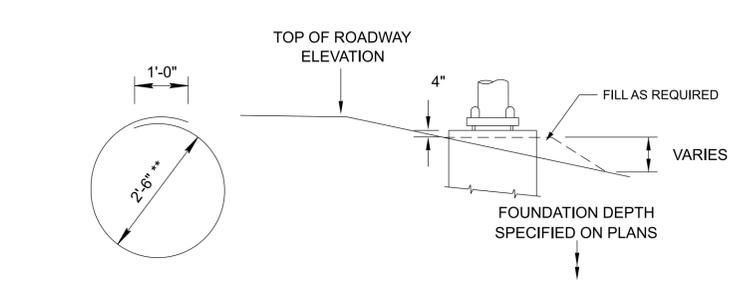
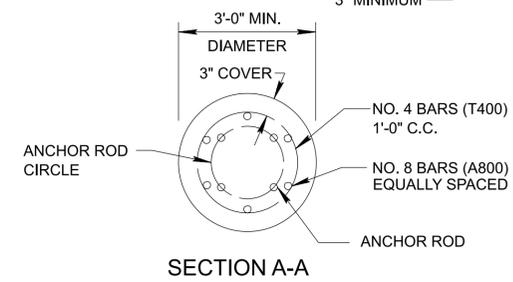
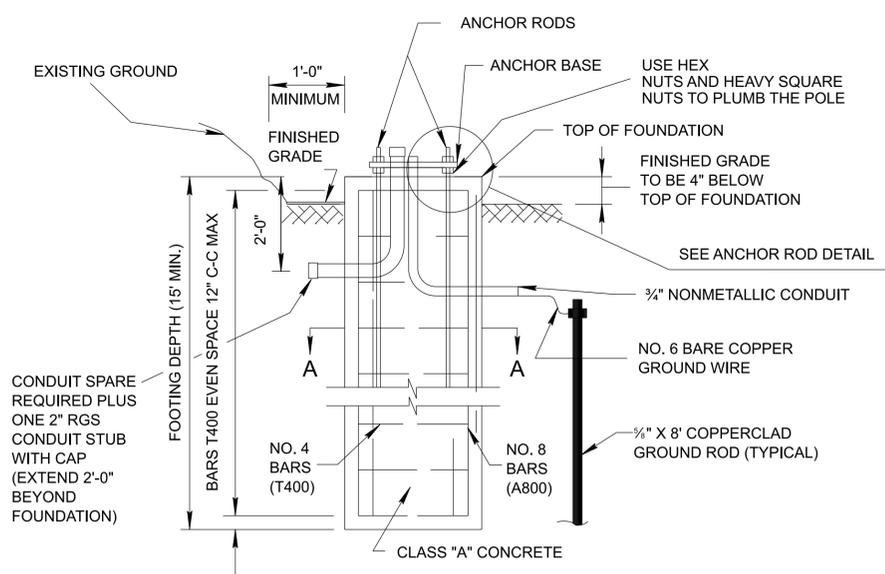
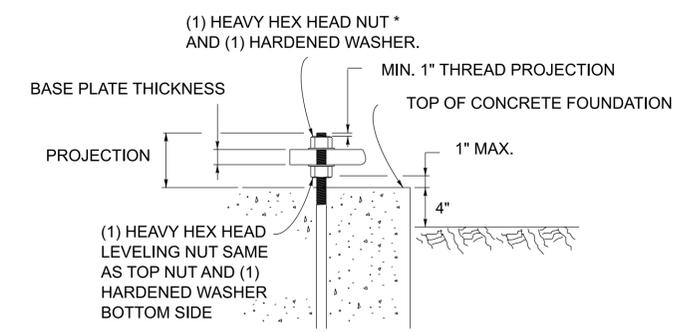


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** FOR 3'-0" DIAMETER FOOTING. USE 3'-6" FOR 4'-0" DIAMETER FOOTING.



ANCHOR ROD DETAIL

UNDER NO CONDITIONS WILL DRILLED AND GROUTED ANCHOR RODS BE ALLOWED

*NOTE: TOP NUT TO BE TORQUED TO PRODUCE 60% YIELD STRESS OF ANCHOR ROD.

NOTE: DO NOT GROUT BETWEEN BOTTOM OF BASE PLATE AND TOP OF CONCRETE FOUNDATION.

REQUIRED BEARING AREA FOR ANCHOR ROD	
ANCHOR ROD DIA (IN)	HEAD OR NUT AREA (SQ IN)
1"	1.800
1 1/4"	2.812
1 1/2"	4.050
1 3/4"	5.512
2"	7.199
2 1/4"	9.122
2 1/2"	11.249

POLE FOUNDATIONS WITH REINFORCEMENT AND QUANTITIES									
FOOTING DIAMETER	FOOTING DEPTH	T400 REINFORCING BARS			A800 REINFORCING BARS			CONCRETE (CUBIC YARDS)	MAXIMUM DESIGN MOMENT (FT-KIP) SERVICE LOAD
		NUMBER OF BARS	LENGTH OF EACH BAR	TOTAL WEIGHT IN POUNDS	NUMBER OF BARS	LENGTH OF EACH BAR	TOTAL WEIGHT IN POUNDS		
3'-0"	15'-0"	15	8'-10"	89	14	14'-6"	542	3.9	134
3'-0"	16'-0"	16	8'-10"	95	14	15'-6"	579	4.2	150
3'-0"	17'-0"	17	8'-10"	101	14	16'-6"	617	4.5	167
3'-0"	18'-0"	18	8'-10"	107	14	17'-6"	654	4.7	184
3'-0"	19'-0"	19	8'-10"	113	14	18'-6"	692	5.0	202
3'-0"	20'-0"	20	8'-10"	119	14	19'-6"	729	5.2	221
3'-0"	21'-0"	21	8'-10"	125	14	20'-6"	766	5.5	240
3'-0"	22'-0"	22	8'-10"	130	14	21'-6"	804	5.8	260
3'-0"	23'-0"	23	8'-10"	136	14	22'-6"	841	6.0	280
3'-0"	24'-0"	24	8'-10"	142	14	23'-6"	878	6.3	300
4'-0"	15'-0"	15	12'-0"	121	24	14'-6"	929	7.0	179
4'-0"	16'-0"	16	12'-0"	128	24	15'-6"	993	7.4	200
4'-0"	17'-0"	17	12'-0"	136	24	16'-6"	1057	7.9	223
4'-0"	18'-0"	18	12'-0"	145	24	17'-6"	1121	8.4	246
4'-0"	19'-0"	19	12'-0"	153	24	18'-6"	1185	8.8	270
4'-0"	20'-0"	20	12'-0"	161	24	19'-6"	1250	9.3	295
4'-0"	21'-0"	21	12'-0"	169	24	20'-6"	1314	9.8	320
4'-0"	22'-0"	22	12'-0"	177	24	21'-6"	1378	10.2	346
4'-0"	23'-0"	23	12'-0"	185	24	22'-6"	1442	10.7	373
4'-0"	24'-0"	24	12'-0"	193	24	23'-6"	1506	11.2	401
4'-0"	25'-0"	25	12'-0"	201	24	24'-6"	1570	11.7	429
4'-0"	26'-0"	26	12'-0"	209	24	25'-6"	1634	12.1	458
4'-0"	27'-0"	27	12'-0"	217	24	26'-6"	1698	12.6	487
4'-0"	28'-0"	28	12'-0"	224	24	27'-6"	1762	13.0	517
4'-0"	29'-0"	29	12'-0"	233	24	28'-6"	1826	13.5	547
4'-0"	30'-0"	30	12'-0"	241	24	29'-6"	1890	14.0	578
4'-0"	31'-0"	31	12'-0"	248	24	30'-6"	1954	14.4	609
4'-0"	32'-0"	32	12'-0"	257	24	31'-6"	2019	14.9	641

NOT TO SCALE

- GENERAL NOTES**
- (A) ALL STEEL STRAIN POLES AND MAST ARM SIGNAL POLES SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION, SECTION 730 - TRAFFIC SIGNALS.
 - (B) STRAIN POLES AND MAST ARM POLES SHALL BE DESIGNED ACCORDING TO AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (2015, FIRST EDITION).
 - (C) THE CONTRACTOR SHALL FURNISH POLES DESIGNED FOR A BASIC WIND SPEED OF 120 MPH (EXTREME I LIMIT STATE).
 - (D) ANCHOR RODS SHALL BE DESIGNED BY THE POLE FABRICATOR. THEY SHALL BE CAPABLE OF RESISTING THE FULL BENDING MOMENT OF THE SHAFT AT ITS YIELD STRENGTH STRESS.
MATERIAL SPECIFICATIONS - RODS:
1.) ANCHOR RODS SHALL BE ASTM F1554 GRADE 55 KSI WITH THREADS CONFORMING TO THE REQUIREMENTS OF ASTM A563.
2.) NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A563.
3.) ALL HARDWARE, EXCEPT STAINLESS STEEL, SHALL BE HOT DIPPED GALVANIZED ACCORDING TO ASTM A153 OR MECHANICALLY GALVANIZED ACCORDING TO ASTM B695.
 - (E) THE COST OF ALL FOOTING MATERIALS AND INSTALLATION SHALL BE INCLUDED IN THE PRICE BID FOR STEEL POLES.
 - (F) THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS TO THE ENGINEER OF STRUCTURES FOR APPROVAL PRIOR TO FABRICATION.
 - (G) THE MAXIMUM MOMENT CAPACITY OF THE STRAIN POLES AND MAST ARM POLES SHALL BE AS SPECIFIED ON THE POLE SHOP DRAWINGS. CHOOSE A LARGER MAXIMUM DESIGN MOMENT FROM THE TABLE TO THE LEFT TO DETERMINE THE REQUIRED FOOTING DIAMETER AND DEPTH.
 - (H) CANTILEVER SIGNAL SUPPORTS SHALL BE DESIGNED BY THE POLE FABRICATOR.
 - (I) TOP OF FOOTING SHALL BE FLUSH IN SIDEWALK OR PAVED ISLANDS. TOP OF FOOTING SHALL NOT EXTEND MORE THAN 4" ABOVE THE GROUND LINE IN OTHER AREAS.
 - (J) IF ROCK IS ENCOUNTERED WHILE DRILLING FOR FOOTING, AND CORE AND THE DRILLING INDICATES ROCK IS SOLID, THE CONTRACTOR SHALL PROVIDE A ROCK SOCKET TWO TIMES THE DIAMETER OF THE POLE FOUNDATION.
 - (K) ALL STRAIN POLES AND MAST ARM POLES TO HAVE SPARE 2" RGS CONDUIT STUB EXTENDING 24" BEYOND POLE FOUNDATION.
 - (L) ALL CONDUIT BENDS IN POLE FOUNDATION TO BE 6" RADIUS.
 - (M) BASE OF POLE SHALL REMAIN OPEN TO PERMIT DRAINAGE AND AIR CIRCULATION. FINISHED GROUND PROFILE SHOULD DRAIN WATER AWAY FROM FOUNDATION.
 - (N) FOR POLES WITH A ROD CIRCLE GREATER THAN 24 INCHES, A 4'-0" DIAMETER FOUNDATION MUST BE SELECTED.

- REV. 9-18-89: ADDED NOTE (J) AND GRADE DETAILS TO FOOTING DETAIL.
- REV. 1-18-91: REDREW AND REORGANIZED SHEET. ADDED GENERAL NOTE (K) REGARDING FOOTINGS IN ROCK.
- REV. 1-19-96: CHANGED GENERAL NOTE (A).
- REV. 2-14-99: REVISED GENERAL NOTE (K).
- REV. 12-16-03: REVISED SHEET TITLE. DELETED ESTIMATED QUANTITY FOR FOUNDATIONS LESS THAN 10'. ADDED SPARE CONDUIT TO STRAIN OR MAST ARM FOUNDATION DETAIL. ADDED LOW SHOULDER FOUNDATION DETAIL. DELETED NOTE G. RE LETTERED REMAINING NOTES AND ADDED NOTES (L) TO (N).
- REV. 7-29-04: MODIFIED ESTIMATED FOOTING QUANTITIES FOR STRAIN POLE TABLE. ADDED LOWER SHOULDER FOUNDATION DETAIL.
- REV. 02-15-07: ADDED ANCHOR BOLT DETAIL. REVISED GENERAL NOTES (D), (G) & (N) AND CHANGED TITLE.
- REV. 1-5-10: MODIFIED ESTIMATED FOUNDATION QUANTITIES TABLE.
- REV. 5-6-13: MODIFIED ESTIMATED FOUNDATION QUANTITIES, T400 BARS, GENERAL NOTES AND FOUNDATION DETAILS.
- REV. 12-4-13: CHANGED ANCHOR BOLTS TO THREADED. ADDED BEARING AREA TABLE.
- REV. 6-11-14: ADDED 2' DIA FOUNDATION FOR PEDESTAL POLES. ADDED NOTES (N).
- REV. 6-27-16: CORRECTED SPELLING ERRORS IN GENERAL NOTES AND REVISED NOTE (N). REVISED FOOTING DETAIL FOR STEEL PEDESTAL POLE AND MOVED IT TO T-SG-6. ADDED NOTE TO SECTION A-A FOR SPACING OF NO. 7 BARS.
- REV. 7-11-17: ADDED "(FOR BID PURPOSES ONLY)" TO ESTIMATED FOUNDATION QUANTITIES TABLE. SPECIFIED POLE "A" IN NOTE (N).
- REV. 9-12-23: RENAMED TABLE TO "POLE FOUNDATIONS WITH REINFORCEMENT AND QUANTITIES". CHANGED NO. 7 BARS (A700) TO NO. 8 BARS (A800) AND UPDATED TABLE. REMOVED "SEE NOTES (N) AND (J)". REMOVED NOTE REGARDING 4' FOOTING MAX SPACING FROM FOUNDATION DETAIL FOR STRAIN OR MAST ARM POLE. REMOVED NOTE REGARDING CANTILEVER AND BUTTERFLY SIGN BASES FROM ANCHOR BOLT DETAIL. REVISED GENERAL NOTES (A), (B), (C), (E), (G), AND (J). ADDED GENERAL NOTE (O). CHANGED "STRAIN POLES" TO "STRAIN POLE" IN SHEET TITLE BLOCK.
- REV. 12-18-25: UPDATED TO CONFORM TO MUTCD 11TH EDITION.

□ MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

MAST ARM POLE AND STRAIN POLE FOUNDATION DETAILS

BEFORE 9-18-89 T-SG-10