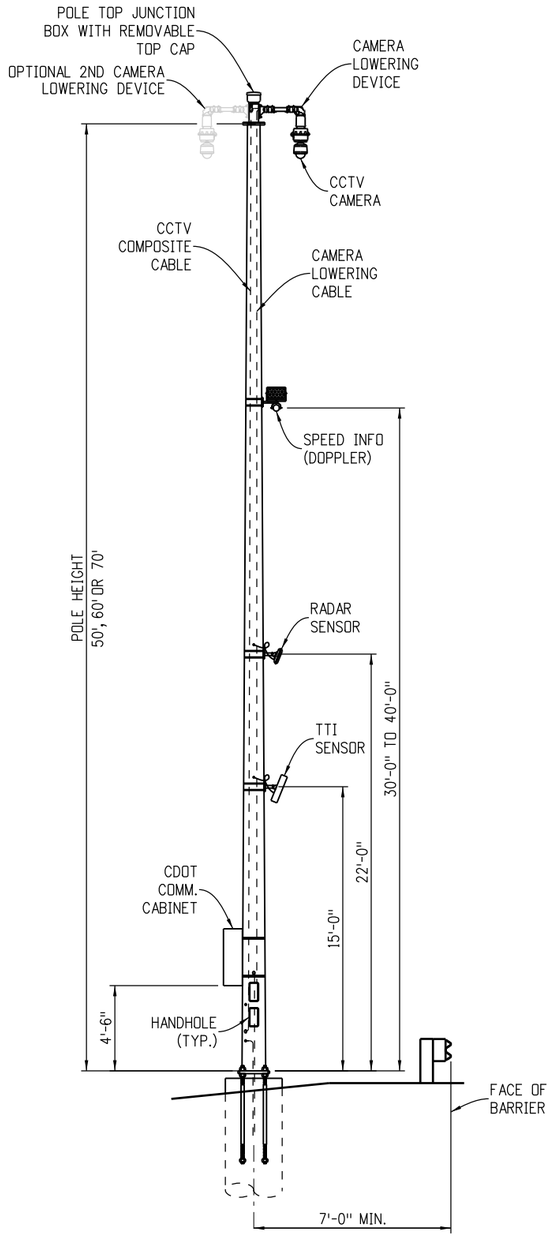

CCTV POLE
WITH LOWERING DEVICE

GENERAL NOTES

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS SHOWN IN THE MATERIALS TABLE.
2. POLES SHALL BE FABRICATED INTO THE LARGEST PRACTICAL SECTIONS PRIOR TO GALVANIZING. SPLICE LOCATIONS AND DETAILS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AND THE CONTRACTOR SHALL NOT COMMENCE FABRICATION UNTIL SUCH SPLICE LOCATIONS ARE APPROVED. THE MINIMUM LENGTH OF ANY TELESCOPIC (SLIP TYPE) FIELD SPLICES SHAL BE 1.5 TIMES THE INSIDE DIAMETER OF THE EXPOSED END OF THE FEMALE SECTION.
3. ALL CONCRETE SHALL BE CLASS BZ WITH AIR ENTRAINMENT; REINFORCING STEEL SHALL BE GRADE 60. CAISSON FOUNDATIONS SHALL REACH THE SEVEN DAY PREDICTED STRENGTH BEFORE POLES ARE ERECTED THEREON.
4. A DISCONNECT FOR THE POWER SUPPLY TO THE CAMERA SHALL BE PROVIDED AS SHOWN IN THE ROADWAY PLANS.
5. POLE SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH SECTION 614.10(c) AND THE NATIONAL ELECTRICAL CODE.
6. NPS = NOMINAL PIPE SIZE; O.D. = OUTSIDE DIAMETER.
7. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH SUBSECTION 105.02 OF THE STANDARD SPECIFICATIONS.
8. CAISSONS, POLES AND SURVEY WORK SHALL BE PAID FOR IN ACCORDANCE WITH BID ITEMS 503, 614 AND 625 RESPECTIVELY.
9. THERE SHALL BE NO PENETRATIONS OF POLES OTHER THAN AS SHOWN ON THESE PLANS UNLESS APPROVED BY THE ENGINEER PRIOR TO FABRICATION. PENETRATIONS FOR DEVICES SHALL BE SEALED WITH A WEATHERPROOF CABLE GROMMET.
10. ATTACH COMMUNICATIONS (COMM.) CABINET TO POST WITH TWO ¾" WIDE STAINLESS STEEL BANDS AND STAINLESS STEEL FLARED LEG BRACKETS WITH HEX HEAD BOLTS (BAND-IT D315 OR EQUIVALENT).
11. ALL PIPE MEMBERS SHALL BE HOT-DIP GALVANIZED INSIDE AND OUTSIDE AFTER FABRICATION AS PER ASTM A123, UNLESS PAINTING IS CALLED FOR ON THE PLANS. PAINTING SHALL CONFORM TO SECTION 522, DUPLEX COATING SYSTEM. ALL NUTS, BOLTS AND WASHERS FOR POLE STRUCTURES SHALL BE GALVANIZED AFTER FABRICATION AS PER ASTM A123 OR ASTM A153, AS APPROPRIATE, AND SHALL NOT BE PAINTED.

DESIGN DATA

SPECIFICATIONS:

DESIGN: "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (2013 AASHTO).

WIND DESIGN: 110 MPH VELOCITY (3-SECOND GUST)
1" MAXIMUM POLE TOP DEFLECTION @ 30 MPH VELOCITY (NO GUST FACTOR)

FATIGUE DESIGN: COMBINED WIND EFFECT STATIC LIMIT-STATE PRESSURE RANGE = 6.5 PSF APPLIED TO POLE AND ATTACHMENTS

LOADINGS:
1. TOP OF POLE: 5.00 SF EPA, 210 LB
2. 40' FROM BASE: 2.00 SF EPA, 30 LB
3. 22' FROM BASE: 1.50 SF EPA, 5 LB
4. 15' FROM BASE: 3.50 SF EPA, 10 LB
5. 6' FROM BASE: 10.00 SF EPA, 100 LB

CONSTRUCTION: CDOT STANDARD SPECIFICATIONS, THESE SHEETS AND PROJECT PLANS.

CCTV POLE WITH LOWERING DEVICE X-SECTION SHEET(S) SHALL SHOW:

1. POLE LOCATION (HIGHWAY, STATION AND DIRECTION)
2. OFFSET FROM SHOULDER
3. POLE HEIGHT
4. CAISSON DIAMETER AND MINIMUM EMBEDMENT
5. TOP OF CAISSON ELEVATION
6. CAISSON PAY LENGTH
7. STATIONS AND OFFSETS TO CAISSON
8. GUARDRAIL PROTECTION LIMITS
9. LOCATION OF DISCONNECT FOR THE POWER SUPPLY
10. LOCATION OF REMOTE ACCESS CABINET ON POLE
11. AS CONSTRUCTED BLOCK

GENERAL NOTES (CONTINUED)

12. WELDING OF STEEL SHALL CONFORM TO THE REQUIREMENTS OF AWS D 1.1. ALL AREAS TO BE WELDED SHALL BE GROUND TO BRIGHT METAL. NO BUTT WELD SPLICES WILL BE PERMITTED. ALL WELDING AND REQUIRED TESTING SHALL BE COMPLETE BEFORE ANY MATERIAL IS GALVANIZED.

    ENHANCED MAGNETIC PARTICLE TESTING SHALL BE PERFORMED ON AREAS DEFINED IN AWS D1.1 AND HEREIN. ENHANCED MAGNETIC PARTICLE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH ASTM E 709 AND AWS D 1.1, EXCEPT AS AMENDED HEREIN. ALTERNATING CURRENT SHALL BE USED. THE YOKE SPACING SHALL BE BETWEEN 2 AND 4 INCHES. THE MINIMUM LIFTING POWER SHALL BE 10 LBS. RED DRY PARTICLES SHALL BE USED. THE LIGHT INTENSITY SHALL MEET ASTM E 709, SECTION 7. PARTICLE APPLICATION AND SPECIMEN PREPARATION SHALL MEET THE REQUIREMENTS OF ASTM E 709 SECTIONS 9 AND 15, EXCEPT WHITE NON-AQUEOUS DEVELOPER MEETING ASTM E 165, TYPE 3, SHALL BE APPLIED TO THE TEST SURFACE PRIOR TO TESTING.

    THE YOKES SHALL BE SET IN TWO POSITIONS WHEN TESTING THE WELD OR BASE METAL. THEY SHALL BE POSITIONED BOTH NORMAL AND PARALLEL WITH RESPECT TO THE WELD AXIS AND ROLLING DIRECTION OF THE BASE METAL.

    ENHANCED MAGNETIC PARTICLE TESTS SHALL BE PERFORMED AT THE FOLLOWING LOCATIONS:

    (1) BASE METAL. ALL AREAS CONTACTED BY THE CARBON ARC GOUGE ELECTRODE, THE ELECTRODE CUP, AND THE WELDING ELECTRODE. ALL THREE CONDITIONS ARE ARC STRIKES.

    (2) FILLET WELDS. EACH DESIGN WELD SIZE ON MAIN MEMBER TO MAIN MEMBER AND SECONDARY MEMBER TO MAIN MEMBER WELDMENTS. ALL STOP-STARTS AND WELD TERMINI. ALL LINEAR INDICATIONS SHALL FURTHER BE EVALUATED WITH 10X OR 30X MAGNIFICATION. VERIFICATION SHALL BE RESOLVED BY EXCAVATION.

    (3) GROOVE WELDS. ALL THROUGH THICKNESS EDGES ON TRANSVERSE BUTT JOINT WELDMENTS IN TENSION AREAS.

    (4) REPAIRS. ALL REPAIR WELDS TO CORRECT DEFECTS IN GROOVE AND FILLET WELDS, PLATE CUT EDGES, CORRECTION OF FABRICATION ERRORS IN CUTTING, PUNCHING, DRILLING, OR FITTING, AND MEMBERS WHICH ARE TACKED OR WELDED AND SUBSEQUENTLY CUT APART AND REWELDED.

13. ALL CIRCUMFERENTIAL AND ALL LONGITUDINAL PIPE SEAM WELDS WITHIN 5" OF FULL PENETRATION CIRCUMFERENTIAL GROOVE WELDS SHALL BE FULL PENETRATION GROOVE WELDS AND SHALL BE INSPECTED AS SPECIFIED HEREIN. THE ACCEPTABLE MAXIMUM WELD UNDERCUT IS 0.01".

MATERIALS

COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POSTS SHAFT	A595 GR. A OR A572	55
BASE PLATES	A36	36
POLE TOP PLATE	A36	36
TENON - D.O.M. TUBING	---	50
ANCHOR BOLTS	F1554 GR. 55	55
H.S. BOLTS	A325	---
H.S. NUTS	A563	---
WASHERS	F436	---
GALVANIZING	A123 & A153	---

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Unit Information Unit Leader Initials			

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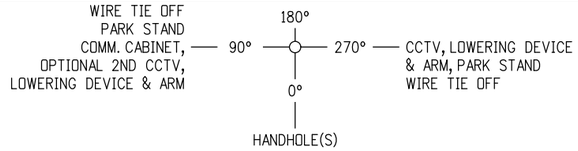
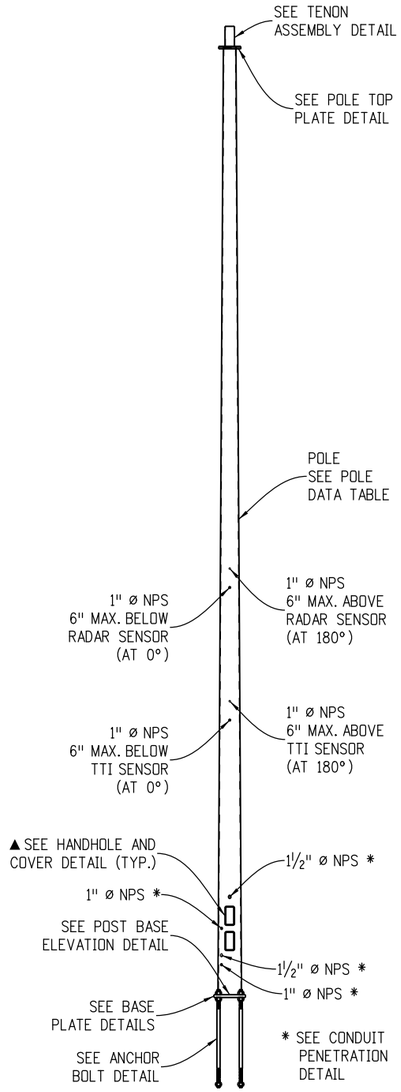
HQ ITS Branch JKS

As Constructed	CCTV POLE WITH LOWERING DEVICE			Project No./Code
No Revisions:				
Revised:	Designer: MDF	Structure Numbers		
Void:	Detailer: JRM			Sheet Number
	Sheet Subset: ITS	Subset Sheets: 1 of 4		

- POLE DETAILS (1) -

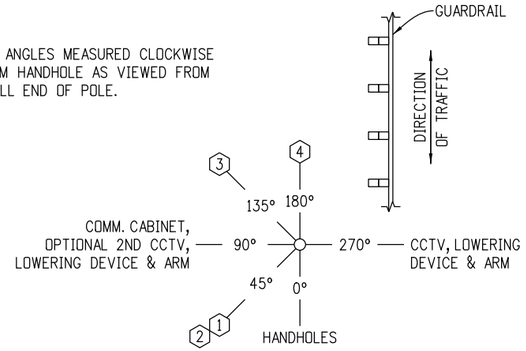


ORIENTATION VIEW
(DEVICES)

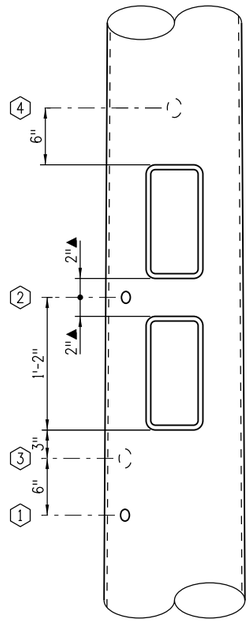


POST ELEVATION

ALL ANGLES MEASURED CLOCKWISE FROM HANDHOLE AS VIEWED FROM SMALL END OF POLE.



ORIENTATION VIEW
(PENETRATIONS)

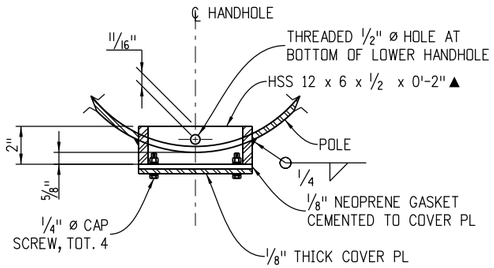


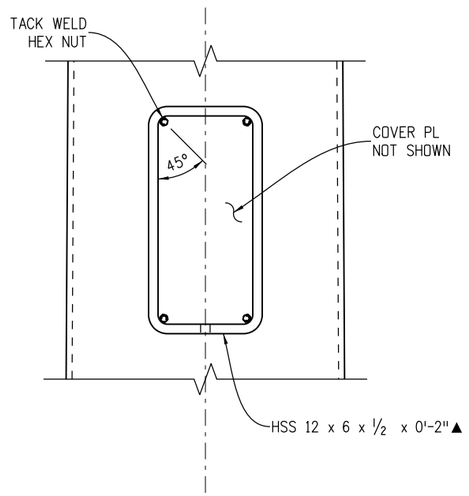
1 AND 2 1" ø NPS
3 AND 4 1½" ø NPS

PLUG ALL THREADED PENETRATIONS WITH RECESSED PLUGS

CONDUIT PENETRATION DETAIL

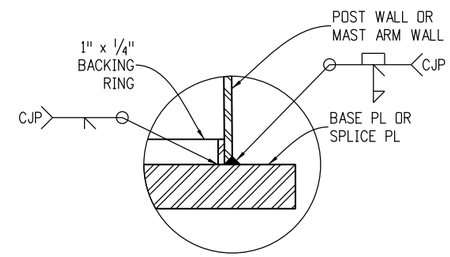
POLE DATA			
POLE HEIGHT (FT)	BASE DIAMETER (IN)	TOP DIAMETER (IN)	WALL THICKNESS (IN)
50'	15.00	8.00	0.3125
60'	19.00	10.60	0.3125
70'	24.00	14.20	0.3750



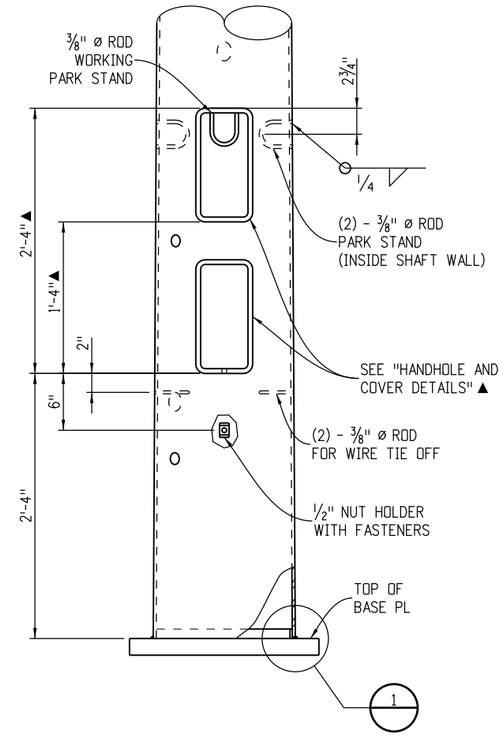


HANDHOLE AND COVER DETAILS

▲ A SINGLE HANDHOLE MAY BE SUBSTITUTED FOR THE TWO HANDHOLES SHOWN. THE SINGLE HANDHOLE DIMENSIONS SHALL BE AT THE LIMITS AND LOCATION SHOWN.



DETAIL 1



POST BASE ELEVATION

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Unit Information Unit Leader Initials						Void:	Detailer: JRM			Sheet Number
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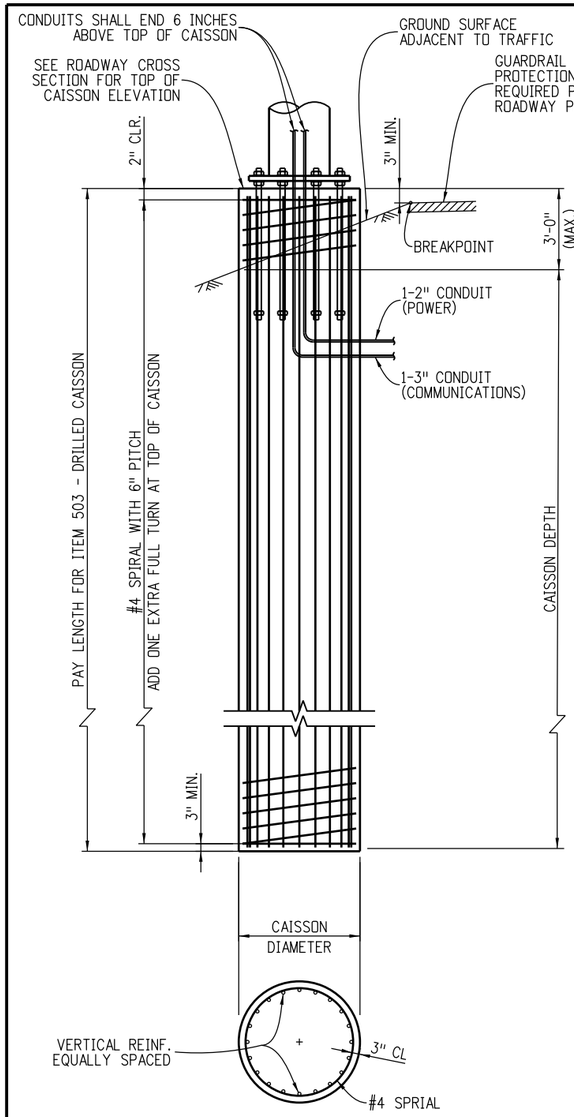
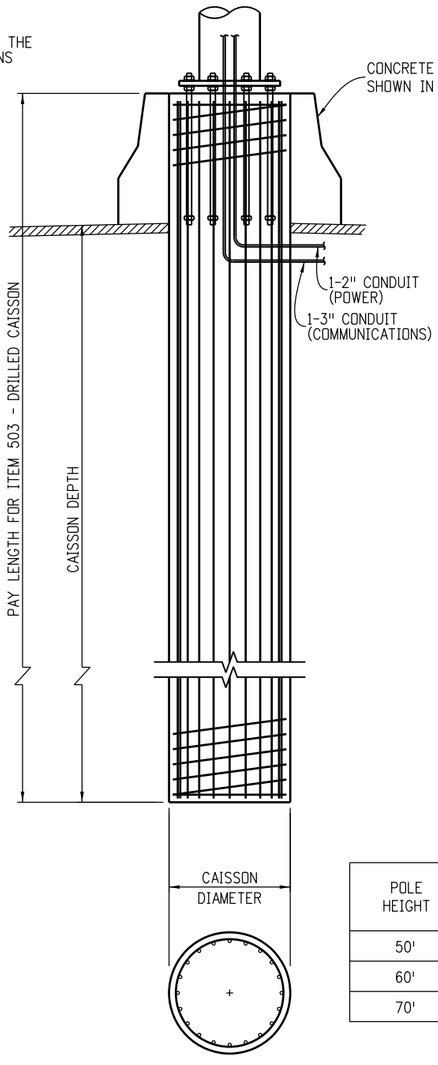
- FOUNDATION DETAILS -



ROADSIDE SHOULDER INSTALLATION

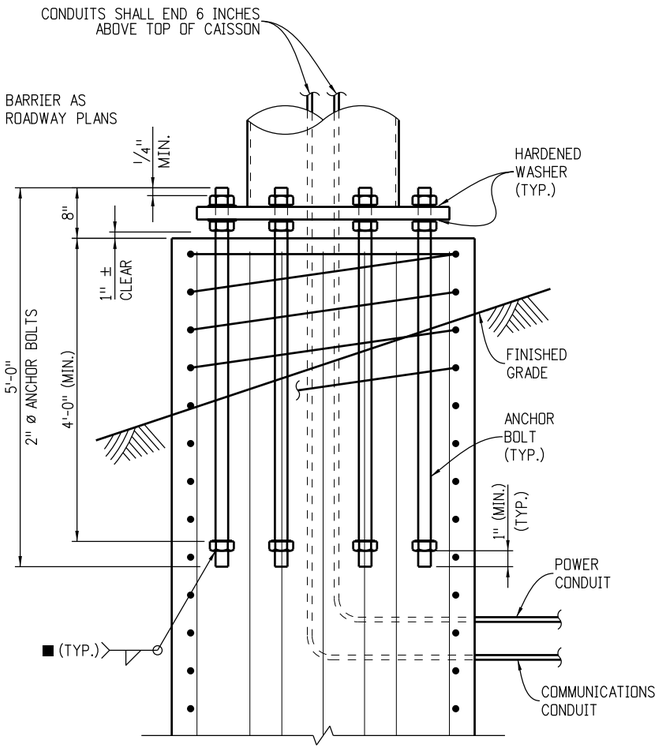


MEDIAN RAIL INSTALLATION

(SEE ROADSIDE SHOULDER INSTALLATION FOR ADDITIONAL INFORMATION)

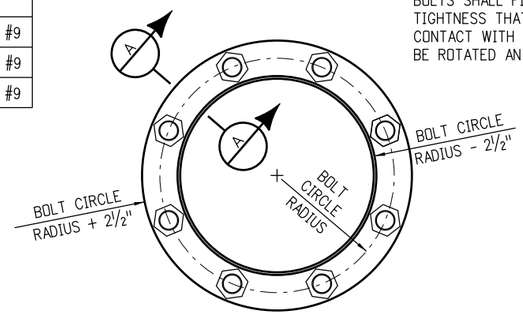
POLE HEIGHT	PIPE O.D. AT BASE (IN)	CAISSON DIAMETER (IN)	CAISSON DEPTH (FT)	VERTICAL REINF.
50'	15	36	15	12 - #9
60'	19	42	18	14 - #9
70'	24	48	21	18 - #9

CAISSON FOUNDATION DETAILS



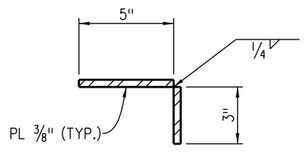
ANCHOR BOLT DETAIL

■ WELDING PROCEDURE IS NOT REQUIRED FOR THIS WELD



BOLT TEMPLATE

(8 BOLT SHOWN, 4 BOLT SIMILAR)



SECTION A

CAISSON DRILLING AND INSTALLATION NOTES

1. CAISSONS SHALL BE PLACED AGAINST UNDISTURBED EARTH. WET OR CAVING HOLES SHALL BE BACKFILLED WITH FLOW-FILL AND REDRILLED AFTER A THREE DAY CURING PERIOD WITHOUT THE USE OF A CASING; OR OTHER METHOD APPROVED BY THE ENGINEER.

2. THE DESIGN HEREIN ASSUMES THAT POLE SUPPORTS ARE INSTALLED WITHIN THE ROADWAY PRISM WITH THE FOLLOWING SOIL PARAMETERS:

   SOIL DENSITY = 110 LB./CU. FT.
   SOIL COHESION = 750 LB./SQ. FT. FOR MEDIUM STIFF COHESIVE SOIL
   SOIL ϕ ANGLE = 30° FOR MEDIUM DENSE COHESIONLESS SOIL
   SF = 3.0 FOR FLEXURAL RESISTANCE.

3. CONTACT THE ENGINEER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:
   (A) POLE SUPPORT WILL NOT BE INSTALLED WITHIN THE ROADWAY PRISM.
   (B) THE SOIL HAS A HIGH ORGANIC CONTENT OR CONSISTS OF SATURATED SILT AND CLAY.
   (C) THE SITE WON'T SUPPORT THE WEIGHT OF THE DRILLING RIG.
   (D) THE FOUNDATION SOILS ARE NOT HOMOGENOUS.
   (E) FIRM BEDROCK IS ENCOUNTERED.
   (F) HIGH GROUNDWATER IS ENCOUNTERED.
   (G) LARGE BOULDERS ARE ENCOUNTERED.

4. WHEN THE PLANS INCLUDE ITEM 625 - CONSTRUCTION SURVEYING, THE CONTRACTOR SHALL PROVIDE A SURVEY OF THE POLE FOUNDATION TO VERIFY PLACEMENT SOON AFTER WORK ON THE FOUNDATION HAS BEEN COMPLETED. THE SURVEY SHALL CONFORM TO THE REQUIREMENTS OF SECTION 625 - CONSTRUCTION SURVEYING. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A COPY OF THE SURVEY NOTES DETAILING THE FOUNDATION LOCATION AND ELEVATION AND THE ANCHOR BOLT LOCATIONS, PROJECTIONS, AND ORIENTATIONS. THE ELEVATION OF THE GROUND SURROUNDING THE FOUNDATION SHALL ALSO BE PROVIDED. THE CONTRACTOR SHALL COMPARE THE SURVEY INFORMATION TO THE REVIEWED SHOP DRAWINGS AND RECONCILE ANY DIFFERENCES BETWEEN THEM. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED ADJUSTMENTS OR MODIFICATIONS TO THE ENGINEER FOR APPROVAL.

NOTES

1. THREAD UPPER 8" AND GALVANIZE UPPER 1'-0" OF THE ANCHOR BOLTS.

2. ANCHOR BOLTS SHALL BE SET WITH A STEEL TEMPLATE UNTIL THE CONCRETE HAS CURED AT LEAST TWO DAYS.

3. THERE SHALL BE NO GROUT PAD INSTALLED ON TOP OF THE EXISTING FOUNDATIONS.

4. THE ANCHOR BOLTS SHALL BE TIGHTENED USING THE TURN-OF-NUT METHOD. THE BOLTS SHALL FIRST BE TIGHTENED TO SNUG TIGHT, WHICH IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE UPPER AND LOWER NUTS/WASHERS ARE IN FIRM CONTACT WITH THE BASE PLATE. THE UPPER AND LOWER NUTS SHALL EACH THEN BE ROTATED AN ADDITIONAL ⅓ TURN (30° ± 5°) USING A SLUGGING WRENCH.

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CCTV POLE WITH LOWERING DEVICE

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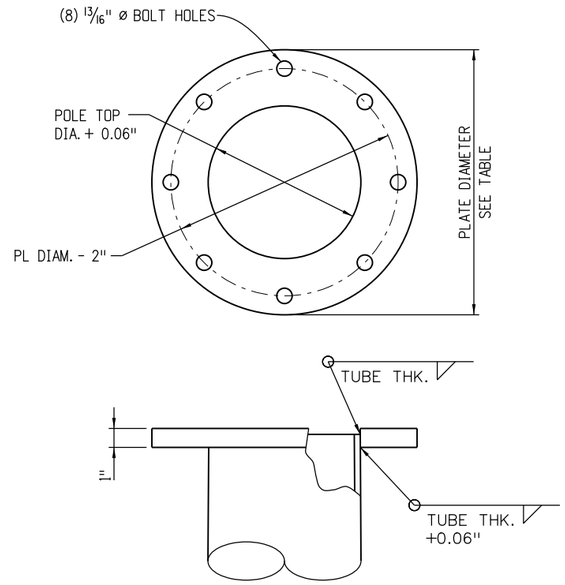
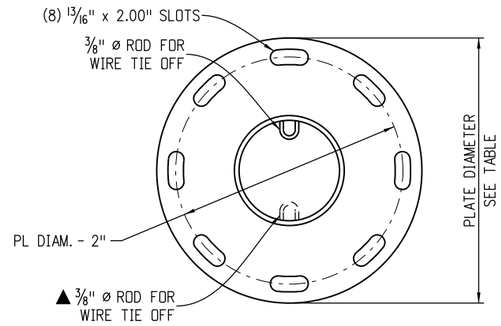
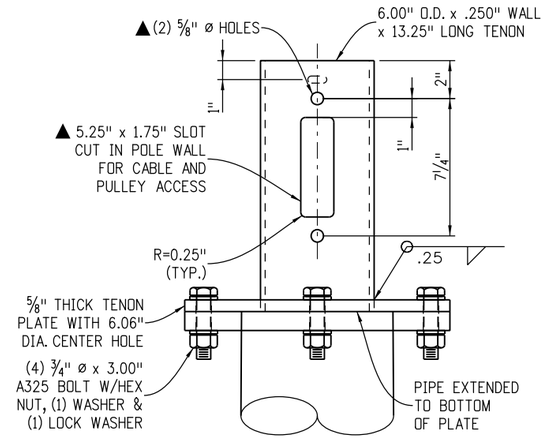
TENON/TOP PLATE	
POLE HEIGHT (FT)	PLATE DIAMETER (IN)
50'	14.00
60'	18.00
70'	22.00



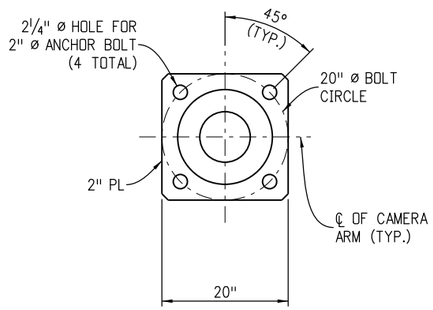
POLE TOP PLATE



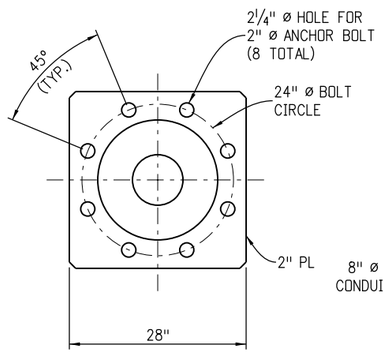


TENON ASSEMBLY

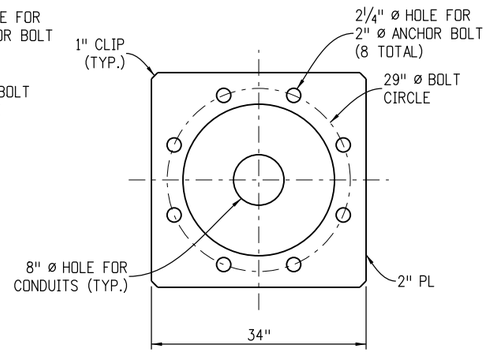
▲ PROVIDE FOR 2ND OPTIONAL CAMERA LOWERING DEVICE



50' POLE



60' POLE



70' POLE

BASE PLATE DETAILS

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