

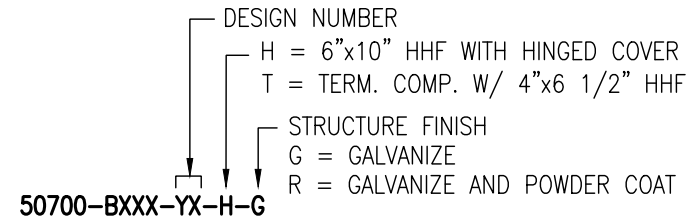
TOP OF POLE DETAIL
ORIENTATION OF PIPE &
J-HOOK AS REQUIRED

QTY	UMIC DESIGN NUMBER	POLE TYPE	POLE HEIGHT (B)	POLE SHAFT DATA												ARM CONNECTION DATA							
				WALL THICKNESS (in)	LARGE DIAMETER (in)	SMALL DIAMETER (in)	SHAFT LENGTH (ft)	WELD TYPE	A. BOLT QTY.	BC (in)	S (in)	F (in)	P (in)	BPL (in)	øCB (in)	GUSSET THK G (in)	X (in)	Y1 (in)	Y2 (in)	W (in)	H (in)	PPL (in)	BOLT ø (in)
	50700-B2141-Y1	A-6	19'-6"	.25 (3 GA)	17.00	14.27	19.50	SOCKET	6	22.00	28.00	11.00	10.00	2.00	17.00	0.312	20.00	10.00	18.00	24.50	22.50	1.50	1.50
	50700-B2141-Y2	A	19'-6"	.25 (3 GA)	17.00	14.27	19.50	SOCKET	8	24.00	30.00	9.18	10.00	2.00	17.00	0.312	20.00	10.00	18.00	24.50	22.50	1.50	1.50
	50700-B2141-Y3	B1	19'-6"	.31 (0 GA)	20.75	18.02	19.50	FP	8	27.50	33.50	10.52	10.50	2.50	18.00	0.500	25.50	12.00	20.00	30.00	24.50	2.25	1.50
	50700-B2141-Y4	B2	19'-6"	.31 (0 GA)	22.00	19.27	19.50	FP	8	27.50	33.50	10.52	10.50	2.50	18.00	0.500	25.50	12.00	20.00	30.00	24.50	2.25	1.50
	50700-B2141-Y5	D-6	25'-0"	.25 (3 GA)	17.00	13.50	25.00	SOCKET	6	22.00	28.00	11.00	10.00	2.00	17.00	0.312	20.00	10.00	18.00	24.50	22.50	1.50	1.50
	50700-B2141-Y6	D	25'-0"	.25 (3 GA)	17.00	13.50	25.00	SOCKET	8	24.00	30.00	9.18	10.00	2.00	17.00	0.312	20.00	10.00	18.00	24.50	22.50	1.50	1.50
	50700-B2141-Y7	E1	25'-0"	.31 (0 GA)	20.75	17.25	25.00	FP	8	27.50	33.50	10.52	10.50	2.50	18.00	0.500	25.50	12.00	20.00	30.00	24.50	2.25	1.50
	50700-B2141-Y8	E2	25'-0"	.31 (0 GA)	22.00	18.50	25.00	FP	8	27.50	33.50	10.52	10.50	2.50	18.00	0.500	25.50	12.00	20.00	30.00	24.50	2.25	1.50

3 GA = 0.250" WALL THICKNESS
0 GA = 0.313" WALL THICKNESS
E = ROUND TAPERED STEEL TUBE @ 0.14 in/ft TAPER

FP = FULL PEN. WELD. SEE DETAIL.

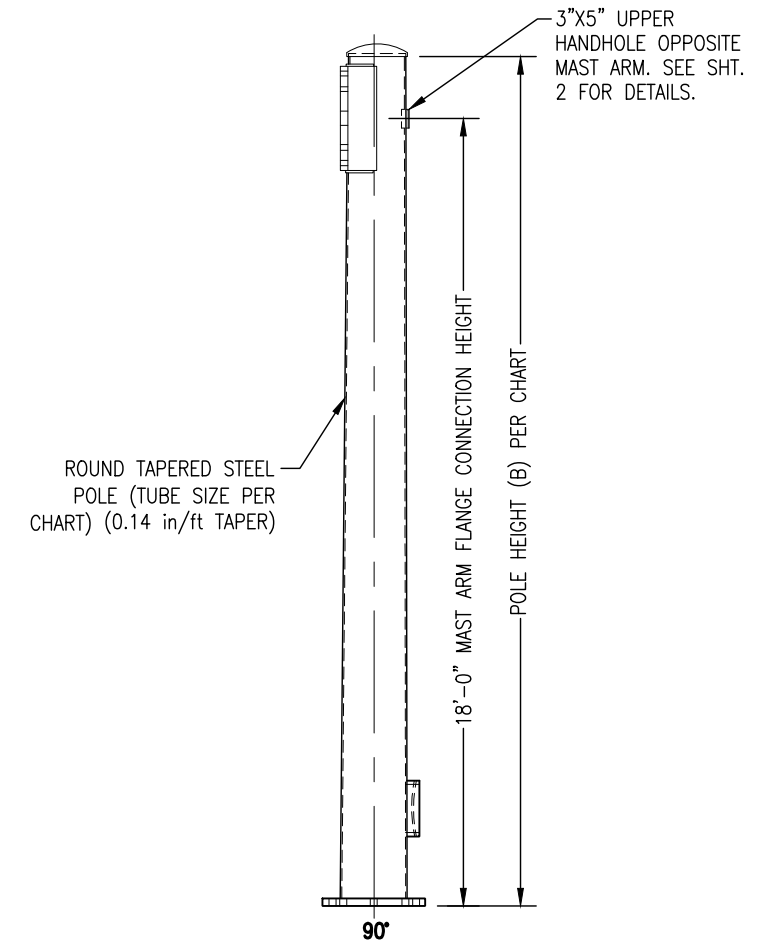
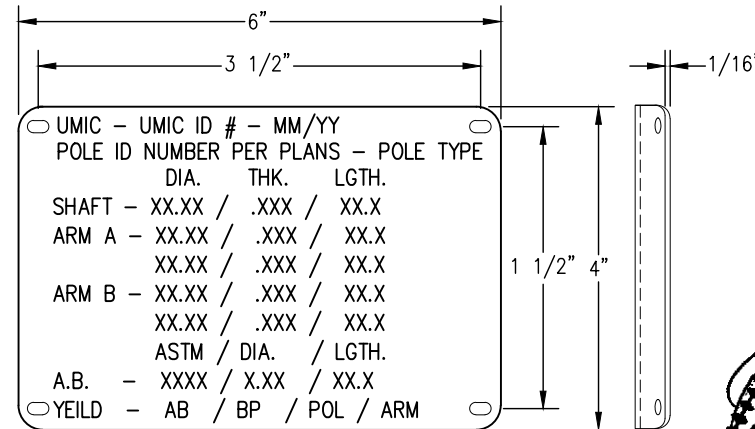
ORDERING INFORMATION: SPECIFY OPTIONS BELOW WHEN ORDERING



DESIGN CRITERIA:

- DESIGNED FOR 90 MPH WIND ZONE IN ACCORDANCE WITH 2013 AASHTO 6TH EDITION (LTS-6) APPENDIX C WITH 2015 INTERIM REVISIONS "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" TO SUPPORT FIXED LOADS WITH AREAS SHOWN AND VDOT 2020 ROAD AND BRIDGE SPECIFICATIONS, AND SPECIAL PROVISIONS FOR SECTION 700.
-
- THE MAXIMUM DISTANCE BETWEEN THE BOTTOM OF THE LEVELING NUT AND THE TOP OF THE FOUNDATION SHALL BE ONE INCH (1").
- ANCHOR BOLT ANALYZED FOR STEEL STRENGTH ONLY. THE ANCHOR BOLT EMBEDMENT LENGTH SHOWN ON THIS DRAWING SHALL BE VERIFIED BY THE FOUNDATION ENGINEER.
- REFER TO VDOT SPECIFICATIONS REGARDING CONNECTION AND TIGHTENING OF ANCHOR BOLT HARDWARE.
- CUSTOMER TO CONFIRM ALL DIMENSIONS & ORIENTATIONS BEFORE RELEASING ORDER FOR MANUFACTURING.
- SEE DRAWING 50700-B2143 FOR MAST ARMS.
- SEE DRAWING 21-B41 FOR LUMINAIRE ARM

4" x 6" ALUMINUM I.D. TAG WITH (4) SELF TAPPING S.S. #7 x 3/8" SCREWS (4) ø0.136" HOLES DRILLED IN POLE, SECURED TO OUTSIDE OF POLE, ABOVE HANDHOLE & STAMPED WITH THE FOLLOWING INFORMATION:

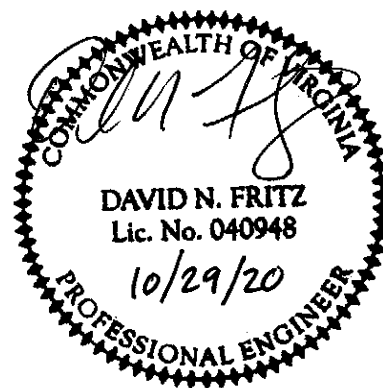


VIRGINIA DEPARTMENT OF TRANSPORTATION
C.O. STRUCTURE AND BRIDGE
REVIEW OF WORKING DRAWINGS

Working drawings have been reviewed in accordance with Section 105.10 of the Specifications with the following comments.

Reviewed Revise and Resubmit
 Reviewed as Noted

Reviewed by: Karl Larson 11/19/2020



REV	DESCRIPTION	DATE	REV BY	CHK BY
R3	LOWER HAND HOLE DETAILS, NAMEPLATE REVISED PER VDOT, UPDATED DESIGN CRITERIA TO 2020 R&B, ADDED DTI WASHERS, ADDED CB DIMENSION TO CHART FOR ALL DESIGNS.	6/25/20	MZ	KS
R2	3"x5" HANDHOLE ON POLE TYPES D-6, D, E1, & E2 ONLY	12/14/18	NG	NG
R1	CAULK TOP OF BACKUP RING FOR BUTT ø < 18"	10/17/18	NG	NG

MATERIAL SPECIFICATIONS

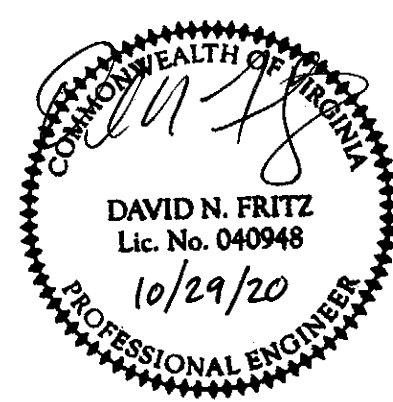
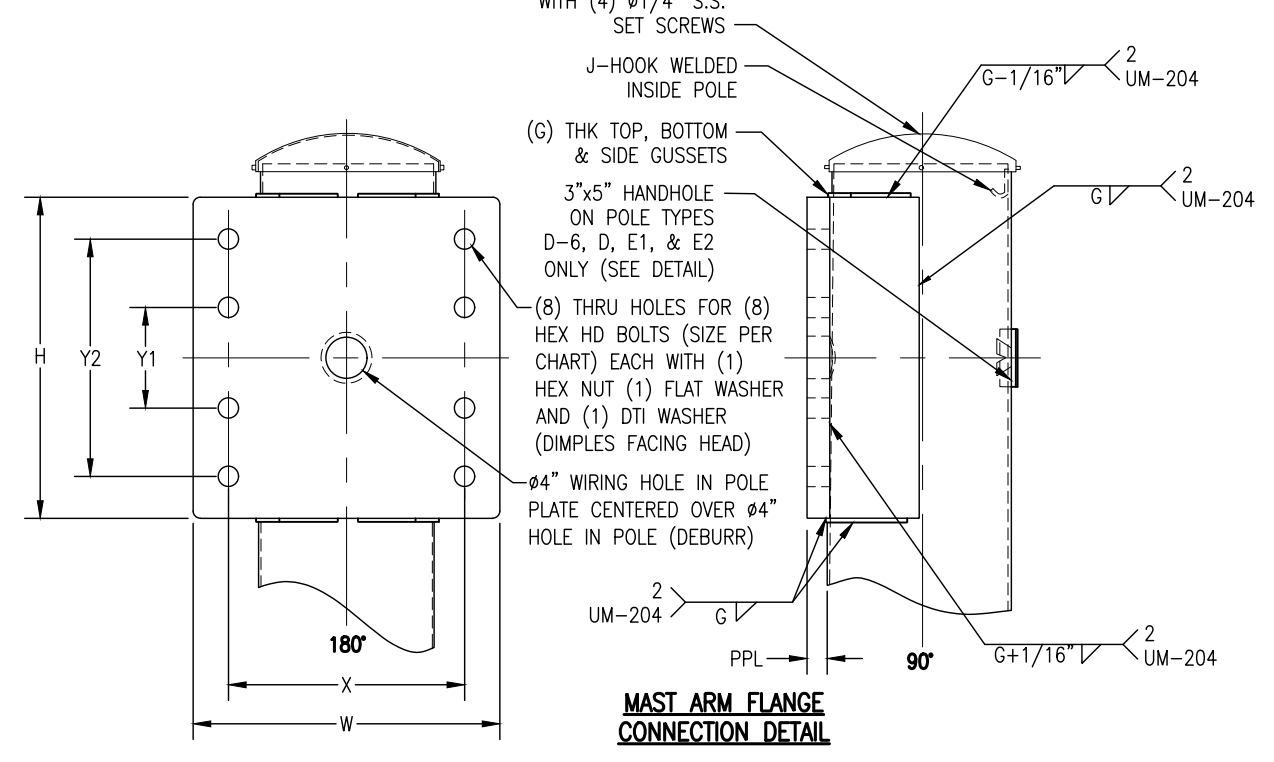
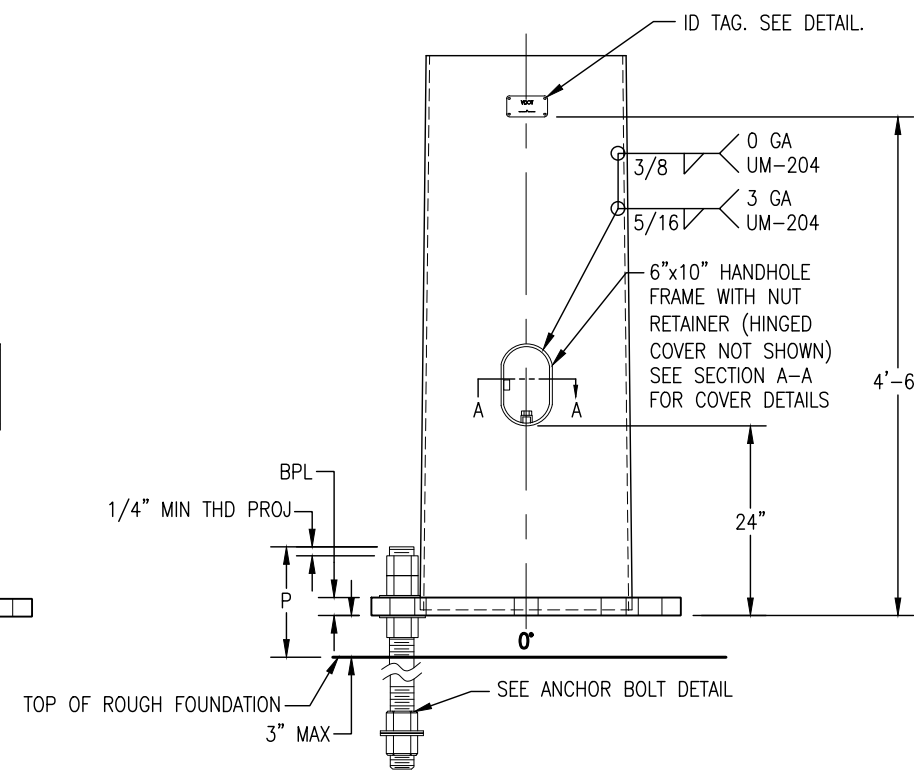
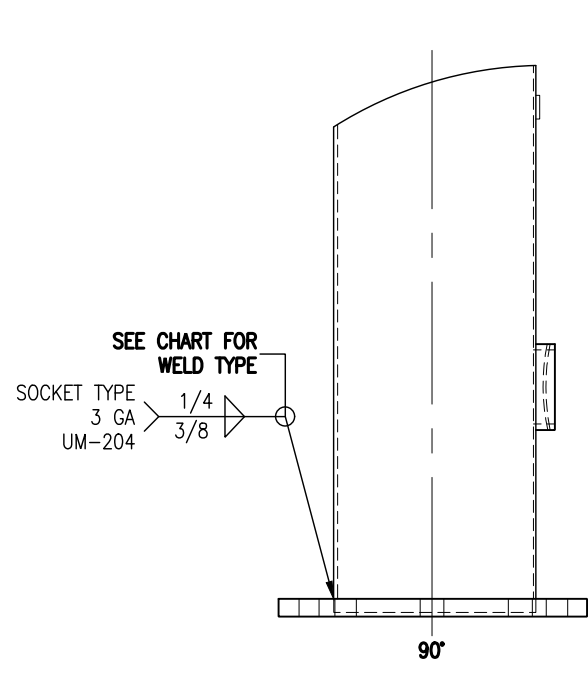
TAPERED TUBE	ASTM A595 GR A
PLATE	ASTM A36
BAR HANDHOLE FRAME	ASTM A529 GR 50 or ASTM A572 GR 50 or ASTM A709 GR 50
HANDHOLE COVER	ASTM A1011 or A36
ANCHOR BOLTS	ASTM F1554 GR 55
ANCHOR BOLT NUTS	ASTM A563 GR DH
FLAT WASHERS	ASTM F436 TYPE 1
DTI WASHERS	ASTM F2437 TYPE 2 GR 5
POLE TOP	ASTM A1011
PIPE	ASTM A53 GR B or A500 GR B
S.S. HARDWARE	AISI-300 SERIES (18-8)
STRUCTURE FINISH	PER SALES ORDER
HARDWARE FINISH	HD GALV TO ASTM A153

PROJECT INFORMATION

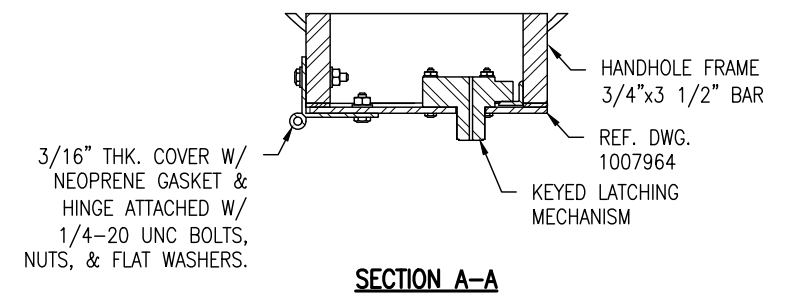
CONTRACT ID NUMBER	
PROJECT NAME	

STATE: VA	REQ# / SO# : VA-62118	REV	
PROJECT NAME: VDOT STANDARDS	REVISIONS		
ROUND TAPERED STEEL TRAFFIC CONTROL STRUCTURES (POLES FOR SINGLE MAST ARM) - 90 MPH FOR VIRGINIA DEPARTMENT OF TRANSPORTATION			
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	A regular and periodic system of inspections and maintenance must be performed by qualified technicians to ensure ongoing safety for all UMI pole structures.	NGM	KMS
		DATE	SCALE
		8/16/18	NTS
		ENG REF	50700-B1930
		REVISION	R3.0
		SHEET	1 OF 3

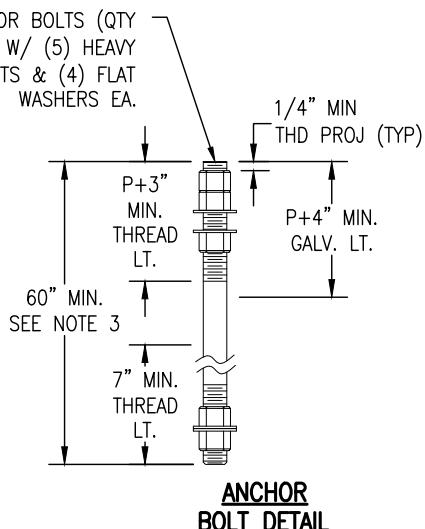
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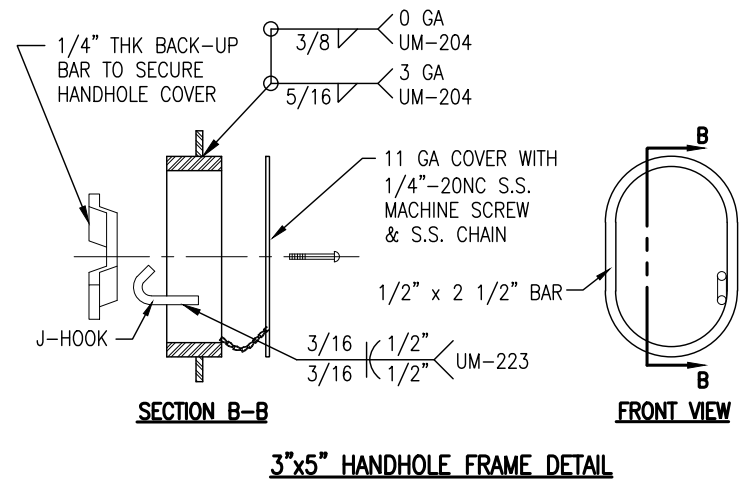
POLE BASE CONNECTION DETAIL
6"x10" HHF W/ HINGED COVER



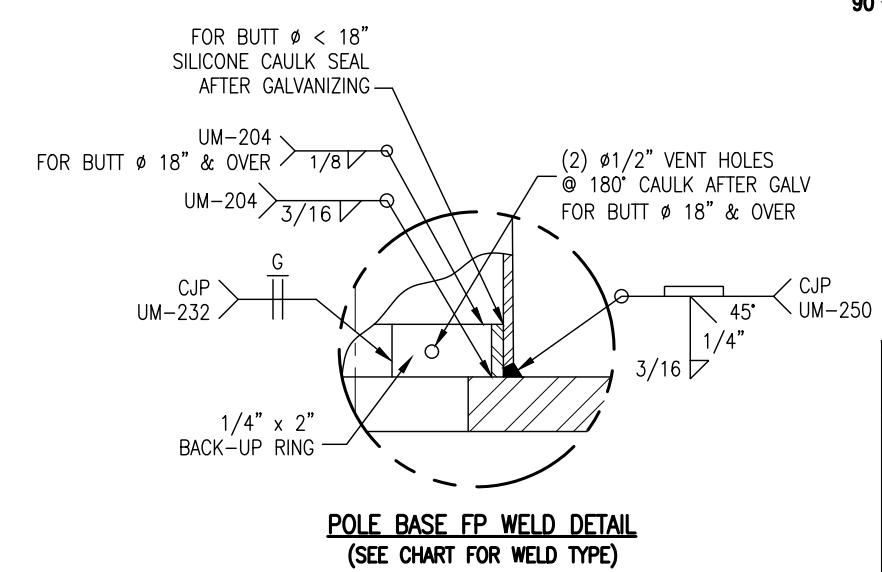
VIRGINIA DEPARTMENT OF TRANSPORTATION
C.O. STRUCTURE AND BRIDGE
REVIEW OF WORKING DRAWINGS
 Working drawings have been reviewed in accordance with Section 105.10 of the Specifications with the following comments.
 Reviewed Revise and Resubmit
 Reviewed as Noted
 Reviewed by: Karl Larson 11/19/2020



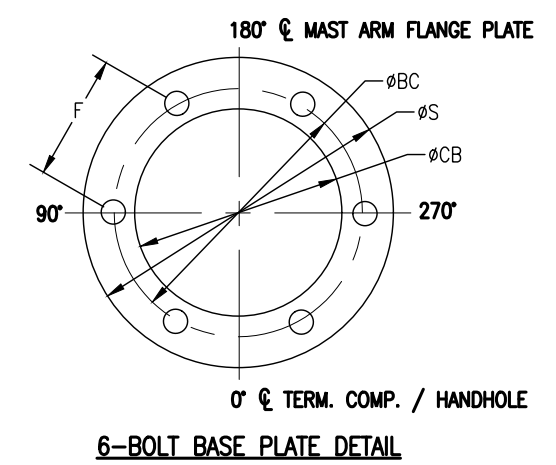
ANCHOR BOLT DETAIL



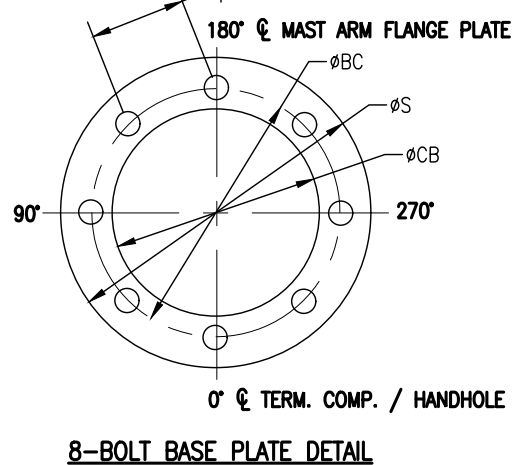
3"x5" HANDHOLE FRAME DETAIL



POLE BASE FP WELD DETAIL
(SEE CHART FOR WELD TYPE)



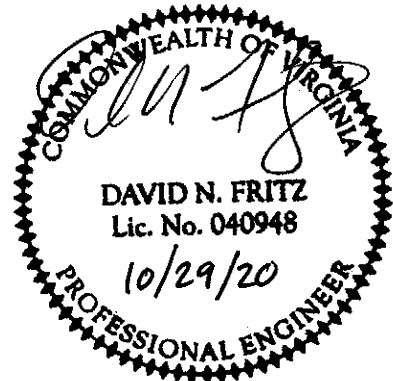
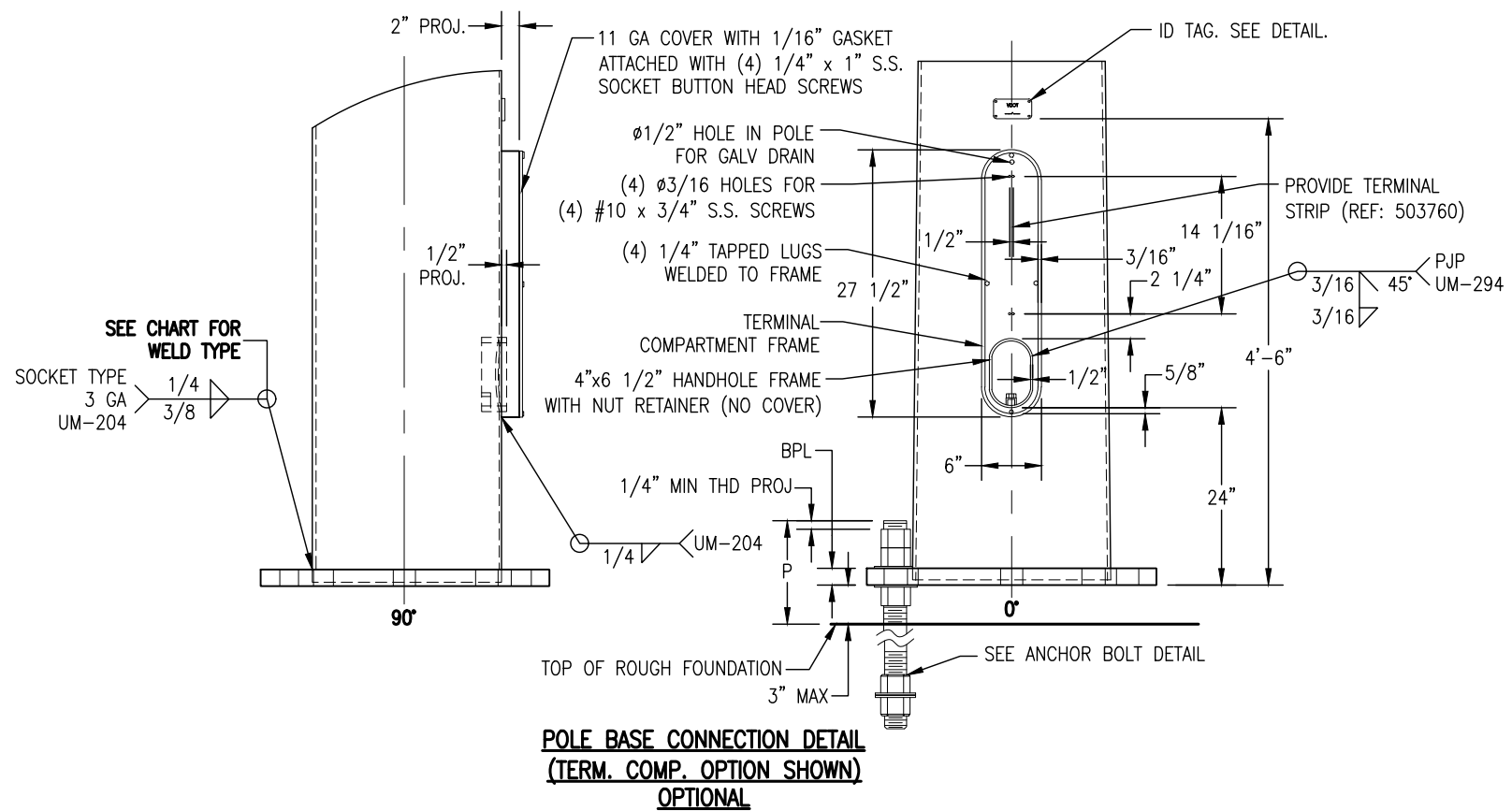
6-BOLT BASE PLATE DETAIL



8-BOLT BASE PLATE DETAIL

STATE: VA	REQ# / SO#: VA-62118	REV	DESCRIPTION	DATE	REV BY/CHK BY
PROJECT NAME: VDOT STANDARDS			REVISIONS		
ROUND TAPERED STEEL TRAFFIC CONTROL STRUCTURES (POLES FOR SINGLE MAST ARM) - 90 MPH FOR VIRGINIA DEPARTMENT OF TRANSPORTATION					
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	A regular and periodic system of inspections and maintenance must be performed by qualified technicians to ensure ongoing safety for all UMI pole structures.	NMG	KMS	8/16/18	NTS
50700-B2141			REVISION	SHEET	
			R3.0	2 OF 3	

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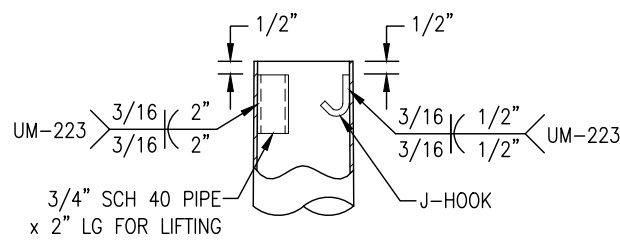
VIRGINIA DEPARTMENT OF TRANSPORTATION
 C.O. STRUCTURE AND BRIDGE
 REVIEW OF WORKING DRAWINGS

Working drawings have been reviewed in accordance with Section 105.10 of the Specifications with the following comments.

Reviewed Revise and Resubmit
 Reviewed as Noted

Reviewed by: Karl Larson 11/19/2020

STATE: VA	REQ# / SO#: VA-62118	REV	DESCRIPTION	DATE	REV BY/CHK BY
PROJECT NAME: VDOT STANDARDS			REVISIONS		
ROUND TAPERED STEEL TRAFFIC CONTROL STRUCTURES (POLES FOR SINGLE MAST ARM) - 90 MPH FOR VIRGINIA DEPARTMENT OF TRANSPORTATION					
UNION METAL INDUSTRIES CORPORATION	This document and the contents herein are proprietary and the property of Union Metal Industries. This document is not to be, copied, reproduced, or used for any reason except for the purposes which it was issued without the express written consent of Union Metal Industries. Furthermore Union Metal Industries reserves the right to recall this document and all copies at any time for any reason.		DESIGNED BY NMG	CHECKED BY KMS	DATE 8/16/18
	A regular and periodic system of inspections and maintenance must be performed by qualified technicians to ensure ongoing safety for all UMI pole structures.		SCALE NTS	ENG REF 50700-B1930	
			50700-B2141	REVISION R3.0	SHEET 3 OF 3



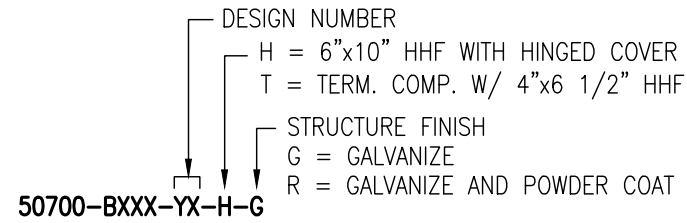
TOP OF POLE DETAIL
ORIENTATION OF PIPE &
J-HOOK AS REQUIRED

QTY	UMIC DESIGN NUMBER	POLE TYPE	POLE HEIGHT (B)	POLE SHAFT DATA											ARM CONNECTION DATA								
				WALL THICKNESS (in)	LARGE DIAMETER (in)	SMALL DIAMETER (in)	SHAFT LENGTH (ft)	WELD TYPE	A. BOLT QTY.	BC (in)	S (in)	F (in)	P (in)	BPL (in)	øCB (in)	GUSSET THK G (in)	X (in)	Y1 (in)	Y2 (in)	W (in)	H (in)	PPL (in)	BOLT ø (in)
	50700-B2142-Y1	C	19'-6"	.31 (0 GA)	22.00	19.27	19.50	FP	8	27.50	33.50	10.52	10.50	2.50	18.00	0.500	25.50	12.00	20.00	30.00	24.50	2.25	1.50
	50700-B2142-Y2	F	25'-0"	.31 (0 GA)	22.00	18.50	25.00	FP	8	27.50	33.50	10.52	10.50	2.50	18.00	0.500	25.50	12.00	20.00	30.00	24.50	2.25	1.50

0 GA = 0.313" WALL THICKNESS
E = ROUND TAPERED STEEL TUBE @ 0.14 in/ft TAPER

FP = FULL PEN. WELD. SEE DETAIL.

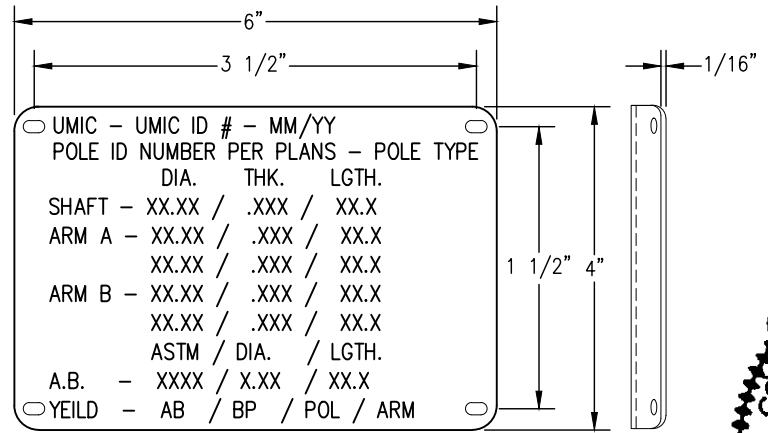
ORDERING INFORMATION: SPECIFY OPTIONS BELOW WHEN ORDERING



DESIGN CRITERIA:

- DESIGNED FOR 90 MPH WIND ZONE IN ACCORDANCE WITH 2013 AASHTO 6TH EDITION (LTS-6) APPENDIX C WITH 2015 INTERIM REVISIONS "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" TO SUPPORT FIXED LOADS WITH AREAS SHOWN AND VDOT 2020 ROAD AND BRIDGE SPECIFICATIONS, AND SPECIAL PROVISIONS FOR SECTION 700.
- THE MAXIMUM DISTANCE BETWEEN THE BOTTOM OF THE LEVELING NUT AND THE TOP OF THE FOUNDATION SHALL BE ONE INCH (1").
- ANCHOR BOLT ANALYZED FOR STEEL STRENGTH ONLY. THE ANCHOR BOLT EMBEDMENT LENGTH SHOWN ON THIS DRAWING SHALL BE VERIFIED BY THE FOUNDATION ENGINEER.
- REFER TO VDOT SPECIFICATIONS REGARDING CONNECTION AND TIGHTENING OF ANCHOR BOLT HARDWARE.
- CUSTOMER TO CONFIRM ALL DIMENSIONS & ORIENTATIONS BEFORE RELEASING ORDER FOR MANUFACTURING.
- SEE DRAWING 50700-B2143 FOR MAST ARMS.
- SEE DRAWING 21-B41 FOR LUMINAIRE ARM

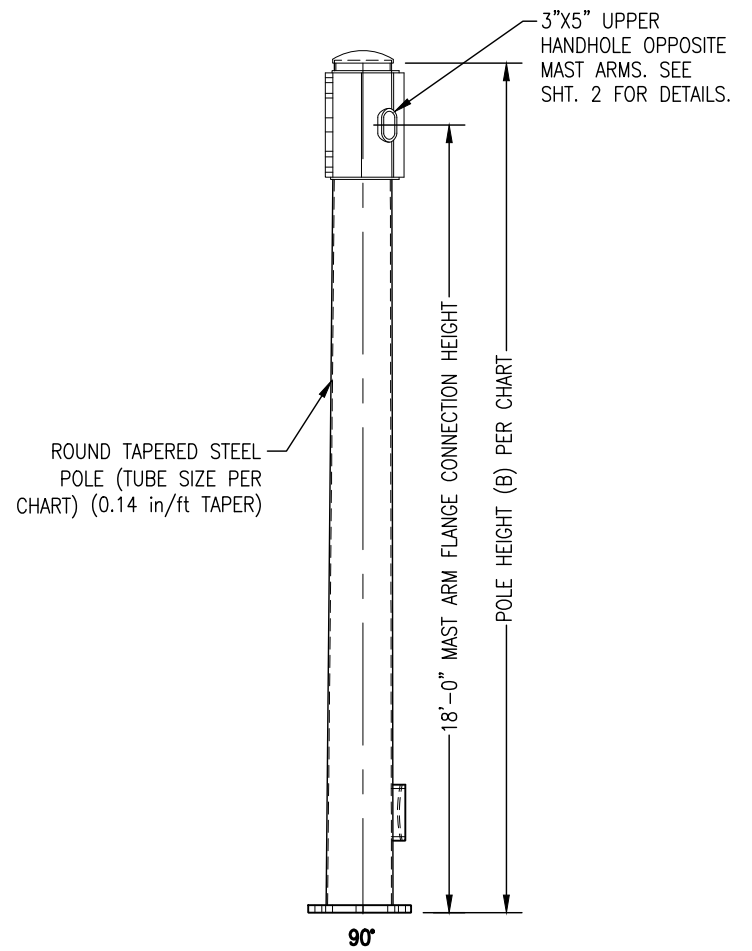
4" x 6" ALUMINUM I.D. TAG WITH (4) SELF TAPPING S.S. #7 x 3/8" SCREWS (4) ø0.136" HOLES DRILLED IN POLE, SECURED TO OUTSIDE OF POLE, ABOVE HANDHOLE & STAMPED WITH THE FOLLOWING INFORMATION:



UMIC - UMIC ID # - MM/YY
POLE ID NUMBER PER PLANS - POLE TYPE
DIA. THK. LGTH.
SHAFT - XX.XX / .XXX / XX.X
ARM A - XX.XX / .XXX / XX.X
ARM B - XX.XX / .XXX / XX.X
ASTM / DIA. / LGTH.
A.B. - XXXX / X.XX / XX.X
YEILD - AB / BP / POL / ARM



VIRGINIA DEPARTMENT OF TRANSPORTATION
C.O. STRUCTURE AND BRIDGE
REVIEW OF WORKING DRAWINGS
Working drawings have been reviewed in accordance with Section 105.10 of the Specifications with the following comments.
 Reviewed Revise and Resubmit
 Reviewed as Noted
Reviewed by: Karl Larson 11/19/2020



MATERIAL SPECIFICATIONS	
TAPERED TUBE	ASTM A595 GR A
PLATE	ASTM A36
BAR HANDHOLE FRAME	ASTM A529 GR 50 or ASTM A572 GR 50 or ASTM A709 GR 50
HANDHOLE COVER	ASTM A1011 or A36
ANCHOR BOLTS	ASTM F1554 GR 55
ANCHOR BOLT NUTS	ASTM A563 GR DH
FLAT WASHERS	ASTM F436 TYPE 1
DTI WASHERS	ASTM F2437 TYPE 2 GR 5
POLE TOP	ASTM A1011
PIPE	ASTM A53 GR B or A500 GR B
S.S. HARDWARE	AISI-300 SERIES (18-8)
STRUCTURE FINISH	PER SALES ORDER
HARDWARE FINISH	HD GALV TO ASTM A153

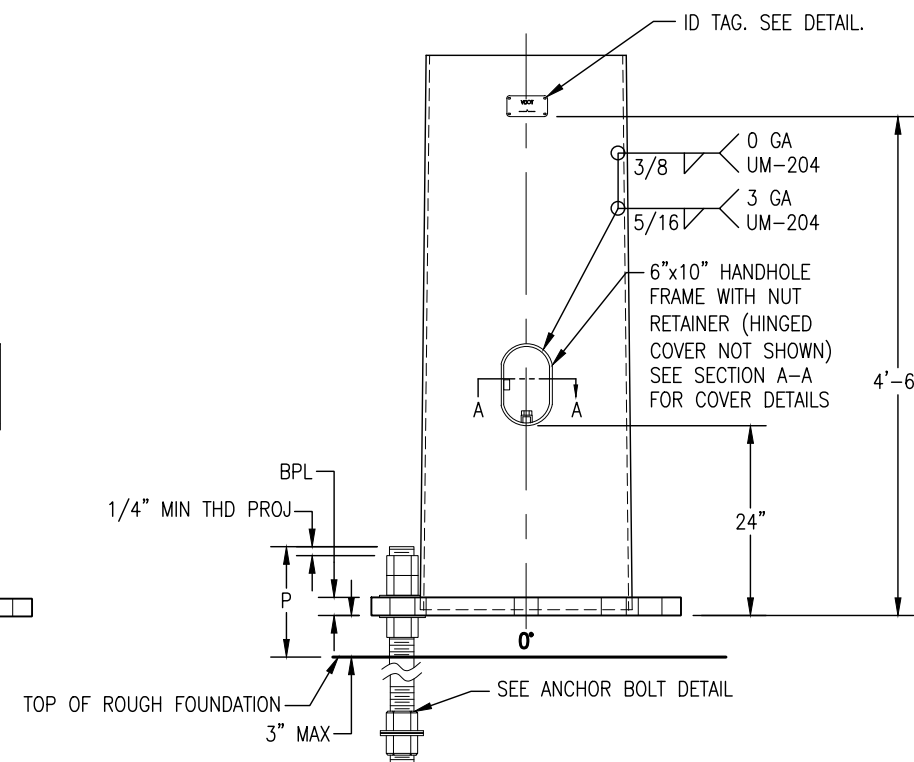
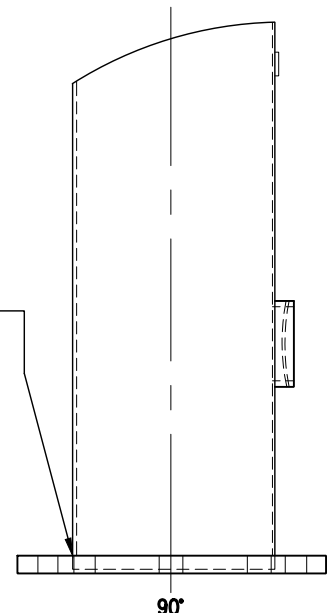
PROJECT INFORMATION	
CONTRACT ID NUMBER	
PROJECT NAME	

STATE: VA	REQ# / SO# : VA-62118	REV	DESCRIPTION	DATE	REV BY	CHK BY
PROJECT NAME: VDOT STANDARDS			REVISIONS			
ROUND TAPERED STEEL TRAFFIC CONTROL STRUCTURES (POLES FOR DUAL MAST ARM) - 90 MPH FOR VIRGINIA DEPARTMENT OF TRANSPORTATION						
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	A regular and periodic system of inspections and maintenance must be performed by qualified technicians to ensure ongoing safety for all UMI pole structures.			NMG	KMS	8/16/18
				SCALE	ENG REF	
				NTS	50700-B1931	
				REVISION	SHEET	
				50700-B2142	R3.0	1 OF 3

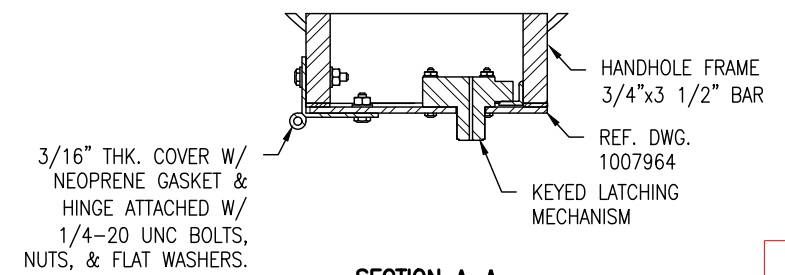
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SEE CHART FOR WELD TYPE

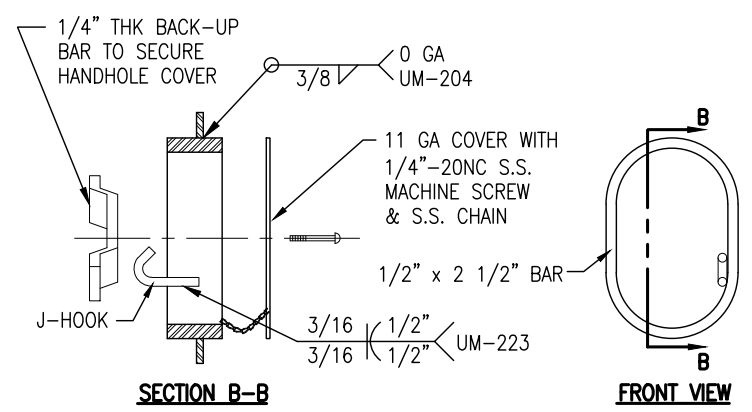


POLE BASE CONNECTION DETAIL
6"x10" HHF W/ HINGED COVER



SECTION A-A

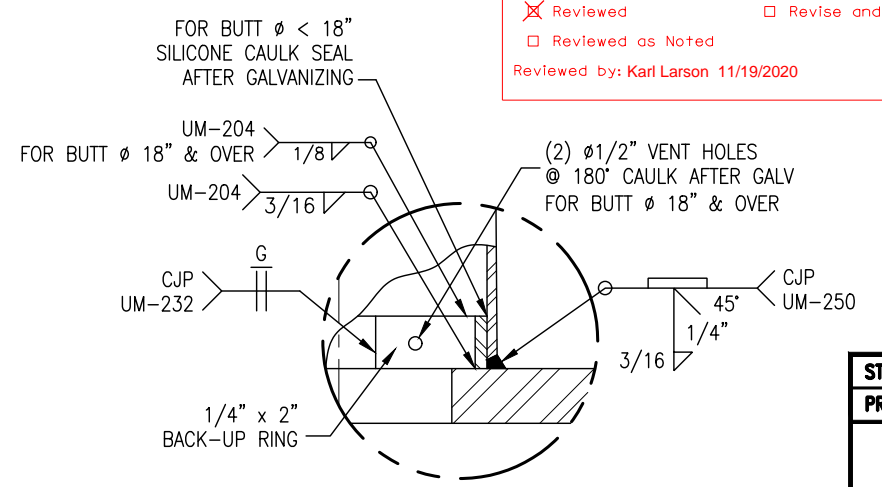
VIRGINIA DEPARTMENT OF TRANSPORTATION
C.O. STRUCTURE AND BRIDGE
REVIEW OF WORKING DRAWINGS
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 Reviewed Revise and Resubmit
 Reviewed as Noted
 Reviewed by: Karl Larson 11/19/2020



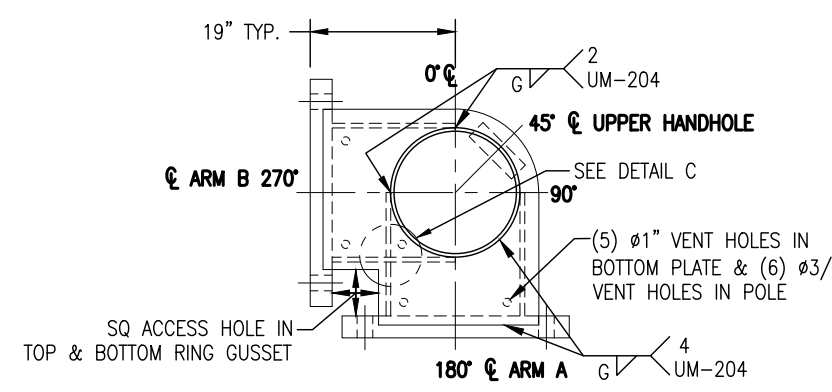
SECTION B-B

3"x5" HANDHOLE FRAME DETAIL

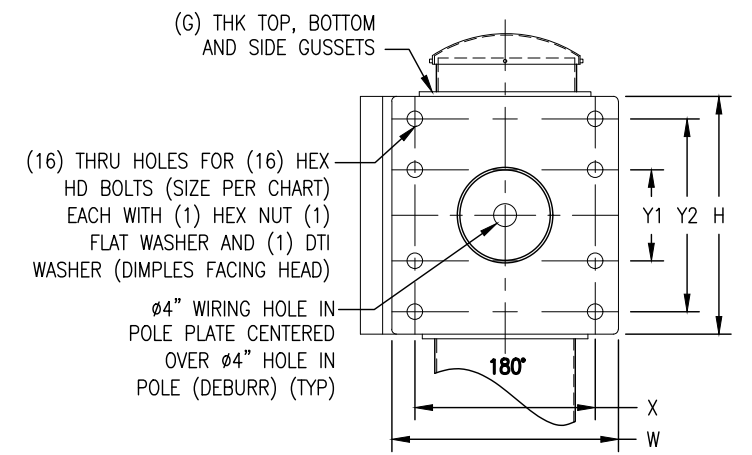
FRONT VIEW



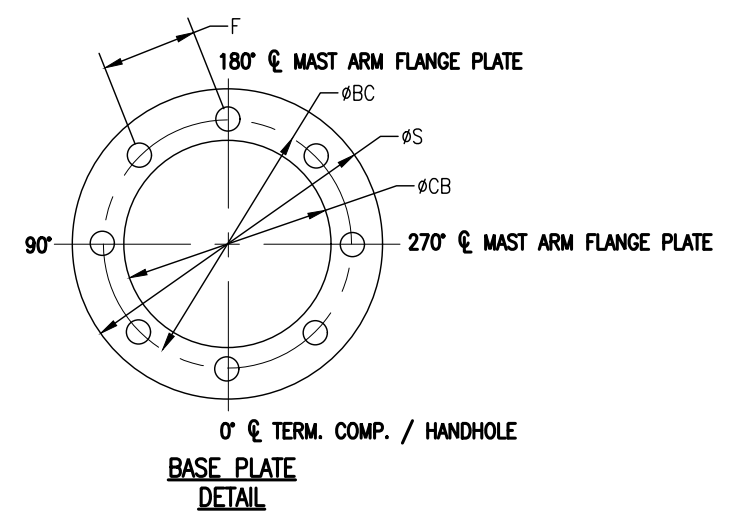
POLE BASE FP WELD DETAIL
(SEE CHART FOR WELD TYPE)



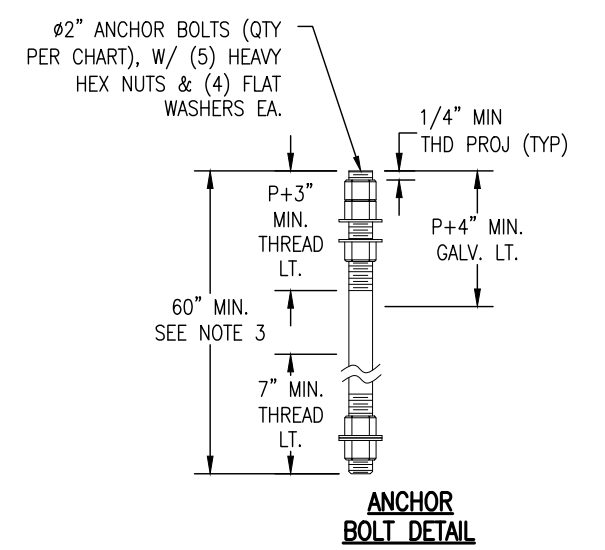
MAST ARM FLANGE CONNECTION DETAIL



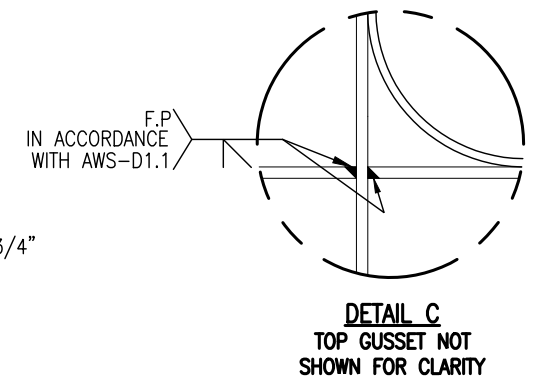
MAST ARM FLANGE CONNECTION DETAIL



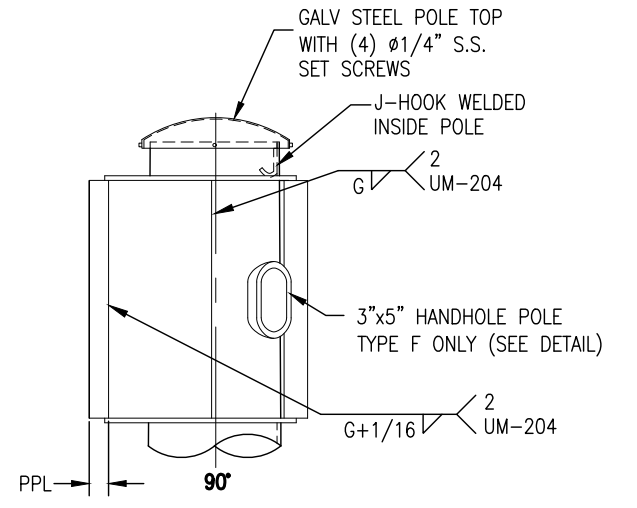
BASE PLATE DETAIL



ANCHOR BOLT DETAIL

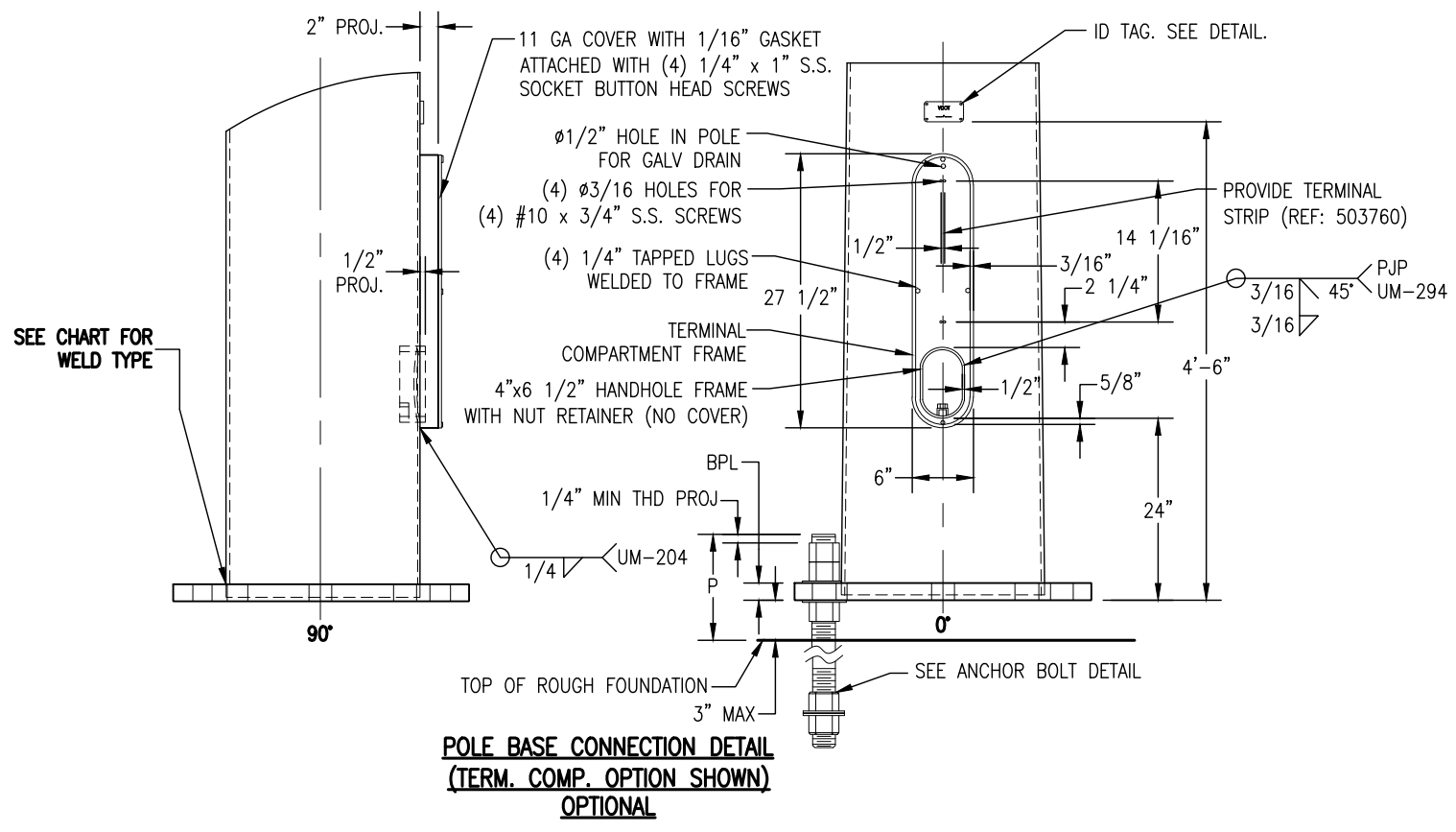


DETAIL C
TOP GUSSET NOT SHOWN FOR CLARITY



STATE: VA	REQ# / SO#: VA-62118	REV	DESCRIPTION	DATE	REV BY/CHK BY
PROJECT NAME: VDOT STANDARDS			REVISIONS		
ROUND TAPERED STEEL TRAFFIC CONTROL STRUCTURES (POLES FOR SINGLE MAST ARM) - 90 MPH FOR VIRGINIA DEPARTMENT OF TRANSPORTATION					
UNION METAL INDUSTRIES CORPORATION	This document and the contents herein are proprietary and the property of Union Metal Industries. This document is not to be copied, reproduced, or used for any reason except for the purposes which it was issued without the express written consent of Union Metal Industries. Furthermore Union Metal Industries reserves the right to recall this document and all copies at any time for any reason.	DESIGNED BY	CHECKED BY	DATE	SCALE
	A regular and periodic system of inspections and maintenance must be performed by qualified technicians to ensure ongoing safety for all UMI pole structures.	NMG	KMS	8/16/18	NTS
50700-B2142			REVISION	SHEET	
			R3.0	2 OF 3	

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VIRGINIA DEPARTMENT OF TRANSPORTATION
C.O. STRUCTURE AND BRIDGE
REVIEW OF WORKING DRAWINGS

Working drawings have been reviewed in accordance with Section 105.10 of the Specifications with the following comments.

Reviewed Revise and Resubmit
 Reviewed as Noted

Reviewed by: Karl Larson 11/19/2020

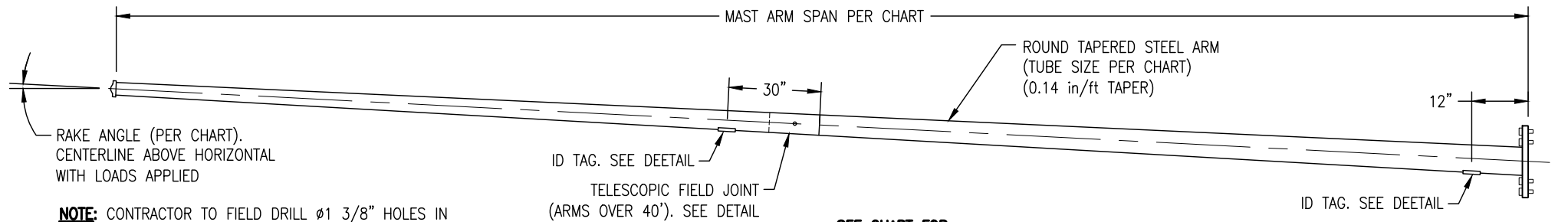
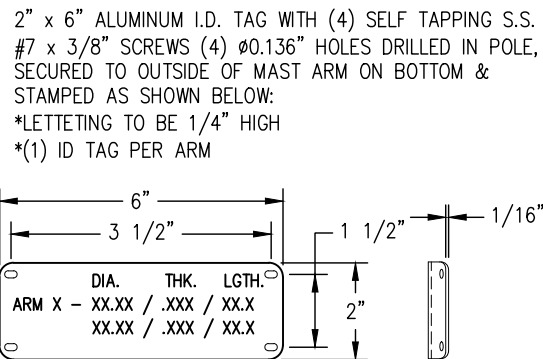
STATE: VA	REQ# / SO# : VA-62118	REV	DESCRIPTION	DATE	REV BY/CHK BY
PROJECT NAME: VDOT STANDARDS			REVISIONS		
ROUND TAPERED STEEL TRAFFIC CONTROL STRUCTURES (POLES FOR SINGLE MAST ARM) - 90 MPH FOR VIRGINIA DEPARTMENT OF TRANSPORTATION					
UNION METAL INDUSTRIES CORPORATION	This document and the contents herein are proprietary and the property of Union Metal Industries. This document is not to be, copied, reproduced, or used for any reason except for the purposes which it was issued without the express written consent of Union Metal Industries. Furthermore Union Metal Industries reserves the right to recall this document and all copies at any time for any reason.		DESIGNED BY NMG	CHECKED BY KMS	DATE 8/16/18
	A regular and periodic system of inspections and maintenance must be performed by qualified technicians to ensure ongoing safety for all UMI pole structures.		SCALE NTS	ENG REF 50700-B1931	REVISION R3.0
			50700-B2142	SHEET 3 OF 3	

QTY	UMIC DESIGN NUMBER	ARM SPAN (ft)	RAKE ANGLE A	WELD TYPE	X (in)	Y1 (in)	Y2 (in)	W (in)	H (in)	ARM PLATE THICKNESS T (in)	ØCA (in)	BOLT Ø (in)	FIXED ARM SHAFT DATA				JOINT LENGTH (ft)	EXTENSION ARM SHAFT DATA			
													WALL THICKNESS (in)	LARGE DIAMETER (in)	SMALL DIAMETER (in)	SHAFT LENGTH (ft)		WALL THICKNESS (in)	LARGE DIAMETER (in)	SMALL DIAMETER (in)	SHAFT LENGTH (ft)
	50700-B2143-Y1	30	2°	SOCKET	20.00	10.00	18.00	24.50	22.50	2.00	10.50	1.50	.18 (7 GA)	10.50	6.30	30.00	-	-	-	-	-
	50700-B2143-Y2	40	2°	SOCKET	20.00	10.00	18.00	24.50	22.50	2.00	11.00	1.50	.25 (3 GA)	11.00	5.40	40.00	-	-	-	-	-
	50700-B2143-Y3	49	2°	SOCKET	20.00	10.00	18.00	24.50	22.50	2.00	13.00	1.50	.25 (3 GA)	13.00	10.10	20.75	2.00	.18 (7 GA)	10.77	6.54	30.25
	50700-B2143-Y4	30-D	2°	SOCKET	25.50	12.00	20.00	30.00	24.50	2.00	10.50	1.50	.18 (7 GA)	10.50	6.30	30.00	-	-	-	-	-
	50700-B2143-Y5	40-D	2°	SOCKET	25.50	12.00	20.00	30.00	24.50	2.00	11.00	1.50	.25 (3 GA)	11.00	5.40	40.00	-	-	-	-	-
	50700-B2143-Y6	49-D	2°	SOCKET	25.50	12.00	20.00	30.00	24.50	2.00	13.00	1.50	.25 (3 GA)	13.00	10.10	20.75	2.00	.18 (7 GA)	10.77	6.54	30.25
	50700-B2143-Y7	60	2°	FP	25.50	12.00	20.00	30.00	24.50	2.75	8.00	1.50	.25 (3 GA)	15.50	11.30	30.00	2.00	.18 (7 GA)	11.98	7.50	32.00
	50700-B2143-Y8	65	2°	FP	25.50	12.00	20.00	30.00	24.50	2.75	8.00	1.50	.25 (3 GA)	16.75	12.55	30.00	2.00	.18 (7 GA)	13.23	8.05	37.00
	50700-B2143-Y9	70	3°	FP	25.50	12.00	20.00	30.00	24.50	2.75	8.00	1.50	.31 (0 GA)	16.00	11.31	33.50	2.00	.18 (7 GA)	11.99	6.60	38.50
	50700-B2143-Y10	75-1	3°	FP	25.50	12.00	20.00	30.00	24.50	2.75	8.00	1.50	.31 (0 GA)	16.84	11.56	37.75	2.00	.18 (7 GA)	12.23	6.74	39.25
	50700-B2143-Y11	75-2	3°	FP	25.50	12.00	20.00	30.00	24.50	2.75	8.00	1.50	.31 (0 GA)	17.95	12.74	37.25	2.25	.18 (7 GA)	13.45	7.85	40.00

7 GA = 0.179" WALL THICKNESS
3 GA = 0.250" WALL THICKNESS
0 GA = 0.313" WALL THICKNESS
E = ROUND TAPERED STEEL TUBE @ 0.14 in/ft TAPER
-D = FOR DUAL ARM USE WITH ARMS OVER 49'
-1 = CASE 1 LOADING
-2 = CASE 2 LOADING

FP = FULL PEN. WELD. SEE DETAIL.

IDENTIFICATION TAG DETAIL



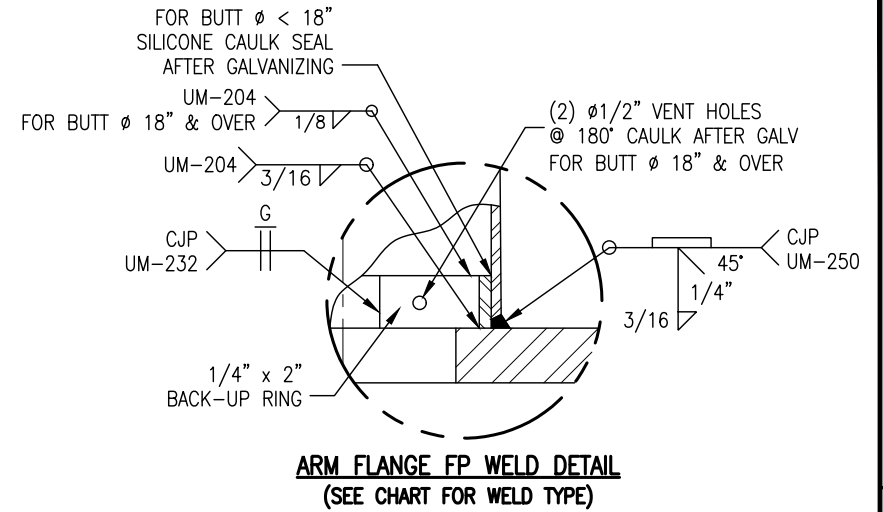
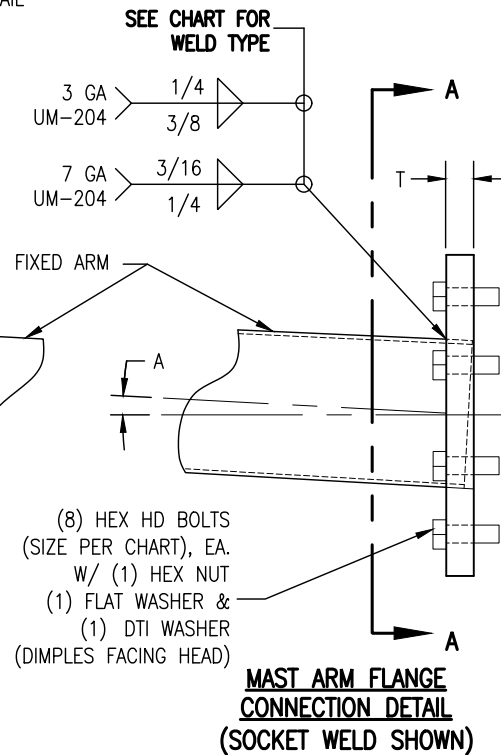
NOTE: CONTRACTOR TO FIELD DRILL Ø1 3/8" HOLES IN ARM AT EACH SIGNAL LOCATION, UMC TO FURNISH Ø1" I.D. RUBBER GROMMETS

Ø5/8" GALV. STUD WITH (2) "ANCO" LOCKNUTS
FACTORY DRILL Ø3/4" HOLE IN OUTBOARD TUBE
FIELD DRILL INBOARD TUBE TO ASSURE SNUG FIT

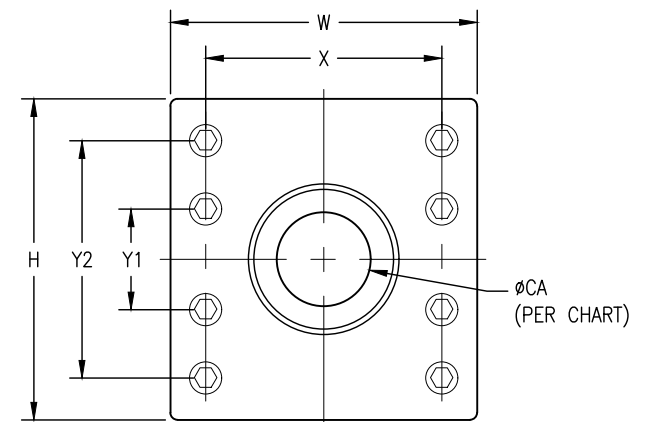
CAST ALUMINUM ARM
END CAP WITH (3) S.S.
SET SCREWS

**MAST ARM TIP
END DETAIL**

**ARM TELESCOPIC
FIELD JOINT DETAIL**



**ARM FLANGE FP WELD DETAIL
(SEE CHART FOR WELD TYPE)**



**SECTION A-A
ARM FLANGE
PLATE DETAIL**

- DESIGNED FOR 90 MPH WIND ZONE IN ACCORDANCE WITH 2013 AASHTO 6TH EDITION (LTS-6) APPENDIX C WITH 2015 INTERIM REVISIONS "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" TO SUPPORT FIXED LOADS WITH AREAS SHOWN AND VDOT 2020 ROAD AND BRIDGE SPECIFICATIONS, AND SPECIAL PROVISIONS FOR SECTION 700.
- PER AASHTO THE MINIMUM LENGTH OF ANY TELESCOPIC FIELD JOINT SHALL BE 1.5 TIMES THE INSIDE DIAMETER OF THE END OF THE FEMALE SECTION.
- VIBRATION IS MORE LIKELY TO OCCUR WHEN STRUCTURES ARE INSTALLED WITHOUT ATTACHING THE SIGNALS AND OR SIGNS. THEREFORE, THE INTENDED EQUIPMENT OR DAMPENING DEVICES MUST BE INSTALLED AT THE TIME OF ERECTION. BECAUSE VIBRATION IS GENERALLY UNPREDICTABLE, A MAINTENANCE PROGRAM SHOULD INCLUDE INSPECTION FOR INDICATIONS OF EXCESSIVE VIBRATION OR FATIGUE AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING.
- CUSTOMER TO CONFIRM ALL DIMENSIONS & ORIENTATIONS BEFORE RELEASING ORDER FOR MANUFACTURING.
- SIGNALS AND SIGNS FOR REFERENCE ONLY, NOT INCLUDED.
- SEE DRAWING 50700-B2141 FOR POLE STRUCTURES FOR SINGLE MAST ARMS AND DRAWING 50700-B2142 FOR POLE STRUCTURES FOR DUAL MAST ARMS (VDOT STANDARDS).
- SEE DRAWING 50700-B2250 FOR POLE STRUCTURES FOR SINGLE MAST ARMS AND DRAWING 50700-B2251 FOR POLE STRUCTURES FOR DUAL MAST ARMS (VA BEACH STANDARDS).

MATERIAL SPECIFICATIONS

TAPERED TUBE	ASTM A595 GR A
STEEL FLANGES	ASTM A36
FLANGE CONNECTION FASTENERS	ASTM A325 TYPE 1
FLANGE CONNECTION NUTS	ASTM A563 GR DH
FLANGE CONNECTION WASHERS	ASTM F436
DTI WASHERS	ASTM F2437 TYPE 2 GR 5
ALUMINUM END CAP	ASTM B26
STAINLESS STEEL HARDWARE	AISI-300 SERIES (18-8)
HARDWARE FINISH	HD GALV PER ASTM-A153
STRUCTURE FINISH	PER SALES ORDER

PROJECT INFORMATION

CONTRACT ID NUMBER	
PROJECT NAME	

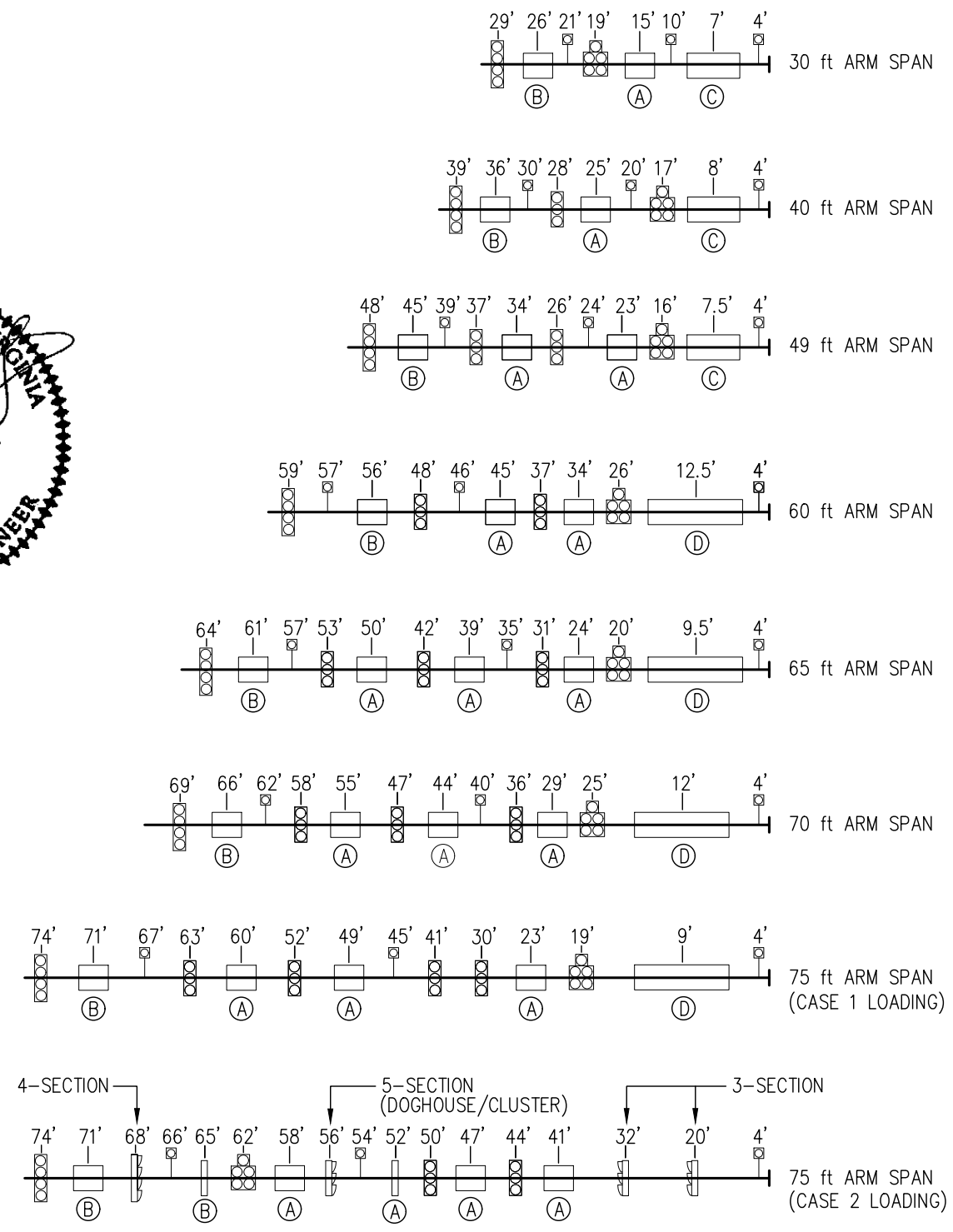
STATE: VA	REQ# / SO#: VA-62118/61876-VA BEACH	REV	
PROJECT NAME: VDOT STANDARDS & VIRGINIA BEACH STANDARDS			
ROUND TAPERED STEEL TRAFFIC CONTROL STRUCTURES (MAST ARMS) - 90 MPH FOR VIRGINIA DEPARTMENT OF TRANSPORTATION & CITY OF VIRGINIA BEACH			
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		DATE 8/16/18	SCALE NTS
		ENG REF 50700-B1932	REVISION R3.0
			SHEET 1 OF 2

REV	DESCRIPTION	DATE	REV BY	CHK BY
R3	ADDED DTI WASHER & NAMEPLATE REVISED PER VDOT. ADDED CA DIMENSION TO NON FATIGUE DESIGNED ARMS (Y1-Y6). ADDED WELD TYPES TO THE DRAWING VIEWS. UPDATED DESIGN CRITERIA TO 2020 ROAD & BRIDGE	6/25/20	MZ	KS
R2.2	UPDATED TITLE BLOCK WITH VIRGINIA BEACH, ADDED NOTE 7	5/21/19	DH	KM
R2	REVISED Y2 ON Y1-Y3	2/22/19	NG	NG
R1	CAULK TOP OF BACKUP RING FOR BUTT Ø < 18"	10/17/18	NG	NG

VIRGINIA DEPARTMENT OF TRANSPORTATION
C.O. STRUCTURE AND BRIDGE
REVIEW OF WORKING DRAWINGS
Working drawings have been reviewed in accordance with Section 105.10 of the Specifications with the following comments.
 Reviewed Revise and Resubmit
 Reviewed as Noted
Reviewed by: Karl Larson 11/19/2020

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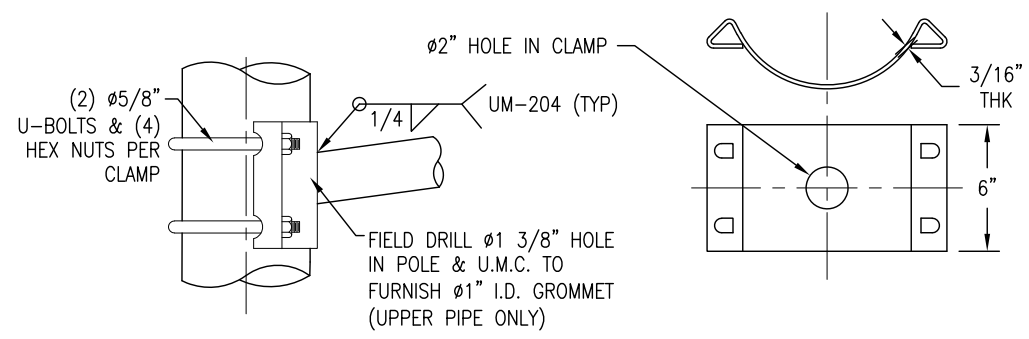
LOADING DIAGRAMS

VIRGINIA DEPARTMENT OF TRANSPORTATION
 C.O. STRUCTURE AND BRIDGE
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ITEM	DESCRIPTION	E.P.A. (sq ft)	WEIGHT (lbs)
(A)	30"x36" SIGN	7.5	22.5
(B)	36"x42" SIGN	10.5	26.7
(C)	12'x2.5' STREET NAME SIGN	30	66
(D)	15'x2.5' STREET NAME SIGN	37.5	88.5
	3 SECTION SIGNAL WITH BACKPLATE	8.7	65
	4 SECTION SIGNAL WITH BACKPLATE	11.0	80
	5 SECTION SIGNAL WITH BACKPLATE (IN-LINE)	13.4	95
	5 SECTION SIGNAL WITH BACKPLATE (DOGHOUSE/CLUSTER)	13.75	105
	VIDEO CAMERA	1	22

STATE: VA	REQ# / SO# : VA-62118/61876-VA BEACH	REV	DESCRIPTION	DATE	REV BY/CHK BY
PROJECT NAME: VDOT STANDARDS & VIRGINIA BEACH STANDARDS			REVISIONS		
ROUND TAPERED STEEL TRAFFIC CONTROL STRUCTURES (MAST ARMS) - 90 MPH FOR VIRGINIA DEPARTMENT OF TRANSPORTATION & CITY OF VIRGINIA BEACH					
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	A regular and periodic system of inspections and maintenance must be performed by qualified technicians to ensure ongoing safety for all UMI pole structures.		SCALE NTS	ENG REF 50700-B1932	REVISION R3.0
			50700-B2143		SHEET 2 OF 2

CLAMP DATA (B85 SERIES)	
SIZE	POLE DIAMETER RANGE
3	3.10" - 3.60"
4	3.61" - 4.40"
4.5	4.41" - 5.00"
5	5.01" - 5.95"
6	5.90" - 6.75"
7	6.70" - 8.05"
8	7.90" - 9.10"
9	9.00" - 10.40"
10	10.00" - 11.15"
11	11.00" - 11.85"
12	11.70" - 13.40"
13	13.00" - 14.15"
14	14.00" - 15.15"
15	15.00" - 16.25"
16	16.00" - 17.25"
17	17.00" - 18.25"
18	18.00" - 19.25"
19	19.00" - 20.25"
20	20.00" - 21.25"



U-BOLT LUMINAIRE ARM CONNECTION DETAIL
(REF B85 SERIES)



TO BE SPECIFIED WITH PURCHASE ORDER (SEE ORDERING INSTRUCTIONS)

STRUCTURE FINISH DATA	
CODE	FINISH DESCRIPTION
B	UNFINISHED
G	HD GALVANIZED
V	HD GALVANIZED & FINISH PAINT
R	HD GALVANIZED & POWDER COAT

TO BE SPECIFIED WITH PURCHASE ORDER (SEE ORDERING INSTRUCTIONS)

ORDERING INSTRUCTIONS:

FOR U-BOLT CLAMPS: (EXAMPLE) IF A 18' LUMINAIRE ARM WITH 5'-0" RISE WITH SIZE 9 CLAMP AND A GALVANIZED FINISH IS REQUIRED, THEN ORDER: 21-B41-Y1-9G

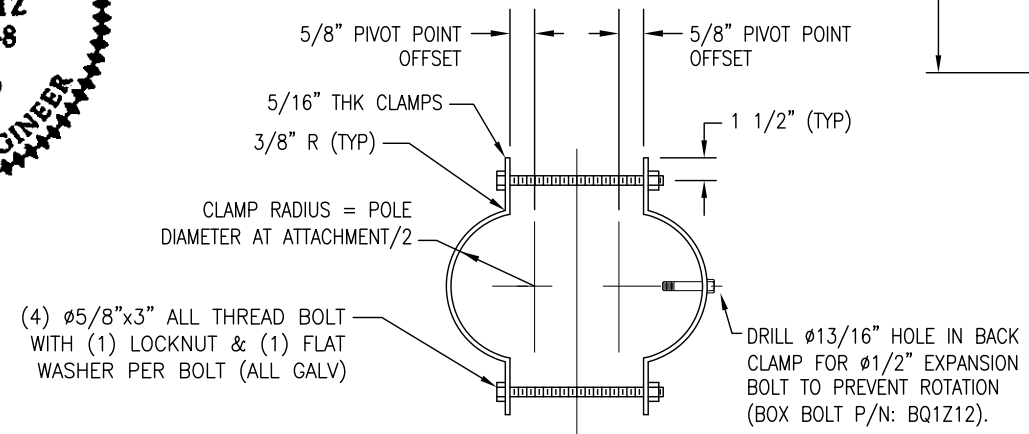
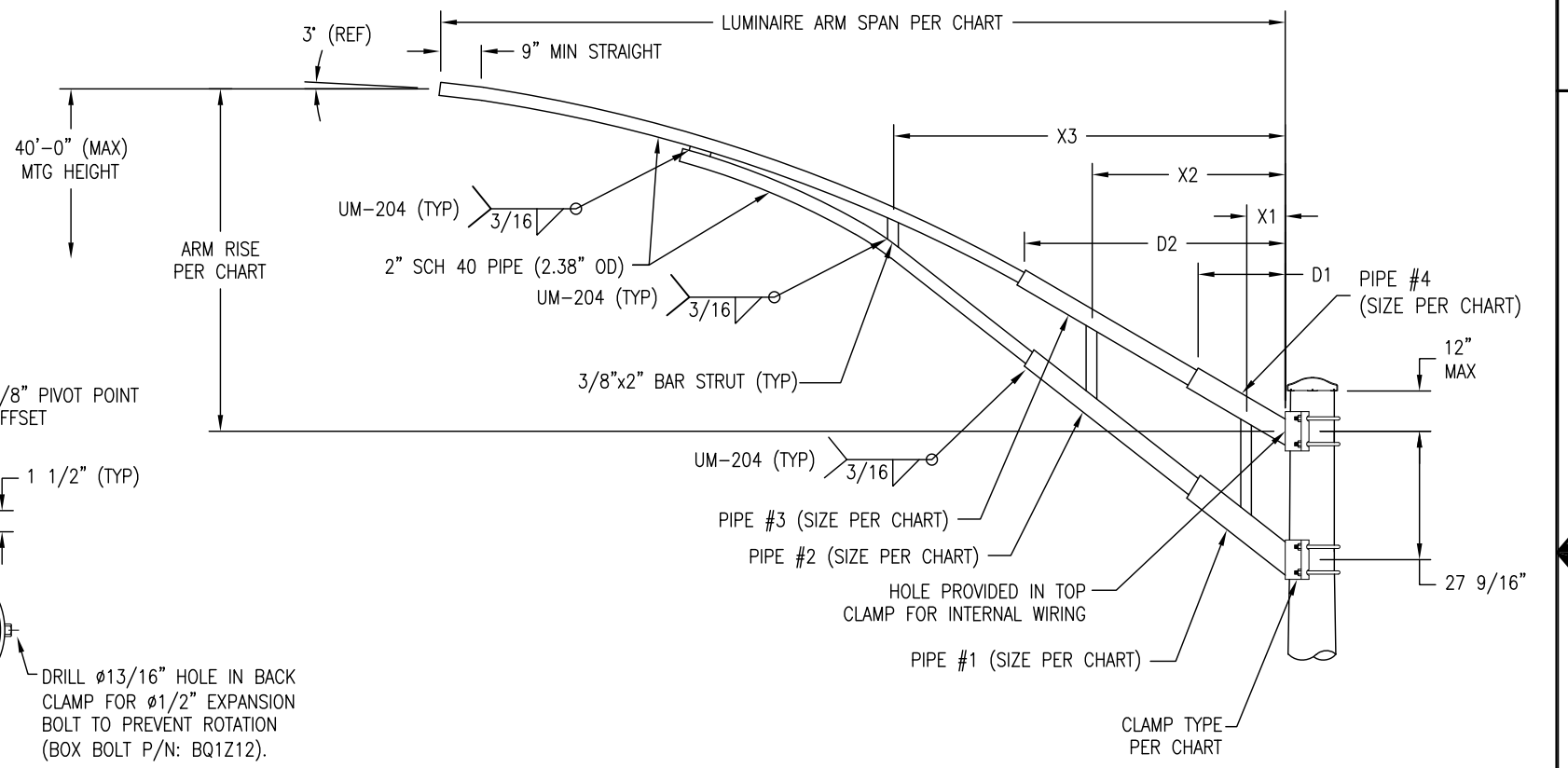
FOR BACK TO BACK CLAMPS: (EXAMPLE) IF ORDERING A 24' LUMINAIRE ARM WITH 5'-0" RISE SPECIFY DIAMETER OF TUBE @ TOP CLAMP LOCATION AND A GALVANIZED FINISH IS REQUIRED, THEN ORDER: 21-B41-Y3-10.75G

DESIGN CRITERIA:

- DESIGNED FOR 90 MPH WIND ZONE IN ACCORDANCE WITH 2013 AASHTO APPENDIX C WITH 2015 INTERIM REVISIONS "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", VDOT 2016 ROAD AND BRIDGE SPECIFICATIONS, SPECIAL PROVISIONS FOR SECTION 700, AND IIM-S&B-90.2.
- MAX PROJECTED AREA = 3.3 sq ft & MAX WEIGHT = 75 lbs
- VERIFY THE POLE ON WHICH THE LUMINAIRE WILL BE MOUNTED CAN ACCOMMODATE THE ADDITIONAL LOADING.

MATERIAL SPECIFICATIONS	
PIPE	ASTM A53 GR B, A500 GR B, or A500 GR C
BAR STRUT	ASTM-A529 GR 50
U-BOLT CLAMP	ASTM A1011 GR 50
U-BOLT	ASTM A36
CONNECTION NUTS	ASTM A563 GR A
BACK TO BACK CLAMP	ASTM A1018 GR 50
CONNECTION BOLT	ASTM-A307
CONNECTION WASHERS	ASTM-F436
LOCK NUTS	ASTM A563 GR DH
STRUCTURE FINISH	PER SALES ORDER
HARDWARE FINISH	ASTM A153

LUMINAIRE ARM DATA													
QTY	DESIGN NO.	ARM SPREAD	ARM RISE	PIPE #1 SIZE	PIPE #2 SIZE	PIPE #3 SIZE	PIPE #4 SIZE	D1	D2	X1	X2	X3	CLAMP TYPE
	21-B41-Y1	18'-0"	5'-0"	-	2 1/2" SCH 40	2 1/2" SCH 40	-	-	3'-6"	-	2'-0"	6'-0"	U-BOLT
	21-B41-Y2	15'-0"	5'-0"	-	2 1/2" SCH 40	2 1/2" SCH 40	-	-	-	-	3'-5"	-	U-BOLT
	21-B41-Y3	24'-0"	5'-0"	2 1/2" SCH 40	-	2 1/2" SCH 40	3" SCH 80	7'-1"	12'-5"	2'-0"	6'-6"	11'-11"	BACK TO BACK
	21-B41-Y4	20'-0"	5'-0"	-	2 1/2" SCH 40	2 1/2" SCH 40	-	-	6'-0"	-	2'-0"	8'-0"	U-BOLT
	21-B41-Y5	25'-0"	5'-0"	2 1/2" SCH 40	-	2 1/2" SCH 40	3" SCH 80	8'-0"	13'-6"	2'-0"	7'-6"	13'-0"	BACK TO BACK
	21-B41-Y6	12'-0"	5'-0"	-	-	-	-	-	-	-	-	1'-6"	U-BOLT
	21-B41-Y7	12'-0"	3'-6"	-	-	-	-	-	-	-	-	1'-6"	U-BOLT
	21-B41-Y8	15'-0"	3'-6"	-	2 1/2" SCH 40	2 1/2" SCH 40	-	-	12'-5"	-	3'-5"	-	U-BOLT
	21-B41-Y9	18'-0"	3'-6"	-	2 1/2" SCH 40	2 1/2" SCH 40	-	-	3'-6"	-	2'-0"	6'-0"	U-BOLT



BACK TO BACK LUMINAIRE ARM CONNECTION DETAIL

VIRGINIA DEPARTMENT OF TRANSPORTATION
C.O. STRUCTURE AND BRIDGE
REVIEW OF WORKING DRAWINGS

Working drawings have been reviewed in accordance with Section 105.10 of the Specifications with the following comments.

Reviewed Revise and Resubmit
 Reviewed as Noted

Reviewed by: Karl Larson 11/19/2020

REV	DESCRIPTION	DATE	REV BY	CHK BY
R5	CHANGED RISE DISTANCE TO "PER CHART." ADDED 3'-6" RISE FOR 12', 15' & 18' ARM DESIGN	7/2/20	MD Z	KS
R4	ADDED 12' ARM DESIGN	11/26/19	DJH	KS
R3.1	UPDATED TO UMIC STANDARDS	9/24/18	MJM	KS
R3	ADDED ORDERING INSTRUCTIONS FOR Y3 DESIGN, ADDED BACK TO BACK CLAMP, BAR STRUT, FLAT WASHER, LOCK NUT, & CONNECTION BOLT MATERIAL SPECIFICATION, PIVOT POINT OFFSET WAS 1/2".	2/24/17	RLD	MSW
R2	ADDED SIZE CHART FOR PIPE SIZES. ADDED BACK TO BACK CLAMP DETAIL.	2/3/17	JEF	TAS
R1	ADDED DESIGN -Y2; REMOVED NOM RISE, ADDED 5'-0" MAX RISE	10/5/16	AJO	JMW

PROJECT INFORMATION	
CONTRACT ID NUMBER	
PROJECT NAME	
VDOT REGION	
VDOT DISTRICTS	
DESIGN WIND SPEED	

STATE: VA	REQ# / SO# : VA 58322-3	REV	DESCRIPTION	DATE	REV BY	CHK BY
PROJECT NAME:		REVISIONS				
CLAMP-ON TRUSS LUMINAIRE ARM FOR VIRGINIA DEPARTMENT OF TRANSPORTATION						
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		AJO	JMW	8/11/16	NTS	21-B36
21-B41					REVISION	SHEET
					R5	1 OF 1

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