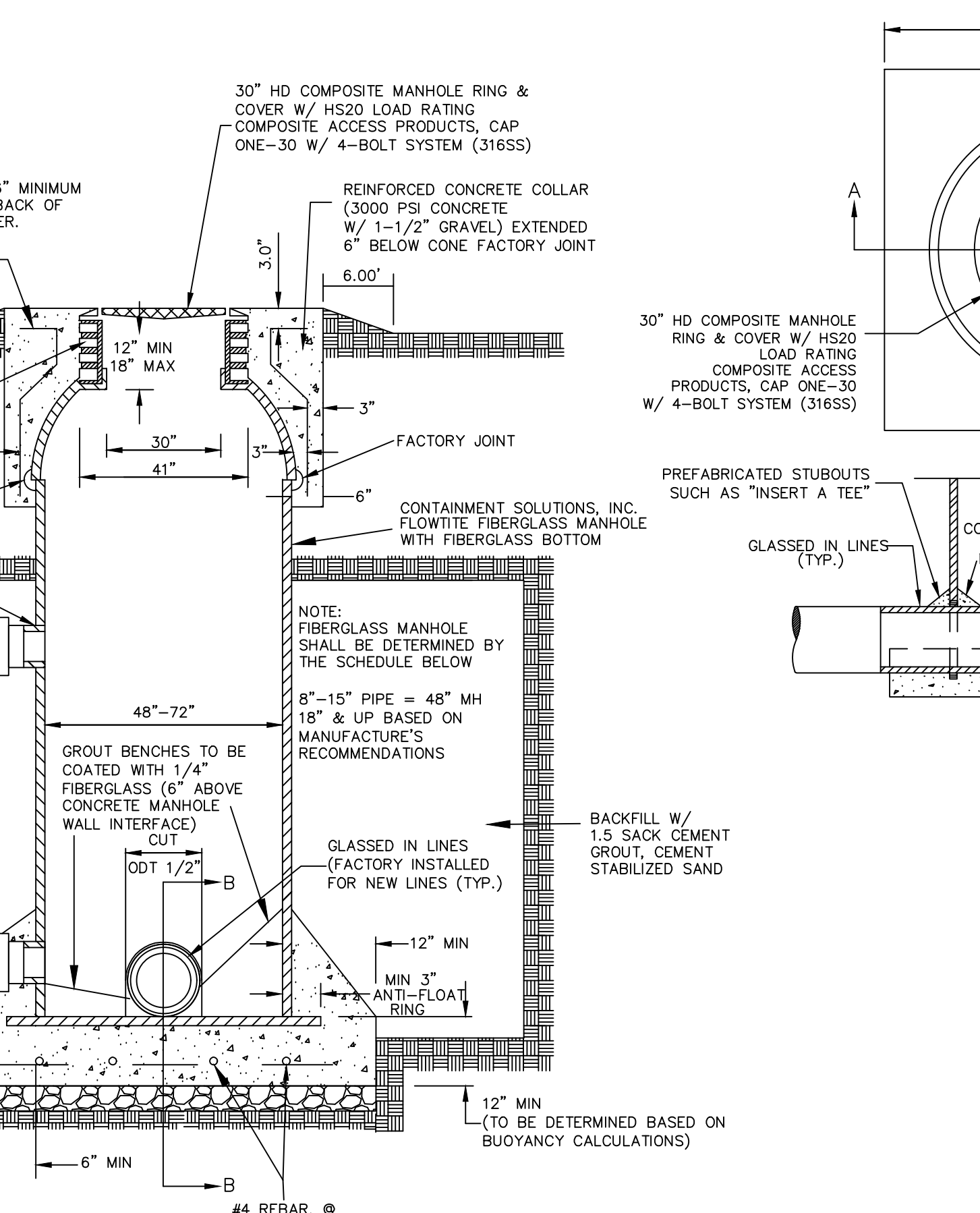
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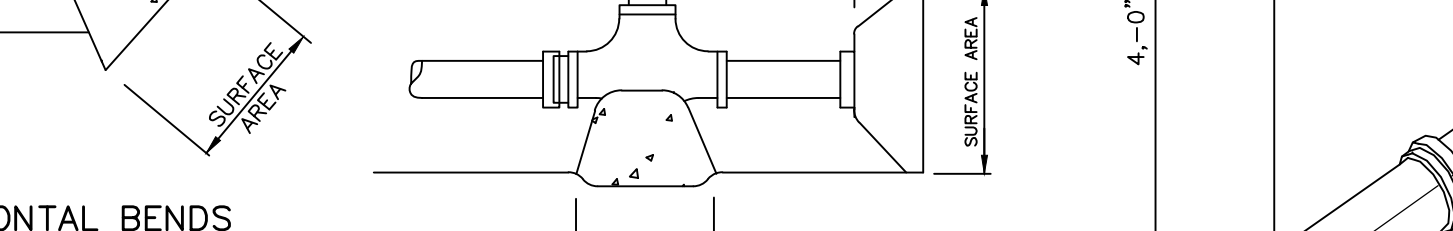
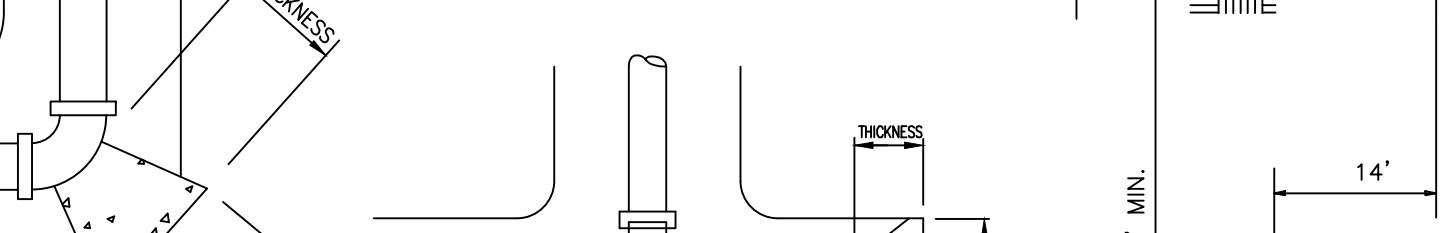
NOMINAL PIPE SIZE	CASING SIZE
4"	8"
6"	12"
8"	14"
12"	18"
16"	22"



NOTE: ALL TRENCHES AND EXCAVATIONS SHALL BE BACKFILLED IMMEDIATELY AFTER PIPE IS LAID THEREIN AND UNDER NO CIRCUMSTANCE SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED. THE CONTRACTOR SHALL PROVIDE BANKRUN SAND UP TO THE SPRING LINE AND THE REMAINING TRENCH WITH BANKRUN SAND PLACED AND COMPACTED WITH MECHANICAL TAMPERS IN EIGHT INCH (8") LIFTS WITH SUFFICIENT MOISTURE ADDED, IF NECESSARY, TO PROVIDE A DENSITY EQUAL TO THE ADJACENT UNDISTRICTED EARTH (95%).



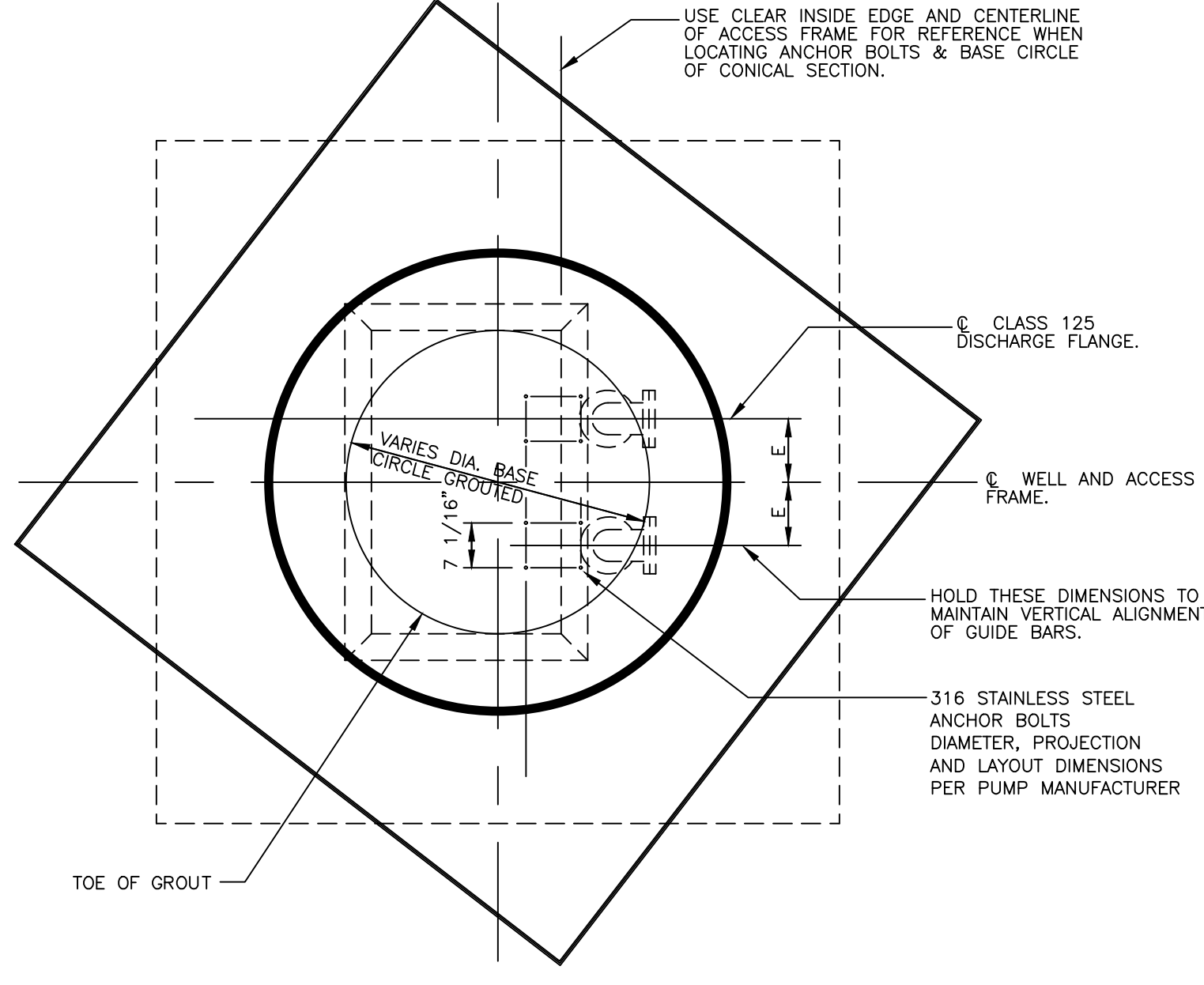
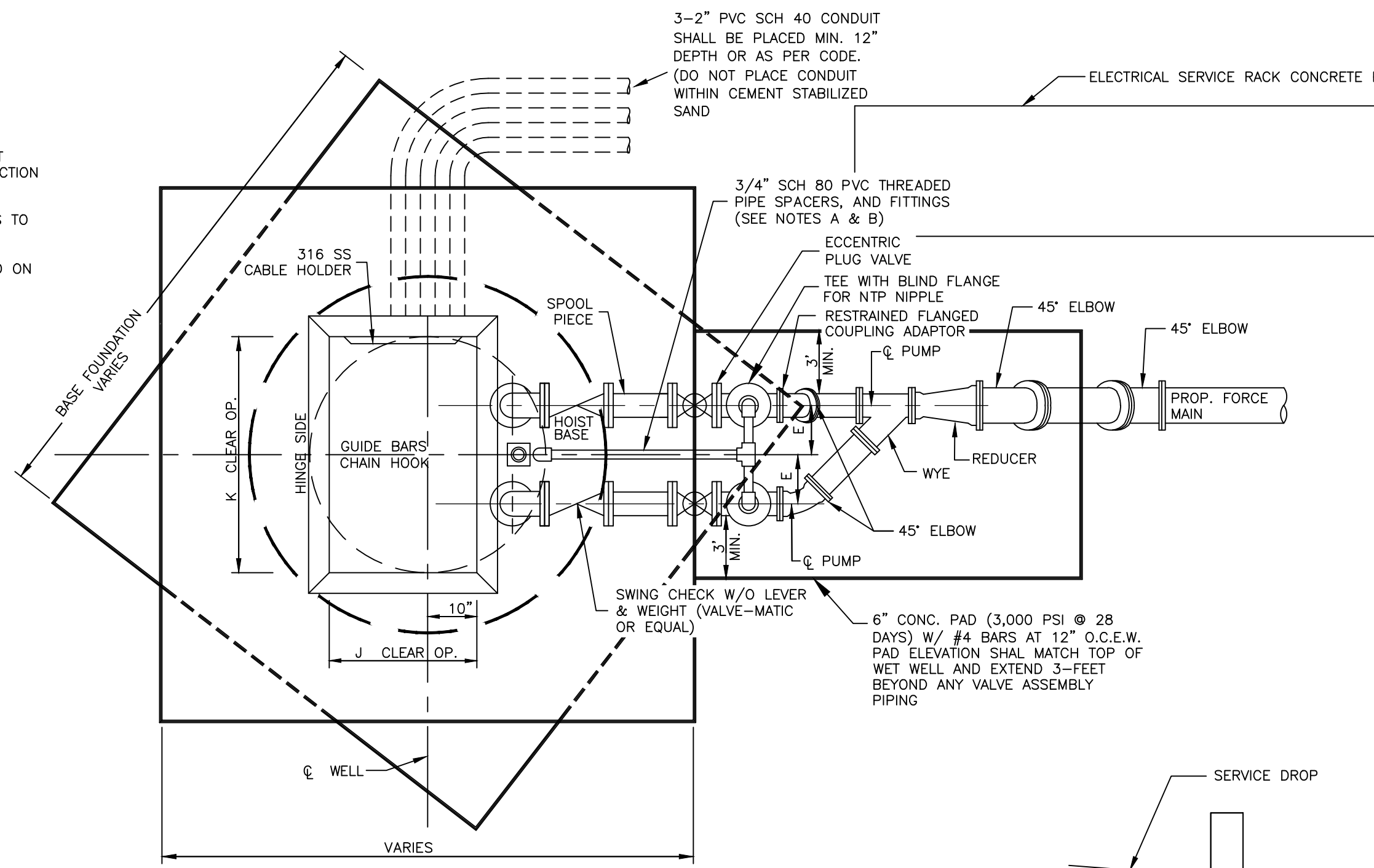
DIAMETER OF PIPE IN INCHES	HORIZONTAL BEND SURFACE AREA SQ. FT.	HORIZONTAL BEND THICKNESS IN INCHES	WEIGHT AT VERTICAL BENDS - LBS.
22-1/2 BENDS			
6 or LESS	2	8	1,700
8	3	12	3,000
10	3.5	12	4,500
12	4	14	6,800
14	5	18	9,000
16	6	18	11,800
45 & 90 BENDS			
6 or LESS	6	12	6,000
8	8	15	10,700
10	10	18	16,700
12	12	18	24,000
14	18	24	32,600
16	21	24	42,700
TEES & DEAD ENDS			
6 or LESS	3	12	---
8	4	15	---
10	6	18	---
12	8.5	18	---
14	11.5	24	---
16	15	24	---



NOTE: ALL VALUES SHOWN ARE MINIMUM FOR A HYDROSTATIC PRESSURE OF 150 P.S.I. AND A SOIL RESISTANCE OF 2,000 LBS. PER SQ. FT.

NOTE: CONTRACTOR SHALL COORDINATE WITH INSPECTOR ON THE LOCATION OF ALL SERVICE LATERALS.

**NOTES:**  
 A. IF NECESSARY PROVIDE 90° PVC PIPE TO WET WELL AND PROVIDE 90° PVC BEND AND PIPE SECTION INTO WET WELL. ATTACH PVC PIPE TO CONCRETE COVER USING 316SS U-CRAMPINGS AND 316SS ANCHORS. ALL PVC PIPE, FITTINGS AND SPACERS TO BE SCH 80 THREADED.  
 B. ONE (1) AIR RELEASE/VENT IS REQUIRED AND ON EACH LIFT STATION DISCHARGE PIPING.



**SPARE PARTS LIST**

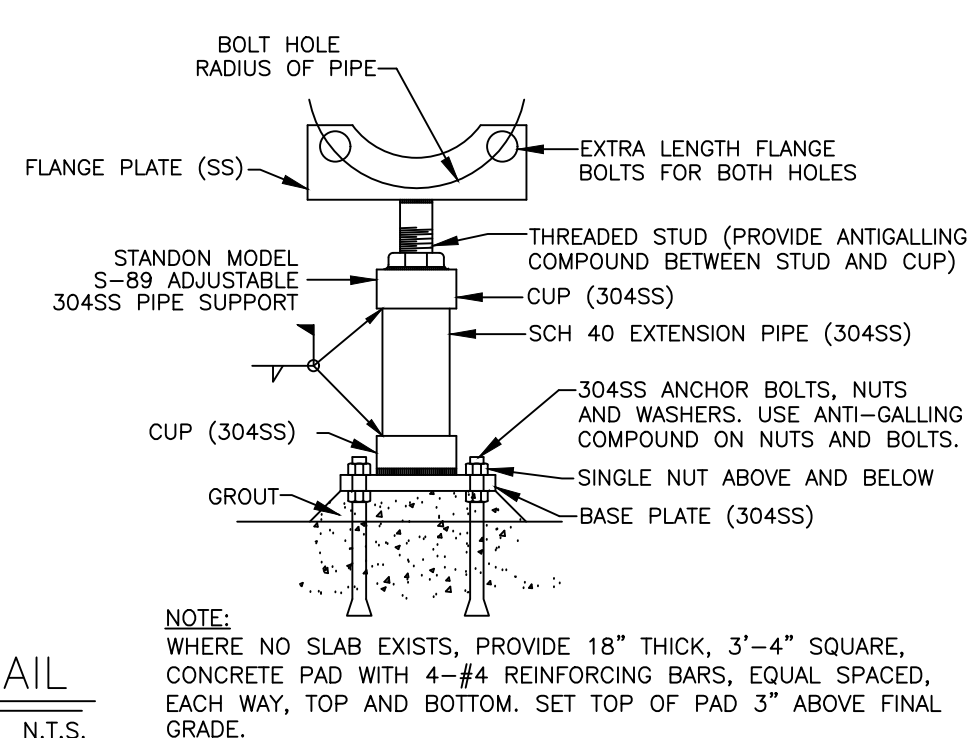
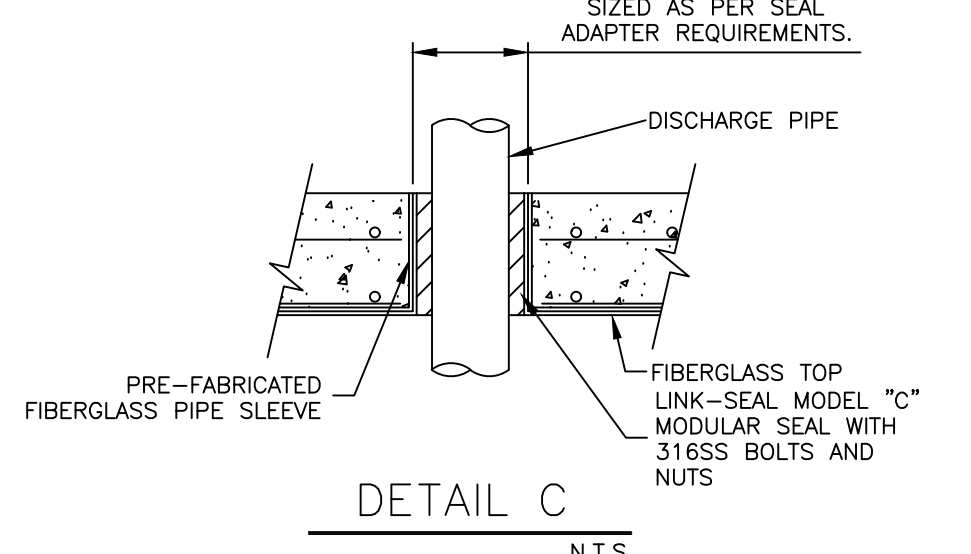
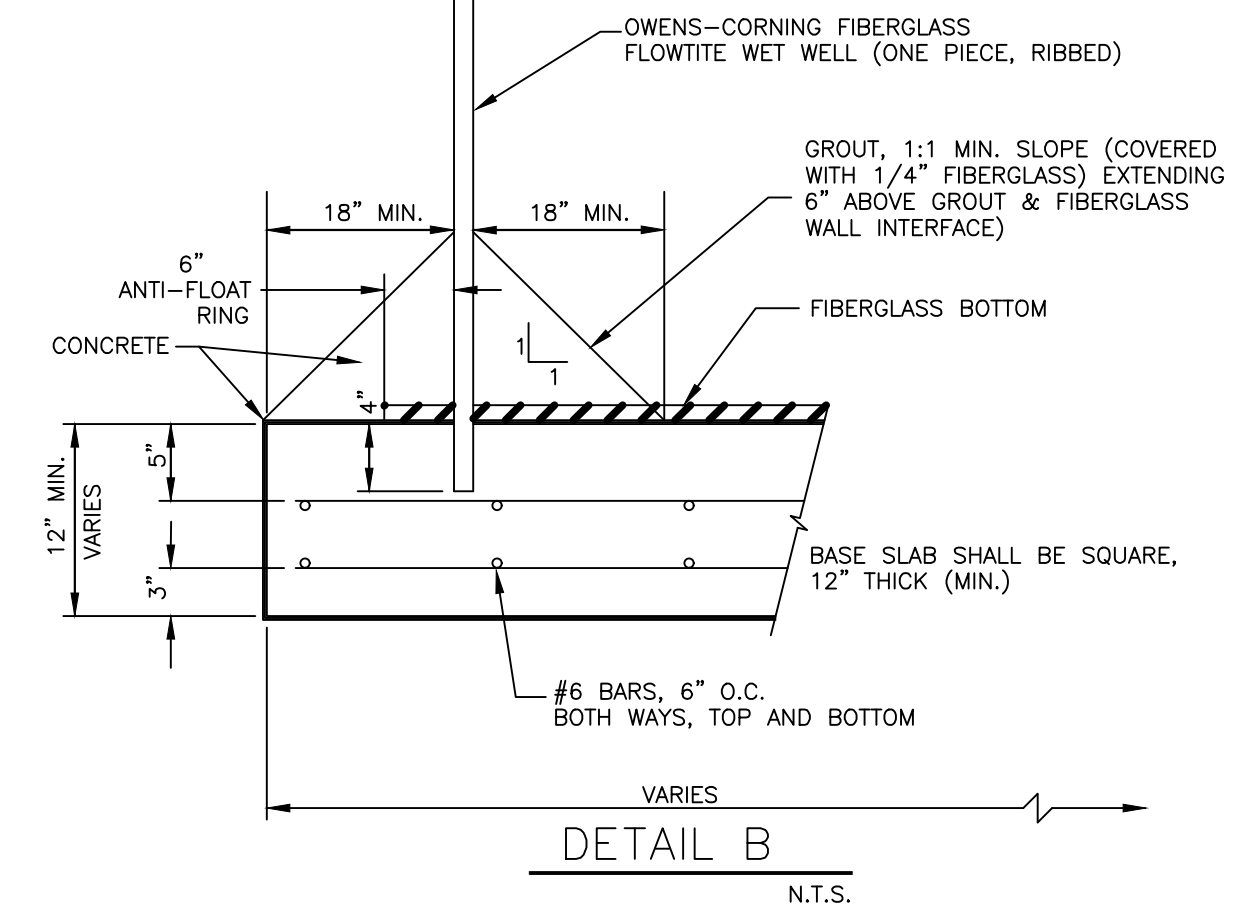
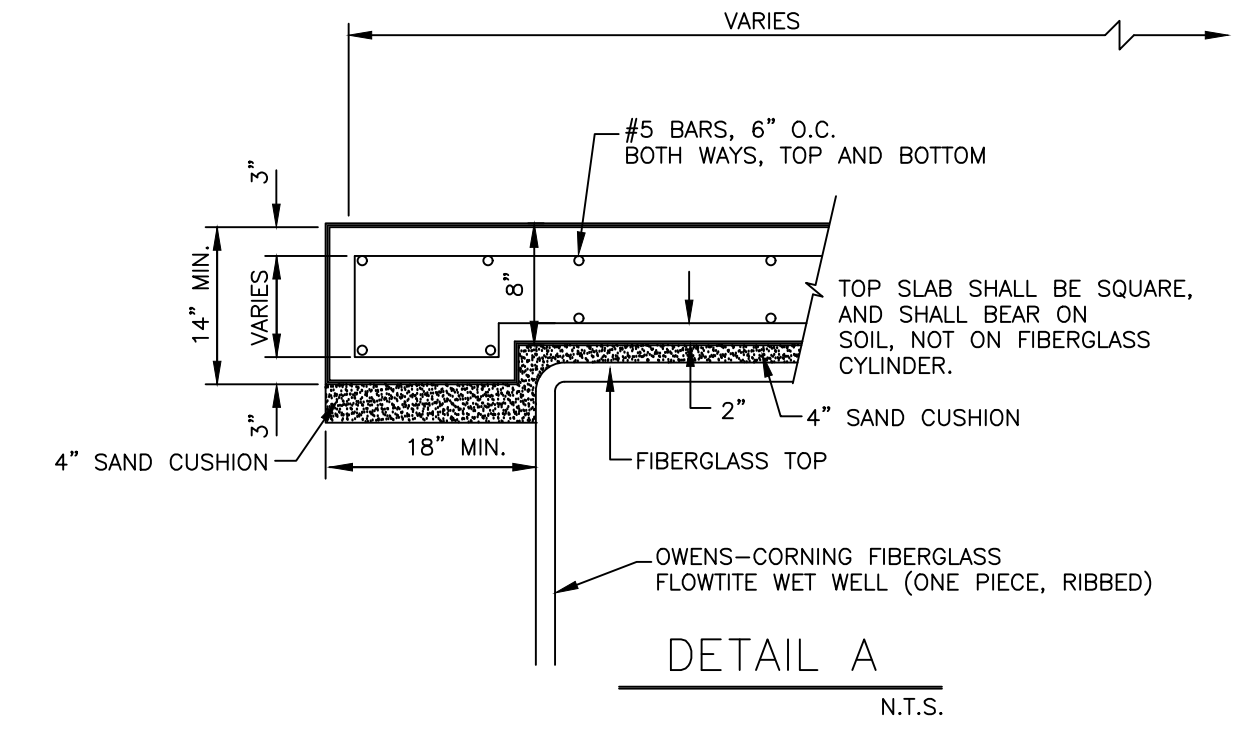
**LIFT STATION SPARE PUMP**

E.R.H.W.S.C. SHALL BE PROVIDED WITH ONE NEW SPARE PUMP OF THE SAME MANUFACTURER AND MODEL NUMBER.

**CONTROL PANEL SPARE PART LIST**

A. ONE SPARE STARTER WITH OVERLOAD AND HEATERS FOR EACH SIZE PUMP.  
 B. TWO FLOAT SWITCHES FOR EACH TYPE USED.  
 C. ONE SPARE RELAY FOR EACH TYPE USED.  
 D. TWO SPARE FUSES OF EACH TYPE USED.  
 E. ONE SPARE BREAKER OF EACH TYPE USED.  
 F. ONE SPARE ALTERNATOR.  
 G. ONE SPARE PUMP BREAKER.  
 H. ONE SPARE OVER TEMP. SEAL FAILURE RELAY.

**NOTE:** SPARE PARTS REQUIRED DELIVERED TO OWNER PRIOR TO FINAL PROJECT ACCEPTANCE.



- NOTES**
- ALL CONCRETE SHALL BE 6 SACK-4,000 PSI DESIGN. MAXIMUM WATER/CEMENT RATIO: 0.45.
  - ALL CONCRETE SHALL BE CURED A MINIMUM OF 7 DAYS. CURING SHALL CONSIST OF PLACEMENT NON-DISTURBANCE AND ONE OF THE FOLLOWING TREATMENTS OF EXPOSED SURFACES:  
 A) FLOODING WITH WATER.  
 B) BURLAP SACKS KEPT WET AT ALL TIMES, OR  
 C) USE OF CURING COMPOUND.
  - ALL CONCRETE EDGES SHALL BE ROUNDED OR CHAMFERED 1/2\"/>
  - ALL REBAR SHALL BE GRADE 60 AND TIED AT EACH JUNCTION. REBAR SPLICE, IF REQUIRED, SHALL HAVE A MINIMUM OF 18\"/>
  - ALL VALVE VAULT PLUMBING SHALL BE FLANGED AND PIPING SHALL BE DI WITH PL90 COATING OR YELOMINE PVC.
  - EPOXY BONDING AGENT SHALL BE USED AT JOINT BETWEEN GROUT AND LOWER SLAB.
  - FIBERGLASS WET WELL BACKFILL: BACKFILL OF THE WET WELL SHALL BE PERFORMED IN MAXIMUM 6\"/>
  - ALL SURFACES AND PIPING INSIDE THE WET WELL EXCEPT FIBERGLASS SURFACE, BOTTOM FLOOR, PUMPS, POWER AND CONTROL CABLES, AND THE STAINLESS STEEL GUIDE RAILS SHALL BE COATED WITH 100 POLYURETHANE. COATING SYSTEM SHALL CONSIST OF ALL THE FOLLOWING:  
 A. PRIOR TO COATING, CLEAN ALL SURFACES BY WATER BLASTING WITH 10 SANDBLASTING, 100% SOLIDS, THERMOSETTING, ELASTOMERIC, UNFILLED CHEMICALLY CURED.  
 B. APPLY ONE COAT OF POLIBRID 705X CONCRETE PRECOAT AT 15 MILS DFT. ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, 10% MURIATIC ACID OR SAND BLASTING.  
 C. APPLY ONE COAT OF POLIBRID 705 TOPCOAT AT 80 MILS DFT. ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  - PUMP CABLE TO BE CONTINUOUS FROM SUB. PUMPS TO SEALED JUNCTION BOX PRIOR TO CONTROL PANEL.
  - A 1\"/>
  - ALL INSIDE WET WELL SHALL BE 316 STAINLESS STEEL.
  - LIFT STATION SHALL BE ENCLOSED WITH SECURITY FENCE AND LOCKABLE GATE (MINIMUM 8FT HIGH VINYL COATED CHAIN-LINK).
  - FOR FINISHED SURFACE, INSTALL 4\"/>

**NOTE \"C\"**

IF LIFT STATION IS MORE THAN 12- FEET IN DEPTH, PROVIDE A 4\"/>

**PUMP DATA**

MANUFACTURER	BARNES BLADE SERIES OR APPROVED EQUAL
MODEL	-----
IMPELLER (IN.)	-----
HORSE POWER	-----
R. P. M.	-----
POWER PHASE	-----
DISCHARGE SIZE (IN.)	-----
MAXIMUM SOLIDS (IN.)	-----
G.P.M.	-----
O	-----
SET POINT	-----
MAX FLOW	-----

**MIN. DIMENSIONS**

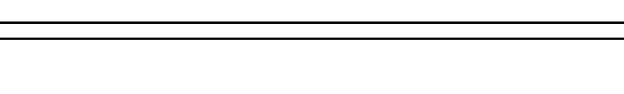
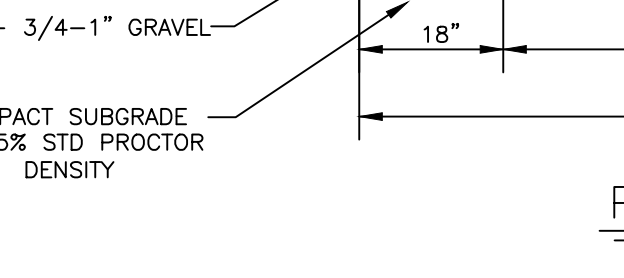
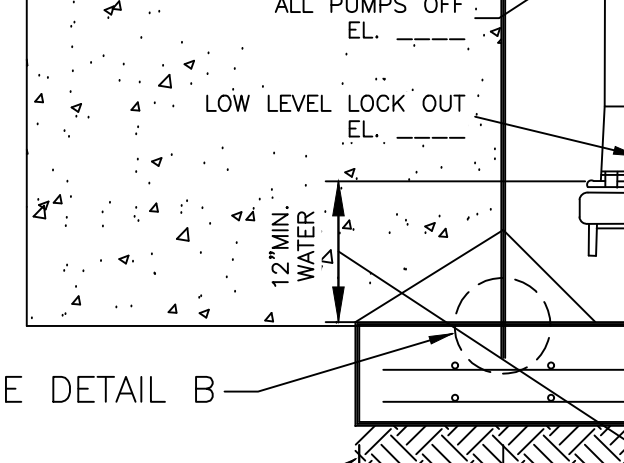
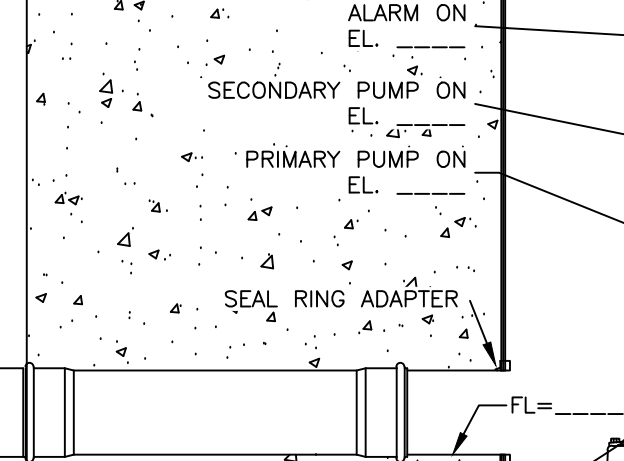
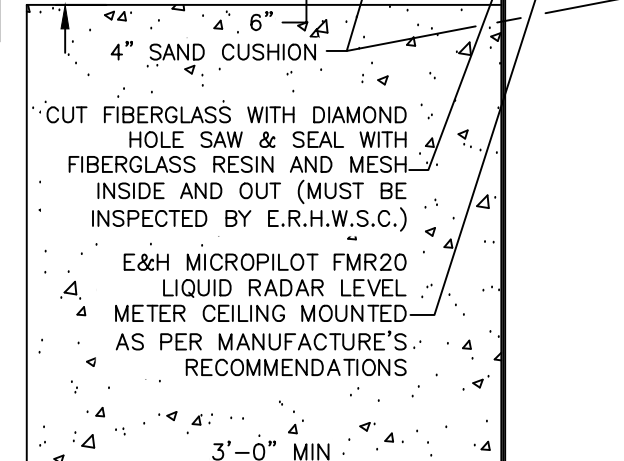
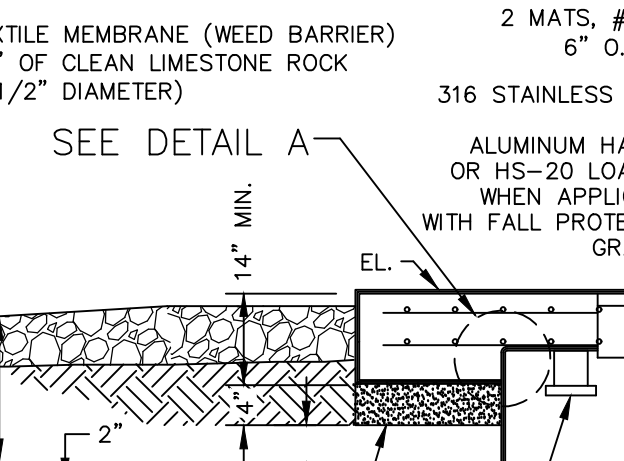
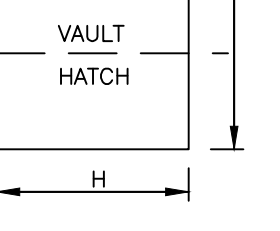
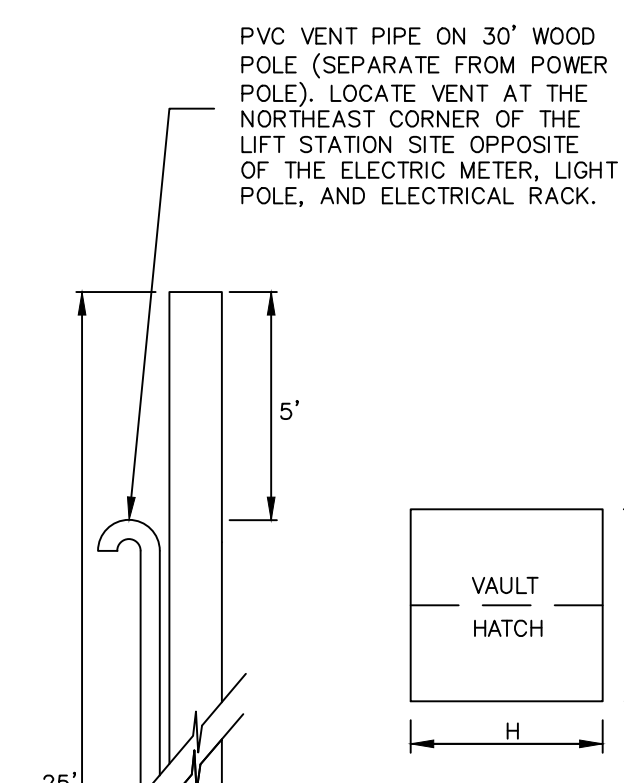
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B	108\"/>	144\"/>	168\"/>
C	12\"/>	12\"/>	15\"/>
D	4\"/>	6\"/>	8\"/>
E	15\"/>	18\"/>	22\"/>
F	60\"/>	72\"/>	84\"/>
G	60\"/>	84\"/>	102\"/>
H	48\"/>	60\"/>	72\"/>
I	48\"/>	72\"/>	90\"/>
J *	36\"/>	36\"/>	42\"/>
K *	54\"/>	60\"/>	72\"/>

\* VERIFY WITH PUMP DIMENSIONS

**PIPE SUPPORT DETAIL**

PIPE SIZE	HOLE RADIUS	FLG PLATE	THRD STUD	CUP ID	BASE PLATE	EXTENSION PIPE SIZE REQ'D	ANCHOR BOLT HOLE DIAMETER
3"	3.00"	.250"	1\"/>	2.5"	4\"/>	2"	9/16"
4"	3.75"	.250"	1\"/>	2.5"	4\"/>	2"	9/16"
6"	4.75"	.250"	1\"/>	2.5"	4\"/>	2"	9/16"
8"	5.87"	.250"	1\"/>	2.5"	4\"/>	2"	9/16"
10"	7.125"	.250"	1\"/>	2.5"	4\"/>	2"	9/16"
12"	8.50"	.250"	1\"/>	2.5"	4\"/>	2"	9/16"
14"	9.375"	.375"	1.5\"/>	3.5"	8\"/>	3"	3/4"
16"	9.625"	.375"	1.5\"/>	3.5"	8\"/>	3"	3/4"
18"	11.375"	.375"	2\"/>	4.5"	12\"/>	4"	3/4"
20"	12.50"	.375"	2\"/>	4.5"	12\"/>	4"	3/4"
24"	14.75"	.375"	2\"/>	4.5"	12\"/>	4"	3/4"

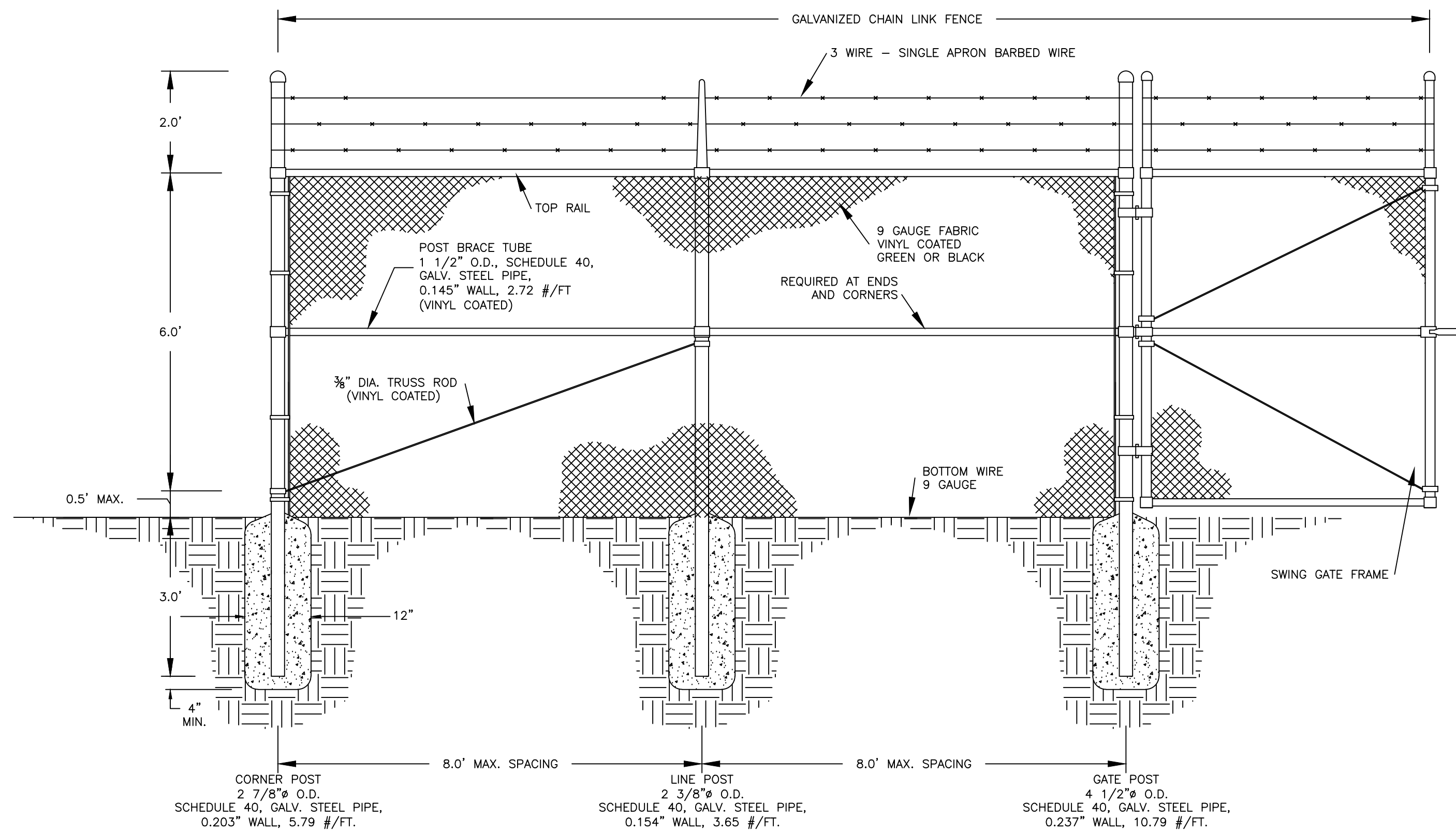
**NOTES:**  
 1. MAXIMUM 4\"/>



**Revision**

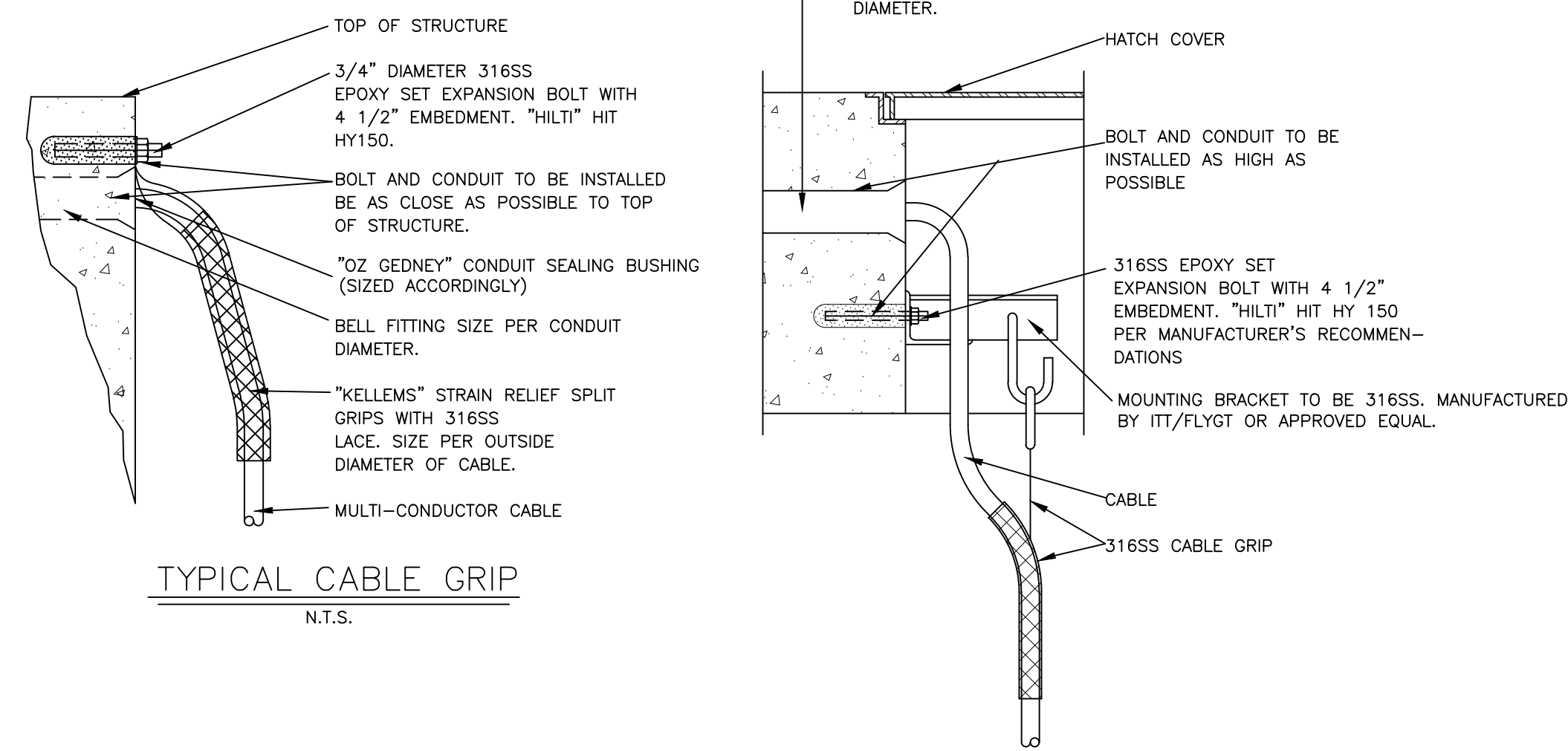
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 Sheet Title  
 LIFT STATION DETAILS



LIFT STATION FENCE DETAIL

N.T.S.

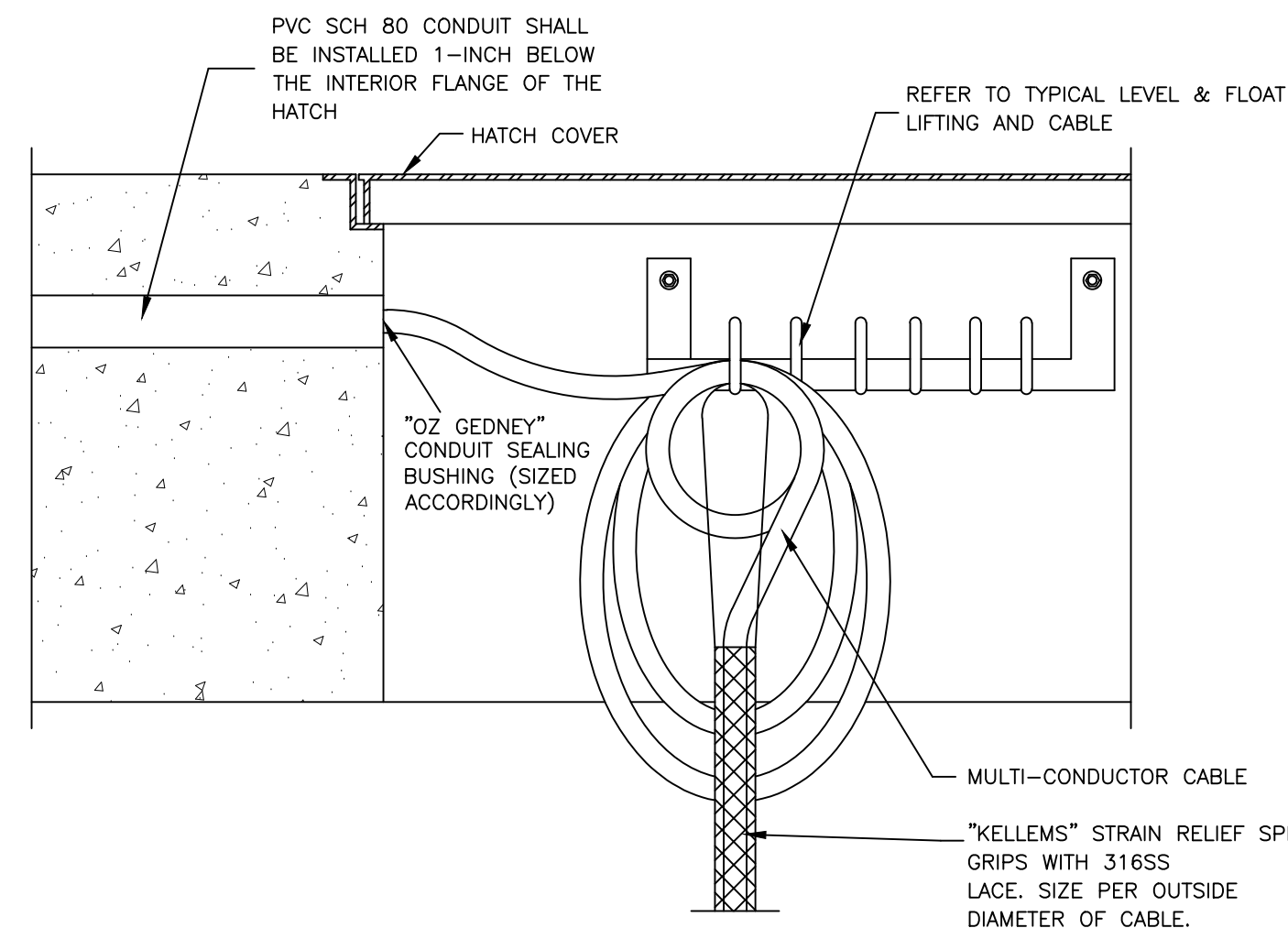


TYPICAL CABLE GRIP

N.T.S.

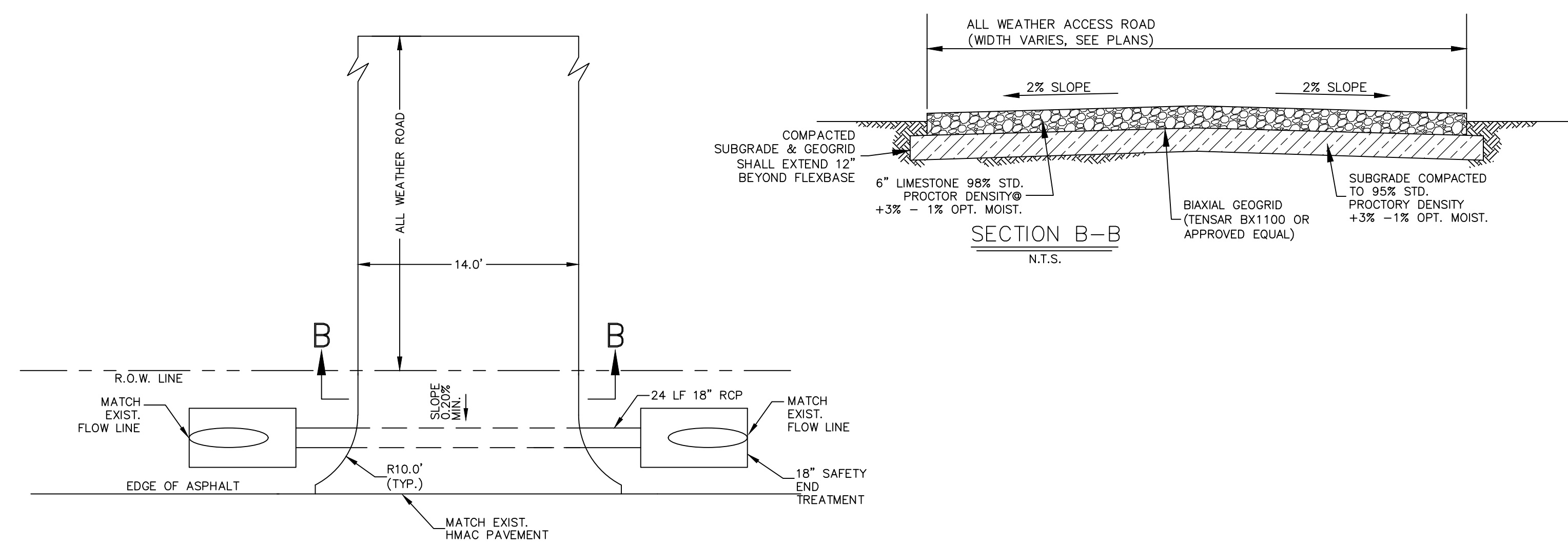
TYPICAL LEVEL & FLOAT LIFTING ASSEMBLY

N.T.S.



TYPICAL HATCH COVER CONDUIT PENETRATION

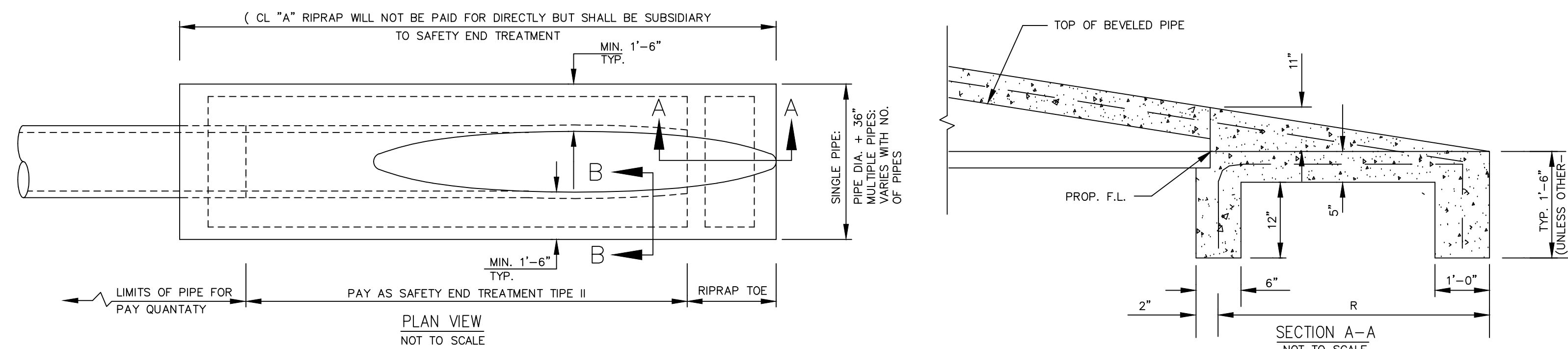
N.T.S.



TYPICAL LIFT STATION DRIVEWAY APRON

N.T.S.

NOTE: CONTRACTOR TO VERIFY LOCAL DRAINAGE PATTERNS TO AVOID CREATING PONDING WATER.



SAFETY END TREATMENT PIPE LENGTHS

PIPE DIA. (IN.)	3d	4d	5d	6d
12"	2'-0"	2'-8"	3'-4"	4'-0"
15"	2'-10"	3'-9"	4'-8"	5'-7 1/2"
18"	3'-7 1/2"	4'-10"	6'-0 1/2"	7'-3"
24"	5'-1 1/2"	6'-10 1/2"	8'-7"	10'-4"
30"	6'-10 1/2"	9'-2"	11'-5 1/2"	13'-9"
36"	8'-6"	11'-4"	14'-2"	17'-0"
42"	10'-1 1/2"	13'-6"	16'-10 1/2"	20'-3"
48"	11'-9"	15'-8"	19'-7"	23'-6"

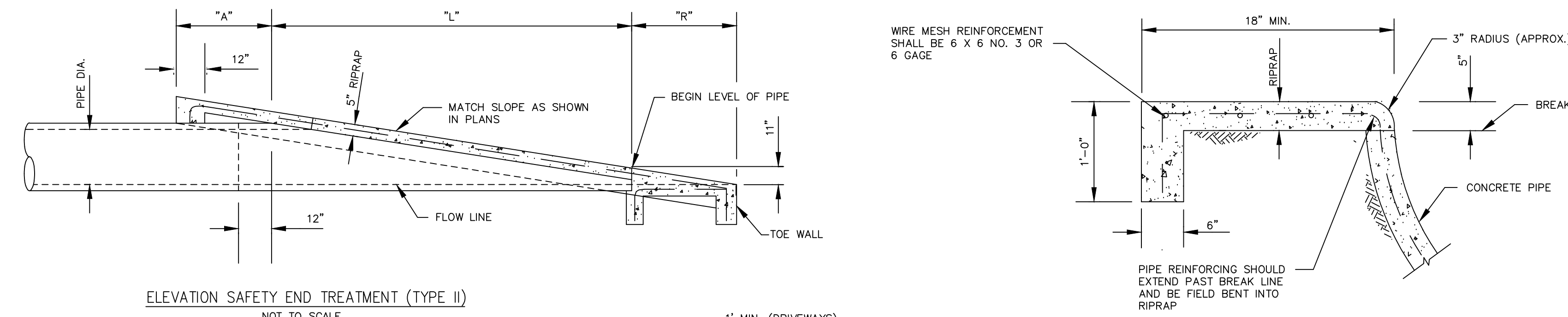
ESTIMATED RIPRAP CL "A" VOLUME (CY)

PIPE DIA. (IN.)	SLOPE "S"			
	3d	4d	5d	6d
12"	.88	1.11	1.34	1.57
15"	.98	1.23	1.49	1.75
18"	1.08	1.36	1.64	1.93
24"	1.29	1.63	1.97	2.32
30"	1.50	1.91	2.32	2.73
36"	1.73	2.21	2.69	3.17
42"	1.95	2.50	3.05	3.60
48"	2.18	2.80	3.42	4.05

FOR CONTRACTORS INFORMATION ONLY (SINGLE PIPE)

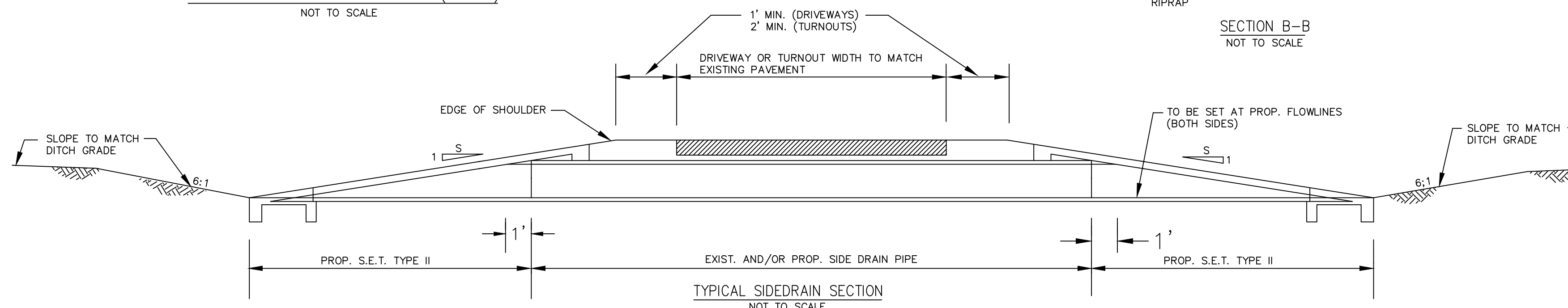
RIPRAP TOE LENGTHS "A"

SLOPE	"R"	"A"
3d	2'-9"	1'-9"
4d	3'-8"	2'-1"
5d	4'-7"	2'-11"
6d	5'-6"	3'-6"



ELEVATION SAFETY END TREATMENT (TYPE II)

NOT TO SCALE



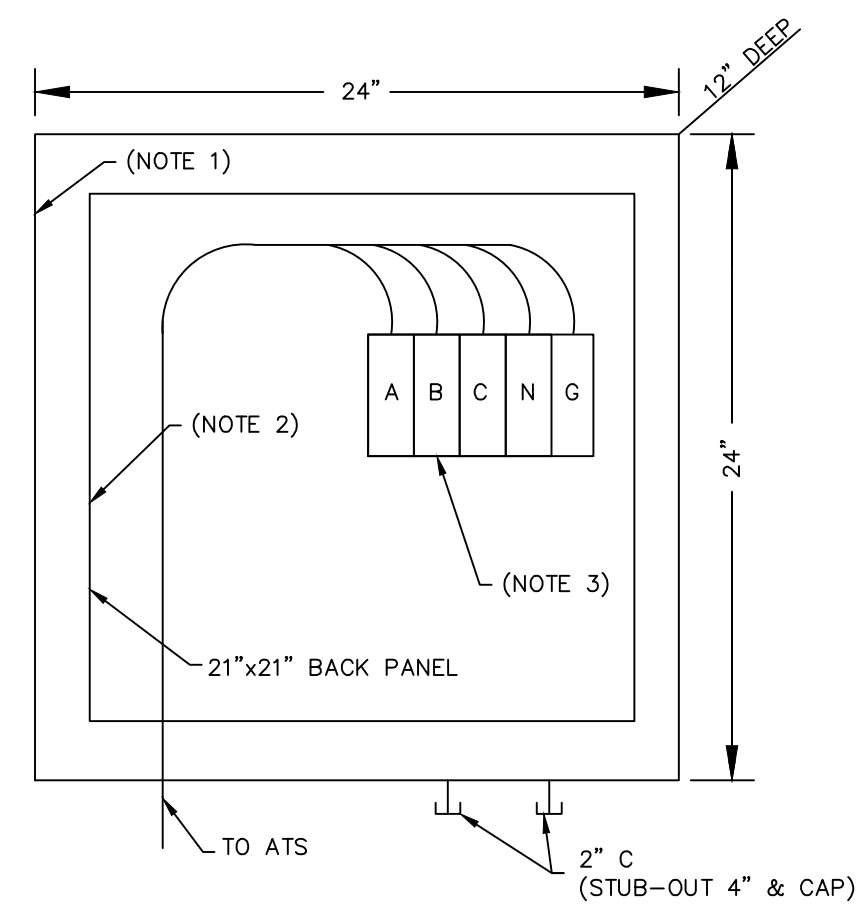
SAFETY END TREATMENT DETAILS

NOT TO SCALE

Revision No.	Date	Description
1		

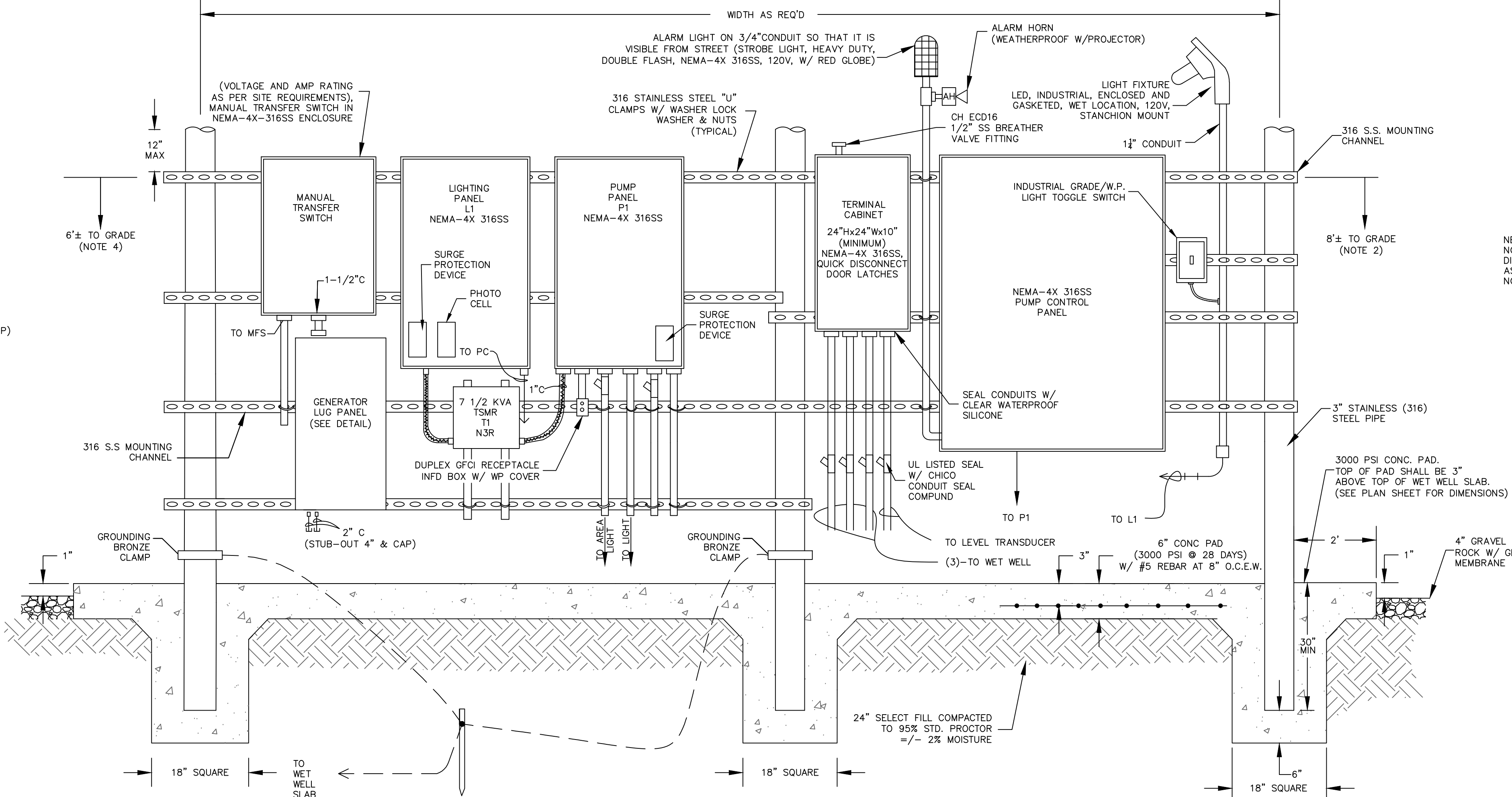
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LIFT STATION SITE DETAILS

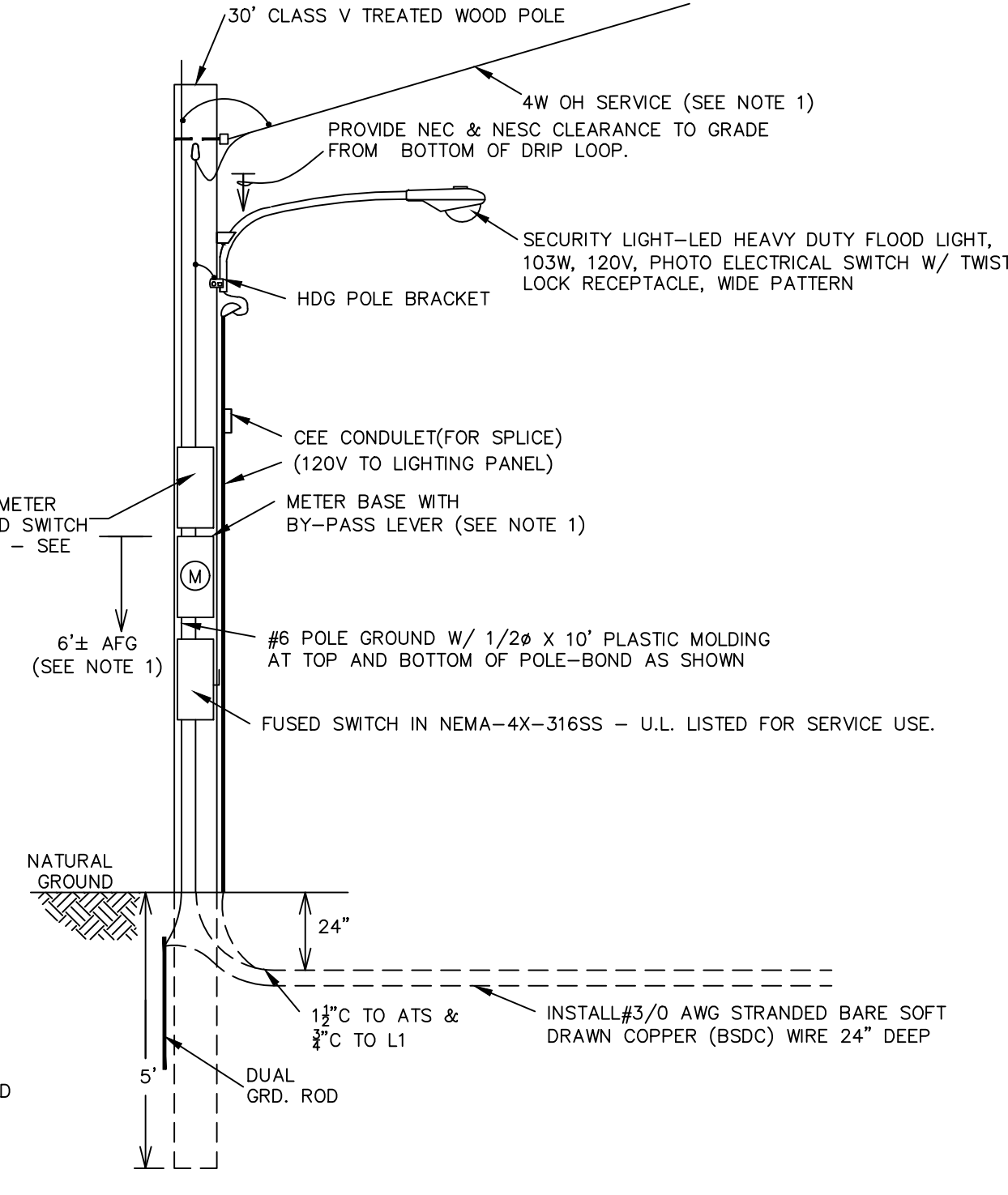


NOTE 1. THE LUG ENCLOSURE SHALL BE 24"W X 24"H X 12"D WITH A 21"W X 21"H BACK PANEL, QUICK DISCONNECT DOOR LATCHES, RATED NEMA-4X 316SS.  
 NOTE 2. THREE POLE POWER DISTRIBUTION BLOCK.  
 NOTE 3. TWO POLE POWER DISTRIBUTION BLOCK.

GENERATOR LUG PANEL DETAIL  
 N.T.S.



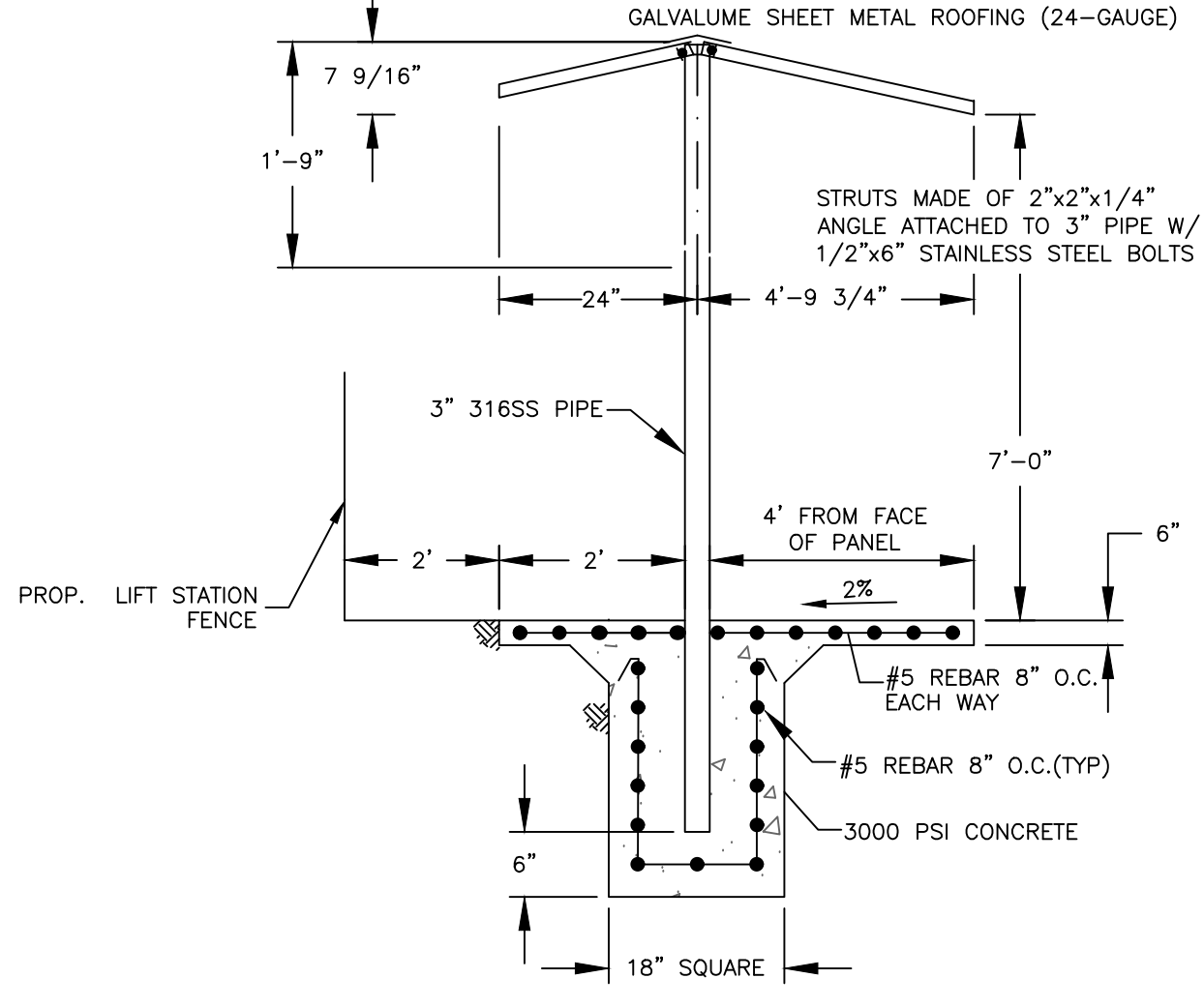
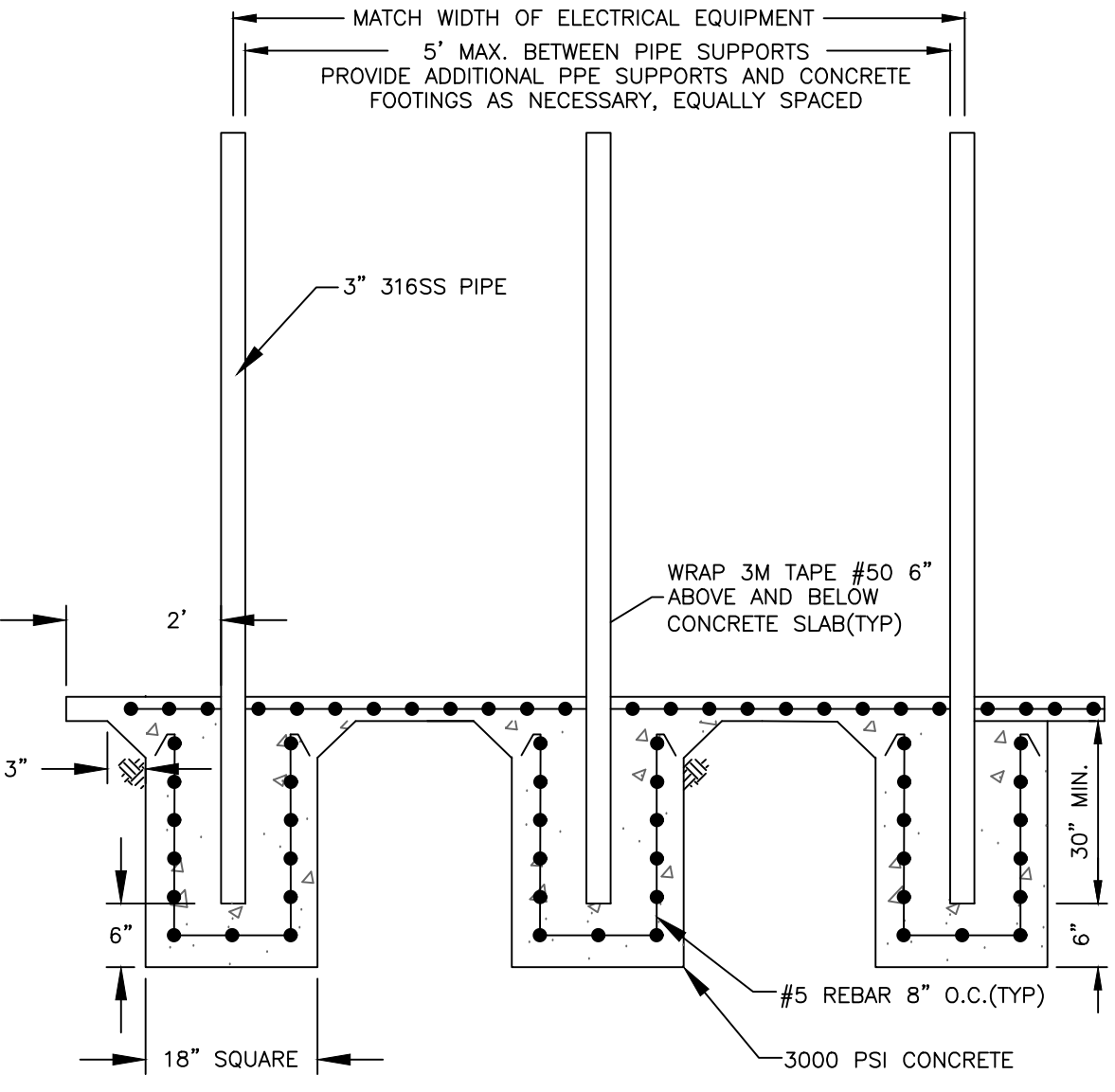
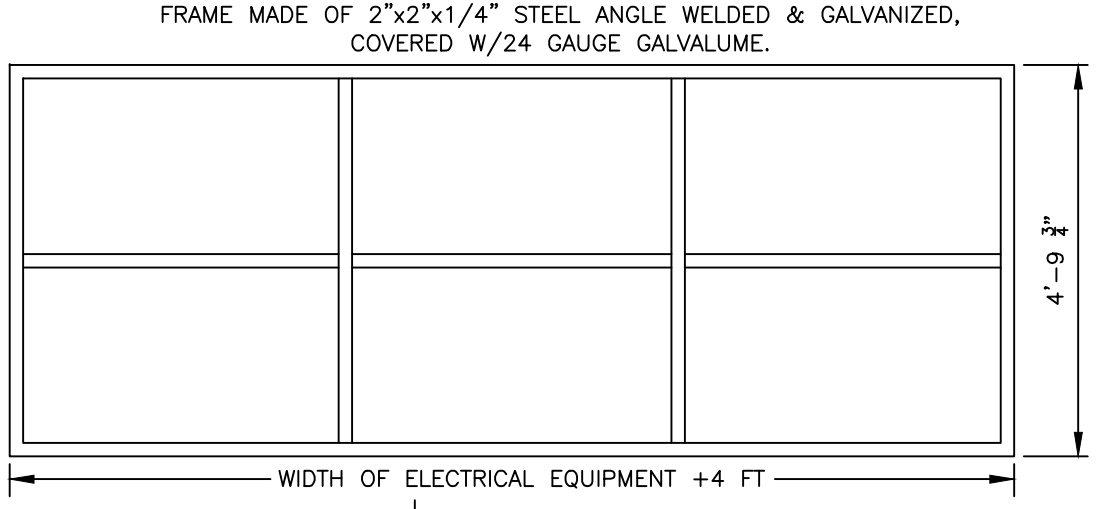
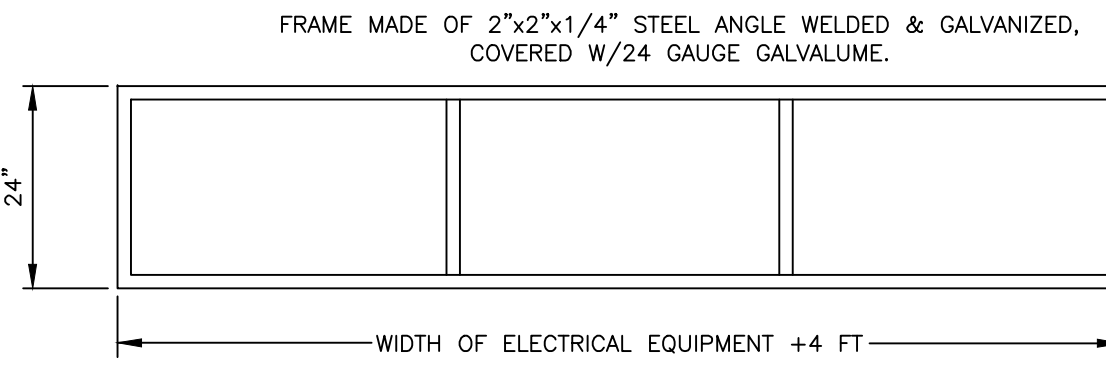
ELECTRICAL SERVICE RACK ELEVATION  
 N.T.S.



NOTES: 1) COORDINATE SERVICE & METERING REQUIREMENTS WITH SERVICE PROVIDER AND FURNISH & INSTALL AS REQUIRED.

PROPOSED SERVICE POLE DETAIL  
 N.T.S.

- GENERAL REQUIREMENT NOTES:**
- ELECTRICAL/CONTROL PANELS SHALL BE UL508A CERTIFIED.
  - NEW PUMP CONTROL PANELS SHALL HAVE AN INTERIOR FRONT SWING DOOR WHERE ALL CONTROL PUSHBUTTONS AND SWITCHES ARE MOUNTED.
  - COLOR DESIGNATION:  
 -GREEN: STOPPED/CLOSED; OFF  
 -RED: RUNNING/OPEN; ON  
 -AMBER: ALARM  
 -WHITE: CABINET POWER
  - PROVIDE WITH ISOLATED I/O.
  - UTILIZE TYPE 316 STAINLESS STEEL (316SS) FOR ALL HARDWARE AND SUPPORTS INSTALLED OUTDOORS.
  - ALL CONDUIT PENETRATIONS IN ENCLOSURES INSTALLED OUTDOORS SHALL BE BOTTOM ENTRY EXIT. TOP OR SIDE ENTRY CONDUITS ARE NOT ALLOWED. EXCEPTIONS MAY BE MADE TO SIDE ENTRY CONDUITS IN THE LOWEST 12"-18" OF THE ENCLOSURE, BELOW CONTACTORS AND LIVE CONTROL EQUIPMENT.
  - UTILIZE ALUMINUM BACK PANELS IN ALL CONTROL PANELS AND TERMINATION JUNCTION BOXES.
  - MAINTAIN NEC 404.8(A) ACCESSIBILITY TO SWITCHES & PANELS.
  - MAINTAIN NEC 110.26 CLEAR WORKING SPACE ABOUT ELECTRICAL ENCLOSURES.
  - INSTALL C.T.S. (FURNISHED WITH PC) IN PANEL P1.



NOTE: 1) ALL FABRICATED STEEL COMPONENTS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION. ALL FASTENERS SHALL BE STAINLESS STEEL.  
 TYPICAL RACK SUPPORT & ROOFING DETAIL  
 NOT TO SCALE



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 LIFT STATION DETAILS