

**XX - STRUCTURES - MAST ARMS  
INDEX OF DRAWINGS**

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
MA-1	INDEX OF DRAWINGS		
MA-2	STEEL MAST ARM ASSEMBLY ELEVATION		
MA-3	STEEL MAST ARM ASSEMBLY DETAILS		
MA-4	STEEL MAST ARM ASSEMBLY FOUNDATION DETAILS		

**NOTE TO DESIGNERS:**

**1 - DESIGNERS SHOULD PERFORM THE BELOW LISTED EDITS ON THE PDF FOR SUBMISSION.**

- DOUBLE CLICK ON TEXT "XX" TO EDIT SUBSET NUMBER IN THE INDEX OF DRAWING BLOCK.

- DOUBLE CLICK ON TEXT "INSERT" AND "XXXX-XXXX" TO EDIT THE PROJECT SPECIFIC INFORMATION IN THE TITLE BLOCK. RIGHT CLICK ON THE TEXT AND "APPLY TO PAGES" TO COPY THE TITLE BLOCK INFORMATION TO ALL DRAWINGS.

**2 - DESIGNERS SHOULD ADD PAGE LABELS, SHEET NUMBERS, WATERMARKS AND DIGITAL SIGNATURE FIELD TO THE PDF AND FLATTEN THIS DOCUMENT IN ACCORDANCE WITH THE LATEST VERSION OF CTDOT DIGITAL PROJECT DEVELOPMENT MANUAL.**

**3 - DELETE THIS TEXT BOX BEFORE SUBMITTING.**

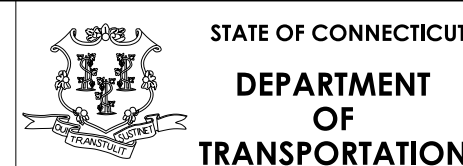
THE DESIGN APPEARS TO CONFORM TO APPLICABLE CRITERIA. APPROVAL IS NOT TO BE CONSTRUED TO MEAN THAT ALL ASPECTS OF THE DESIGN HAVE BEEN PERSONALLY CHECKED BY THE UNDERSIGNED.

\_\_\_\_\_  
TRANSPORTATION PRINCIPAL ENGINEER

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: INSERT      CHECKED BY: INSERT

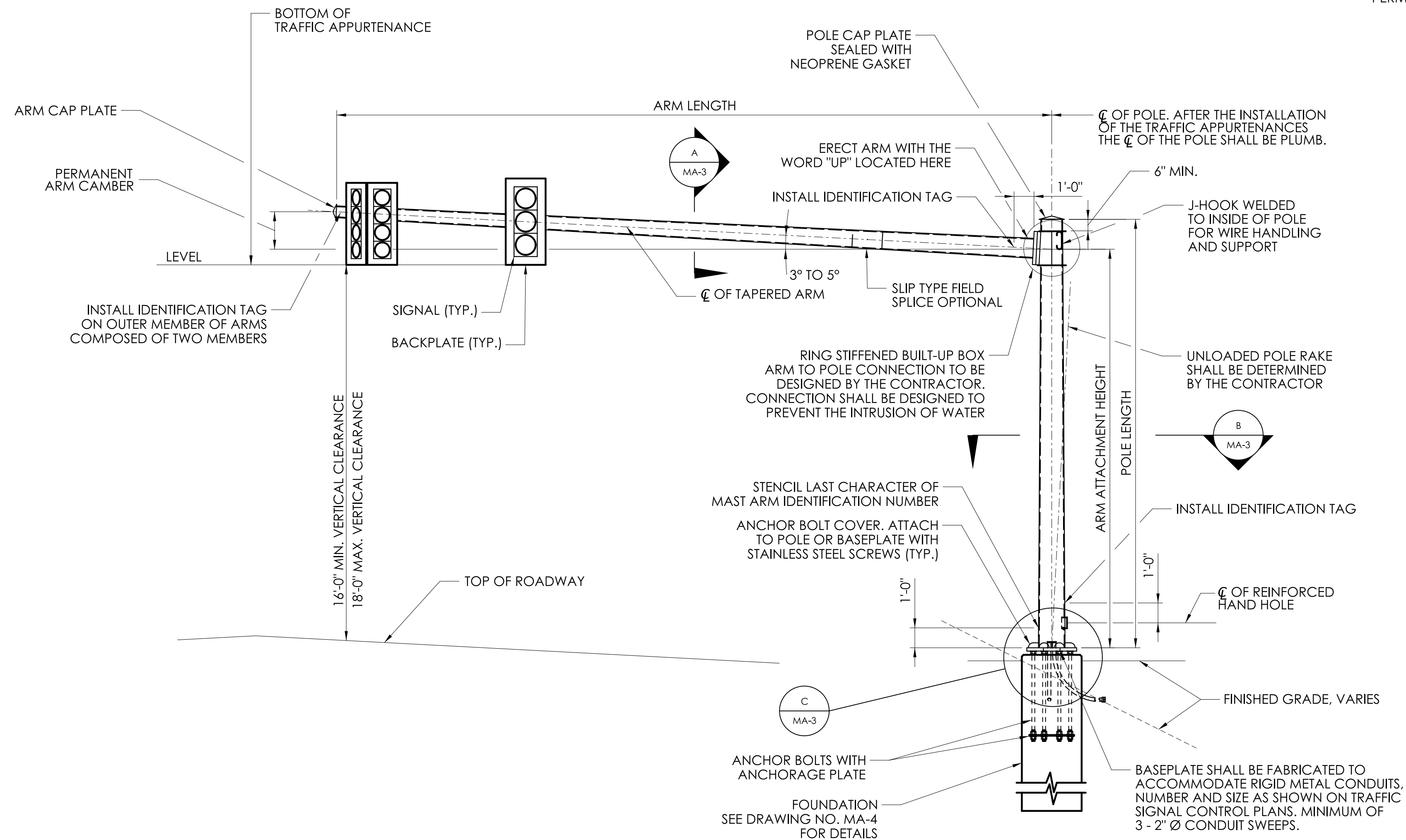
SIGNATURE/  
BLOCK:



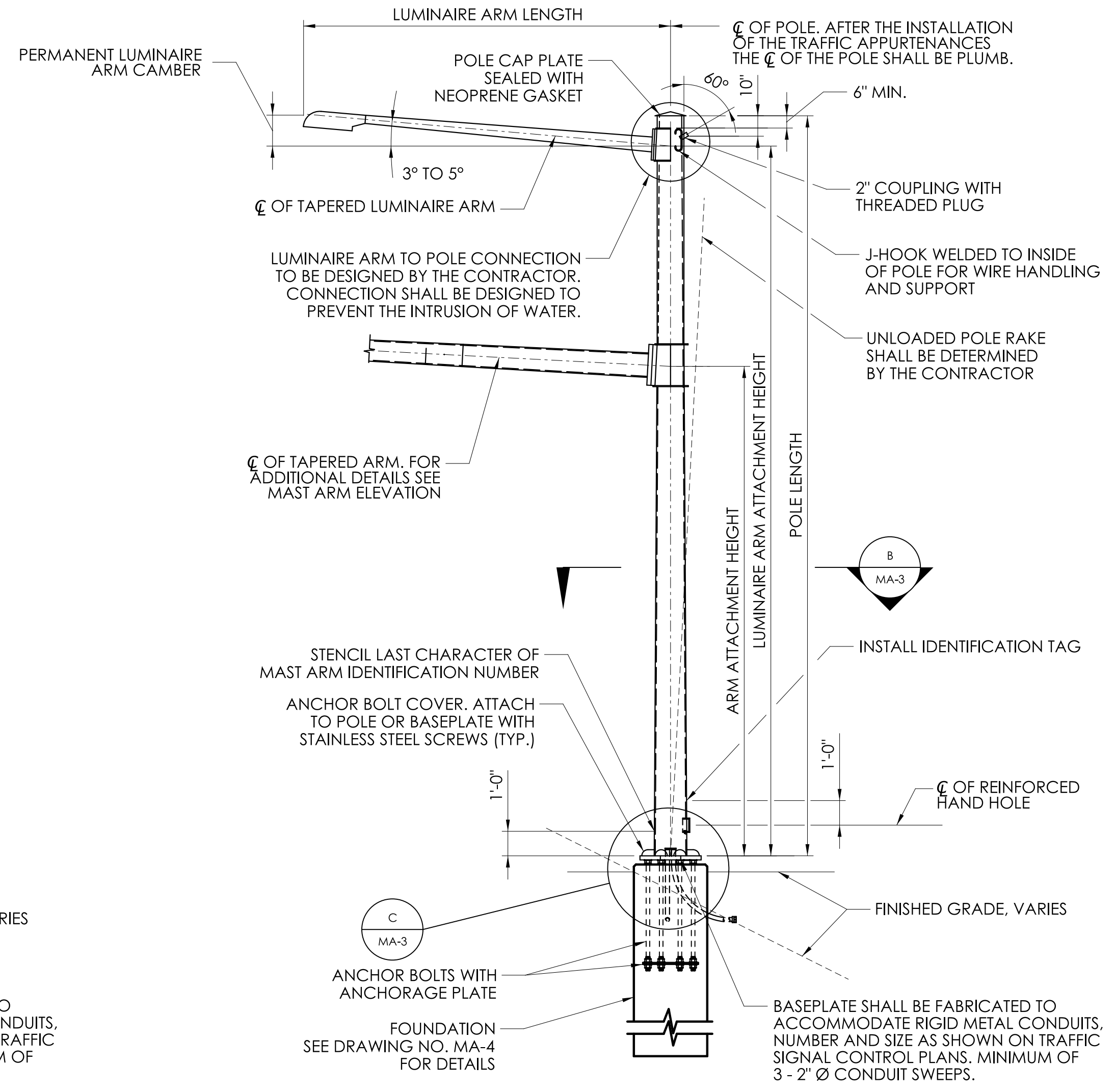
PROJECT NUMBER: XXXX-XXXX  
PROJECT DESCRIPTION: INSERT  
TOWN(S): INSERT  
DRAWING TITLE: INDEX OF DRAWINGS

DRAWING NO.  
MA-1  
SHEET NO.

LASTED SAVED BY: FILE NAME:  
PLOTTED DATE: 6/22/2023



**ELEVATION - MAST ARM**  
SCALE: 1/4"=1'-0"



**ELEVATION - COMBINATION MAST ARM**  
SCALE: 1/4"=1'-0"

**MAST ARM ASSEMBLY NOTES**

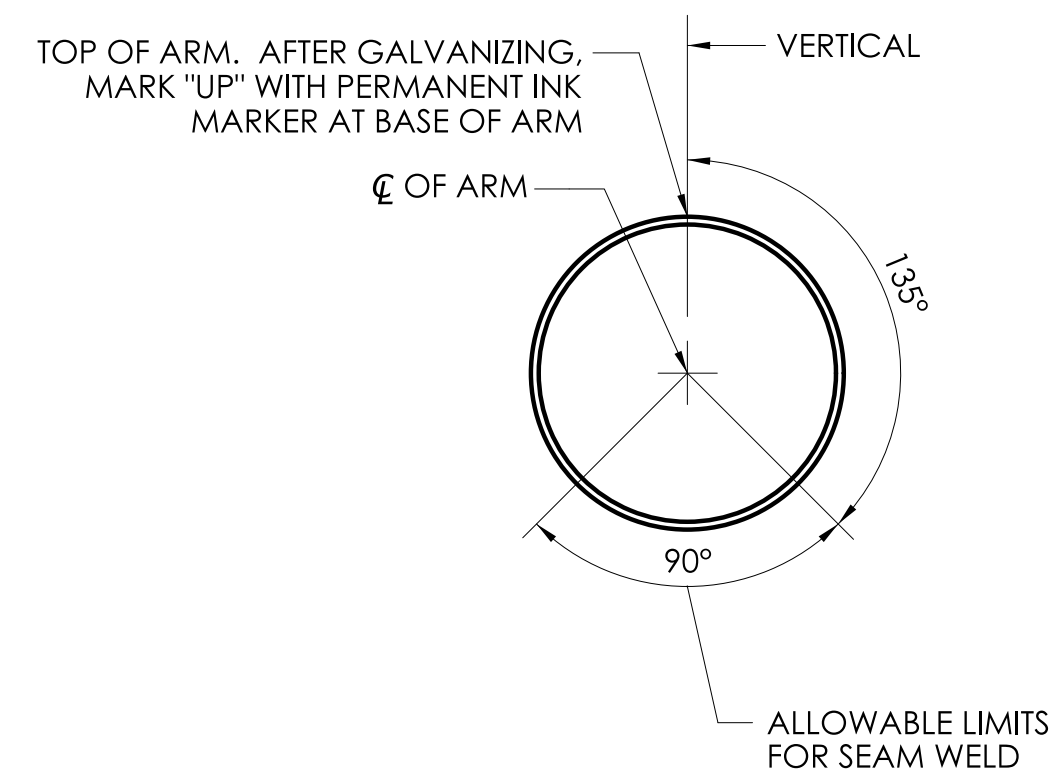
THE MAST ARM ASSEMBLY, INCLUDING THE ANCHORAGE TO THE FOUNDATION, SHALL BE DESIGNED, FABRICATED AND INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH THE SPECIAL PROVISION "XX STEEL MAST ARM ASSEMBLY" OR "XX STEEL COMBINATION MAST ARM ASSEMBLY".

THE MAST ARM ASSEMBLY, INCLUDING THE ARM SPAN, ARM ORIENTATION, AND THE LOCATIONS OF THE TRAFFIC APPURTENANCES SUPPORTED BY THE STRUCTURE ARE SHOWN ON THE TRAFFIC CONTROL SIGNAL PLAN. PRIOR TO DESIGN OF EACH MAST ARM ASSEMBLY, THE CONTRACTOR SHALL PREPARE A LAYOUT DRAWING BASED ON A FIELD SURVEY AND THE CONTRACT DOCUMENTS TO VERIFY THE MAST ARM ASSEMBLY WHEN INSTALLED WILL MEET THE GEOMETRIC AND CLEARANCE REQUIREMENTS IN THE CONTRACT DOCUMENTS. IF THE REQUIREMENTS CANNOT BE MET, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

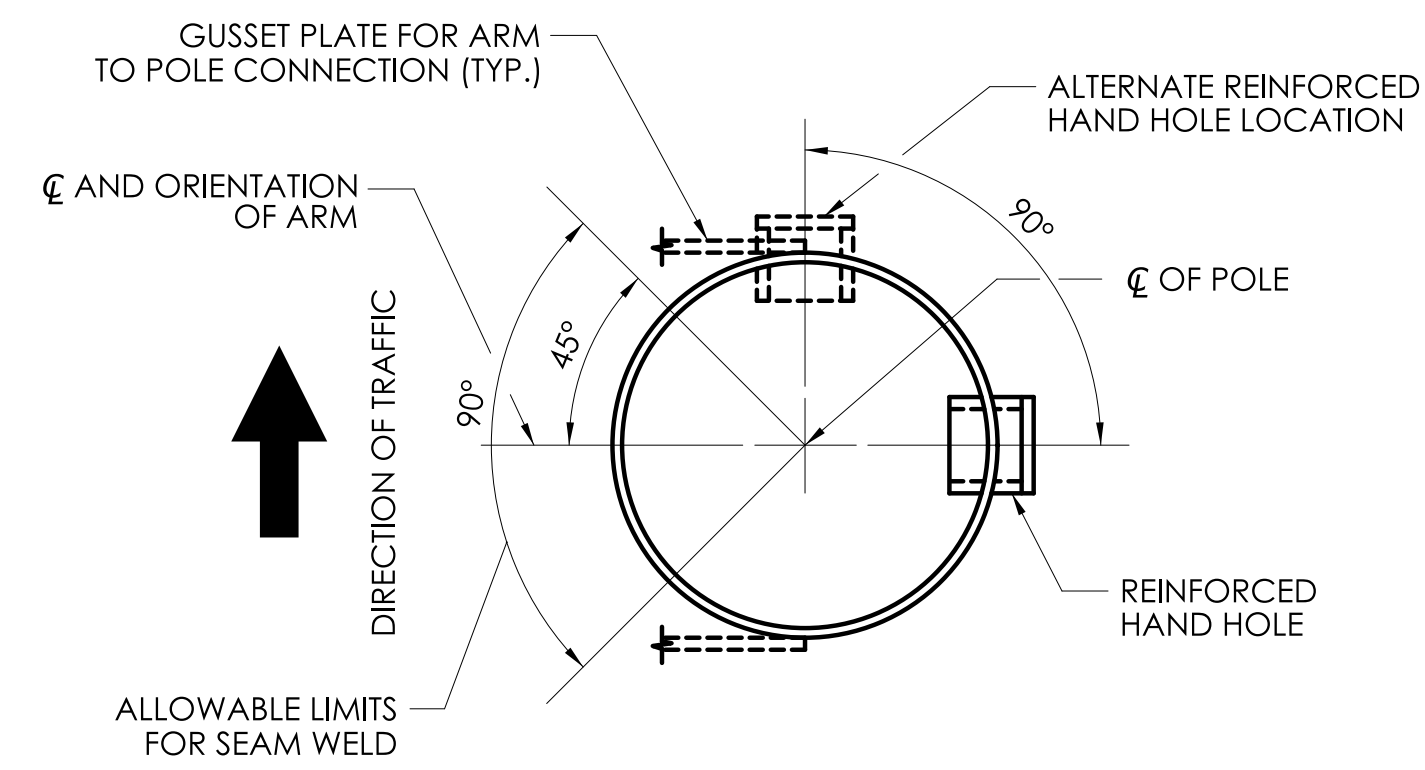
THE MAST ARM ASSEMBLIES SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, INCLUDING THE LATEST INTERIM SPECIFICATIONS, AS AMENDED BY THE SPECIAL PROVISION "XX STEEL MAST ARM ASSEMBLY" OR "XX STEEL COMBINATION MAST ARM ASSEMBLY".

THE MAST ARM ASSEMBLIES SHALL BE DESIGNED TO SUPPORT TRAFFIC APPURTENANCES WITH PROPERTIES NO LESS THAN THOSE SHOWN ON THE TRAFFIC PLANS.

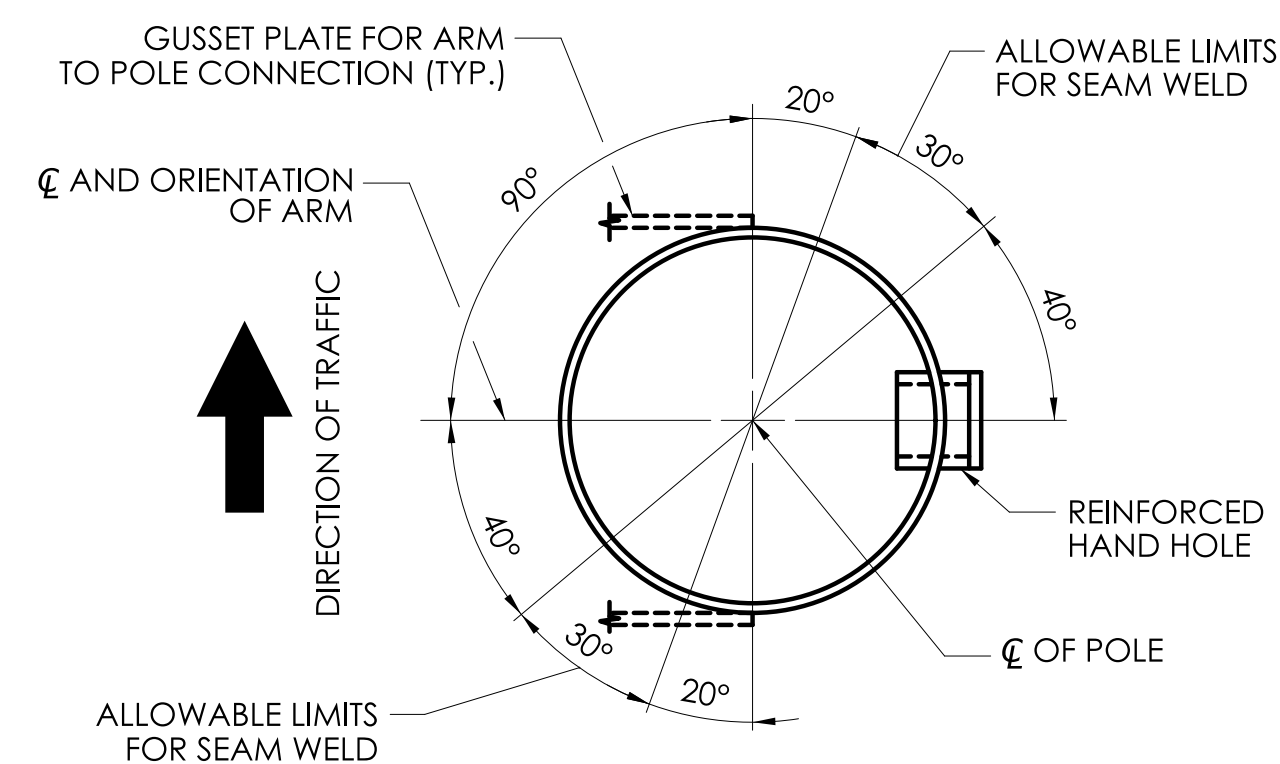
REV.	DATE	REVISION DESCRIPTION



**SECTION A**  
SCALE: 1 1/2" = 1'-0" MA-2



**POLE WITH 1 SEAM WELD**



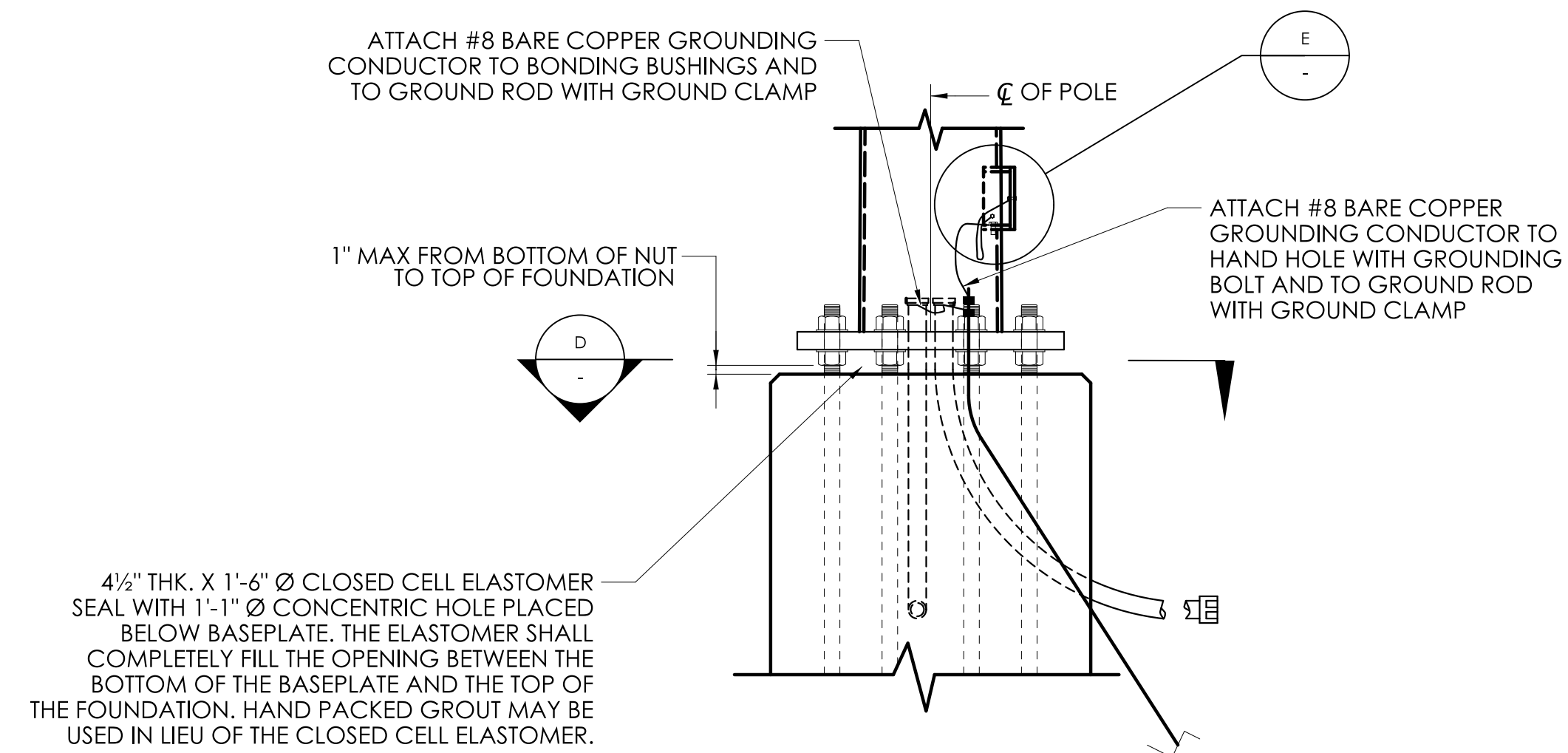
**POLE WITH 2 SEAM WELD**

**SECTION B**  
SCALE: 1 1/2" = 1'-0" MA-2

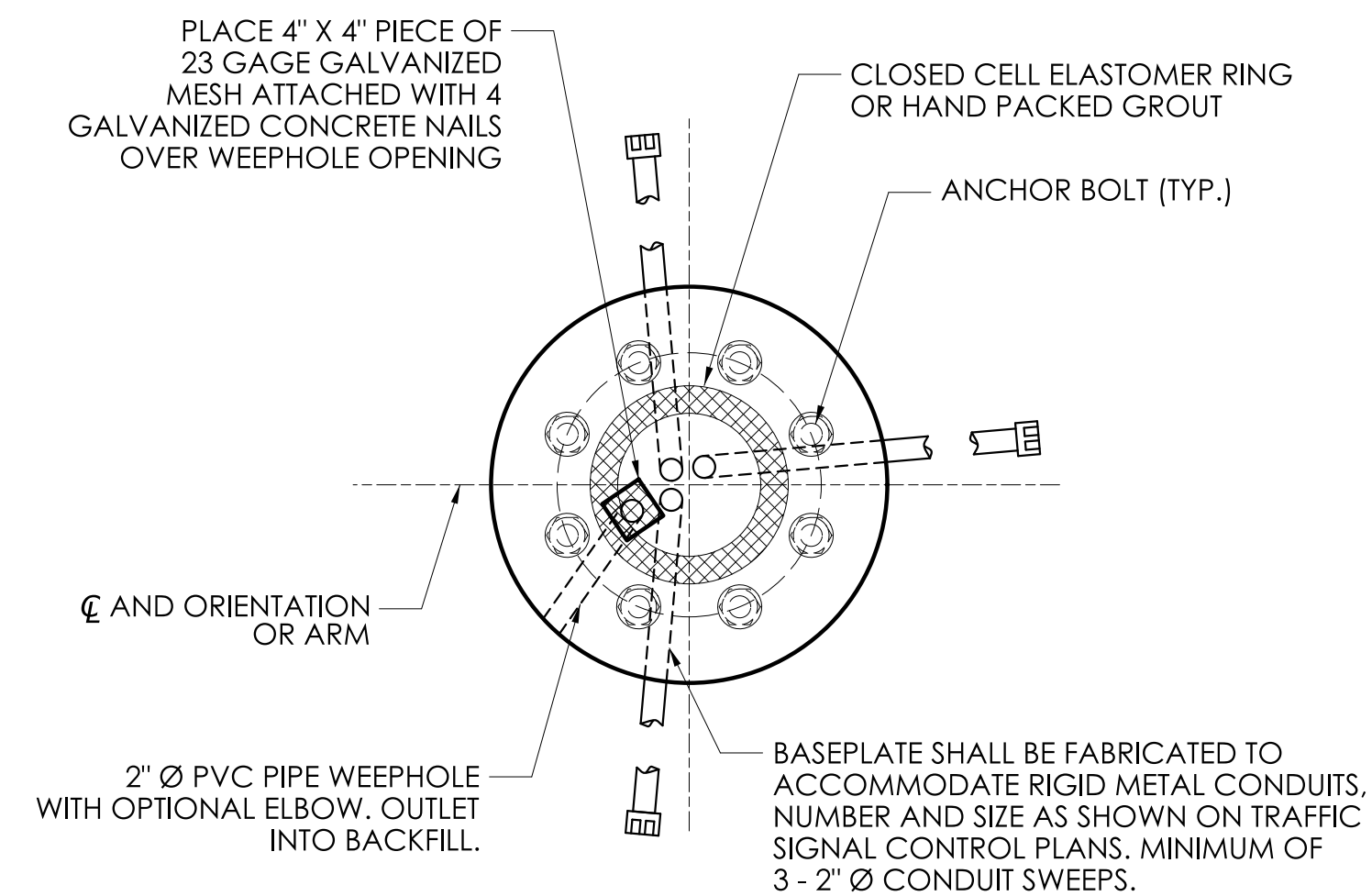
ATTACH TAG TO POLE AND ARM WITH SELF-TAPPING TAMPER RESISTANT STAINLESS STEEL SCREWS (TYP.)

- IDENTIFICATION NUMBER:
- MANUFACTURER:
- DATE OF MANUFACTURE: MM/YY
- ARM LENGTH: IN FEET (METERS)

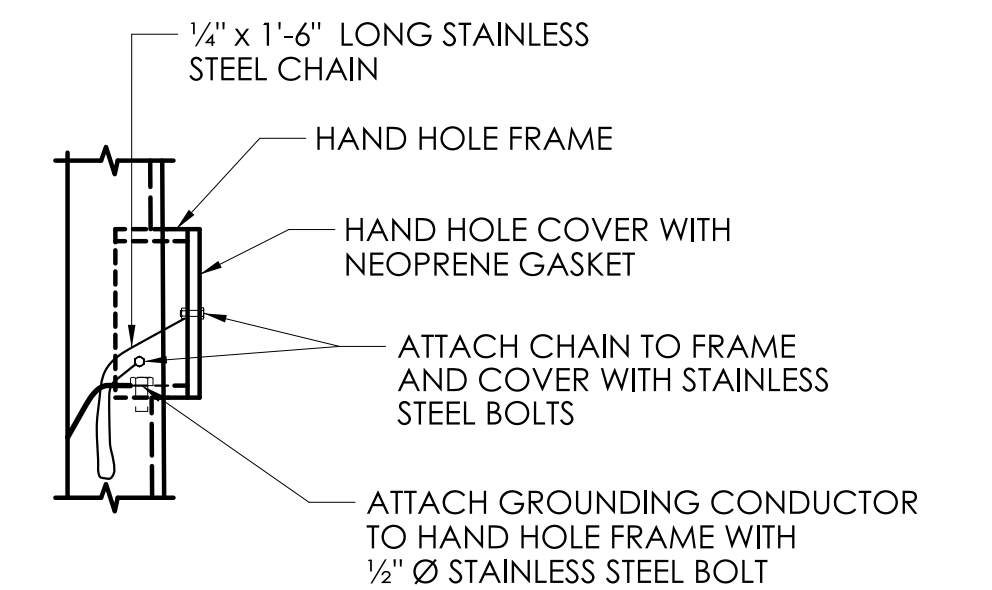
**IDENTIFICATION TAG - N.T.S**



**DETAIL C**  
SCALE: 3/4" = 1'-0" MA-2



**SECTION D**  
SCALE: 3/4" = 1'-0" MA-2



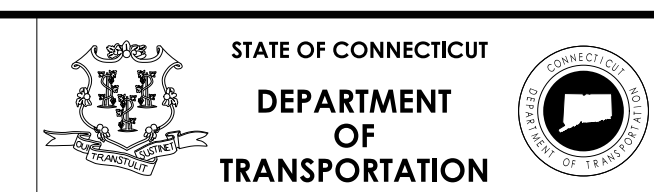
**DETAIL E**  
SCALE: 1 1/2" = 1'-0" MA-2

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_  
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PLOTTED DATE: 6/22/2023

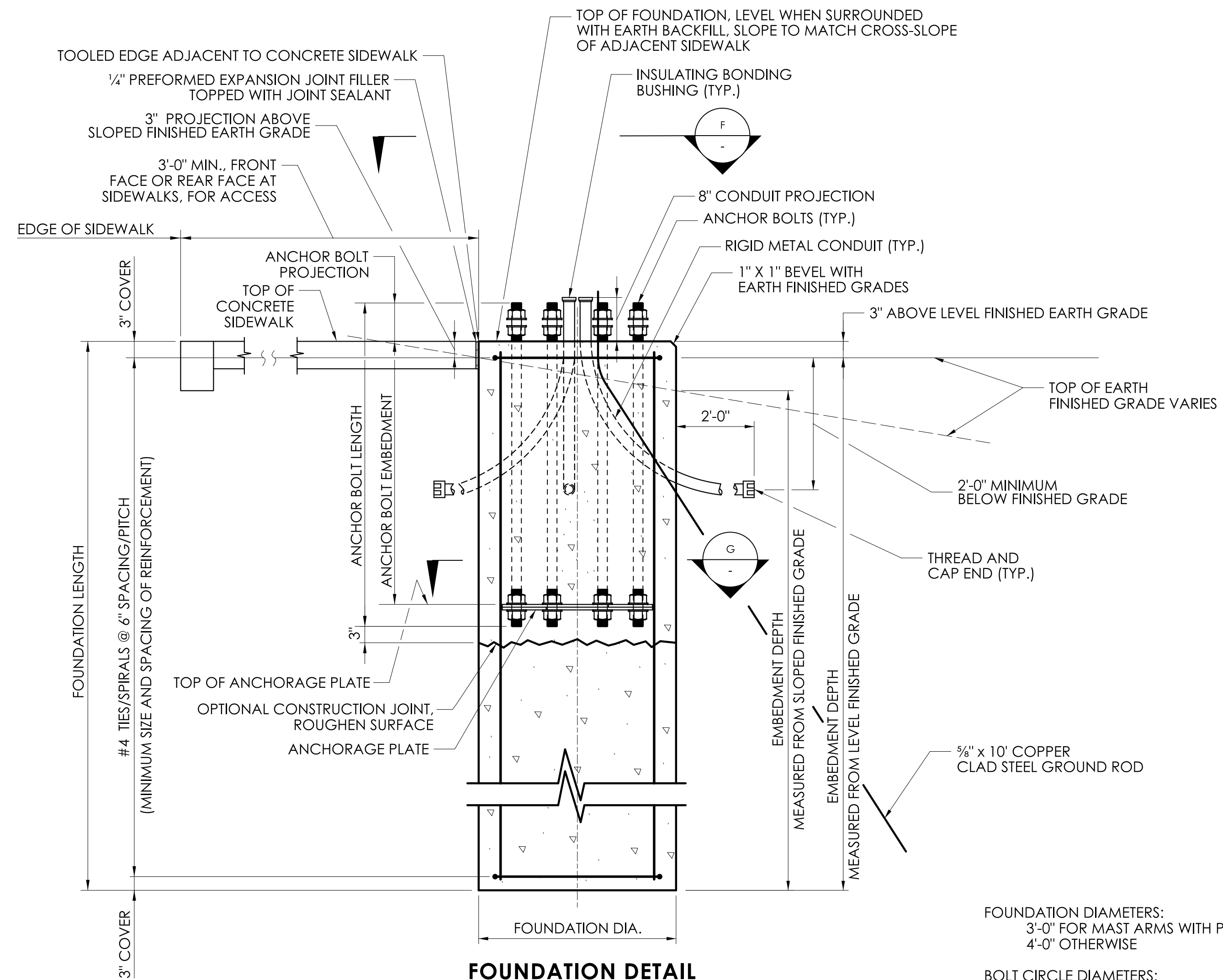
SCALE AS NOTED

SIGNATURE/BLOCK: \_\_\_\_\_



PROJECT NUMBER: \_\_\_\_\_  
PROJECT DESCRIPTION: \_\_\_\_\_  
TOWN(S): \_\_\_\_\_  
DRAWING TITLE: STEEL MAST ARM ASSEMBLY DETAILS

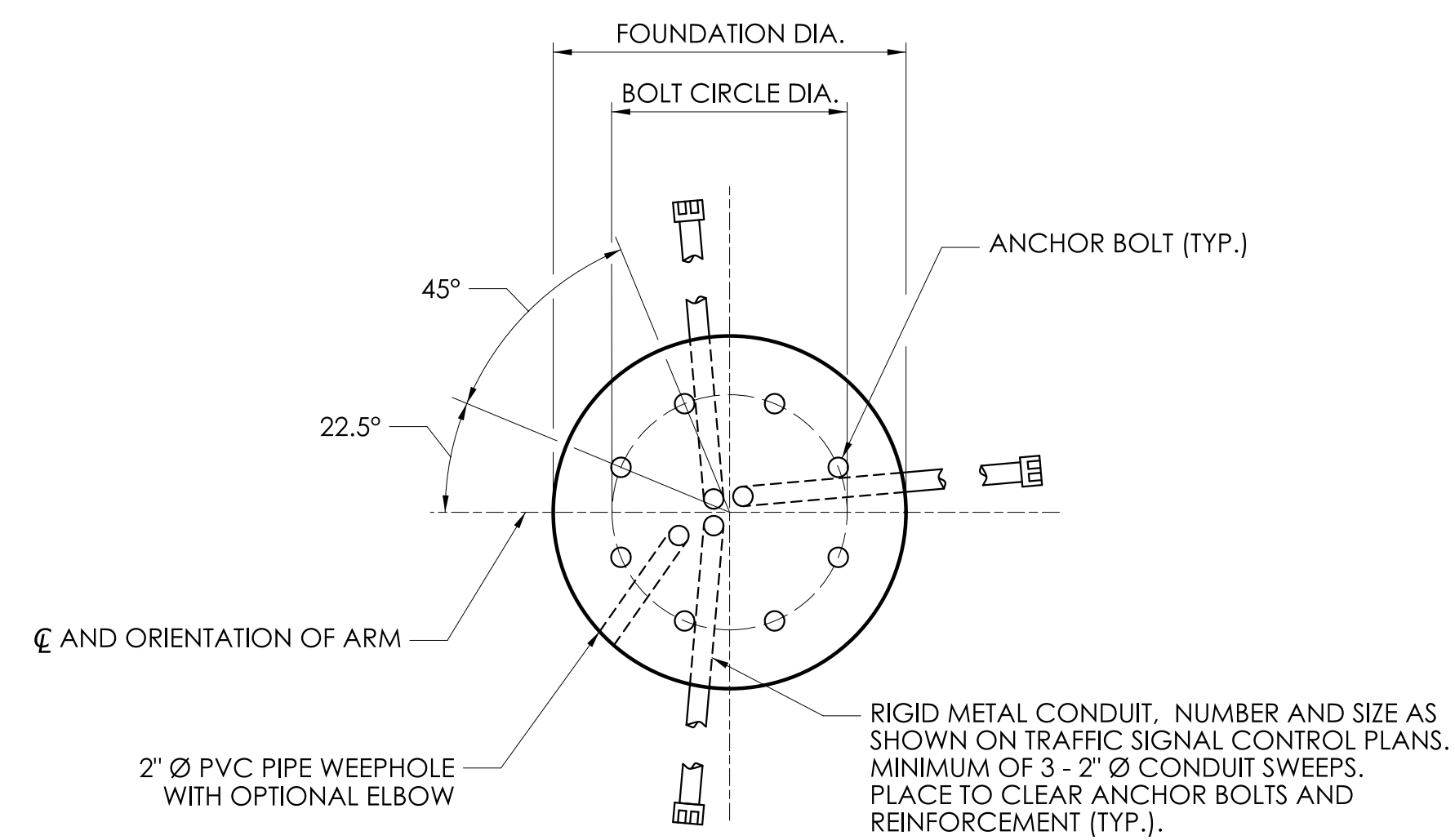
DRAWING NO. MA-3  
SHEET NO. \_\_\_\_\_



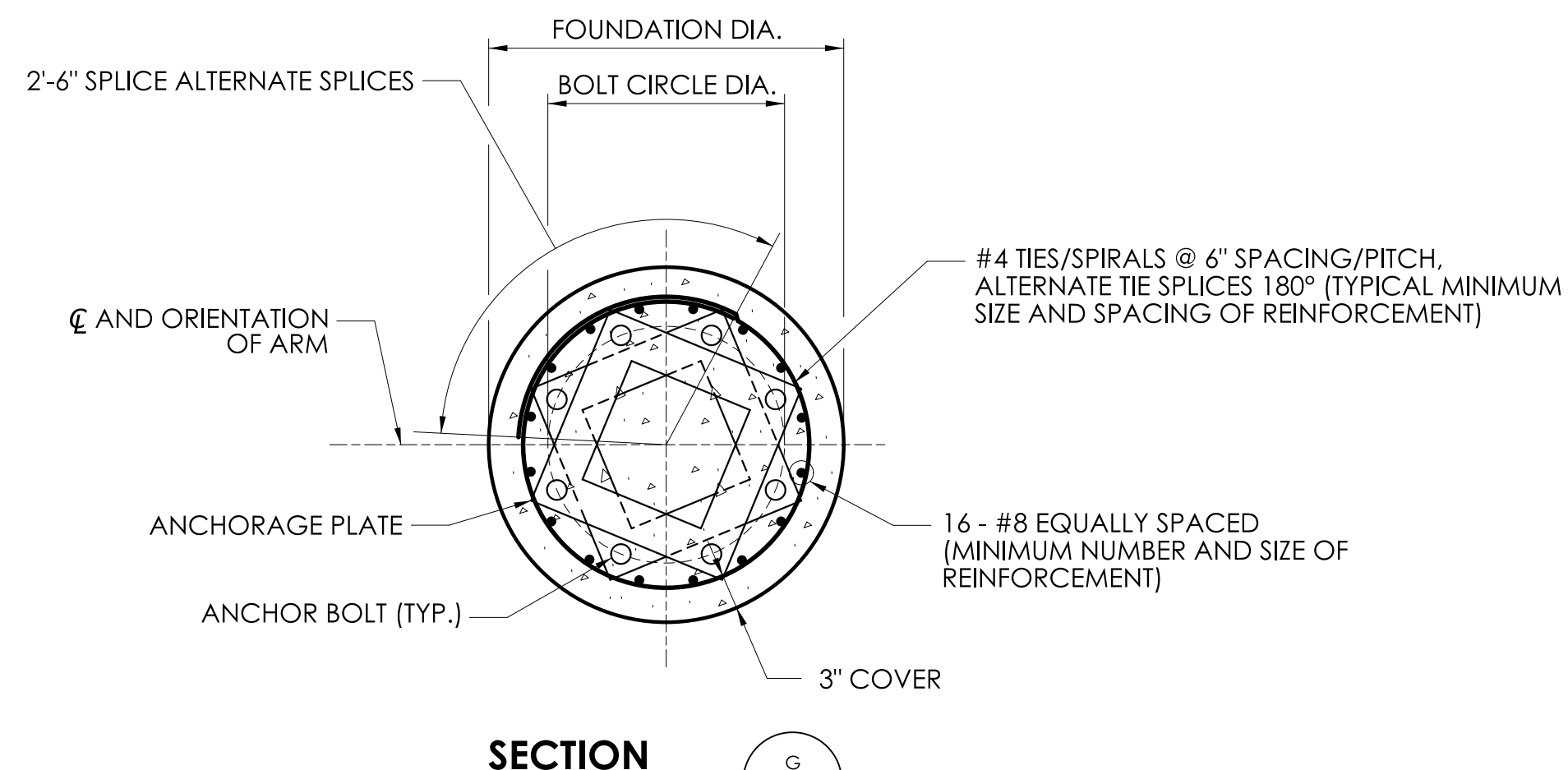
**FOUNDATION DETAIL**  
SCALE: 3/4" = 1'-0"

FOUNDATION DIAMETERS:  
3'-0" FOR MAST ARMS WITH POLE DIAMETERS AT THE BASE LESS THAN OR EQUAL TO 1'-6"  
4'-0" OTHERWISE

BOLT CIRCLE DIAMETERS:  
DIAMETER OF THE POLE AT THE BASE PLUS 6" ± 1"



**SECTION F**  
SCALE: 3/4" = 1'-0"



**SECTION G**  
SCALE: 3/4" = 1'-0"

**FOUNDATION NOTES**

THE DRILLED SHAFT FOUNDATION FOR THE MAST ARM ASSEMBLY SHALL BE DESIGNED, FABRICATED, AND CONSTRUCTED BY THE CONTRACTOR IN ACCORDANCE WITH THE SPECIAL PROVISION "TRAFFIC CONTROL FOUNDATION - MAST ARM".

THE FOUNDATION SHALL BE DESIGNED FOR THE SOILS AND ROCK PROPERTIES BASED ON THE SUBSURFACE CONDITIONS (CHARACTER OF THE SOIL AND ROCK, PRESENCE OF GROUND WATER, ETC.) IN THE LOCATION OF, ADJACENT TO AND BELOW THE DRILLED SHAFT FOUNDATION EXCAVATION. THE NEED AND EXTENT OF ALL SUBSURFACE EXPLORATIONS AND INVESTIGATIONS SHALL BE DETERMINED BY THE CONTRACTOR.

THE DESIGN OF THE FOUNDATION SHALL BE COORDINATED WITH THE MAST ARM ASSEMBLY AND THE MAST ARM ANCHORAGE TO ENSURE THAT THE FOUNDATION IS ADEQUATE FOR THE MAST ARM REACTIONS AND TO AVOID CONFLICTS BETWEEN THE EMBEDDED MAST ARM ANCHORAGE AND THE FOUNDATION REINFORCEMENT.

THE CONCRETE FOR THE FOUNDATION SHALL CONFORM TO CLASS PCC04460. THE COMPRESSIVE STRENGTH,  $f_c$ , USED IN DESIGN OF THE FOUNDATION SHALL BE 4,000 PSI. THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED FOUNDATION SHALL CONFORM TO THE REQUIREMENTS OF 6.01 - CONCRETE FOR STRUCTURES AND M.03 - PORTLAND AND HYDRAULIC CEMENT CONCRETE.

THE REINFORCEMENT SHALL BE UNCOATED AND CONFORM TO ASTM A615, GRADE 60. THE REINFORCEMENT SHALL BE ASSEMBLED WITH WIRE TIES. WELDING TO ASSEMBLE REINFORCEMENT IS NOT PERMITTED. ALL REINFORCEMENT SHALL HAVE 3" COVER, UNLESS OTHERWISE NOTED.

THE CONCRETE SHALL BE PLACED IN THE EXCAVATION AGAINST UNDISTURBED EARTH.

THE MAST ARM SHALL NOT BE ERECTED ON THE FOUNDATION UNTIL THE CONCRETE IN THE SHAFT HAS ATTAINED A COMPRESSIVE STRENGTH,  $f_c$ , GREATER THAN OR EQUAL TO 4000 PSI.

THE COST OF THE FOUNDATION, INCLUDING THE EXCAVATION, CONCRETE, REINFORCEMENT, CASING AND WEEPHOLES, INCLUDING THE DESIGN AND FABRICATION, TO BE INCLUDED FOR PAYMENT UNDER THE ITEM "TRAFFIC CONTROL FOUNDATION - MAST ARM".

WHERE AN EXISTING CONCRETE SIDEWALK ABUTTING A FOUNDATION IS DAMAGED OR CUT DURING INSTALLATION, REPLACE THE ENTIRE SECTION. ALL SIDEWALK REPLACED DUE TO FOUNDATION INSTALLATION SHALL BE PAID FOR UNDER THE ITEM "CONCRETE SIDEWALK".

THE COST OF PREFORMED EXPANSION JOINT FILLER AND JOINT SEALANT SHALL BE INCLUDED FOR PAYMENT UNDER THE ITEM "CONCRETE SIDEWALK".

REV.	DATE	REVISION DESCRIPTION