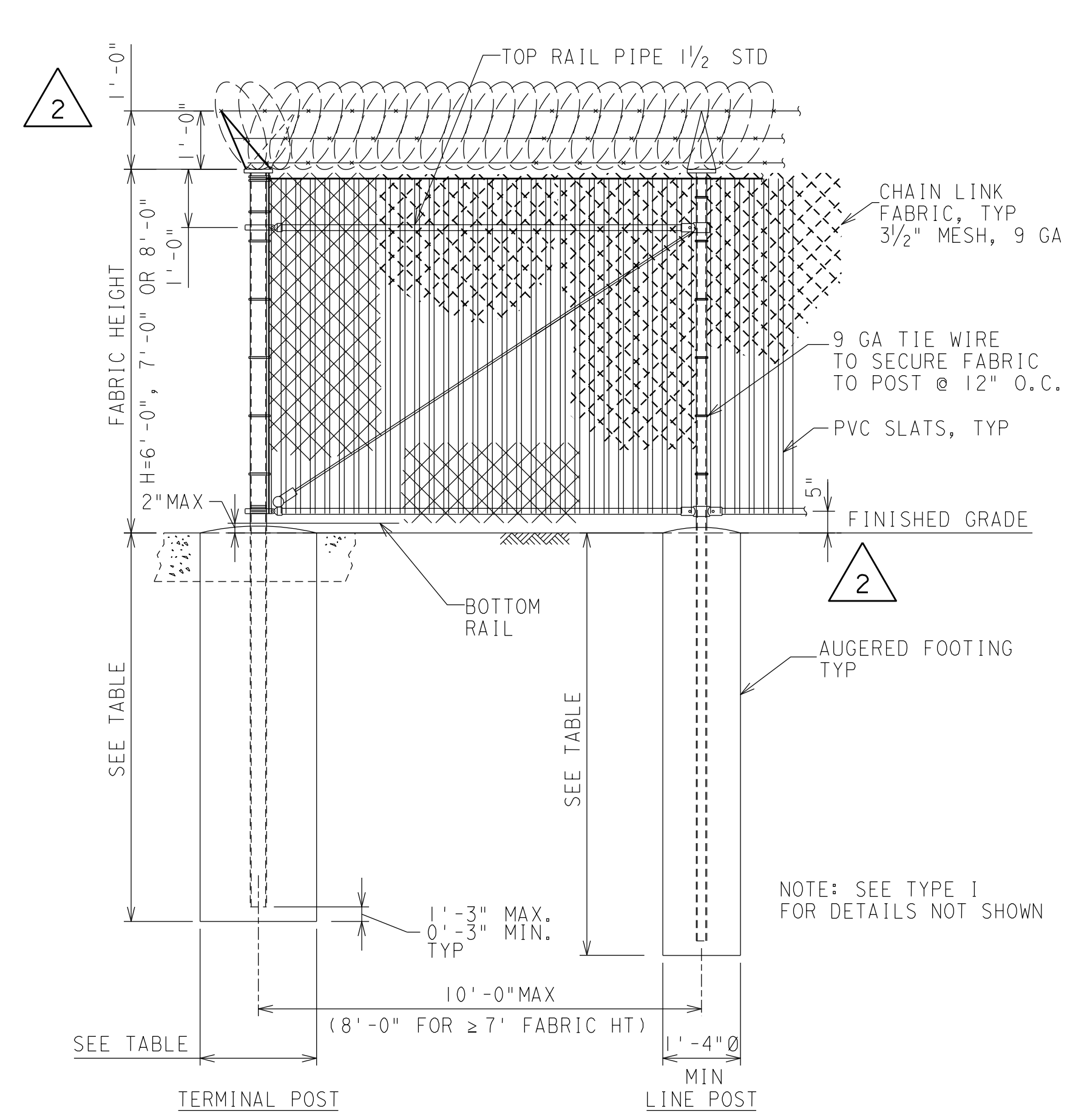


H = 6'-0"					
POST TYPE	TERMINAL	LINE	GATE (≤ 6' LEAF)	GATE (≤ 13' LEAF)	LATCH POST
POST SIZE	PIPE 2 1/2 STD	PIPE 2 STD	PIPE 2 1/2 STD	PIPE 3 STD	PIPE 2 1/2 STD
FTG SIZE	12" DIA	12" DIA	12" DIA	16" DIA	12" DIA
FTG DEPTH	5'-3"	4'-6"	5'-8"	6'-0"	6'-3"
H = 8'-0" OR LESS					
POST TYPE	TERMINAL	LINE	GATE (≤ 6' LEAF)	GATE (≤ 13' LEAF)	LATCH POST
POST SIZE	PIPE 3 STD	PIPE 2 1/2 STD	PIPE 3 STD	PIPE 3 1/2 STD	PIPE 3 STD
FTG SIZE	16" DIA	12" DIA	16" DIA	16" DIA	16" DIA
FTG DEPTH	5'-6"	5'-3"	5'-9"	7'-0"	6'-6"

TYPE I: CHAIN LINK FABRIC FENCE PANEL  
1/2" = 1'-0"



H = 6'-0"					
POST TYPE	TERMINAL	LINE	GATE (≤ 6' LEAF)	GATE (≤ 13' LEAF)	LATCH POST
POST SIZE	PIPE 3 1/2 STD	PIPE 3 STD	PIPE 3 1/2 STD	PIPE 5 STD	PIPE 4 STD
FTG SIZE	16" DIA	16" DIA	16" DIA	24" DIA	18" DIA
FTG DEPTH	7'-3"	6'-9"	7'-6"	8'-0"	8'-8"
H = 8'-0" OR LESS					
POST TYPE	TERMINAL	LINE	GATE (≤ 6' LEAF)	GATE (≤ 13' LEAF)	LATCH POST
POST SIZE	PIPE 4 STD	PIPE 3 1/2 STD	PIPE 5 STD	PIPE 6 STD	PIPE 5 STD
FTG SIZE	24" DIA	16" DIA	24" DIA	24" DIA	24" DIA
FTG DEPTH	6'-6"	7'-3"	7'-2"	9'-0"	8'-8"

TYPE II: CHAIN LINK FABRIC FENCE PANEL  
WITH SLATS  
1/2" = 1'-0"

REFERENCE

- FENCE GROUNDING ..... ES 020607
- INSULATION DISTRICTS ..... 026300
- ELECTRIC SUBSTATION FENCE ..... CDS 3004471
- SQUARE TUBE ORNAMENTAL GATE ..... 059663 & 059664

DRAWING NO.

DESIGN CRITERIA

- ASCE 7-16  
BASIC WIND SPEED= 90 MPH FOR RISK CATEGORY 1, EXPOSURE C, AND NO ICE
- AISC 360-16
- ACI 318-14
- CALIFORNIA BUILDING CODE 2019  
FOR CLAY OR BETTER SOIL, ALLOWABLE LATERAL SOIL BEARING PRESSURE= 100 PSF/FT, APPLIED OVER 2-DIAMETER OF THE FOOTING PER TABLE 1806.2

GENERAL NOTES

- CHAIN LINK FABRIC SHALL BE STRETCHED AND FASTENED TO END, CORNER & GATE POSTS WITH STRETCHER BARS AND STRETCHER BANDS.
- BARBED WIRE SHALL BE INSTALLED ON EXTENSION ARMS. EACH WIRE SHALL BE PULLED TAUT. WIRE SHALL BE ATTACHED TO END, CORNER & GATE POSTS WITH WIRE STRETCHER BANDS.
- EXTENSION ARMS SHALL BE DESIGNED TO SECURELY ANCHOR THREE ROWS OF BARBED WIRE EQUALLY SPACED AND SUPPORT A VERTICAL LOAD OF 200 POUNDS AT THE OUTER END.
- TERMINAL POSTS SHALL BE INSTALLED AT CORNERS WHERE THE FENCE CHANGES DIRECTION BY MORE THAN 30 DEGREES AND AT EVERY 200 FT OF FENCE, MAXIMUM.
- TOP OF CONCRETE FOOTINGS SHALL BE STEEL TROWELED TO A SLOPE TO PROVIDE A NEAT APPEARANCE AND TO SHED WATER.
- AT FENCE TRANSITIONS:  
A. TO EXISTING CHAIN LINK FENCE: BARBED WIRE SHALL BE CONTINUOUS ALONG THE TOP OF POSTS OF DIFFERENT FENCE TYPES.  
B. TO NON-CONDUCTIVE FENCE: CHAIN LINK FENCE BARBED WIRE SHALL NOT BE CONNECTED TO NON-CONDUCTIVE FENCE BARBED WIRE.  
C. TO WALLS: GAP BETWEEN THE WALL & FENCE SHALL NOT BE WIDER THAN 2 INCHES.
- FOR TEMPORARY CHAIN LINK FENCE, ALL REQUIREMENTS IN THIS STANDARD SHALL APPLY EXCEPT, DRIVEN STEEL TEE SECTION, STEEL PIPE OR CHANNEL SECTION FENCE POSTS MAY BE USED, IN LIEU OF CONCRETE FOOTING.
- AT LOCATIONS WHERE THE GROUND IS RAISED OUTSIDE OF THE FENCE, SET BACK FENCING BY 8 FEET OR INSTALL ADDITIONAL BARBED WIRE AS REQUIRED TO PREVENT CLIMB-IN.
- FOR FENCING TO BE INSTALLED ON OR NEAR SLOPE STEEPER THAN TEN (10) PERCENT, SEE DETAIL 14 AND 15.
- FOR 7-FOOT OR TALLER FABRIC, INSTALL (1) ROLL OF RAZOR WIRE WITH THE BARBED WIRE, UNLESS AUTHORITY HAVING JURISDICTION (AHJ) PROHIBITS. SEE MATERIAL NOTE 9.
- IF REQUIRED BY CORPORATE SECURITY, INSTALL A SLURRY DIG BARRIER, SEE DETAIL 12.

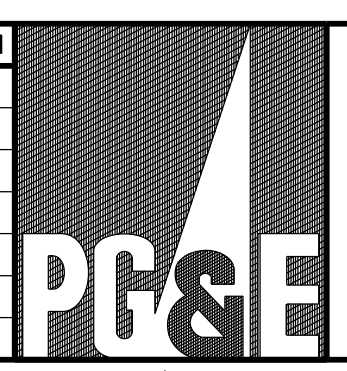
MATERIALS

- ALL COMPONENTS FOR A GIVEN INSTALLATION SHALL BE FURNISHED BY THE SAME SUPPLIER.
- ALL COMPONENTS SHALL BE HOT-DIP GALVANIZED (H.D.G.).
- PIPES: ASTM A53 GRADE B, H.D.G. PER ASTM A123
- CHAIN LINK FABRIC:  
TWISTED AND BARBED SELVAGE ON TOP AND KNUCKLED SELVAGE AT THE BOTTOM,  
A. ZINC COATED, ASTM A392 CLASS 1 (1.2 OZ/FT<sup>2</sup>)  
B. ALUMINUM COATED, ASTM A491  
C. POLYMER COATED, ASTM F668, CLASS 1, 2A OR 2B. COLOR SHALL BE DARK GREEN/OLIVE GREEN/BROWN/BLACK PER ASTM F934.  
FOR CHAIN LINK FENCE W/ SLATS, 9 GAGE WIRE, 3/2" FABRIC MESH.
- FITTINGS: ASTM F626, WITH COATING OF 1.2 OZ/FT<sup>2</sup> ZINC OR 0.006 INCH POLYMER.
- TIE WIRE AND HOG RINGS: ASTM F626, WITH COATING OF 1.2 OZ/FT<sup>2</sup> ZINC OR 0.006 INCH POLYMER.
- BARBED WIRE:  
A. ZINC COATED ASTM A121 (TYPE Z) CLASS 1, DESIGN NO. 12-4-5-14R (TWO STRANDS OF 12 1/2 GAGE WIRE, TWISTED WITH 4 POINT, 14 GAGE BARBS SPACED 5" O.C.)  
B. ZINC COATED ASTM A121 (TYPE Z) CLASS 3, DESIGN NO. 12-4-5-14R (TWO STRANDS OF 12 1/2 GAGE WIRE, TWISTED WITH 4 POINT, 14 GAGE BARBS SPACED 5" O.C.) SHALL BE USED FOR FACILITIES LOCATED IN COASTAL REGIONS.  
C. POLYMER COATED, ASTM F1665 0.80 INCH DOUBLE TWISTED STRAND WIRE. ZINC COATED 4 POINT, 14 GAGE BARBS SPACED 5" O.C., CLASS 1A, 2A OR 2B TO MATCH THE FABRIC.
- TENSION WIRES SHALL BE STRETCHED TIGHT.  
A. ZINC COATED, ASTM A824 TYPE 11 CLASS 4 (1.2 OZ/FT<sup>2</sup>)  
B. POLYMER COATED, ASTM F1664, CLASS 1, 2A OR 2B TO MATCH THE FABRIC.
- RAZOR WIRE SHALL BE GALVANIZED RAZOR WIRE WITH STAINLESS STEEL BLADES. THE ROLL SHALL BE 18" DIAMETER WITH COIL CYLINDERS SPACED AT 4.5" O.C. THE ROLL SHALL BE SECURED TO ALL OF THE BARBED WIRES AT MAXIMUM OF 4.5" SPACING.
- CONCRETE: 2,500 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS.



REV	DATE	DESCRIPTION	JOB NO	DSG/DWC	CHKD	SUPV	APVD	REV	DATE	DESCRIPTION	JOB NO	DSG/DWC	CHKD	SUPV	APVD
2	05-12-20	MODIFIED DET 4&7, ADDED DET 11 TO 15, MODIFIED GATE ELEVATION, ADDED BOTTOM BAR													
1	01/23/19	APPROVED FOR CONSTRUCTION													

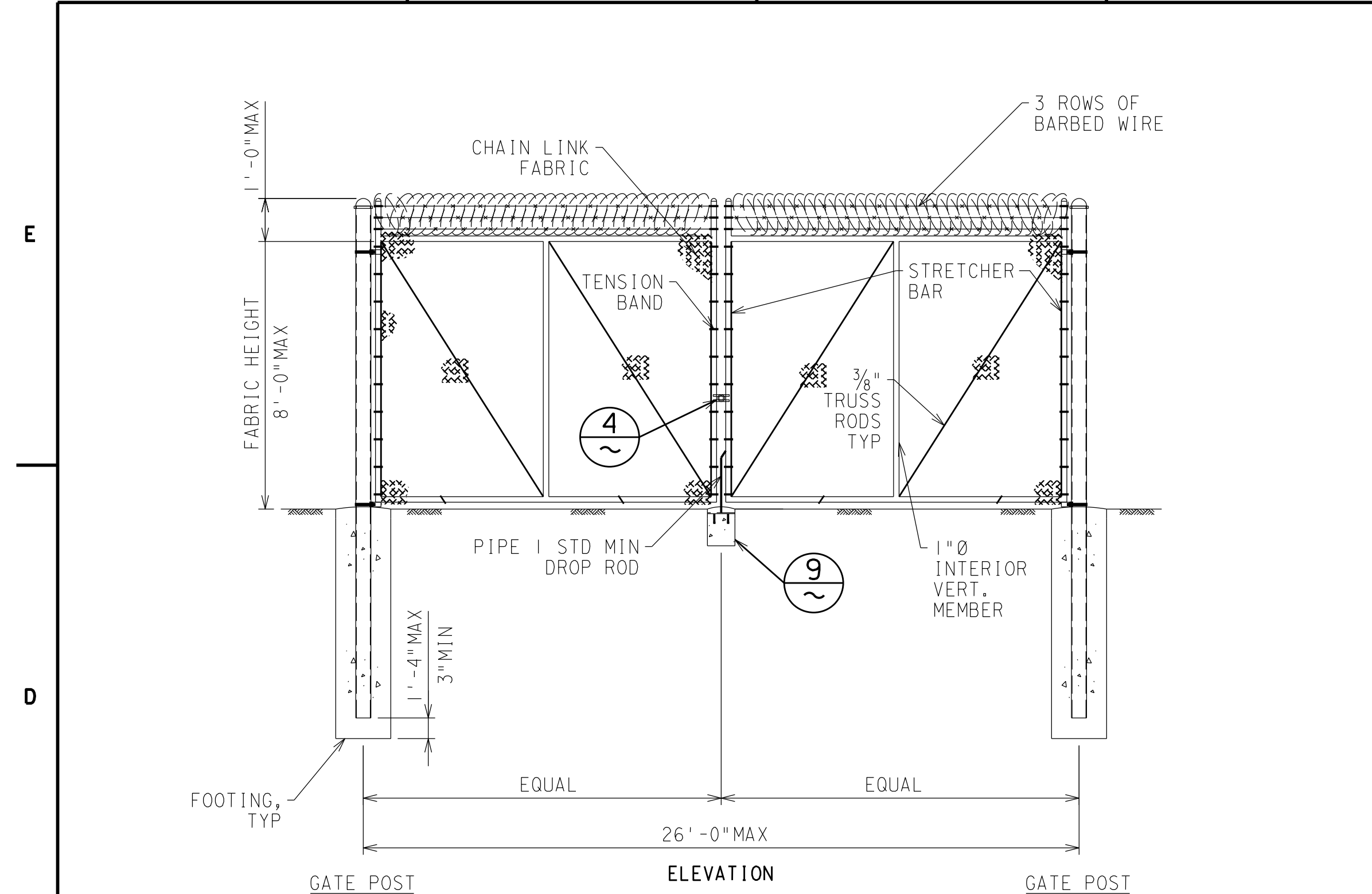
W.O.	REV. 1
DSG S. TOM	
DWN D. GEE	
CHKD R. MORFIN	
SUPV	
APVD J. BERNAS	
APVD	
DATE 1-23-2019	



CIVIL DESIGN STANDARD  
PROPERTY FENCE AND GATES  
DEPARTMENT OF ENGINEERING  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

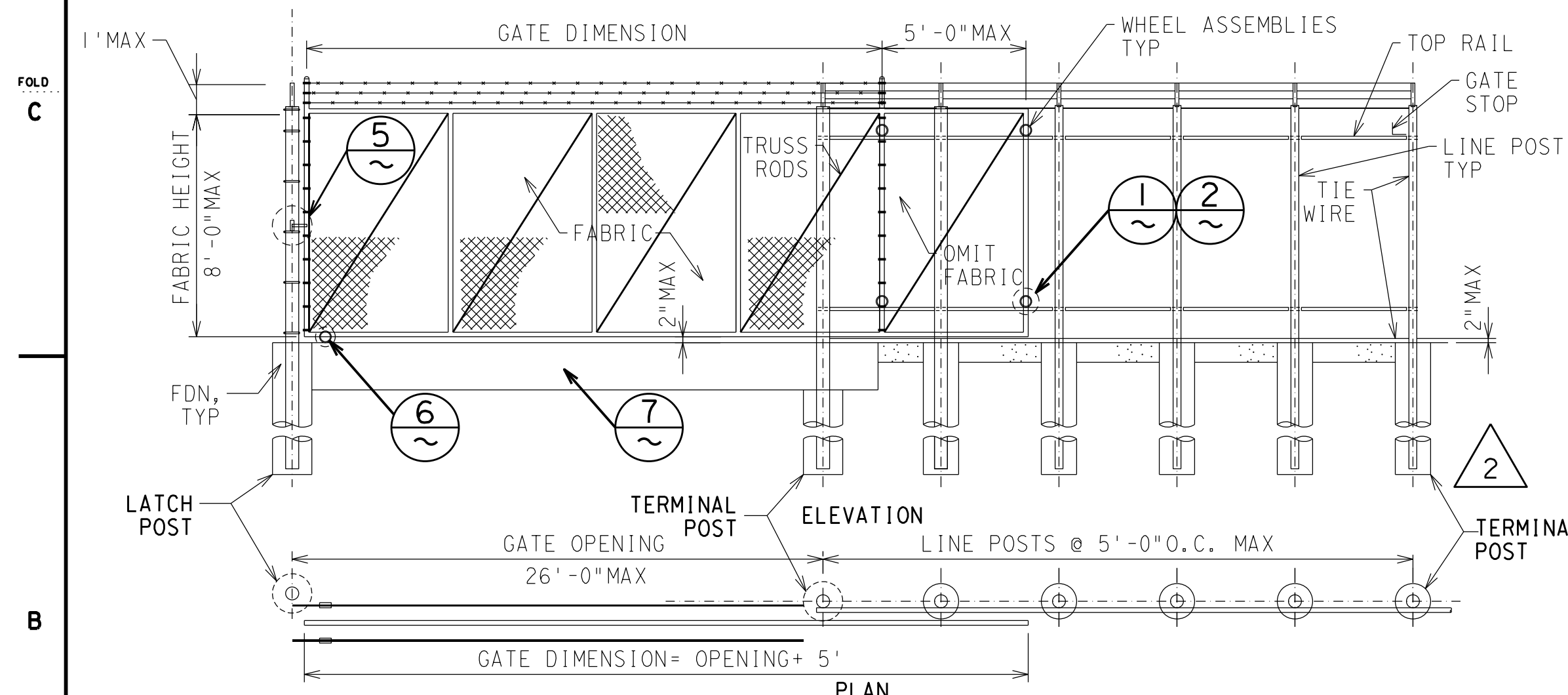
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BILL OF MATL	
DWG LIST	
SUPSDS 059659-059662	
SUPSD BY	
SHEET NO 1 OF 4 SHEETS	REV 2
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DRAWING NUMBER 3020646



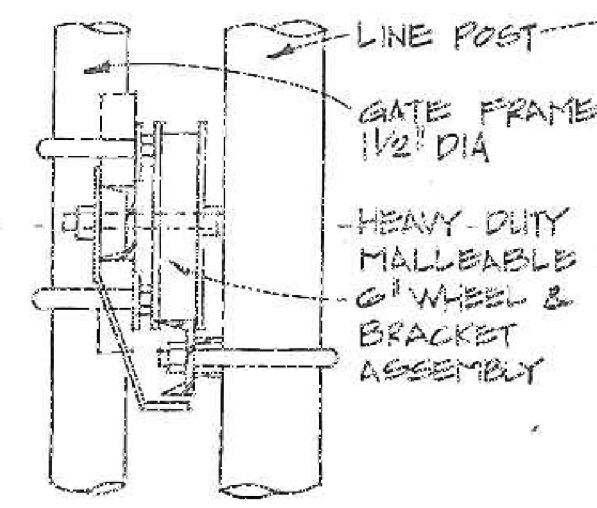
NOTE: SEE TYPE 1 OR 2 TABLES ON SHEET 1 FOR POST AND FOUNDATION SIZES

**STANDARD SWING GATE**  
NTS

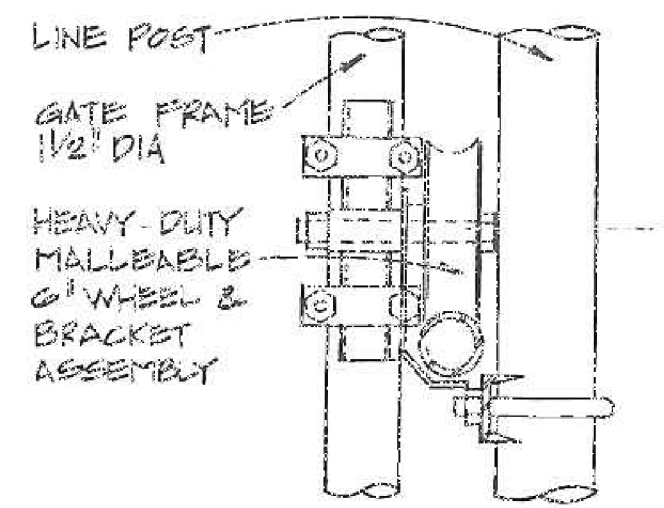


NOTE: SEE TYPE 1 OR 2 TABLES ON SHEET 1 FOR POST AND FOUNDATION SIZES

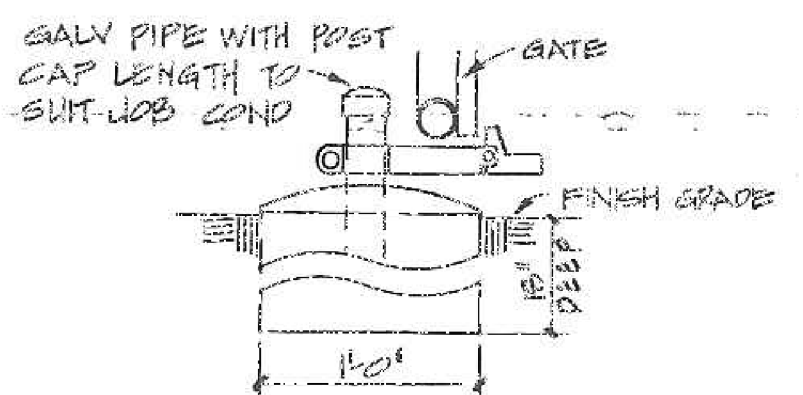
**ROLLING GATE**  
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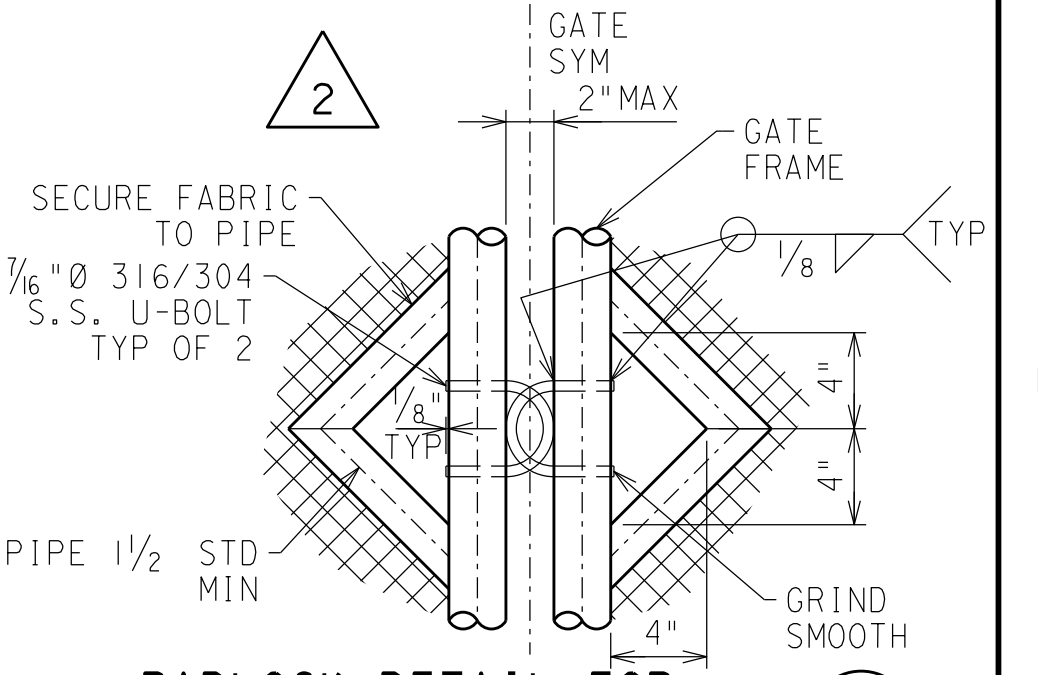
**REAR WHEELS FOR CHANNEL TRACK**  
3/8" = 1'-0"



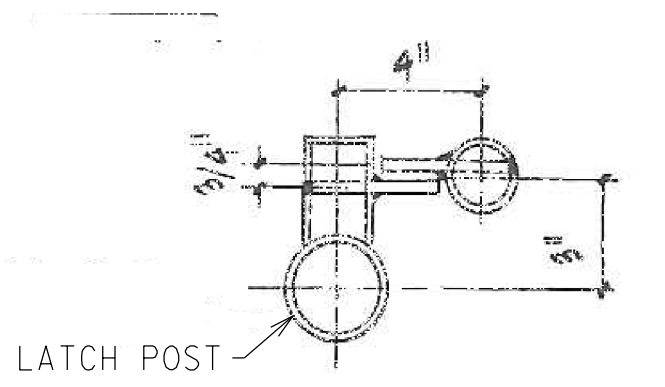
**REAR WHEELS FOR PIPE TRACK**  
3/8" = 1'-0"



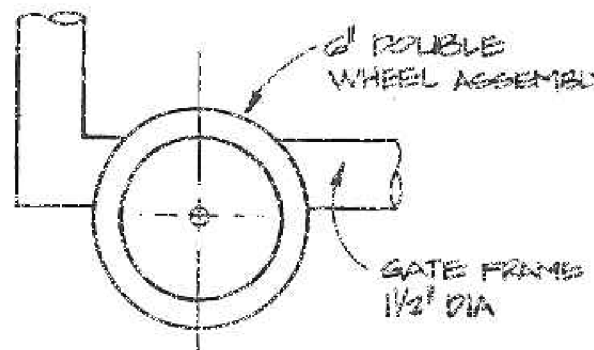
**DETAIL OF GATE KEEPER**  
1/2" = 1'-0"



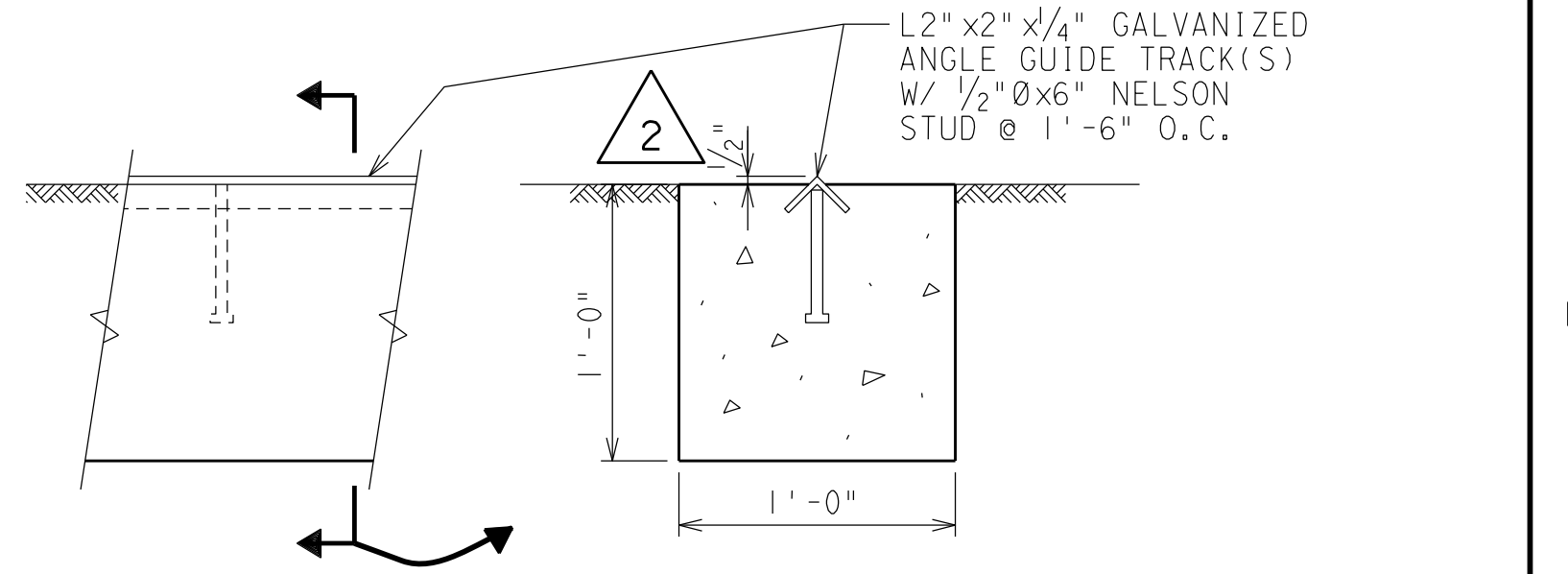
**PADLOCK DETAIL FOR STANDARD SWING GATE**  
1/2" = 1'-0"



**PADLOCK DETAIL FOR ROLLING GATE**  
3/8" = 1'-0"

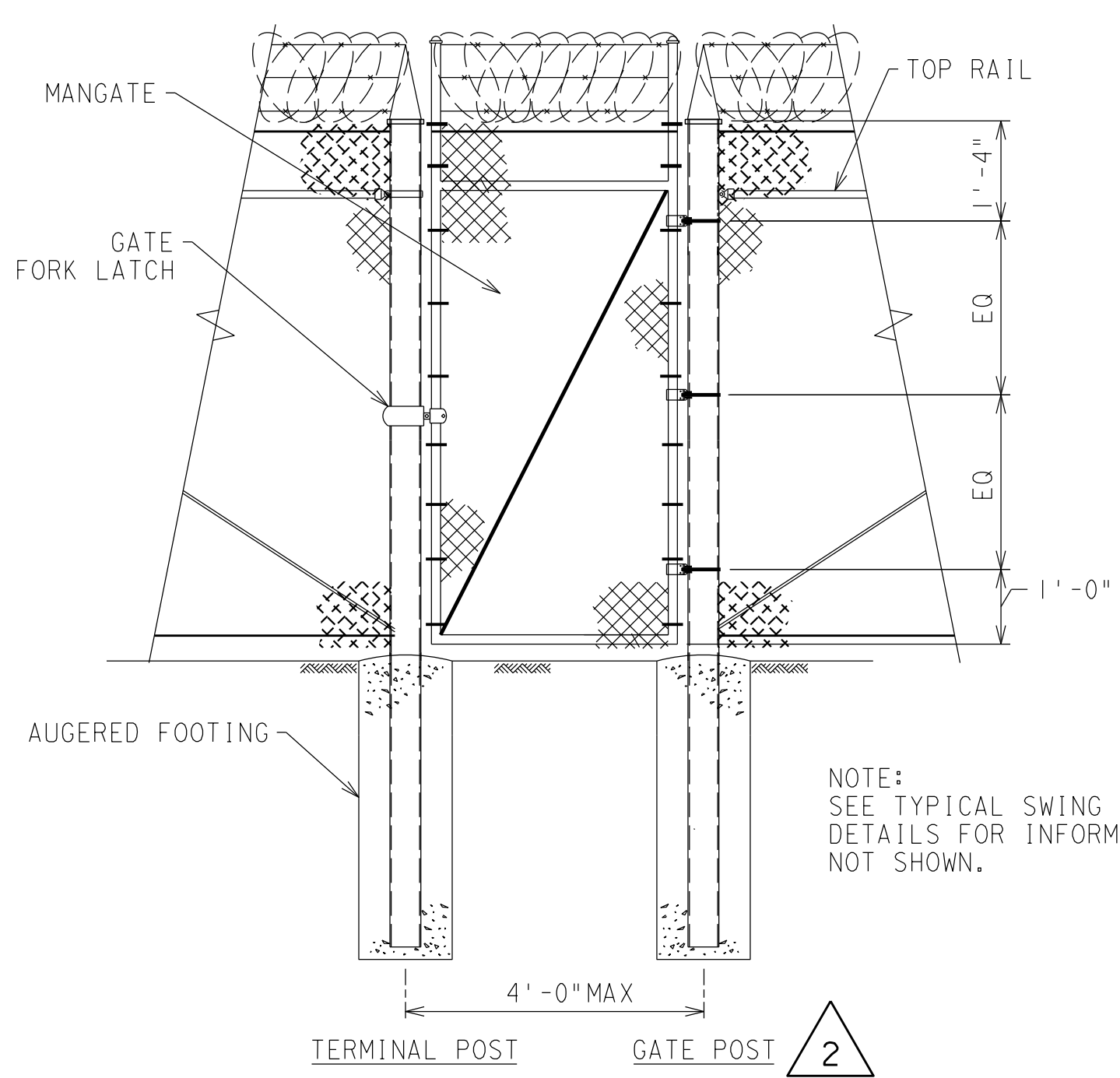


**FRONT WHEELS FOR ROLLING GATE**  
3/8" = 1'-0"



**ROLLING GATE GUIDE TRACK**  
1/2" = 1'-0"

NOTE: ANGLE TRACK TO BE 1'-0" LONGER THAN GATE OPENING



NOTE: SEE TYPICAL SWING GATE DETAILS FOR INFORMATION NOT SHOWN.

**TYPICAL MANGATE**  
1/2" = 1'-0"

**GATE NOTES**

- GATE KEEPERS SHALL BE PROVIDED FOR EACH LEAF OVER 5 FEET WIDE. GATE KEEPERS SHALL CONSIST OF A MECHANICAL DEVICE FOR SECURING THE FREE END OF THE GATE WHEN IN FULL OPEN POSITION.
- GATE FRAMES SHALL BE CONSTRUCTED FROM 1/2" NOMINAL DIAMETER STANDARD WEIGHT PIPE, CONFORMING TO ASTM A53 GRADE B; CORNERS WELDED OR FITTED AND FRAME TRUSSED WITH 3/8" ADJUSTABLE RODS.
- THE SAME CHAIN LINK FABRIC SPECIFIED FOR THE FENCE SHALL BE ATTACHED TO THE GATE FRAME BY USING STRETCHER BARS AND TIE WIRES AS SPECIFIED FOR THE FENCE CONSTRUCTION, AND SUITABLE TENSION CONNECTIONS SPACED AT ONE FOOT INTERVALS.
- THE GATE SHALL BE HUNG WITH AT LEAST 2 HEAVY DUTY GALVANIZED HINGES OF APPROPRIATE WEIGHT TO SUPPORT THE WEIGHT OF THE GATE LEAF, SUCH THAT THE GAP BELOW EACH GATE LEAF DOES NOT EXCEED 2".
- EXTENSION ARMS SHALL BE INSTALLED ON THE END POSTS TO CARRY 3 ROWS OF BARBED WIRE TO COMPLETE HORIZONTAL ALIGNMENT WITH BARBED WIRE ON ADJACENT FENCE.
- LATCHES FOR DOUBLE GATES SHALL BE FORK TYPE LATCH WITH CENTER DROP ROD OR PLUNGER BAR TYPE OF FULL GATE HEIGHT ARRANGED TO ENGAGE THE GATE STOP, OR A POSITIVE LOCKING GRAVITY DEVICE. LOCKING DEVICES SHALL BE CONSTRUCTED SO THE CENTER DROP ROD OR PLUNGER BAR CANNOT BE RAISED WHEN LOCKED.
- DESIGN OF GATE SHALL COMPLY WITH ASTM F1184 TYPE II.

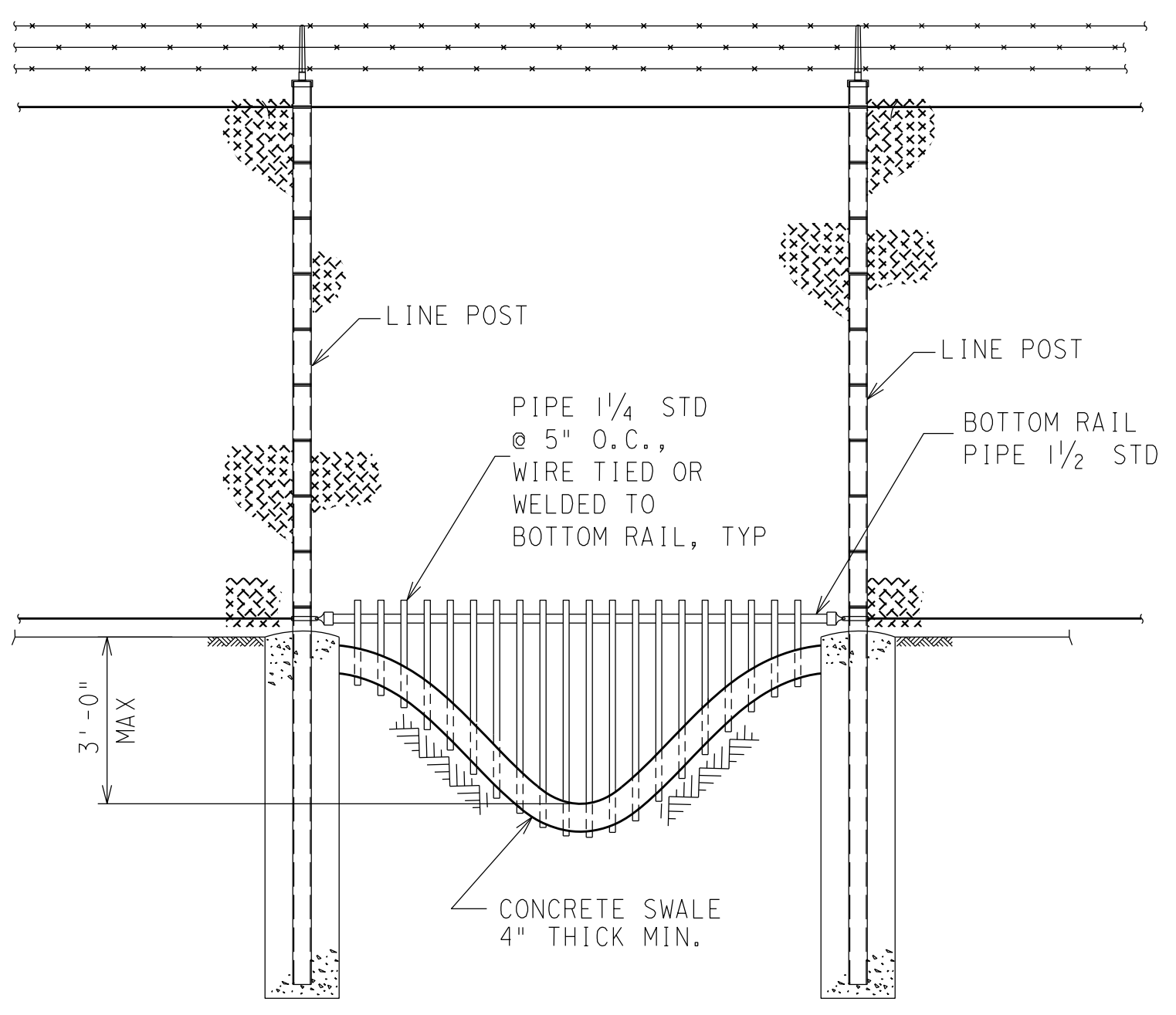


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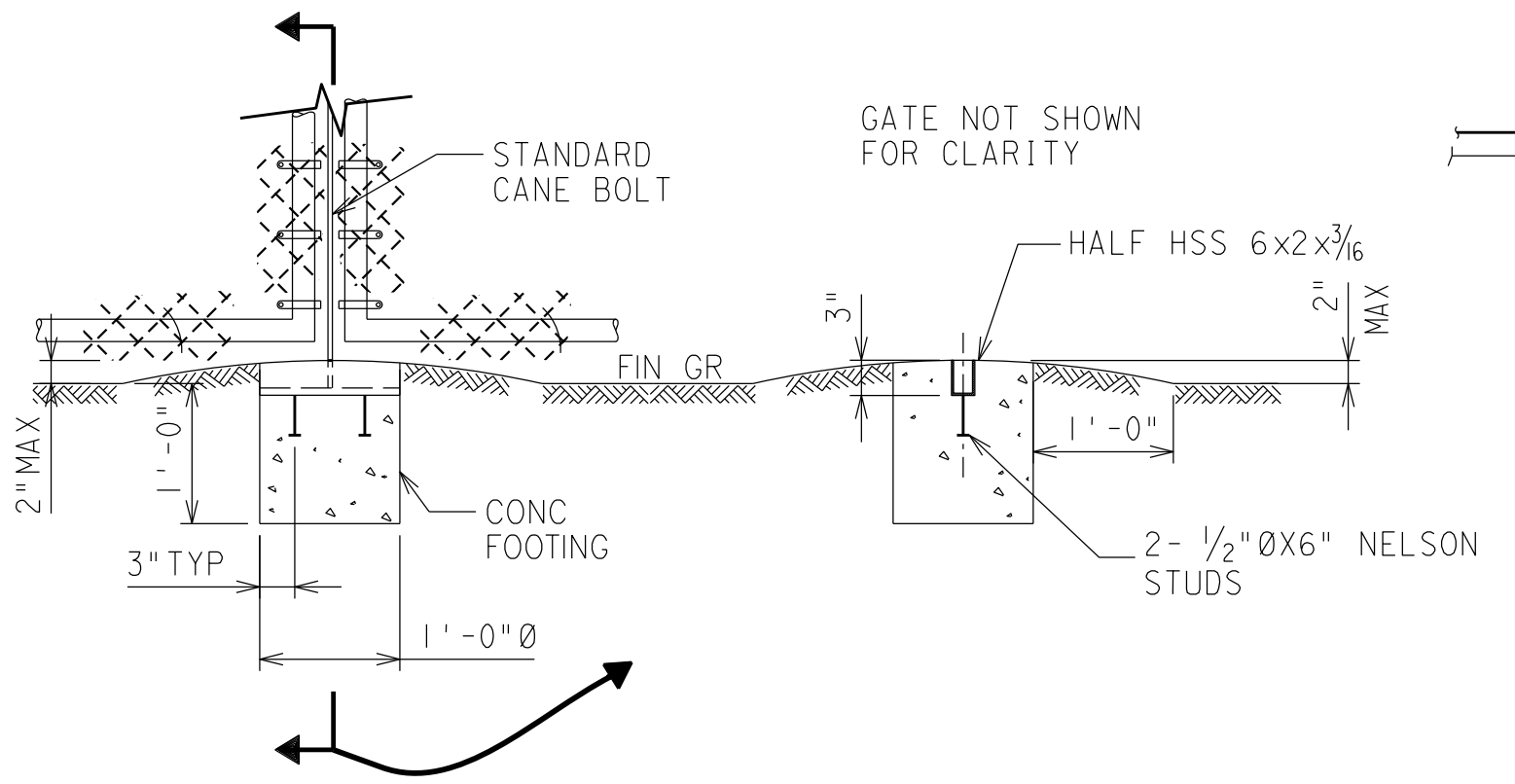
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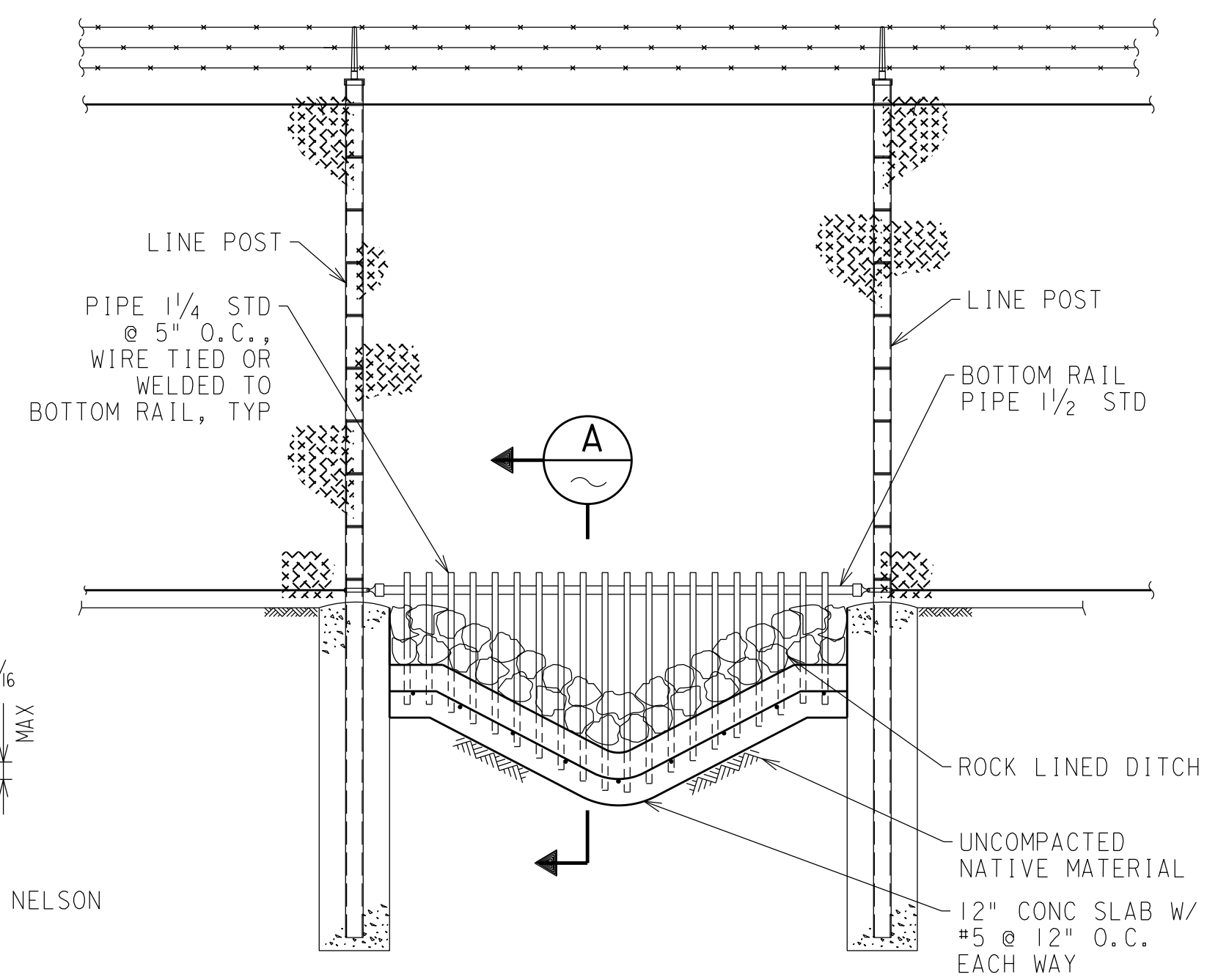
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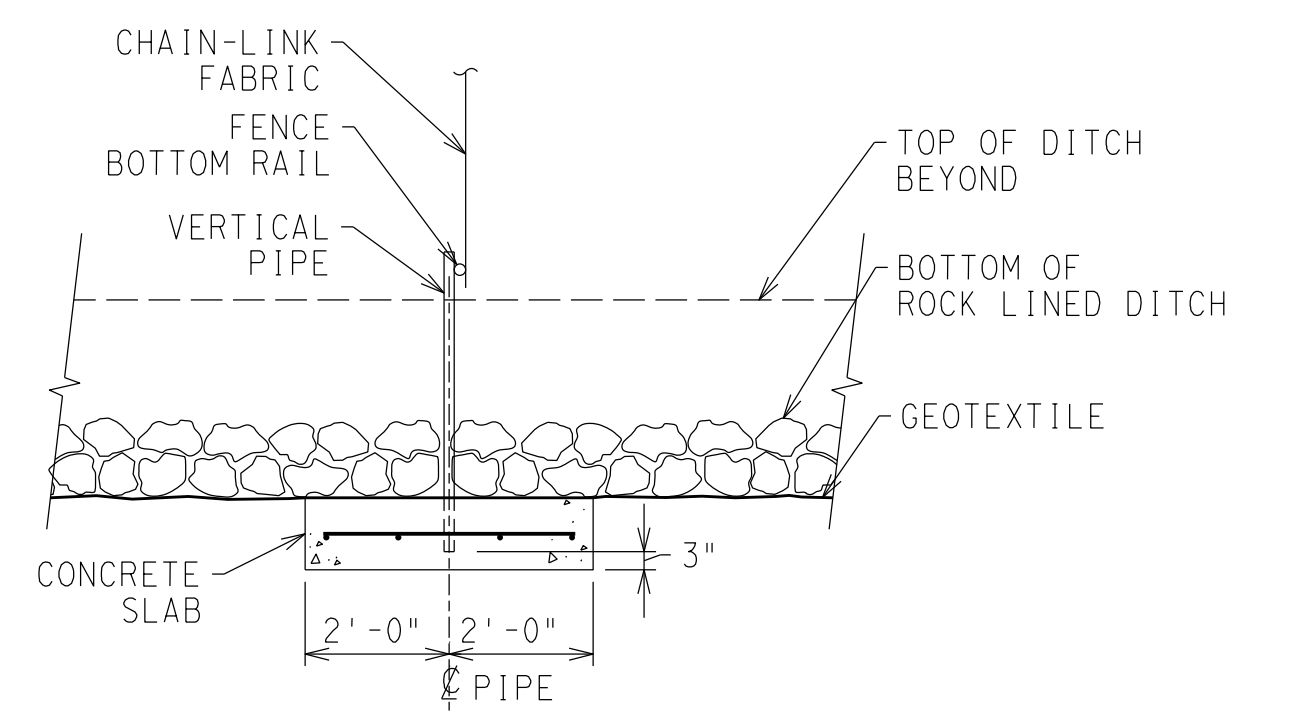
**DRAINAGE TRENCH DETAIL** (8)  
NTS



**CENTER GATE STOP DETAIL** (9)  
3/4" = 1'-0"



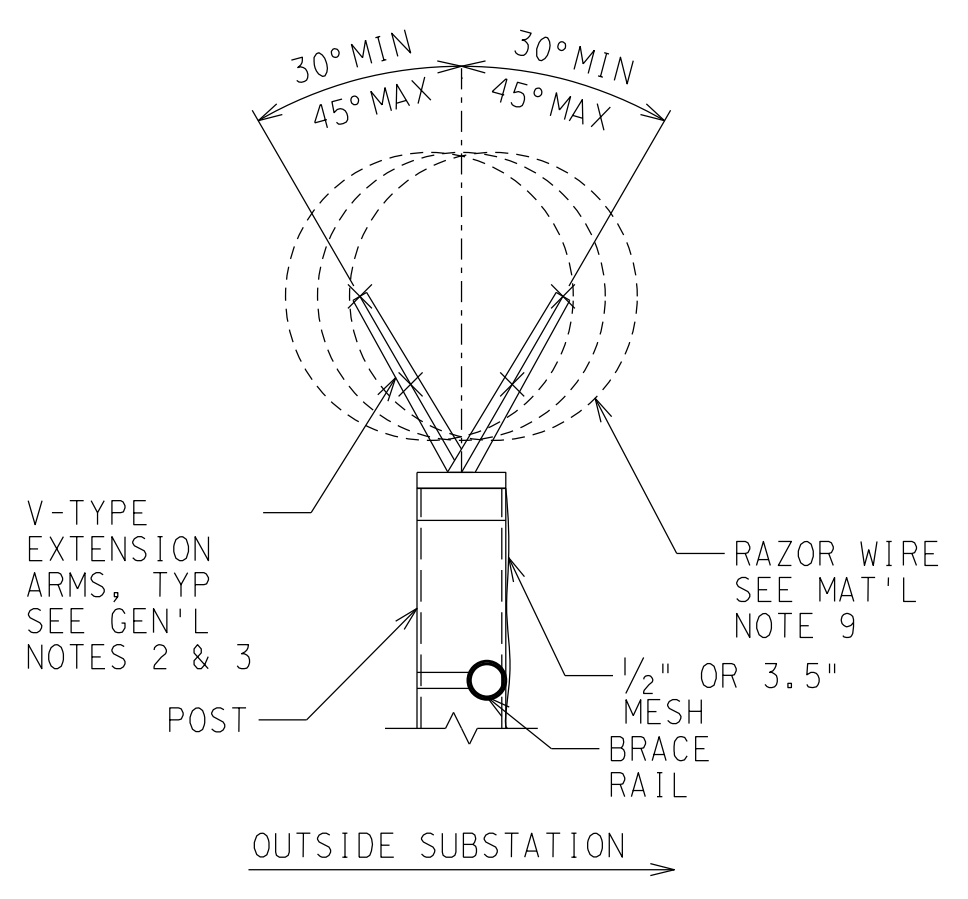
**ROCK LINED DRAINAGE TRENCH DETAIL** (10)  
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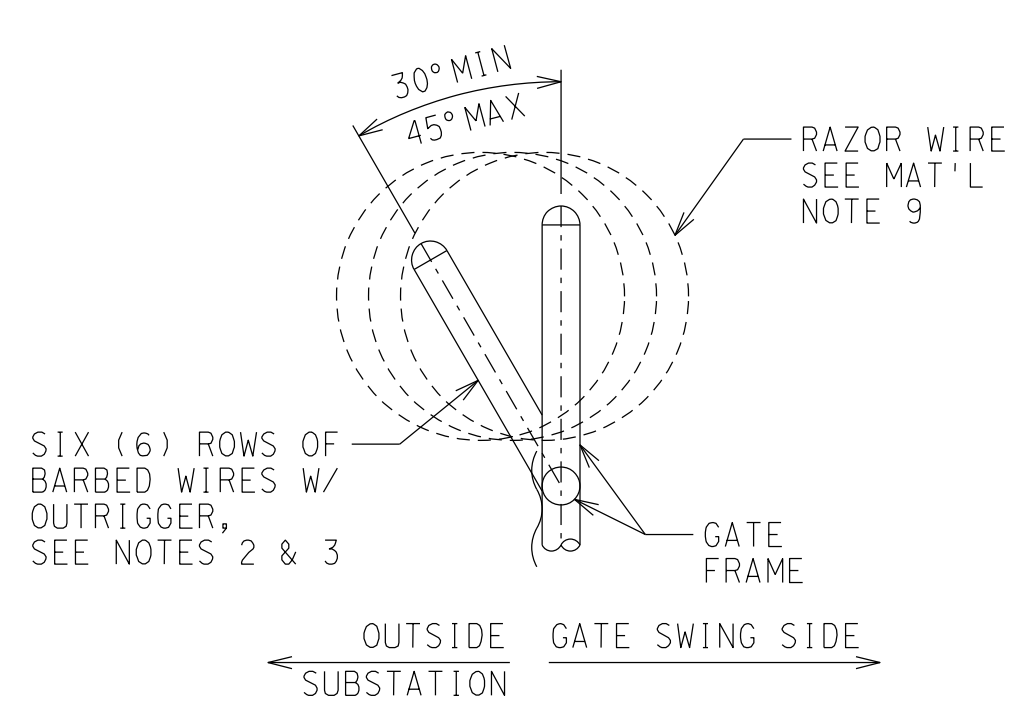
**SECTION A** (A)  
3/4" = 1'-0"

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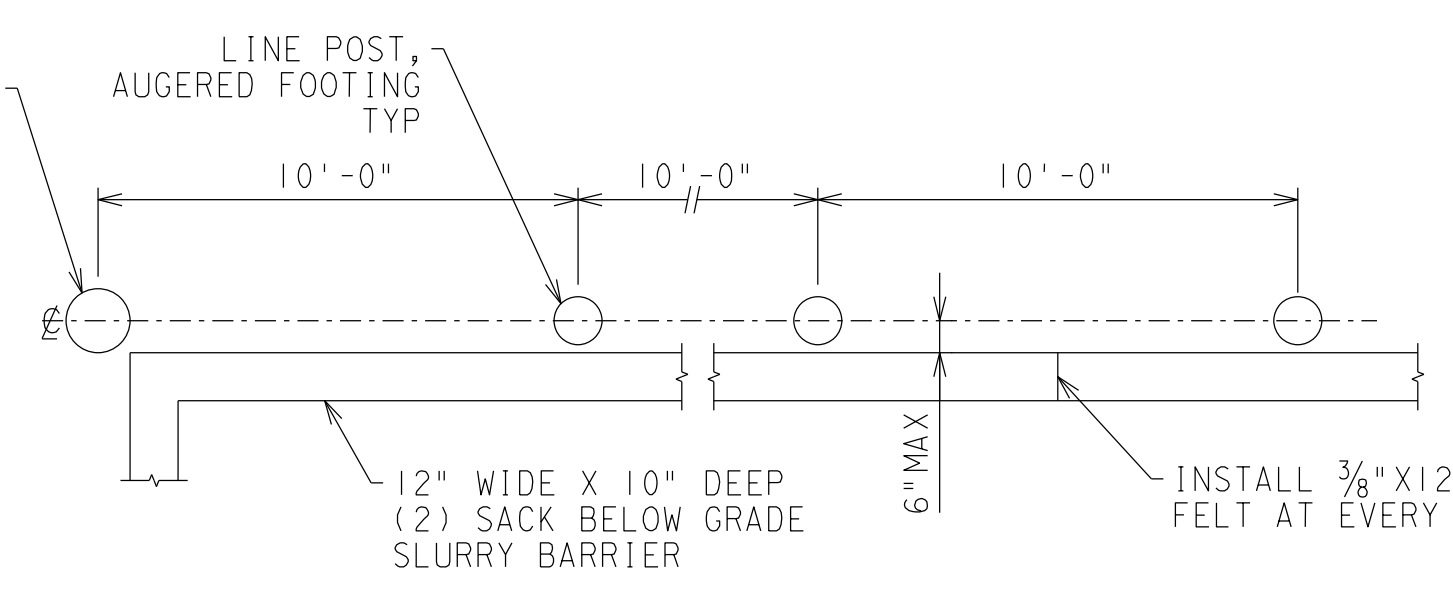
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**BARBED WIRE DETAIL** (11A) (2)  
NTS



**BARBED WIRE SWING GATE DETAIL** (11B) (2)  
NTS

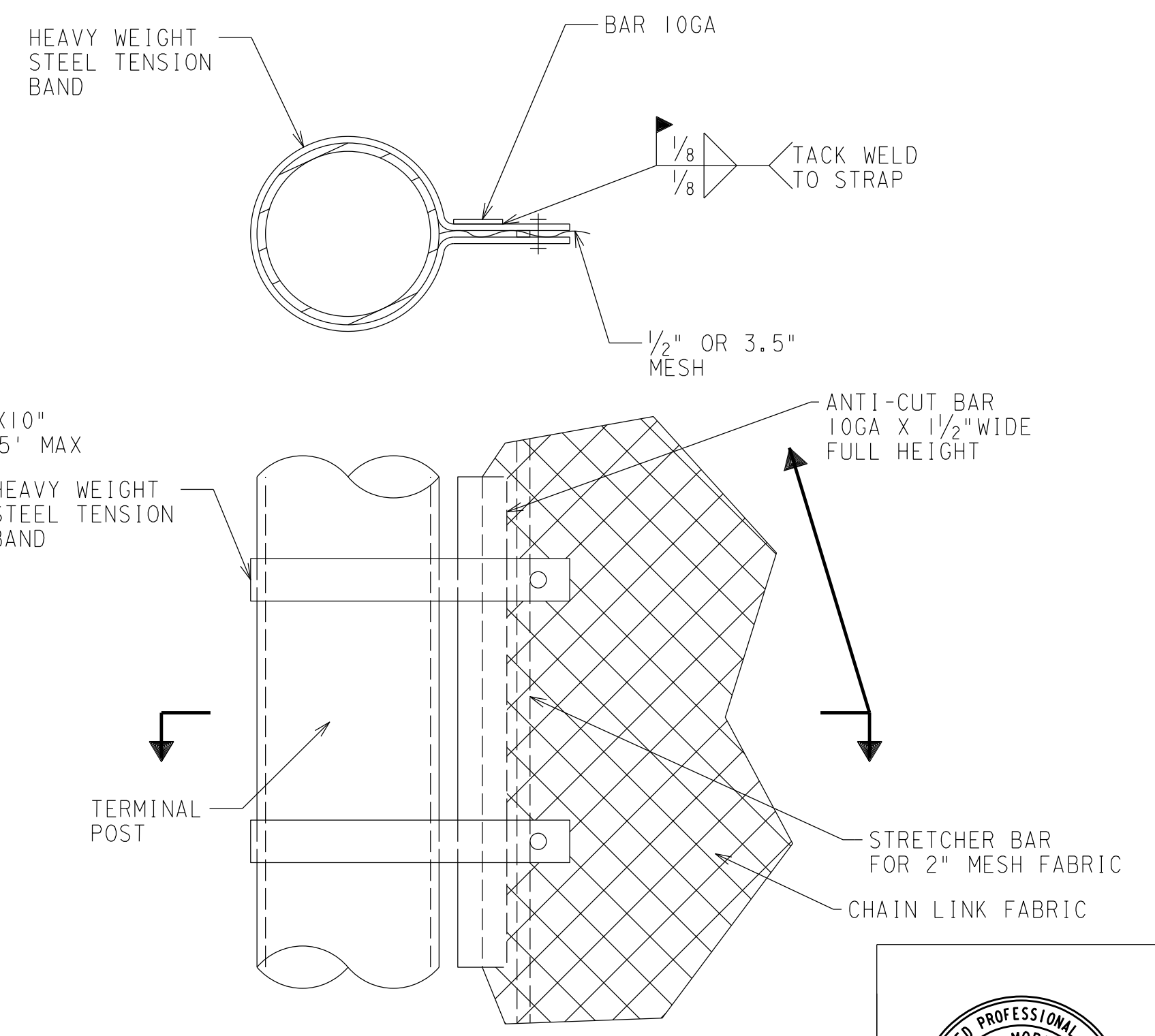


**PLAN**

**DIG BARRIER NOTE:**

1. BELOW GRADE SLURRY BARRIER MAY BE INSTALLED INSIDE OF OR IN-LINE WITH THE FENCE.
2. BELOW GRADE SLURRY BARRIER MAY BE ELIMINATED IF THE EDGE OF AN EXISTING CONCRETE LINED SWALE IS WITHIN 2.5 FEET OF THE FENCE LINE.
3. IF REQUIRED BY CORPORATE SECURITY, ADD 12" WIDE X 10" DEEP BELOW GRADE (2) SACK BARRIER. SEE GRADING PLAN FOR MORE INFORMATION.

**SLURRY DIG BARRIER** (12) (2)  
NTS



**ANTI-CUT BAR DETAIL** (13) (2)  
NTS

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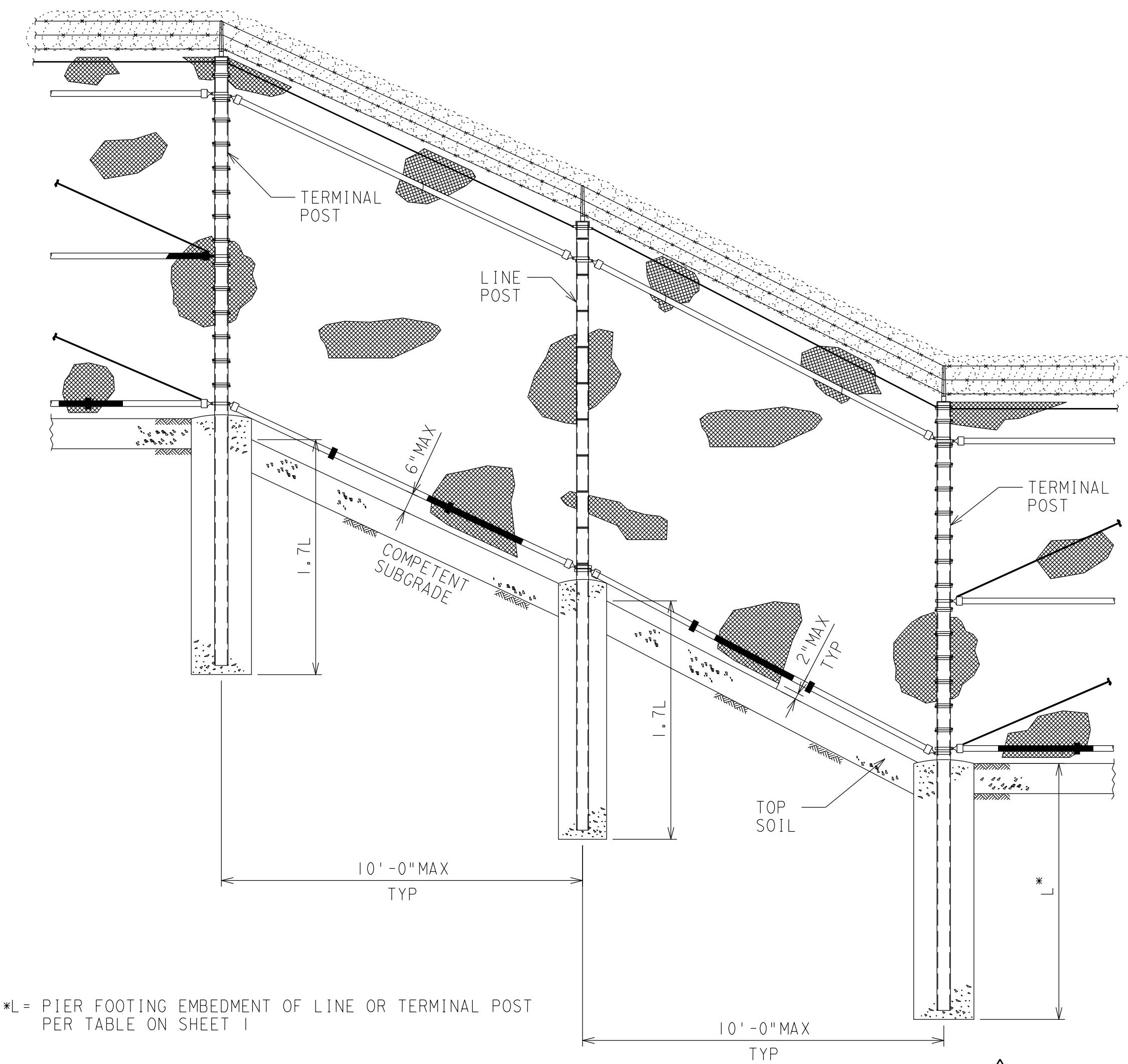


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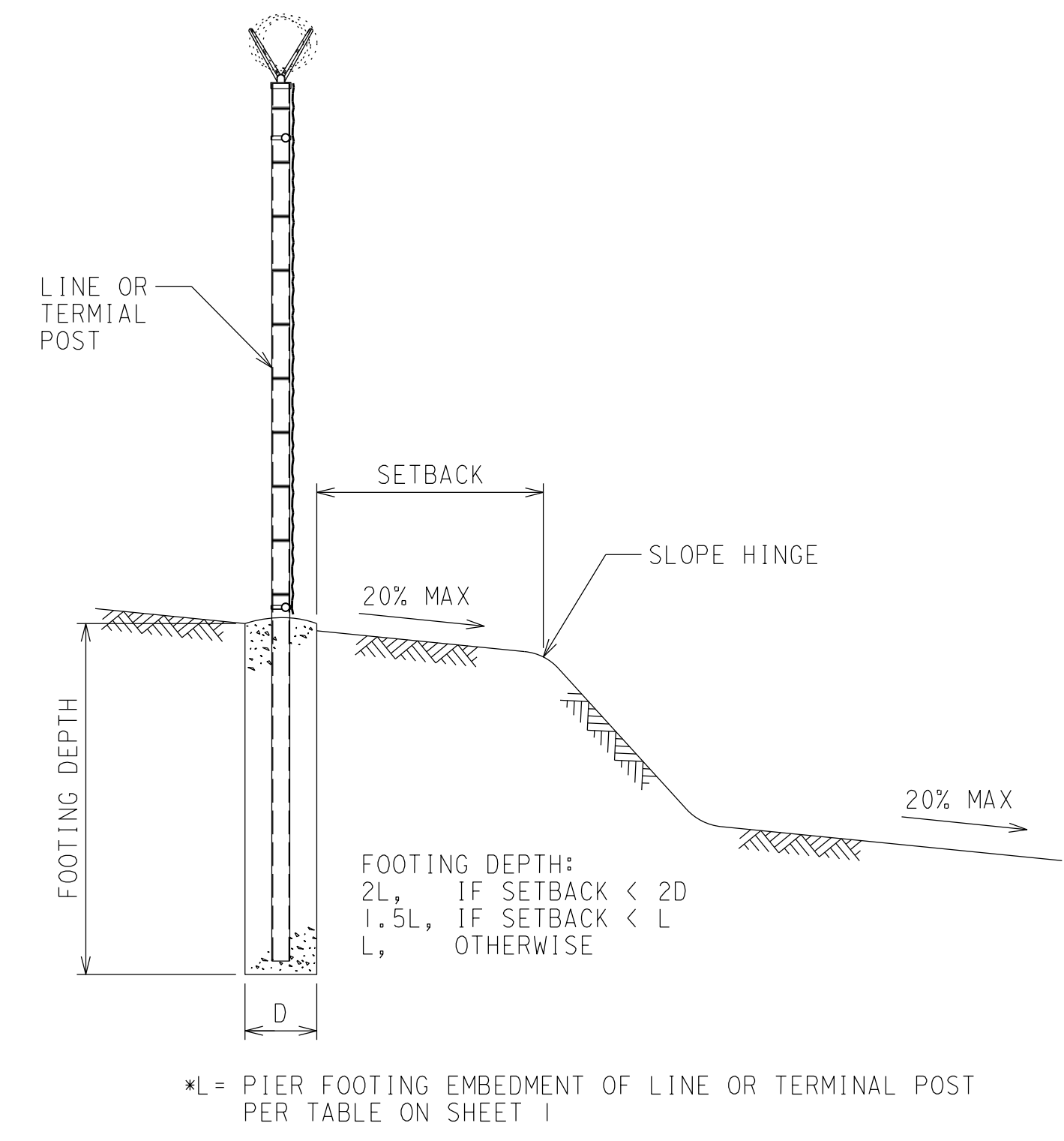
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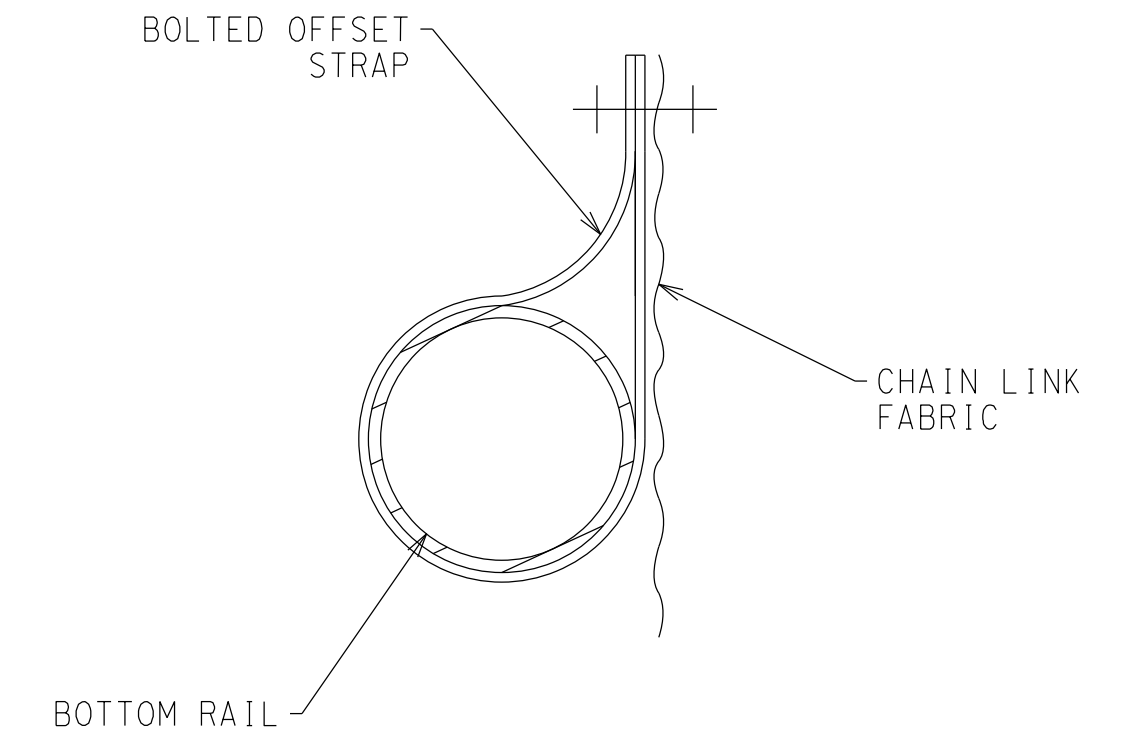
B



FENCE LINE PERPENDICULAR TO SLOPE HINGE (14) 2  
NOT TO SCALE



FENCE LINE PARALLEL TO SLOPE HINGE (15) 2  
NOT TO SCALE



BOLTED OFFSET STRAP DETAIL (16) 2  
NOT TO SCALE



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