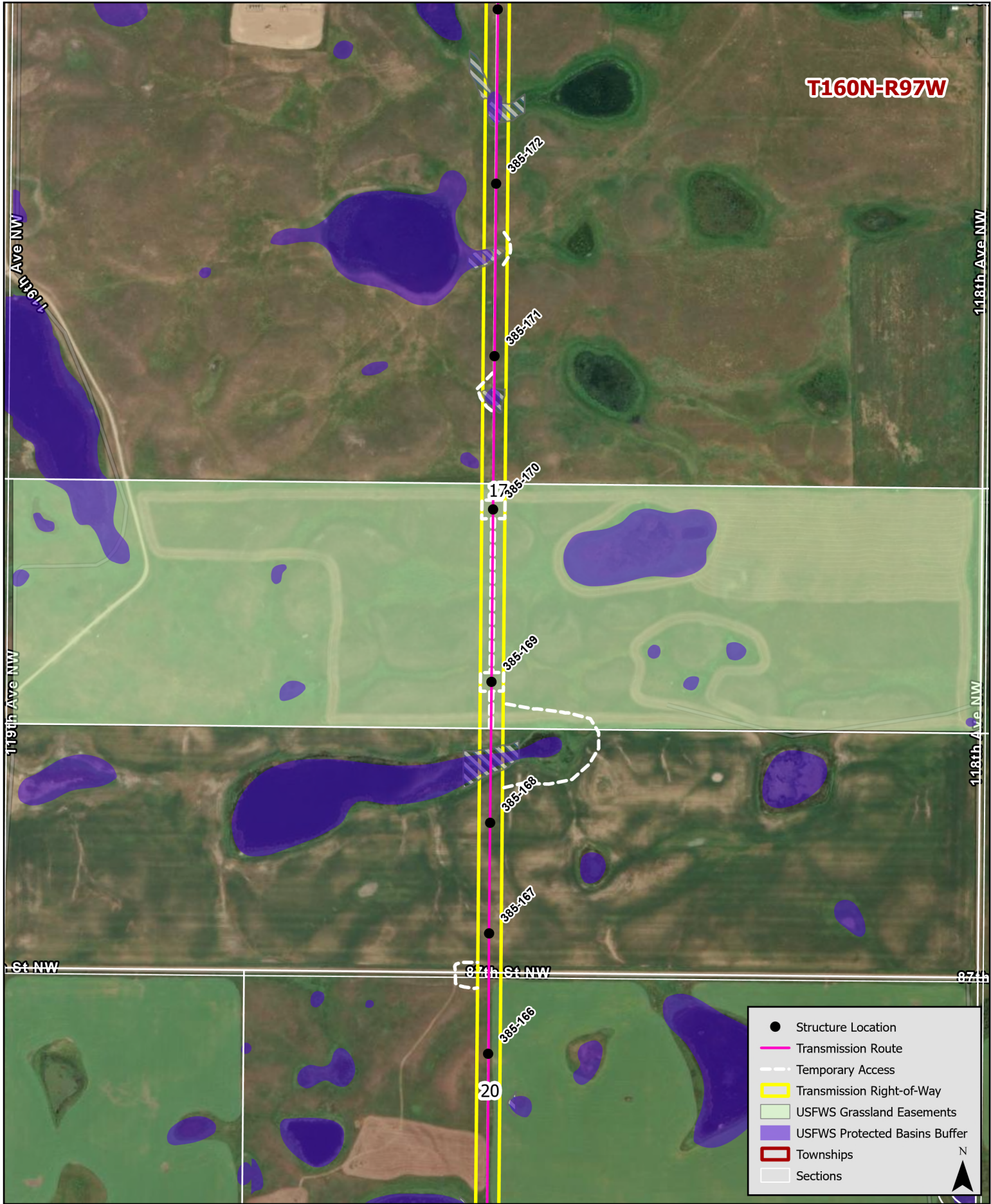
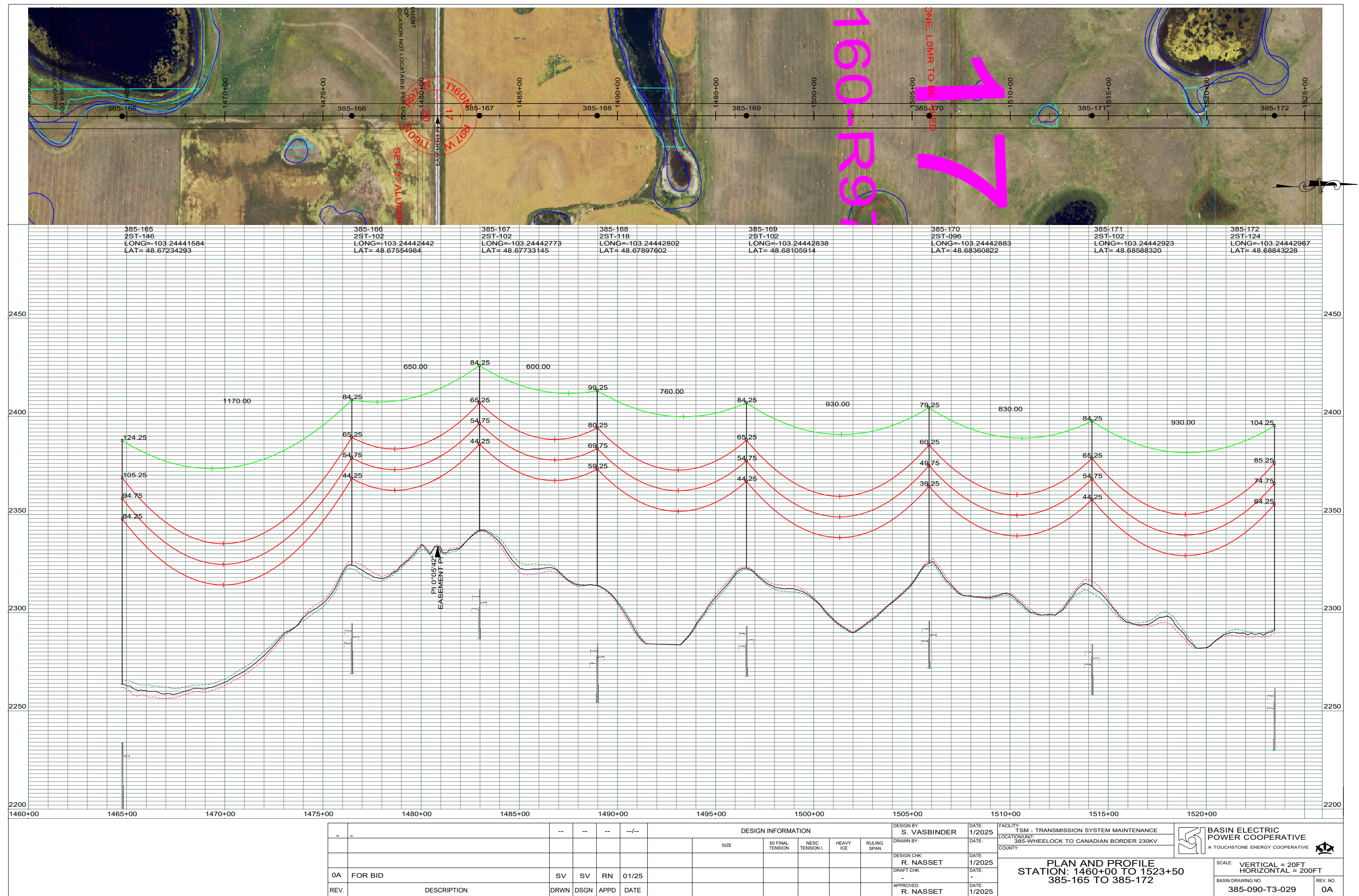


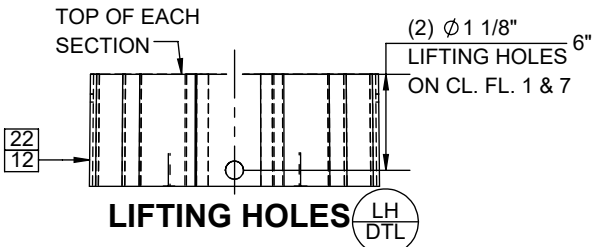
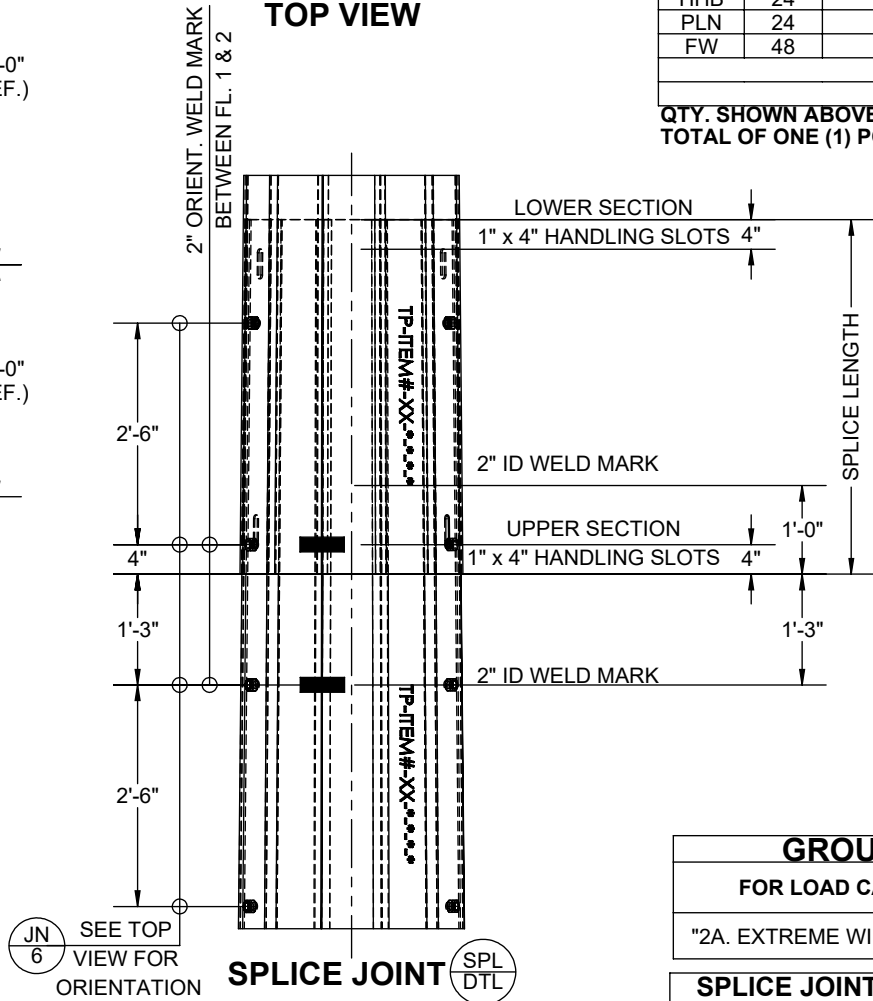
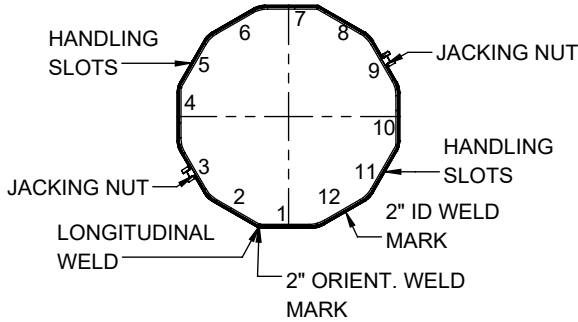
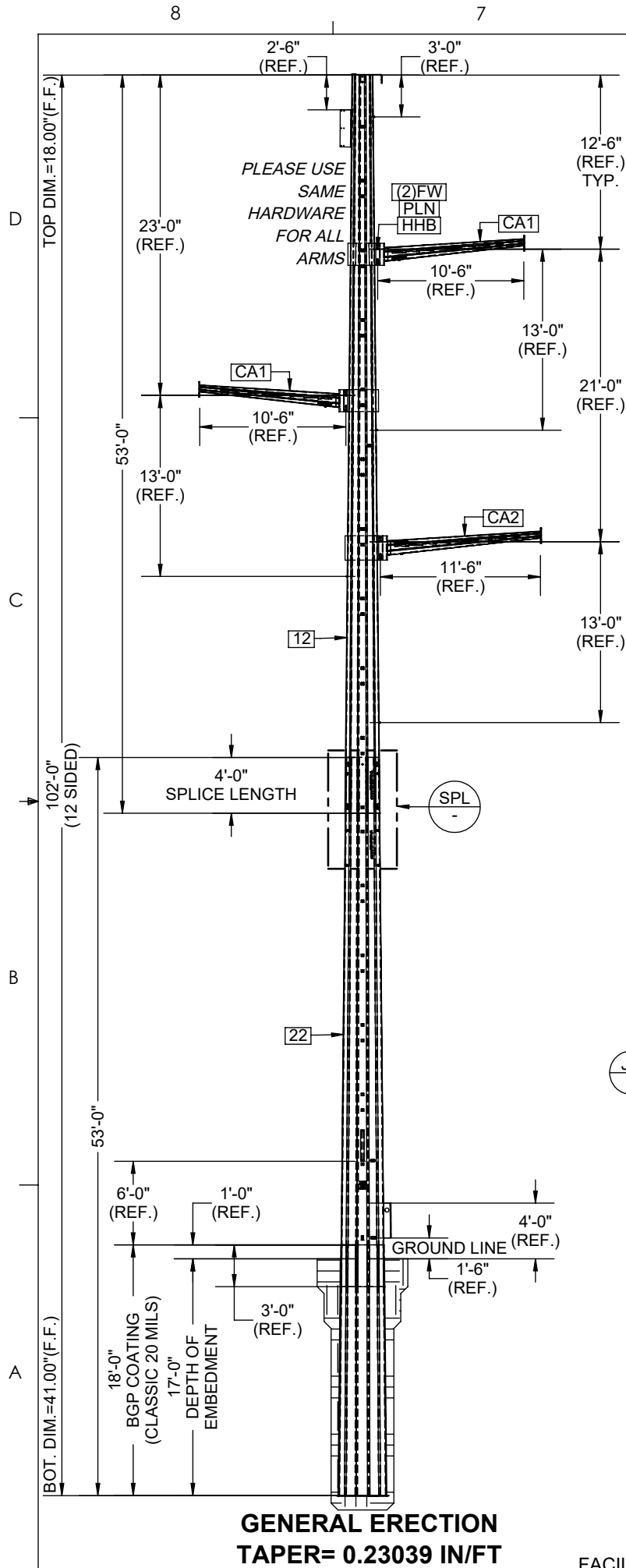
Tande/Wheelock to Saskatchewan 230-kV Transmission Project



Tande/Wheelock to Saskatchewan 230-kV Transmission Project







SPECIAL REQUIREMENT CHART	
SHEET	REFERENCE
1	GENERAL NOTE 13
6	PULL OFF COVER

SECTIONS BILL OF MATERIAL w/ACCS.					
ITEM	QTY.	PART No.	DESCRIPTION	MATERIAL	Wt./Lb. TOTAL Wt./Lb.
12	1	20203-2-12	TOP SECTION: PL. 3/16" x 18.00" F.F. x 30.21" F.F. x 53'-0" LG.	ASTM A572 GR 65	3669.37 3669.37
22	1	20203-2-22	BOT. SECTION: PL. 1/4" x 28.79" F.F. x 41.00" F.F. x 53'-0" LG.	ASTM A572 GR 65	5374.06 5374.06
CA1	2	20203-CA1	CONDUCTOR ARM 1: SEE DWG#20203-CA1	ASTM A572 GR 65	404.80 809.60
CA2	1	20203-CA2	CONDUCTOR ARM 2: SEE DWG#20203-CA2	ASTM A572 GR 65	458.99 458.99
				BLACK WT.	10312.02
				GALV. WT.	10930.74

LOOSE COMPONENTS BILL OF MATERIAL					
ITEM	QTY.	PART No.	DESCRIPTION	MATERIAL	Wt./Lb. TOTAL Wt./Lb.
PP1	6	00-PP1	PLASTIC PLUG-UV-FOR HOLE Ø1/2"	PLUGS	0.00 0.00
PP2	8	00-PP2	PLASTIC PLUG-UV-FOR HOLE Ø1"	PLUGS	0.00 0.00
				LOOSE COMPONENTS WT.	0.00

HARDWARE BILL OF MATERIAL					
ITEM	QTY.	PART No.	DESCRIPTION	MATERIAL	Wt./Lb. TOTAL Wt./Lb.
HHB	24	00-HHB	Ø1"- 8UNC x 4" LG. HVY. HEX BOLT (HDG)	ASTM F3125 GR A325 TP 1	1.33 31.92
PLN	24	00-PLN	Ø1"- 8UNC HVY. HEX PIN LOCK NUT (HDG)	ASTM A563 GR DH	0.43 10.32
FW	48	00-FW	Ø1"- FLAT WASHER (HDG)	ASTM F436 TP 1	0.11 5.28
				HARDWARE WT.	47.52
				TOTAL WT. (GALV. WT + LOOSE COMPONENTS WT. + HARDWARE WT.)	10978.26

QTY. SHOWN ABOVE IS FOR (1) POLE ASSEMBLY
TOTAL OF ONE (1) POLE ASSEMBLY REQUIRED

STR. TYPE
2ST-102

2" ID WELD MARK				
SECTION	TAPPING #	ITEM #	SECTION # (SEE NOTE A)	POLE LENGTH
TOP			20203-2-12-102FT-2ST-102	
BOT.			20203-2-22-102FT-2ST-102	
NOTE A: 2 SECTION POLE TOP SECTION = 12 BOT. SECTION = 22				

GROUND LINE REACTION			
FOR LOAD CASE	AXIAL	SHEAR	MOMENT
"2A. EXTREME WIND -ROT"	13.89 KIPS	17.74 KIPS	1065.49 FT-KIPS

SPICE JOINT SECTION	NOMINAL	MIN.	MAX.
12-22	4'-0"	3'-9"	4'-6"

FINISH:
HOT DIP GALVANIZED
AS PER ASTM A123

FOR FABRICATION

THIS DRAWING MAY CONTAIN PROPRIETARY AND CONFIDENTIAL MATERIAL. UNAUTHORIZED DUPLICATION OR DISSEMINATION OF THIS DOCUMENT OR THE INFORMATION IT CONTAINS IS PROHIBITED.

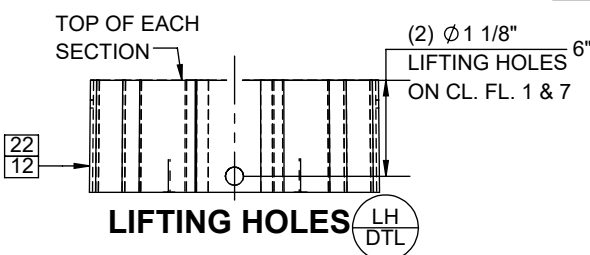
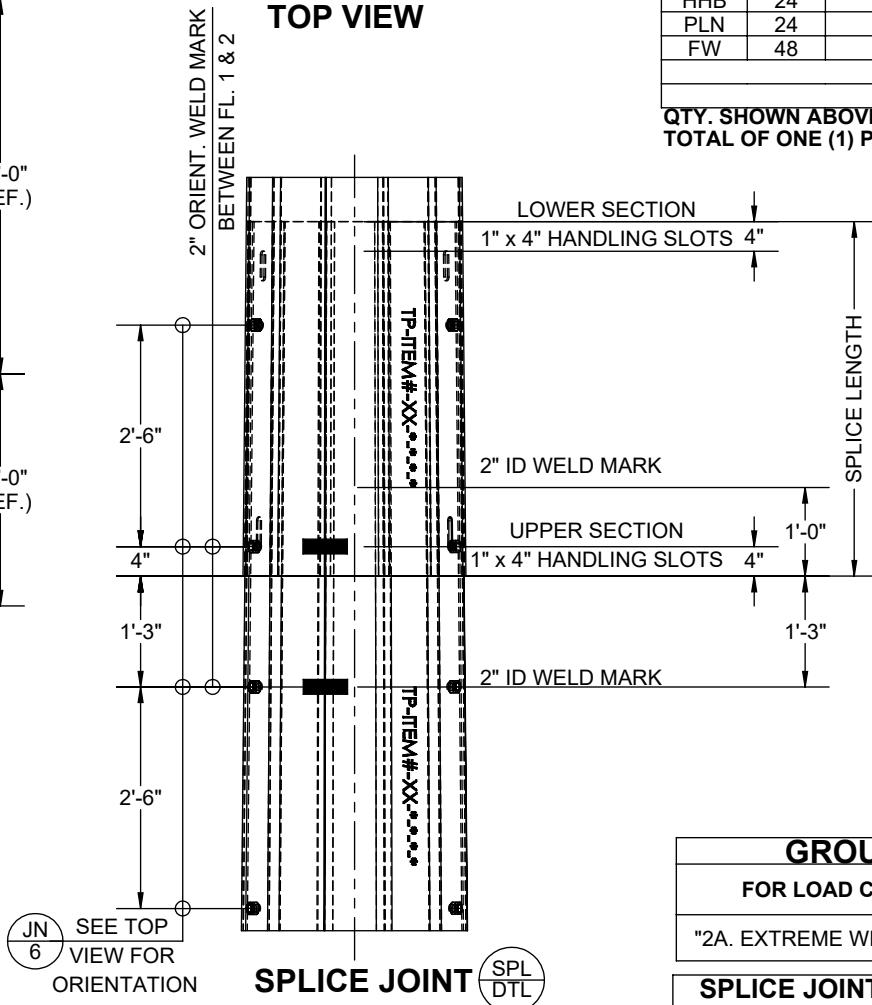
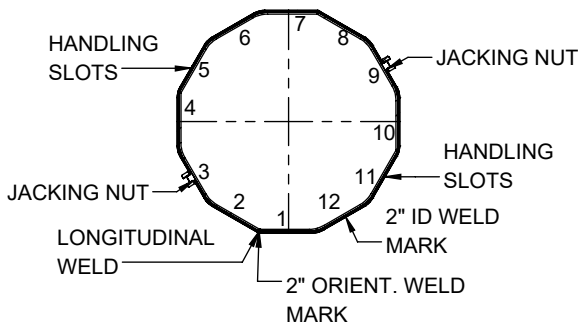
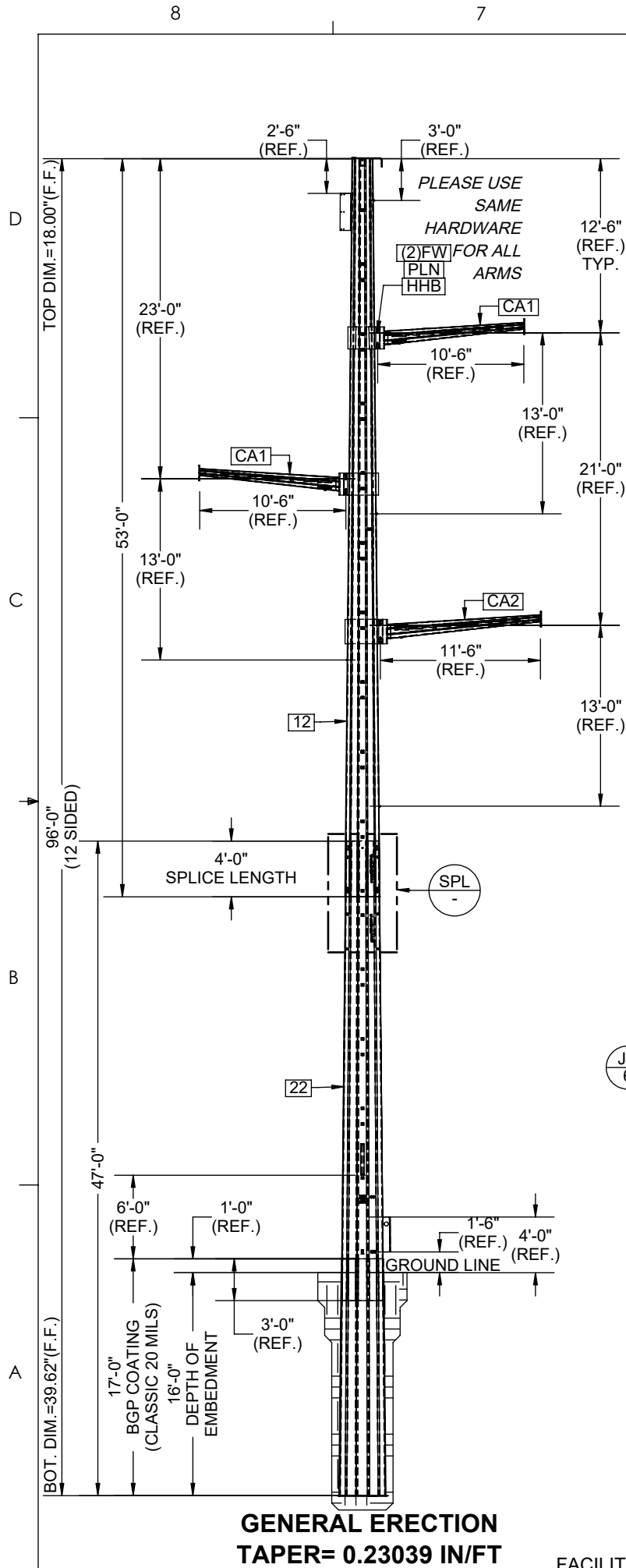
PROPERTY OF TAPP, INC.
2427 KELLY LANE
HOUSTON, TEXAS, 77066 U.S.A.
PHONE 281-444-8277 FAX 281-444-7270

R.DB.10-3	CUSTOMER DRAWING REFERENCE
353-090-T2-001	

- GENERAL NOTES:
1. WORKMANSHIP IN ACCORDANCE WITH AISC 207 LATEST EDITION.
 2. STRUCTURAL STEEL IN ACCORDANCE TO ASTM A572, GRADE IN ACCORDANCE TO THICKNESS.
 3. NONSTRUCTURAL ELEMENTS IN ACCORDANCE TO ASTM A36.
 4. ALL STEEL USED WILL BE IN ACCORDANCE WITH THE BOM.
 5. STAINLESS STEEL IN ACCORDANCE WITH ASTM A240.
 6. STRUCTURAL BOLTS IN ACCORDANCE WITH ASTM F3125 GRADE A325, A490 AND A449. NONSTRUCTURAL BOLTS ACCORDING TO ASTM A307, NUTS ACCORDING TO ASTM A563 AND A194 & WASHERS IN ACCORDANCE WITH F436. ALL TYPE 1, GRADE C OR DH.
 7. HOT-DIP GALVANIZED IN ACCORDANCE WITH REQUIREMENTS OF ASTM A123, A143, A153, A384, A385.
 8. SPECIAL REQUIREMENTS SHALL BE SHOWN IN DRAWINGS (S.R.).
 9. ARC WELDING PERFORMED IN ACCORDANCE WITH AWS D1.1 LATEST EDITION. WELDING ELECTRODES FOR COMPONENTS TO POLE SECTION SHALL BE E8X-T FOR MATERIAL GRADE 65 TO 60-65 KSI, AND E7X-T FOR MATERIAL GRADE 65 TO 36-55 KSI. WELDING OF ANY S.S. TO CARBON STEEL SHALL BE PERFORMED WITH E309 WELDING ELECTRODE.
 10. LONGITUDINAL WELDS SHALL BE SUBMERGED ARC WELD (SAW) WITH MINIMUM PENETRATION OF 60% OF THE PLATE THICKNESS.
 11. CJP WELDS SHALL BE REQUIRED IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS:
 - 11.1. CIRCUMFERENTIAL WELDS JOINING STRUCTURAL MEMBERS.
 - 11.2. LONGITUDINAL WELDS IN THE FEMALE PORTION OF THE JOINT WITHIN THE MAX SLIP JOINT AREA PLUS TWELVE INCHES.
 - 11.3. WELDS AT THE BUTT JOINTS OF BACKUP STRIPS 6 INCHES UPSIDE AND 6 INCHES DOWNSIDE.
 - 11.4. BASE PLATE & FLANGE TO SHAFT WELD.
 - 11.4.1 IF REQUIRED, MAXIMUM GAP FLAT-TO-FLAT BETWEEN POLE SECTION AND BACKING BAR SHALL BE 1/16".
 - 11.4.2 BACKING BAR SHALL BE PREASSEMBLED WITH A 3/16" FILLET WELD ALL AROUND. DO NOT TACK WELD.
 - 11.5. LONGITUDINAL WELDS IN THE MALE PORTION OF THE JOINT ONE FOOT WITHIN THE SLIP.
 - 11.6. PJP WELDS SHALL HAVE 60 PERCENT MINIMUM PENETRATION UNLESS NOTED OTHERWISE.
 12. IF ARMS ARE REQUIRED, A MINIMUM OF 100 PERCENT PENETRATION WITH FILLET OVERLAY SHALL BE USED FOR ARM-TO-ARM BASE.
 13. IF REQUIRED, MAX. ROOT OPENING IN GROOVE WELD SYMBOLS FOR BENT BRACKETS TO POLE SHAFT SHALL BE 3/16".
 14. TEST IN ACCORDANCE WITH ASTM A370 & ASTM A673.
 15. ANCHOR BOLT, STRUCTURAL PLATE AND WELD MATERIAL SHALL MEET ASCE/SEI 48 & ASTM REQUIREMENTS FOR CHARPY TESTS.
 16. ALL PLATES OVER 1 1/2 INCHES THICK SHALL BE ULTRASONICALLY TESTED TO ASSURE AGAINST DEFECTS.
 17. REFER TO TAPP'S ASSEMBLY NOTES, AVAILABLE UPON REQUEST, FOR INFORMATION RELATED TO HANDLING, ASSEMBLY, AND ERECTION PRACTICES AND PRECAUTIONS FOR STEEL POLE STRUCTURES.

- FABRICATION NOTES:
1. 1 SET OF MCGREGOR = 2 CLIPS
 2. DISTANCE BETWEEN CLIPS IN A SET IS 3'-10 1/2" AND DISTANCE BETWEEN EACH SET IS 1'-1 1/2"
 3. MOVE LADDER CLIPS TO MAINTAIN A 3" MIN CLEARANCE OF ANY CUSTOMER MOUNTED ATTACHMENT TO BE ABLE TO APPLY WELDING.
 4. DIAMETERS SHOWN IN BOM ARE ALL TRAPEZOIDS CONFORMED SHOWING DIAMETERS FACE TO FACE
 5. SEE FINISH INFORMATION ON SHEET 8

0	12/01/21	MFMB	FJRO	UPDATED FOR FABRICATION			
A	10/25/21	-	LRCM	ISSUED FOR APPROVAL			
REV.	DATE:	REV. BY	CHK. BY	DESCRIPTION			
 QUALITY STEEL POLES. DELIVERED.							
DWN	DATE		BASIN ELECTRIC POWER COOPERATIVE				
RAFB	10/04/21						
CHK	DATE		102FT- 230KV SINGLE POLE TANGENT STRUCTURE TYPE 2ST-102				
LRCM	09/24/21						
APP	DATE		ASSEMBLY AND GENERAL DETAILS				
CLIENT	11/30/21						
CUST. P.O. NUMBER			TAPP ORDER No.	DRAWING No.	SH/OF	SCALE	REV.
TBD			TP-20203	20203-2-PA	1/8	NTS	0



SPECIAL REQUIREMENT CHART	
SHEET	REFERENCE
1	GENERAL NOTE 13
6	PULL OFF COVER

SECTIONS BILL OF MATERIAL w/ACCS.					
ITEM	QTY.	PART No.	DESCRIPTION	MATERIAL	Wt./Lb.
12	1	20203-1-12	TOP SECTION: PL. 3/16" x 18.00" F.F. x 30.21" F.F. x 53'-0" LG.	ASTM A572 GR 65	3669.48
22	1	20203-1-22	BOT. SECTION: PL. 1/4" x 28.79" F.F. x 39.62" F.F. x 47'-0" LG.	ASTM A572 GR 65	4708.04
CA1	2	20203-CA1	CONDUCTOR ARM 1: SEE DWG#20203-CA1	ASTM A572 GR 65	404.80
CA2	1	20203-CA2	CONDUCTOR ARM 2: SEE DWG#20203-CA2	ASTM A572 GR 65	458.99
BLACK WT.					9646.11
GALV. WT.					10224.88

LOOSE COMPONENTS BILL OF MATERIAL					
ITEM	QTY.	PART No.	DESCRIPTION	MATERIAL	Wt./Lb.
PP1	6	00-PP1	PLASTIC PLUG-UV-FOR HOLE Ø1/2"	PLUGS	0.00
PP2	8	00-PP2	PLASTIC PLUG-UV-FOR HOLE Ø1"	PLUGS	0.00
LOOSE COMPONENTS WT.					0.00

HARDWARE BILL OF MATERIAL					
ITEM	QTY.	PART No.	DESCRIPTION	MATERIAL	Wt./Lb.
HHB	24	00-HHB	Ø1"- 8UNC x 4" LG. HVY. HEX BOLT (HDG)	ASTM F3125 GR A325 TP 1	1.33
PLN	24	00-PLN	Ø1"- 8UNC HVY. HEX PIN LOCK NUT (HDG)	ASTM A563 GR DH	0.43
FW	48	00-FW	Ø1"- FLAT WASHER (HDG)	ASTM F436 TP 1	0.11
HARDWARE WT.					47.52
TOTAL WT. (GALV. WT + LOOSE COMPONENTS WT. + HARDWARE WT.)					10272.40

QTY. SHOWN ABOVE IS FOR (1) POLE ASSEMBLY
TOTAL OF ONE (1) POLE ASSEMBLY REQUIRED

STR. TYPE	
2ST-096	
2" ID WELD MARK	
SECTION	TAPPING #
TOP	20203-1-12-96FT-2ST-096
BOT.	20203-1-22-96FT-2ST-096
NOTE A: 2 SECTION POLE TOP SECTION = 12 BOT. SECTION = 22	

GROUND LINE REACTION			
FOR LOAD CASE	AXIAL	SHEAR	MOMENT
"2A. EXTREME WIND -ROT"	13.36 KIPS	17.33 KIPS	973.72 FT-KIPS
SPLICE JOINT SECTION	NOMINAL	MIN.	MAX.
12-22	4'-0"	3'-9"	4'-6"

- GENERAL NOTES:
1. WORKMANSHIP IN ACCORDANCE WITH AISC 207 LATEST EDITION.
 2. STRUCTURAL STEEL IN ACCORDANCE TO ASTM A572, GRADE IN ACCORDANCE TO THICKNESS.
 3. NONSTRUCTURAL ELEMENTS IN ACCORDANCE TO ASTM A36.
 4. ALL STEEL USED WILL BE IN ACCORDANCE WITH THE BOM.
 5. STAINLESS STEEL IN ACCORDANCE WITH ASTM A240.
 6. STRUCTURAL BOLTS IN ACCORDANCE WITH ASTM F3125 GRADE A325, A490 AND A449. NONSTRUCTURAL BOLTS ACCORDING TO ASTM A307, NUTS ACCORDING TO ASTM A563 AND A194 & WASHERS IN ACCORDANCE WITH F436. ALL TYPE 1, GRADE C OR DH.
 7. HOT-DIP GALVANIZED IN ACCORDANCE WITH REQUIREMENTS OF ASTM A123, A143, A153, A384, A385.
 8. SPECIAL REQUIREMENTS SHALL BE SHOWN IN DRAWINGS (S.R.).
 9. ARC WELDING PERFORMED IN ACCORDANCE WITH AWS D1.1 LATEST EDITION. WELDING ELECTRODES FOR COMPONENTS TO POLE SECTION SHALL BE E8X-T FOR MATERIAL GRADE 65 TO 60-65 KSI, AND E7X-T FOR MATERIAL GRADE 65 TO 36-55 KSI. WELDING OF ANY S.S. TO CARBON STEEL SHALL BE PERFORMED WITH E309 WELDING ELECTRODE.
 10. LONGITUDINAL WELDS SHALL BE SUBMERGED ARC WELD (SAW) WITH MINIMUM PENETRATION OF 60% OF THE PLATE THICKNESS.
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 - 11.2. LONGITUDINAL WELDS IN THE FEMALE PORTION OF THE JOINT WITHIN THE MAX SLIP JOINT AREA PLUS TWELVE INCHES.
 - 11.3. WELDS AT THE BUTT JOINTS OF BACKUP STRIPS 6 INCHES UPSIDE AND 6 INCHES DOWNSIDE.
 - 11.4. BASE PLATE & FLANGE TO SHAFT WELD.
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 - 11.4.2 BACKING BAR SHALL BE PREASSEMBLED WITH A 3/16" FILLET WELD ALL AROUND. DO NOT TACK WELD.
 - 11.5. LONGITUDINAL WELDS IN THE MALE PORTION OF THE JOINT ONE FOOT WITHIN THE SLIP.
 - 11.6. CJP WELDS SHALL HAVE 60 PERCENT MINIMUM PENETRATION UNLESS NOTED OTHERWISE.
 12. IF ARMS ARE REQUIRED, A MINIMUM OF 100 PERCENT PENETRATION WITH FILLET OVERLAY SHALL BE USED FOR ARM-TO-ARM BASE.
 13. IF REQUIRED, MAX. ROOT OPENING IN GROOVE WELD SYMBOLS FOR BENT BRACKETS TO POLE SHAFT SHALL BE 3/16".
 14. IF REQUIRED, MAX. ROOT OPENING IN GROOVE WELD SYMBOLS FOR BENT BRACKETS TO POLE SHAFT SHALL BE 3/16".
 15. TEST IN ACCORDANCE WITH ASTM A370 & ASTM A673.
 16. ANCHOR BOLT, STRUCTURAL PLATE AND WELD MATERIAL SHALL MEET ASCE/SEI 48 & ASTM REQUIREMENTS FOR CHARPY TESTS.
 17. ALL PLATES OVER 1 1/2 INCHES THICK SHALL BE ULTRASONICALLY TESTED TO ASSURE AGAINST DEFECTS.
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- FABRICATION NOTES:
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 4. DIAMETERS SHOWN IN BOM ARE ALL TRAPEZOIDS CONFORMED SHOWING DIAMETERS FACE TO FACE
 5. SEE FINISH INFORMATION ON SHEET 8

FINISH:
HOT DIP GALVANIZED
AS PER ASTM A123

FOR FABRICATION

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PROPERTY OF TAPP, INC.
2427 KELLY LANE
HOUSTON, TEXAS, 77066 U.S.A.
PHONE 281-444-8277 FAX 281-444-7270

R.DB.10-3
CUSTOMER DRAWING REFERENCE
353-090-T2-001

0	12/01/21	MFMB	FJRO	UPDATED FOR FABRICATION
B	11/17/21	JGRP	YATV	NO CHANGES ON THIS SHEET
A	10/29/21	-	YATV	ISSUED FOR APPROVAL
REV	DATE:	REV. BY	CHK. BY	DESCRIPTION
TAPP				
QUALITY STEEL POLES. DELIVERED.				
BASIN ELECTRIC POWER COOPERATIVE				
96FT- 230KV SINGLE POLE TANGENT STRUCTURE TYPE 2ST-096				
ASSEMBLY AND GENERAL DETAILS				
DWN	DATE	CUST. P.O. NUMBER	TAPP ORDER No.	DRAWING No.
CEEC	10/28/21	TBD	TP-20203	20203-1-PA
CHK	DATE	SH/OF	SCALE	REV.
LRCM	09/24/21	1/8	NTS	0
APP	DATE			
CLIENT	11/30/21			