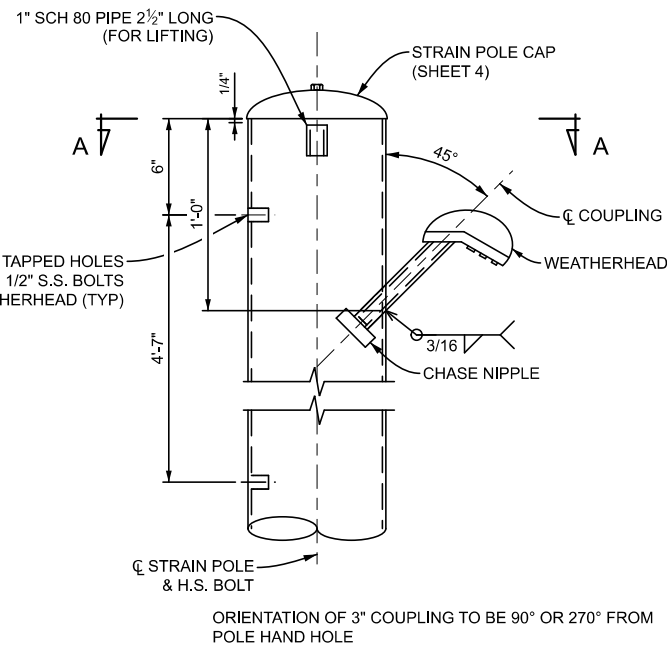
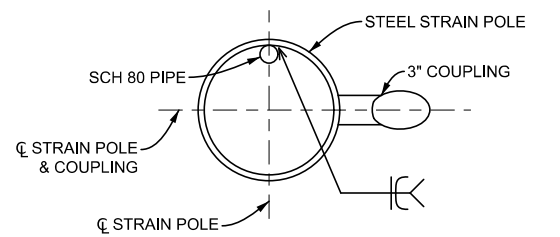


1 **DETAIL - STEEL STRAIN POLE**

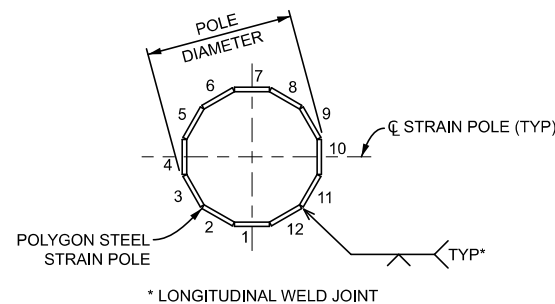
* FIELD DRILLED HOLE ONLY TO BE USED FOR POLE-MOUNTED CABINETS. FIELD DRILLED HOLE REDUCES THE STRUCTURAL CAPACITY OF THE POLE. SEE SIG-022-A FOR ALLOWABLE LOADING.



2 **DETAIL - COUPLING**



A **SECTION - ROUND POLE**



A' **SECTION - 12-SIDED POLYGON (OPTIONAL)**

STRAIN POLE REQUIREMENTS			
NOT CONNECTED TO TIE OFF SPANS			
MARK	DESCRIPTION	UNIT	SIZE 6
-	POLE LENGTH	FT	30
W	MIN POLE WALL THICKNESS	IN	0.429
		GR 50 STEEL	
		GR 65 STEEL	0.375
B'	POLE DIAMETER - TOP *	IN	+1/2 8.8 (MIN) -1/4
B	POLE DIAMETER - BOTTOM *	IN	+1/2 13 -1/4
-	FULL LENGTH TAPER	IN / FT	+0.002 0.14 -0.000
E	POLE BASE FILLET WELD	IN	5/16
		GR 50 STEEL	
		GR 65 STEEL	5/16
F	POLE BASE LANDING	IN	3/8
-	ANCHOR BOLT DIAMETER	IN	1 1/2
-	ANCHOR BOLT HOLE DIAMETER	IN	1 7/16
-	ANCHOR BOLT CIRCLE DIAMETER	IN	18
C	ANCHOR BOLT CHORD	IN	9
D	BASE PLATE EDGE	IN	12 1/4
T	BASE PLATE THICKNESS	IN	2
P.O.C.H.	8 1/2" POLE BAND CLAMP	FT-IN	25'-6" TO 28'-6"
P.O.C.H.	9 1/2" POLE BAND CLAMP	FT-IN	20'-6" TO 25'-0"

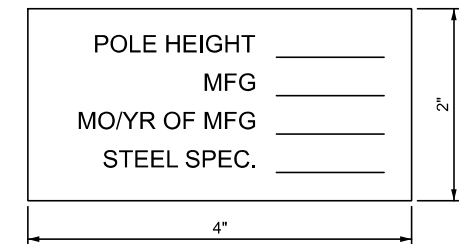
* DIAMETERS GIVEN ARE O.D.

NOTES:

- SEE SIG-022-A FOR LOADING TABLE AND DESIGN CRITERIA.
- ROUND OR 12-SIDED SECTIONS ARE ALLOWED.
- MULTI-PLY SECTIONS ARE NOT ALLOWED.
- STRAIN POLES USED IN APPLICATIONS OTHER THAN TRAFFIC SIGNALS REQUIRE UNIQUE DESIGN CALCULATIONS FOR THE SPECIFIC LOADING CASE.
- MINIMUM REQUIRED TENSILE STRENGTH (Fu) FOR WELD CONSUMABLES:
Fu = 70 KSI FOR GR. 50 POLE
Fu = 80 KSI FOR GR. 65 POLE EXCEPT Fu = 70 KSI FOR LONGITUDINAL SEAM WELDS QUALIFIED PER AWS D1.1

ABBREVIATIONS:

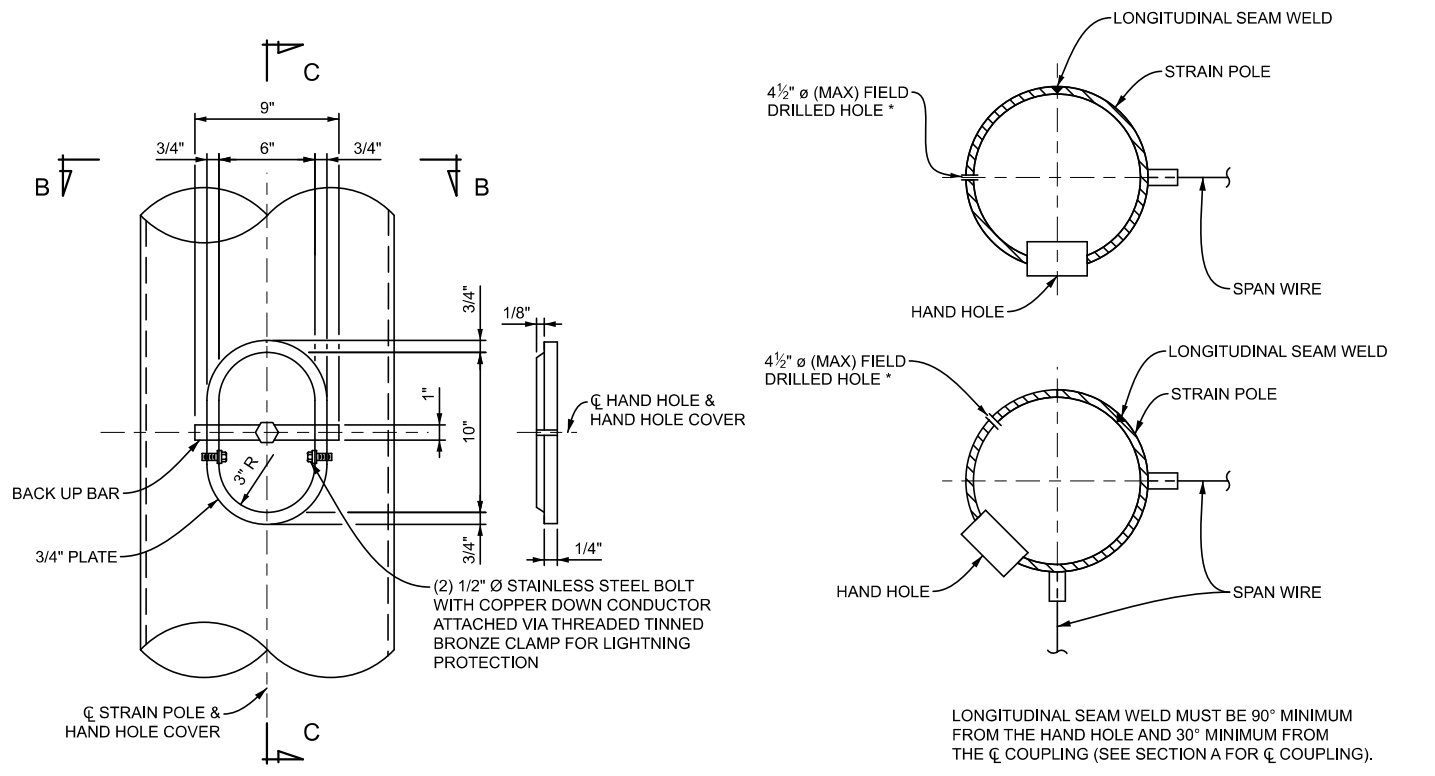
- S.S. = STAINLESS STEEL
- GA. = GAUGE
- GR = GRADE
- O.D. = OUTSIDE DIAMETER
- I.D. = INSIDE DIAMETER
- H.S. = HIGH STRENGTH
- SCH. = SCHEDULE
- P.O.C.H. = POINT OF CONTACT HEIGHT OF THE POLE BAND CLAMP, MEASURED FROM THE BOTTOM OF THE STRAIN POLE



NOTES:

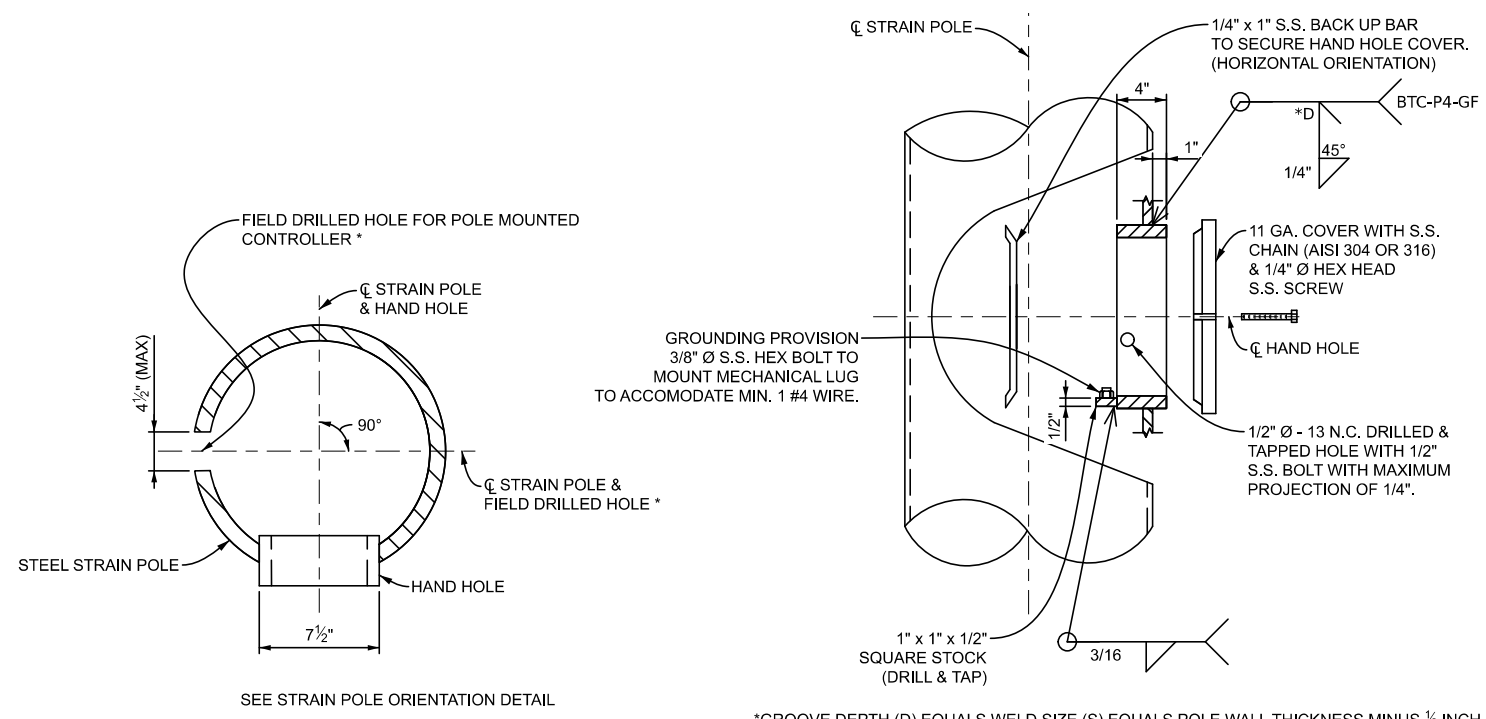
- ATTACH ID TAG TO STRAIN POLE AT LOCATIONS SHOWN 4" ABOVE BASE OF TUBE, BELOW HANDHOLE, WITH (4) #8 x 3/8" S.S. TYPE U DRIVE SCREWS.
- STAMP IN LETTERS WITH 3/8" CHARACTERS.
- STEEL SPEC. REFERS TO THE ASTM SPECIFICATION AND GRADE: "AXXX GR YY"

3 **DETAIL - STRAIN POLE S.S. ID TAG**



4 DETAIL - HAND HOLE

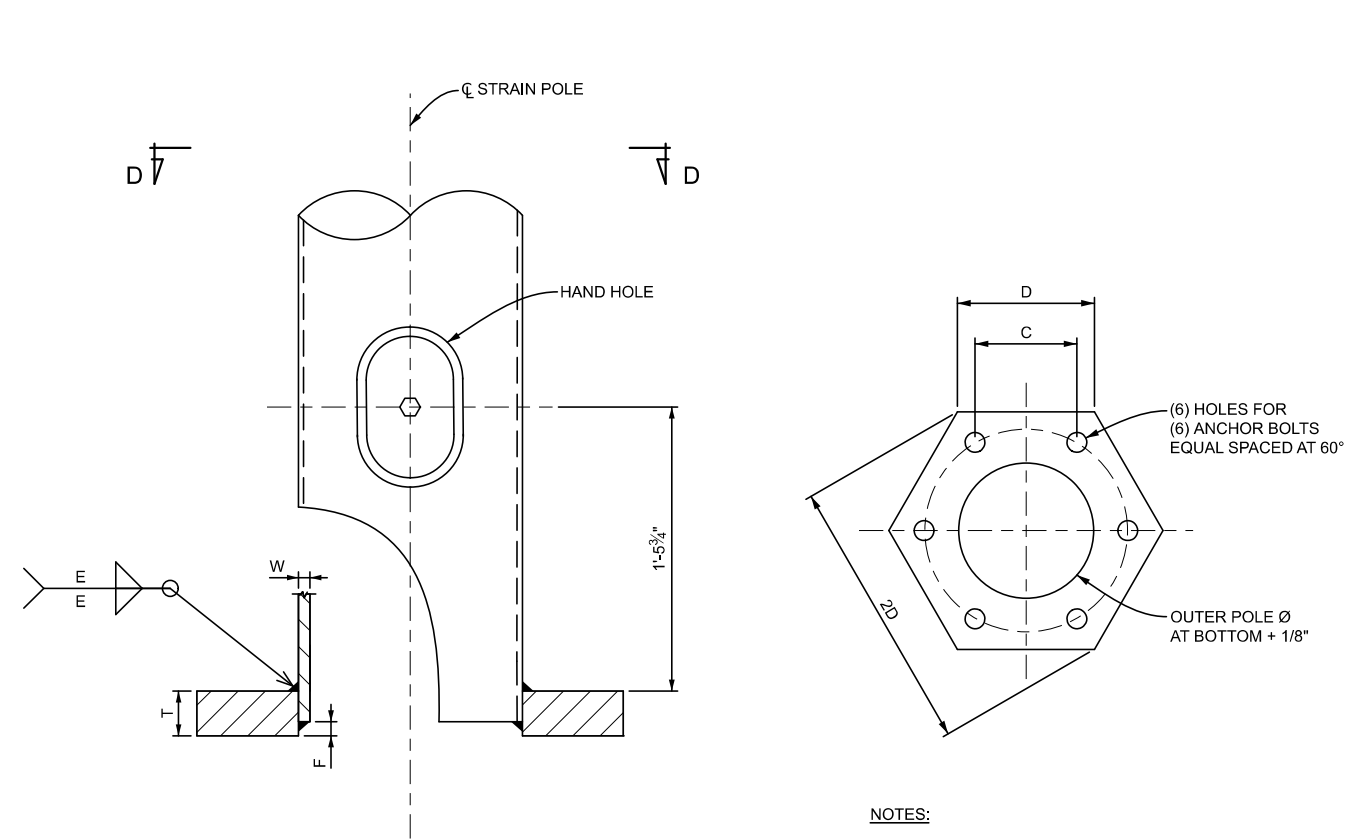
5 DETAIL - STRAIN POLE ORIENTATION



B SECTION - HAND HOLE

C SECTION - HAND HOLE

* FIELD DRILLED HOLE ONLY TO BE USED FOR POLE-MOUNTED CABINETS. FIELD DRILLED HOLE REDUCES THE STRUCTURAL CAPACITY OF THE POLE. SEE SIG-022-A FOR ALLOWABLE LOADING.



6 DETAIL - BASE PLATE

D SECTION - BASE PLATE

7 DETAIL - STRAIN POLE CAP

E SECTION - STRAIN POLE CAP

NOTES:
 1. STRAIN POLE NOT SHOWN FOR CLARITY.
 2. SEE STRAIN POLE REQUIREMENTS TABLE ON SHEET 2 FOR:
 ANCHOR BOLT CIRCLE Ø
 ANCHOR BOLT HOLE Ø
 ANCHOR BOLT Ø

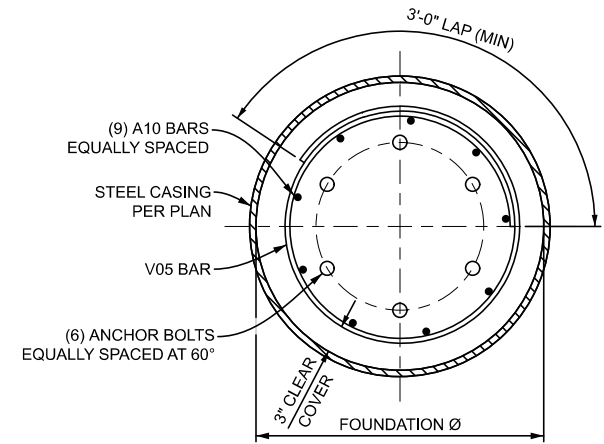
ANCHOR BOLTS NOT SHOWN FOR CLARITY.

		STANDARD PLAN FOR HAND HOLE & STRAIN POLE ORIENTATION DETAILS		
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	05/17/24 PLAN DATE	SIG-023-A	SHEET 3 OF 7

		STANDARD PLAN FOR BASE PLATE AND STRAIN POLE CAP DETAILS		
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	(SPECIAL DETAIL) FHWA APPROVAL	05/17/24 PLAN DATE	SIG-023-A	SHEET 4 OF 7 SECT

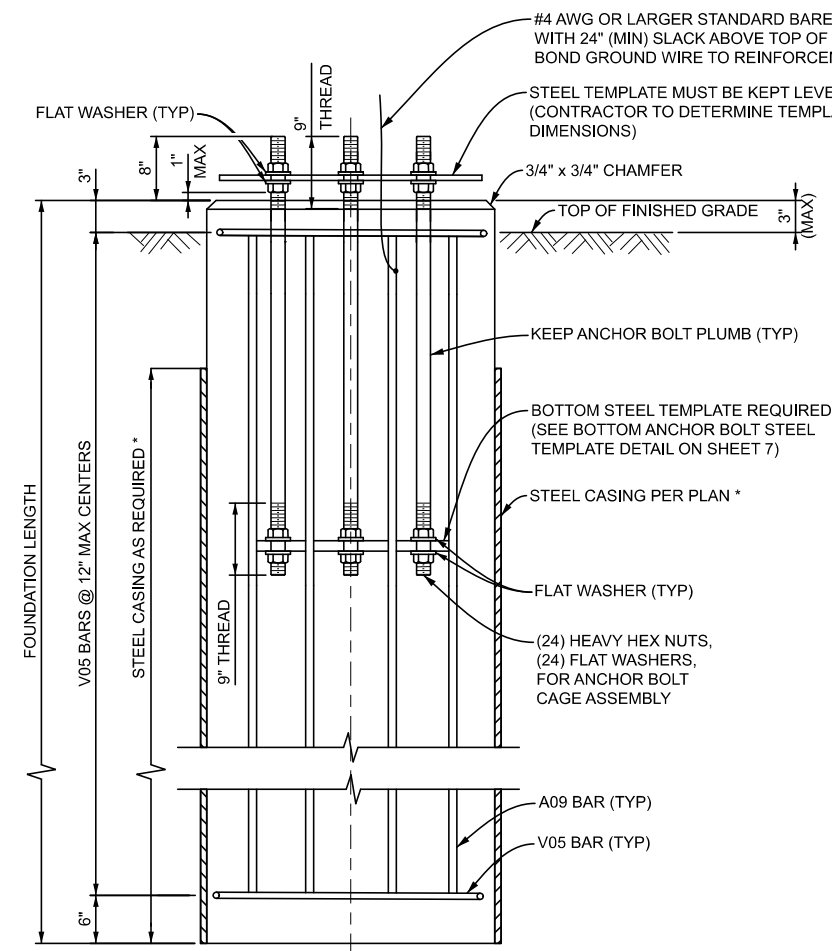
STRAIN POLE FOUNDATION REQUIREMENTS		
DESCRIPTION	UNIT	SIZE 6
POLE LENGTH	FT	30
ANCHOR BOLT DIAMETER	IN	1½
ANCHOR BOLT CIRCLE DIAMETER	IN	18
ANCHOR BOLT LENGTH	IN	72
FOUNDATION DIAMETER	IN	36

- NOTES:**
- ALL WORK AND MATERIALS MUST BE IN ACCORDANCE WITH THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. CONSTRUCT STRAIN POLE FOUNDATIONS ACCORDING TO SECTION 718.03 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
 - IF SOIL CONDITIONS INDICATE THERE IS NO NEED FOR A CASING PAY ITEM AS SHOWN ON THE PLAN, THE CONTRACTOR SHALL REQUEST PERMISSION OF THE ENGINEER TO INSTALL THE FOUNDATION WITHOUT CASING.
 - WHEN THE CASING PAY ITEM IS INCLUDED ON THE PLANS FOR A FOUNDATION (DUE TO GRANULAR SOILS, A WET HOLE OR OTHER UNSTABLE CONDITIONS), STEEL CASING (SMOOTH WALLED) IS TO BE INSTALLED TO ENABLE THE FOUNDATION TO BE POURED. THE THICKNESS OF THE STEEL CASING IS TO BE DETERMINED BY THE CONTRACTOR. THE STEEL MUST BE LEFT IN PLACE, SMOOTH WALLED STEEL CASING OUTSIDE DIAMETER TO MEET OR EXCEED FOUNDATION DIAMETER. IF SOIL EXTENDING Laterally WITHIN 6 FEET OF THE DRILLED SHAFT FOUNDATION IS LOOSENEED OR OTHERWISE DISTURBED, SCARIFY MATERIAL AT THE BASE OF THE EXCAVATION BELOW THE DEPTH OF DISTURBANCE AND RECOMPACT IN ACCORDANCE WITH 206.03.B OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. COMPACT ALL BACKFILL PLACED ABOVE THE RECOMPACTED BASE OF EXCAVATION IN ACCORDANCE WITH 206.03.B OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
 - WHEN THE CASING PAY ITEM IS CALLED FOR ON THE PLANS, THE STEEL CASING MAY STOP AT THE CONDUIT ENTRANCE TO FOUNDATION. TOP OF FOUNDATION MUST THEN BE FORMED SEPARATELY, EVEN THOUGH THE STEEL CASING STOPS AT THE CONDUIT ENTRANCE. THE CASING PAY ITEM QUANTITY WILL BE PAID FOR BASED ON ACTUAL LINEAR FEET INSTALLED.
 - CONSTRUCT STRAIN POLE FOUNDATIONS, CASED OR UNCASD, ACCORDING TO SUBSECTION 820.03.A AND 718 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. ALL WORK AND MATERIALS MUST BE IN ACCORDANCE WITH THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
 - STEEL REINFORCEMENT MUST CONFORM TO SECTION 905 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
 - EXPOSED CONCRETE SURFACES MUST BE CAST IN FORMS.
 - CONDUITS AND ANCHOR BOLTS MUST BE RIGIDLY INSTALLED BEFORE CONCRETE IS PLACED. ANCHOR BOLTS MUST BE SPACED BY MEANS OF A TEMPLATE. THE CENTER OF THE TEMPLATE MUST COINCIDE WITH THE CENTER OF THE FOUNDATION.
 - GROUNDING OF POLE INCLUDES ADDING #4 BARE COPPER GROUND WIRE BONDED BY LISTED MECHANICAL CONNECTION TO FOUNDATION REINFORCING STEEL AND HAVING 24" OF SLACK ABOVE THE TOP OF FOUNDATION.
 - INSTALL COPPER CLAD GROUND ROD(S) AS DIRECTED BY ENGINEER AND IN ACCORDANCE WITH CURRENT N.E.C. ALL GROUNDS MUST PROVIDE LESS THAN 10 OHM RESISTANCE TO GROUND.



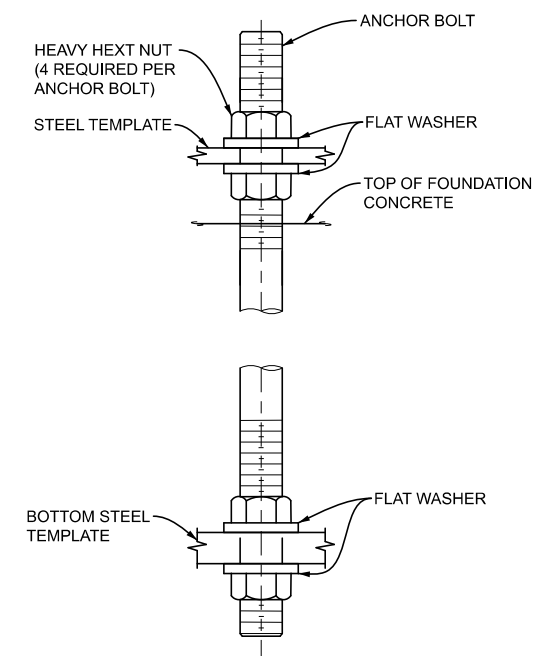
SEE STRAIN POLE FOUNDATION REQUIREMENTS TABLE ON PAGE 5 FOR: ANCHOR BOLT CIRCLE Ø, ANCHOR BOLT Ø, & FOUNDATION Ø

8 DETAIL - FOUNDATION PLAN



* SEE FOUNDATION NOTES AND PLANS FOR STEEL CASING PAY ITEM

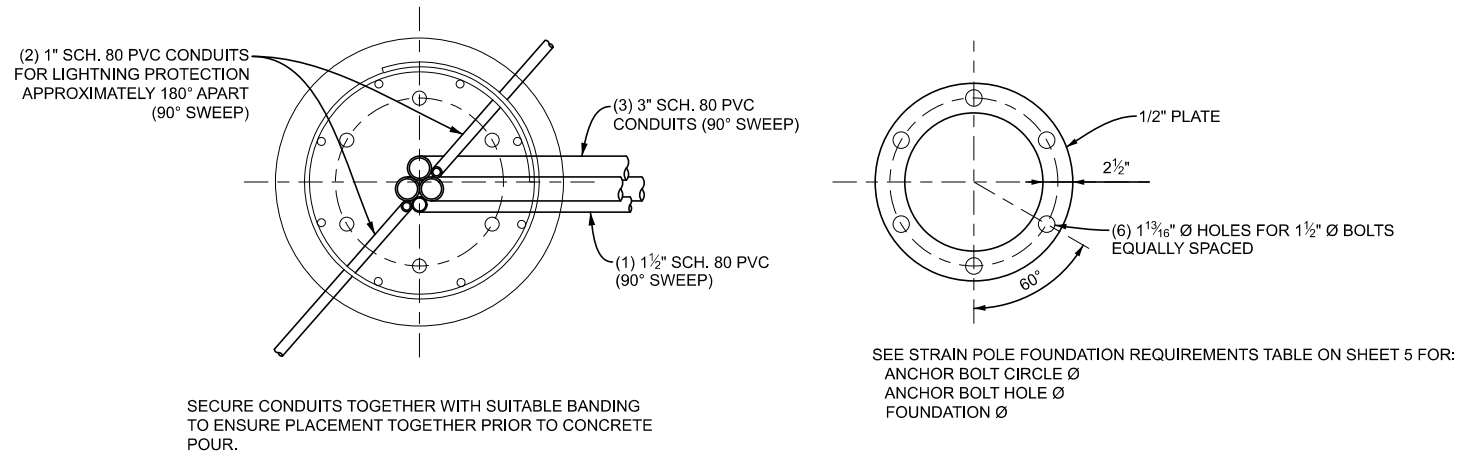
9 DETAIL - FOUNDATION ELEVATION



10 DETAIL - ANCHOR BOLT WASHER PLACEMENT

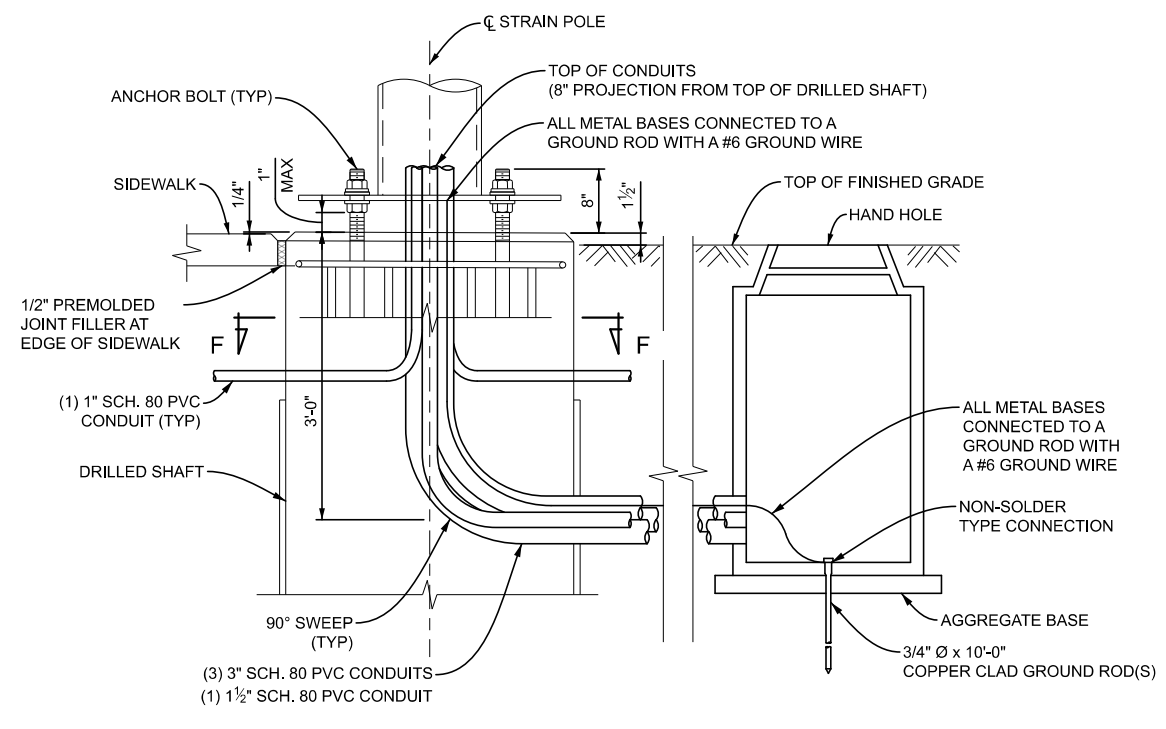
	STANDARD PLAN FOR FOUNDATION REQUIREMENTS			SHEET 5 OF 7
	(SPECIAL DETAIL)	05/17/24	SIG-023-A	
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	FHWA APPROVAL	PLAN DATE		

	STANDARD PLAN FOR FOUNDATION DETAILS			SHEET 6 OF 7
	(SPECIAL DETAIL)	05/17/24	SIG-023-A	
DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	FHWA APPROVAL	PLAN DATE		SECT



F SECTION-CONDUIT LAYOUT

12 DETAIL - BOTT. ANCHOR BOLT STEEL TEMPLATE



11 DETAIL - CONDUIT LAYOUT

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT



STANDARD PLAN FOR CONDUIT DETAILS			
(SPECIAL DETAIL)	05/17/24	SIG-023-A	SHEET 7 OF 7
FHWA APPROVAL	PLAN DATE		



STANDARD PLAN FOR			
(SPECIAL DETAIL)	###		SHEET OF SECT
FHWA APPROVAL	PLAN DATE		