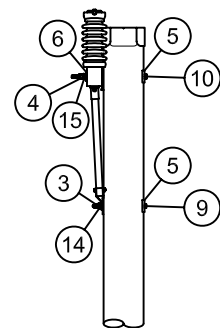


USE
TS-P1A1-x
FOR
CONDUCTOR
SPECIFY



VIEW "A-A"

A ←

CU Function:
TL69 for 35kV & 46kV,
TG69 for 69kV through 344kV,
T345 for 345kV and greater.

For correct CU:
substitute 5 for NYSEG,
6 for CMP or 9 for RG&E
in place of asterisk (C*_).

NOTE A:
OTHER STANDARD DRAWINGS REQUIRED:
TD-03-001 FOUNDATION/BACKFILL DETAIL - CLASS 1 OR SMALLER
TD-03-002 FOUNDATION/BACKFILL DETAIL - CLASS H POLES

NOTE B: POLE DRILLING: CROSSARM HOLE - 13/16"; BRACE HOLE - 11/16"

NOTE C: TO LOCATE THIS HOLE, BOLT ONE END OF NON-ADJUSTABLE BRACE (ITEM 9) TO BOTTOM OF LEVEL CROSSARM, POSITION BRACES AGAINST CENTER OF POLE AND MARK POLE FOR DRILLING AT HOLE IN END PLATE.

NOTE D: TO SEAT SPIKE GRIDS, ASSEMBLE ARMS, BRACES & OTHER REQUIRED HARDWARE. HAND TIGHTEN TO INSURE FIT. USE HYDRAULIC TOOLS TO SET GRIDS PROPERLY.

FOR MAINTENANCE OR SPECIAL APPLICATION PURPOSES ONLY:
DO NOT USE FOR NEW CONSTRUCTION EXCEPT WHEN APPROVED
BY ELECTRIC SYSTEM ENGINEERING - TRANSMISSION SECTION.

BILL OF MATERIAL					Type of CU: XARM
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TT-9W-X-AB12
1	1	CU	EA	1004016522	ARM WXRМ 3-3/4 X 5-3/4 X 12F 04DG22A

BILL OF MATERIAL					Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TN-XH-C2E
2	2	EA	1000910500		NUT LCK M-F SQ FOR 1/2 BOLT
3	1	EA	1000910600		NUT LCK M-F SQ FOR 5/8 BOLT
4	1	EA	1000910700		NUT LCK M-F SQ FOR 3/4 BOLT
5	2	EA	1000943500		WSHR CRVD 3 SQ X 1/4 H 13/16
6	1	EA	1000946000		WSHR FLAT 2-1/4 SQ X 3/16 H 13/16
7	1	EA	1005250040		GRID TMBR CNCTR 4-1/8 X 6-3/4
8	1	EA	1010177500	6000820050	POLE TOPPER 16 IN DIA
9	1	EA	192155		BOLT MACH GALV SQHD SQNT 5/8 X 14
10	1	EA	192325		BOLT MACH GALV SQHD SQNT 3/4 X 18
11	2	EA	1035532006		BOLT WSHHD GALV SQNT 1/2 X 6
12	1	PR	1035950604		BRC WD NON-ADJ C-C 42.43 HB2017/BM411
13	1	EA	1036470025		GRID TMBR CNCTR 4-1/8 SQ 15/16 H
14	1	EA		6000274600	WSHR HELICAL 5/8
15	1	EA		6000274610	WSHR HELICAL 3/4

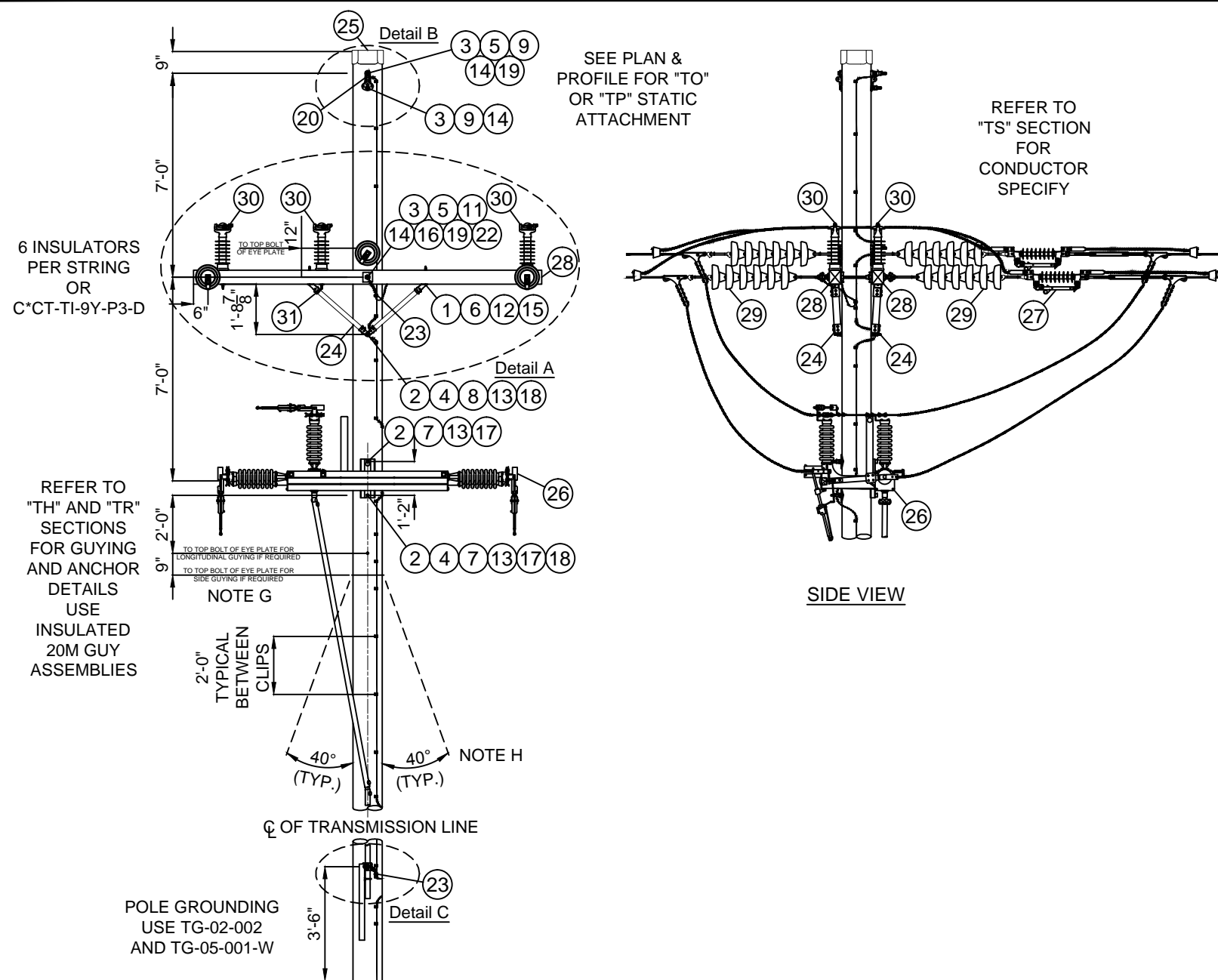
BILL OF MATERIAL					Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-5P-V2 (3/STR)
20	1	EA	1005543510		INSUL CLMPT VERT 35kV 3/4 STUD GRY
21	1	EA	1035469027		BOLT STUD POST INSUL 3/4 X 7 TO 7-1/2

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static
C5M-TN5HC2E-3	(3) - 4/0 AAAC 7	TS-N2F1-3	none
C5M-TN5HC2E-B	(3) - 477 ACSR 18/1	TS-N2F1-B	none
C5M-TN5HC2E-X	(3) - 795 ACSR 26/7	TS-N2F1-X	none

FOR ALL MACRO CUs: (Type of CU: STRU)

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY					
Contact System Engineering - Transmission Section for the creation of new standards and CUs.				Drawing Scale: 1/4" = 1'-0"	
	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23		TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT PORCELAIN VERTICAL POST INSULATORS SINGLE WOOD CROSSARM - 12 FOOT LENGTH		ISSUE 0
	Drwn. By: L.A. Best Date Dr.: 6/24/2013		Checked By: Bartczak/Becken/Shepard	Date Ck.: / /2013	Approved By: Barry R. Hart Date App.: / /2013
TN-5H-C2E					Sheet 1



BILL OF MATERIAL (CU Type: POLE)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TN-5HS1A
1	4	EA	1000910500	NUT LCK MF SQ 1/2 BOLT GALV
2	10	EA	1000910600	NUT LCK MF SQ 5/8 BOLT GALV
3	7	EA	1000910800	NUT LCK MF SQ 7/8 BOLT GALV
4	5	EA	1000911700	NUT SQ 5/8 BOLT GALV
5	5	EA	6000273770	NUT SQ 7/8 BOLT GALV
6	4	EA	6000272053	BOLT SQ HEAD 1/2 X 7 W/ SQ NUT (NOTE C)
7	8	EA	1035473020	BOLT SQ HEAD 5/8 X 20 W/ SQ NUT (NOTE C)
8	1	EA	192163	BOLT DA 5/8 X 16 W/ 4 NUTS (NOTE C)
9	2	EA	1035475016	BOLT SQ HEAD 7/8 X 16 W/ SQ NUT (NOTE C)
10	2	EA	1035475022	BOLT SQ HEAD 7/8 X 22 W/ SQ NUT (NOTE C)
11	5	EA	6000272460	BOLT DA 7/8 X 26 W/ 4 NUTS (NOTE C)
12	4	EA	6000274590	WASHER HELICAL (1/2")
13	10	EA	6000274600	WASHER HELICAL (5/8")
14	14	EA	6000274612	WASHER HELICAL (7/8")
15	4	EA	6000274808	WASHER 2" FLAT ROUND (1/2")
16	10	EA	1000946500	WASHER 4" SQ. FLAT (7/8")
17	8	EA	6000274821	WASHER 4" SQ. CURVED (5/8")
18	5	EA	1036200005	CLMP GRND WIRE U-CLIP 11/16 H
19	5	EA	1036200007	CLMP GRND WIRE U-CLIP 15/16 H
20	4	EA	6000274040	PLT POLE EYE 15/16 H
21	4	EA	6000274505	DEAD END TEE, 60K
22	2	EA	1036470025	GRID, TMBR CNCTR, 4-1/8 SQ 15/16 H
23	3	EA	1036232100	CONN 1B W/SPCR
24	2	EA	6000740330	CROSSARM BRACES WOOD, 35" LONG (1 PAIR)
25	1	EA	6000820052	POLE TOPPER 19"

BILL OF MATERIAL - 1200 AMP DISCONNECT SWITCH (CU Type: SWITCH)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TU-SW5A2V-I
26	1	EA	6000641180	SWITCH, 1200A LB, 38KV
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TU-SW5I6
27	1	EA	1009211001	SWITCH DISC, IN-LINE, 600A, 38KV

BILL OF MATERIAL (CU Type: XARM)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TT-9F-C-BB12
28	2 CUs	EA	6000740560	DOUBLE CROSSARM FIBERGLASS, 2 PIN 4-3/4" X 5-3/4" X 12FT

BILL OF MATERIAL (CU Type: INSO)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9P-D3-6
29	6 CUs	EA	6000310739	INS SUS CL52-3 20K M&E BRN (6 UNITS/STRING)
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9Y-P3-D
29	6	EA	6000316439	INS POLY Y-BALL 30K 6 UNIT EQ.
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-5Y-V2 (6 CU'S)
30	1	EA	1005565001	INSUL CLMPT VERT 35KV 3/4 STUD GRY POLYMER
31	1	EA	1035469027	BOLT STUD POST INSUL 3/4 X 7 TO 7-1/2

CU FUNCTION: TL69 FOR 35KV & 46KV, TG69 FOR 35KV THRU 344KV, T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 5 FOR NYSEG, 6 FOR CMP OR 9 FOR RG&E IN PLACE OF ASTERISK (C*_).

- NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
- TD FOUNDATION & BACKFILL
 - TG SWITCH MAT, GROUND WIRE & GROUND ROD DETAILS
 - TH GUYING ASSEMBLIES
 - TJ CONDUCTOR AND STATIC WIRE RELATED
 - TK MARKINGS
 - TR GUY ANCHORS
 - TU SWITCHES AND ARRESTERS

NOTE B: POLE DRILLING: 5/8" BOLT - 11/16" DIAMETER HOLE
3/4" BOLT - 13/16" DIAMETER HOLE
7/8" BOLT - 15/16" DIAMETER HOLE

NOTE C: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE D: THIS STRUCTURE IS A FALSE DEADEND.

NOTE E: THIS STRUCTURE IS TO BE USED IN SPECIAL APPLICATIONS ONLY.

NOTE F: GROUND WIRE (ITEM #23) SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF THE CROSSARM, CONTINUOUS FROM CONNECTIONS LOCATED AT EITHER END.

NOTE G: IF GUYS ARE REQUIRED USE TJ-09-001-SC WITH THE TOP BOLT AT THE SPECIFIED LOCATION.

NOTE H: GUYING ANGLES SHOWN ARE GUIDELINES. IF THE SPECIFIC FIELD CONDITIONS IN THE AREA WHERE THIS STRUCTURE IS INSTALLED DO NOT ACCOMMODATE THIS GUYING ARRANGEMENT THEN THE CHANGES TO THE GUYING ARRANGEMENT SHALL BE NOTED ON THE RESPECTIVE PLAN AND PROFILE DRAWING.

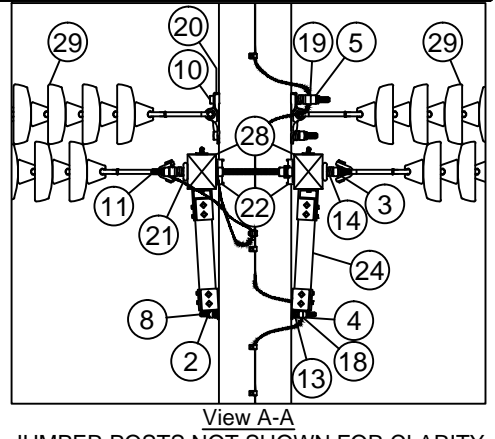
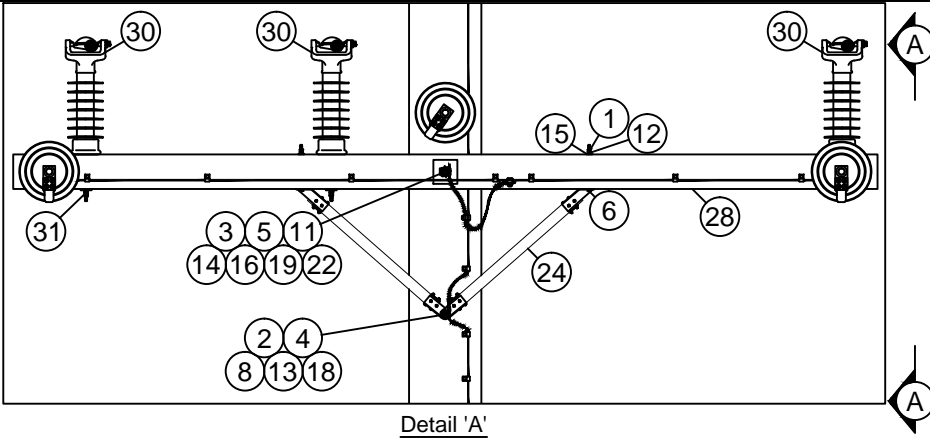
THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1" = 5'

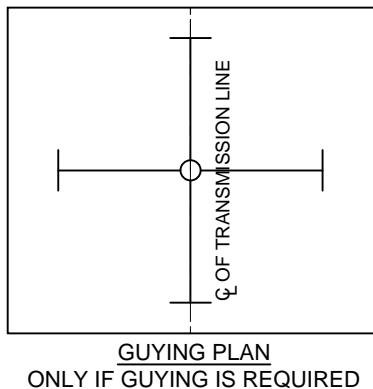
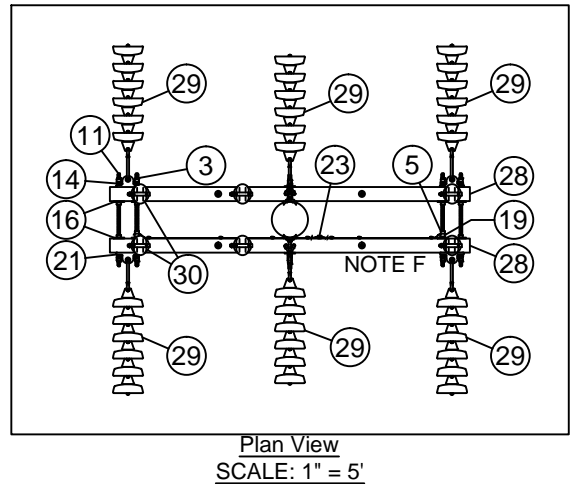
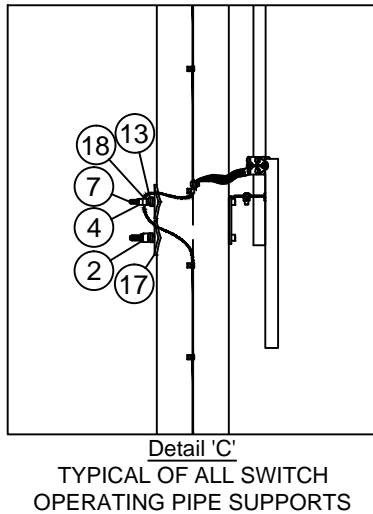
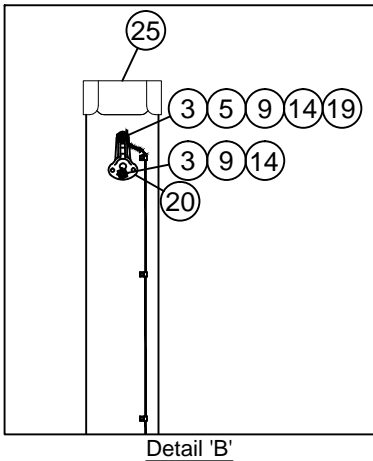
	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS - WOOD 35KV SINGLE POLE SINGLE CIRCUIT 1-WAY SWITCH STRUCTURE TYPE 1-SW	REVISION 00
	DATE 5/21/2015	DATE 5/21/2015	DATE 5/21/2015
Drwn. By: B. Franklin	Date Dr.: 10/25/2012	Checked By: Becken/Hart	Date Ck.: 3/05/2015
Approved By: Barry R. Hart	Date App.: 5/18/2015	TM2.23.TN-5HS1A-X	
			Sheet 1

USE THE MACRO CUs INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU MACRO	CONDUCTOR	STATIC	COND SPECIFY	STATIC SPECIFY
C*M-TN5HS1AF-B-H	(3) - 477 ACSR 18/1	(1) - 7#7 (7/16") AWLD	TS-N2F2T3-B	TP-W-DE-G-H
C*M-TN5HS1AF-B-O	(3) - 477 ACSR 18/1	(1) - 36 FIBER OPGW	TS-N2F2T3-B	TO-W-DE-G-O
C*M-TN5HS1AF-B-S	(3) - 477 ACSR 18/1	(1) - 36 FIBER SPEC. OPGW	TS-N2F2T3-B	TO-W-DE-G-S
C*M-TN5HS1AF-X-H	(3) - 795 ACSR 26/7	(1) - 7#7 (7/16") AWLD	TS-N2F2T3-X	TP-W-DE-G-H
C*M-TN5HS1AF-X-O	(3) - 795 ACSR 26/7	(1) - 36 FIBER OPGW	TS-N2F2T3-X	TO-W-DE-G-O
C*M-TN5HS1AF-X-S	(3) - 795 ACSR 26/7	(1) - 36 FIBER SPEC. OPGW	TS-N2F2T3-X	TO-W-DE-G-S



JUMPER POSTS NOT SHOWN FOR CLARITY



THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 30" U.N.O.



TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL

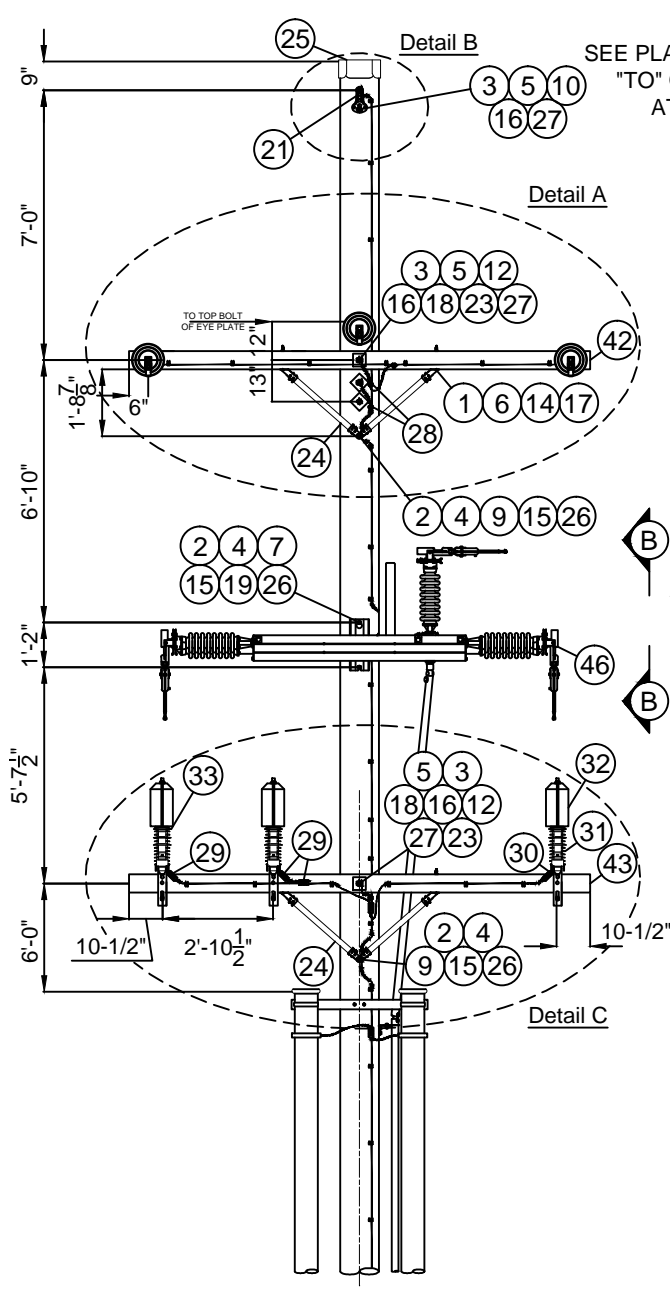
STRUCTURE STANDARDS - WOOD
35kV SINGLE POLE SINGLE CIRCUIT
1-WAY SWITCH STRUCTURE
TYPE 1-SW

REVISION
00
DATE
5/21/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
B. Franklin	10/25/2012	Becken/Hart	3/05/2015	Barry R. Hart	5/18/2015

TM2.23.TN-5HS1A-X

Sheet 2

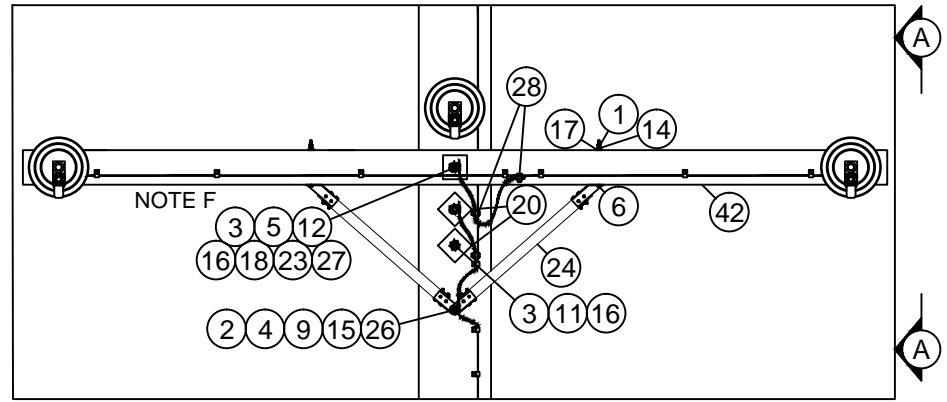
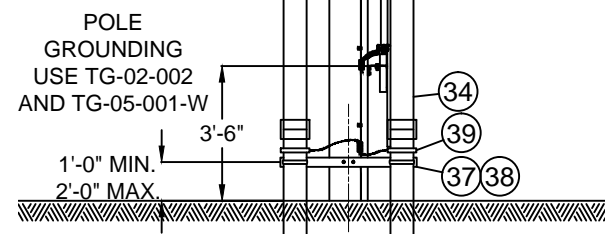


SEE PLAN & PROFILE FOR
"TO" OR "TP" STATIC
ATTACHMENT

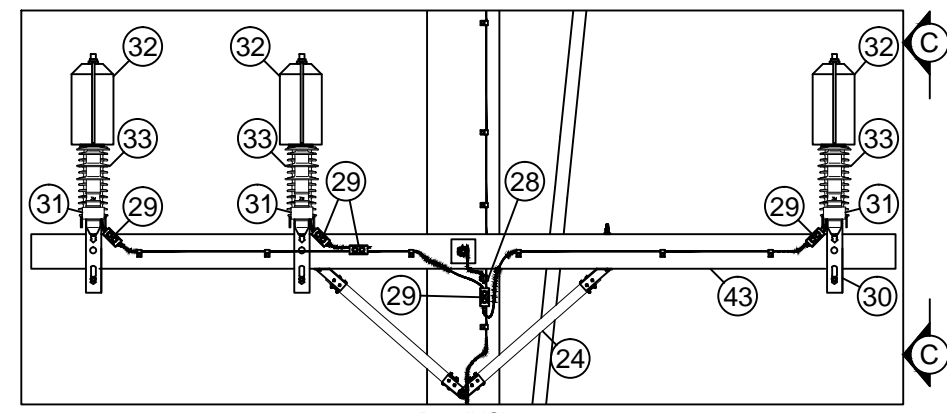
6 INSULATORS
PER STRING
OR
C*CT-TI-9Y-P3-D
REFER TO
"TS" SECTION
FOR
CONDUCTOR
SPECIFY

REFER TO
"TH" AND "TR"
SECTIONS FOR
GUYING AND
ANCHOR DETAILS

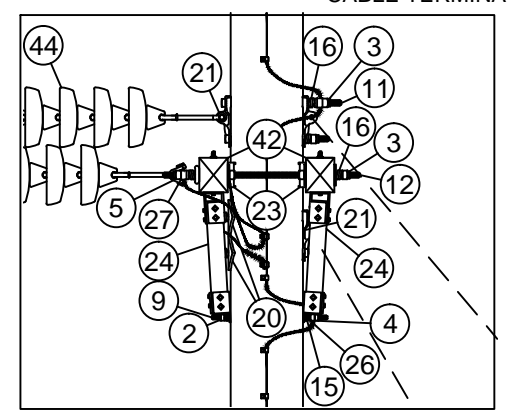
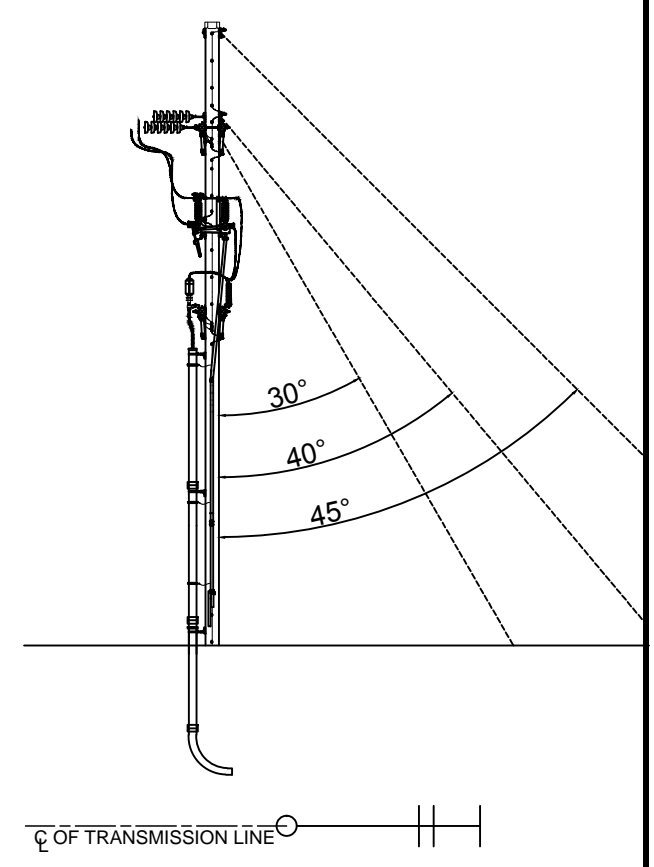
USE INSULATED
20M ASSEMBLIES
TR-01-X



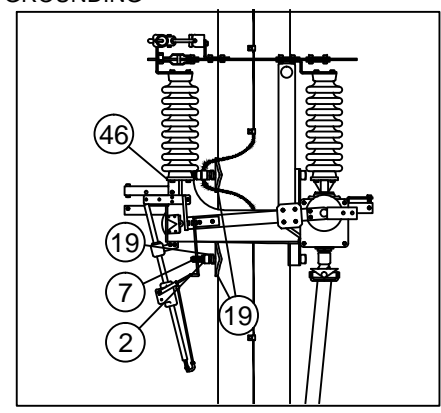
GROUND WIRE ON INSIDE OF ARM. SHOWN TO ILLUSTRATE INSTALLATION.



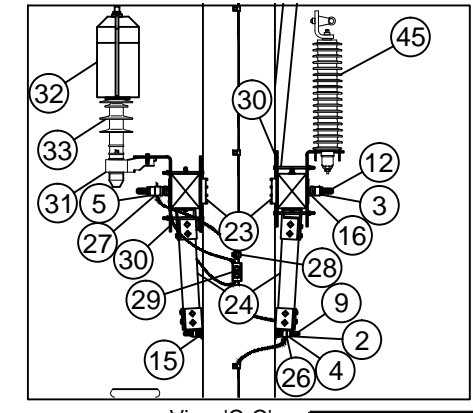
CABLE TERMINATOR GROUNDING



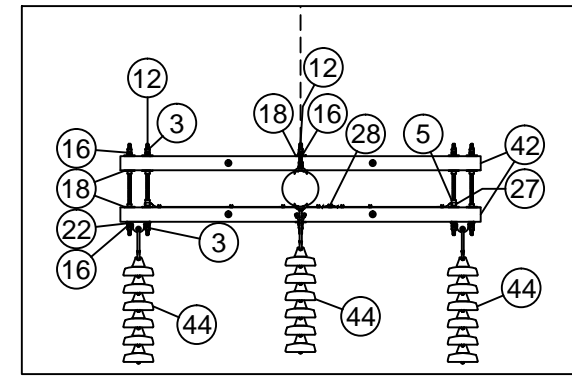
View 'A-A'



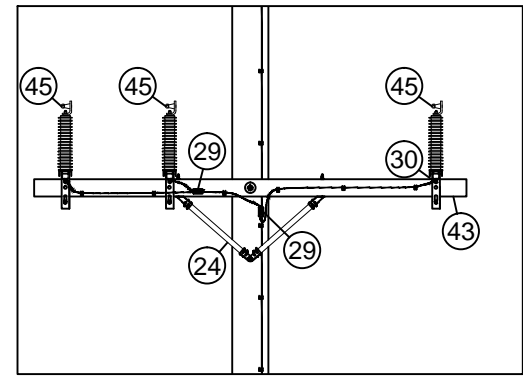
View 'B-B'



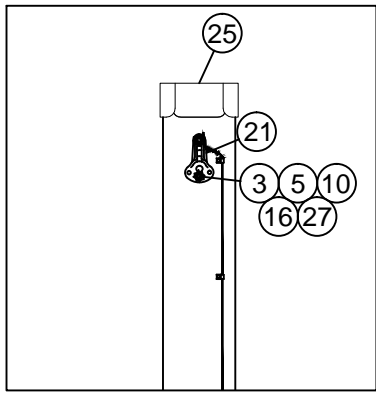
View 'C-C'



Plan View



Detail 'C'
LIGHTNING ARRESTER GROUNDING



Detail 'B'

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY				
Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.			Drawing Scale: NTS	
	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS - WOOD 35KV SINGLE POLE SINGLE CIRCUIT TERMINAL DEADEND RISER STRUCTURE TYPE DRS		REVISION 00
	Drwn. By: B. Franklin	Date Dr.: 10/29/2013	Checked By: Becken/Hart	Date Ck.: 2/12/2015
Approved By: Barry R. Hart			Date App.: 5/18/2015	Sheet 1
TM2.23.TN-5HTDK-X				

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TN-5HTDK
1	8	EA	1000910500	NUT LCK MF SQ 1/2 BOLT GALV
2	9	EA	1000910600	NUT LCK MF SQ 5/8 BOLT GALV
3	12	EA	1000910800	NUT LCK MF SQ 7/8 BOLT GALV
4	3	EA	1000911700	NUT SQ 5/8 BOLT GALV
5	4	EA	6000273770	NUT SQ 7/8 BOLT GALV
6	8	EA	6000272053	BOLT SQ HEAD 1/2 X 7 W/ SQ NUT (NOTE C)
7	2	EA	1035473020	BOLT SQ HEAD 5/8 X 20 W/ SQ NUT (NOTE C)
8	3	EA	1035473026	BOLT SQ HEAD 5/8 X 26 W/ SQ NUT (NOTE C)
9	2	EA	191868	BOLT DA 5/8 X 20 W/ 4 NUTS (NOTE C)
10	2	EA	1035475016	BOLT SQ HEAD 7/8 X 16 W/ SQ NUT (NOTE C)
11	4	EA	1035475022	BOLT SQ HEAD 7/8 X 22 W/ SQ NUT (NOTE C)
12	6	EA	6000272460	BOLT DA 7/8 X 26 W/ 4 NUTS (NOTE C)
13	3	EA	1007420850	SCR LAG 1/2 X 3
14	8	EA	6000274590	WASHER HELICAL (1/2")
15	9	EA	6000274600	WASHER HELICAL (5/8")
16	18	EA	6000274612	WASHER HELICAL (7/8")
17	8	EA	6000274808	WASHER 2" FLAT ROUND (1/2")
18	16	EA	1000946500	WASHER 4" SQ. FLAT (7/8")
19	2	EA	6000274821	WASHER 4" SQ. CURVED (5/8")
20	2	EA	6000274880	WASHER 4" SQ. CURVED (7/8")
21	5	EA	6000274040	PLT POLE EYE 15/16 H
22	2	EA	6000274505	DEAD END TEE, 60K
23	4	EA	1036470025	GRID, TMBR CNCTR, 4-1/8 SQ 15/16 H
24	4	EA	6000740330	CROSSARM BRACES WOOD, 35" LONG (1 PAIR)
25	1	EA	6000820052	POLE TOPPER 19"

BILL OF MATERIAL (CU Type: SHLDO)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TN-5HTDK
26	3	EA	1036200005	CLMP GRND WIRE U-CLIP 11/16 H
27	4	EA	1036200007	CLMP GRND WIRE U-CLIP 15/16 H
28	4	EA	1036232100	CONN 1B W/SPCR
29	12	EA	6000113592	CONN 2B GRD BRZ
30	6	EA	6000620100	EQUIPMENT MTG CLMP
31	3	EA	6000620090	CABLE MTG BRCKT
32	3	EA	6000312878	WILDLIFE PROTECTOR
33	3	EA	6000215945	CABLE TERM SIL RUBBER COLD SHRINK
34	6	EA	6000230560	CONDUIT 6" X 10'-0" GALVANIZED
35	2	EA	90459	ELBOW RIGID CONDUIT 6" GALV.
36	6	EA	X	COUPLING RIGID CONDUIT 6" GALV.
37	3	EA	6000620110	STANDOFF BRCKT F/ (2) 6" RIGID CONDUIT
38	6	EA	6000620120	STRAP SS F/ 6" RIGID CONDUIT
39	6	EA	6000251050	CLMP GRD F/ 6" RIGID CONDUIT
40	1	EA	6000221535	GRIP RISER F/ 6" RIGID CONDUIT
41	1	EA	6000234260	CAP GALV F/ 6" RIGID CONDUIT

USE THE MACRO CUs INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU MACRO	CONDUCTOR	STATIC	COND SPECIFY	STATIC SPECIFY
C*M-TN5HTDKF-B-H	(3) - 477 ACSR 18/1	(1) - 7#7 (7/16") AWLD	TS-N1T3-B	TP-W-XD-G-H
C*M-TN5HTDKF-B-O	(3) - 477 ACSR 18/1	(1) - 36 FIBER OPGW	TS-N1T3-B	TO-W-XD-G-O
C*M-TN5HTDKF-B-S	(3) - 477 ACSR 18/1	(1) - 36 FIBER SPEC. OPGW	TS-N1T3-B	TO-W-XD-G-S
C*M-TN5HTDKF-X-H	(3) - 795 ACSR 26/7	(1) - 7#7 (7/16") AWLD	TS-N1T3-X	TP-W-XD-G-H
C*M-TN5HTDKF-X-O	(3) - 795 ACSR 26/7	(1) - 36 FIBER OPGW	TS-N1T3-X	TO-W-XD-G-O
C*M-TN5HTDKF-X-S	(3) - 795 ACSR 26/7	(1) - 36 FIBER SPEC. OPGW	TS-N1T3-X	TO-W-XD-G-S

BILL OF MATERIAL (CU Type: XARM)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TT-9F-C-BB12
42	2 CUs	EA	6000740560	DOUBLE CROSSARM FIBERGLASS, 2 PIN 4-3/4" X 5-3/4" X 12FT
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TT-5F-M-BB12
43	2 CUs	EA	6000740580	SINGLE CROSSARM FIBERGLASS, 4" X 6" X 12FT

BILL OF MATERIAL (CU Type: INSO)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9P-D3-6
44	3 CUs	EA	6000310739	INS SUS CL52-3 20K M&E BRN (6 UNITS/STRING)
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9Y-P3-D
44	3 CUs	EA	6000316439	INS POLY Y-BALL 30K 6 UNIT EQ.

BILL OF MATERIAL (CU Type: LTNG ARRESTER)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TU-AR5-E029
45	3	EA	1088500135	INT CLASS LTNG ARRSTR, 36KV

BILL OF MATERIAL (CU Type: SWITCH)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TU-SW5A2V-I
46	1	EA	6000641180	SWITCH, 1200A LB, 38KV

CU FUNCTION: TL69 FOR 35KV & 46KV, TG69 FOR 35KV THRU 344KV, T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 5 FOR NYSEG, 6 FOR CMP OR 9 FOR RG&E IN PLACE OF ASTERISK (*_).

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:

- TD FOUNDATION & BACKFILL
- TG SWITCH MAT, GROUND WIRE & GROUND ROD DETAILS
- TH GUYING ASSEMBLIES
- TK MARKINGS
- TR GUY ANCHORS

NOTE B: POLE DRILLING: 5/8" BOLT - 11/16" DIAMETER HOLE
3/4" BOLT - 13/16" DIAMETER HOLE
7/8" BOLT - 15/16" DIAMETER HOLE

NOTE C: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE D: CONDUCTOR TENSION TO THIS STRUCTURE SHALL NOT EXCEED 3000 POUNDS AT NESC HEAVY LOAD.

NOTE E: THIS STRUCTURE IS TO BE USED IN SPECIAL APPLICATIONS ONLY.


NOTE F: GROUND WIRE (ITEM #26) SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF THE CROSSARM, CONTINUOUS FROM CONNECTIONS LOCATED AT EITHER END.

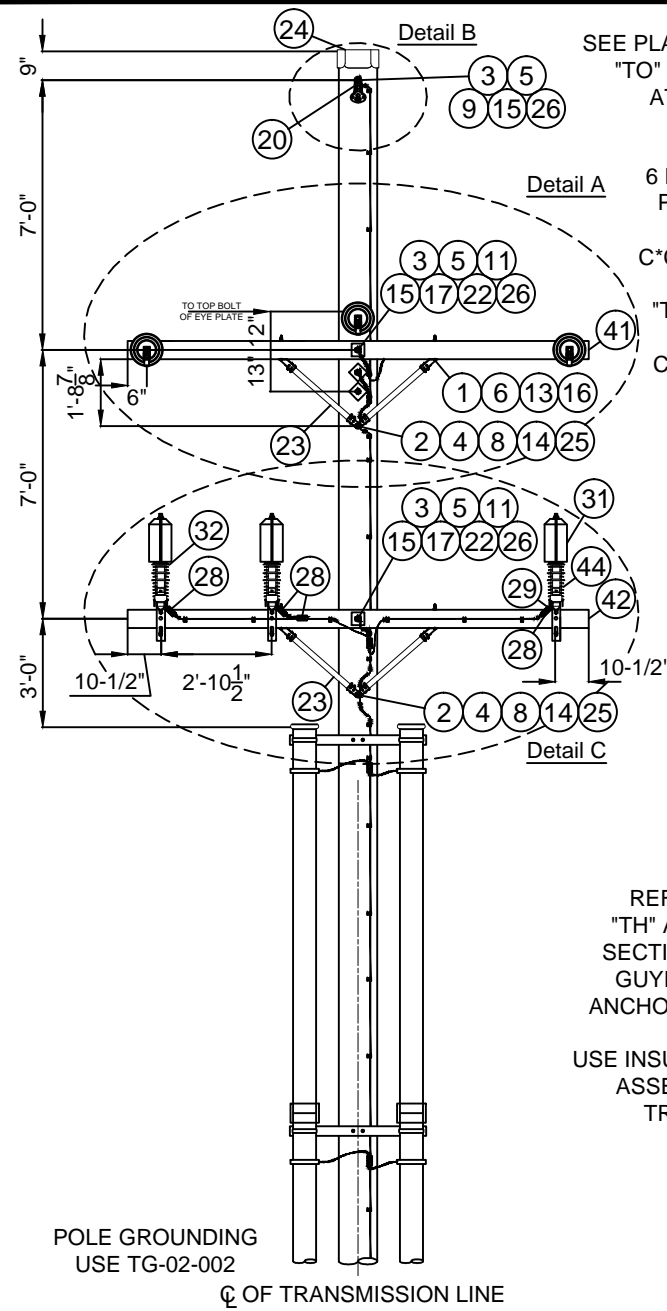
NOTE G: GUYING ANGLES SHOWN ARE GUIDELINES. IF THE SPECIFIC FIELD CONDITIONS IN THE AREA WHERE THIS STRUCTURE IS INSTALLED DO NOT ACCOMMODATE THIS GUYING ARRANGEMENT THEN THE CHANGES TO THE GUYING ARRANGEMENT SHALL BE NOTED ON THE RESPECTIVE PLAN AND PROFILE DRAWING.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: NTS

	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS - WOOD 35KV SINGLE POLE SINGLE CIRCUIT TERMINAL DEADEND RISER STRUCTURE TYPE DRS	REVISION
			00
			DATE
			5/21/2015
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:
B. Franklin	10/29/2013	Becken/Hart	2/12/2015
Approved By:	Date App.:	TM2.23.TN-5HTDK-X	
Barry R. Hart	5/18/2015	Sheet 2	



SEE PLAN & PROFILE FOR "TO" OR "TP" STATIC ATTACHMENT

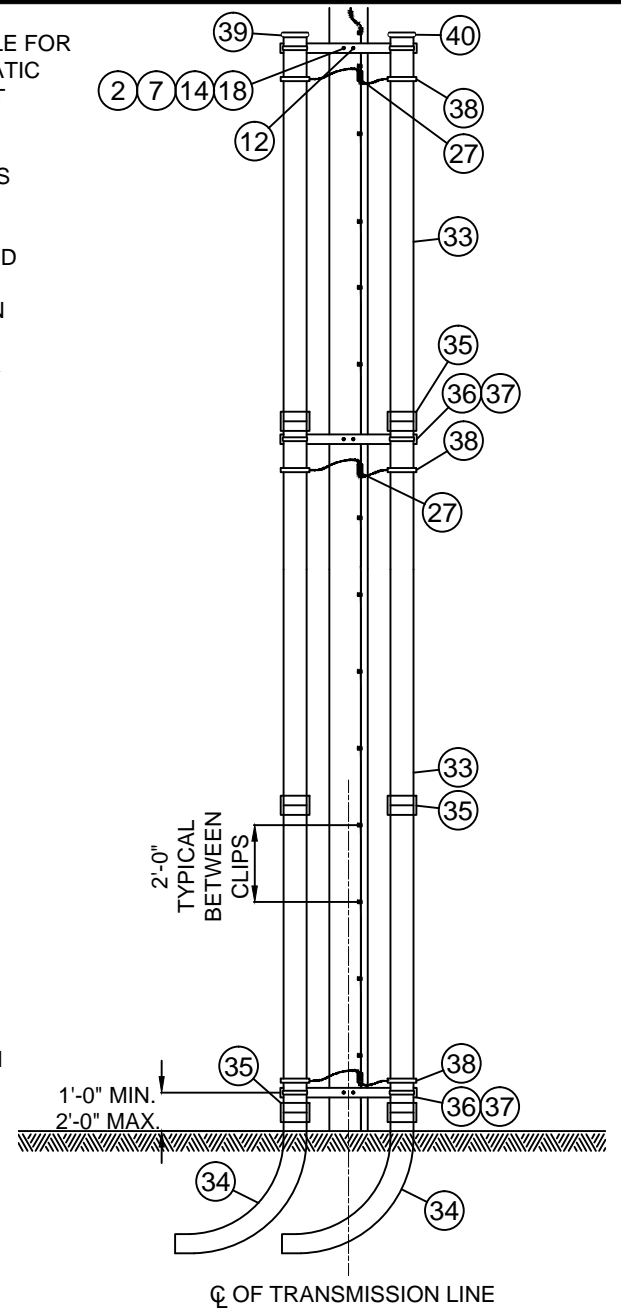
6 INSULATORS PER STRING OR C*CT-TI-9Y-P3-D REFER TO "TS" SECTION FOR CONDUCTOR SPECIFY

REFER TO "TH" AND "TR" SECTIONS FOR GUYING AND ANCHOR DETAILS

USE INSULATED 20M ASSEMBLIES TR-01-X

POLE GROUNDING USE TG-02-002

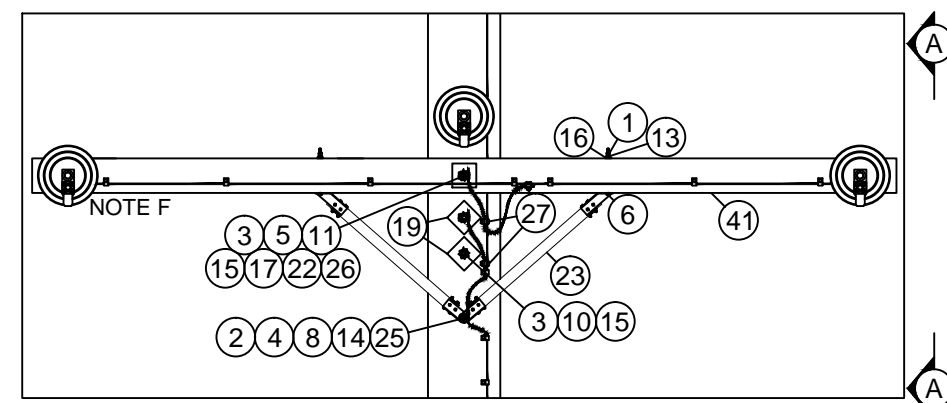
☐ OF TRANSMISSION LINE



2'-0" TYPICAL BETWEEN CLIPS

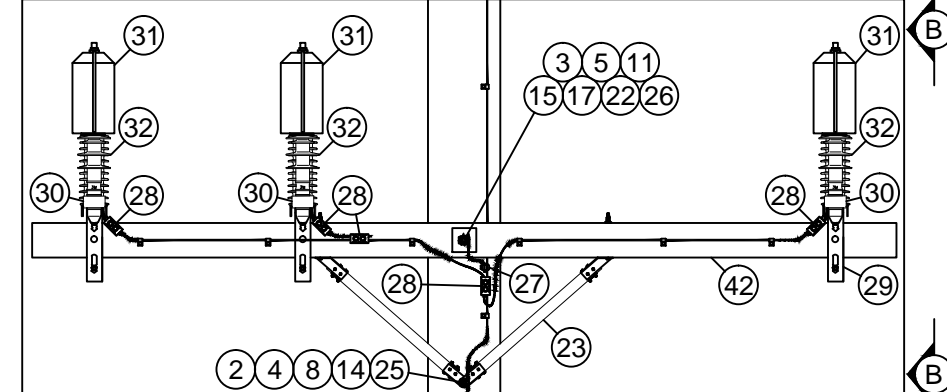
1'-0" MIN. 2'-0" MAX.

☐ OF TRANSMISSION LINE



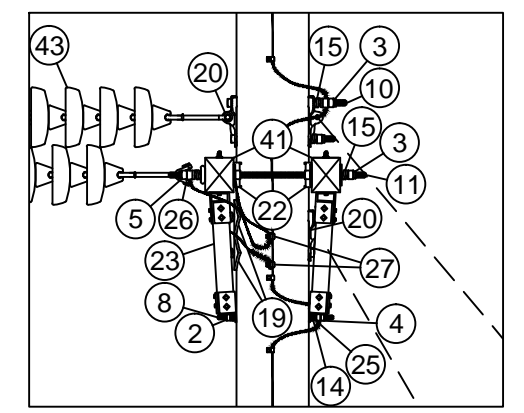
Detail 'A'

GROUND WIRE ON INSIDE OF ARM. SHOWN TO ILLUSTRATE INSTALLATION.

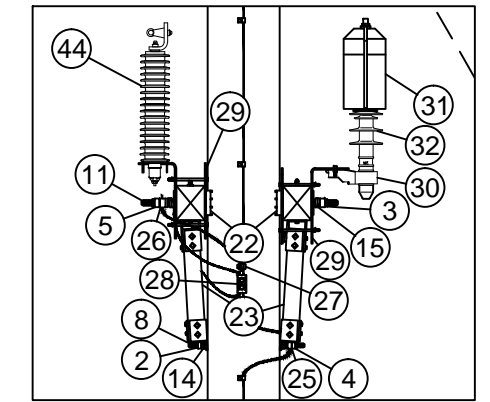


Detail 'C'

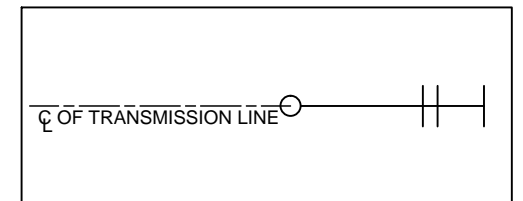
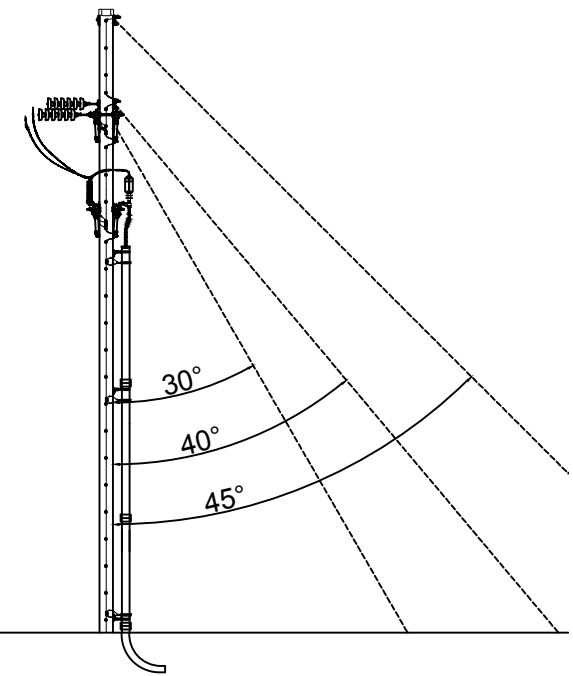
CABLE TERMINATOR GROUNDING



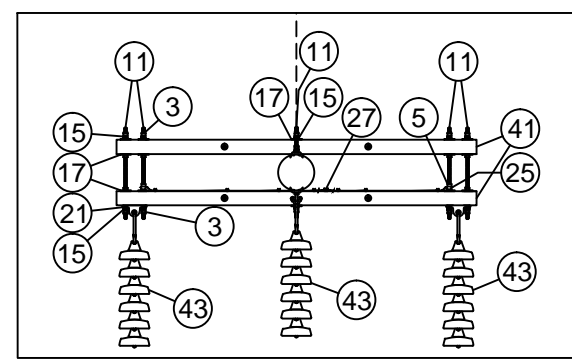
View 'A-A'



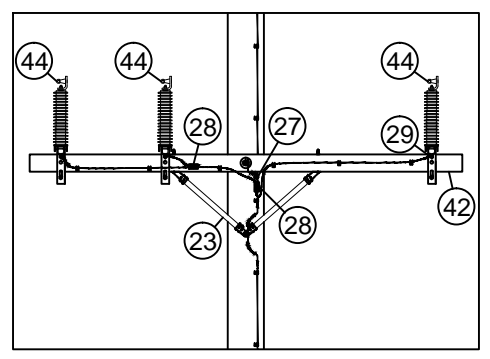
View 'B-B'



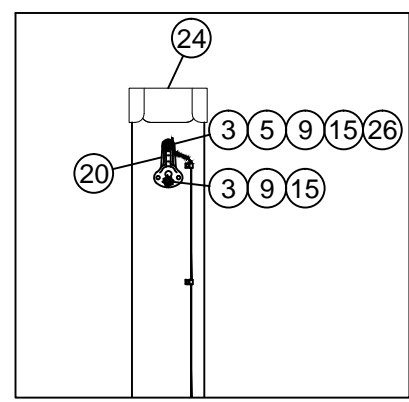
Guying Plan



Plan View



Detail 'C' LIGHTNING ARRESTER GROUNDING



Detail 'B'

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY					REVISION
Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.				Drawing Scale: NTS	
	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS - WOOD 35KV SINGLE POLE SINGLE CIRCUIT TERMINAL DEADEND RISER STRUCTURE WITHOUT SWITCH TYPE DRSB			00
	Drwn. By: B. Franklin	Date Dr.: 10/29/2013	Checked By: Becken/Hart	Date Ck.: 2/12/2015	DATE 5/21/2015
Approved By: Barry R. Hart				Date App.: 5/18/2015	Sheet 1
TM2.23.TN-5HTRK-X					

BILL OF MATERIAL (CU Type: POLE)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TN-5HTRK
1	8	EA	1000910500	NUT LCK MF SQ 1/2 BOLT GALV
2	7	EA	1000910600	NUT LCK MF SQ 5/8 BOLT GALV
3	12	EA	1000910800	NUT LCK MF SQ 7/8 BOLT GALV
4	2	EA	1000911700	NUT SQ 5/8 BOLT GALV
5	5	EA	6000273770	NUT SQ 7/8 BOLT GALV
6	8	EA	6000272053	BOLT SQ HEAD 1/2 X 7 W/ SQ NUT (NOTE C)
7	3	EA	1035473026	BOLT SQ HEAD 5/8 X 26 W/ SQ NUT (NOTE C)
8	2	EA	191868	BOLT DA 5/8 X 20 W/ 4 NUTS (NOTE C)
9	2	EA	1035475016	BOLT SQ HEAD 7/8 X 16 W/ SQ NUT (NOTE C)
10	4	EA	1035475022	BOLT SQ HEAD 7/8 X 22 W/ SQ NUT (NOTE C)
11	6	EA	6000272460	BOLT DA 7/8 X 26 W/ 4 NUTS (NOTE C)
12	3	EA	1007420850	SCR LAG 1/2 X 3
13	8	EA	6000274590	WASHER HELICAL (1/2")
14	7	EA	6000274600	WASHER HELICAL (5/8")
15	18	EA	6000274612	WASHER HELICAL (7/8")
16	8	EA	6000274808	WASHER 2" FLAT ROUND (1/2")
17	16	EA	1000946500	WASHER 4" SQ. ROUND (7/8")
18	3	EA	6000274821	WASHER 4" SQ. CURVED (5/8")
19	2	EA	6000274880	WASHER 4" SQ. CURVED (7/8")
20	5	EA	6000274040	PLT POLE EYE 15/16 H
21	2	EA	6000274505	DEAD END TEE, 60K
22	4	EA	1036470025	GRID, TMBR CNCTR, 4-1/8 SQ 15/16 H
23	4	EA	6000740330	CROSSARM BRACES WOOD, 35" LONG (1 PAIR)
24	1	EA	6000820052	POLE TOPPER 19"

BILL OF MATERIAL (CU Type: SHLDO)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TN-5HTRK
25	2	EA	1036200005	CLMP GRND WIRE U-CLIP 11/16 H
26	5	EA	1036200007	CLMP GRND WIRE U-CLIP 15/16 H
27	4	EA	1036232100	CONN 1B W/SPCR
28	10	EA	6000113592	CONN 2B GRD BRZ
29	6	EA	6000620100	EQUIPMENT MTG CLMP
30	3	EA	6000620090	CABLE MTG BRCKT
31	3	EA	6000312878	WILDLIFE PROTECTOR
32	3	EA	6000215945	CABLE TERM SIL RUBBER COLD SHRINK
33	6	EA	6000230560	CONDUIT 6" X 10'-0" GALVANIZED
34	2	EA	90459	ELBOW RIGID CONDUIT 6" GALVANIZED
35	6	EA	X	COUPLING RIGID CONDUIT 6" GALVANIZED
36	3	EA	6000620110	STANDOFF BRCKT F/ (2) 6" RIGID CONDUIT
37	6	EA	6000620120	STRAP SS F/ 6" RIGID CONDUIT
38	6	EA	6000251050	CLMP GRD F/ 6" RIGID CONDUIT
39	1	EA	6000221535	GRIP RISER F/ 6" RIGID CONDUIT
40	1	EA	6000234260	CAP GALV F/ 6" RIGID CONDUIT

BILL OF MATERIAL (CU Type: XARM)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TT-9F-C-BB12
41	2 CUs	EA	6000740560	DOUBLE CROSSARM FIBERGLASS, 2 PIN 4-3/4" X 5-3/4" X 12FT
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TT-5F-M-BB12
42	2 CUs	EA	6000740580	SINGLE CROSSARM FIBERGLASS, 4" X 6" X 12FT

BILL OF MATERIAL (CU Type: INSO)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9P-D3-6
43	3 CUs	EA	6000310739	INS SUS CL52-3 20K M&E BRN (6 UNITS/STRING)
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9Y-P3-D
43	3 CUs	EA	6000316439	INS POLY Y-BALL 30K 6 UNIT EQ.

BILL OF MATERIAL (CU Type: LTNG ARRESTER)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TU-AR5-E
44	3	EA	1088500135	INT CLASS LTNG ARRSTR, 36KV
USE THE MACRO CUs INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.				
CU MACRO	CONDUCTOR	STATIC	COND SPECIFY	STATIC SPECIFY
C*M-TN5HTRKF-B-H	(3) - 477 ACSR 18/1	(1) - 7#7 (7/16") AWLD	TS-N1T1-B	TP-W-XD-G-H
C*M-TN5HTRKF-B-O	(3) - 477 ACSR 18/1	(1) - 36 FIBER OPGW	TS-N1T1-B	TO-W-XD-G-O
C*M-TN5HTRKF-B-S	(3) - 477 ACSR 18/1	(1) - 36 FIBER SPEC. OPGW	TS-N1T1-B	TO-W-XD-G-S
C*M-TN5HTRKF-X-H	(3) - 795 ACSR 26/7	(1) - 7#7 (7/16") AWLD	TS-N1T1-X	TP-W-XD-G-H
C*M-TN5HTRKF-X-O	(3) - 795 ACSR 26/7	(1) - 36 FIBER OPGW	TS-N1T1-X	TO-W-XD-G-O
C*M-TN5HTRKF-X-S	(3) - 795 ACSR 26/7	(1) - 36 FIBER SPEC. OPGW	TS-N1T1-X	TO-W-XD-G-S

CU FUNCTION: TL69 FOR 35KV & 46KV, TG69 FOR 35KV THRU 344KV, T345 FOR 345KV & GREATER.
 FOR CORRECT CU: SUBSTITUTE 5 FOR NYSEG, 6 FOR CMP OR 9 FOR RG&E IN PLACE OF ASTERISK (*_).

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TD FOUNDATION & BACKFILL
 TG SWITCH MAT, GROUND WIRE & GROUND ROD DETAILS
 TH GUYING ASSEMBLIES
 TK MARKINGS
 TR GUY ANCHORS

NOTE B: POLE DRILLING: 5/8" BOLT - 11/16" DIAMETER HOLE
 3/4" BOLT - 13/16" DIAMETER HOLE
 7/8" BOLT - 15/16" DIAMETER HOLE


NOTE C: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

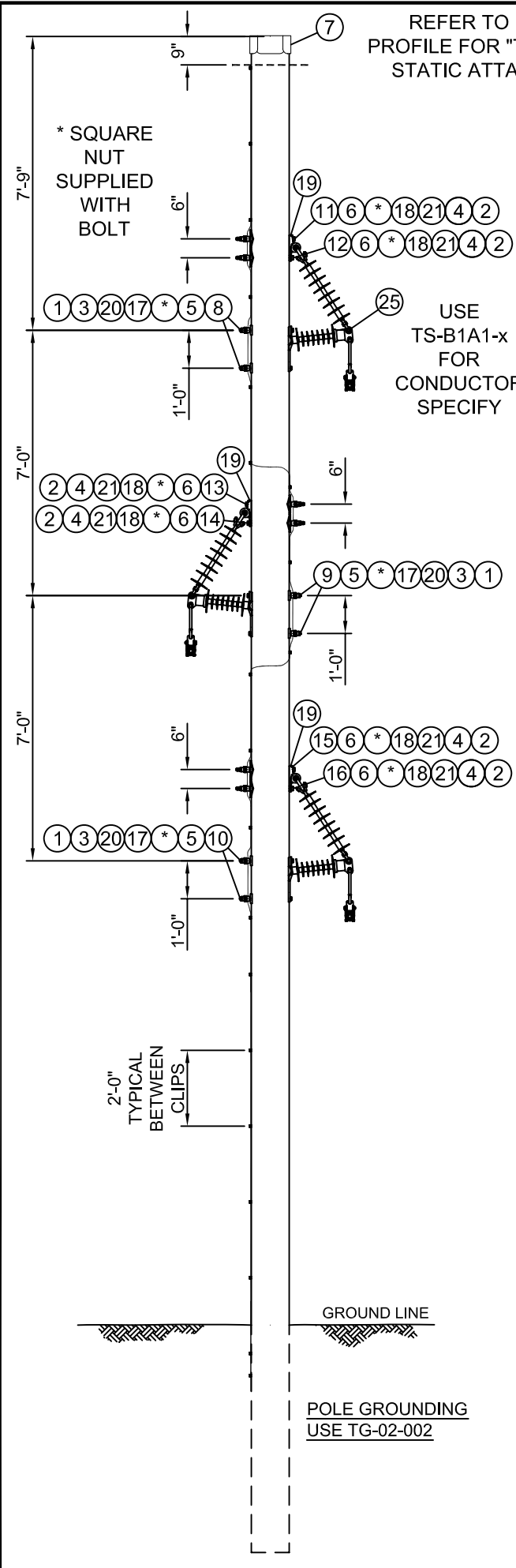
NOTE D: CONDUCTOR TENSION TO THIS STRUCTURE SHALL NOT EXCEED 3000 POUNDS AT NESC HEAVY LOAD.

NOTE E: THIS STRUCTURE IS TO BE USED IN SPECIAL APPLICATIONS ONLY.

NOTE F: GROUND WIRE (ITEM #26) SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF THE CROSSARM, CONTINUOUS FROM CONNECTIONS LOCATED AT EITHER END.

NOTE G: GUYING ANGLES SHOWN ARE GUIDELINES. IF THE SPECIFIC FIELD CONDITIONS IN THE AREA WHERE THIS STRUCTURE IS INSTALLED DO NOT ACCOMMODATE THIS GUYING ARRANGEMENT THEN THE CHANGES TO THE GUYING ARRANGEMENT SHALL BE NOTED ON THE RESPECTIVE PLAN AND PROFILE DRAWING.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY				
Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.				Drawing Scale: NTS
	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS - WOOD 35KV SINGLE POLE SINGLE CIRCUIT TERMINAL DEADEND RISER STRUCTURE WITHOUT SWITCH TYPE DRSB		REVISION 00
	DATE 5/21/2015			
Drwn. By: B. Franklin	Date Dr.: 10/29/2013	Checked By: Becken/Hart	Date Ck.: 2/12/2015	Approved By: Barry R. Hart
Date App.: 5/18/2015				Sheet 2
TM2.23.TN-5HTRK-X				



REFER TO PLAN & PROFILE FOR "TO" OR "TP" STATIC ATTACHMENT

* SQUARE NUT SUPPLIED WITH BOLT

USE TS-B1A1-x FOR CONDUCTOR SPECIFY

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TG-02 POLE GROUNDING
 TD-03-001 FOUNDATION/BACKFILL DETAIL CLASS 1 OR SMALLER
 TD-03-002 FOUNDATION/BACKFILL DETAIL CLASS H POLES

NOTE B: POLE DRILLING: FOR 3/4" BOLTS - 13/16" (POST INSULATOR)
 FOR 7/8" BOLTS - 15/16" (POLE PLATE)

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static	Static Specify
C5M-TN5SBPGS-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5SBPGS-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5SBPGS-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5SBPGS-3-H	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SBPGS-B-H	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SBPGS-X-H	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SBPGX-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-DE-G-O
C5M-TN5SBPGX-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-DE-G-O
C5M-TN5SBPGX-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-DE-G-O
C5M-TN5SBPGX-3-H	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SBPGX-B-H	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SBPGX-X-H	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H

FOR ALL MACRO CUs: (Type of CU: STRU)

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV & greater.

For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TN-XS-BP	
1	6	EA	1000910700		NUT LCK MF SQ 3/4 BOLT GALV	
2	6	EA	1000910800	6000273690	NUT LCK MF SQ 7/8 BOLT GALV	
3	6	EA	1000911800		NUT SQ 3/4 BOLT GALV	
4	6	EA	1000911900	6000273770	NUT SQ 7/8 BOLT GALV	
5	6	EA	1000943500		WSHR CRV 3 SQ X 1/4 THK 13/16 H	
6	6	EA	1000943700		WSHR CRV 4 SQ X 3/8 THK 15/16 H	
7	1	EA	1010177500	6000820050	POLE TOPPER 16 IN DIA	
8	2	EA	192295		BOLT MACH GALV SQHD SQNT 3/4 X 14	
9	2	EA	1035474016		BOLT MACH GALV SQHD SQNT 3/4 X 16	
10	2	EA	192325		BOLT MACH GALV SQHD SQNT 3/4 X 18	
11	1	EA	1035475014	6000272350	BOLT MACH GALV SQHD SQNT 7/8 X 14	
12	1	EA	1035475016	6000272360	BOLT MACH GALV SQHD SQNT 7/8 X 16	
13	1	EA	1035475018	6000272370	BOLT MACH GALV SQHD SQNT 7/8 X 18	
14	1	EA	1035475020	6000272380	BOLT MACH GALV SQHD SQNT 7/8 X 20	
15	1	EA	1035475022	6000272390	BOLT MACH GALV SQHD SQNT 7/8 X 22	
16	1	EA	1035475024	6000272400	BOLT MACH GALV SQHD SQNT 7/8 X 24	
17	6	EA	1036200006	6000251030	CLMP GRND WIRE U-CLIP 13/16 H	
18	6	EA	1036200007	6000251031	CLMP GRND WIRE U-CLIP 15/16 H	
19	6	EA		6000274040	PLT POLE SGL EYE - 15/16 H	
20	6	EA		6000274610	WSHR HELICAL 3/4	
21	6	EA		6000274612	WSHR HELICAL 7/8	

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-4Y-BP	
25	3 CUs	EA	X		INS L/P 46KV H BRACED G/B POLYMER	

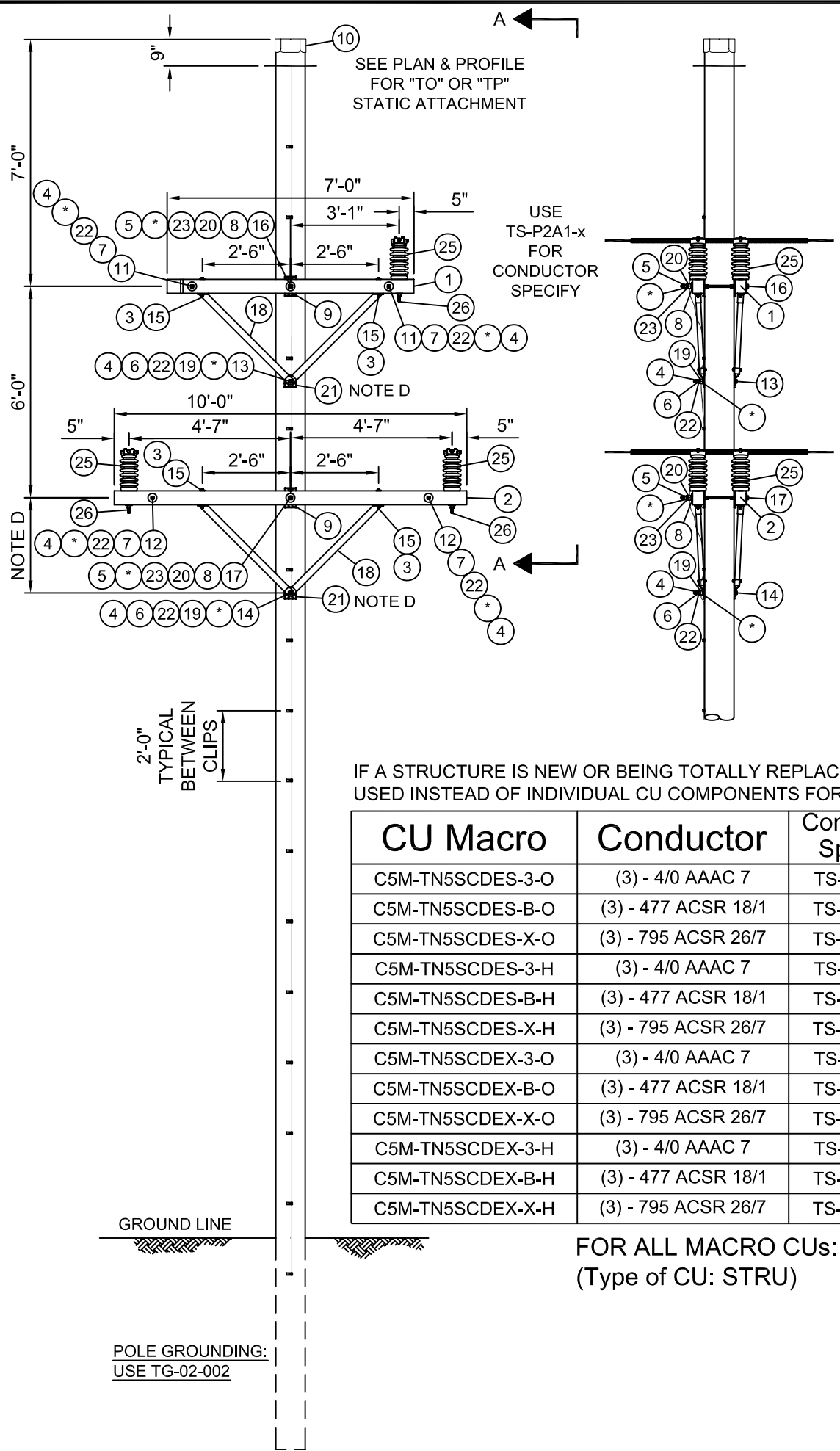
THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact System Engineering - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1/4" = 1'-0"

	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23	TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT TANGENT BRACED POST	ISSUE 0
	DATE / /2013		DATE / /2013
Drwn. By: L.A. Best	Date Dr.: 8/23/2013	Checked By: Bartczak/Becken/Shepard	Date Ck.: / /2013
Approved By: Barry R. Hart	Date App.: / /2013	TN-5SBP	
			Sheet 1

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

ANSI B 11" X 17"



CU Function: TL69 for 35kV & 46kV,
TG69 for 69kV through 344kV, T345 for 345kV and greater.

For correct CU: substitute 5 for NYSEG,
6 for CMP or 9 for RG&E in place of asterisk (*_).

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:

- TG-02-002 POLE GROUNDING
- TD-03-001 FOUNDATION/BACKFILL DETAIL
- CLASS 1 OR SMALLER
- TD-03-002 FOUNDATION/BACKFILL DETAIL
- CLASS H POLES

NOTE B: POLE DRILLING:
CROSSARM HOLE - 13/16"; BRACE HOLE - 11/16"

NOTE C: TO LOCATE THIS HOLE, BOLT ONE END OF NON-ADJUSTABLE BRACE (ITEM 18) TO BOTTOM OF LEVEL CROSSARM, POSITION BRACES AGAINST CENTER OF POLE AND MARK POLE FOR DRILLING AT HOLE IN END PLATE.

NOTE D: TO SEAT SPIKE GRIDS, ASSEMBLE ARMS, BRACES & OTHER REQUIRED HARDWARE. HAND TIGHTEN TO INSURE FIT. USE HYDRAULIC TOOLS TO SET GRIDS PROPERLY.

NOTE E: LONGER OR SHORTER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL SIZE OF THE POLE USED. SUBSTITUTE SAP MATERIAL ID FOR THE LENGTH NEEDED. CONTACT ENGINEERING STANDARDS - TRANSMISSION FOR ASSISTANCE IN CHOOSING MATERIAL ID.

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static	Static Specify
C5M-TN5SCDES-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5SCDES-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5SCDES-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5SCDES-3-H	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SCDES-B-H	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SCDES-X-H	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SCDEX-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-UD-G-O
C5M-TN5SCDEX-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-UD-G-O
C5M-TN5SCDEX-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-UD-G-O
C5M-TN5SCDEX-3-H	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-UD-G-H
C5M-TN5SCDEX-B-H	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-UD-G-H
C5M-TN5SCDEX-X-H	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-UD-G-H

FOR ALL MACRO CUs:
(Type of CU: STRU)

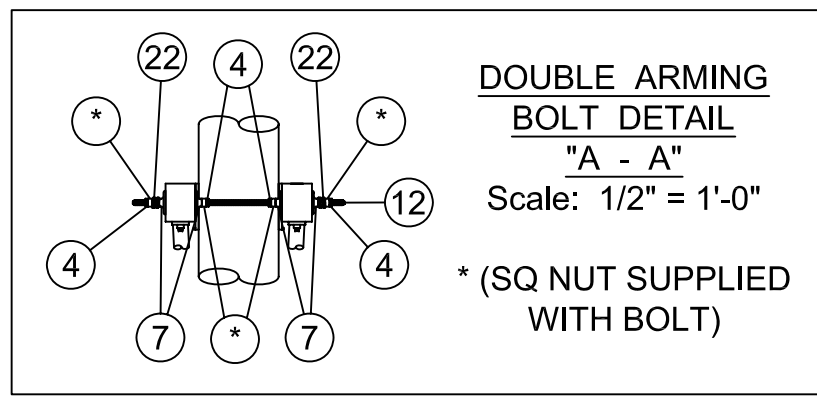
POLE GROUNDING:
USE TG-02-002

BILL OF MATERIAL				Type of CU: XARM
ITEM NO.	QTY	UOM	IUSA MID	CU: C*PT-TT-9W-X-AA07
1	2 CUs	EA	1004015020	ARM WXRМ 3-3/4X4-3/4X7F 04DG02A

BILL OF MATERIAL				Type of CU: XARM
ITEM NO.	QTY	UOM	IUSA MID	CU: C*PT-TT-9W-X-AA10
2	2 CUs	EA	1004016020	ARM WXRМ 3-3/4X4-3/4X10F 04DG31A

BILL OF MATERIAL				Type of CU: POLE
ITEM NO.	QTY	UOM	IUSA MID	CU: C*PT-TN-XS-CDE
3	8	EA	1000910500	NUT LOCK M-F SQ 1/2 BOLT
4	18	EA	1000910600	NUT LOCK M-F SQ 5/8 BOLT
5	2	EA	1000910700	NUT LOCK M-F SQ 3/4 BOLT
6	2	EA	1000911700	NUT SQ FOR 5/8 BOLT
7	16	EA	1000912500	NUT WSHR 3 DIA FOR 5/8 BOLT
8	2	EA	1000912600	NUT WSHR 3 DIA FOR 3/4 BOLT
9	4	EA	1005250040	GRID GAIN 15/16 HOLE 4-1/8 X 6-3/4 S-BE
10	1	EA	6000820052	TOPPER POLE PROTECT POLE TOP 19 IN DIA
11	2	EA	191876	BOLT DBL/ARM GALV 4 SQNT 5/8X22
12	2	EA	751114	BOLT DBL/ARM GALV 4 SQNT 5/8X24
13	1	EA	192155	BOLT SQHD GALV SQNT 5/8 X 14
14	1	EA	192163	BOLT SQHD GALV SQNT 5/8 X 16
15	8	EA	1035532006	BOLT WSHRHD GALV SQNT 1/2 X 6
16	1	EA	1035534022	BOLT WSHRHD GALV SQNT 3/4 X 22
17	1	EA	355-340-24	BOLT WSHRHD GALV SQNT 3/4 X 24
18	4	PR	1035950604	BRC WD NON-ADJ C-C 42.43 HB2017/BM411
19	2	EA	1036200005	CLAMP GRND WIRE U-CLIP 11/16 IN HOLE
20	2	EA	1036200006	CLAMP GRND WIRE U-CLIP 13/16 IN HOLE
21	4	EA	1036470025	GRID GAIN 15/16 HOLE 4-1/8 SQ S-1E
22	10	EA	6000274600	WSHR LCK 2 TURN SPR GALV 5/8
23	2	EA	6000274610	WSHR LCK 2 TURN SPR GALV 3/4

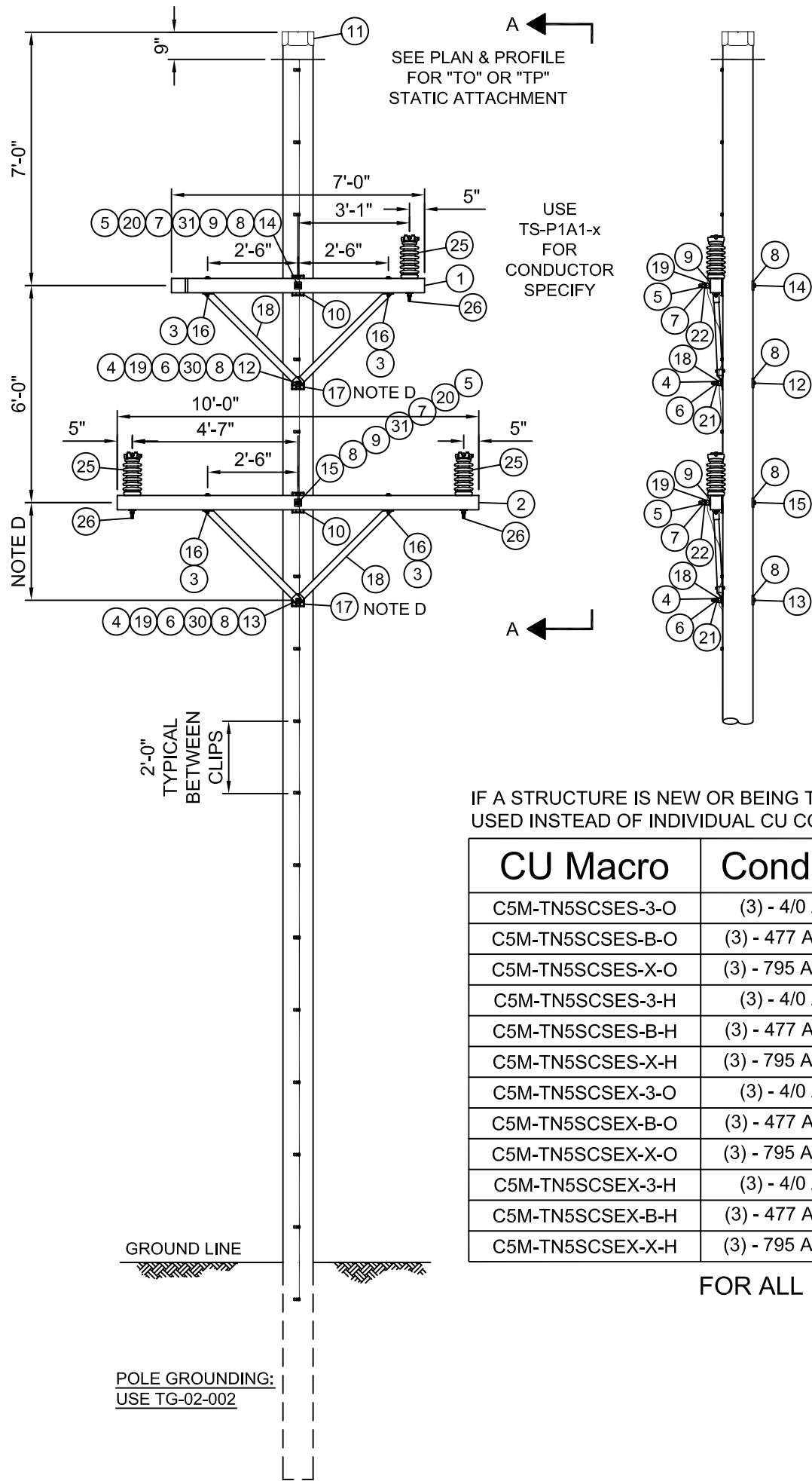
BILL OF MATERIAL				Type of CU: INSO
ITEM NO.	QTY	UOM	IUSA MID	CU: C*CT-TI-5P-V2 (6/STR)
25	1	EA	1005543510	INSUL CLMPT VERT 35kV 3/4 STUD GRY
26	1	EA	1035469027	BOLT STUD POST INSUL 3/4 X 7 TO 7-1/2



Contact Engineering Standards - Transmission for the creation of new standards and CUs.				Drawing Scale: 1/4" = 1'-0"	
	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM2.23.00		TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT PORCELAIN VERTICAL POST INSULATORS DOUBLE WOOD CROSSARMS - (2) 7' AND (2) 10'		
	Drwn. By: L.A. Best	Date Dr.: 6/24/2013	Checked By: Shepard/Becken/Hart	Date Ck.: / /2014	Approved By: Barry R. Hart
TN-5SCDE					ISSUE 0 DATE / /2014 Sheet 1

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

ANSI B 11" X 17"



NOTE A:
 OTHER STANDARD DRAWINGS REQUIRED:
 TG-02-002 POLE GROUNDING
 TD-03-001 FOUNDATION/BACKFILL DETAIL - CLASS 1 OR SMALLER
 TD-03-002 FOUNDATION/BACKFILL DETAIL - CLASS H POLES

NOTE B: POLE DRILLING:
 CROSSARM HOLE - 13/16"; BRACE HOLE - 11/16"

NOTE C: TO LOCATE THIS HOLE, BOLT ONE END OF NON-ADJUSTABLE BRACE (ITEM 9) TO BOTTOM OF LEVEL CROSSARM, POSITION BRACES AGAINST CENTER OF POLE AND MARK POLE FOR DRILLING AT HOLE IN END PLATE.

NOTE D: TO SEAT SPIKE GRIDS, ASSEMBLE ARMS, BRACES & OTHER REQUIRED HARDWARE. HAND TIGHTEN TO INSURE FIT. USE HYDRAULIC TOOLS TO SET GRIDS PROPERLY.

NOTE E: LONGER OR SHORTER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL SIZE OF THE POLE USED. SUBSTITUTE SAP MATERIAL ID FOR THE LENGTH NEEDED. CONTACT ENGINEERING STANDARDS - TRANSMISSION FOR ASSISTANCE IN CHOOSING MATERIAL ID.

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static	Static Specify
C5M-TN5SCSES-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5SCSES-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5SCSES-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5SCSES-3-H	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SCSES-B-H	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SCSES-X-H	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5SCSEX-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-UD-G-O
C5M-TN5SCSEX-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-UD-G-O
C5M-TN5SCSEX-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-UD-G-O
C5M-TN5SCSEX-3-H	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-UD-G-H
C5M-TN5SCSEX-B-H	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-UD-G-H
C5M-TN5SCSEX-X-H	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-UD-G-H

FOR ALL MACRO CUs: (Type of CU: STRU)

POLE GROUNDING:
 USE TG-02-002

BILL OF MATERIAL				Type of CU: XARM
ITEM NO.	QTY	UOM	IUSA MID	CU: C*PT-TT-9W-X-AA07
1	1 CU	EA	1004015020	ARM WXR3M 3-3/4X4-3/4X7F 04DG02A

BILL OF MATERIAL				Type of CU: XARM
ITEM NO.	QTY	UOM	IUSA MID	CU: C*PT-TT-9W-X-AA10
2	1 CU	EA	1004016020	ARM WXR3M 3-3/4X4-3/4X10F 04DG31A

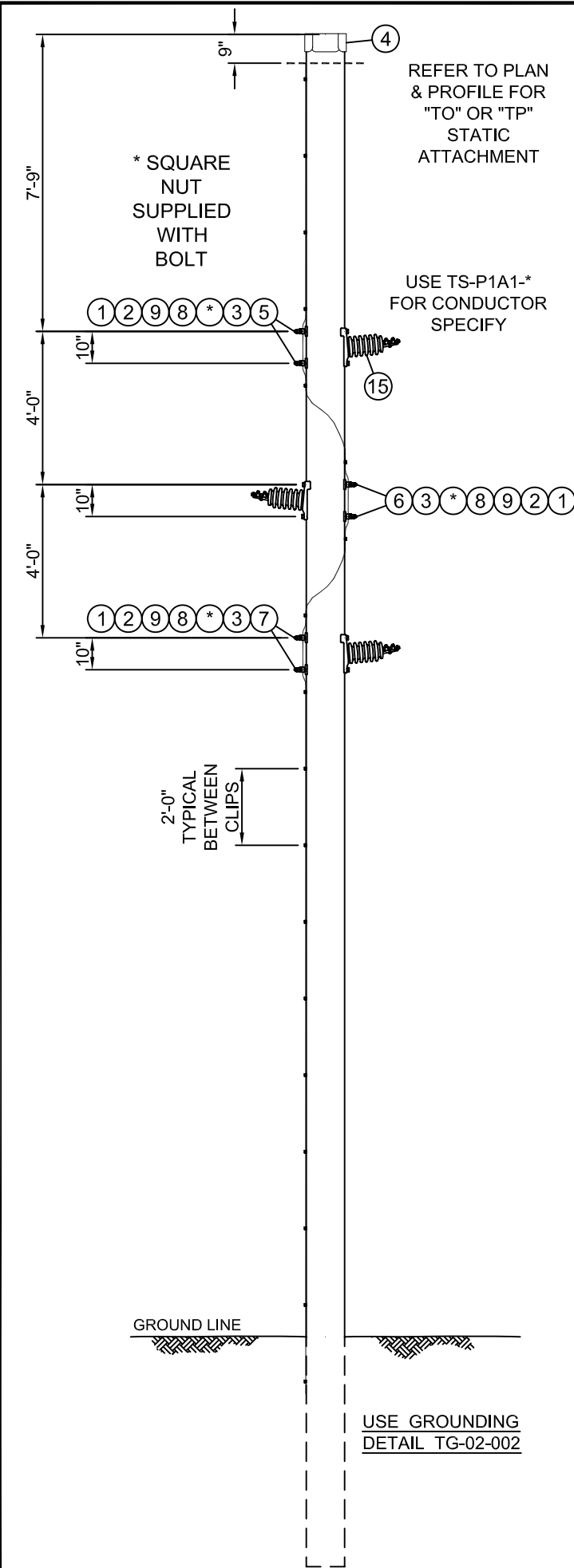
BILL OF MATERIAL				Type of CU: POLE
ITEM NO.	QTY	UOM	IUSA MID	CU: C*PT-TN-XS-CSE
3	4	EA	1000910500	NUT LOCK M-F SQ 1/2 BOLT
4	2	EA	1000910600	NUT LOCK M-F SQ 5/8 BOLT
5	2	EA	1000910700	NUT LOCK M-F SQ 3/4 BOLT
6	2	EA	1000911700	NUT SQ FOR 5/8 BOLT
7	2	EA	1000911800	NUT SQ FOR 3/4 BOLT
8	4	EA	6000274870	WSHR CRVD CAST 4 SQ 7/16 THK 13/16 HOLE
9	2	EA	1000946000	WSHR FLAT 2-1/4 SQ 3/16 THK 13/16 HOLE
10	2	EA	1005250040	GRID GAIN 15/16 HOLE 4-1/8 X 6-3/4 S-BE
11	1	EA	6000820052	TOPPER POLE PROTECT POLE TOP 19 IN DIA
12	1	EA	192155	BOLT SQHD GALV SQNT 5/8 X 14
13	1	EA	192163	BOLT SQHD GALV SQNT 5/8 X 16
14	1	EA	192325	BOLT SQHD GALV SQNT 3/4 X 18
15	1	EA	192333	BOLT SQHD GALV SQNT 3/4 X 20
16	4	EA	1035532006	BOLT WSHRHD GALV SQNT 1/2 X 6
17	2	PR	1035950604	BRC WD NON-ADJ C-C 42.43 HB2017/BM411
18	2	EA	1036200005	CLAMP GRND WIRE U-CLIP 11/16 IN HOLE
19	2	EA	1036200006	CLAMP GRND WIRE U-CLIP 13/16 IN HOLE
20	2	EA	1036470025	GRID GAIN 15/16 HOLE 4-1/8 SQ S-1E
21	2	EA	6000274600	WSHR LCK 2 TURN SPR GALV 5/8
22	2	EA	6000274610	WSHR LCK 2 TURN SPR GALV 3/4

BILL OF MATERIAL				Type of CU: INSO
ITEM NO.	QTY	UOM	IUSA MID	CU: C*CT-TI-5P-V2 (3/STR)
25	1	EA	1005543510	INSUL CLMPT VERT 35KV 3/4 STUD GRY
26	1	EA	1035469027	BOLT STUD POST INSUL 3/4 X 7 TO 7-1/2

CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV & greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*).

Contact Engineering Standards - Transmission for the creation of new standards and CUs.				Drawing Scale: 1/4" = 1'-0"	
	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM2.23.00		TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT PORCELAIN VERTICAL POST INSULATORS SINGLE WOOD CROSSARMS - (1) 7' AND (1) 10'		
	Drwn. By: L.A. Best	Date Dr.: 6/24/2013	Checked By: Shepard/Becken/Hart	Date Ck.: / /2014	Approved By: Barry R. Hart
TN-5SCSE					ISSUE 0 DATE / /2014 Sheet 1



NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TG-02-002 POLE GROUNDING
 TD-03-001 FOUNDATION/BACKFILL DETAIL CLASS 1 OR SMALLER
 TD-03-002 FOUNDATION/BACKFILL DETAIL CLASS H POLES

NOTE B: POLE DRILLING: FOR 3/4" BOLTS - 13/16" (POST INSULATOR)

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV & greater.

For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TN-XS-TPE	
1	6	EA	1000910700		NUT LCK MF SQ 3/4 BOLT GALV	
2	6	EA	1000911800		NUT SQ 3/4 BOLT GALV	
3	6	EA	1000943500		WSHR CRV 3 SQ X 1/4 THK 13/16 H	
4	1	EA	1010177500	6000820050	POLE TOPPER 16 IN DIA	
5	2	EA	1035474016		BOLT MACH GALV SQHD SQNT 3/4 X 16	
6	2	EA	192325		BOLT MACH GALV SQHD SQNT 3/4 X 18	
7	2	EA	192333		BOLT MACH GALV SQHD SQNT 3/4 X 20	
8	6	EA	1036200006	6000251030	CLMP GRND WIRE U-CLIP 13/16 H	
9	6	EA		6000274610	WSHR HELICAL 3/4	

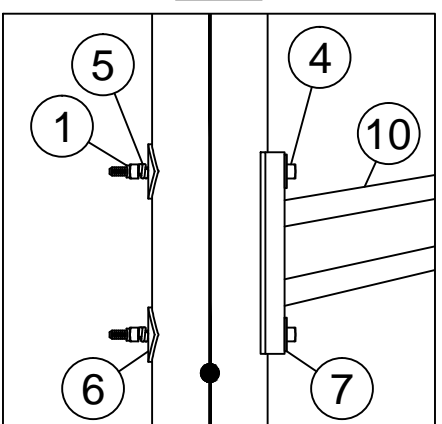
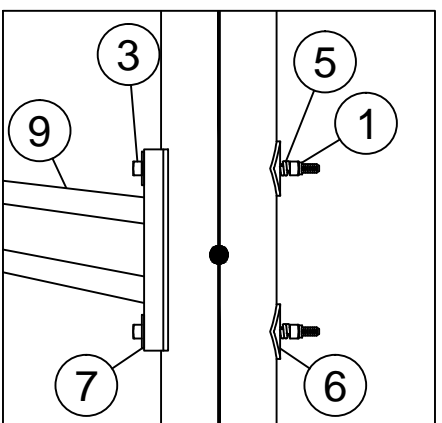
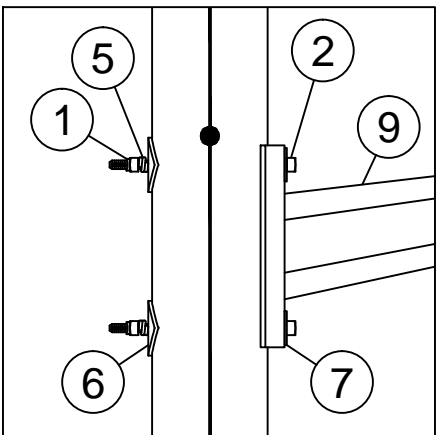
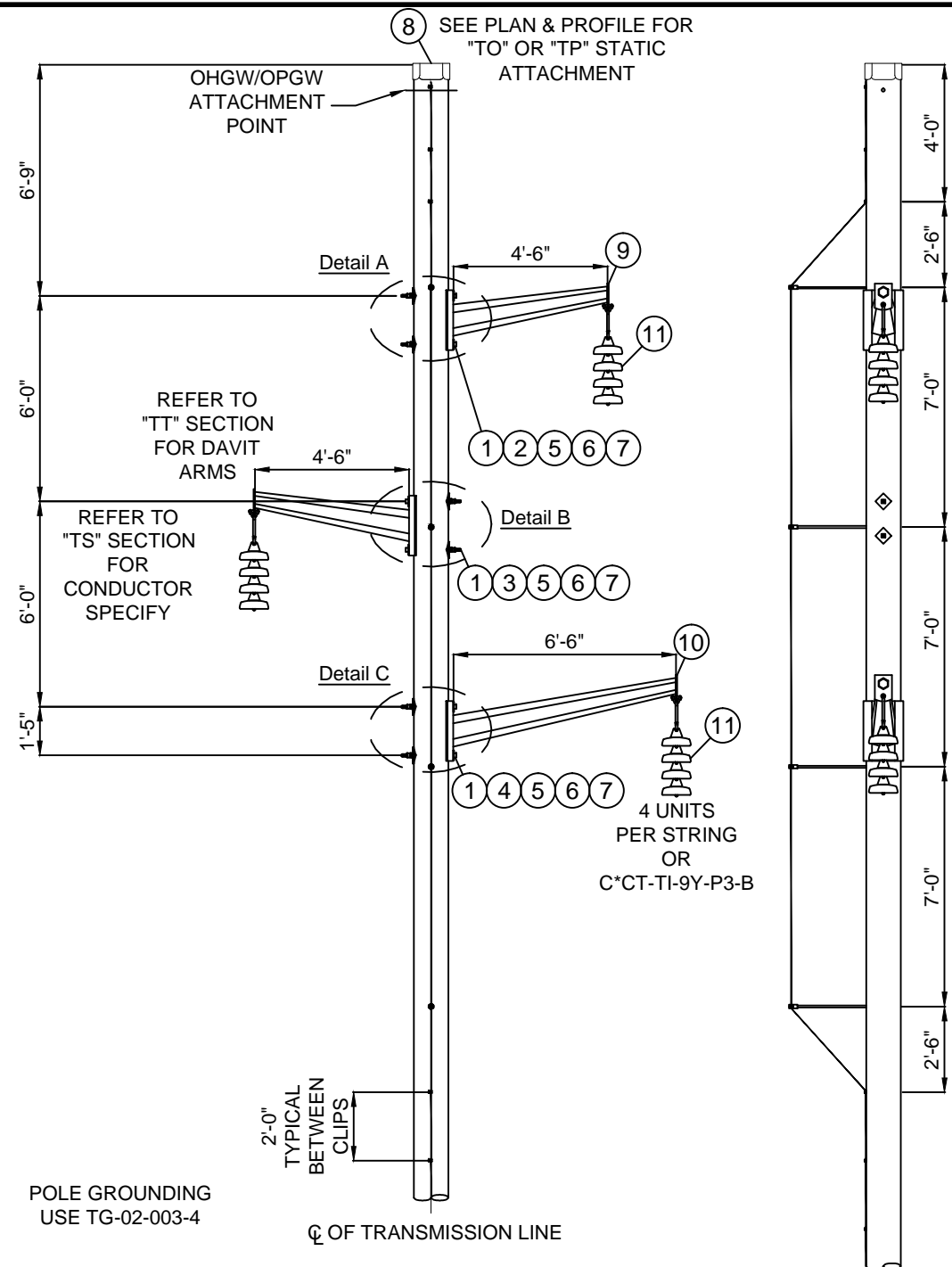
BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-5P-HC	
15	3 CUs	EA	1005553510		INS L/P 35KV H G/B CLMPT PORCELAIN	

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static	Static Specify
C5M-TN5STPES-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5STPES-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5STPES-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-TS-G-O
C5M-TN5STPES-3-H	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5STPES-B-H	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5STPES-X-H	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-TS-G-H
C5M-TN5STPEX-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-UD-G-O
C5M-TN5STPEX-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-UD-G-O
C5M-TN5STPEX-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-UD-G-O
C5M-TN5STPEX-3-H	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-UD-G-H
C5M-TN5STPEX-B-H	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-UD-G-H
C5M-TN5STPEX-X-H	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-UD-G-H

FOR ALL MACRO CUs: (Type of CU: STRU)

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY					
Contact System Engineering - Transmission Section for the creation of new standards and CUs.				Drawing Scale: 1/4" = 1'-0"	
	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23		TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT TANGENT - STAGGERED HORIZONTAL POSTS PORCELAIN POST INSULATORS - CURVED GAIN BASE		ISSUE 0
					DATE / /2013
Drwn. By: L.A. Best	Date Dr.: 6/24/2013	Checked By: Bartczak/Becken/Shepard	Date Ck.: / /2013	Approved By: Barry R. Hart	Date App.: / /2013
TN-5STPE					Sheet 1



BILL OF MATERIAL (CU Type: POLE)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TN-XSTS
1	6	EA	1000910800	NUT LCK MF SQ 7/8 BOLT GALV
2	2	EA	1035475024	BOLT SQ HEAD 7/8 X 24 W/ SQ NUT (NOTE C)
3	2	EA	1035475026	BOLT SQ HEAD 7/8 X 26 W/ SQ NUT (NOTE C)
4	2	EA	1035475028	BOLT SQ HEAD 7/8 X 28 W/ SQ NUT (NOTE C)
5	6	EA	6000274612	WASHER HELICAL (7/8")
6	6	EA	6000274880	WASHER 4" SQ CURVED (7/8")
7	6	EA	1000946500	WASHER 4" SQ FLAT (7/8")
8	1	EA	6000820052	POLE TOPPER 19"

BILL OF MATERIAL (CU Type: DAVIT ARM)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TT-9S-D-ZZ84
9	2	EA	6000617074	ARM DAVIT STEEL 4'-6"

BILL OF MATERIAL (CU Type: DAVIT ARM)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TT-9S-D-ZZ87
10	1	EA	6000617058	ARM DAVIT STEEL 6'-6"

BILL OF MATERIAL (CU Type: INSO)				
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9P-D3-4
11	3 CUs	EA	6000310739	INS SUS CL52-3 20K M&E BRN (4 UNITS/STRING)
ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9Y-P3-B
11	3	EA	6000314539	INS POLY Y-BALL 30K 4 UNIT EQ.

USE THE MACRO CUs INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU MACRO	CONDUCTOR	STATIC	COND SPECIFY	STATIC SPECIFY
C*M-TN5STSA-B-H	(3) - 477 ACSR 18/1	(1) - 7#7 (7/16") AWLD	TS-S1A1-B	TP-W-TS-G-H
C*M-TN5STSA-B-O	(3) - 477 ACSR 18/1	(1) - 36 FIBER OPGW	TS-S1A1-B	TO-W-TS-G-O
C*M-TN5STSA-B-S	(3) - 477 ACSR 18/1	(1) - 36 FIBER SPEC. OPGW	TS-S1A1-B	TO-W-TS-G-S
C*M-TN5STSA-X-H	(3) - 795 ACSR 26/7	(1) - 7#7 (7/16") AWLD	TS-S1A1-X	TP-W-TS-G-H
C*M-TN5STSA-X-O	(3) - 795 ACSR 26/7	(1) - 36 FIBER OPGW	TS-S1A1-X	TO-W-TS-G-O
C*M-TN5STSA-X-S	(3) - 795 ACSR 26/7	(1) - 36 FIBER SPEC. OPGW	TS-S1A1-X	TO-W-TS-G-S

CU FUNCTION: TL69 FOR 35KV & 46KV, TG69 FOR 69KV THRU 344KV, T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 5 FOR NYSEG, 6 FOR CMP OR 9 FOR RG&E IN PLACE OF ASTERISK (C*_).

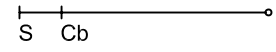
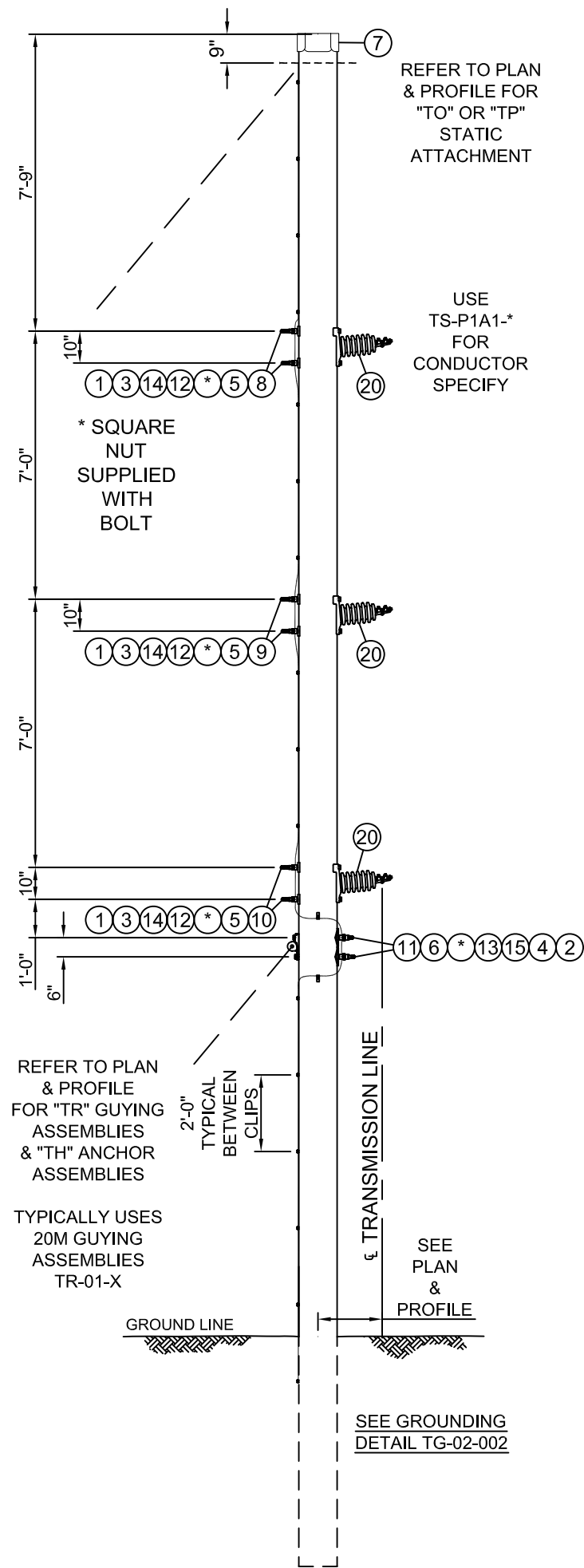
NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TD FOUNDATION & BACKFILL
 TG GROUND WIRE & GROUND ROD DETAIL
 TK MARKINGS

NOTE B: POLE DRILLING: ALL HOLES - 15/16" DIAMETER

NOTE C: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE D: REFER TO SECTION "TS" FOR CONDUCTOR ASSEMBLIES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY				
Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.			Drawing Scale: 1" = 5'	
	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS - WOOD 35KV SINGLE POLE SINGLE CIRCUIT TANGENT STRUCTURE - SUSPENSION INSULATORS TYPE BN-TS		REVISION 00 DATE 5/21/2015
		Drwn. By: B. Franklin Date Dr.: 3/12/2013	Checked By: Becken/Hart	Date Ck.: 3/05/2015
TM2.23.TN-5STSA-X				Sheet 1



Typical Guying & Anchoring
 C*PT-TR-01-T-02-B
 C*PT-TH-01-001-AB

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TG-02-002 POLE GROUNDING
 TD-03-001 FOUNDATION/BACKFILL DETAIL CLASS 1 OR SMALLER
 TD-03-002 FOUNDATION/BACKFILL DETAIL CLASS H POLES

NOTE B: POLE DRILLING: FOR 3/4" BOLTS - 13/16" (POST INSULATOR)
 FOR 7/8" BOLTS - 15/16" (POLE PLATE)

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV & greater.

For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TN-XV-APE	
1	6	EA	1000910700		NUT LCK MF SQ 3/4 BOLT GALV	
2	2	EA	1000910800		NUT LCK MF SQ 7/8 BOLT GALV	
3	6	EA	1000911800		NUT SQ 3/4 BOLT GALV	
4	2	EA	1000911900		NUT SQ 7/8 BOLT GALV	
5	6	EA	1000943500		WSHR CRV 3 SQ X 1/4 THK 13/16 H	
6	2	EA	1000943700		WSHR CRV 4 SQ X 3/8 THK 15/16 H	
7	1	EA	1010177500	6000820050	POLE TOPPER 16 IN DIA	
8	2	EA	1035474016		BOLT MACH GALV SQHD SQNT 3/4 X 16	
9	2	EA	192325		BOLT MACH GALV SQHD SQNT 3/4 X 18	
10	2	EA	192333		BOLT MACH GALV SQHD SQNT 3/4 X 20	
11	2	EA	1035475024		BOLT MACH GALV SQHD SQNT 7/8 X 24	
12	6	EA	1036200006	6000251030	CLMP GRND WIRE U-CLIP 13/16 H	
13	2	EA	1036200007		CLMP GRND WIRE U-CLIP 15/16 H	
14	6	EA		6000274610	WSHR HELICAL 3/4	
15	2	EA		6000274612	WSHR HELICAL 7/8	

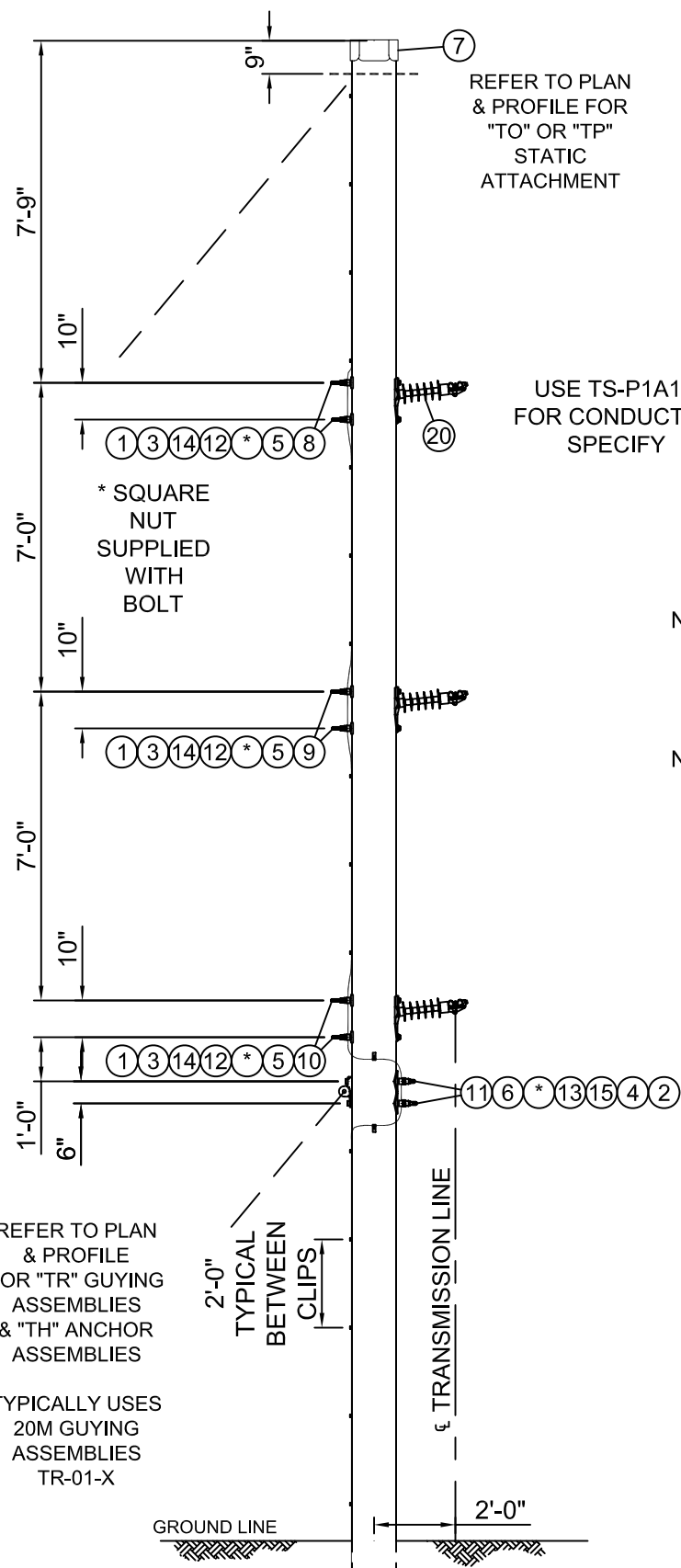
BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-5P-HC	
20	3 CUs	EA	1005553510		INS L/P 35KV H G/B CLMPT PORCELAIN	

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

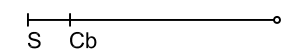
CU Macro	Conductor	Conductor Specify	Static	Static Specify	Guying	Guying Specify
C5M-TN5VAPES-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-A1-G-O	20M Awld	(2) TR-01-S-130
C5M-TN5VAPES-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-A1-G-O	20M Awld	(2) TR-01-S-130
C5M-TN5VAPES-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-A1-G-O	20M Awld	(2) TR-01-S-130
C5M-TN5VAPES-3-L	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-AS-G-H	20M Awld	(2) TR-01-S-130
C5M-TN5VAPES-B-L	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-AS-G-H	20M Awld	(2) TR-01-S-130
C5M-TN5VAPES-X-L	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-AS-G-H	20M Awld	(2) TR-01-S-130

FOR ALL MACRO CUs: (Type of CU: STRU)

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY					
Contact System Engineering - Transmission Section for the creation of new standards and CUs.				Drawing Scale: 1/4" = 1'-0"	
	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23		TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT 0° - 15° ANGLE - HORIZONTAL POSTS ALL ONE SIDE PORCELAIN POST INSULATORS - CURVED GAIN BASE		ISSUE 0
	Drwn. By: L.A. Best		Date Dr.: 6/24/2013	Checked By: Bartczak/Becken/Shepard	Date Ck.: / /2013
Date App.: / /2013		Approved By: Barry R. Hart		Date App.: / /2013	
TN-5VAPE					Sheet 1



REFER TO PLAN & PROFILE FOR "TO" OR "TP" STATIC ATTACHMENT



Typical Guying & Anchoring
C*PT-TR-01-T-02-B
C*PT-TH-01-001-AB

USE TS-P1A1-*
FOR CONDUCTOR
SPECIFY

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
TG-02-002 POLE GROUNDING
TD-03-001 FOUNDATION/BACKFILL DETAIL CLASS 1 OR SMALLER
TD-03-002 FOUNDATION/BACKFILL DETAIL CLASS H POLES

NOTE B: POLE DRILLING: FOR 3/4" BOLTS - 13/16" (POST INSULATOR)
FOR 7/8" BOLTS - 15/16" (POLE PLATE)

REFER TO PLAN & PROFILE FOR "TR" GUYING ASSEMBLIES & "TH" ANCHOR ASSEMBLIES

TYPICALLY USES 20M GUYING ASSEMBLIES TR-01-X

2'-0" TYPICAL BETWEEN CLIPS

SEE GROUNDING DETAIL TG-02-002

CU Function:
TL69 for 35kV & 46kV,
TG69 for 69kV thru 344kV,
T345 for 345kV & greater.

For correct CU:
substitute 5 for NYSEG,
6 for CMP or 9 for RG&E
in place of asterisk (C*_).

BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TN-XVAPF	
1	6	EA	1000910700		NUT LCK MF SQ 3/4 BOLT GALV	
2	2	EA	1000910800		NUT LCK MF SQ 7/8 BOLT GALV	
3	6	EA	1000911800		NUT SQ 3/4 BOLT GALV	
4	2	EA	1000911900		NUT SQ 7/8 BOLT GALV	
5	6	EA	1000943500		WSHR CRV 3 SQ X 1/4 THK 13/16 H	
6	2	EA	1000943700		WSHR CRV 4 SQ X 3/8 THK 15/16 H	
7	1	EA	1010177500	6000820050	POLE TOPPER 16 IN DIA	
8	2	EA	1035474016		BOLT MACH GALV SQHD SQNT 3/4 X 16	
9	2	EA	192325		BOLT MACH GALV SQHD SQNT 3/4 X 18	
10	2	EA	192333		BOLT MACH GALV SQHD SQNT 3/4 X 20	
11	2	EA	1035475024		BOLT MACH GALV SQHD SQNT 7/8 X 24	
12	6	EA	1036200006	6000251030	CLMP GRND WIRE U-CLIP 13/16 H	
13	2	EA	1036200007		CLMP GRND WIRE U-CLIP 15/16 H	
14	6	EA		6000274610	WSHR HELICAL 3/4	
15	2	EA		6000274612	WSHR HELICAL 7/8	

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-5Y-HC	
20	3 CUs	EA	199541		INS L/P 35KV H G/B CLMPT POLYMER	

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static	Static Specify	Guying	Guying Specify
C5M-TN5VAPFS-3-O	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - Std 36 Fiber OPGW	TO-W-A1-G-O	20M Awld	(2) TR-01-S-130
C5M-TN5VAPFS-B-O	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - Std 36 Fiber OPGW	TO-W-A1-G-O	20M Awld	(2) TR-01-S-130
C5M-TN5VAPFS-X-O	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - Std 36 Fiber OPGW	TO-W-A1-G-O	20M Awld	(2) TR-01-S-130
C5M-TN5VAPFS-3-L	(3) - 4/0 AAAC 7	TS-B1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-AS-G-H	20M Awld	(2) TR-01-S-130
C5M-TN5VAPFS-B-L	(3) - 477 ACSR 18/1	TS-B1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-AS-G-H	20M Awld	(2) TR-01-S-130
C5M-TN5VAPFS-X-L	(3) - 795 ACSR 26/7	TS-B1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-AS-G-H	20M Awld	(2) TR-01-S-130

FOR ALL MACRO CUs: (Type of CU: STRU)

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

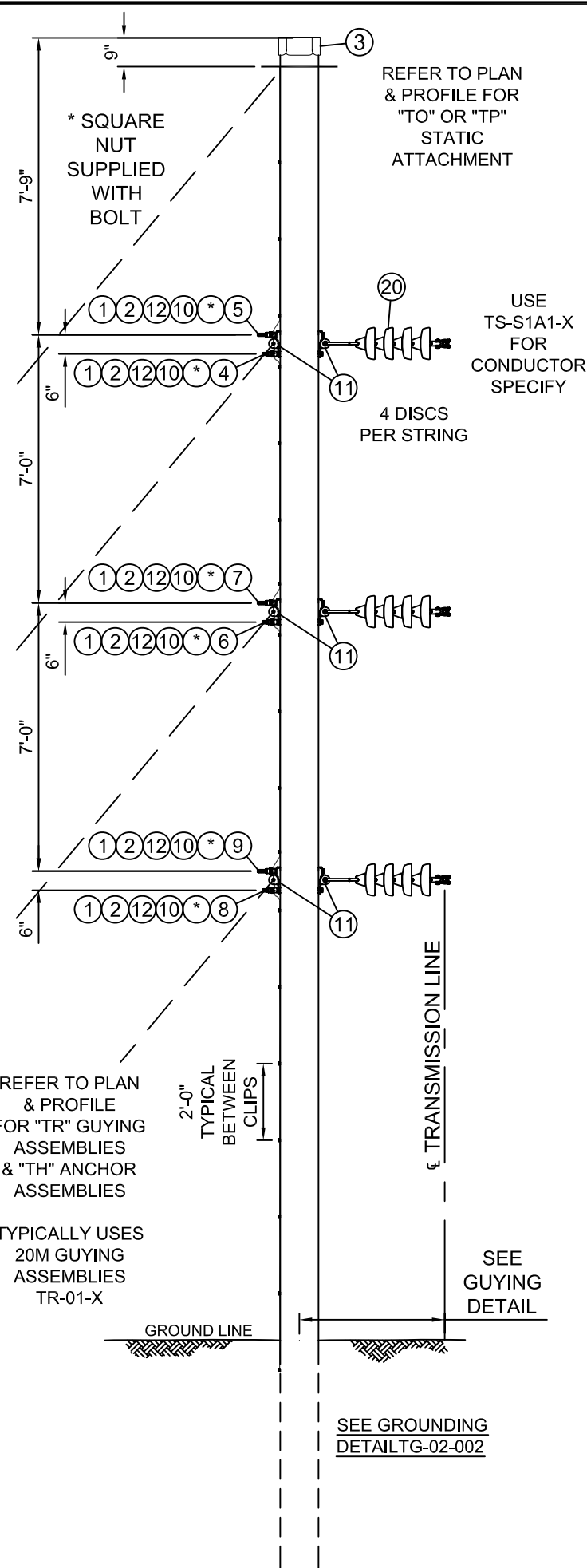
Contact System Engineering - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1/4" = 1'-0"

	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23	TRANSMISSION WOOD STRUCTURE DRAWINGS 35KV SINGLE POLE SINGLE CIRCUIT 0° - 15° ANGLE - HORIZONTAL POSTS ALL ONE SIDE POLYMER POST INSULATORS - CURVED GAIN BASE	ISSUE 0
	DATE / /2013	DATE / /2013	DATE / /2013

Drwn. By: L.A. Best | Date Dr.: 8/26/2013 | Checked By: Bartczak/Becken/Shepard | Date Ck.: / /2013 | Approved By: Barry R. Hart | Date App.: / /2013

TN-5VAPF

Sheet 1



Typical Guying & Anchoring
 C*PT-TR-01-T-02-D
 C*PT-TH-01-001-AD

- NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TG-02-002 POLE GROUNDING
 TD-03-001 FOUNDATION/BACKFILL DETAIL - CLASS 1 OR SMALLER
 TD-03-002 FOUNDATION/BACKFILL DETAIL - CLASS H POLES
- NOTE B: POLE DRILLING: FOR 7/8" BOLTS - 15/16"
- NOTE C: FOR LINE ANGLES OVER 28°, USE HUBBELL (ANDERSON) HAC SERIES OR MACLEAN (BETHEA) ALS SERIES SUSPENSION CLAMPS. FOR SMALLER LINE ANGLES, USE STANDARD SUSPENSION CLAMPS.
- NOTE D: LONGER OR SHORTER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL SIZE OF THE POLE USED. SUBSTITUTE SAP MATERIAL ID FOR THE LENGTH NEEDED. CONTACT ELECTRIC SYSTEM ENGINEERING - TRANSMISSION SECTION FOR ASSISTANCE IN CHOOSING MATERIAL ID.

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV & greater.

For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-XV-AS	
1	6	EA	1000910800	6000273690	NUT LCK MF SQ 7/8 BOLT GALV	
2	6	EA	1000911900	6000273770	NUT SQ 7/8 BOLT GALV	
3	1	EA	1010177500	6000820050	POLE TOPPER 16 IN	
4	1	EA	1035475014	6000272350	BOLT MACH GALV SQHD SQNT 7/8 X 14	
5	1	EA	1035475016	6000272360	BOLT MACH GALV SQHD SQNT 7/8 X 16	
6	1	EA	1035475018	6000272370	BOLT MACH GALV SQHD SQNT 7/8 X 18	
7	1	EA	1035475020	6000272380	BOLT MACH GALV SQHD SQNT 7/8 X 20	
8	1	EA	1035475022	6000272390	BOLT MACH GALV SQHD SQNT 7/8 X 22	
9	1	EA	1035475024	6000272400	BOLT MACH GALV SQHD SQNT 7/8 X 24	
10	6	EA	1036200007	6000251031	CLMP GRND WIRE U-CLIP 15/16 H	
11	6	EA		6000274040	PLT POLE SGL EYE - 15/16 H	
12	6	EA		6000274612	WSHR HELICAL 7/8	

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-9P-D3-4	
20	3 CUs	EA	1005504560	6000310739	INS SUS CL52-3 10K TEST/20K M&E	

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

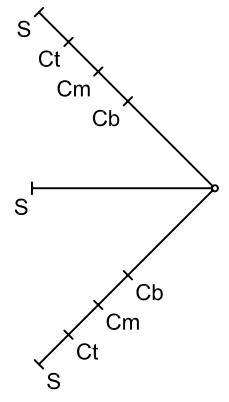
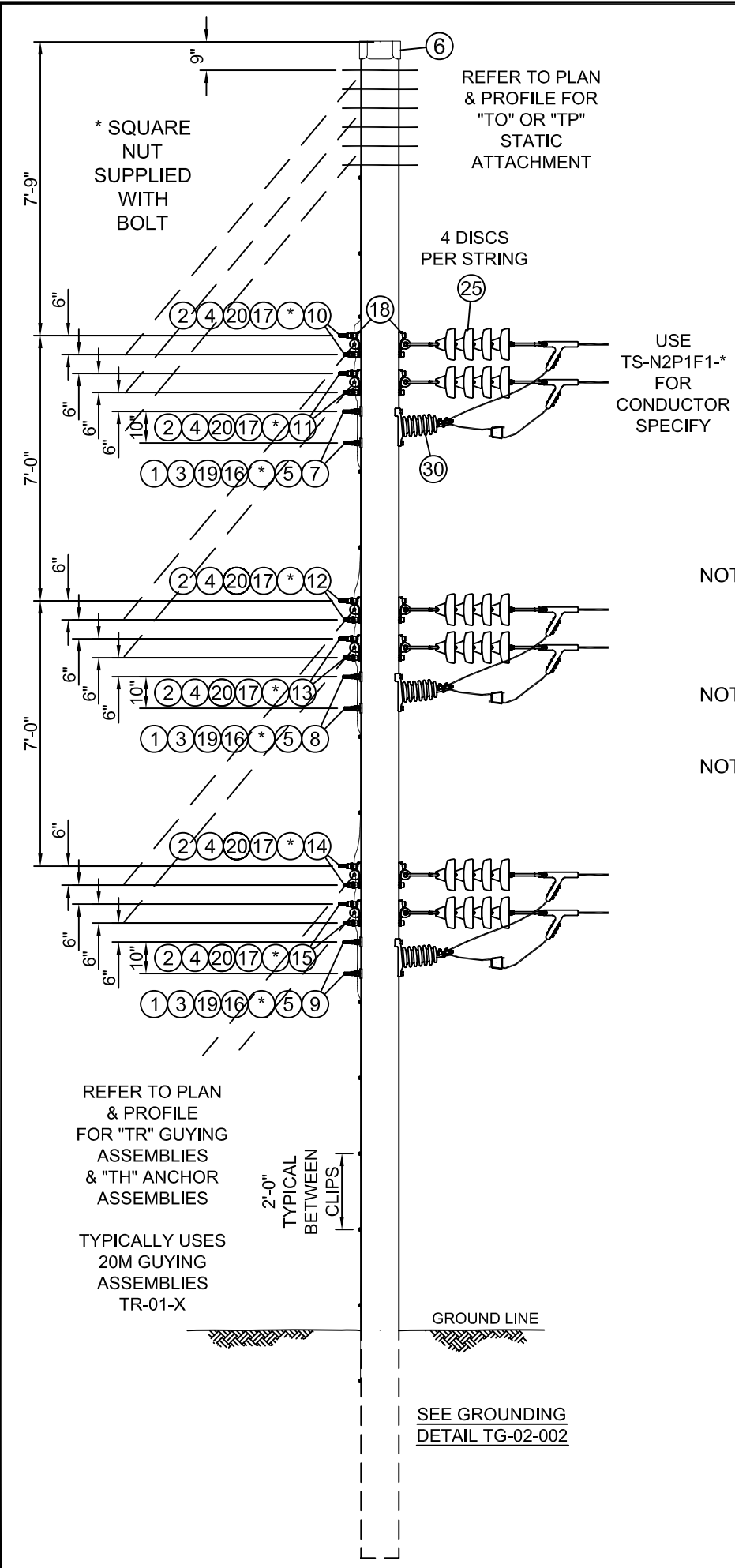
CU Macro	Conductor	Conductor Specify	Static	Static Specify	Guying	Guying Specify
C5M-TN5VASAS-3-O	(3) - 4/0 AAAC 7	TS-S1A1-3	(1) - Std 36 Fiber OPGW	TO-W-A1-G-O	20M Awld	(4) TR-01-S-130
C5M-TN5VASAS-B-O	(3) - 477 ACSR 18/1	TS-S1A1-B	(1) - Std 36 Fiber OPGW	TO-W-A1-G-O	20M Awld	(4) TR-01-S-130
C5M-TN5VASAS-X-O	(3) - 795 ACSR 26/7	TS-S1A1-X	(1) - Std 36 Fiber OPGW	TO-W-A1-G-O	20M Awld	(4) TR-01-S-130
C5M-TN5VASAS-3-H	(3) - 4/0 AAAC 7	TS-S1A1-3	(1) - 7#7 (7/16") AWLD	TP-W-AS-G-H	20M Awld	(4) TR-01-S-130
C5M-TN5VASAS-B-H	(3) - 477 ACSR 18/1	TS-S1A1-B	(1) - 7#7 (7/16") AWLD	TP-W-AS-G-H	20M Awld	(4) TR-01-S-130
C5M-TN5VASAS-X-H	(3) - 795 ACSR 26/7	TS-S1A1-X	(1) - 7#7 (7/16") AWLD	TP-W-AS-G-H	20M Awld	(4) TR-01-S-130

FOR ALL MACRO CUs: (Type of CU: STRU)

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact System Engineering - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1/4" = 1'-0"

	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23	TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT ANGLE SUSPENSION	ISSUE
			0
			DATE
			/ /2013
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:
L.A. Best	6/24/2013	Bartczak/Becken/Shepard	/ /2013
Approved By:	Date App.:	TN-5VAS	
Barry R. Hart	/ /2013	Sheet 1	



Typical Guying & Anchoring
 C*PT-TR-01-T-02-I
 C*PT-TH-01-001-AI

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV & greater.

For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TG-02-002 POLE GROUNDING
 TD-03-001 FOUNDATION/BACKFILL DETAIL - CLASS 1 OR SMALLER
 TD-03-002 FOUNDATION/BACKFILL DETAIL - CLASS H POLES

NOTE B: POLE DRILLING: FOR 3/4" BOLTS - 13/16" (POST INSULATOR)
 FOR 7/8" BOLTS - 15/16" (GUY PLATE)

NOTE C: LONGER OR SHORTER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL SIZE OF THE POLE USED. SUBSTITUTE SAP MATERIAL ID FOR THE LENGTH NEEDED. CONTACT ELECTRIC SYSTEM ENGINEERING - TRANSMISSION SECTION FOR ASSISTANCE IN CHOOSING MATERIAL ID.

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static	Static Specify	Guying	Guying Specify
C5M-TN5VDJKF-3-O	(3) - 4/0 AAAC 7	TS-N2P1F1-3	(1) - Std 36 Fiber OPGW	TO-W-DE-G-O	20M Awld	(9) TR-01-S-130
C5M-TN5VDJKF-B-O	(3) - 477 ACSR 18/1	TS-N2P1F1-B	(1) - Std 36 Fiber OPGW	TO-W-DE-G-O	20M Awld	(9) TR-01-S-130
C5M-TN5VDJKF-X-O	(3) - 795 ACSR 26/7	TS-N2P1F1-X	(1) - Std 36 Fiber OPGW	TO-W-DE-G-O	20M Awld	(9) TR-01-S-130
C5M-TN5VDJKF-3-H	(3) - 4/0 AAAC 7	TS-N2P1F1-3	(1) - 7#7 (7/16") AWLD	TP-W-AD-G-H	20M Awld	(9) TR-01-S-130
C5M-TN5VDJKF-B-H	(3) - 477 ACSR 18/1	TS-N2P1F1-B	(1) - 7#7 (7/16") AWLD	TP-W-AD-G-H	20M Awld	(9) TR-01-S-130
C5M-TN5VDJKF-X-H	(3) - 795 ACSR 26/7	TS-N2P1F1-X	(1) - 7#7 (7/16") AWLD	TP-W-AD-G-H	20M Awld	(9) TR-01-S-130

FOR ALL MACRO CUs: (Type of CU: STRU)

BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TN-XV-DJH	
1	6	EA	1000910700		NUT LCK MF SQ 3/4 BOLT GALV	
2	12	EA	1000910800	6000273690	NUT LCK MF SQ 7/8 BOLT GALV	
3	6	EA	1000911800		NUT SQ 3/4 BOLT GALV	
4	12	EA	1000911900	6000273770	NUT SQ 7/8 BOLT GALV	
5	6	EA	1000943500		WSHR CRV 3 SQ X 1/4 THK 13/16 H	
6	1	EA	1010177500	6000820050	POLE TOPPER 16 IN DIA	
7	2	EA	192295		BOLT MACH GALV SQHD SQNT 3/4 X 14	
8	2	EA	1035474016		BOLT MACH GALV SQHD SQNT 3/4 X 16	
9	2	EA	192325		BOLT MACH GALV SQHD SQNT 3/4 X 18	
10	2	EA	1035475014	6000272350	BOLT MACH GALV SQHD SQNT 7/8 X 14	
11	2	EA	1035475016	6000272360	BOLT MACH GALV SQHD SQNT 7/8 X 16	
12	2	EA	1035475018	6000272370	BOLT MACH GALV SQHD SQNT 7/8 X 18	
13	2	EA	1035475020	6000272380	BOLT MACH GALV SQHD SQNT 7/8 X 20	
14	2	EA	1035475022	6000272390	BOLT MACH GALV SQHD SQNT 7/8 X 22	
15	2	EA	1035475024	6000272400	BOLT MACH GALV SQHD SQNT 7/8 X 24	
16	6	EA	1036200006	6000251030	CLMP GRND WIRE U-CLIP 13/16 H	
17	12	EA	1036200007	6000251031	CLMP GRND WIRE U-CLIP 15/16 H	
18	12	EA		6000274040	PLT POLE SGL EYE - 15/16 H	
19	6	EA		6000274610	WSHR HELICAL 3/4	
20	12	EA		6000274612	WSHR HELICAL 7/8	

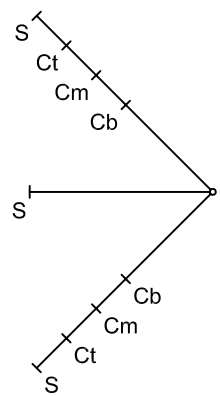
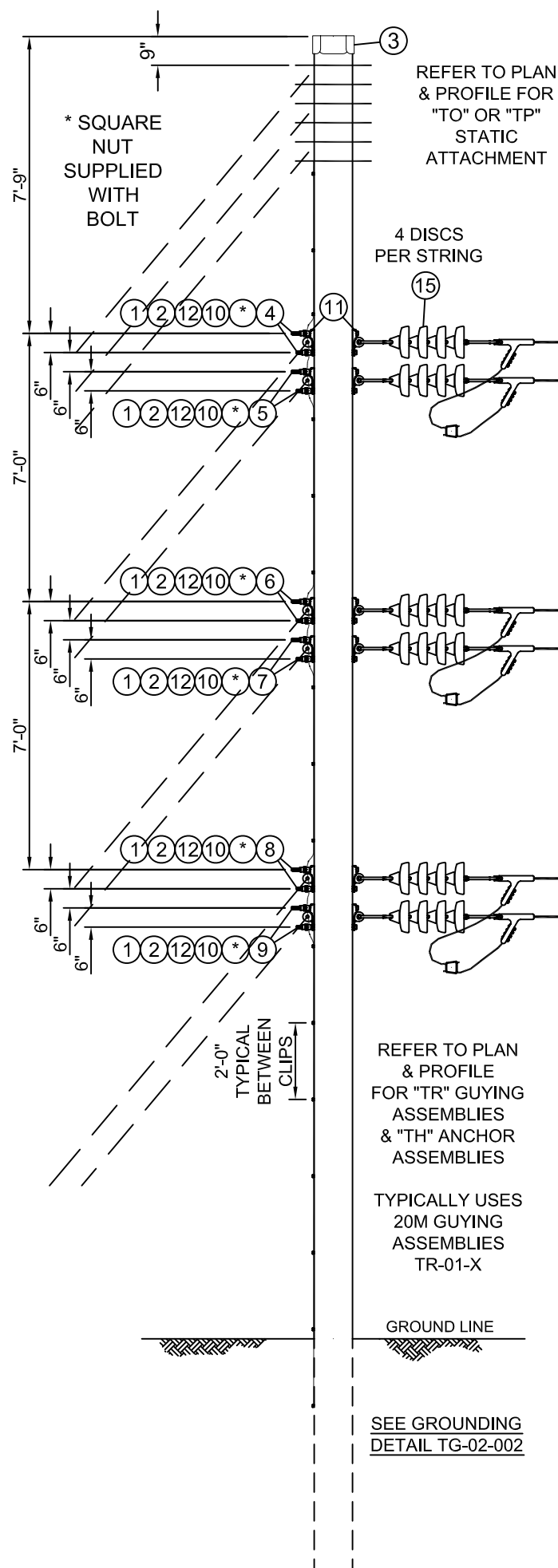
BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-9P-D3-4	
25	6 CUs	EA	1005504560		INS SUS CL52-3 10K TEST/20K M&E	

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-5P-HC	
30	3 CUs	EA	1005553510		INS L/P 35KV H G/B CLMPT PORCELAIN	

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact System Engineering - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1/4" = 1'-0"

	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23	TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT VERTICAL ANGLE DEAD END 50° AND UNDER WITH PORCELAIN JUMPER POST	ISSUE 0
	DATE / /2013		DATE / /2013
Drwn. By: L.A. Best	Date Dr.: 6/24/2013	Checked By: Bartczak/Becken/Shepard	Date Ck.: / /2013
Approved By: Barry R. Hart	Date App.: / /2013	TN-5VDJH	
			Sheet 1



CU Function:
TL69 for 35kV & 46kV,
TG69 for 69kV thru 344kV,
T345 for 345kV & greater.

For correct CU:
substitute 5 for NYSEG,
6 for CMP or 9 for RG&E
in place of asterisk (C*_).

BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TN-XV-DO	
1	12	EA	1000910800	6000273690	NUT LCK MF SQ 7/8 BOLT GALV	
2	12	EA	1000911900	6000273770	NUT SQ 7/8 BOLT GALV	
3	1	EA	1010177500	6000820050	POLE TOPPER 16 IN DIA	
4	2	EA	1035475014	6000272350	BOLT MACH GALV SQHD SQNT 7/8 X 14	
5	2	EA	1035475016	6000272360	BOLT MACH GALV SQHD SQNT 7/8 X 16	
6	2	EA	1035475018	6000272370	BOLT MACH GALV SQHD SQNT 7/8 X 18	
7	2	EA	1035475020	6000272380	BOLT MACH GALV SQHD SQNT 7/8 X 20	
8	2	EA	1035475022	6000272390	BOLT MACH GALV SQHD SQNT 7/8 X 22	
9	2	EA	1035475024	6000272400	BOLT MACH GALV SQHD SQNT 7/8 X 24	
10	12	EA	1036200007	6000251031	CLMP GRND WIRE U-CLIP 15/16 H	
11	12	EA		6000274040	PLT POLE SGL EYE - 15/16 H	
12	12	EA		6000274612	WSHR HELICAL 7/8	

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-9P-D3-4	
15	6 CUs	EA	1005504560		INS SUS CL52-3 10K TEST/20K M&E	

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
TG-02-002 POLE GROUNDING
TD-03-001 FOUNDATION/BACKFILL DETAIL - CLASS 1 OR SMALLER
TD-03-002 FOUNDATION/BACKFILL DETAIL - CLASS H POLES

NOTE B: POLE DRILLING: FOR 7/8" BOLTS - 15/16"

NOTE C: LONGER OR SHORTER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL SIZE OF THE POLE USED. SUBSTITUTE SAP MATERIAL ID FOR THE LENGTH NEEDED. CONTACT ELECTRIC SYSTEM ENGINEERING - TRANSMISSION SECTION FOR ASSISTANCE IN CHOOSING MATERIAL ID.

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static	Static Specify	Guying	Guying Specify
C5M-TN5VDOAC-3-O	(3) - 4/0 AAAC 7	TS-N2F1-3	(1) - Std 36 Fiber OPGW	TO-W-DE-G-O	20M Awld	(9) TR-01-S-130
C5M-TN5VDOAC-B-O	(3) - 477 ACSR 18/1	TS-N2F1-B	(1) - Std 36 Fiber OPGW	TO-W-DE-G-O	20M Awld	(9) TR-01-S-130
C5M-TN5VDOAC-X-O	(3) - 795 ACSR 26/7	TS-N2F1-X	(1) - Std 36 Fiber OPGW	TO-W-DE-G-O	20M Awld	(9) TR-01-S-130
C5M-TN5VDOAC-3-H	(3) - 4/0 AAAC 7	TS-N2F1-3	(1) - 7#7 (7/16") AWLD	TP-W-AD-G-H	20M Awld	(9) TR-01-S-130
C5M-TN5VDOAC-B-H	(3) - 477 ACSR 18/1	TS-N2F1-B	(1) - 7#7 (7/16") AWLD	TP-W-AD-G-H	20M Awld	(9) TR-01-S-130
C5M-TN5VDOAC-X-H	(3) - 795 ACSR 26/7	TS-N2F1-X	(1) - 7#7 (7/16") AWLD	TP-W-AD-G-H	20M Awld	(9) TR-01-S-130

FOR ALL MACRO CUs: (Type of CU: STRU)

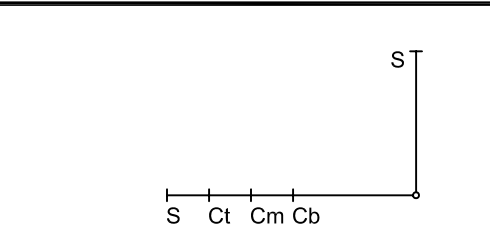
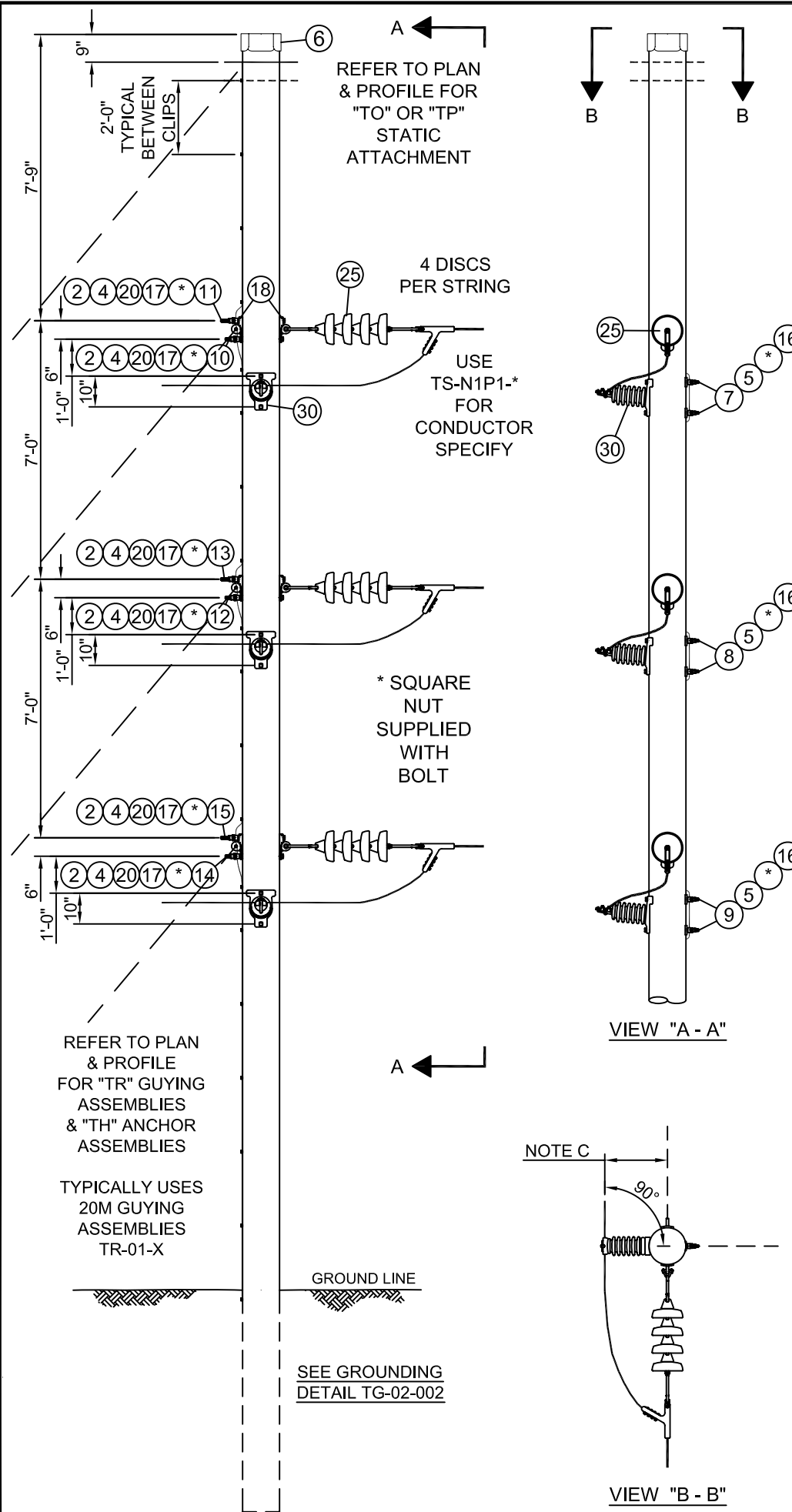
THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact System Engineering - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1/4" = 1'-0"

	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23	TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT VERTICAL ANGLE DEAD END OVER 50°	ISSUE
			0
			DATE
			/ /2013
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:
L.A. Best	6/24/2013	Bartczak/Becken/Shepard	/ /2013
Approved By:	Date App.:		
Barry R. Hart	/ /2013		

TN-5VDO

Sheet 1



Typical Guying & Anchoring
 C*PT-TR-01-T-02-E
 C*PT-TH-01-001-AE

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TG-02-002 POLE GROUNDING
 TD-03-001 FOUNDATION/BACKFILL DETAIL - CLASS 1 OR SMALLER
 TD-03-002 FOUNDATION/BACKFILL DETAIL - CLASS H POLES

NOTE B: POLE DRILLING: FOR 3/4" BOLTS - 13/16" (POST INSULATOR)
 FOR 7/8" BOLTS - 15/16" (POLE PLATE)

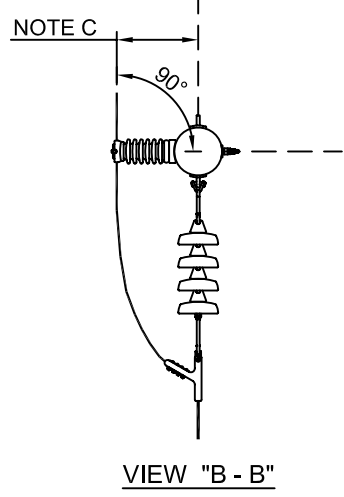
NOTE C: MINIMUM ELECTRICAL CLEARANCE TO GROUNDED METAL AND FIBERGLASS FOR 35kV = 13".

NOTE D: LONGER OR SHORTER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL SIZE OF THE POLE USED. SUBSTITUTE SAP MATERIAL ID FOR THE LENGTH NEEDED. CONTACT ELECTRIC SYSTEM ENGINEERING - TRANSMISSION SECTION FOR ASSISTANCE IN CHOOSING MATERIAL ID.

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static	Static Specify	Guying	Guying Specify
C5M-TN5VRTHX-3-O	(3) - 4/0 AAAC 7	TS-N2P1F1-3	(1) - Std 36 Fiber OPGW	TO-W-AD-G-O	20M Awld	(5) TR-01-S-130
C5M-TN5VRTHX-B-O	(3) - 477 ACSR 18/1	TS-N2P1F1-B	(1) - Std 36 Fiber OPGW	TO-W-AD-G-O	20M Awld	(5) TR-01-S-130
C5M-TN5VRTHX-X-O	(3) - 795 ACSR 26/7	TS-N2P1F1-X	(1) - Std 36 Fiber OPGW	TO-W-AD-G-O	20M Awld	(5) TR-01-S-130
C5M-TN5VRTHX-3-H	(3) - 4/0 AAAC 7	TS-N2P1F1-3	(1) - 7#7 (7/16") AWLD	TP-W-AD-G-H	20M Awld	(5) TR-01-S-130
C5M-TN5VRTHX-B-H	(3) - 477 ACSR 18/1	TS-N2P1F1-B	(1) - 7#7 (7/16") AWLD	TP-W-AD-G-H	20M Awld	(5) TR-01-S-130
C5M-TN5VRTHX-X-H	(3) - 795 ACSR 26/7	TS-N2P1F1-X	(1) - 7#7 (7/16") AWLD	TP-W-AD-G-H	20M Awld	(5) TR-01-S-130

FOR ALL MACRO CUs: (Type of CU: STRU)



BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TN-XV-RTH	
1	6	EA	1000910700		NUT LCK MF SQ 3/4 BOLT GALV	
2	6	EA	1000910800	6000273690	NUT LCK MF SQ 7/8 BOLT GALV	
3	6	EA	1000911800		NUT SQ 3/4 BOLT GALV	
4	6	EA	1000911900	6000273770	NUT SQ 7/8 BOLT GALV	
5	6	EA	1000943500		WSHR CRV 3 SQ X 1/4 THK 13/16 H	
6	1	EA	1010177500	6000820050	POLE TOPPER 16 IN DIA	
7	2	EA	192295		BOLT MACH GALV SQHD SQNT 3/4 X 14	
8	2	EA	1035474016		BOLT MACH GALV SQHD SQNT 3/4 X 16	
9	2	EA	192325		BOLT MACH GALV SQHD SQNT 3/4 X 18	
10	1	EA	1035475014	6000272350	BOLT MACH GALV SQHD SQNT 7/8 X 14	
11	1	EA	1035475016	6000272360	BOLT MACH GALV SQHD SQNT 7/8 X 16	
12	1	EA	1035475018	6000272370	BOLT MACH GALV SQHD SQNT 7/8 X 18	
13	1	EA	1035475020	6000272380	BOLT MACH GALV SQHD SQNT 7/8 X 20	
14	1	EA	1035475022	6000272390	BOLT MACH GALV SQHD SQNT 7/8 X 22	
15	1	EA	1035475024	6000272400	BOLT MACH GALV SQHD SQNT 7/8 X 24	
16	6	EA	1036200006	6000251030	CLMP GRND WIRE U-CLIP 13/16 H	
17	6	EA	1036200007	6000251031	CLMP GRND WIRE U-CLIP 15/16 H	
18	6	EA		6000274040	PLT POLE SGL EYE - 15/16 H	
19	6	EA		6000274610	WSHR HELICAL 3/4	
20	6	EA		6000274612	WSHR HELICAL 7/8	

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-9P-D3-4	
25	3 CUs	EA	1005504560		INS SUS CL52-3 10K TEST/20K M&E	

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-5P-HC	
30	3 CUs	EA	1005553510		INS L/P 35KV H G/B CLMPT PORCELAIN	

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV & greater.

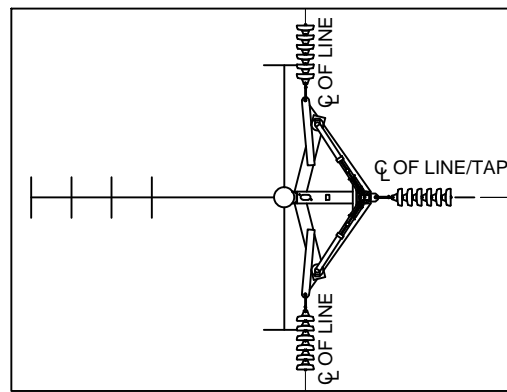
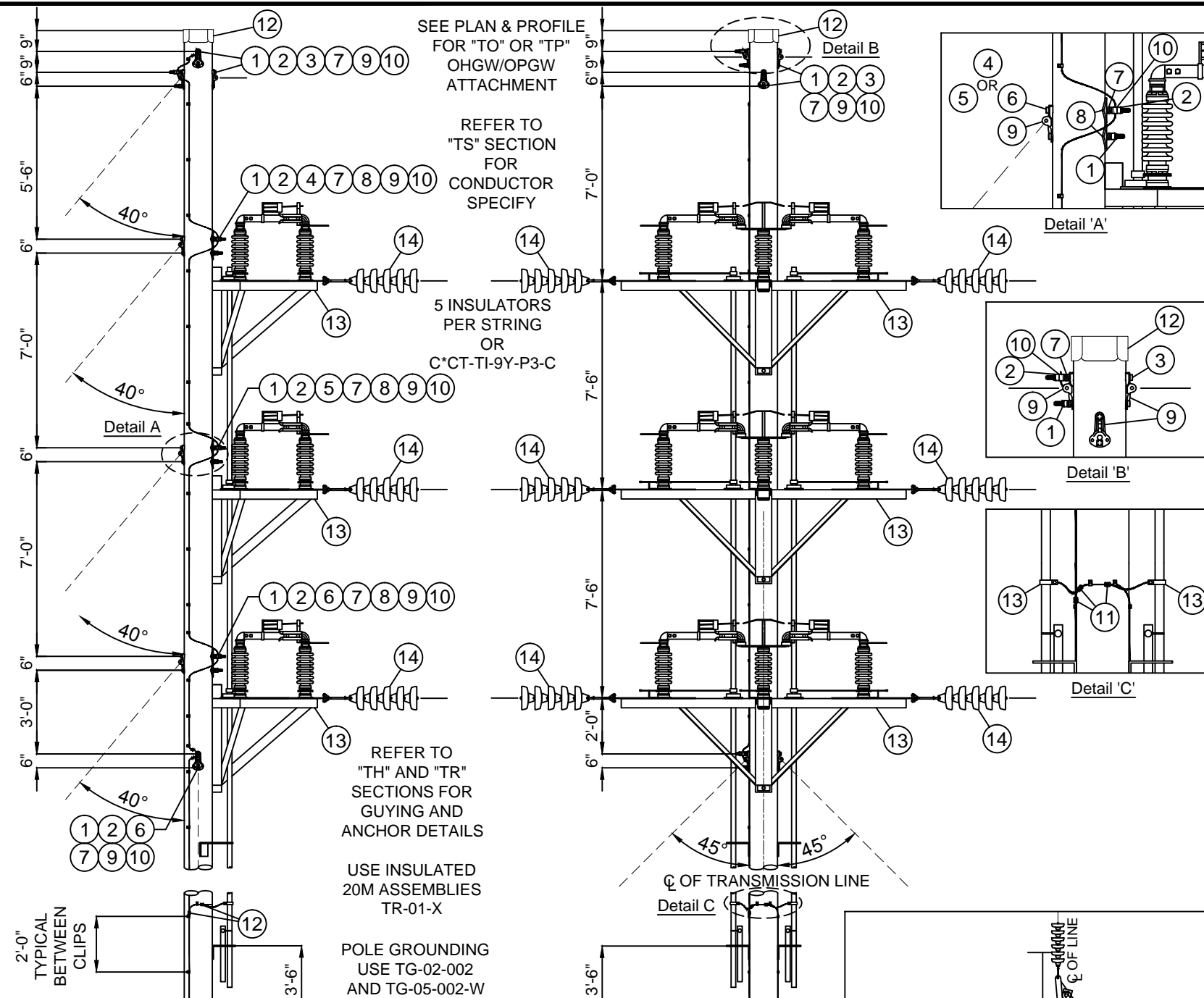
For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact System Engineering - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1/4" = 1'-0"

	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23	TRANSMISSION WOOD STRUCTURE DRAWINGS 35KV SINGLE POLE SINGLE CIRCUIT VERTICAL DEAD END - PORCELAIN POST INSULATORS WITH REDUCED TENSION SPAN	ISSUE 0
	Drwn. By: L.A. Best Date Dr.: 6/24/2013	Checked By: Bartczak/Becken/Shepard	Date Ck.: / /2013
Approved By: Barry R. Hart Date App.: / /2013			Sheet 1

TN-5VRTH



CU FUNCTION: TL69 FOR 35KV & 46KV, TG69 FOR 69KV THRU 344KV, T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 5 FOR NYSEG, 6 FOR CMP OR 9 FOR RG&E IN PLACE OF ASTERISK (C*_).

- NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
- TD FOUNDATION & BACKFILL
 - TG SWITCH MAT, GROUND WIRE & GROUND ROD DETAILS
 - TH GUYING ASSEMBLIES
 - TK MARKINGS
 - TR GUY ANCHORS

NOTE B: POLE DRILLING: ALL HOLES - 15/16" DIAMETER

NOTE C: MAXIMUM LINE TENSION 5000# AT NESC HEAVY LOADING.

NOTE D: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE E: SWITCH ASSEMBLY INCLUDES SWITCH FRAME, MOUNTING HARDWARE AND GROUND STRAP ASSEMBLIES FOR THE CONTROL PIPES.

NOTE F: REFER TO SECTION "TS" FOR CONDUCTOR ASSEMBLIES.

NOTE G: GUYING ANGLES SHOWN ARE GUIDELINES. IF THE SPECIFIC FIELD CONDITIONS IN THE AREA WHERE THIS STRUCTURE IS INSTALLED DO NOT ACCOMMODATE THIS GUYING ARRANGEMENT THEN THE CHANGES TO THE GUYING ARRANGEMENT SHALL BE NOTED ON THE RESPECTIVE PLAN AND PROFILE DRAWING.

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*PT-TN-5VSXA
1	12	EA	1000910800	NUT LCK MF SQ 7/8 BOLT GALV
2	6	EA	6000273770	NUT SQ 7/8 BOLT GALV
3	4	EA	1035475018	BOLT SQ HEAD 7/8 X 18 W/ SQ NUT (NOTE D)
4	2	EA	1035475020	BOLT SQ HEAD 7/8 X 20 W/ SQ NUT (NOTE D)
5	2	EA	1035475022	BOLT SQ HEAD 7/8 X 22 W/ SQ NUT (NOTE D)
6	4	EA	1035475024	BOLT SQ HEAD 7/8 X 24 W/ SQ NUT (NOTE D)
7	12	EA	6000274612	WASHER HELICAL (7/8")
8	6	EA	6000274880	WASHER 4" SQ. CURVED (7/8")
9	9	EA	6000274040	PLT POLE EYE 15/16 H
10	6	EA	1036200007	CLMP GRND WIRE U-CLIP 15/16 H
11	3	EA	1036232100	CONN 1B W/SPCR
12	1	EA	6000820052	POLE TOPPER 19"

BILL OF MATERIAL - 1200 AMP SWITCH (CU Type: SWITCH)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TU-SW5D1S-I
13	1	EA	753045	SWITCH ASSY, 2-WAY, INTRPTR, 1200 AMP (NOTE E)

BILL OF MATERIAL - 2000 AMP SWITCH (CU Type: SWITCH)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TU-SW5D2S-I
13	1	EA	6000641197	SWITCH ASSY, 2-WAY, INTRPTR, 2000 AMP (NOTE E)

BILL OF MATERIAL (CU Type: INSO)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9P-D3-5
14	9 CUs	EA	6000310739	INS SUS CL52-3 20K M&E BRN (5 UNITS/STRING)

ITEM NO.	QTY.	UOM	IUSA MID	CU: C*CT-TI-9Y-P3-C
14	9	EA	6000316539	INS POLY Y-BALL 30K 5 UNIT EQ.

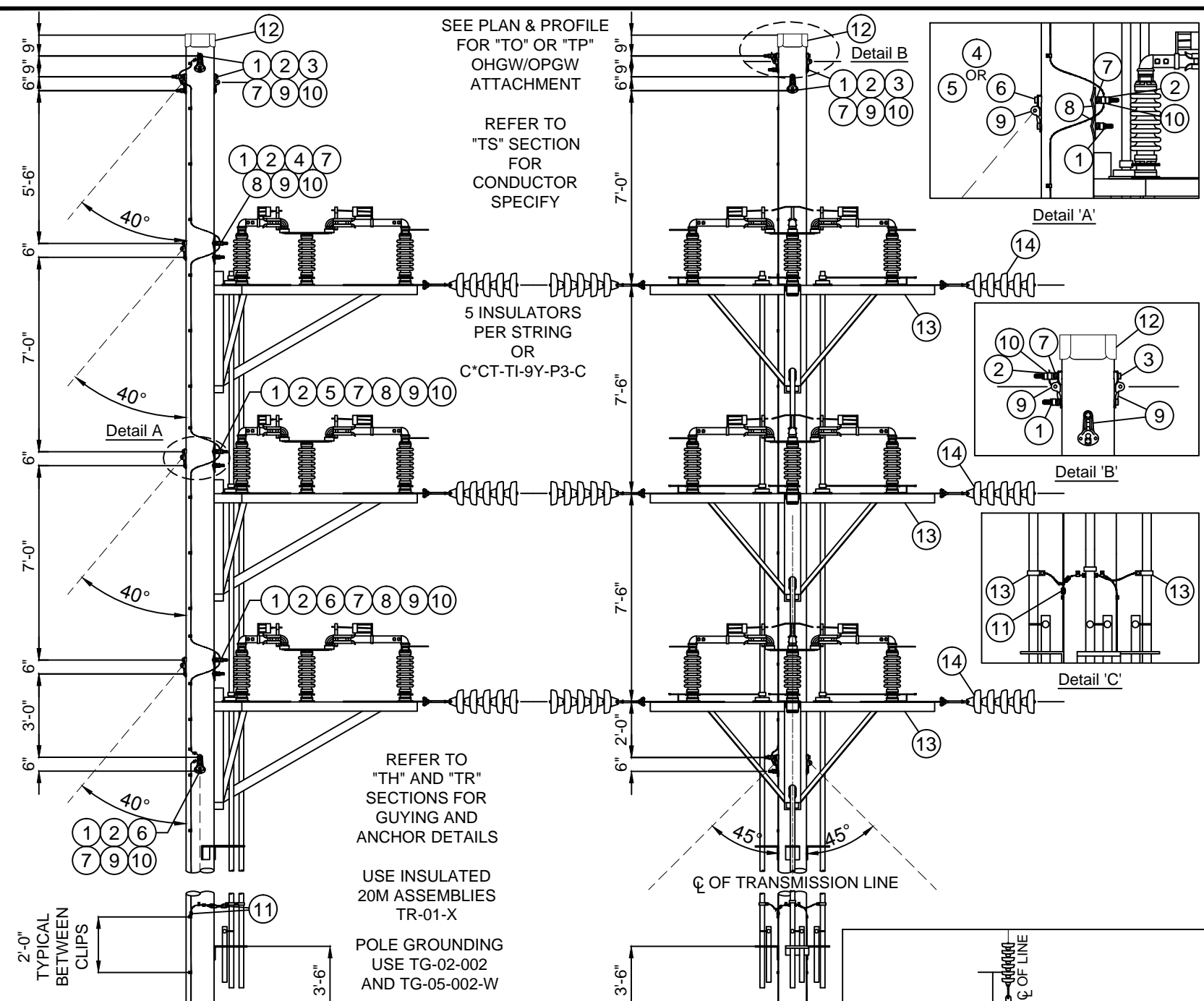
USE THE MACRO CUs INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU MACRO	CONDUCTOR	STATIC	COND SPECIFY	STATIC SPECIFY
C*M-TN5VS2AC-B-H	(3) - 477 ACSR 18/1	(1) - 7#7 (7/16") AWLD	TS-N9T3-B	TP-W-DE-G-H TP-W-XD-G-H
C*M-TN5VS2AC-B-O	(3) - 477 ACSR 18/1	(1) - 36 FIBER OPGW	TS-N9T3-B	TO-W-DE-G-O TO-W-XD-G-O
C*M-TN5VS2AC-B-S	(3) - 477 ACSR 18/1	(1) - 36 FIBER SPEC. OPGW	TS-N9T3-B	TO-W-DE-G-S TO-W-XD-G-S
C*M-TN5VS2AC-X-H	(3) - 795 ACSR 26/7	(1) - 7#7 (7/16") AWLD	TS-N9T3-X	TP-W-DE-G-H TP-W-XD-G-H
C*M-TN5VS2AC-X-O	(3) - 795 ACSR 26/7	(1) - 36 FIBER OPGW	TS-N9T3-X	TO-W-DE-G-O TO-W-XD-G-O
C*M-TN5VS2AC-X-S	(3) - 795 ACSR 26/7	(1) - 36 FIBER SPEC. OPGW	TS-N9T3-X	TO-W-DE-G-S TO-W-XD-G-S

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1" = 5'

	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS - WOOD 35KV SINGLE POLE SINGLE CIRCUIT 2-WAY SWITCH STRUCTURE TYPE 35KV GOAB	REVISION
			00
Drwn. By: B. Franklin	Date Dr.: 10/25/2013	Checked By: Becken/Hart	DATE
Date Ck.: 3/5/2015	Approved By: Barry R. Hart	Date App.: 5/18/2015	5/21/2015
TM2.23.TN-5VS2A-X			Sheet 1



SEE PLAN & PROFILE FOR "TO" OR "TP" OHGW/OPGW ATTACHMENT

REFER TO "TS" SECTION FOR CONDUCTOR SPECIFY

REFER TO "TH" AND "TR" SECTIONS FOR GUYING AND ANCHOR DETAILS

USE INSULATED 20M ASSEMBLIES TR-01-X

POLE GROUNDING USE TG-02-002 AND TG-05-002-W

CU FUNCTION: TL69 FOR 35KV & 46KV, TG69 FOR 69KV THRU 344KV, T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 5 FOR NYSEG, 6 FOR CMP OR 9 FOR RG&E IN PLACE OF ASTERISK (C*_).

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TD FOUNDATION & BACKFILL
 TG SWITCH MAT, GROUND WIRE & GROUND ROD DETAILS
 TH GUYING ASSEMBLIES
 TK MARKINGS
 TR GUY ANCHORS

NOTE B: POLE DRILLING: ALL HOLES - 15/16" DIAMETER

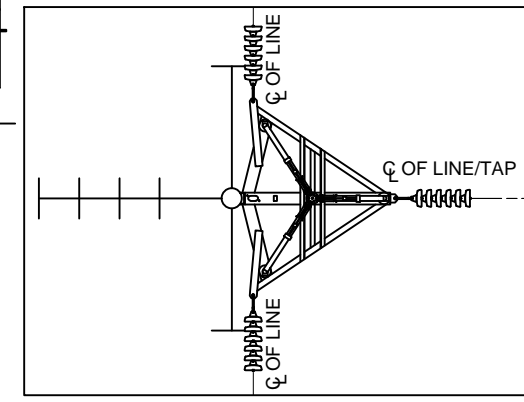
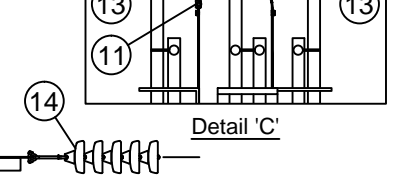
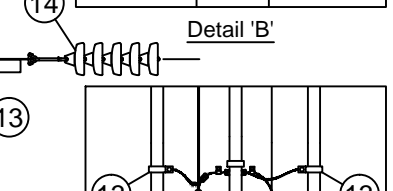
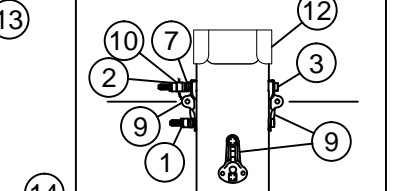
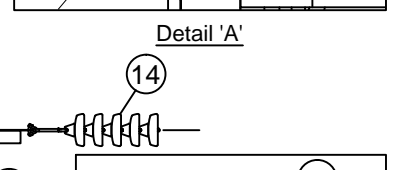
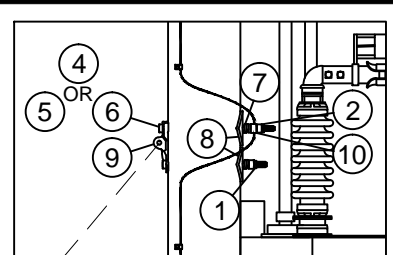
NOTE C: MAXIMUM LINE TENSION 5000# AT NESC HEAVY LOADING.

NOTE D: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE E: SWITCH ASSEMBLY INCLUDES SWITCH FRAME, MOUNTING HARDWARE AND GROUND STRAP ASSEMBLIES FOR THE CONTROL PIPES.

NOTE F: REFER TO SECTION "TS" FOR CONDUCTOR ASSEMBLIES.

NOTE G: GUYING ANGLES SHOWN ARE GUIDELINES. IF THE SPECIFIC FIELD CONDITIONS IN THE AREA WHERE THIS STRUCTURE IS INSTALLED DO NOT ACCOMMODATE THIS GUYING ARRANGEMENT THEN THE CHANGES TO THE GUYING ARRANGEMENT SHALL BE NOTED ON THE RESPECTIVE PLAN AND PROFILE DRAWING.



GUYING PLAN

BILL OF MATERIAL (CU Type: POLE)

CU: C*PT-TN-5VSXA

ITEM NO.	QTY.	UOM	IUSA MID	
1	12	EA	1000910800	NUT LCK MF SQ 7/8 BOLT GALV
2	6	EA	6000273770	NUT SQ 7/8 BOLT GALV
3	4	EA	1035475018	BOLT SQ HEAD 7/8 X 18 W/ SQ NUT (NOTE D)
4	2	EA	1035475020	BOLT SQ HEAD 7/8 X 20 W/ SQ NUT (NOTE D)
5	2	EA	1035475022	BOLT SQ HEAD 7/8 X 22 W/ SQ NUT (NOTE D)
6	4	EA	1035475024	BOLT SQ HEAD 7/8 X 24 W/ SQ NUT (NOTE D)
7	12	EA	6000274612	WASHER HELICAL (7/8")
8	6	EA	6000274880	WASHER 4" SQ. CURVED (7/8")
9	9	EA	6000274040	PLT POLE EYE 15/16 H
10	6	EA	1036200007	CLMP GRND WIRE U-CLIP 15/16 H
11	3	EA	1036232100	CONN 1B W/SPCR
12	1	EA	6000820052	POLE TOPPER 19"

BILL OF MATERIAL - 1200 AMP SWITCH (CU Type: SWITCH)

CU: C*CT-TU-SW5E1S-I

ITEM NO.	QTY.	UOM	IUSA MID	
13	1	EA	6000641196	SWITCH ASSY, 3-WAY, INTRPTR, 1200 AMP (NOTE E)

BILL OF MATERIAL - 2000 AMP SWITCH (CU Type: SWITCH)

CU: C*CT-TU-SW5E2S-I

ITEM NO.	QTY.	UOM	IUSA MID	
13	1	EA	6000641198	SWITCH ASSY, 3-WAY, INTRPTR, 2000 AMP (NOTE E)

BILL OF MATERIAL (CU Type: INSO)

CU: C*CT-TI-9P-D3-5

ITEM NO.	QTY.	UOM	IUSA MID	
14	9 CUs	EA	6000310739	INS SUS CL52-3 20K M&E BRN (5 UNITS/STRING)

CU: C*CT-TI-9Y-P3-C

ITEM NO.	QTY.	UOM	IUSA MID	
14	9	EA	6000316539	INS POLY Y-BALL 30K 5 UNIT EQ.

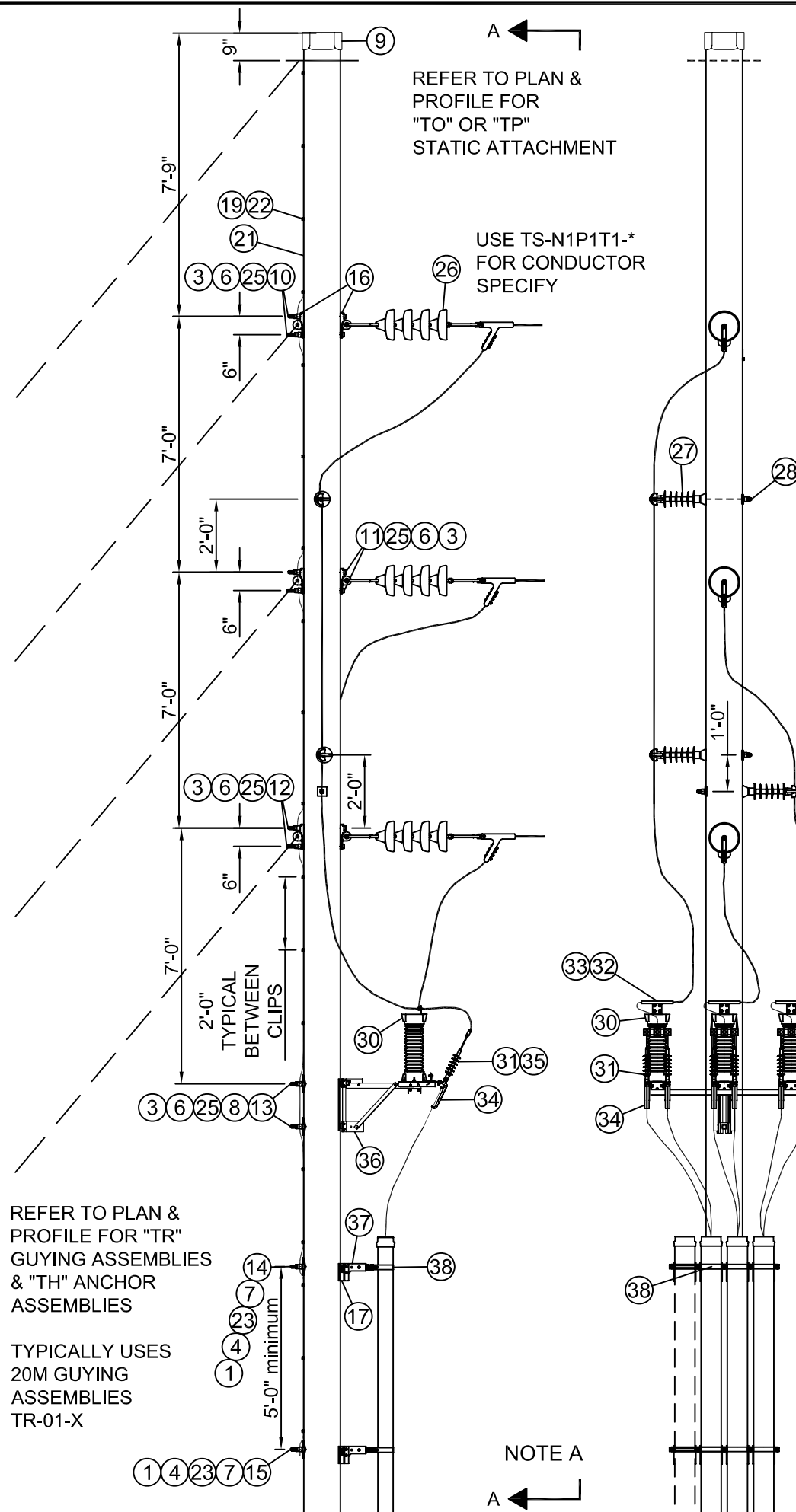
USE THE MACRO CUs INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU MACRO	CONDUCTOR	STATIC	COND SPECIFY	STATIC SPECIFY
C*M-TN5VS3AC-B-H	(3) - 477 ACSR 18/1	(1) - 7#7 (7/16") AWLD	TS-N9T3-B	TP-W-DE-G-H TP-W-XD-G-H
C*M-TN5VS3AC-B-O	(3) - 477 ACSR 18/1	(1) - 36 FIBER OPGW	TS-N9T3-B	TO-W-DE-G-O TO-W-XD-G-O
C*M-TN5VS3AC-B-S	(3) - 477 ACSR 18/1	(1) - 36 FIBER SPEC. OPGW	TS-N9T3-B	TO-W-DE-G-S TO-W-XD-G-S
C*M-TN5VS3AC-X-H	(3) - 795 ACSR 26/7	(1) - 7#7 (7/16") AWLD	TS-N9T3-X	TP-W-DE-G-H TP-W-XD-G-H
C*M-TN5VS3AC-X-O	(3) - 795 ACSR 26/7	(1) - 36 FIBER OPGW	TS-N9T3-X	TO-W-DE-G-O TO-W-XD-G-O
C*M-TN5VS3AC-X-S	(3) - 795 ACSR 26/7	(1) - 36 FIBER SPEC. OPGW	TS-N9T3-X	TO-W-DE-G-S TO-W-XD-G-S

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs. Drawing Scale: NTS

	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS - WOOD 35KV SINGLE POLE SINGLE CIRCUIT 3-WAY SWITCH STRUCTURE TYPE 35KV GOAB	REVISION
			00
			DATE
			5/21/2015
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:
B. Franklin	10/29/2013	Becken/Hart	3/05/2015
Approved By:	Date App.:	TM2.23.TN-5VS3A-X	
Barry R. Hart	5/18/2015	Sheet 1	



REFER TO PLAN & PROFILE FOR "TO" OR "TP" STATIC ATTACHMENT

USE TS-N1P1T1-* FOR CONDUCTOR SPECIFY

2'-0" TYPICAL BETWEEN CLIPS

REFER TO PLAN & PROFILE FOR "TR" GUYING ASSEMBLIES & "TH" ANCHOR ASSEMBLIES

TYPICALLY USES 20M GUYING ASSEMBLIES TR-01-X

NOTE A

BILL OF MATERIAL				Type of CU: LA
ITEM NO.	QTY.	UOM	MID	CU: C*CT-TI-5P-A1
30	3 CUs	EA	1088500130	ARRESTER STA CL 35KV GRND SYS

BILL OF MATERIAL				Type of CU: INSO
ITEM NO.	QTY.	UOM	MID	CU: C*CT-UG-TRM1
31	3 CUs	EA	94111	TERM 350-1000KCM 35KV COLD-SHRNK

BILL OF MATERIAL				Type of CU: SHLDO
ITEM NO.	QTY.	UOM	NYSEG MID	CU: C*CT-UG-CL1
32	9	EA	198234	CLMP HL LA TRANS
33	6	EA	199249	LUG #2 CU TIN PLTD
35	6	EA	199281	LUG 500 MCM CU 2H

BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID		CU: C*PT-TN-XV-VR
1	2	EA	1000910600			NUT LCK MF SQ 5/8 BOLT GALV
2	3	EA	1000910700			NUT LCK MF SQ 3/4 BOLT GALV
3	10	EA	1000910800	6000273690		NUT LCK MF SQ 7/8 BOLT GALV
4	2	EA	1000911700			NUT SQ 5/8 BOLT GALV
5	6	EA	1000911800			NUT SQ 3/4 BOLT GALV
6	10	EA	1000911900	6000273770		NUT SQ 7/8 BOLT GALV
7	3	EA	1000943500			WSHR CRV 3 SQ X 1/4 THK 13/16 H
8	4	EA	1000943700			WSHR CRV 4 SQ X 3/8 THK 15/16 H
9	1	EA	1010177500	6000820050		POLE TOPPER 16 IN DIA
10	2	EA	1035475016	6000272360		BOLT MACH GALV SQHD SQNT 7/8 X 16
11	2	EA	1035475018	6000272370		BOLT MACH GALV SQHD SQNT 7/8 X 18
12	2	EA	1035475020	6000272380		BOLT MACH GALV SQHD SQNT 7/8 X 20
13	2	EA	1035475022	6000272390		BOLT MACH GALV SQHD SQNT 7/8 X 22
14	1	EA	1035473022			BOLT MACH GALV SQHD SQNT 5/8 X 22
15	1	EA	192201			BOLT MACH GALV SQHD SQNT 5/8 X 24
16	6	EA		6000274040		PLT POLE SGL EYE - 15/16 H
17	2	EA	1007420850			BOLT SCR/LAG GALV FET/PT 1/2 X 3

CU Function: TL69 for 35kV & 46kV, TG69 for 69kV thru 344kV, T345 for 345kV & greater.

For correct CU: substitute 5 for NYSEG, 6 for CMP or 9 for RG&E in place of asterisk (C*_).

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:

- TG-02 POLE GROUNDING
- TD-03-001 FOUNDATION/BACKFILL DETAIL CLASS 1 OR SMALLER
- TD-03-002 FOUNDATION/BACKFILL DETAIL CLASS H POLES

NOTE B: POLE DRILLING:
FOR 3/4" BOLTS - 13/16"
FOR 7/8" BOLTS - 15/16"

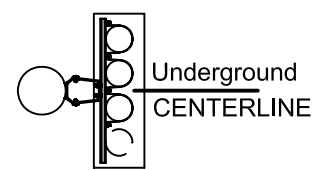
BILL OF MATERIAL						Type of CU: SHLDO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID		CU: C*CT-TG-SPVR
18	1	EA	1000909100			CLMP GRND ROD 5/8
19	40	EA	1003310000	6000251033		CLIP CU GRND WIRE
20	1	EA	1007260000			GRND ROD 5/8 X 8F CWLD NO THREAD
21	100	FT	752373	6000206605		WIRE 1C CWLD #2 BR
22	1	LB	1023091010			NAIL CWLD 16D 3-1/2 LNG
23	2	EA	1036200005			CLMP GRND WIRE U-CLIP 11/16 H
24	3	EA	1036200006	6000251030		CLMP GRND WIRE U-CLIP 13/16 H
25	10	EA	1036200007	6000251031		CLMP GRND WIRE U-CLIP 15/16 H

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID		CU: C*CT-TI-9P-D3-4
26	3 CUs	EA	1005504560			INS SUS CL52-3 10K TEST/20K M&E

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID		CU: C*CT-TI-5Y-V3
27	3 CUs	EA	199711			INS L/P 35KV VRT CLMPT POLYMER
28	3	EA	1035469034			BOLT STUD GALV POST TYPE INSL 3/4 X 14

BILL OF MATERIAL						Type of CU: SHLDO
ITEM NO.	QTY.	UOM	NYSEG MID			CU: C*CT-UG-BRK1
34	3	EA	6000620050			BRKT CBL POSITIONING
36	1	EA	754012			MTG LA/TERM 35/46 STA CL
37	2	EA	NON-STOCK			BRKT STNDFF CONDUIT (9-CSO-36,AF#51966)
38	8	EA	NON-STOCK			CONDUIT HNGR STRP KIT (STK-*)

CABLE TRAY ARRANGEMENT

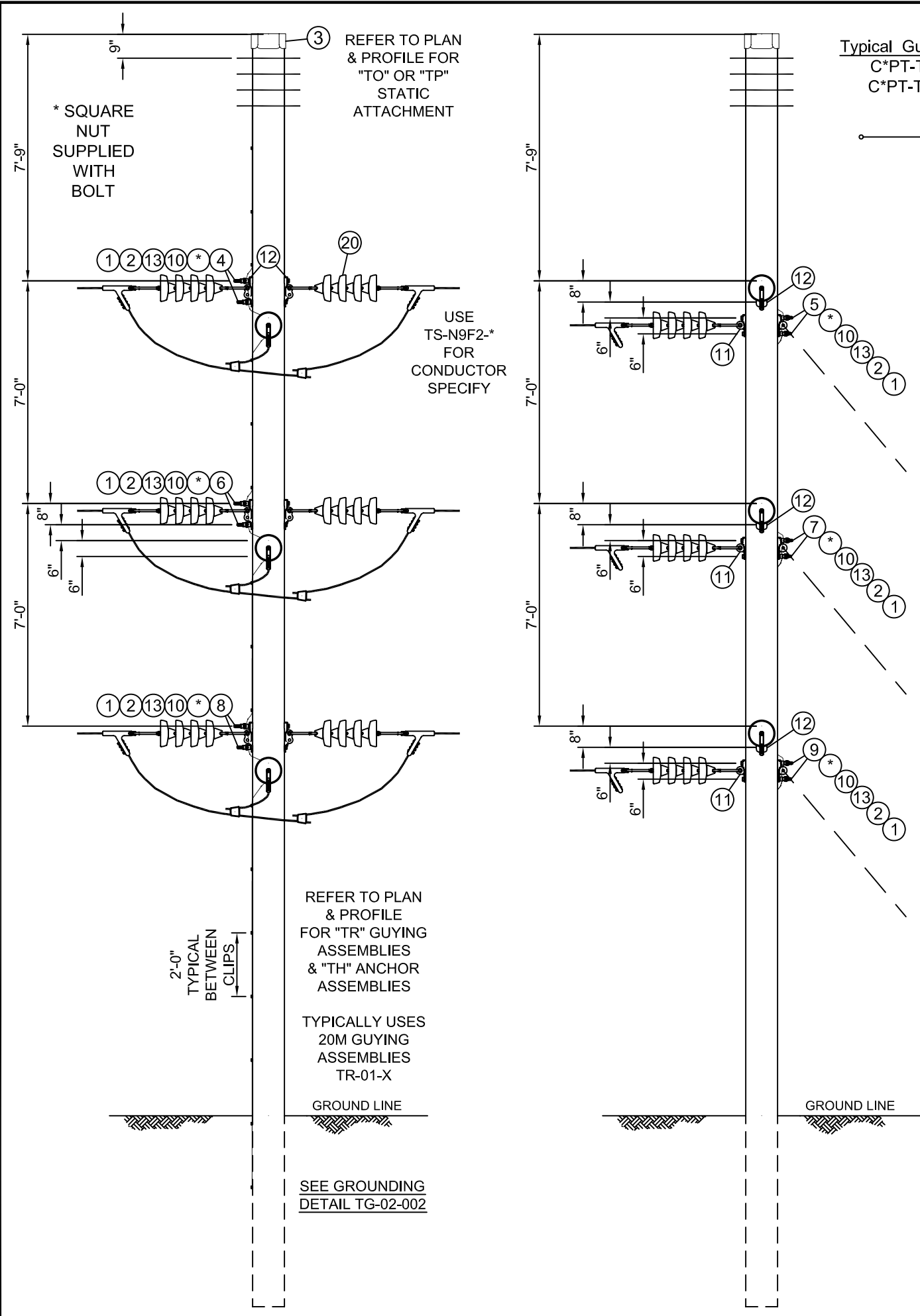


VIEW "A-A"

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact System Engineering - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1/4" = 1'-0"

	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23	TRANSMISSION WOOD STRUCTURE DRAWINGS 35KV SINGLE POLE SINGLE CIRCUIT VERTICAL RISER	ISSUE 0
			DATE / /2013
Drwn. By: L.A. Best	Date Dr.: 3/12/2013	Checked By: Bartczak/Becken/Shepard	Date Ck.: / /2013
Approved By: Barry R. Hart	Date App.: / /2013	TN-5V-VR	
			Sheet 1



Typical Guying & Anchoring
 C*PT-TR-01-T-02-D
 C*PT-TH-01-001-AD

— Cb Cm Ct S

CU Function:
 TL69 for 35kV & 46kV,
 TG69 for 69kV thru 344kV,
 T345 for 345kV & greater.

For correct CU:
 substitute 5 for NYSEG,
 6 for CMP or 9 for RG&E
 in place of asterisk (C*_).

BILL OF MATERIAL						Type of CU: POLE
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*PT-TN-XV-WO	
1	12	EA	1000910800	6000273690	NUT LCK MF SQ 7/8 BOLT GALV	
2	12	EA	1000911900	6000273770	NUT SQ 7/8 BOLT GALV	
3	1	EA	1010177500	6000820050	POLE TOPPER 16 IN DIA	
4	2	EA	1035475014	6000272350	BOLT MACH GALV SQHD SQNT 7/8 X 14	
5	2	EA	1035475016	6000272360	BOLT MACH GALV SQHD SQNT 7/8 X 16	
6	2	EA	1035475018	6000272370	BOLT MACH GALV SQHD SQNT 7/8 X 18	
7	2	EA	1035475020	6000272380	BOLT MACH GALV SQHD SQNT 7/8 X 20	
8	2	EA	1035475022	6000272390	BOLT MACH GALV SQHD SQNT 7/8 X 22	
9	2	EA	1035475024	6000272400	BOLT MACH GALV SQHD SQNT 7/8 X 24	
10	12	EA	1036200007	6000251031	CLMP GRND WIRE U-CLIP 15/16 H	
11	6	EA		6000274040	PLT POLE SGL EYE - 15/16 H	
12	6	EA		6000274044	PLT POLE DBL EYE - (2) 15/16 H	
13	12	EA		6000274612	WSHR HELICAL 7/8	

BILL OF MATERIAL						Type of CU: INSO
ITEM NO.	QTY.	UOM	NYSEG MID	CMP MID	CU: C*CT-TI-9P-D3-4	
15	9 CUs	EA	1005504560		INS SUS CL52-3 10K TEST/20K M&E	

IF A STRUCTURE IS NEW OR BEING TOTALLY REPLACED, A MACRO CU MAY BE USED INSTEAD OF INDIVIDUAL CU COMPONENTS FOR EASE OF WORK ORDER ENTRY.

CU Macro	Conductor	Conductor Specify	Static	Static Specify	Guying	Guying Specify
C5M-TN5VWOAC-3-O	(3) - 4/0 AAAC 7	TS-N9F2-3	(1) - Std 36 Fiber OPGW	TO-W-3W-G-O	20M Awld	(4) TR-01-S-130
C5M-TN5VWOAC-B-O	(3) - 477 ACSR 18/1	TS-N9F2-B	(1) - Std 36 Fiber OPGW	TO-W-3W-G-O	20M Awld	(4) TR-01-S-130
C5M-TN5VWOAC-X-O	(3) - 795 ACSR 26/7	TS-N9F2-X	(1) - Std 36 Fiber OPGW	TO-W-3W-G-O	20M Awld	(4) TR-01-S-130
C5M-TN5VWOAC-3-H	(3) - 4/0 AAAC 7	TS-N9F2-3	(1) - 7#7 (7/16") AWLD	TP-W-3W-G-H	20M Awld	(4) TR-01-S-130
C5M-TN5VWOAC-B-H	(3) - 477 ACSR 18/1	TS-N9F2-B	(1) - 7#7 (7/16") AWLD	TP-W-3W-G-H	20M Awld	(4) TR-01-S-130
C5M-TN5VWOAC-X-H	(3) - 795 ACSR 26/7	TS-N9F2-X	(1) - 7#7 (7/16") AWLD	TP-W-3W-G-H	20M Awld	(4) TR-01-S-130

FOR ALL MACRO CUs: (Type of CU: STRU)

NOTE A: OTHER STANDARD DRAWINGS REQUIRED:
 TG-02-002 POLE GROUNDING
 TD-03-001 FOUNDATION/BACKFILL DETAIL - CLASS 1 OR SMALLER
 TD-03-002 FOUNDATION/BACKFILL DETAIL - CLASS H POLES

NOTE B: POLE DRILLING: FOR 7/8" BOLTS - 15/16"

NOTE C: LONGER OR SHORTER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL SIZE OF THE POLE USED. SUBSTITUTE SAP MATERIAL ID FOR THE LENGTH NEEDED. CONTACT ELECTRIC SYSTEM ENGINEERING - TRANSMISSION SECTION FOR ASSISTANCE IN CHOOSING MATERIAL ID.

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Contact System Engineering - Transmission Section for the creation of new standards and CUs. Drawing Scale: 1/4" = 1'-0"

	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL TM.2.23	TRANSMISSION WOOD STRUCTURE DRAWINGS 35kV SINGLE POLE SINGLE CIRCUIT 3-WAY CONDUCTOR AND STATIC VERTICAL DEAD END	ISSUE
			0
			DATE
			/ /2013
Drwn. By: L.A. Best	Date Dr.: 7/5/2013	Checked By: Bartczak/Becken/Shepard	Date Ck.: / /2013
Approved By: Barry R. Hart	Date App.: / /2013	TN-5VWO	
			Sheet 1