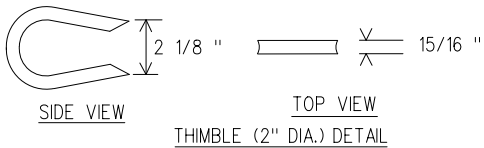
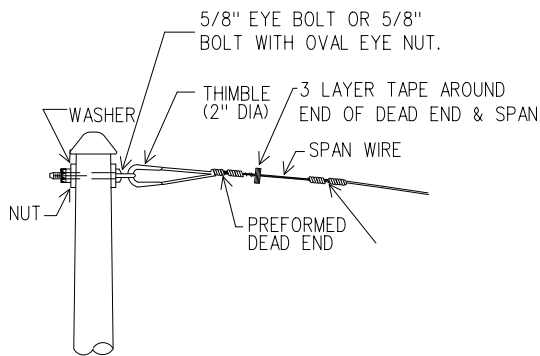


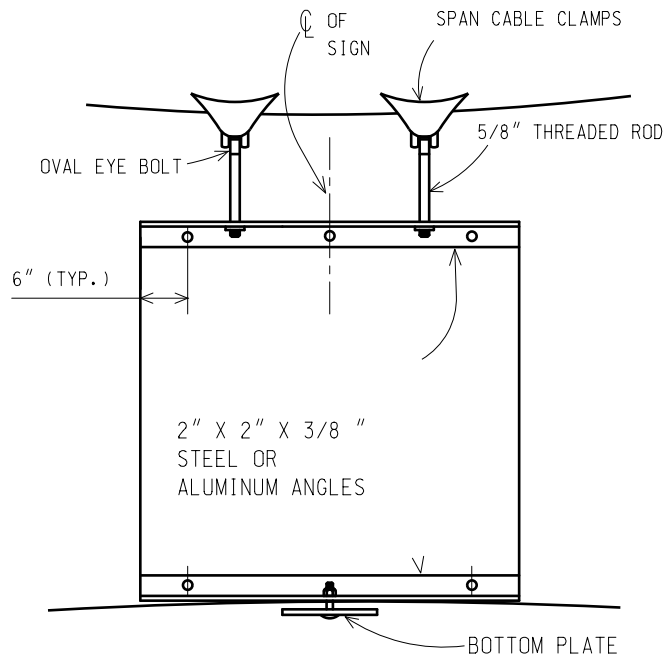
NOTES:

1. ALUMINUM ANGLES SHALL BE USED FOR ALUMINUM SIGNS (TYPE III).
2. STEEL OR ALUMINUM ANGLES MAY BE USED ON PLYWOOD SIGNS (TYPE II).



DETAIL A - EYE BOLT

NOTE: POLE CLAMPS MAY BE USED AS AN ALTERNATE TO THRU BOLTS IN POLES. SEE DETAIL A-1.



DETAIL B

NOTE: CABLE CLAMPS SHALL BE USED ON BOTTOM PLATE.



PREPARED BY
DESIGN DIVISION

DRAWN BY: DHD

CHECKED BY: AJU

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: Randy V. Puntel
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: Neil A. Van Paul
DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

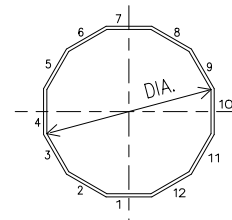
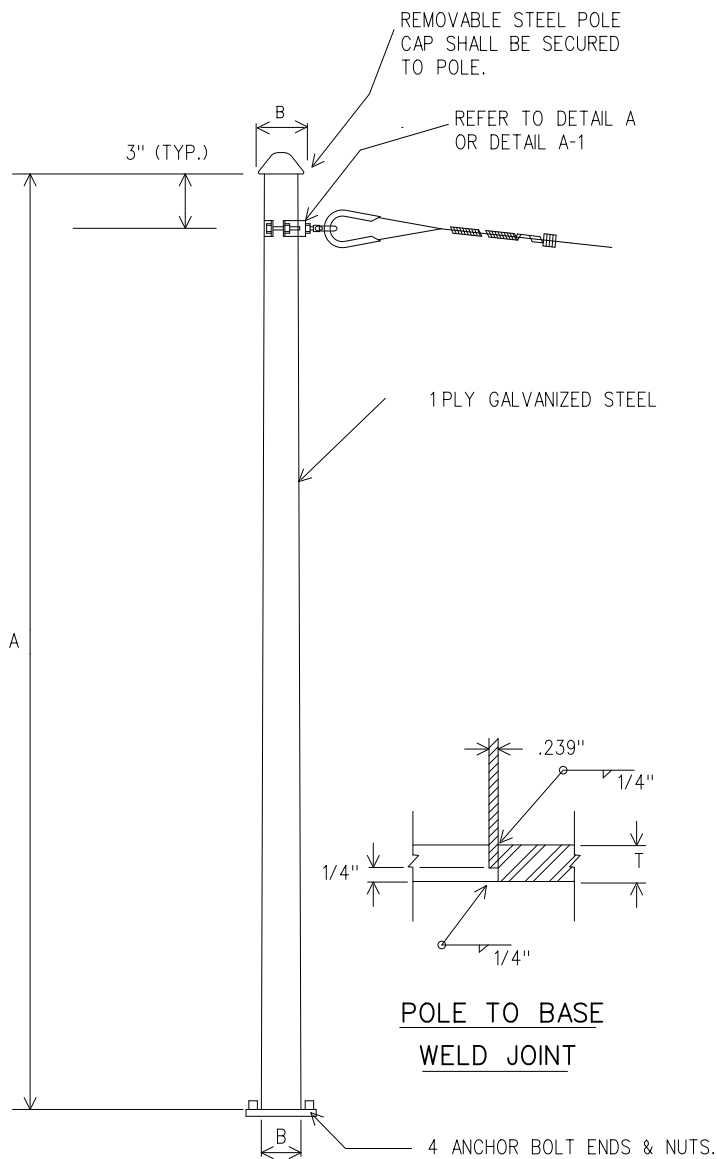
**OVERHEAD LANE
ASSIGNMENT STRUCTURES**

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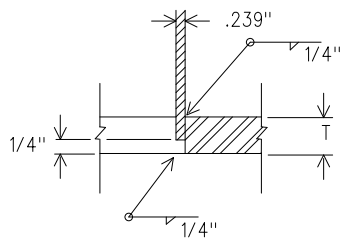
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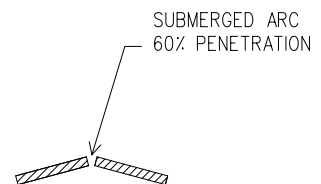
SHEET
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TYPICAL CROSS SECTION
(POLYGON OPTIONAL)



POLE TO BASE
WELD JOINT



LONGITUDINAL
WELD JOINT

ANCHOR BASE STEEL STRAIN POLE

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POLE REQUIREMENTS				
LENGTH	A	30 FT.	36 FT.	40 FT.
GAUGE		*3-1 PLY (MIN.)	*0-1 PLY (MIN.)	*0-1 PLY (MIN.)
POLE DIA. AT TOP AT BOTTOM	B B'	8" MIN ±1/2" 13"±1/2"	8" MIN ±1/2" 13"±1/2"	8-1/2" MIN ±1/2" 14" ±1/2"
MAX. DEFLECTION LOAD 18" FROM TOP FOR UNGUYED POLE		3700 LBS.	3700 LBS.	3700 LBS.
DEFLECTION 18" FROM TOP		NOT GREATER THAN 0.40"/100LBS.	NOT GREATER THAN 0.40"/100LBS.	NOT GREATER THAN 0.40"/100LBS.
FULL LENGTH TAPER		+ .002IN/FT. 0.14IN/FT. - .000IN/FT.	+ .002IN/FT. 0.14IN/FT. - .000IN/FT.	+ .002IN/FT. 0.14IN/FT. - .000IN/FT.
ANCHOR BOLT CORD	C	12-3/4 IN.	12-3/4 IN.	12-3/4 IN.
BASE PLATE	D	18 IN.	18 IN.	18 IN.
BASE PLATE THICKNESS	T	2 IN.	2 IN.	2 IN.
ANCHOR BOLT CIRCLE	BC	18 IN.	18 IN.	18 IN.
ANCHOR BASE BOLT HOLE DIA.		2 IN.	2 IN.	2-1/4 IN.
ANCHOR BOLT DIA.	d	1-3/4" IN.	1-3/4" IN.	2 IN.
ANCHOR BOLT LENGTH (INCLUDES 6" "L" BEND)		120 IN.	120 IN.	120 IN.
POLE BAND (SPAN CLAMP)	7.5"	-----	-----	-----
	8.5"	POCH 25'-6"-29'-6"	POCH 32'-6"-35'-6"	POCH 36'-0"-39'-6"
	9.5"	POCH 20'-0"-25'-0"	POCH 25'-0"-32'-0"	POCH 29'-0"-35'-6"

NOTES:

1. ACCEPTABLE MILL TOLERANCES TO APPLY TO ALL NOMINAL DIMENSIONS.
2. MATERIAL () GALVANIZED FINISH.
 - A. SHAFT STEEL SHALL BE ASTM A572, Fy=50KSI.
 - B. BASE PLATE ASTM A36.
 - C. ALL GALVANIZING SHALL MEET ASTM A123.
3. WELDING
 - A. WELDING SHALL CONFORM TO AWS D1.1
 - B. ULTRASONIC INSPECTION FOR ALL 100% WELDS AND VISUAL AND/OR MAGNETIC PARTICLE FOR ALL OTHERS.
4. TOLERANCES OVERALL HEIGHT ± 1%.
 - A. SWEEP AND CHAMBER 1/8" PER FEET.
 - B. TWIST 10° MAXIMUM OVERALL.

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Strain Pole Foundation Chart

Span Length (ft)	Soil Type	Soil Condition		30 ft Pole Length				36 ft Pole Length		40 ft Pole Length		Casing Depth
		S_u	N_{60}	Diameter (in)	Foundation Depth (ft)	Diameter (in)	Foundation Depth (ft)	Diameter (in)	Foundation Depth (ft)	Diameter (in)	Foundation Depth (ft)	
≤ 100	Low Sand	-	$5 \leq N_{60} \leq 10$	36	14.0	42	13.5	42	14.0	42	14.5	As Shown on Plans
	Med Sand	-	$10 < N_{60} \leq 20$	36	13.0	42	12.5	42	13.0	42	13.5	
	High Sand	-	$N_{60} > 20$	36	12.5	42	12.0	42	12.5	42	12.5	
	Low Clay	$500 \leq S_u < 1000$	-	36	18.0	42	17.5	42	18.0	42	18.5	
	Med Clay	$1000 \leq S_u < 2000$	-	36	14.5	42	14.0	42	14.5	42	15.0	
	High Clay	$S_u \geq 2000$	-	36	11.5	42	11.5	42	12.0	42	12.0	
101 to 120	Low Sand	-	$5 \leq N_{60} \leq 10$	36	14.5	42	14.0	42	15.0	42	15.0	
	Med Sand	-	$10 < N_{60} \leq 20$	36	13.5	42	13.0	42	13.5	42	14.0	
	High Sand	-	$N_{60} > 20$	36	13.0	42	12.5	42	13.0	42	13.0	
	Low Clay	$500 \leq S_u < 1000$	-	36	18.5	42	18.0	42	19.0	42	19.5	
	Med Clay	$1000 \leq S_u < 2000$	-	36	15.0	42	14.5	42	15.0	42	15.5	
	High Clay	$S_u \geq 2000$	-	36	12.0	42	12.0	42	12.4	42	12.5	
121 to 150	Low Sand	-	$5 \leq N_{60} \leq 10$	36	15.0	42	15.0	42	15.5	42	16.0	
	Med Sand	-	$10 < N_{60} \leq 20$	36	14.0	42	13.5	42	14.0	42	14.5	
	High Sand	-	$N_{60} > 20$	36	13.5	42	13.0	42	13.5	42	14.0	
	Low Clay	$500 \leq S_u < 1000$	-	36	20.0	42	19.5	42	20.0	42	21.0	
	Med Clay	$1000 \leq S_u < 2000$	-	36	16.0	42	15.5	42	16.0	42	16.5	
	High Clay	$S_u \geq 2000$	-	36	13.0	42	12.5	42	13.0	42	13.5	
151 to 176	Low Sand	-	$5 \leq N_{60} \leq 10$	36	-	42	-	42	16.0	42	16.5	
	Med Sand	-	$10 < N_{60} \leq 20$	36	-	42	-	42	14.5	42	15.0	
	High Sand	-	$N_{60} > 20$	36	-	42	-	42	14.0	42	14.5	
	Low Clay	$500 \leq S_u < 1000$	-	36	-	42	-	42	21.0	42	22.0	
	Med Clay	$1000 \leq S_u < 2000$	-	36	-	42	-	42	16.5	42	17.5	
	High Clay	$S_u \geq 2000$	-	36	-	42	-	42	13.5	42	14.0	
177 to 200	Low Sand	-	$5 \leq N_{60} \leq 10$	36	-	42	-	42	16.0	42	17.0	
	Med Sand	-	$10 < N_{60} \leq 20$	36	-	42	-	42	15.0	42	15.5	
	High Sand	-	$N_{60} > 20$	36	-	42	-	42	14.5	42	15.0	
	Low Clay	$500 \leq S_u < 1000$	-	36	-	42	-	42	22.0	42	22.5	
	Med Clay	$1000 \leq S_u < 2000$	-	36	-	42	-	42	17.5	42	18.0	
	High Clay	$S_u \geq 2000$	-	36	-	42	-	42	14.0	42	14.0	

* S_u = Ultimate Undrained Shear Strength in Cohesive Soil (psf)

* N_{60} = Standard Penetration Resistance (Blows/Foot according to ASTM D-1586) corrected to 60% Hammer Efficiency utilizing the Hammer's Calibrated Energy

*Table based on Drilled Shaft Head Deflection ≤ 1 Inch, the Ground Water Table ≥ 3 feet below the ground surface, and the first 3.5 feet of soil modeled as Disturbed Soil assuming ground is disturbed to locate utilities

Note: A Detailed Site Specific Design is Required for the Following Conditions

- 1) If $N_{60} < 5$ or $S_u < 500$ psf
- 2) If Span Lengths are greater than 200 feet
- 3) If Rock Sockets are required for the drilled shaft

*****This Table is not valid for spans with tethered signals*****

If tethering is required contact MDOT's Traffic and Safety Design Division

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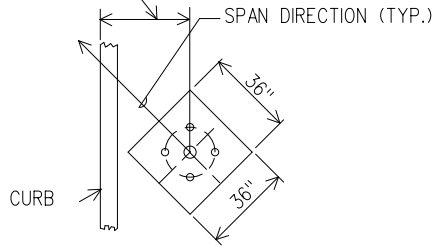
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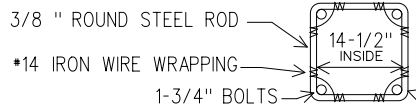
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TO BE IN LINE WITH EXISTING
OR PROPOSED LAMP FOUNDATIONS
OR AS CALLED FOR ON PLANS (TYP.)



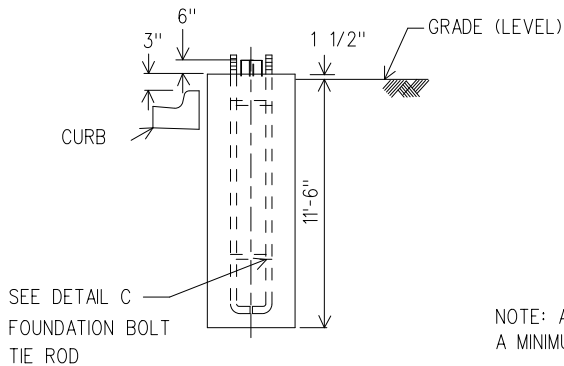
PLAN VIEW

WRAP THE THE
LAPPED END TO
KEEP BOLTS IN
POSITION



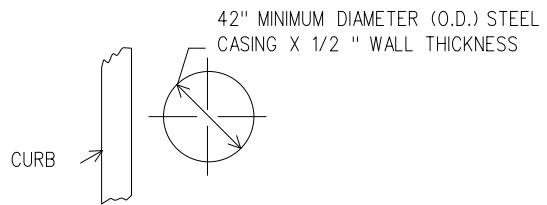
NO WELDING
PERMITTED UNLESS
APPROVED BY
THE ENGINEER

DETAIL C



SECTION VIEW

NOTE: INSTALL POLE THAT THE FOUNDATION & ANCHOR BOLTS ARE PERPENDICULAR TO THE SPAN DIRECTION.



PLAN VIEW

NOTE: ALL DRILLED SHAFT FOUNDATIONS CASIED OR UNCASIED, SHALL HAVE A MINIMUM DIAMETER OF 42" (OR LARGER AS DIRECTED BY THE ENGINEER).

ANCHOR BASE STEEL STRAIN POLE FOUNDATION

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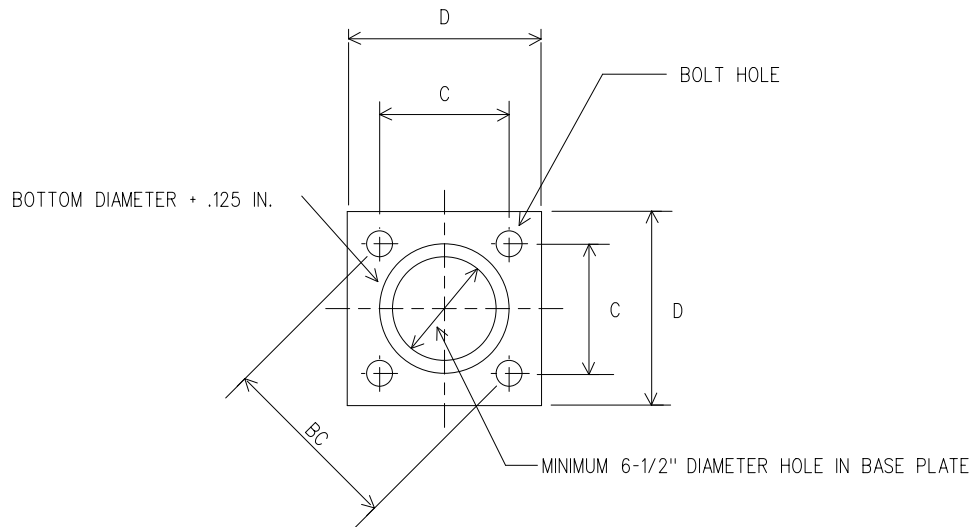
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BASE PLATE DETAIL

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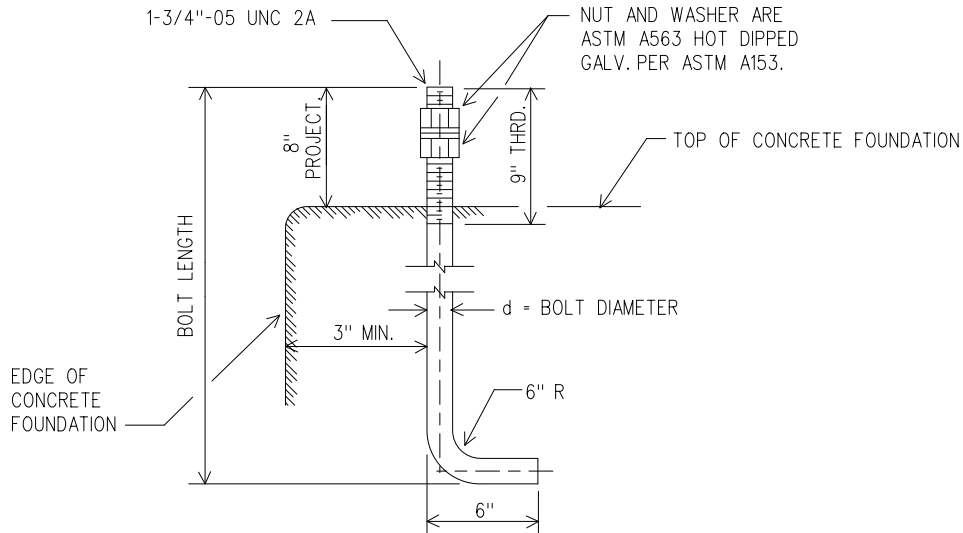
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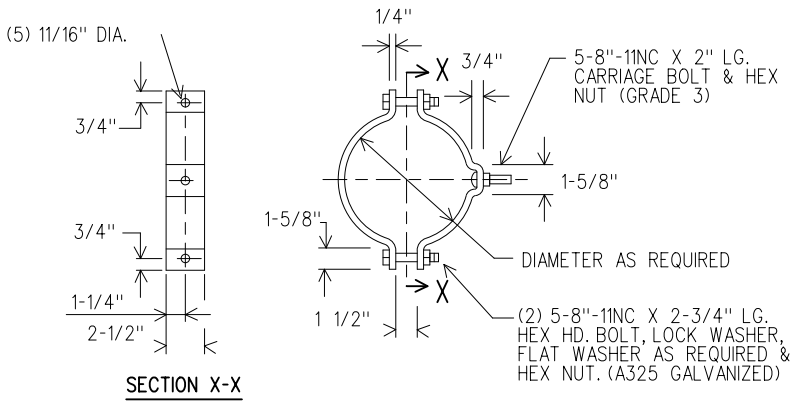
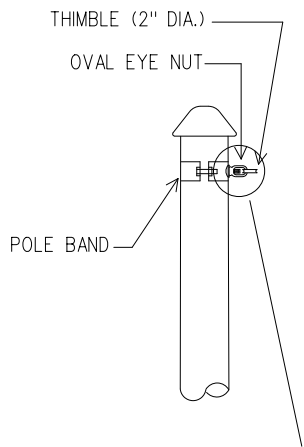
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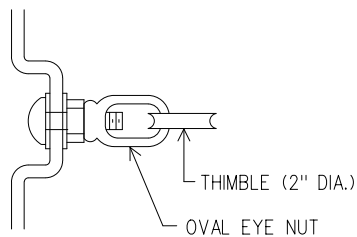


NOTE: ANCHOR BOLTS ARE HOT DIPPED GALVANIZED PER ASTM A153 (THIRD PLUS 3')

ANCHOR BASE STEEL STRAIN POLE FOUNDATION



POLE BAND
(ASTM A36 STEEL)



DETAIL A-1
POLE BAND

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