

ELEVATION - MAST ARM POLE

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF DEVELOPMENT



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR  
TRAFFIC SIGNAL MAST ARM POLE AND  
MAST ARM DETAILS - CATEGORY II

(SPECIAL DETAIL)  
FHWA APPROVAL

07/27/23  
PLAN DATE

SIG-032-A

SHEET  
1 OF 6

TAPERED STEEL MAST ARM POLE		
POLE DIMENSIONS *	LUMINAIRE ARM	MAST ARM LENGTH (FT)
0.313"-15.00" x 11.78" x 23'-0"	NO	20, 25, 30
0.313"-15.00" x 10.94" x 29'-0"	YES	
0.429"-15.00" x 11.78" x 23'-0"	NO	35 & 40
0.429"-15.00" x 10.94" x 29'-0"	YES	
0.500"-15.50" x 12.28" x 23'-0"	NO	45 & 50
0.500"-15.50" x 11.44" x 29'-0"	YES	

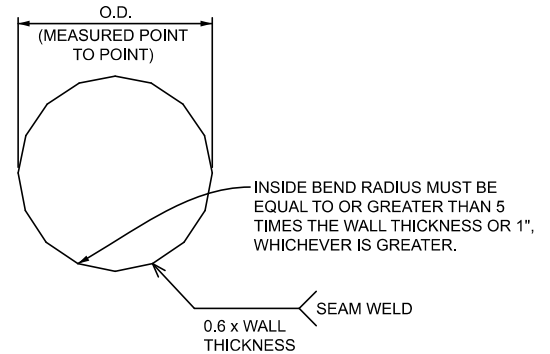
POLE TUBE TAPER IS 0.140 IN/FT  
\* DIAMETERS ARE GIVEN BY O.D.

TAPERED STEEL MAST ARM			
MAST ARM LENGTH	MAST ARM DIMENSIONS *	MTG HT SINGLE	MTG HT TWIN
20'-0"	0.2500"-8.50" x 5.70" x 20'-0"	19'-0"	18'-6" & 21'-0"
25'-0"	0.2500"-9.50" x 6.00" x 25'-0"		
30'-0"	0.2500"-10.50" x 6.30" x 30'-0"		
35'-0"	0.4290"-13.50" x 12.10" x 10'-0"		
	0.1793"-12.68" x 8.96" x 26'-7"		
40'-0"	0.5000"-13.50" x 12.10" x 10'-0"		
	0.2391"-12.80" x 8.38" x 31'-7"		
45'-0"	0.4290"-15.00" x 12.90" x 15'-0"		
	0.2391"-13.61" x 9.18" x 31'-8"		
50'-0"	0.5000"-15.50" x 12.70" x 20'-0"		
	0.2391"-13.41" x 8.98" x 31'-8"		

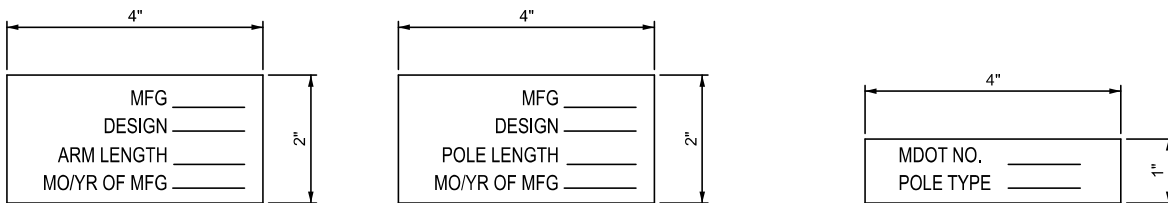
MAST ARM TUBE TAPER IS 0.140 IN/FT  
\* DIAMETERS ARE GIVEN BY O.D.

**NOTES:**

- THE DESIGN OF THIS STRUCTURE IS BASED ON CATEGORY II GALLOPING, NATURAL WIND GUSTS, AND TRUCK INDUCED FATIGUE LOADS.
- WELD THE LONGITUDINAL ARM SEAM ON THE INBOARD AND OUTBOARD SECTIONS OF THE TELESCOPIC FIELD SPLICE WITH A COMPLETE JOINT PENETRATION (CJP) WELD WITH A LENGTH EQUAL TO THE TELESCOPIC FIELD SPLICE LENGTH PLUS 6 INCHES. THE LAP OF THE ARM SECTIONS CANNOT EXTEND BEYOND THE LONGITUDINAL ARM SEAM CJP WELD WHEN THE FIELD SPLICE IS ERECTED AND IN ITS FINAL POSITION. IN ADDITION, LONGITUDINAL SEAM WELDS MUST HAVE 60% MINIMUM PENETRATION OR FUSION AND MUST BE CJP FOR A MINIMUM OF 6 INCHES FROM TUBE TO PLATE CJP WELDS.
- SEAM WELDS IN MAST ARM POLE MUST BE 90° ± FROM HAND HOLE AT BASE. SEAM WELDS IN MAST ARM MUST BE LOCATED ON BOTTOM OF MAST ARMS.
- LUMINAIRE ARM IS 11 GAUGE ROUND STEEL WITH 0.140 INCH PER FOOT TAPER.
- BACKING BAR FOR PIPE TO BASE PLATE (□) AND MAST ARM TO MAST ARM PLATE MUST BE MINIMUM 5/16 INCH X 2 INCH PLATE.
- 1/2 INCH DIAMETER (Ø) ROUND STOCK C-HOOK ATTACHED TO ALL POLE SIZES. 1 INCH SCHEDULE (SCH.) 80 PIPE ATTACHED TO ALL POLE SIZES AND INBOARD AND OUTBOARD ARM.
- S.S. DENOTES STAINLESS STEEL. GA. DENOTES GAUGE. O.D. DENOTES OUTSIDE DIAMETER. I.D. DENOTES INSIDE DIAMETER. H.S. DENOTES HIGH STRENGTH.
- ROUND OR 16-SIDED SECTIONS ARE ALLOWED.
- MULTI-PLY SECTIONS ARE NOT ALLOWED.



1 **DETAIL - 16-SIDED SECTION**



ATTACH TO POLE OR MAST ARM AT LOCATIONS SHOWN  
4" FROM BASE OF TUBE BELOW HANDHOLE WITH (4) #8 x 3/8"  
S.S. TYPE U DRIVE SCREWS.  
(LETTERS STAMPED IN 3/8" CHARACTERS)

WELD TAG TO EDGE OF BASE PLATE  
(LETTERS STAMPED IN 3/8" CHARACTERS)

2 **DETAIL - ARM/POLE S.S. ID TAG**

3 **DETAIL - BASE S.S. ID TAG**

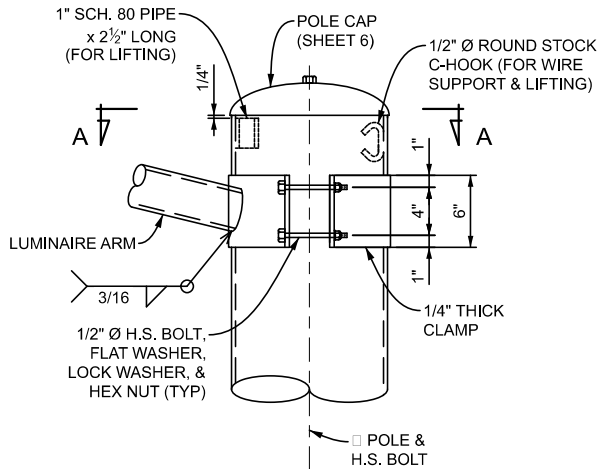
**MDOT**  
Michigan Department of Transportation

DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR  
**MAST ARM POLE AND MAST ARM REQUIREMENTS**

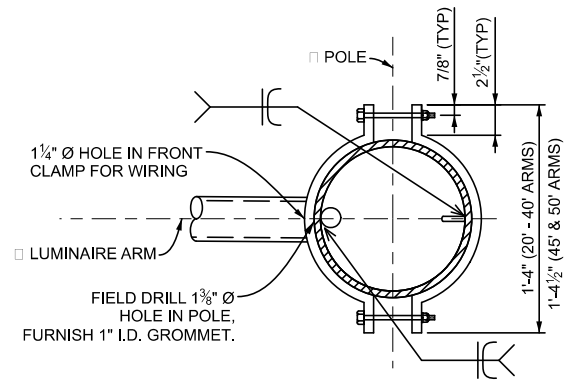
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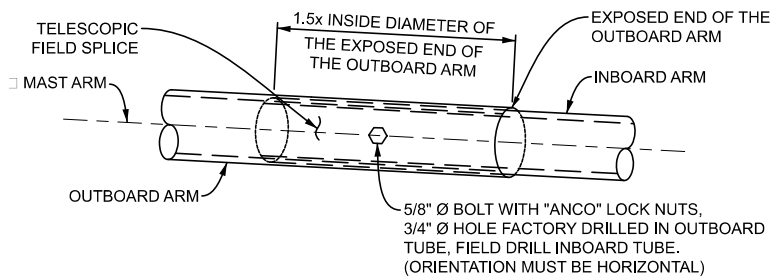


ORIENTATION OF SCH. 80 PIPE 180° FROM HAND HOLE AT BASE & C-HOOK 180° FROM SCH. 80 PIPE

4 DETAIL - LUMINAIRE ARM BRACKET

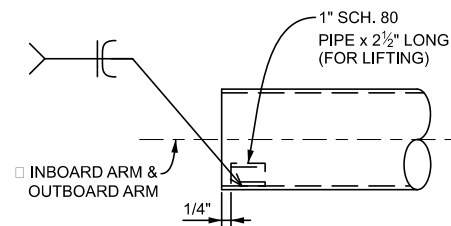


A SECTION - LUMINAIRE ARM BRACKET



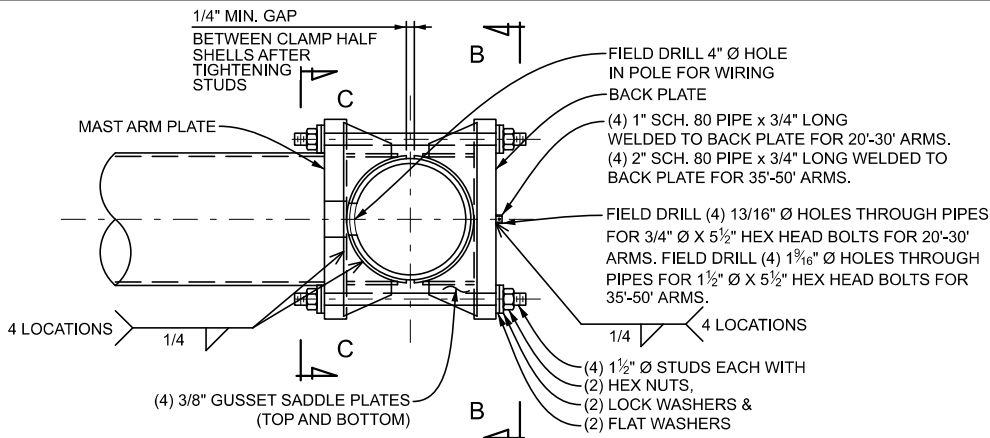
NOTES:  
 1. FOR 35'-0" ARMS AND GREATER.  
 2. THE INBOARD AND OUTBOARD ARMS MUST FIT TIGHTLY.

5 DETAIL - TELESCOPIC SPLICE



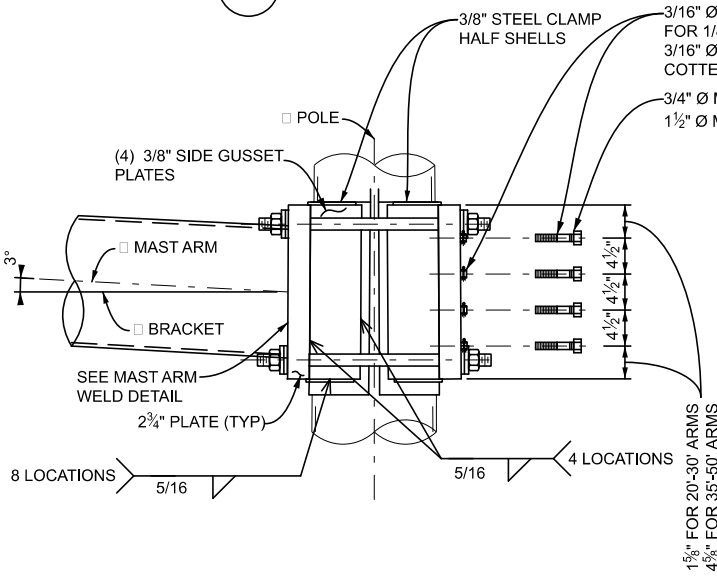
6 INBOARD/OUTBOARD ARM  
DETAIL - LIFTING DEVICE

 DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	STANDARD PLAN FOR <b>LUMINAIRE ARM BRACKET, TELESCOPIC          SPLICE, AND LIFTING DEVICE DETAILS</b>		<b>SIG-032-A</b>	SHEET 3 OF 6
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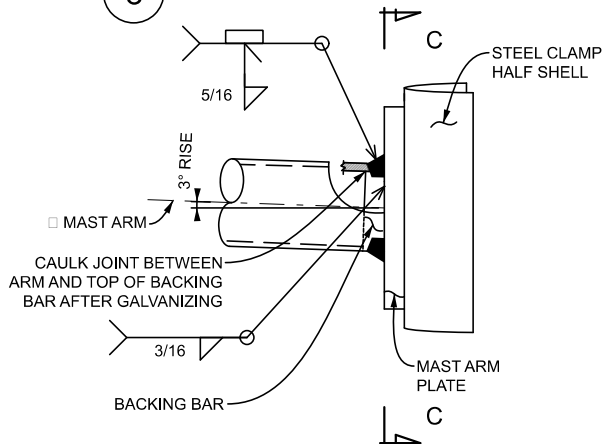


ROUND SECTION SHOWN.  
SAME CONNECTION DETAILS FOR 16-SIDED SECTION  
GUSSET SADDLE PLATES MUST MATCH 16-SIDED POLE SHAPE

**7** DETAIL - MAST ARM BRACKET PLAN

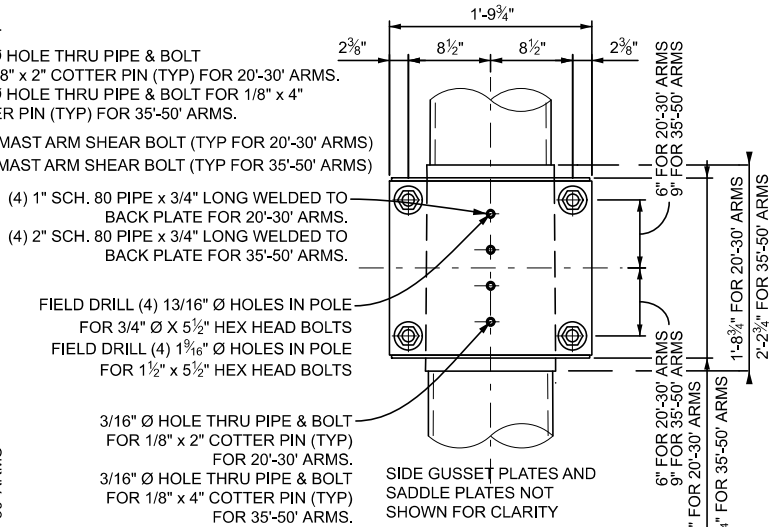


**8** DETAIL - MAST ARM BRACKET ELEVATION

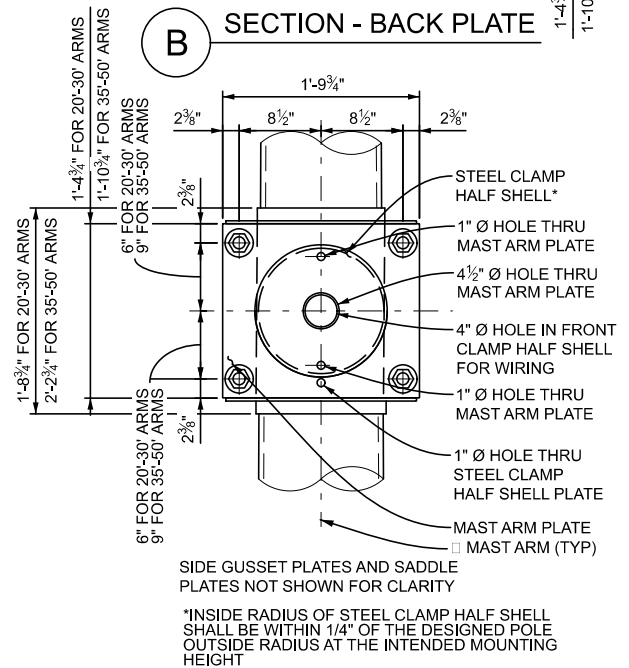


SIDE GUSSET PLATES AND SADDLE  
PLATES NOT SHOWN FOR CLARITY

**9** DETAIL - MAST ARM WELD



**B** SECTION - BACK PLATE



**C** SECTION - MAST ARM PLATE



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STANDARD PLAN FOR  
MAST ARM BRACKET DETAILS

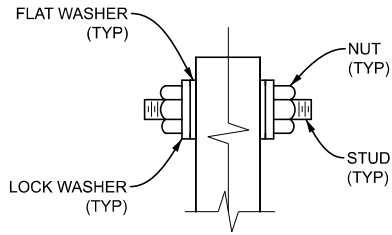
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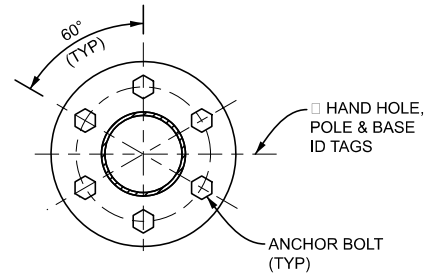
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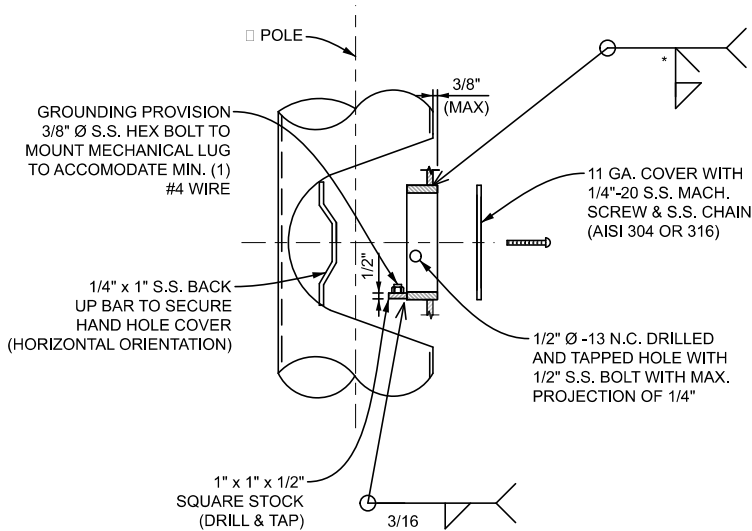
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10 DETAIL - MAST ARM BRACKET WASHERS

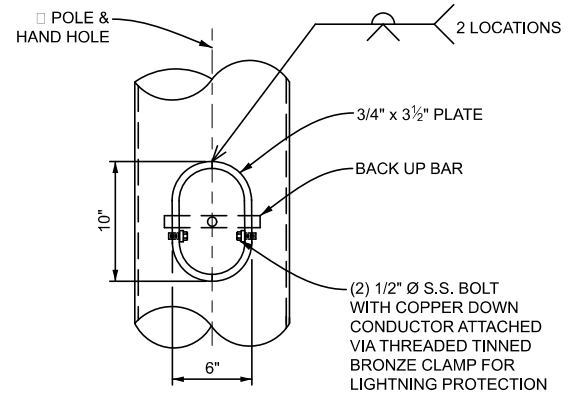


11 DETAIL - ORIENTATION OF HAND HOLE

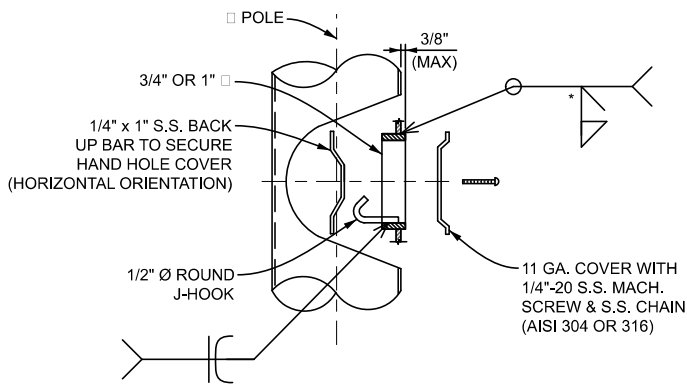


\*S (WELD SIZE) = 0.9 x POLE WALL THICKNESS

12 DETAIL - 6" X 10" BAR BOTTOM HAND HOLE

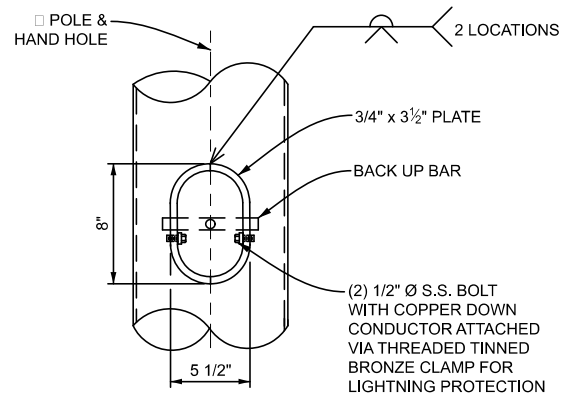


13 DETAIL - 6" X 10" BAR BOTTOM HAND HOLE  
VIEW ROTATED 90 DEGREES



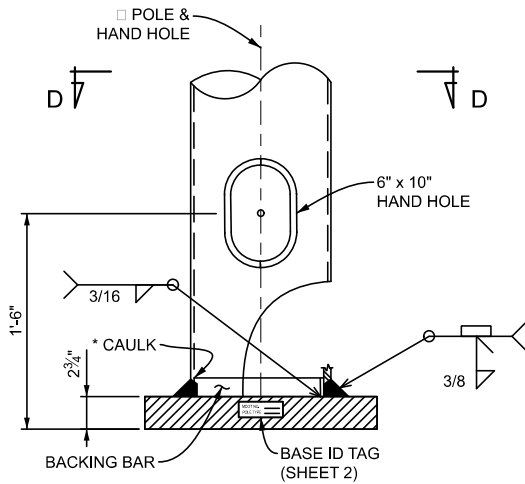
\*S (WELD SIZE) = 0.9 x POLE WALL THICKNESS

14 DETAIL - 5 1/2" X 8" BAR TOP HAND HOLE



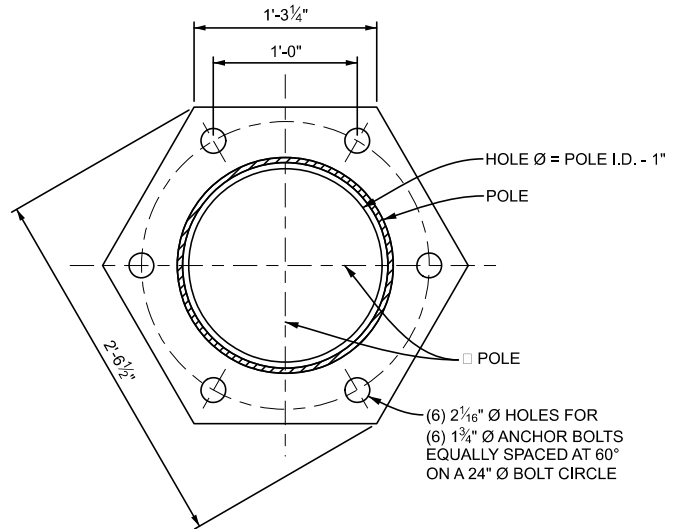
15 DETAIL - 5 1/2" X 8" BAR TOP HAND HOLE  
VIEW ROTATED 90 DEGREES

 DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	STANDARD PLAN FOR <b>HAND HOLE DETAILS</b>		<b>SIG-032-A</b>	SHEET 5 OF 6
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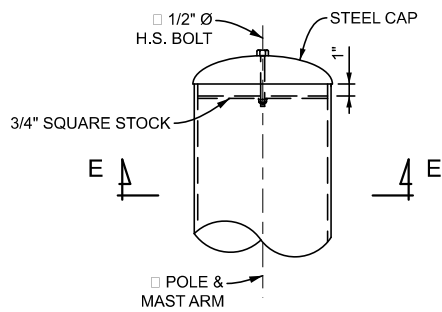


\*SEAL JOINT WITH CAULK AFTER GALVANIZING

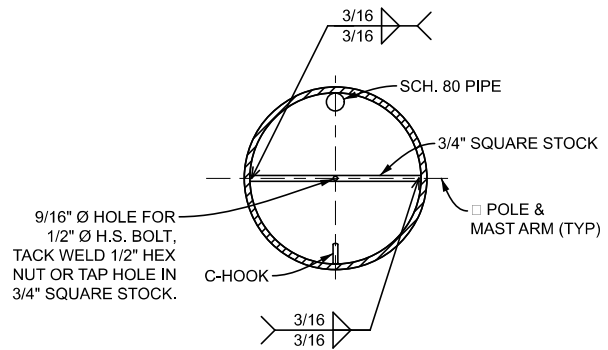
**16** DETAIL - BASE PLATE WELD  
VIEW ROTATED 90 DEGREES



**D** SECTION - BASE PLATE



**17** DETAIL - POLE AND MAST ARM CAP



**E** SECTION - POLE AND MAST ARM CAP



DEPARTMENT DIRECTOR  
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR  
BASE PLATE, MAST ARM POLE CAP, AND  
MAST ARM CAP DETAILS

(SPECIAL DETAIL)  
FHWA APPROVAL

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