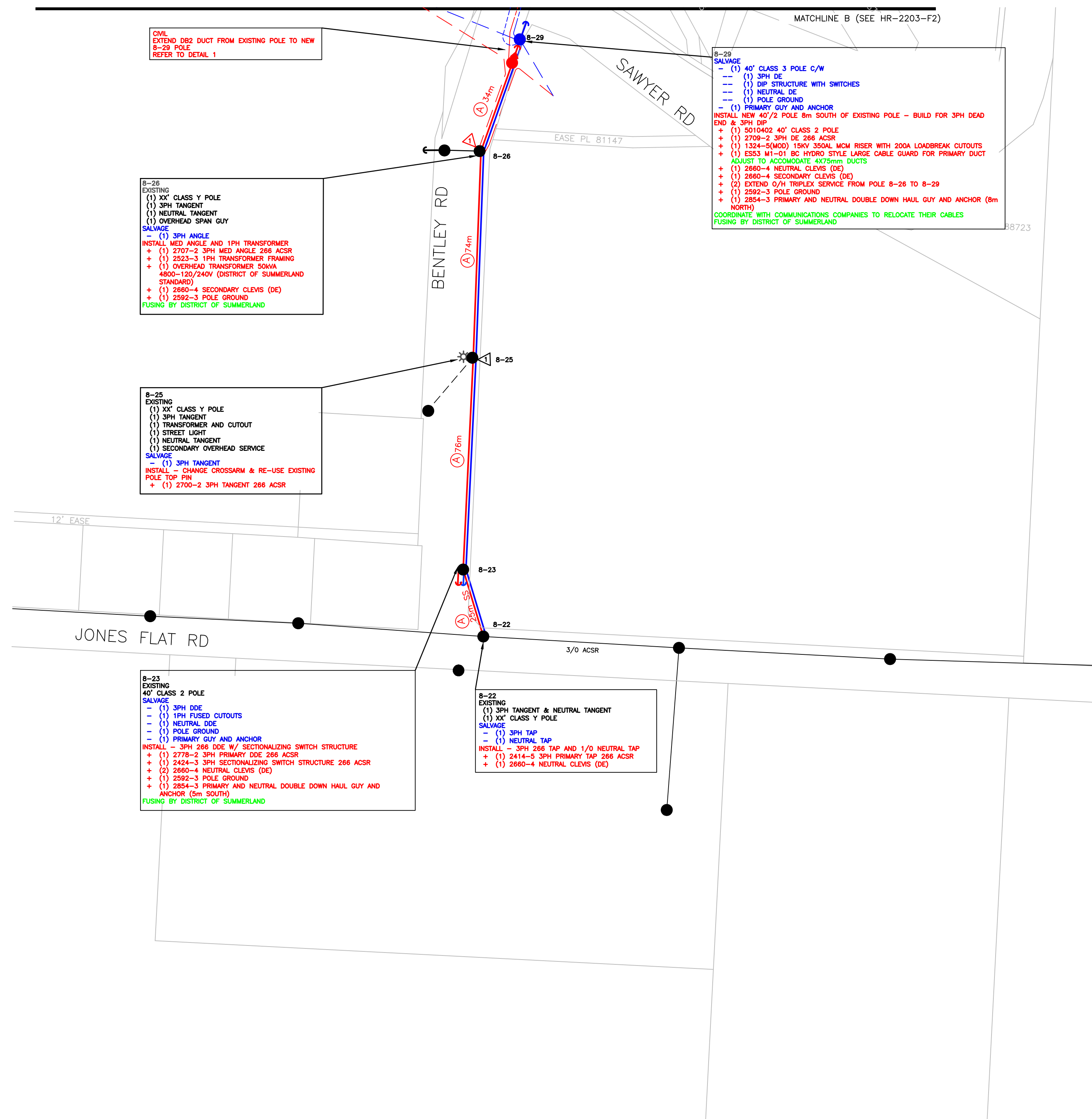
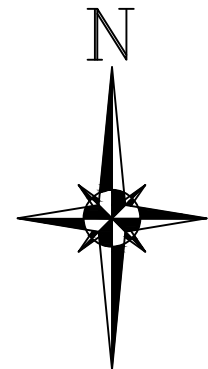


GENERAL NOTES

ADJUST STRUCTURES AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL UNLESS OTHERWISE NOTED

FORTISBC STYLE STRUCTURES AND PART NUMBERS INDICATED ON DRAWING UNLESS OTHERWISE NOTED

DESIGN ASSUMPTIONS - UNLESS OTHERWISE NOTED
SITE CONDITIONS MEET CSA MEDIUM B
MINIMUM GRADE 2 CONSTRUCTION
SOIL STRENGTH ASSUMED TO BE CLASS 5

CABLE AND CONDUCTOR LENGTHS ARE APPROXIMATE DIRECT DISTANCES BETWEEN EQUIPMENT AND DO NOT INCLUDE LOOPS, TERMINATIONS, RISER HEIGHTS OR WASTE

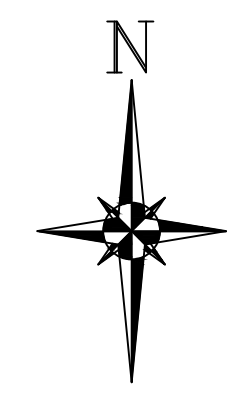
COLOR SCHEME:

RED = PROPOSED
BLUE = SALVAGE / REMOVED / MISSING
BLACK = EXISTING
GREEN = NOTES

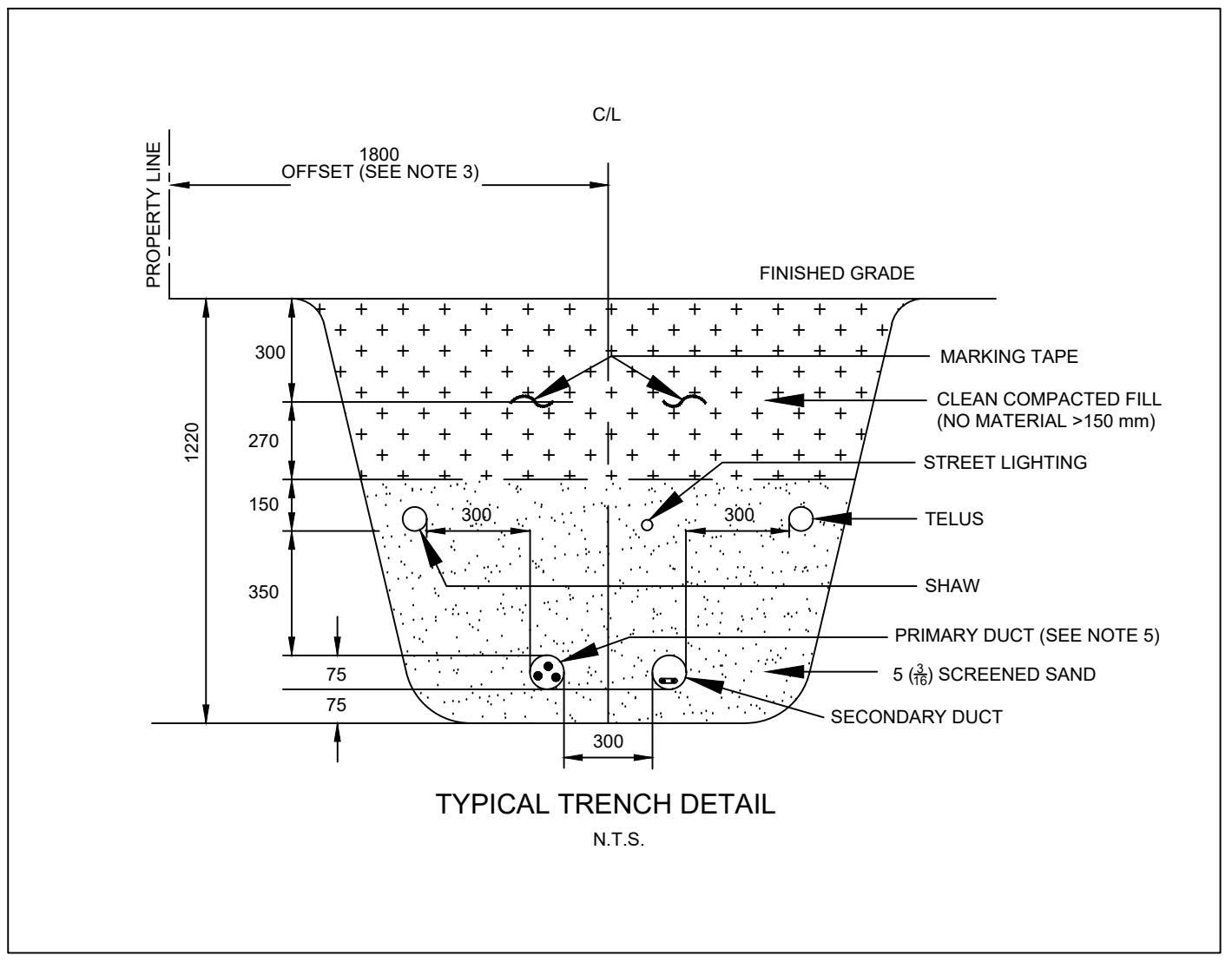
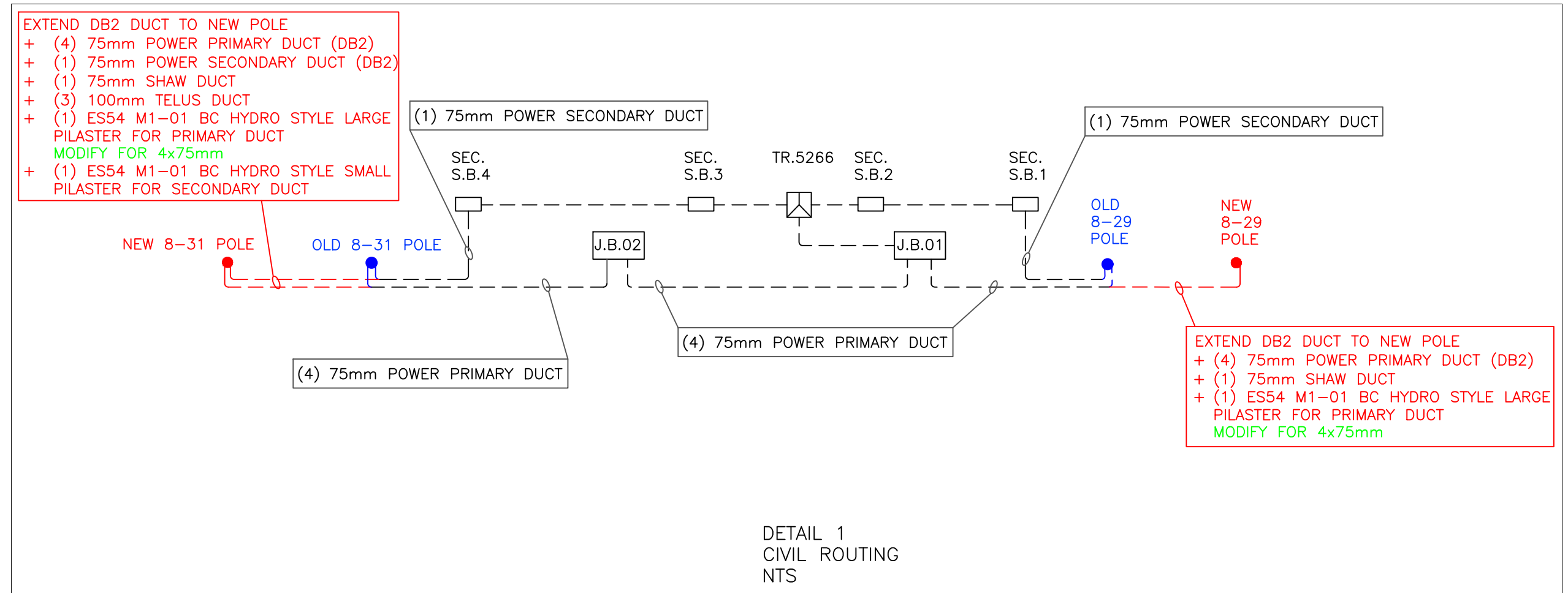
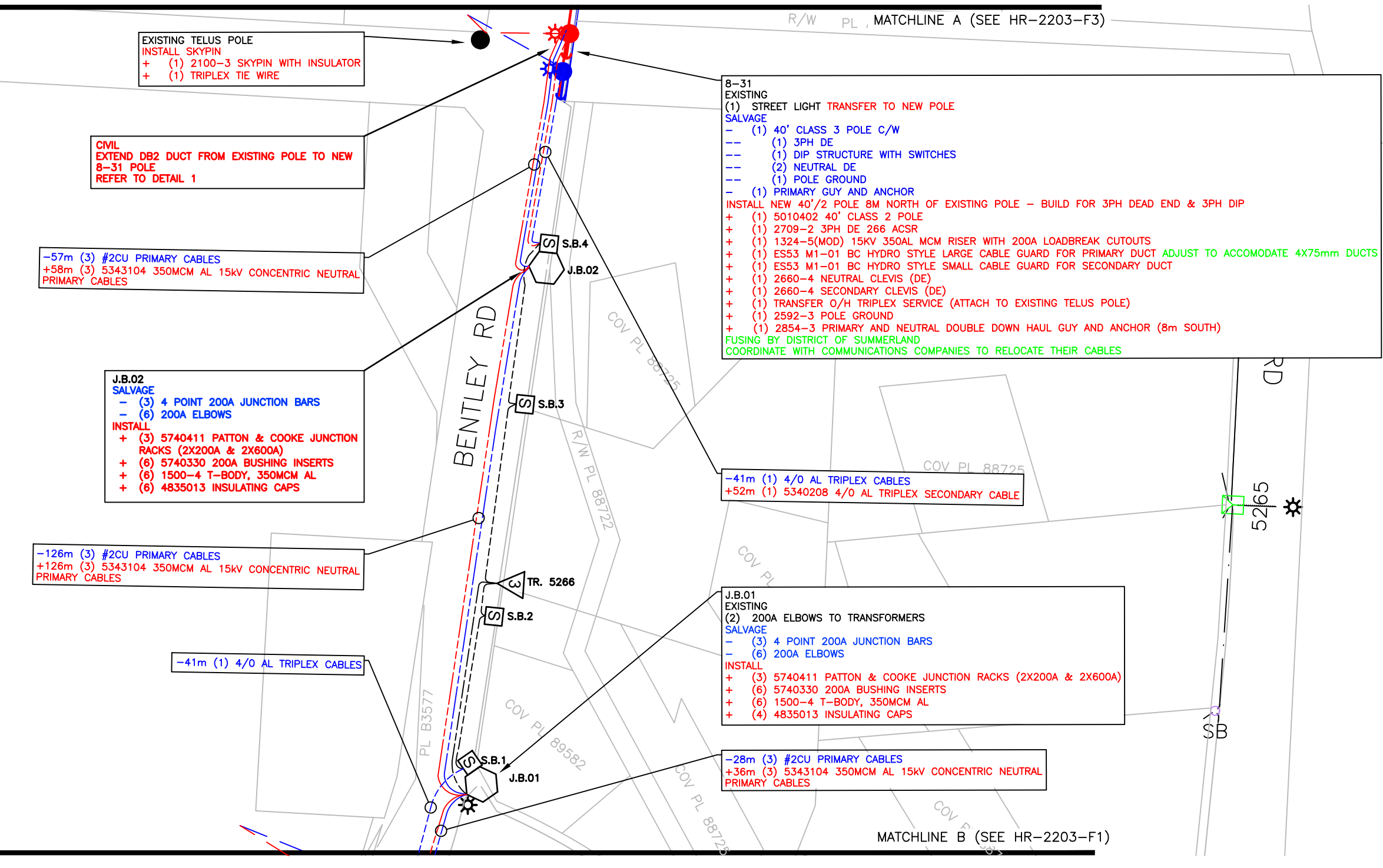
LEGEND

			POLE
			STREET LIGHT
			DUCT STUB
			PUSH BRACE
			PADMOUNT TRANSFORMER INSCRIBED NUMBER DENOTES PHASES
			OVERHEAD TRANSFORMER INSCRIBED NUMBER DENOTES PHASES
			GUY ANCHOR
			SERVICE BOX
			JUNCTION BOX - INSCRIBED NUMBER DENOTES PHASES
			RISER
			PRIMARY O/H CONDUCTOR +(3) 5320114 266.8 ACSR PRIMARY +(1) 1/0 ACSR NEUTRAL Ⓐ (3) PRIMARY Ⓐ (1) NEUTRAL
			PRIMARY 1 # UG CABLE
			PRIMARY 3 # UG CABLE
			DUCT ONLY
			SECONDARY UG CABLE
			SECONDARY OH CONDUCTOR

P.ENG. STAMP		Design / Design Build / Consulting		HR-2203
		#108 - 2280, Leckie Rd, Kelowna, BC V1X 6G6 Phone: (250) 763-0401 primaryeng.com		
Electric Utility Specialists				
REVISIONS	O.G	J.SPRING	7JULY16	REVISED EXTENTS
	O.F	J.SPRING	10JUNE16	ISSUED FOR TENDER
	O.E	J.SPRING	2JUNE16	ADDED SWITCHES
	O.D	J.SPRING	27MAY16	UPDATED STRUCTURES
No.	MADE BY	DATE	DESCRIPTION	
TITLE BENTLEY ROAD				
DRAWN BY: LINDSAY LESCHIUTTA		SCALE 1:1000		
CHECKED BY: JESSE SPRING		DRAWING NUMBER		
APPROVED BY:		REVISION		
		HR-2203-F1		
		0.G		
DESIGN		OPS		
		CONSTRUCTION		



SANBORN ST



GENERAL NOTES

ADJUST STRUCTURES AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL UNLESS OTHERWISE NOTED

FORTISBC STYLE STRUCTURES - UNLESS OTHERWISE NOTED ON DRAWING UNLESS OTHERWISE NOTED

DESIGN ASSUMPTIONS - UNLESS OTHERWISE NOTED
SITE CONDITIONS MEET CSA MEDIUM B
MINIMUM GRADE 2 CONSTRUCTION
SOIL STRENGTH ASSUMED TO BE CLASS 5

CABLE AND CONDUCTOR LENGTHS ARE APPROXIMATE DIRECT DISTANCES BETWEEN EQUIPMENT AND DO NOT INCLUDE LOOPS, TERMINATIONS, RISER HEIGHTS OR WASTE

COLOR SCHEME:

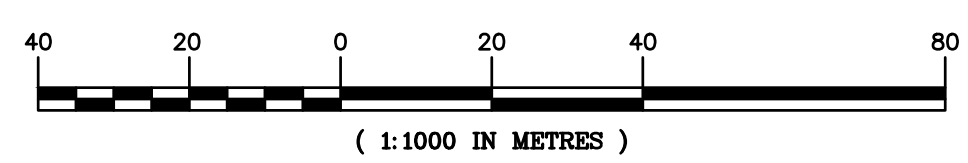
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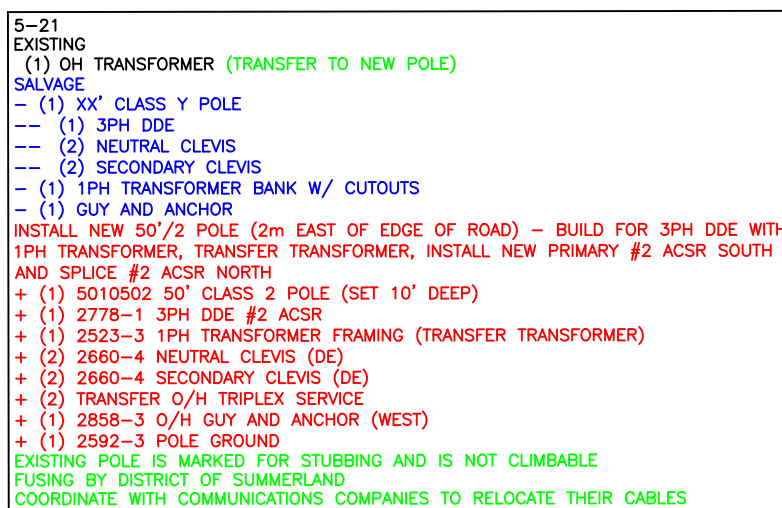
LEGEND

			POLE
			STREET LIGHT
			DUCT STUB
			PUSH BRACE
			PADMOUNT TRANSFORMER INSCRIBED NUMBER DENOTES PHASES
			OVERHEAD TRANSFORMER INSCRIBED NUMBER DENOTES PHASES
			GUY ANCHOR
			SERVICE BOX
			JUNCTION BOX - INSCRIBED NUMBER DENOTES PHASES
			RISER
			PRIMARY OH CONDUCTOR +(3) 5320114 266 8 ACSR PRIMARY +(1) 1/0 ACSR NEUTRAL A -(3) PRIMARY +(1) NEUTRAL
			PRIMARY 1 & UG CABLE +(3) 5320204 #2 ACSR PRIMARY +(1) 5320204 #2 ACSR NEUTRAL B -(3) PRIMARY +(1) NEUTRAL
			PRIMARY 3 & UG CABLE
			DUCT ONLY
			SECONDARY UG CABLE
			SECONDARY OH CONDUCTOR

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		#108 - 2280, Leckie Rd, Kelowna, BC V1X 6G6 Phone: (250) 767-0401 primaryeng.com		
		Electric Utility Specialists		
REVISIONS	O.G	J.SPRING	7JULY16	REVISED EXTENTS
	O.F	J.SPRING	10JUNE16	ISSUED FOR TENDER
	O.E	J.SPRING	2JUNE16	ADDED SWITCHES
	O.D	J.SPRING	27MAY16	UPDATED STRUCTURES
No.	MADE BY	DATE	DESCRIPTION	
TITLE BENTLEY ROAD				
SCALE 1:1000				
DRAWING NUMBER				REVISION
HR-2203-F2				0.G

STATUS		
DRAWN BY:	LINDSAY LESCHIUTTA	
CHECKED BY:	JESSE SPRING	
APPROVED BY:		
DESIGN	OPS	CONSTRUCTION





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5-23 EXISTING
-- (1) SH TRANSFORMER (TRANSFER TO NORTH POLE)
SALVAGE
+ -- (1) 40' CLASS A POLE
+ -- (1) 3PH TANGENT
+ -- (1) 3PH TAP
+ -- (1) NEUTRAL TANGENT
+ -- (1) NEUTRAL TAP
+ -- (1) 1PH TRANSFORMER BANK W/ OUTPUT
INSTALL NEW 40'/2 POLE (1st NORTH OF EXISTING) - BUILD FOR 3PH DDE, 1PH TAP AND 1PH TRANSFORMER
+ (1) SOUTHWEST 40' CLASS 2 POLE
+ (2) 278#-2 BOLT INCH DIA
+ (2) 278#-2 BOLT INCH DIA @ 6' ON C/W / 10DA LOADBARK CUTOFF (REUSE PRIMARY CONDUCTOR)
+ (1) 252J-3 1PH TRANSFORMER BANK FRAMING
+ (2) 360X-4 NEUTRAL CLEVIS (DO NOT USE)
+ (1) TRANSFER O/H TRIPLEX SERVICE
+ (1) 285A-3 PRIMARY AND NEUTRUL DOUBLE DOWN HAU GUY AND ANCHOR
+ (1) 299Z-3 POLE GROUND
FLYING BY DISCOUNT OF SUMMERLAND
COORDINATE WITH COMMUNICATION COMPANIES TO RELocate THEIR CABLES
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5-26
SALVAGE
-- (1) 407 CLASS 4 POLE
-- (1) 3PH TANGENT
-- (1) 3PH DE
-- (2) NEUTRAL CLEVIS
-- (3) SECONDARY CLEVIS
-- (1) STREET LIGHT
-- (1) SECONDARY SIDEWALK ANCHOR (NORTH)
INSTALL NEW 45/2 POLE (KICK AND SET) - BUILD FOR 3PH TANGENT & 3PH TAP
-- (1) 5010452 45 CLASS 2 POLE
-- (1) 2700-2 NEUTRAL DECK 268 ACSS (TOP)
-- (2) 2700-2 3PH DE 268 ACSS (BOTTOM)
+ (1) 5710044 INSULATOR, PIN TYPE
+ (1) 5101022 PIN, 6" TOP TYPE
-- (1) 2680-4 NEUTRAL CLEVIS (TANGENT)
-- (1) 2680-4 NEUTRAL CLEVIS (DE)
-- (1) 2680-4 SECONDARY CLEVIS [DE]
-- (1) 1440-1 STREET LIGHT ATTACHMENT (REPLACE ARM W/ SHORT SUMMERLENGTH BRACKET)
+ (1) 1485-14SD 1500 LUMINAIRE
-- (1) TRANSFER 407 TRIPLEX LEADERS
+ (1) 2592-3 3 POLE GROUNDING
-- (1) TRANSFER 407 TRIPLEX LEADERS TO RELOCATE THEIR CABLES

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5-27
EXISTING
(1) 30' CLASS 3 POLE
(1) COMMUNICATIONS ANCHOR
SALVAGE
- (1) 2858-3 O/H GUY AND ANCHOR
INSTALL NEW O/H GUY AND ANCHOR
+ (1) 2858-3 O/H GUY AND ANCHOR

	X-XX EXISTING	(1) 300 CLASS Y TELUS POLE	INSTALL NEW 40'X3 POLE (IMMEDIATELY WEST OF EXISTING TELUS POLE) -- BUILD FOR 1PHI TANGENT
		+ (1) 210D-X SPOYIN WITH INSULATOR	+ (1) 2680'-4 NEUTRAL CLEVS (TANGENT)
	X-XX EXISTING	(1) 40' CLASS X POLE	
	(1) 3PH TANGENT	NEUTRAL-- BUILD FOR 3PH TANGENT & 10PA TANGENT	
		+ (1) 2400'-5 IPhi TAP #2 ACSR W/ 1IDA LOADBREAK CUTOUT (REUSE PRIMARY AND NEUTRAL CONDUCTOR	
		+ (1) 2400'-5 IPhi TAP #2 (TANGENT)	
		+ (1) 2992'-3 POLE GROUNDING	
		PLACING DISTRICT OF SUMMITLAND	
		COORDINATE WITH COMMUNICATIONS COMPANIES TO RELOCATE THEIR CABLES	

5-32
SALVAGE
- (1) 40' CLASS 3 POLE
--- (1) 3PH TANGENT
--- (1) 1PH TAP
--- (1) NEUTRAL TANGENT
--- (3) SECONDARY CLEVIS (SALVAGE OPEN WIRE NORTH AND SOUTH AND TRIPLEX WEST)
--- (1) POLE GROUND

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5-34
EXISTING
(1) SL (TRANSFER TO NEW POLE)
SALVAGE
-- (1) 40' CLASS 4 POLE
-- (1) 3PH TANGENT
-- (1) SECONDARY RACK
INSTALL
NEW 40'/2 POLE (1in NORTH OF EXISTING) - BUILD FOR 3PH TANGENT
+ (1) 5010402 40' CLASS 2 POLE
+ (1) 2700-2 3PH TANGENT 266 ACSR
+ (3) 5561138 266 TIES
+ (1) 2660-4 NEUTRAL CLEVIS (TANGENT)
+ (3) 2660-4 SECONDARY CLEVIS (TANGENT)
+ (1) TRANSFER OPEN WIRE SECONDARY
+ (1) 2592-3 POLE GROUND

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B-40
EXISTING
(1) 0M TRANSFORMERS (TRANSFER TO NEW POLE)
SALVAGE
-- (1) 40' CLASS 4 POLE
-- (1) 3PH TANGENT
-- (1) NEUTRAL DE
-- (1) SECONDARY CLVS
-- (1) SECONDARY RACK
-- (1) 3PH TRANSFORMER BANK W/ OUTCUTS
-- SECONDARY GUY AND ANCHOR
INSTALL NEW 40' 2 POLE (1m south of existing) - BUILD FOR 3PH
TANGENT
-- (1) 40' CLASS 4 POLE
+ (1) 5010402 40' TANGENT 2 POLE
+ (1) 2700-2 3PH TRANSFER 268 ACSS
+ (1) 2700-2 3PH TRANSFORMER FRAMING (TRANSFER TRANSFORMERS)
+ (1) 2660-4 NEUTRAL CLVS DE
+ (1) 2660-4 SECONDARY CLVS DE
+ (1) TRANSFER OPEN WIRE SECONDARY
+ (1) TRANSFER GUY TRIPLEX SERVICE
+ TRANSFER SECONDARY DUT
+ (1) ESS4 M1-01 BC HYDRO STYLE SMALL PILASTER FOR SECONDARY DUT
+ (1) 2592-3 PULL
+ (1) 2602 SECONDARY GUY AND ANCHOR (2m south)
FLUSH BY DESIGN OF SUMMERLAND
-- (1) 2602 SECONDARY GUY AND ANCHOR COMPANIES TO RELOCATE THEIR CABLES

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B-32
SALVAGE
 (1) 40' CLASS 3 POLE C/W
 (1) 3PH TANGENT
 (1) 1PH TAP
 (1) 2ND CLASS 2 POLE
 (1) NEUTRAL DE
 (1) POLE GROUND
 (1) PUSHBRACE (W/ 3RD CLASS 4 POLE)
 INSTALL NEW 40'2" POLE - BUILD FOR 3PH TANGENT & 1PH TAP
 (1) 5010402 40' CLASS 2 POLE
 (1) 5010352 35' CLASS 2 POLE
 (1) 2700-2 3PH TANGENT 266 ACSR
 (1) 2400-5 1PH TAP #2 ACSR W/ 100A LOADBREAK CUTOUT
 (1) 2400-4 NEUTRAL CLEVIS (TANGENT)
 (1) 2680-4 NEUTRAL CLEVIS (DE
 (1) 2562-3 POLE GROUND
 (1) 2820-1 PUSH BRACE (1PH EAST)
 FUSING BY DISTRICT OF SUMNERLAND
 COOPERATING WITH COMMUNICATIONS COMPANIES TO RELOCATE THEIR CABLES
 BEHIND REQUIRED

5-30
EXISTING
(1) 40' CLASS 2 POLE
(1) 3PH TRANSFORMER BANK W/ CUTOUPS
(2) 0/H SECONDARY SERVICE
(1) STREET LIGHT
(1) POLE GROUND
SALVAGE
(1) 3PH TANGENT
(1) NEUTRAL TANGENT
(1) SECONDARY CLEVIS
INSTALL NEW 3PH TANGENT
+ (1) 2700-2 3PH TANGENT 266 ACSR
+ (3) 5531021 STIRRUPS
+ (1) 2660-4 NEUTRAL CLEVIS (TANGENT)
+ (1) 2660-4 SECONDARY CLEVIS (DE)

5-31
EXISTING
(1) COMMUNICATIONS GUY AND ANCHOR (EAST)
(1) COMMUNICATIONS GUY AND ANCHOR (SOUTH)
SALVAGE
-- (1) 40' CLASS 4 POLE
-- (1) 3PH ANGLE
-- (1) NEUTRAL TANGENT
INSTALL 40'/2 (1m EAST OF EXISTING POLE) - BUILD FOR 3PH
ANGLE W/ 0/H SPAN GUY
+ (1) 5010402 40' CLASS 2 POLE
+ (1) 2705-2 3PH LIGHT ANGLE 266 ACSS
+ (1) 2680-4 NEUTRAL (TANGENT)
+ (1) 2858-3 0/H GUY AND ANCHOR (13m SOUTH W/ 5m
ANCHOR LEAD LENGTH)
COORDINATE WITH COMMUNICATIONS COMPANIES TO RELOCATE
THE TAPES

5-53
EXISTING
(1) 40' CLASS 2 POLE
(1) 1 PH TRANSFORMER
(1) SECONDARY GUY AND ANCHOR (NORTH)
SALVAGE
- (1) 3PH TANGENT
- (1) NEUTRAL TANGENT
INSTALL NEW 3PH DDE
+ (1) 2778-2 3PH DDE 266 ACSR
+ (2) 2660-4 NEUTRAL CLEVIS (DE)
+ (1) 2854-5 PRIMARY AND NEUTRAL DOUBLE DOWN HAIL G.
+ AND ANCHOR (Xm SW)
+ (1) 2852-6 COMMUNICATIONS GUY AND ANCHOR (Xm SW)

X-XX
EXISTING
(1) 40' CLASS X POLE
(1) 3PH TANGENT
(1) 3PH DIP WITH CUTOUTS
(1) NEUTRAL TANGENT
(1) POLE GROUND
INSTALL
+ (1) 2660-4 SECONDARY CLEVIS (TANGENT)

5-28
EXISTING
(1) 40' CLASS 3 POLE
(1) OH TRANSFORMERS
(1) 3PH TRANSFORMER BANK W/ CUTOUTS
(1) SECONDARY CLEVIS
(3) O/H SECONDARY SERVICES
(1) POLE GROUND
SALVAGE
- (1) 3PH TANGENT
- (1) NEUTRAL TANGENT
INSTALL NEW TANGENT AND STIRRUPS
+ (1) 2700-2 3PH TANGENT 266 ACSR
+ (3) 5531021 STIRRUPS
+ (1) 2660-4 NEUTRAL CLEVIS (TANGENT)
+ (1) SECONDARY CLEVIS (DE)

5-29
EXISTING
(1) 40' CLASS 4 POLE
(1) STREET LIGHT
(1) SECONDARY CLEVIS
(1) O/H SECONDARY SERVICE
(1) POLE GROUND
-
SALVAGE
- (1) 3PH TANGENT
- (1) NEUTRAL TANGENT
INSTALL NEW 3PH TANGENT AND SWITCHES
+ (1) 2700-2 3PH TANGENT 266 ACSR
+ (1) 2424-8 3PH SECTORIALIZING SWITCH STRUCTURE
W/ 900 A SWITCHES 266 ACSR
+ (1) 2660-4 NEUTRAL CLEVIS (TANGENT)

5-54
SALVAGE

- (1) 40' CLASS 4 POLE
- (1) 3PH DOE
- (1) 3PH CUTOUTS
- (1) NEUTRAL TANGENT
- (1) POLE GROUND
- (1) PRIMARY GUY AND ANCHOR (SOUTH)
- (1) COMMUNICATIONS GUY AND ANCHOR (SOUTH)

INSTALL 45/2 - BUILD FOR 3PH CORNER

- +(1) 5010452 45' CLASS 2 POLE
- +(1) 2710-2 3PH CORNER 266 ACJR
- +(2) 2660-4 NEUTRAL CLEVIS (DE)
- +(1) 2592-3 POLE GROUND
- +(1) 2592-3 PRIMARY AND NEUTRAL DOUBLE DOWN HAUL GUY AND ANCHOR (Xm EAST)
- +(1) 2852-6 COMMUNICATIONS GUY AND ANCHOR (Xm EAST)

6-33
EXISTING
(1) 0/4 TRANSFORMER (TRANSFER TO NEW POLE)
SALVAGE
-- (1) 40' CLASS 4 POLE
-- (1) 3PH TANGENT
-- (1) SECONDARY RACK
-- (1) 1PH TRANSFORMER BANK W/ CUTOUTS
-- (1) SECONDARY GUY AND ANCHOR
INSTALL NEW 40' 2/0 POLE (SOUTH OF EXISTING TO PROPERTY LINE) - BUILD FOR
TANGENT & 2 TRANSFORMERS, TRANSFER TRANSFORMER
* (1) 5010402 40' CLASS 2 POLE
* (1) 2700-2-3 3PH TANGENT 200' ACER
* (1) 2522-3 1PH TRANSFORMER BANK FRAMING (TRANSFER TRANSFORMER)
* (2) 2660-4 NEUTRAL CLEVIS (06)
* (2) 2460-4 SECONDARY CLEVIS (06)
* (2) TRANSFER OPEN WIRE SECONDARY (SOUTH)
* (2) TRANSFER O/A TRIPLEX SERVICE
* (1) 2095-3 POLE GROUND
* (1) 2852-6 SECONDARY GUY AND ANCHOR (ON NORTH)
FUSING BY DISTRICT OF SUMNERLAND
COORDINATE WITH ALL UTILITIES COMPANIES TO RELOCATE THEIR CABLES

S.B.5
SALVAGE
- (1) SECONDARY CONDUCTOR FROM NEW SERVICE BOX TO EXISTING POLE 5-35
INSTALL NEW SERVICE BOX OVER EXISTING SECONDARY CONDUCTOR (1in EAST OF POLE 5-35)
+ (1) 1590-1 CONCRETE SERVICE BOX
+ (1) 1501-1 SECONDARY CABLE CONNECTORS
+ (1) SECONDARY CONDUCTOR IN DUCT FROM NEW SERVICE BOX TO NEW POLE 5-35
(MATCH EXISTING CONDUCTOR AND DUCT)
CONCRETE CAP SECONDARY DUCT

8-35
EXISTING
(3) OH
SALVAGE

TRANSFORMERS (TRANSFER TO NEW POLE)

- (1) 40' CLASS 4 POLE
- (1) 3PH TANGENT
- (1) SECONDARY RACK

(3) 3PH TRANSFORMER BANK W/ CUTOUTS

INSTALL NEW 40' 402 POLE NORTH OF EXISTING -- BUILD FOR 3PH TANGENT & 3PH TRANSFORMER BANK, TRANSFER TRANSFORMERS

- (1) 50' 402 40' CLASS POLE
- (1) 2700-2 3PH TRANSFORMER BANK ACSR
- (1) 2525-3 3PH TRANSFORMER BANK FRAMING (TRANSFER TRANSFORMERS)
- (1) 2486-4 NEUTRAL CLEVIS (TRANSFER)
- (3) 2680-4 SECONDARY CLEVIS (TANGENT)
- (1) TRANSFER OPEN RISE SECONDARY
- (1) TRANSFER 0/4 TRIPLEX W/ HOOK
- (1) TRANSFER SECONDARY DIP
- (1) ES54 M1-01 BC HYMER STYLE SMALL PLUMBER FOR SECONDARY DUCT
- (1) 2590-2 POLE GROUND

FUSING BY DISTRICT OF SUMNERLAND

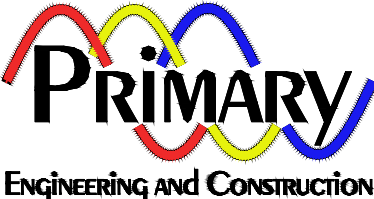
RELOCATE TRANSFORMERS TO NEW POLE, RELOCATE THE CABLES

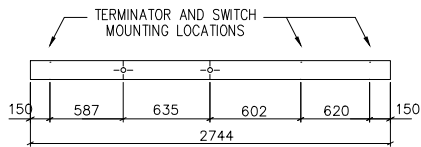
8-39
SALVAGE
-- (1) 40' CLASS 4 POLE
-- (1) 3PH TANGENT
-- (1) NEUTRAL TANGENT
INSTALL NEW 40'/2 POLE -- BUILD FOR 3PH TANGENT
+ (1) 5010402 40' CLASS 2 POLE
+ (1) 2700-2 3PH TANGENT 266 ACSR
+ (1) 2660-4 NEUTRAL CLEVIS (TANGENT)
BRUSHING MAY BE REQUIRED

MATCHLINE A (SEE HR-2203-F2)

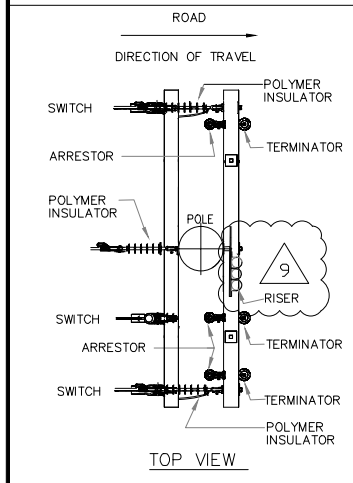
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		POLE
		STREET LIGHT
		DUCT STUB
		PUSH BRACE
		PADMOUNT TRANSFORMER INSCRIBED NUMBER DENOTES PHASES
		OVERHEAD TRANSFORMER INSCRIBED NUMBER DENOTES PHASES
		GUY ANCHOR
		SERVICE BOX
		JUNCTION BOX - INSCRIBED NUMBER DENOTES PHASES
		RISER
		PRIMARY O/H CONDUCTOR +(3) 5320114 266.8 ACSR PRIMARY +(1) 1/0 ACSR NEUTRAL Ⓟ (3) PRIMARY Ⓡ (1) NEUTRAL
		PRIMARY 1 ♂ UG CABLE
		PRIMARY 3 ♂ UG CABLE
		DUCT ONLY
		SECONDARY UG CABLE
		SECONDARY O/H CONDUCTOR

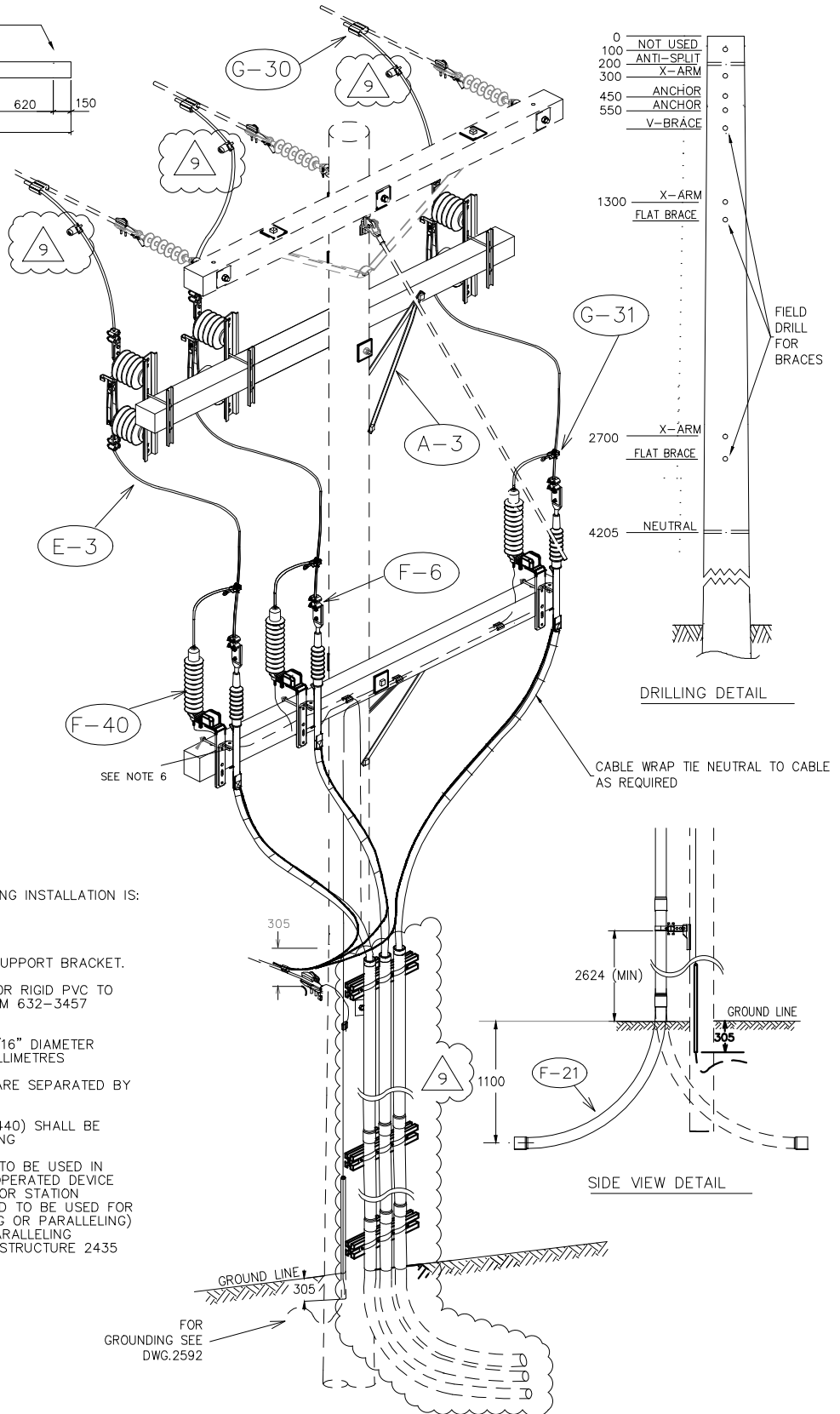
P.ENG. STAMP		Design / Design Build / Consulting  #108 - 2280, Leckie Rd, Kelowna, BC V1X 6G6 PHONE: (250) 763-0401 PRIMARYENG.COM		HR-2203
		Electric Utility Specialists		
REVISIONS	O.G.	J.SPRING	7JULY16	REVISED EXTENTS
	O.F.	J.SPRING	10JUNE16	ISSUED FOR TENDER
	O.E.	J.SPRING	2JUNE16	ADDED SWITCHES
	O.D.	J.SPRING	27MAY16	UPDATED STRUCTURES
	No.	MADE BY	DATE	DESCRIPTION
				
TITLE BENTLEY ROAD				
SCALE 1:1000				
DRAWING NUMBER HR-2203-F3				REVISION 0.G



CROSSARM DETAIL



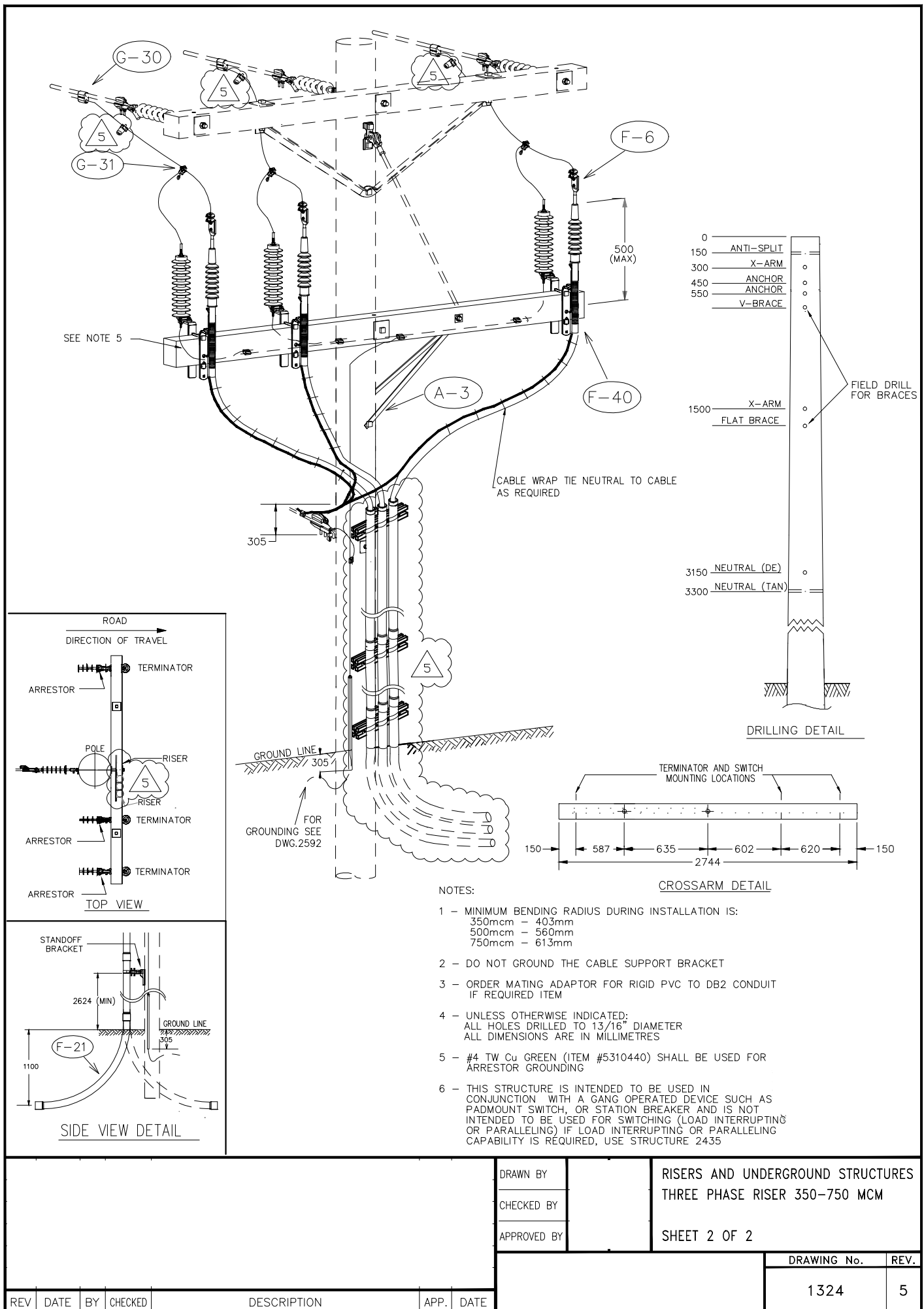
TOP VIEW



NOTES:

- 1 - MINIMUM BENDING RADIUS DURING INSTALLATION IS:
350mcm-403mm
500mcm-560mm
750mcm-613mm
- 2 - DO NOT GROUND THE CABLE SUPPORT BRACKET.
- 3 - ORDER 4" MATING ADAPTOR FOR RIGID PVC TO DB2 CONDUIT IF REQUIRED. ITEM 632-3457
- 4 - UNLESS OTHERWISE INDICATED:
- ALL HOLES DRILLED TO 13/16" DIAMETER
- ALL DIMENSIONS ARE IN MILLIMETRES
- 5 - BOND ALL NEW METAL HARDWARE SEPARATED BY LESS THAN 100mm
- 6 - #4 TW Cu GREEN (ITEM #5310440) SHALL BE USED FOR ARRESTOR GROUNDING
- 7 - THIS STRUCTURE IS INTENDED TO BE USED IN CONJUNCTION WITH A GANG OPERATED DEVICE SUCH AS PADMOUNT SWITCH, OR STATION BREAKER AND IS NOT INTENDED TO BE USED FOR SWITCHING (LOAD INTERRUPTING OR PARALLELING) IF LOAD INTERRUPTING OR PARALLELING CAPABILITY IS REQUIRED, USE STRUCTURE 2435

							DRAWN BY			RISERS AND UNDERGROUND STRUCTURES THREE PHASE RISER 350-750 MCM SHEET 1 OF 2			
							CHECKED BY						
							APPROVED BY						
											DRAWING No.		REV.
											1324		9
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE					



							DRAWN BY			RISERS AND UNDERGROUND STRUCTURES THREE PHASE RISER 350-750 MCM SHEET 2 OF 2			
							CHECKED BY						
							APPROVED BY						
											DRAWING No.		REV.
											1324		5
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE					

ASSEMBLY REF #			ITEM #	Fortis Bill of Material						
				Structure # 1324 THREE PHASE RISER FOR 350 - 750MCM						
				Item #	UI	-1	-2	-3	-4	Description
			1	4910304		1	1	1	1	SIGN, ALUMINUM, DANGER, 16 X 9 CM
			2	4947054		3	3	3	3	TAG HOLDER, FOR U/G CABLE IDENTIFICATION
			3	4947067		3	3	3	3	TAG HOLDER, 3", AL, HORIZONTAL SLOTS
			4	4947069		1	1	1	1	TAG HOLDER, AL, VERT. BANDING SLOTS 10"
			5	5020207		1	1	1	1	CROSSARM, WOOD, SAWN OR GLULAM WOOD
			6	5020304		1		1		CROSSARM, WOOD, SAWN OR GLULAM WOOD
			7	5110252		4	2	4	2	BRACE, FLAT, 34" LONG
			8	5132606		2	1	2	1	BOLT, MACHINE, GALV, 3/4" X 6"
			9	5132614		1	1	1	1	BOLT, MACHINE, GALV, 3/4" X 14
			10	5132616		1		1		BOLT, MACHINE, GALV, 3/4" X 16"
			11	5138401		6	5	6	5	BOLT, LAG, GALVANIZED, 1/2" X 4"
			12	5142206		4	2	4	2	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
			13	5142304		6	4	6	4	WASHER, CURVED, 4X4X3/8, 13/16 HOLE.
			14	5142502		3	3	3	3	WASHER, SINGLE HELIX SPRING LOCK, 1/2"
			15	5142603		8	6	8	6	WASHER, SPRING LOCK, DOUBLE 3/4
			16	5150231		3	3	3	3	BRACKET, CABLE SUPPORT, DIA. .75"- 2.0"
			17	5151009		3	3	3	3	INDICATOR, OVER HEAD CONDUCTOR FAULT
			18	5310204	M			7	10	WIRE, CU STR, 4/0, BARE, SOFT DRAWN
			19	5310205	M	7	10			WIRE, CU STR, 500MCM, BARE, SOFT DRAWN
			20	5310440	M	6	6	6	6	WIRE, 4 AWG, 7STR, 600V, TWU GREEN
			21	5311105	M	2	2	2	2	CONDUCTOR, CU STR, #4 POLY, 600V, RW90
			22	5390603	M	5	5	5	5	CABLE-#2 WELDING-COPPER-672W STR. -600V.
			23	5530130		5	5	5	5	CONNECTOR, COMPRESSION, AL, H-TYPE
			24	5530133		3	3	3	3	CONNECTOR, COMPRESSION, AL, H-TYPE
			25	5530502				3	3	CLAMP, HOT LINE, 336.4 MCM : #6 ACSR
			26	5530505		3	3			CLAMP, HOT LINE, 266.8 TO #6 ACSR
			27	5532241				3	3	LUG, COMPRESSION TERMINAL, #500MCM, 2 HOLE
			28	5532243		3	3			CONN COMP TERM LUG, 750AL, 2HOLE PAD 1/2"
			29	5532245						CONN COMP TERM LUG, 350AL, 2HOLE PAD 1/2"
			30	5532411				9	9	CONNECTOR, TERMINAL, 2/0-4/0 TO PAD, BOLTED
			31	5532412		9	9			CONNECTOR, TERMINAL, 350 MCM-500MCM PAD
			32	5590502		15	15	15	15	TIE, CABLE WRAP, BLACK, 7"
			33	5740143						TERM, COLD SHRINK, 15/25KV, 350 MCM
			34	5740145		3	3	3	3	TERM, COLD SHRINK, 15/25KV, 500- 800 MCM
			35	5790415		3	3	3	3	PROTECTOR, WILDLIFE, L.A. BRACKET
			36	5810112		3	3	3	3	ARRESTER, LIGHTNING, 10KV
			37	5810122						
			38	5821038		3		3		SWITCH, DISCONNECT, 27KV, 900AMP, 125KV BIL
			39	5890417		3	3	3	3	BRACKET, CROSSARM MOUNTING L.A. & CUTOUT
			40	5890450		4	4	4	4	BRACKET, ALUMINUM, STANDOFF
			41	5890456		4	4	4	4	BRACKET, T SLOT, 4 WAY, 24 INCHES LONG
			42	6311110		12	12	12	12	STRAP, KIT, GALV, FOR 4"
			43	6323051		9	9	9	9	PIPE, RIGID PVC, 10' 4" 4.026" ID
			44	6323454		3	3	3	3	END BELLS, FOR 4" RIGID PVC, GREY
				XXXXXXX		1	1	1	1	CROSSARM 3 3/4" x 4 3/4" x 8'
				XXXXXXX		1		1		CROSSARM 4 3/4" x 5 3/4" x 8'
				XXXXXXX		3	3	3	3	ARRESTER, LIGHTNING, 6KV (5.1KV MCOV)
ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL										

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
-----	------	----	---------	-------------	------	------

DRAWN BY		RISERS AND UNDERGROUND STRUCTURES THREE PHASE RISER 350-750MCM BILL OF MATERIALS BOM SHEET 1 OF 3
CHECKED BY		
APPROVED BY		
		DRAWING No. 1324 REV. 1

REMARKS:

1) Intended uses:

1324-1 Structure is a 25 kV 750 MCM riser with 900A switches
 1324-2 Structure is a 25 kV 750 MCM riser without switches
 1324-3 Structures is a 25 kV 500 MCM riser with 900A switches
 1324-4 Structure is a 25 kV 500 MCM riser without switches
 1324-5 Structure is a 15 kV 350 MCM riser with 900A switches
 1324-7 Structures is a 15 kV 350 MCM riser without switches
 1324-8 Structure is a 15 kV 750 MCM riser with 900A switches
 1324-9 Structure is a 15 kV 750 MCM riser without switches
 Note: For 25Kv installations, substitute item 5810112 18 kV arrestors

2) All connections to line are to be wedge style. Designer to select correct wedge type connector from chart below depending on application.

a) Wedge connectors for structures -3, -4, -5, -7 utilizing 4/0 bare copper for risers

Select the appropriate connectors and shells for application.

LINE CONDUCTOR	WEDGE CONNECTOR ITEM #	SHELL ITEM #
3/0 PIGEON	553 1431	553 1592 YELLOW
477 PELICAN	553 1444	553 1592 YELLOW

b) Wedge connectors for structures -1, -2, -8, -9 utilizing 500 mcm copper for risers

Select the appropriate connectors and shells for application.

LINE CONDUCTOR	WEDGE CONNECTOR ITEM #	SHELL ITEM #
3/0 PIGEON	553 1443	553 1592 YELLOW
477 PELICAN	553 1447	553 1592 YELLOW

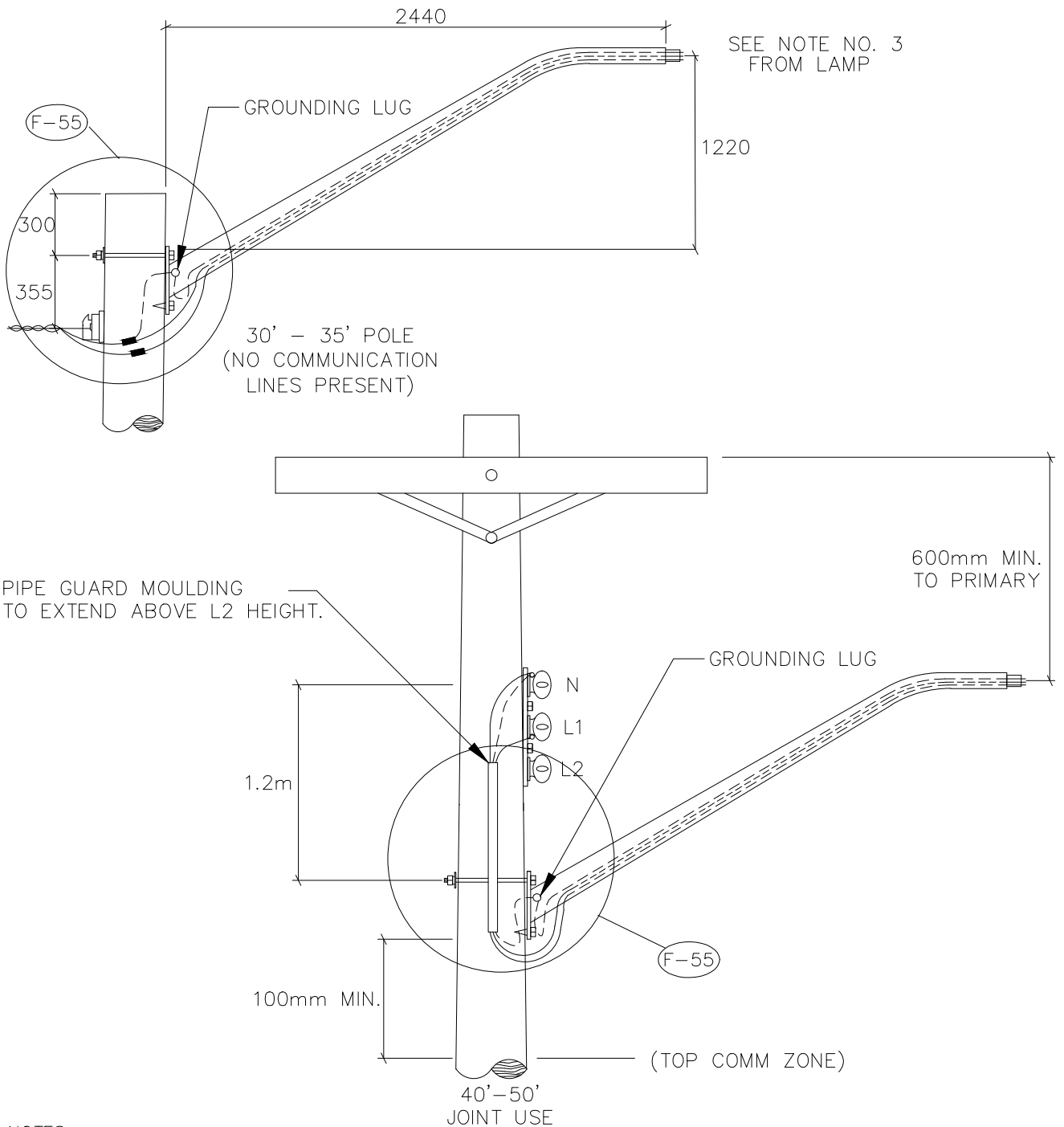
3) Structures are intended for 1 cable per 100 mm (4") pipe. For all other installations, designer will need to adjust pipe, bell ends and clamps.

Variables

3" Rigid PVC 10' #632-3056
 3" Rigid PVC 20' #632-3057
 3" strap kit #631-1109
 3" Bell ends #632-3453

4) Designer will need to order PIC number as required from the 494XXXX series.

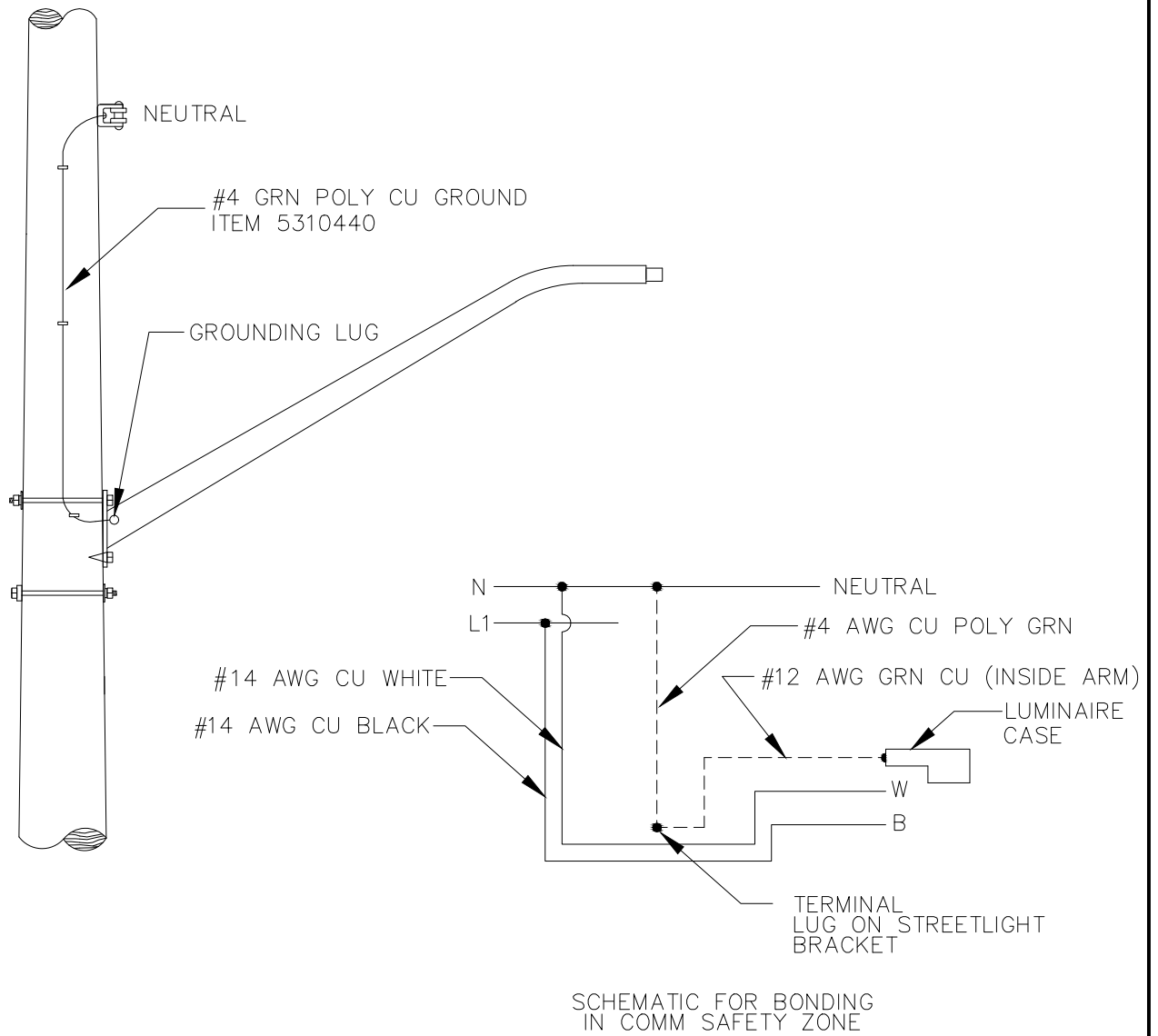
					DRAWN BY		RISER AND UNDERGROUND STRUCTURES THREE PHASE RISER 350-750MCM BILL OF MATERIALS BOM SHEET 3 OF 3	
					CHECKED BY			
					APPROVED BY			
							DRAWING No.	REV.
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE	1324	0



NOTES:

- 1) SECONDARY ATTACHMENTS NOT INCLUDED
- 2) UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN MILLIMETRES
- 3) FIXTURE HEAD MUST BE BONDED USING THE FIXTURE BONDING SCREW LOCATED IN THE LUMINAIRE HEAD
- 4) GROUND WIRE AND NEUTRAL ARE TO BE CONNECTED TO SECONDARY NEUTRAL
- 5) FOR ALUMINUM BRACKET MOUNTING DETAILS SEE F55
- 6) BRACKET MUST BE VISUALLY BONDED TO THE NEUTRAL.
- 7) SEE 1103 FOR VERTICAL CLEARANCE.
- 8) THE AMOUNT OF SLACK CONDUCTORS EXITING THE BRACKET SHALL BE KEPT TO A MINIMUM AND AS TIGHT AS POSSIBLE TO THE BRACKET UNTIL ENTERING THE PIPE GUARD MOULDING. NOT TO SCALE

							DRAWN BY		STREET LIGHT STRUCTURE ALUMINUM LIGHT BRACKET FOR WOOD POLES SHEET 1 OF 3		
							CHECKED BY				
							APPROVED BY				
										DRAWING No.	REV.
										1440	5
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE			



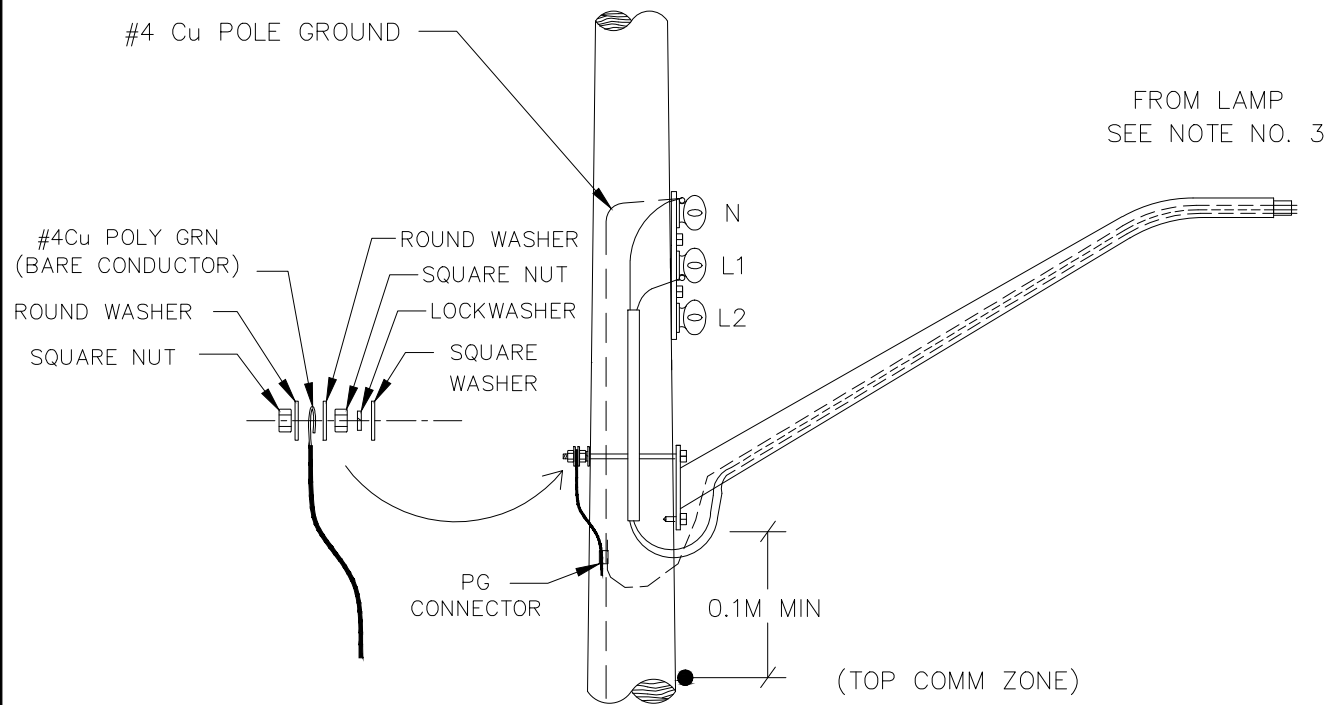
NOTES:

1) #4 COPPER GREEN POLY CAN BE CONNECTED TO POLE GROUND IF PRESENT AND CONNECTED TO NEUTRAL.

2) REFER TO SHT 1 OF 1440 FOR INSTALLATION DETAILS.

NOT TO SCALE

							DRAWN BY		STREET LIGHT STRUCTURE ALUMINUM LIGHT BRACKET FOR WOOD POLES SHEET 2 OF 3		
							CHECKED BY				
							APPROVED BY				
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE	1440		2



FOR RETROFIT BONDING/GROUNDING ONLY

NOTES:

- 1) CSA REQUIRES LUMINAIRES AND ASSOCIATED BRACKETS TO BE EFFECTIVELY GROUNDED UNLESS LOCATED MORE THAN 1M ABOVE COMMUNICATION PLANT.
- 2) IF NO POLE GROUND IS PRESENT, BOND DIRECTLY TO SECONDARY NEUTRAL.
- 3) FIXTURE HEAD MUST BE BONDED TO GROUND USING THE FIXTURE BONDING SCREW LOCATED IN THE LUMINAIRE HEAD

NOT TO SCALE

							DRAWN BY		STREET LIGHT STRUCTURE ALUMINUM LIGHT BRACKET RETROFIT BONDING/GROUNDING SHEET 3 OF 3			
							CHECKED BY					
							APPROVED BY					
												DRAWING No.
1440	1											
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE						

ASSEMBLY REF #	ITEM #
	1
	2
	3
	4
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	6
	7
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	14
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	16
	17

Fortis Bill of Material				
Structure # 1440		2440 MM STEEL/AL BRA W/1220 MM RISE W.P		
Item #	UI	-1	-2	Description
5132614		1		BOLT, MACHINE, GALV, 3/4" X 14",
5138401		2		BOLT, LAG, GALVANIZED, 1/2" X 4",
5139110		1	1	SCREW, HXHD, SELF-DRILL, 1/4-14 X 1-1/2
5142206		1		WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
5142603		1		WASHER, SPRING LOCK, DOUBLE 3/4
5160304		4	4	STAPLE, 1:1/2 X 3 ,
5310440	M	2	1	WIRE, CU, 4 AWG, 7STR, 600V, TWU GREEN,
5311111	M	4		CABLE, CU STR, 1C#12AWG, RW90, GREEN,
5311112	M	4		CABLE, CU STR, 1C#14AWG, RW90, BLACK,
5311113	M	4		CABLE, CU STR, 1C#14AWG, RW90, WHITE,
5530141		2		CONNECTOR, COMPR. TAP, R:2/0-2-T:6-8-10.
5530202			1	CONNECTOR, MINIWEDGE, 2 AWG TO 4 AWG
5532210			1	CONN COMP TERM LUG #4CU STR, 1 HOLE, 5/16
5780305		2		TAPE, VINYL, 3/4" x 66' CSA APPROVED
6310507		2		STRAP, GALV, 2 HOLE, FOR 3/4" RIGID CONDUIT
6320105		1		PIPE, GROUNDGUARD, 1M, 3/4" DIA SERIES 100
6455109		1		BRACKET, STREETLITE, ALUM, 2"X8'X4'RISE

XXXXXXX

1

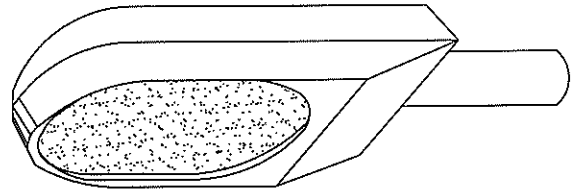
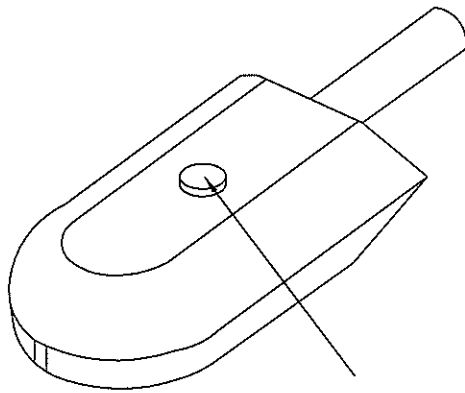
STRAIGHT SUMMERLAND-SPEC STREET LIGHT BRACKET

Note:

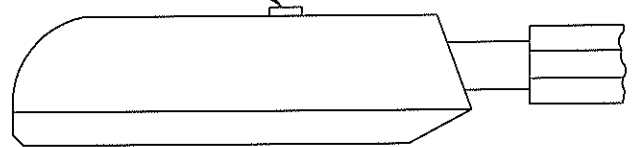
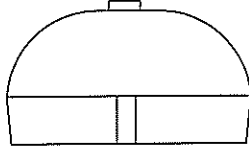
- Order longer bolt machine if required:
Bolt machine, 3/4" x 16" (part #5132616)
Bolt machine, 3/4" x 18" (part #5132618)
- 1440-1 is for new construction.
- 1440-2 is for retrofit construction.

ADJUST AS REQUIRED FOR 1/0 ACSR NEUTRAL

							DRAWN BY		STREET LIGHT STRUCTURE ALUMINUM LIGHT BRACKET FOR WOOD POLES BOM SHEET 1 OF 1		
							CHECKED BY				
							APPROVED BY				
										DRAWING No.	REV.
										1440	1
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE			



PHOTOCONTROL OR SHORTING CAP
(SEE NOTE 3 AND NOTE 4)



FRONT VIEW

SIDE VIEW

NOTES:

- 1 CHECK BALLAST VOLTAGE WHEN ORDERING
- 2 CHECK LIGHT DISTRIBUTION PATTERN; THIS FIELD CAN BE FIELD OR FACTORY SET
- 3 FOR INDIVIDUALLY OPERATED STREET LIGHTS (RESIDENTIAL AREAS) USE INDIVIDUAL PHOTOCONTROLS (EACH LUMINAIRE HAS ITS OWN PHOTOCONTROL)
- 4 FOR GANGED OPERATED STREET LIGHTS, USE ONE PHOTOCONTROL FOR THE FIRST LUMINAIRE AND SHORTING CAPS FOR THE REST OF THE LUMINAIRES.
- 5 THIS STRUCTURE FOR LUMINAIRE UPGRADE OR REPLACEMENT SEE 1421 FOR COMPLETE STRUCTURE

NOT TO SCALE

					DRAWN BY		HIGH PRESSURE SODIUM LUMINAIRE AND LAMP FLAT GLASS BALLAST IN HEAD		
					CHECKED BY				
					APPROVED BY				
					DRAWING No.				REV.
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE	1469		1

Fortis		B i l l o f M a t e r i a l						2007/05/24
Structure # 1469		HPS LUM. COBRA HEAD, FLAT GLASS						
Item #	UI	-1MOD	-2	-3	-4	-5	-6	Description
6410306		1		1		1		CONTROL, PHOTO, STREETLIGHT, 1800 VA
6410410			1		1		1	SHORTING CAP, FOR NEMA STD 3 PRONG, T
6422602		1	1					LUMINAIRE, 70W, 120V, HPS, FLAT GLAS
6422607				1	1			LUMINAIRE, 200W, 120V, HPS, FLAT GLA
6422608						1	1	LUMINAIRE, 250W, 120V, HPS, FLAT GLA
6430401						1	1	LAMP, HPS, 250W, MOGUL BASE, 5 3/4" LC
6430407		1	1					LAMP, HPS, 70W, MOGUL BASE, 5" LC, CLE
6430424				1	1			LAMP, 200W. 100 VOLT, H.P.S

XXXXXXX

1

LUMINAIRE, 150W, 120V, HPS, FLAT GLASS

Note: XXXXX

1

LAMP, HPS, 150W

The next combinations are available:

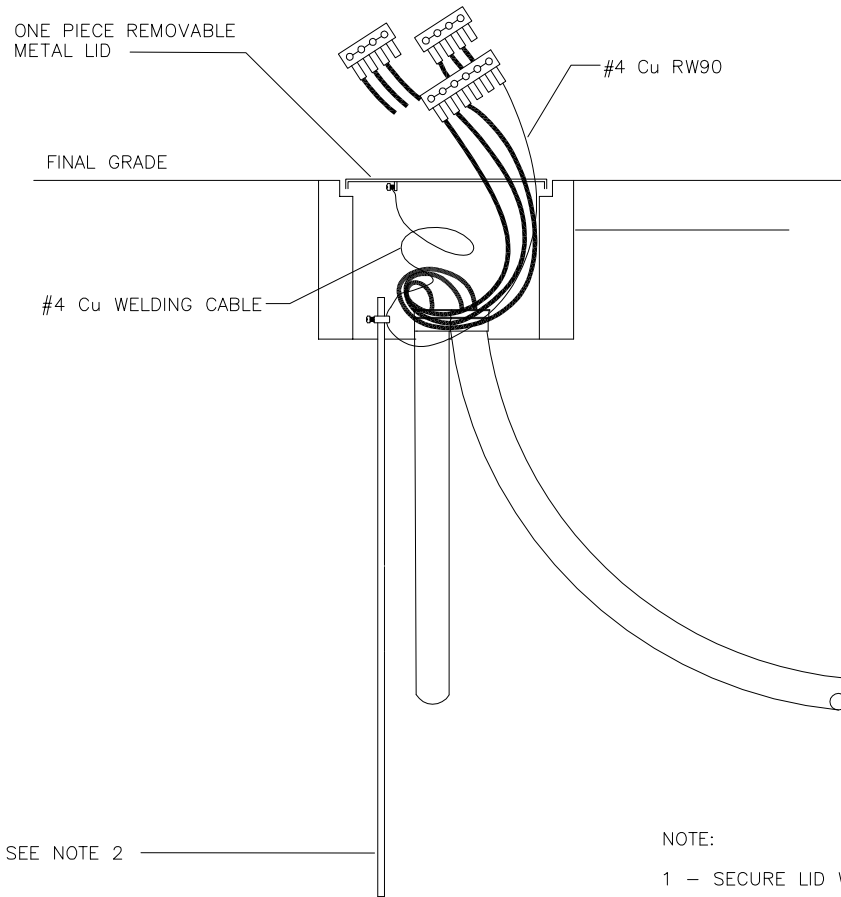
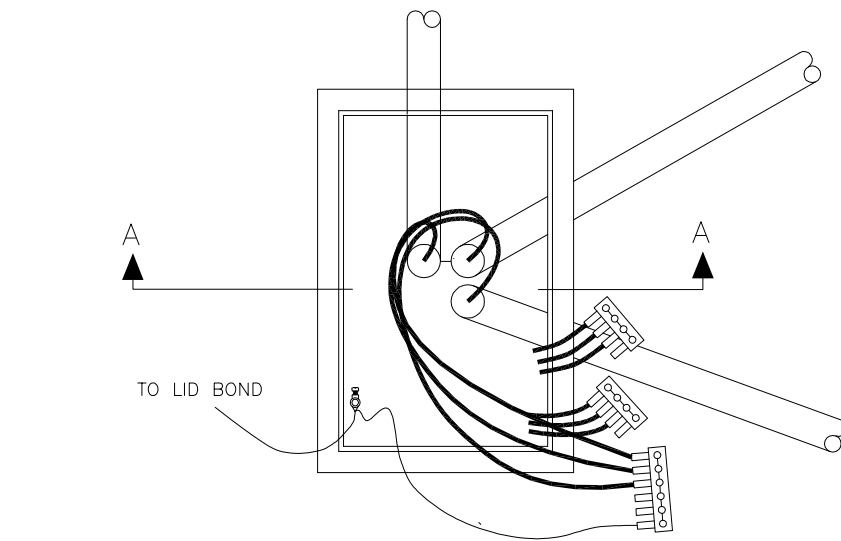
- 1469-1MOD 150 W luminaire with photocontrol
- 1469-2 70 W luminaire without photocontrol and with shorting cap
- 1469-3 200 W luminaire with photocontrol
- 1469-4 200 W luminaire without photocontrol and with shorting cap
- 1469-5 250 W luminaire with photocontrol
- 1469-6 250 W luminaire without photocontrol and with shorting cap

Fortis			Bill of Material							2012/12/13
Structure # 1500			15kV LOAD BREAK TAP, BOM							
ASSEMBLY REF #	ITEM #	Item #	UI	-1	-3	-4	-5	-6	-7	Description
	1	4835013				1		1	1	INSULATING CAP, U/G, 15KV
	2	4835029			1		1		0	PLUG- BASIC INSULATING, 15 kV/25kV
	3	4835033					1	1	0	ADAPTER, CABLE FOR 750 MCM
	4	4835034			1	1			0	ADAPTER, CABLE FOR 350 MCM
	5	5151019		1	1	1	1	1	1	INDICATOR,URD FAULT CURRENT,AUTORANG
	7	5311013	M	1		1		1	1	WIRE, 14AWG, SOLID, 600V, RW90,
	8	5390602	M	1					0	CABLE, #4, MULTI STR. BOND.
	9	5390603	M		1	1	1	1	1	CABLE-#2 WELDING-COPPER-672W STR.-
	10	5530155		1					0	CONNECTOR,COPPER C-TAP #2 TO
	11	5530156			1	1		1	1	CONNECTOR,COPPER C-TAP,#1/0-2/0-
	12	5530157					1		1	CONNECTOR,COPPER C-TAP,#1/0-2/0 TO
	13	5590502		2	2	2	2	2	4	TIE, CABLE WRAP, BLACK, 7"
	14	5740129			1	1			0	CONTACT CRIMP, FOR 300MCM COMPT,
	15	5740131					1	1	0	CONTACT, CRIMP, FOR 750 MCM COMPT,
	16	5740152			1	1	1	1	1	ELBOW,T-BODY, 15/25KV, 600A,
	17	5740202		1					0	ELBOW, LOADBREAK, 15KV, 200AMP,
	18	5740330				1		1	1	BUSHING INSERT, LOADBREAK 15 KV 200
	19	5740355				1		1	1	REDUCING TAP WELL, 600 AMP
	20	5780305		1	1	1	1	1	1	TAPE, VINYL, 3/4" x 66' CSA APPROVED
	21	5780311		1	1	1	1	1	1	TAPE, LINERLESS RUBBER SPLICING, 1"X
	22	4835036							1	ADAPTER, CABLE FOR 1000MCM
	23	5740139							1	CONNECTOR, CRIMP FOR 1000MCM CABLE
	24	4947048		1	1	1	1	1	1	TAG HOLDER, FOR U/G CABLE
	25	4947054		1	1	1	1	1	1	TAG HOLDER FOR U/G CABLE

REMARKS:

- 1500-1 is for load-break tap 15 Kv - # 2 Cu
- 1500-3 is for 15 kV T-Body connection - 350 MCM
- 1500-4 is for 15 kV T-Body connection - 350 MCM with ground point
- 1500-5 is for 15 kV T-Body connection - 750 MCM
- 1500-6 is for 15 kV T-Body connection - 750 MCM with ground point
- 1500-7 is for 15 kV T-Body connection - 1000MCM with ground point

					DRAWN BY		UNDERGROUND STRUCTURES 15 kV TAP LOAD BREAK/T-BODY BILL OF MATERIAL BOM SHEET 1 OF 1	
					CHECKED BY			
					APPROVED BY			
					DRAWING No.		REV.	
					1500		2	
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		

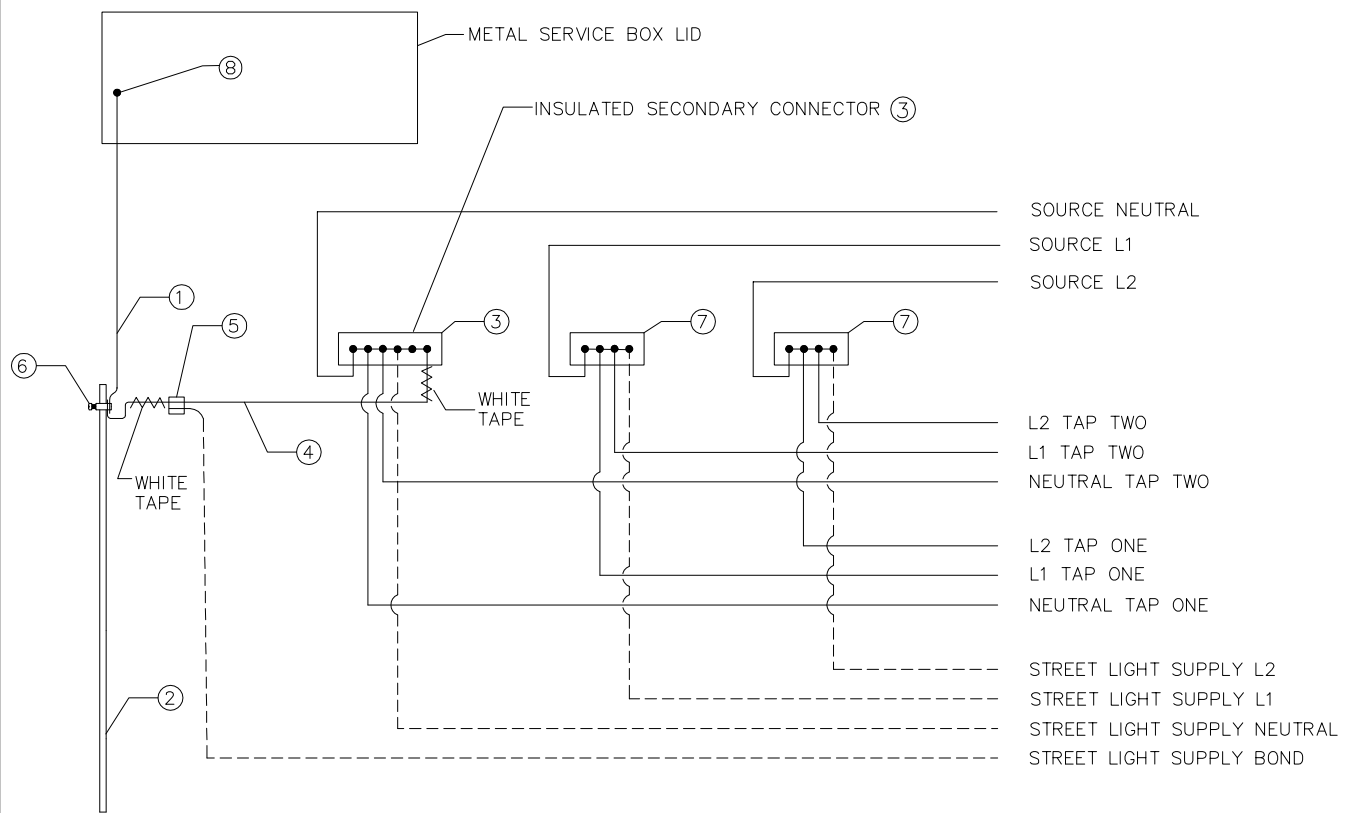


SECTION 'A-A'

NOTE:

- 1 - SECURE LID WITH 3/8" X 1 1/2" GALVANIZED BOLT
- 2 - FOR SERVICE BOX BILL OF MATERIAL ORDER STRUCTURE 1590

							DRAWN BY		UNDERGROUND STRUCTURES CONCRETE SERVICE BOX GENERAL ARRANGEMENT SHEET 1 OF 2		
							CHECKED BY				
							APPROVED BY				
										DRAWING No.	REV.
										1501	7
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE			



TYPICAL SERVICE BOX CONNECTION
(SCHEMATIC)

NOTES:

1. THE INSULATED SECONDARY CONNECTORS AND ASSOCIATED CABLES SHALL BE LONG ENOUGH TO EXTEND OUT OF THE SERVICE BOX FOR CONNECTION PURPOSES.
2. LEAVE ENOUGH SLACK IN THE #4 WELDING CABLE LID BOND TO ALLOW FOR REMOVAL OF THE LID.
3. ALL NON-CURRENT CARRYING PARTS SHALL BE CONNECTED TO GROUND. (BOND)
4. TRAIN CABLES IN BOX SO THE INSULATED CONNECTORS ARE POSITIONED TO AVOID WATER ENTRY INTO THE CABLE PORTS.
5. SECURE LID WITH 2-3/8 X 2 SS PENTA HEAD BOLT (ITEM 5132201) AND 3/8 FLAT WASHER (ITEM 5142121).

ITEM LIST:

- ① #4 Cu WELD CABLE ITEM 5390602
- ② GROUND ROD ITEM 5571320 (SUPPLIED IN STR 1590)
- ③ INSULATED SECONDARY CONNECTOR, NEUTRAL, 6 POSITION ITEM 5551910
- ④ #4 Cu RW90 ITEM 5311105, TAPE ENDS WHITE
- ⑤ COPPER C ITEM 5530151 (1501-2, 1501-4 ONLY)
- ⑥ ROD CONNECTOR ITEM 5571311
- ⑦ INSULATED SECONDARY CONNECTOR, HOT LEG
4 POSITION ITEM 5551909 (1501-1, 1501-2)
6 POSITION ITEM 5551910 (1501-3, 1501-4)
- ⑧ BOND CONNECTION TO LID:
ITEM 5532210 LUG
ITEM 5139290 5/16 BOLT
ITEM 5141212 5/16 NUT
ITEM 5142109 5/16 FLAT WASHER
ITEM 5142500 5/16 LOCK WASHER

							DRAWN BY		UNDERGROUND STRUCTURES CONCRETE SERVICE BOX TYPICAL ELECTRICAL SCHEMATIC SHEET 2 OF 2		
							CHECKED BY				
							APPROVED BY				
									DRAWING No.	REV.	
									1501	3	
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE					

Structure # 1501

PRECAST CONCRETE SERVICE VAULT

ASSEMBLY REF #			ITEM #	Item #	UI	-1	-2	-3	-4	Description
			15	4941002		3	2	4	3	MARKER, WRITE ON, CABLE, FOR URD CABLES
			1	5132301		2	2	2	2	BOLT, MACHINE, 3/8 X 1 1/2
			2	5139290		1	1	1	1	BOLT, HXHD CPSCRW, ZINC PLTD, 5/16" X 1"
			3	5141212		1	1	1	1	NUT, HEX, GLV, NC 5/16
			4	5142109		1	1	1	1	WASHER, ROUND, 3/8" HOLE, 7/8" RIM
			5	5142121		2	2	2	2	WASHER, FLAT, ROUND, ZINC, GR5, NC 3/8
			6	5142500		1	1	1	1	WASHER, SINGLE HELIX SPRING LOCK, 5/16"
			7	5311105	M	1	1	1	1	CONDUCTOR, CU STR, #4 POLY, 600V, RW90,
			8	5390602	M	3	3	3	3	CABLE, #4, MULTI STR. BOND.
			9	5530151			1		1	CONN CU C TAP, #4 RUN - #6 TAP
			10	5530152		1	1	1	1	CONN CU C TAP, U/G NEUT, 2, 4, 6 RUN & TAP
			11	5532210		1	1	1	1	CONN COMP TERM LUG #4CU STR, 1 HOLE, 5/16
			12	5551909		2	2			CONNECTOR, 4 POSITION U/G INS. - SEC.
			13	5551910		1	1	3	3	CONNECTOR, 6 POSITION U/G INS. SEC.
			14	5571311		1	1	1	1	CONNECTOR, FOR 5/8" TO 3/4" GND. ROD

REMARKS:

1. 1501-1 1 source, up to 3 taps, no lighting feed
- 1501-2 1 source, up to 2 taps, plus lighting feed
- 1501-3 1 source, up to 4 taps, no lighting feed
- 1501-4 1 source up to 3 taps, plus lighting feed

Note: For 2 source connections, taps available are reduced by one.

2. Maximum conductor size: 350 mm.

3. For service box bill of materials see structure 1590.

DRAWN BY

CHECKED BY

APPROVED BY

UNDERGROUND STRUCTURES
CONCRETE SERVICE BOX
BILL OF MATERIAL
BOM SHEET 1 OF 1

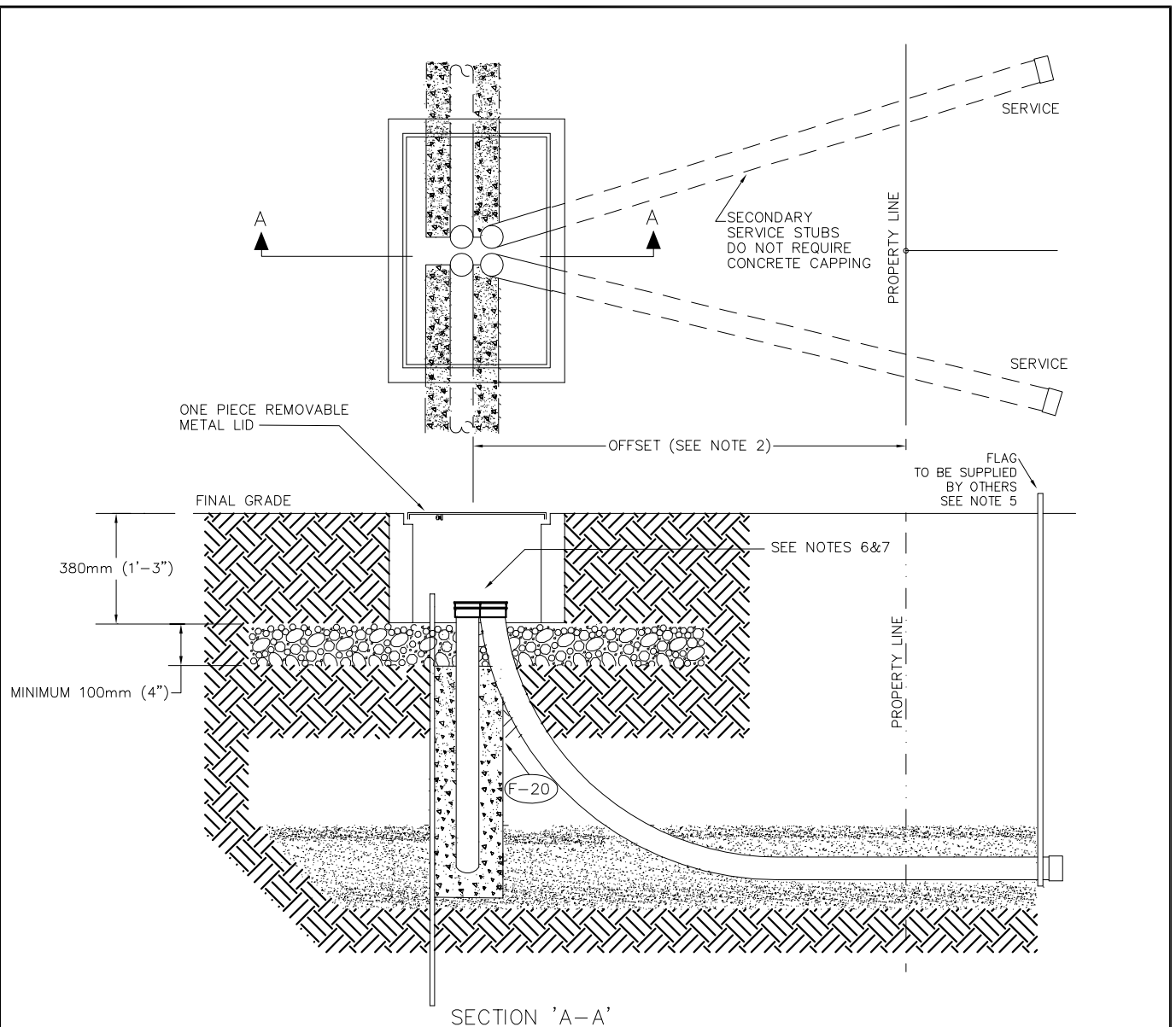
DRAWING No.

REV.

1501

2

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
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SECTION 'A-A'

NOTES:

- 1 - CENTER CONDUITS IN BOX. BOX MAY BE PLACED OFFSET FROM CENTER TO AVOID CONFLICT WITH OTHER UTILITIES UPON APPROVAL FROM INSPECTOR.
- 2 - STANDARD CONDUIT OFFSET PER DESIGN DRAWING OR LOCAL AUTHORITY
- 3 - FOR LEVEL GRADES, BOX TO BE SET SO THAT LID IS 50mm (2")-80mm (3") ABOVE FINAL GRADE OR FLUSH IN SIDEWALK
- 4 - PVC CONDUIT SHALL BE CONCRETE CAPPED AS PER ASSEMBLY F-20
- 5 - CABLE MARKER 22.2mm x 2.62m (7/8"x8') PVC OR 50.8mm x 131.2mm (2"x 4') WOOD STAKE PAINTED RED
- 6 - CONDUIT SHALL BE INSTALLED WITH END BELL, CAPPED AND MARKED (IDENTIFIED BY LOT NO.)
- 7 - ENSURE DUCTS EXTEND 2" ABOVE FLOOR OF BOX, AND ENSURE GROUND ROD EXTENDS 3" ABOVE FLOOR OF BOX. GROUND ROD TO BE PLACED IN ANY ONE OF FOUR CORNERS OF BOX.

-  NATIVE FILL
 25mm (1") CLEAN DRAIN ROCK
 5mm (3/16") SCREENED SAND COMPACTED

						DRAWN BY	UNDERGROUND STRUCTURES CONCRETE SERVICE BOX CIVIL GENERAL ARRANGEMENT SHEET 1 OF 1	
						CHECKED BY		
						APPROVED BY		
						DRAWING No.		REV.
						1590		5
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		

ASSEMBLY REF #		

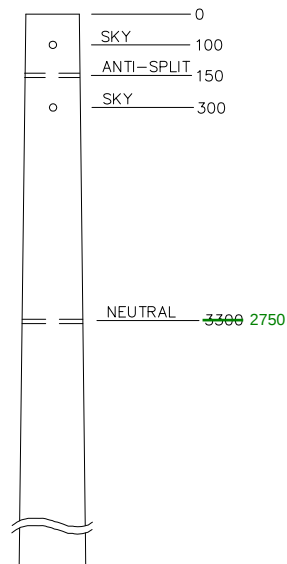
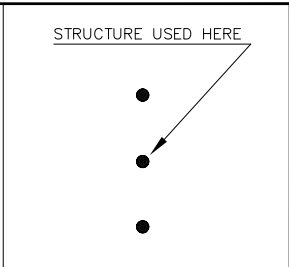
ITEM #
1
2

Fortis B i l l o f M a t e r i a l			
Structure # 1590 CONCRETE SERVICE BOX			
Item #	UI	-1	Description
5571308		1	ROD, GROUND, COPPERBONDED, PLAIN 3/4"ROD
7550501		1	VAULT, CONCRETE , SERVICE BOX

REMARKS:

1. For use with structure 1501

							DRAWN BY		UNDERGROUND STRUCTURES CONCRETE SERVICE BOX CIVIL BILL OF MATERIALS BOM SHEET 1 OF 1		
							CHECKED BY				
							APPROVED BY				
										DRAWING No.	REV.
										1590	1
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE			

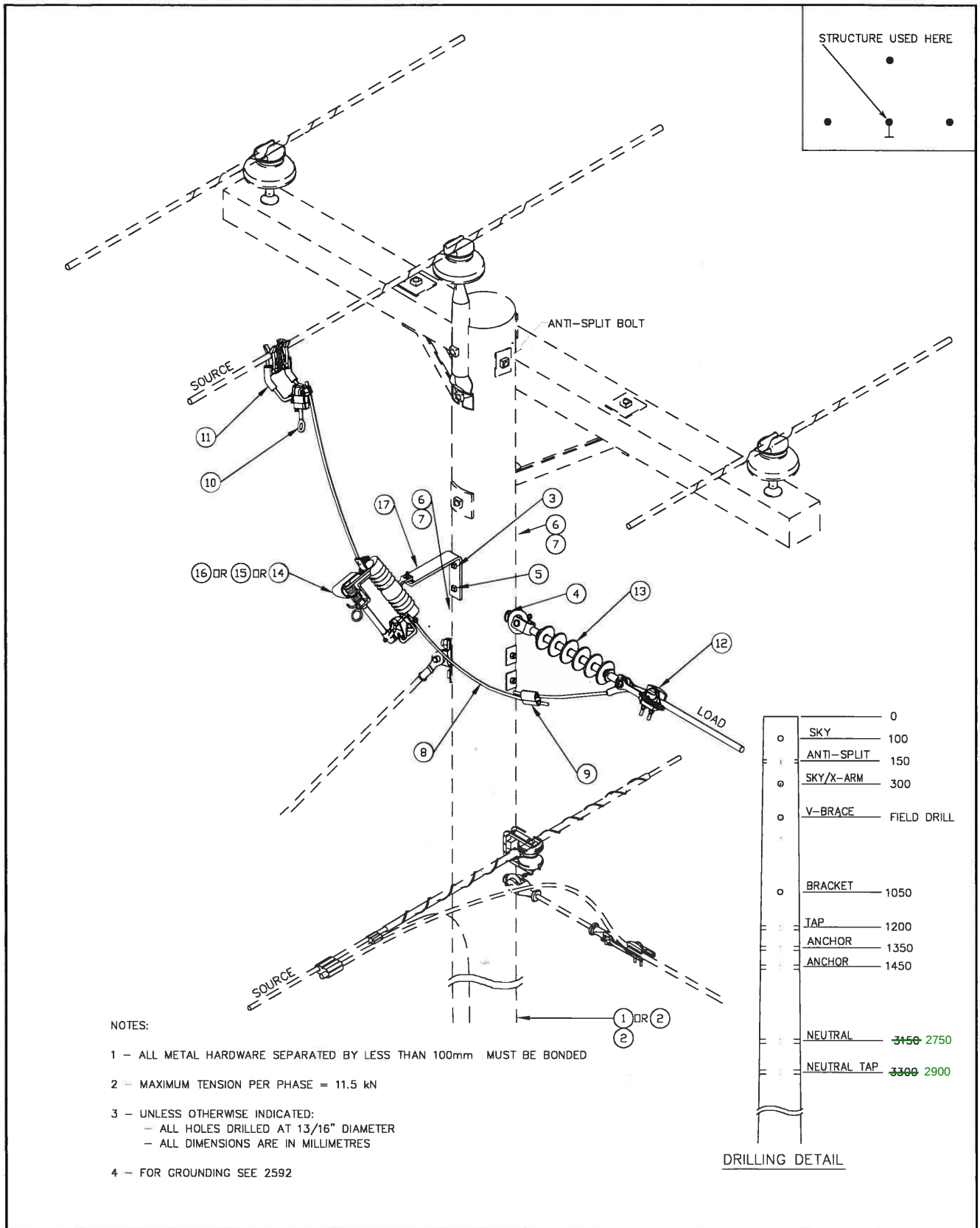


DRILLING DETAIL

- NOTES:
- 1 – FOR GROUNDING SEE 2592.
 - 2 – MAXIMUM ALLOWABLE TRANSVERSE LOAD/PHASE = 1.6 kN.
 - 3 – WHEN LOCAL CONDITIONS DICTATE, INSTALL AN ANTI-SPLIT BOLT
 - 4 – ANY NEUTRAL THAT IS INSTALLED, MUST BE PLACED ON THE ROAD SIDE OF THE POLE. AN EXCEPTION IS A RURAL SUB-DIVISION WHERE IT MIGHT BE DESIRABLE TO PLACE THE NEUTRAL ON THE PROPERTY SIDE OF THE POLE
 - 5 – UNLESS OTHERWISE INDICATED,
 - ALL HOLES ARE DRILLED TO 13/16" DIAMETER
 - ALL DIMENSIONS ARE IN MILLIMETRES

								DRAWN BY			SINGLE PHASE PRIMARY TANGENT STRUCTURE WITH GROUND	
								CHECKED BY				
								APPROVED BY				
										DRAWING No.		REV.
										2100		3
REV	DATE	BY	CHECKED	DESCRIPTION				APP.	DATE			

Fortis		B i l l o f M a t e r i a l		2010/02/23
Structure # 2100		1 PHASE PRIMARY TANGENT		
Item #	UI	-3	Description	
5110135	SE	1	PIN, POLE TOP, 24", 1" THREAD	
5132612		2	BOLT, MACHINE, GALV, 3/4" X 12",	
5142206		2	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE	
5142603		2	WASHER, SPRING LOCK, DOUBLE 3/4	
5561306		1	TIES, PRFD, DIST, BARE #2 SPARROW,	
5710404		1	INSULATOR, 14.4/25kV,PIN TYPE, ANSI 55-5	



					DRAWN BY		SWITCHING STRUCTURE SINGLE PHASE PRIMARY TAP STRUCTURE SHEET 1 OF 1	
					CHECKED BY			
					APPROVED BY			
							DRAWING No.	REV.
							2400	3
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		

Fortis

Bill of Material

Structure # 2400

1 PHASE PRIMARY TAP

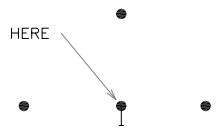
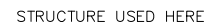
ASSEMBLY REF #	ITEM #	Item #	UI	-3	-5	-7	Description
	1	4947068		1	1		TAG HOLDER, AL, VERT. BANDING SLOTS 5"
	2	4947069		1	1	1	TAG HOLDER, AL, VERT. BANDING SLOTS 10"
	3	5132612		1	1	1	BOLT, MACHINE, GALV, 3/4" X 12"
	4	5135612		1	1	1	BOLT, SHOULDER EYE, 3/4" X 12"
	5	5138401		1	1	1	BOLT, LAG, GALVANIZED, 1/2" X 4"
	6	5142206		2	2	2	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
	7	5142603		2	2	2	WASHER, SPRING LOCK, DOUBLE 3/4
	8	5310220	M	2	2	2	WIRE, CU STR, #4, BARE, SOFT DRAWN,
	9	5530131		1	1	1	CONNECTOR, COMPRESSION, AL, H-TYPE
G5	10	5530502		1	1	1	CLAMP, HOT LINE, 336.4 MCM : #6 ACSR
G5	11	5531021		1	1	1	CLAMP, STIRRUP, 6-2/0 ACSR
	12	5571652		1	1	1	CLAMP, CLEVIS D.E, #6 - 2/0 ACSR,
B30	13	5720402		1	1	1	INSULATOR, POLYMER, D.E, CLEVIS END,
E2	14	5821045			1		SWITCH, LOADBREAK, SOLID BLADE, 27KV, 100A
E2	15	5821046				1	SWITCH, LOADBREAK, SOLID BLADE, 27KV, 300A
E2	16	5821047		1			SWITCH, CUT OUT, 15/26Y, 100AMP, 125 KV BIL,
	17	5890415		1	1	1	BRACKET, CUTOUT, POLE MOUNTING BRACKET

BCH# 420-1521 1 1 1 SQUARE WASHER (50mm x 50mm)
BCH# 420-1009 1 1 1 EXTENSION STRAP (125mm)
BCH# 413-0130 1 1 1 DEAD END CLEVIS
BCH# 100-XXXX 1 1 1 MACHINE BOLT (5/8" x LENGTH)

REMARKS:

1. 2400-3 is for 1 phase tap structure with 100A non-loadbreak cutout.
2. 2400-5 is for 1 phase tap structure with 100A loadbreak cutout.
3. 2400-7 is for 1 phase tap structure with 300A solid blade switch.

					DRAWN BY	SWITCHING STRUCTURES SINGLE PHASE PRIMARY TAP BILL OF MATERIALS BOM SHEET 1 OF 1				
					CHECKED BY					
					APPROVED BY					
								DRAWING No.	REV.	
								2400	1	
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE				



6 - FOR GROUNDING SEE 2592

DRILLING DETAIL

							DRAWN BY			THREE PHASE PRIMARY TAP ON MAIN LINE STRUCTURE	
							CHECKED BY				
							APPROVED BY				
										DRAWING No.	REV.
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE	2414		3

Fortis		Bill of Material		2010/03/10
Structure # 2414		3 PHASE PRI TAP ON MAIN LINE		
Item #	UI	-3	-5	Description
5020304		1		CROSSARM, WOOD, SAWN OR GLULAM WOOD
5020506			1	CROSSARM, WOOD, 5 3/4" X 7"X 9'
5110102		1	1	PIN, 6" TOP, 3/4 X 6.5" SHK, 1" PIN
5110269		1	1	BRACE, V, 60"
5132608		2	2	BOLT, MACHINE, GALV, 3/4" X 8",
5132614		1	1	BOLT, MACHINE, GALV, 3/4" X 14",
5135608		2		BOLT, SHOULDER EYE, 3/4 X 8"
5135610			2	BOLT, SHOULDER EYE, 3/4 X 10"
5135616		1		BOLT, SHOULDER EYE, 3/4 X 16"
5135618			1	BOLT, SHOULDER EYE, 3/4 X 18"
5142206		8	8	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
5142603		8	8	WASHER, SPRING LOCK, DOUBLE 3/4
5310100	M	1	1	WIRE, CU SOL, #8, BARE, SOFT DRAWN
5310202	M		6	WIRE, CU STR, 2/0, BARE, SOFT DRAWN,
5310220	M	6		WIRE, CU STR, #4, BARE, SOFT DRAWN,
5530131		3		CONNECTOR, COMPRESSION, AL, H-TYPE
5530136			3	CONNECTOR, COMPRESSION, AL, H-TYPE
5530502		3	3	CLAMP, HOT LINE, 336.4 MCM : #6 ACSR
5531021		3		CLAMP, STIRRUP, 6-2/0 ACSR
5531022			3	CLAMP, STIRRUP, 2/0-397
5571652		3		CLAMP,CLEVIS D.E, #6 - 2/0 ACSR,
5571653			3	CLAMP,CLEVIS D.E, #4 - 336.4 ACSR,
5710404		1	1	INSULATOR, 14.4/25kV, PIN TYPE, ANSI 55-5
5720402		3	3	INSULATOR, POLYMER, D.E, CLEVIS END,

XXXXXXX 1 CROSSARM 4 3/4" x 5 3/4" x 8'

XXXXXXX 1 CROSSARM 5 3/4" x 7" x 8'

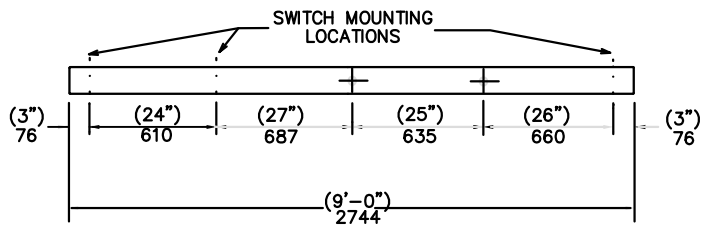
REMARKS:

1. 2414-3 is for #2 ACSR SB

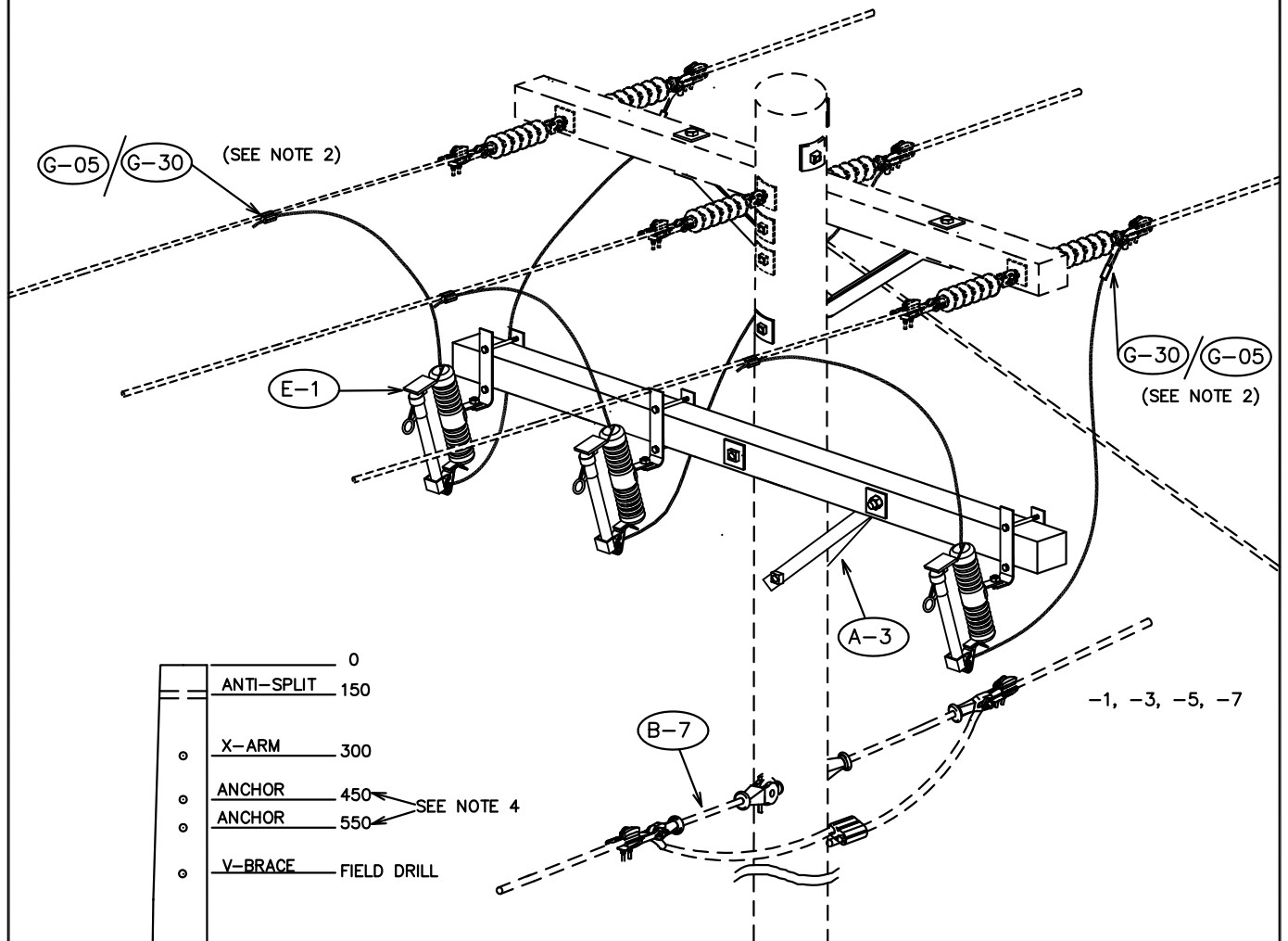
2. 2414-5 is for #3/0 ACSR pigeon

5110102	2	2	PIN, 6" TOP, 3/4 x 6.5" SHK, 1" PIN
5710404	2	2	INSULATOR, 14.4/25kV, PIN TYPE, ANSI 55-5
BCH# 420-1521	3	3	SQUARE WASHER (50mm x 50mm)
BCH# 420-1009	3	3	EXTENSION STRAP (125mm)
BCH# 413-0130	3	3	DEAD END CLEVIS
BCH# 100-XXXX	3	3	MACHINE BOLT (5/8" x LENGTH)

ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL



CROSSARM DETAIL



0	ANTI-SPLIT	150
300	X-ARM	300
450	ANCHOR	450
550	ANCHOR	550
FIELD DRILL	V-BRACE	FIELD DRILL
1050	X-ARM	1050
FIELD DRILL	FLAT BRACE	FIELD DRILL
3300 2750	NEUTRAL	3300 2750

DRILLING DETAIL

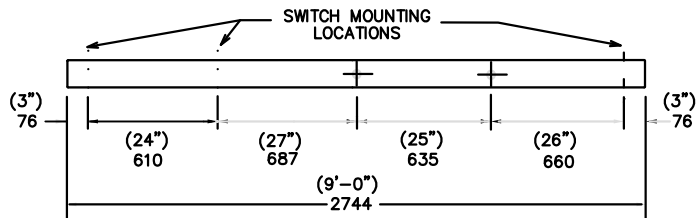
NOTES:

- UNLESS OTHERWISE INDICATED
 - ALL HOLES ARE DRILLED TO 20mm (13/16") DIAMETER
 - ALL DIMENSIONS ARE IN MILLIMETRES.
- LINE CONNECTIONS:
 - SWITCH RATING 100A OR LESS - STIRRUP/HOT TAP CONNECTIONS
 - SWITCH RATING GREATER THAN 100A - WEDGE TYPE CONNECTORS
- FOR GROUNDING SEE 2592
- ANCHOR REQUIRED ONLY IN CONDUCTOR WEIGHT OR TENSION CHANGES.

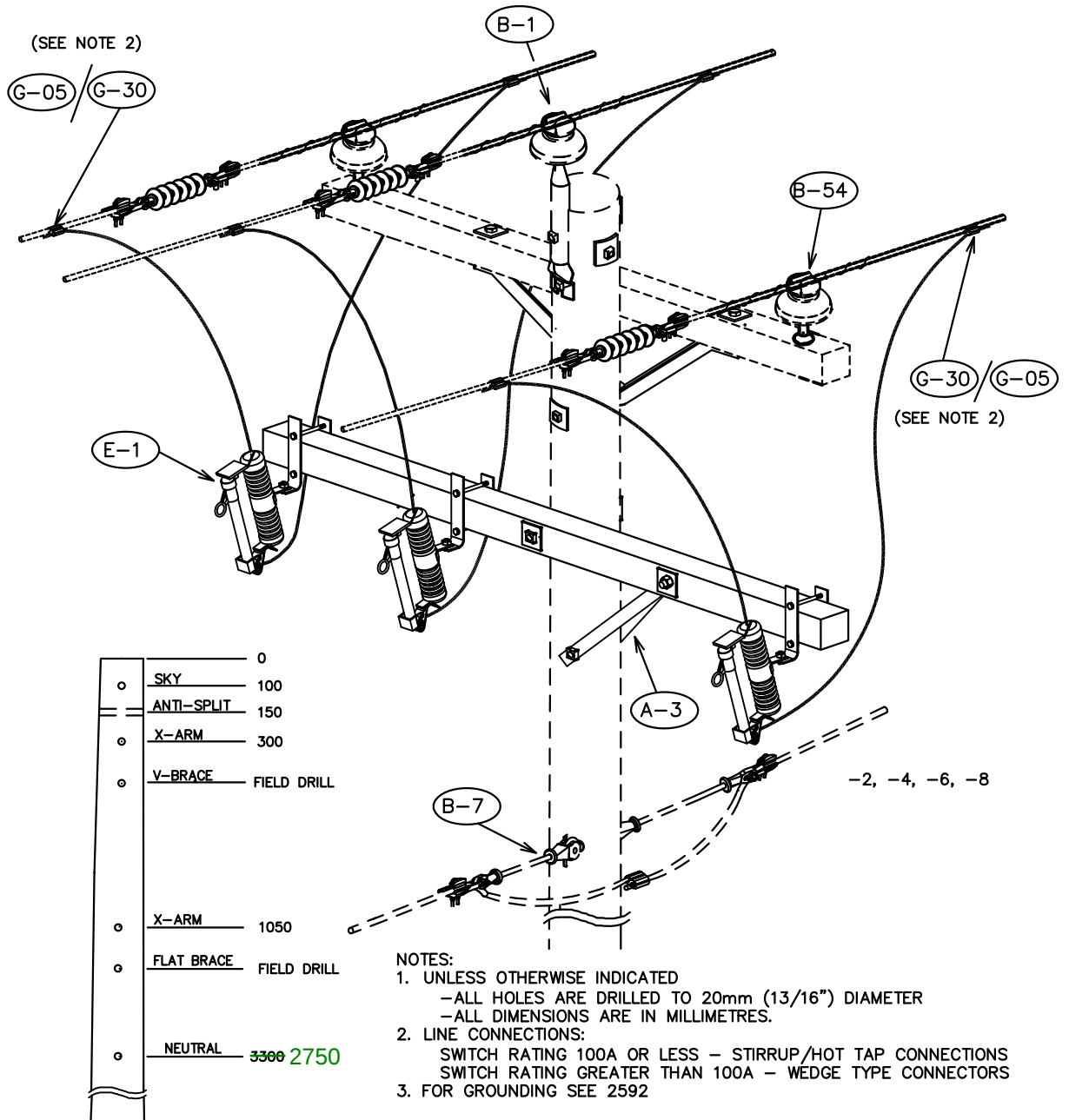
SHEET 1 OF 2

							DRAWN BY		THREE PHASE PRIMARY SECTIONALIZING SWITCHING STRUCTURE		
							CHECKED BY				
							APPROVED BY				
										DRAWING No.	REV.
										2424	2
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE			

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
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CROSSARM DETAIL



DRILLING DETAIL

SHEET 2 OF 2

					DRAWN BY		THREE PHASE PRIMARY SECTIONALIZING SWITCHING STRUCTURE	
					CHECKED BY			
					APPROVED BY			
							DRAWING No.	REV.
							2424	4
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		

Fortis Bill of Material

Structure # 2424 3 PHASE SECTIONALIZER SWITCH STRUCTURE

ASSEMBLY REF #	ITEM #	Item #	UI	-1	-2	-3	-4	-5	-6	-7	-8	Description
	1	4947068		1	1	1	1					TAG HOLDER, AL, VERT. BAND
	2	4947069		1	1	1	1	1	1	1	1	TAG HOLDER, AL, VERT. BAND
	3	5028287		1	1	1	1	1	1	1	1	CROSSARM, WOOD, SAWN OR GL
	4	5110252		2	2	2	2	2	2			BRACE, FLAT, 34" LONG
	5	5132606		1	1	1	1	1	1	1	1	BOLT, MACHINE, GALV, 3/4"
	6	5132616		1	1	1	1	1	1	1	1	BOLT, MACHINE, GALV, 3/4"
	7	5138401		2	2	2	2	2	2	2	2	BOLT, LAG, GALVANIZED, 1/2"
	8	5142206		4	4	4	4	4	4	4	4	WASHER, SQ, 3 X 3 X 1/4,
	9	5142603		2	2	2	2	2	2	2	2	WASHER, SPRING LOCK, DOUBL
	10	5310202	M			10	10	10	10			WIRE, CU STR, 2/0, BARE, S
	11	5310204	M							10	10	WIRE, CU STR, 4/0, BARE, S
	12	5310222	M	10	10							WIRE, CU STR, #2, BARE, SO
	13	5530502		6	6							CLAMP, HOT LINE, 336.4 MCM
	14	5571652		6	6	6	6	6	6			CLAMP, CLEVIS D.E, #6 - 2/0
	15	5571657								6	6	CLAMP, CLEVIS D.E, 3/0 - 4
	16	5720403			3		3		3		6	INSULATOR, POLYMER, D.E, TON
	17	5820506				3	3					FUSE BARREL, 14.4/24.9kv,
	18	5820707				3	3					EXPENDABLE CAP, BBL FOR 20
	19	5821038								3	3	SWITCH, DISCONNECT, 27kv, 900
	20	5821045		3	3	3	3					SWITCH, LOADBREAK, SOLID BLA
	21	5821046						3	3			SWITCH, LOADBREAK, SOLID BLA
	22	5890417		3	3	3	3	3	3			BRACKET, CROSSARM MOUNTING

XXXXXXX 1 1 1 1 1 1 1 1 1 1 CROSSARM 3 3/4" x 4 3/4" x 8'

Remarks:

1) Intended uses:

2424-1 Loadbreak cutouts 100A, on dead end type structure.

Designer to select correct stirrups or wedge type connectors depending on the application from chart below.

2424-2 Loadbreak cutouts 100A, with floating deadend insulators.

Designer to select correct stirrups or wedge type connectors depending on the application from chart below.

2424-3 Loadbreak cutouts 200A, on dead end type structure, use only when fuse size exceeds 100A.

Structure uses wedge taps for both line and load side connection.

Designer to select correct wedge type connector from chart below depending on application.

2424-4 Loadbreak cutouts 200A, with floating deadend insulators, use only when fuse size exceeds 100A.

Structure uses wedge taps for both line and load side connection.

Designer to select correct wedge type connector from chart below depending on application.

2424-5 Loadbreak cutouts 300A solid blade on dead end type structures.

Structure uses wedge taps for both line and load side connection.

Designer to select correct wedge type connector from chart below depending on application.

ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL

					DRAWN BY	SWITCHING STRUCTURE THREE PHASE PRIMARY SECTIONALIZING SWITCHING STRUCTURE BOM SHEET 1 OF 2
					CHECKED BY	
					APPROVED BY	
					DRAWING No.	REV.
					2424	1

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
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2424-6 Loadbreak cutouts 300A solid blade with floating deadend insulators. Structure uses wedge taps for both line and load side connection. Designer to select correct wedge type connector from chart below depending on application.

2424-7 Solid blade single pole switches 600A, on dead end type structure, 3/0 or 477 construction. Designer to select correct wedge type connector from chart below depending on application.

2424-8 Solid blade single pole switches 600A, with floating deadend insulators, 3/0 or 477 construction. Designer to select correct wedge type connector from chart below depending on application.

Stirrups for structures -1, -2,,
Select the appropriate stirrup for the application. (Hot taps are included in the BOM).

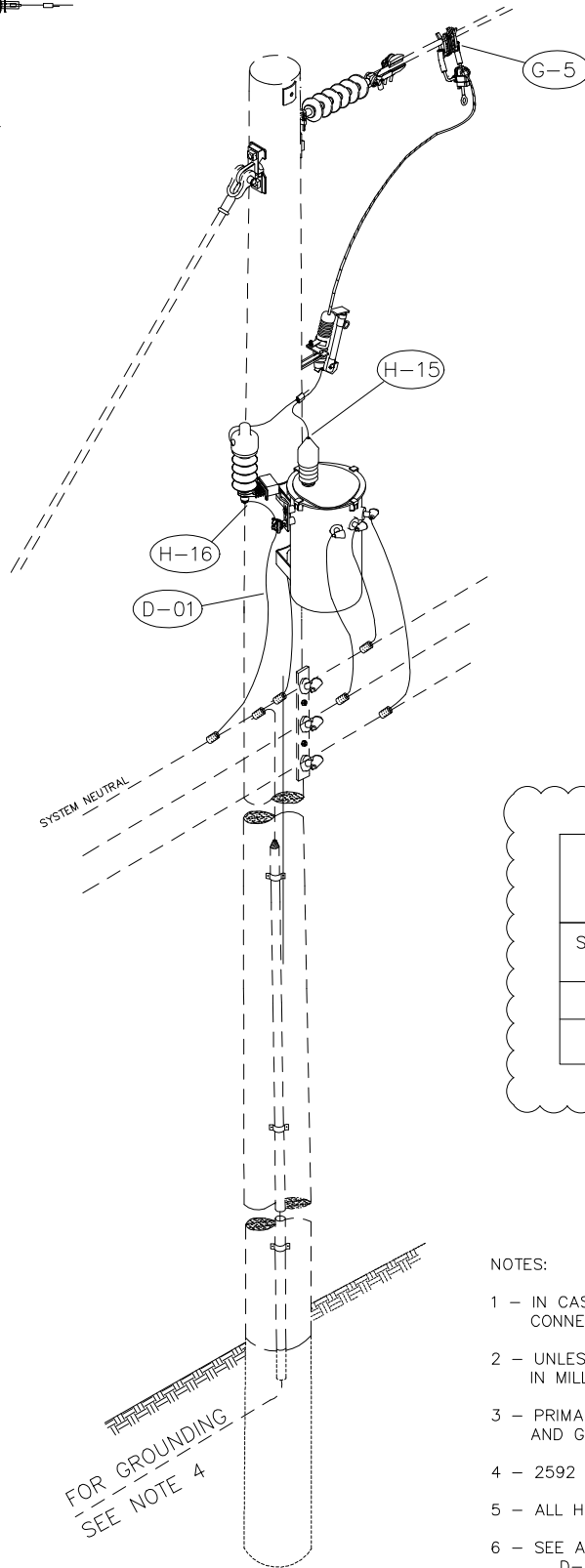
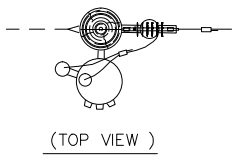
LINE CONDUCTOR	STIRRUP ITEM #
#2 HADDOCK	553 1021
3/0 PIGEON	553 1022
477 PELICAN	553 1023

Wedge connectors for structures -3, -4, -5, -6 utilizing 2/0 bare copper for Risers.
Select the appropriate connectors and shells for application.

LINE CONDUCTOR	WEDGE CONNECTOR ITEM #	SHELL ITEM #
#2 HADDOCK	553 1413	553 1591 BLUE
3/0 PIGEON	553 1415	553 1591 BLUE
477 PELICAN	553 1443	553 1592 YELLOW

					DRAWN BY			SWITCHING STRUCTURE THREE PHASE PRIMARY SECTIONALIZING SWITCHING STRUCTURE BOM SHEET 2 OF 2	
					CHECKED BY				
					APPROVED BY				
								DRAWING No.	REV.
								2424	0

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE



	0	
	ANTI-SPLIT BOLT	150
o	DEADEND	300
o	ANCHOR	450
o	ANCHOR	550
o	SWITCH L.A. BRACKET	4050 FIELD FIT
	TRANSFORMER	2250 FIELD FIT
		(SEE TABLE A)
	TRANSFORMER	
o	NEUTRAL	3300 2750
	SECONDARY	3500 SECONDARY OPEN WIRE 2950
DRILLING DETAIL (SEE NOTE 5)		

TABLE A
(BOTTOM BRACKET HANGER)

SINGLE-PHASE RATINGS, kV A	2ND BRACKET MILLIMETERS
10, 15, 25	2020 FIELD FIT
50, 75, 100	2000 FIELD FIT

5

NOTES:

- 1 - IN CASE OF TWO NEUTRALS THEY MUST BE TIED TOGETHER AND CONNECTED TO GROUND WIRE
- 2 - UNLESS OTHERWISE INDICATED, ALL DIMENSIONS ARE IN MILLIMETRES
- 3 - PRIMARY GROUNDING, SECONDARY CONDUCTOR, SECONDARY CONNECTORS AND GUY MATERIAL IS NOT INCLUDED IN BILL OF MATERIAL
- 4 - 2592 GROUNDING IS TO BE INSTALLED
- 5 - ALL HOLES DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
- 6 - SEE ASSEMBLIES:
D-01 GROUNDING DETAILS
H-15 BIRD PROTECTOR MOUNTING
H-16 LIGHTNING ARRESTER MOUNTING
G-5 STIRRUP AND HOT TAP ASSEMBLY

							DRAWN BY		EQUIPMENT & GROUNDING STRUCTURES 1 PHASE SUB, 14.4 kV OR 7.2 kV, OPEN WIRE H.V PHASE TO GROUND SHEET 1 OF 1	
							CHECKED BY			
							APPROVED BY			
									DRAWING No.	REV.
									2523	5
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE		

ASSEMBLY REF #			ITEM #	Fortis Bill of Material						
				Structure # 2523 1PH SUB 7.2KV PHASE TO GROUND						
				Item #	UI	-1	-2	-3	-4	Description
			1	5132614		3	3	3	3	BOLT, MACHINE, GALV, 3/4" X 14",
			2	5138401		1	1	1	1	BOLT, LAG, GALVANIZED, 1/2" X 4",
			3	5142206		3	3	3	3	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
			4	5142603		3	3	3	3	WASHER, SPRING LOCK, DOUBLE 3/4
			5	5310440	M	4	4	4	4	WIRE, 4 AWG, 7STR, 600V, TWU GREEN,
			6	5311105	M	5	5	5	5	CONDUCTOR, CU STR, #4 POLY, 600V, RW90,
			7	5530130		3	3	3	3	CONNECTOR, COMPRESSION, AL, H-TYPE
			8	5530132		3	2	3	2	CONNECTOR, COMPRESSION, AL, H-TYPE
			9	5530135			1		1	CONNECTOR, COMPRESSION, AL, H-TYPE
			10	5530502		1	1	1	1	CLAMP, HOT LINE, 336.4 MCM : #6 ACSR
			11	5531021		1	1	1	1	CLAMP, STIRRUP, 6-2/0 ACSR
			12	5790401		1	1	1	1	INSULATOR, BUSHING
			13	5790415		1	1	1	1	PROTECTOR, WILDLIFE, L.A. BRACKET
			14	5810112				1	1	ARRESTER, LIGHTNING, 18KV
			15	5810122		1	1			ARRESTER, LIGHTNING, 10 KV, DIST. CLASS
			16	5821045		1	1	1	1	SWITCH, LOADBREAK, POLYMER, 100A, 15/27Y KV
			17	5890415		1	1	1	1	BRACKET, CUTOUT, POLE MOUNTING BRACKET
			18	5890422		1	1	1	1	BRACKET, FOR TRANSFORMER MTG OF L.A.

NOTE: NO LIGHTNING ARRESTER REQUIRED

REMARKS:

- 2523-2 is for a 7.2 kV transformer with a #2 ACSR neutral (12.47 kV 3 phase system)
- 2523-3 is for a 7.2 kV transformer with a 3/0 ACSR neutral (12.47 kV three phase system)
- 2523-4 is for a 14.4 kV transformer with a #2 ACSR neutral (25 kV three phase system)
- 2523-5 is for a 14.4 kV transformer with a 3/0 ACSR neutral (25 Kv three phase system)
- Item 5890415 comes with a 2" x 1/2" Carriage bolt, spur & lock washer and nut.
- If a single transformer is installed on a short tap with fused cutouts installed at the tap point items 5821047 and 5890415 can be omitted.
- For large conductors (2/0 - 477 ACSR), use stirrup clamp FBC item # 5531023.
- For transformer and secondary drop leads, use tables below.

				DRAWN BY		EQUIPMENT & GROUNDING STRUCTURES 1 PHASE SUB, 14.4KV OR 7.2KV OPEN WIRE H.V. PHASE TO GROUND BOM SHEET 1 OF 2
				CHECKED BY		
				APPROVED BY		
				DRAWING No.		REV.
				2523		1

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
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Table 1 - Overhead Transformers and Associated Secondary Drops

XFMR Description	Qty	FBC Item #	FLA	CEC 26-258	Qty	FBC Item #	Cond. Description
15kVA, 7.2kV, 240V	1	6011828	63	78	6m	5311122	2/0 Cu
25kVA, 7.2kV, 240V	1	6011832	104	130	6m	5311122	2/0 Cu
50kVA, 7.2kV, 240V	1	6011852	208	260	6m	5311122	2/0 Cu
75kVA, 7.2kV, 240V	1	6011860	313	391	6m	5311124	4/0 Cu
100kVA, 7.2kV, 240V	1	6011864	417	521	6m	5311126	500 MCM Cu
15kVA, 14.4kV, 240V	1	6013228	63	78	6m	5311122	2/0 Cu
25kVA, 14.4kV, 240V	1	6013232	104	130	6m	5311122	2/0 Cu
50kVA, 14.4kV, 240V	1	6013252	208	260	6m	5311122	2/0 Cu
75kVA, 14.4kV, 240V	1	6013260	313	391	6m	5311124	4/0 Cu
100kVA, 14.4kV, 240V	1	6013264	417	521	6m	5311126	500 MCM Cu

Table 2 - Connectors

FBC Item #	Cat #	Description
5530130	HT-6	Wire Range Main: 1-6 Str, 1-6 Sol, 2-6 ACSR Wire Range Tap: 1-6 Str, 1-6 Sol, 2-6 ACSR
5530131	HT-8	Wire Range Main 2/0-2 Str, 3/0-1 Sol, 1/0-3 ACSR Wire Range Tap 1-6 Str, 1-6 Sol, 2-6 ACSR
5530132	HT-2	Wire Range Main: 2/0-3/0 Str, 1/0-2/0 ACSR Wire Range Tap: 1-6 Str, 1/0-6 Sol, 2-6 ACSR
5530133	HT-3	Wire Range Main 4/0 Str, 4/0-3/0 ACSR Wire Range Tap 1-6 Str, 1/0-6 Sol, 2-6 ACSR
5530134	HT-4	Wire Range Main: 3/0-1/0 Str, 2/0-1 ACSR Wire Range Tap: 3/0-1/0 Str, 2/0-1 ACSR
5530135	HT-5	Wire Range Main 4/0-3/0 Str, ACSR Wire Range Tap 2/0-1/0 Str, 2/0-1 ACSR
5530136	HT-7	Wire Range Main: 4/0-3/0 Str, ACSR Wire Range Tap: 4/0-3/0 Str, ACSR
5530138	UB214	Wire Range A: 2-6 Str, 1-6 Sol, 2-6 ACSR Wire Range B: 8-14 Str, 7-14 Sol
5530139	OB0214	Wire Range Main: 2/0-2 Str, 2/0-2 ACSR Wire Range Tap: 8-14 Str, 7-14 Sol

DRAWN BY

CHECKED BY

APPROVED BY

EQUIPMENT & GROUNDING STRUCTURES
1 PHASE 14.4kV OR 7.2kV
OPEN WIRE H.V. PHASE TO GROUND
BOM SHEET 2 OF 2

DRAWING No.

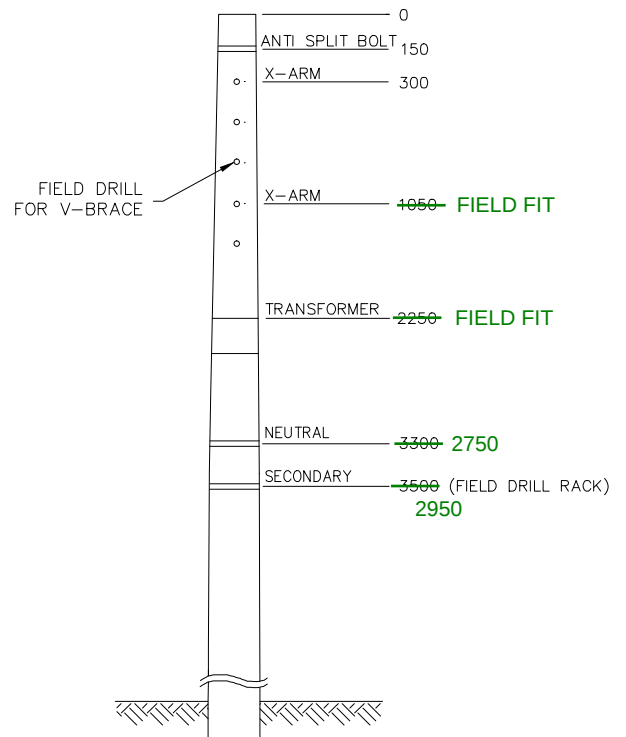
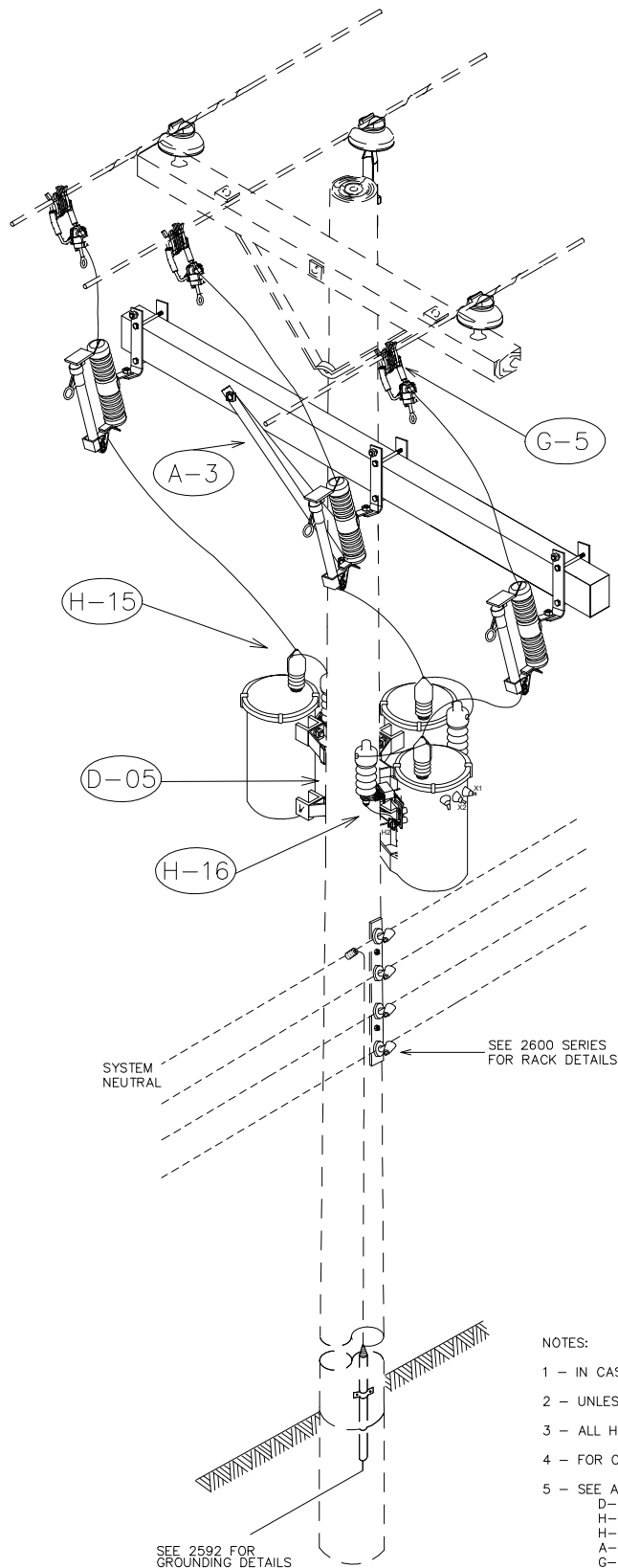
REV.

2523

1

REV DATE BY CHECKED DESCRIPTION

APP. DATE

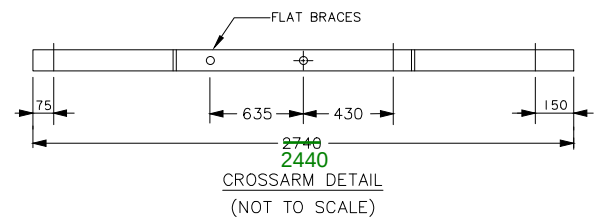


DRILLING DETAIL (NOTE 3)

TABLE A
(BOTTOM BRACKET HANGER)

SINGLE-PHASE RATINGS, kV•A	2ND BRACKET MILLIMETERS
10, 15, 25	2620 FIELD FIT
50, 75, 100	2800 FIELD FIT

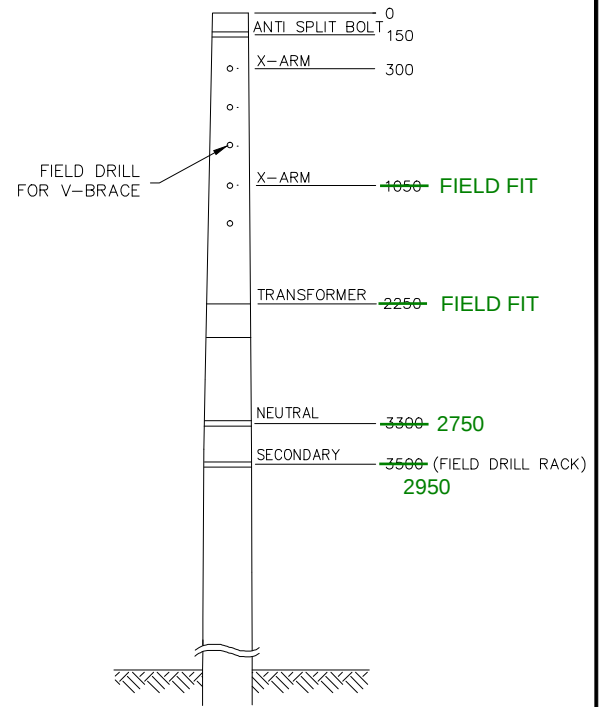
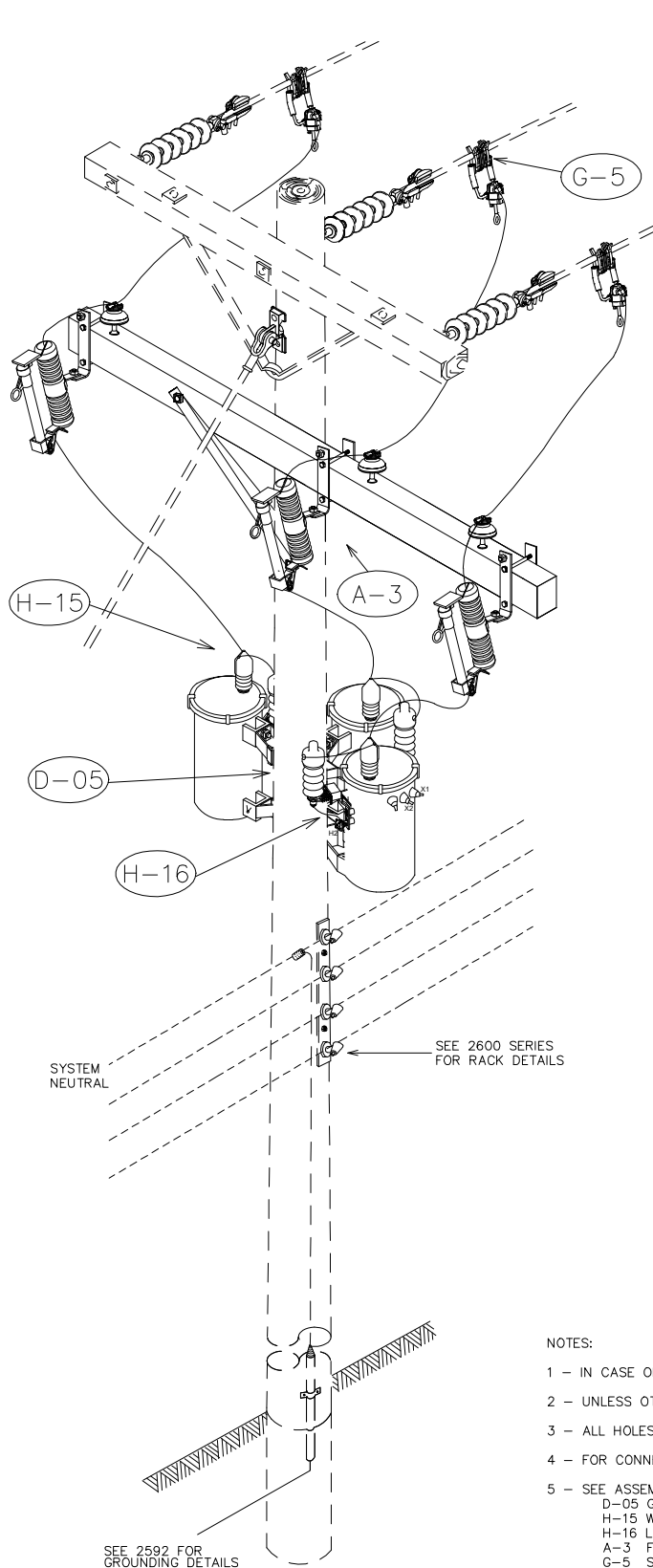
4



NOTES:

- 1 - IN CASE OF TWO NEUTRALS THEY MUST BE TIED TOGETHER AND CONNECTED TO GROUND WIRE
- 2 - UNLESS OTHERWISE INDICATED, ALL DIMENSIONS ARE IN MILLIMETRES
- 3 - ALL HOLES DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
- 4 - FOR CONNECTION DIAGRAM, SEE DRAWING 1026.
- 5 - SEE ASSEMBLIES:
D-05 GROUNDING DETAILS
H-15 WILDLIFE PROTECTOR MOUNTING
H-16 LIGHTNING ARRESTER MOUNTING
A-3 FLAT BRACE ASSEMBLY
G-5 STIRRUP ASSEMBLY

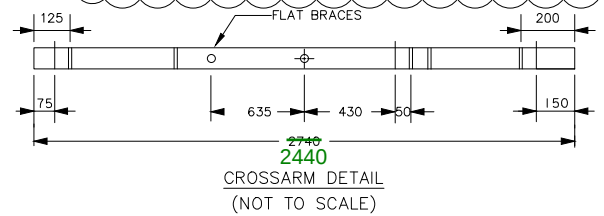
					DRAWN BY		EQUIPMENT & GRONDING STRUCTURES TRANS BANK ON TANGENT STRUCTURE UPTO 100KVA STRUCTURE SHEET 1 OF 3	
					CHECKED BY			
					APPROVED BY			
							DRAWING No.	REV.
							2525	4
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		



DRILLING DETAIL (NOTE 3)

TABLE A
(BOTTOM BRACKET HANGER)

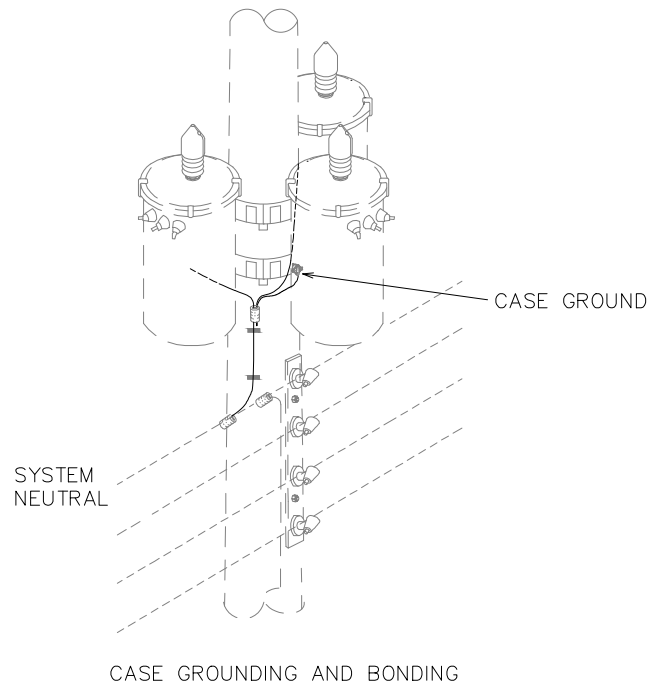
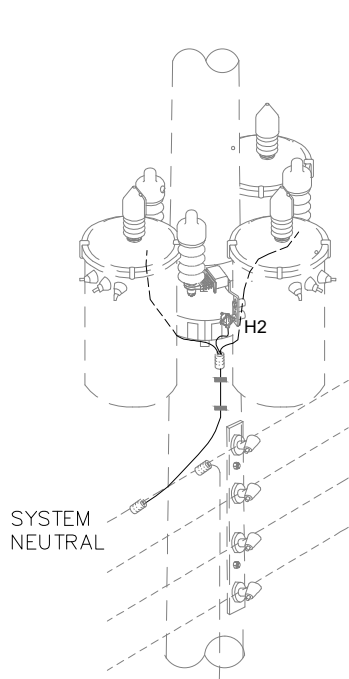
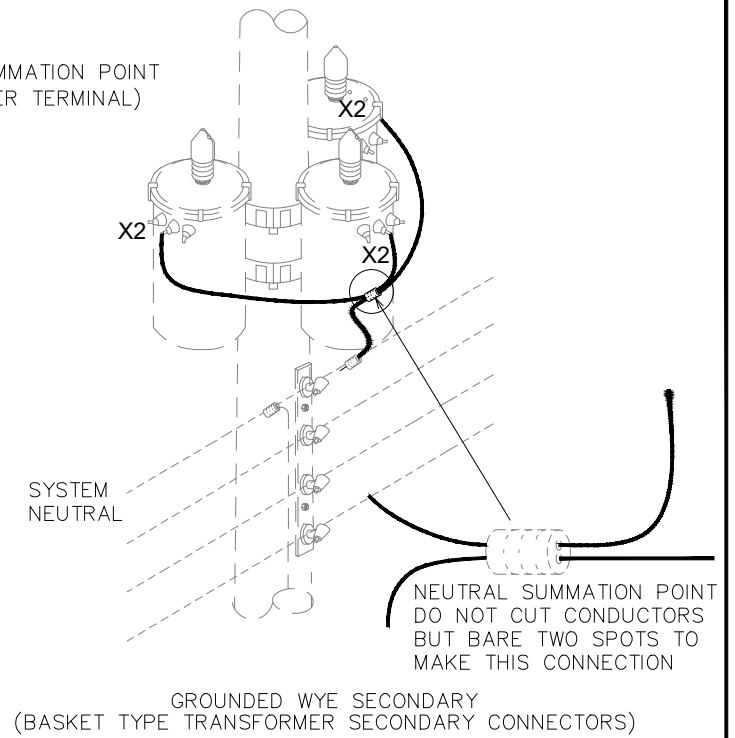
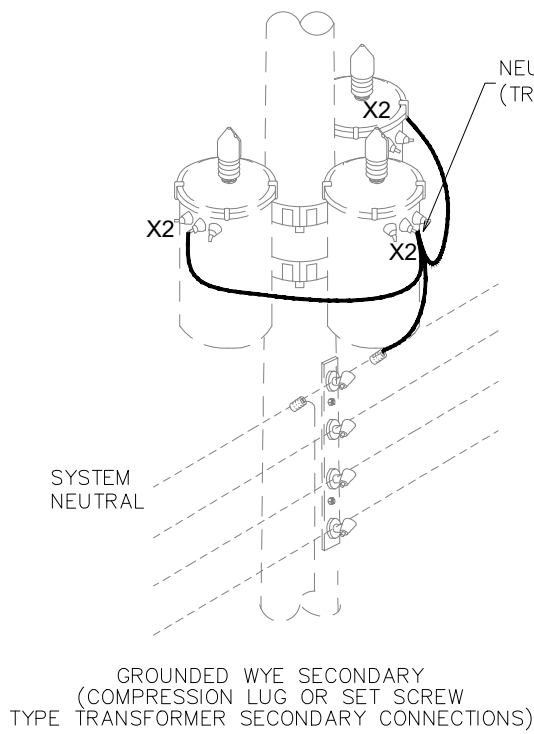
SINGLE-PHASE RATINGS, kV•A	2ND BRACKET MILLIMETERS	4
10, 15, 25	2620 FIELD FIT	
50, 75, 100	2800 FIELD FIT	



NOTES:

- 1 - IN CASE OF TWO NEUTRALS THEY MUST BE TIED TOGETHER AND CONNECTED TO GROUND WIRE
- 2 - UNLESS OTHERWISE INDICATED, ALL DIMENSIONS ARE IN MILLIMETRES
- 3 - ALL HOLES DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
- 4 - FOR CONNECTION DIAGRAM, SEE DRAWING 1026.
- 5 - SEE ASSEMBLIES:
D-05 GROUNDING DETAILS
H-15 WILDLIFE PROTECTOR MOUNTING
H-16 LIGHTNING ARRESTER MOUNTING
A-3 FLAT BRACE ASSEMBLY
G-5 STIRRUP ASSEMBLY

					DRAWN BY		EQUIPMENT & GROUNDING STRUCTURES TRANS BANK ON DEADEND STRUCTURE UPTO 100KVA STRUCTURE SHEET 2 OF 3	
					CHECKED BY			
					APPROVED BY			
							DRAWING No.	REV.
							2525	4
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		



NOTES:

- 1) WHEN MULTIPLE DROP LEADS ARE USED TO CONNECT TO THE OPEN WIRE OR SERVICE SECONDARY, SEPARATE CONNECTORS SHALL BE USED FOR EACH DROP LEAD TO AVOID CONNECTION OVERHEATING.
- 2) FOR COMPRESSION LUG CONNECTION, POSITION COPPER CONDUCTOR BELOW ALUMINUM SECONDARY CONDUCTOR.

							DRAWN BY		3 PHASE SUB. 24.9kV AND 12.47kV GROUNDED WYE CONNECTION UP TO 100KVA PER UNIT SHEET 3 OF 3		
							CHECKED BY				
							APPROVED BY				
		2525	0								
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE					

ASSEMBLY REF #			ITEM #	Fortis Bill of Material						
				Structure # 2525 3PH SUB. 12.7KV GND WYE CONNECTION UPTO 100KVA						
				Item #	UI	-2	-3	-4	-5	Description
			1	5020207		1	1	1	1	CROSSARM, WOOD, SAWN OR GLULAM WOOD
			2	5110252		2	2	2	2	BRACE, FLAT, 34" LONG
			3	5131311		3	3	3	3	BOLT, CARRIAGE, GALVANIZED, 1/2 X 2.
			4	5132606		1	1	1	1	BOLT, MACHINE, GALV, 3/4" X 6"
			5	5132614		2	2	2	2	BOLT, MACHINE, GALV, 3/4" X 14"
			6	5132616		1	1	1	1	BOLT, MACHINE, GALV, 3/4" X 16"
			7	5138401		2	2	2	2	BOLT, LAG, GALVANIZED, 1/2" X 4"
			8	5139491		3	3	3	3	BOLT, STEEL, HEX, 1/2-13 X 1-1/2, HDG
			9	5141106		4	4	4	4	NUT, UNFIN SQ, GLV 3/4
			10	5142102		3	3	3	3	WASHER, ROUND, 9/16" HOLE, 1-3/8" RIM
			11	5142206		5	5	5	5	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
			12	5142502		6	6	6	6	WASHER, SINGLE HELIX SPRING LOCK, 1/2"
			13	5142603		4	4	4	4	WASHER, SPRING LOCK, DOUBLE 3/4
			14	5160303		6	6	6	6	STAPLE, 1/2"X2", H/P GLV. 'U' TYPE
			15	5310440	M	10	10	10	10	WIRE, 4 AWG, 7STR, 600V, TWU GREEN
			16	5311105	M	12	12	12	12	CONDUCTOR, CU STR, #4 POLY, 600V, RW90
			17	5530130		7	3	7	3	CONNECTOR, COMPRESSION, AL, H-TYPE
			18	5530132			4		4	CONNECTOR, COMPRESSION, AL, H-TYPE
			19	5530502		3	3	3	3	CLAMP, HOT LINE, 336.4 MCM : #6 ACSR
			20	5531021		3	3	3	3	CLAMP, STIRRUP, 6-2/0 ACSR
			21	5590303		3	3	3	3	SEALER, AIR FOR CONNECTORS
			22	5590507		10	10	10	10	TIE, CABLE, 3/16" TO 3-1/2" BUNDLE DIA.
			23	5790415		3	3	3	3	PROTECTOR, WILDLIFE, L.A. BRACKET
			24	5810112				3	3	ARRESTER, LIGHTNING, 18KV
			25	5810122		2	3			ARRESTER, LIGHTNING, 10 KV, DIST. CLASS
			26	5821045		3	3	3	3	SWITCH, LOADBREAK, POLYMER, 100A, 15/27Y KV
			27	5890417		3	3	3	3	BRACKET, CROSSARM MOUNTING L.A. & CUTOUT
			28	5890422		3	3	3	3	BRACKET, FOR TRANSFORMER MTG OF L.A.
			29	6060207		1	1	1	1	BRACKET, TRANS, CLUSTER, 3 X 50KVA MAX

XXXXXXX 1 1 1 1 CROSSARM 3 3/4" x 4 3/4" x 8'

REMARKS: NOTE: NO LIGHTNING ARRESTER REQUIRED

1. 2525-2 is for a 7.2 kV transformer with a #2 ACSR neutral (12.47 kV 3 phase system).
2. 2525-3 is for a 7.2 kV transformer with a 3/0 ACSR neutral (12.47 kV three phase system).
3. 2525-4 is for a 14.4 kV transformer with a #2 ACSR neutral (25 kV thee phase system).
4. 2525-5 is for a 14.4 kV transformer with a 3/0 ACSR neutral (25 kV three phase system).
5. For 3 X 75 kVA transformers, order cluster mount bracket 606-0305.
6. For 3 X 100 kVA transformers, order cluster mount bracket 606-0307.
7. For installation on a deadend structure, also include these materials:

Quantity	FBC Item #
3	5110102
1	5390302
3	5710404

8. For secondary drop leads, use tables below.

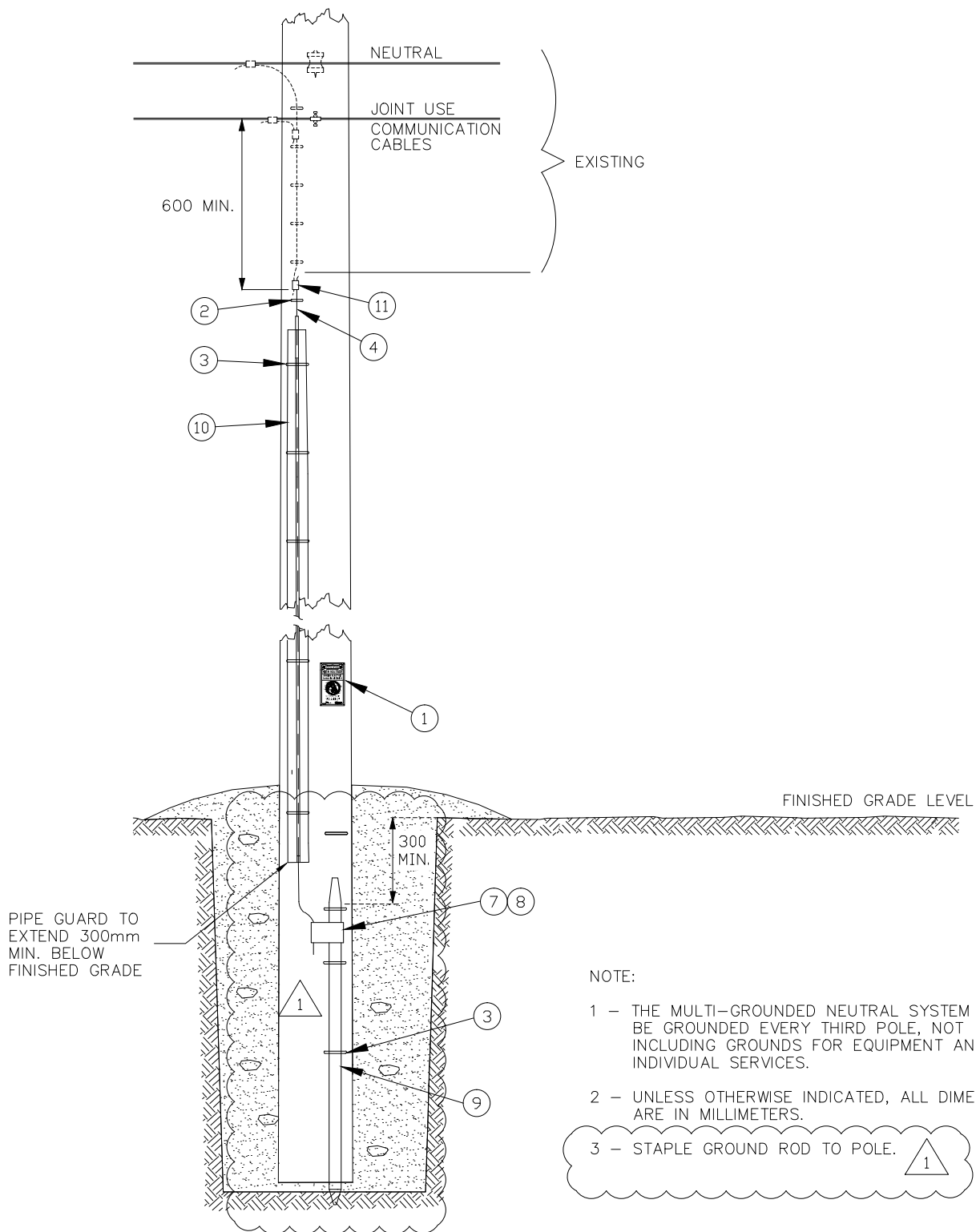
ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL

							DRAWN BY		EQUIPMENT & GROUNDING STRUCTURES 3 PHASE SUB. 24.9kV & 12.4kV GND WYE CONNECTION UPTO 100kVA BOM SHEET 1 OF 3		
							CHECKED BY				
							APPROVED BY				
										DRAWING No.	REV.
										2525	1
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE					

Table 2 - Connectors

FBC Item #	Cat #	Description
5530130	HT-6	Wire Range Main: 1-6 Str, 1-6 Sol, 2-6 ACSR Wire Range Tap: 1-6 Str, 1-6 Sol, 2-6 ACSR
5530131	HT-8	Wire Range Main: 2/0-2 Str, 3/0-1 Sol, 1/0-3 ACSR Wire Range Tap: 1-6 Str, 1-6 Sol, 2-6 ACSR
5530132	HT-2	Wire Range Main: 2/0-3/0 Str, 1/0-2/0 ACSR Wire Range Tap: 1-6 Str, 1/0-6 Sol, 2-6 ACSR
5530133	HT-3	Wire Range Main: 4/0 Str, 4/0-3/0 ACSR Wire Range Tap: 1-6 Str, 1/0-6 Sol, 2-6 ACSR
5530134	HT-4	Wire Range Main: 3/0-1/0 Str, 2/0-1 ACSR Wire Range Tap: 3/0-1/0 Str, 2/0-1 ACSR
5530135	HT-5	Wire Range Main: 4/0-3/0 Str, ACSR Wire Range Tap: 2/0-1/0 Str, 2/0-1 ACSR
5530136	HT-7	Wire Range Main: 4/0-3/0 Str, ACSR Wire Range Tap: 4/0-3/0 Str, ACSR
5530138	UB214	Wire Range A: 2-6 Str, 1-6 Sol, 2-6 ACSR Wire Range B: 8-14 Str, 7-14 Sol
5530139	UB0214	Wire Range Main: 2/0-2 Str, 2/0-2 ACSR Wire Range Tap: 8-14 Str, 7-14 Sol

					DRAWN BY		EQUIPMENT & GROUNDING STRUCTURES 3 PHASE SUB 24.9kV & 12.4kV GND WYE CONNECTION UPTO 100kVA BOM SHEET 3 OF 3
					CHECKED BY		
					APPROVED BY		
					DRAWING No.		REV.
					2525		0
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE	



NOT TO SCALE

							DRAWN BY		DIST. EQUIP, & GROUNDING STRUCTURES GROUNDING OF MULTI-GROUNDED SYS. REPAIR STOLEN POLE GROUND SHEET 2 OF 2			
							CHECKED BY					
							APPROVED BY					
												DRAWING No.
2592	1											
REV									DATE	BY	CHECKED	DESCRIPTION

Fortis			Bill of Material				
Structure # 2592			GROUNDING OF MULTI-GRD NEUTRAL SYSTEM				
Item #	UI	-1	-3	-4	Description		
4910304		1	1	1	SIGN, ALUMINUM		
5160303		5	5	5	STAPLE ½ X 2		
5160304		10	10	10	STAPLE 1:1/2 X 3		
5310500		20	20	10	CONDUCTOR, COMPOSITE GND 19 STRAND		
5530203		1			CONNECTOR, MINIWEDGE 1/0 TO 2 AWG		
5530206			1		CONNECTOR, MINIWEDGE 3/0 TO 2 AWG		
5531591		1	1	1	CARTRIDGE, SHELL BLUE		
5531615		1	1	1	CONNECTOR, AMPACT CU, ¾ ROD TO 2 AWG		
5571308		1	1	1	ROD, GROUND, COPPERBONDED, PLAIN ¾" ROD		
6320106		1	1	1	PIPE, GROUND GUARD, 10' ¾" DIA SERIES		
5530202				1	CONNECTOR, MINIWEDGE, 2 AWG TO 4 AWG		



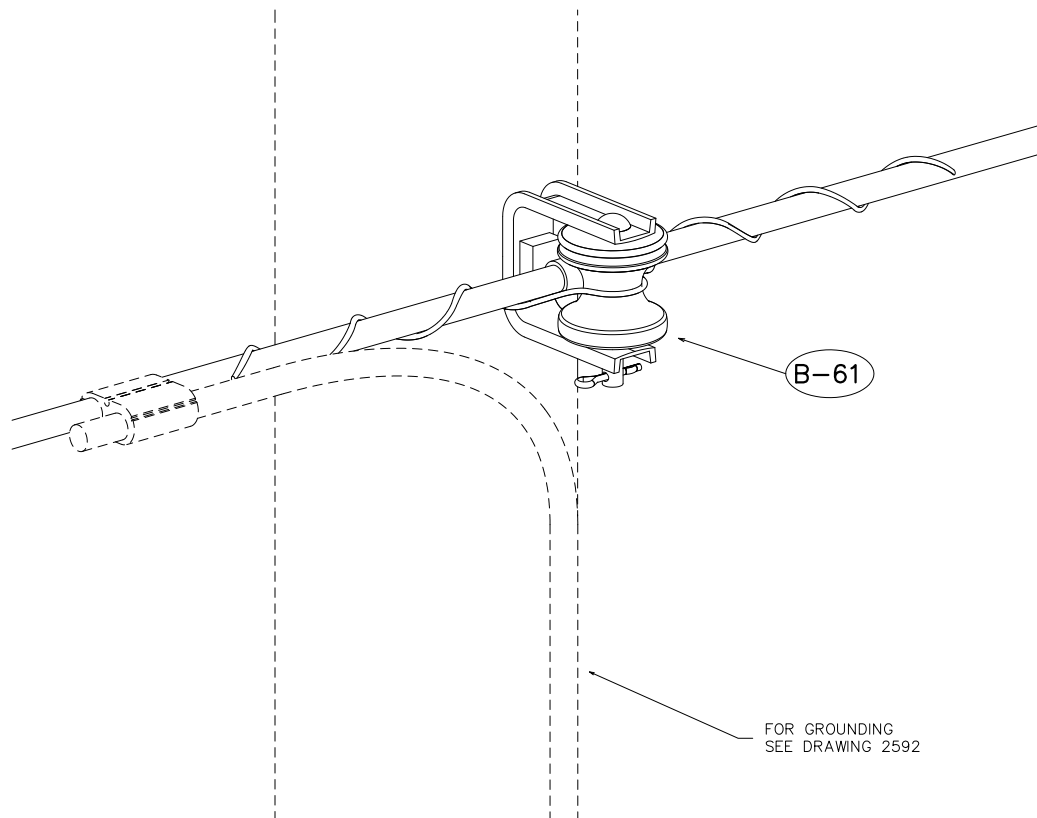
Table 1 – Connectors for Neutral Conductor to Pole Ground Conductor				
Neutral Conductor Size		Pole Ground Conductor	Manuf. #	FBC #
#8 Cu Solid	TO	19 STRAND GALVANIZED STEEL GND CONDUCTOR (5310500)	AMP / 83630-3	5530200
#6 Cu Solid			AMP / 83592-7	5530201
#4 AAC			AMP / 83592-6	5530202
#4 Cu Stranded (5310440)			AMP / 83592-6	5530202
#2 AAC (5321402)			AMP / 83592-2	5530203
#2 Haddock ACSR (5320204)			AMP / 83592-2	5530203
#2/0 Quail ACSR (5310108)			AMP / 83631-7	5530205
#3/0 Pigeon ACSR (5320110)			AMP / 83631-4	5530206
266 Partridge ACSR (5320114)			AMP / 602046-3 BURNDY / WCB23 HOMAC / PT-26604	5531423
477 Cosmos AAC (5320123)			AMP / 602031-8 BURNDY / WCY57	5531440
477 Pelican ACSR (5320121)			AMP / 602031-8 BURNDY / WCY57	5531440

Remarks:

1. If the neutral conductor isn't #2 or 3/0 ACSR, designer must substitute the connector with the appropriate part from the table above.
2. 2592-1 is for a #2 ACSR neutral conductor.
3. 2592-3 is for a 3/0 ACSR neutral conductor.
4. 2592-4 is for replacing a stolen section of pole ground.

ADJUST AS REQUIRED FOR 1/0 ACSR NEUTRAL

					DRAWN BY		DIST. EQUIP, & GROUNDING STRUCTURES GROUNDING OF MULTI-GROUNDED SYS. BILL OF MATERIAL BOM SHEET 1 OF 1	
					CHECKED BY			
					APPROVED BY			
							DRAWING No.	REV.
							2592	3
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		



MAXIMUM LINE ANGLES	
HADDOCK	40 °
PIGEON	30 °
PELICAN	15 °



NOTES:

- 1 - NEUTRAL ATTACHMENT IS NORMALLY PLACED ON THE ROAD SIDE
- 2 - ONLY TO BE USED WITH BARE CONDUCTOR
- 3 - MAXIMUM TRANSVERSE LOAD/PHASE 8.3 kN
WORKING TRANSVERSE LOAD/PHASE 5.5 kN

					DRAWN BY		NEUTRAL ATTACHMENT TANGENT	
					CHECKED BY			
					APPROVED BY			
					DRAWING No.			REV.
					2660			1
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		

Fortis

Bill of Material

Structure # 2660

NEUTRAL ATTACHMENT TANGENT

ASSEMBLY REF #			ITEM #	Item #	UI	-2	-3	-4	Description
			1	5110574		1	1	1	CLEVIS, SECONDARY
			2	5132614		1	1	1	BOLT, MACHINE, GALV, 3/4" X 14",
			3	5142206		1	1	1	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
			4	5142603		1	1	1	WASHER, SPRING LOCK, DOUBLE 3/4
			5	5561382		1			TIE, NEUTRAL SPOOL, FOR #2 HADDOCK TIE
			6	5561384			1		TIE, NEUTRAL SPOOL, FOR 3/0 PIGEON
			7	5790108		1	1	1	INSULATOR, SPOOL, 3X3X3/4 HOLE DIA.-ANSI

1

REMARKS:

1) Intended uses:

2660-2 is for #2 ACSR

2660-3 is for 3/0 ACSR

2660-4 is for triplex. Dead-end preforms ordered separately.

1

ADJUST AS REQUIRED FOR 1/0 ACSR NEUTRAL

DRAWN BY

CHECKED BY

APPROVED BY

SECONDARY STRUCTURE
NEUTRAL ATTACHMENT TANGENT
BILL OF MATERIALS
BOM SHEET 1 OF 1

DRAWING No.

REV.

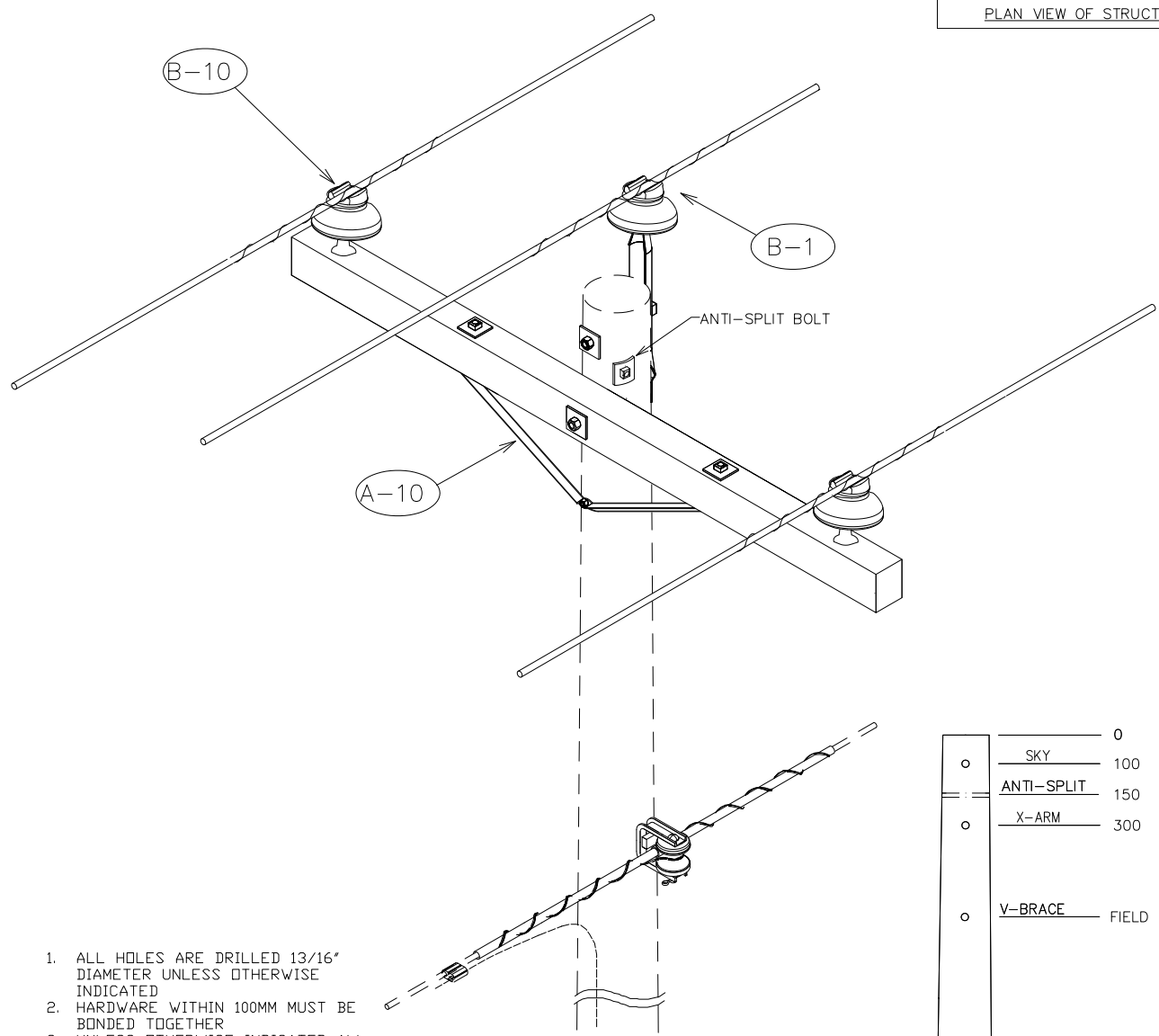
2660

1

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
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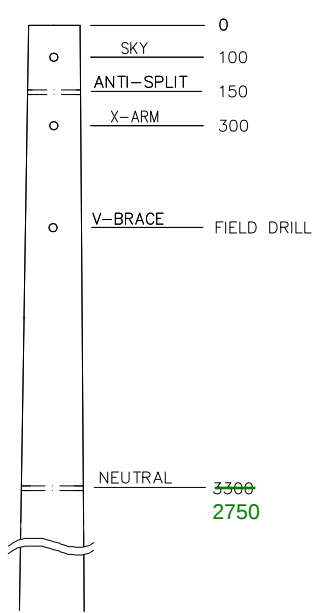
PLAN VIEW OF STRUCTURE



- 1. ALL HOLES ARE DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
- 2. HARDWARE WITHIN 100MM MUST BE BONDED TOGETHER
- 3. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN MILLIMETERS
- 4. FOR NEUTRAL USE 2660
- 5. DEFLECTIONS UP TO 3° ARE FOR #2 HADDOCK ONLY. FOR 3/0 PIGEON AND 477 PELICAN, DEFLECTIONS UP TO 2.5° ARE ALLOWED. USE APPROPRIATED GUYING ON ANGLE STRUCTURES

CONDUCTOR	MAX SPAN (M)
PELICAN	120
PIGEON	155
HADDOCK	155

NOTE: MAX SPANS BASED ON CSA MED. B LOADING, FLAT TERRAIN



DRILLING DETAIL

					DRAWN BY		THREE PHASE PRIMARY TANGENT	
					CHECKED BY			
					APPROVED BY			
							DRAWING No.	REV.
							2700	1
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		

ASSEMBLY REF #	ITEM #
	1
	2
	3
	4
	5
	6
	7
	8
	9
	10
	11
	12
	13
	14
	15

Fortis Bill of Material						
Structure # 2700			25KV THREE PHASE PRIMARY TANGENT			
Item #	UI	-1	-2	-3	Description	
5020207		1	1	1	CROSSARM, WOOD, SAWN OR GLULAM WOOD	
5110102		2	2	2	PIN, 6" TOP, 3/4 X 6.5" SHK, 1" PIN	
5110135		1	1	1	PIN, POLE TOP, 24", 1" THREAD	
5110269		1	1	1	BRACE, V, 60"	
5132608		2	2	2	BOLT, MACHINE, GALV, 3/4" X 8",	
5132612		2	2	2	BOLT, MACHINE, GALV, 3/4" X 12",	
5132614		2	2	2	BOLT, MACHINE, GALV, 3/4" X 14",	
5132616		1	1	1	BOLT, MACHINE, GALV, 3/4" X 16"	
5142106		1	1	1	WASHER, ROUND, 13/16" HOLE, 2" RIM	
5142206		10	10	10	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE	
5142603		9	9	9	WASHER, SPRING LOCK, DOUBLE 3/4	
5561306	SE	3			TIES, PRFD, DIST, BARE #2 SPARROW,	
5561314	SE		3		TIES, PRFD, DIST, BARE 3/0 PIGEON,	
5561389				3	TIES, PRFD. DIST. COND. BARE 477 PELICAN	
5710404		3	3	3	INSULATOR, 14.4/25kV, PIN TYPE, ANSI 55-5	
XXXXXXX		1	1	1	CROSSARM 3 3/4" x 4 3/4" x 8'	

REMARKS:

1) Intended uses:

2700-1 is for #2 ACSR

2700-2 is for 3/0 ACSR

2700-3 is for 477 ACSR

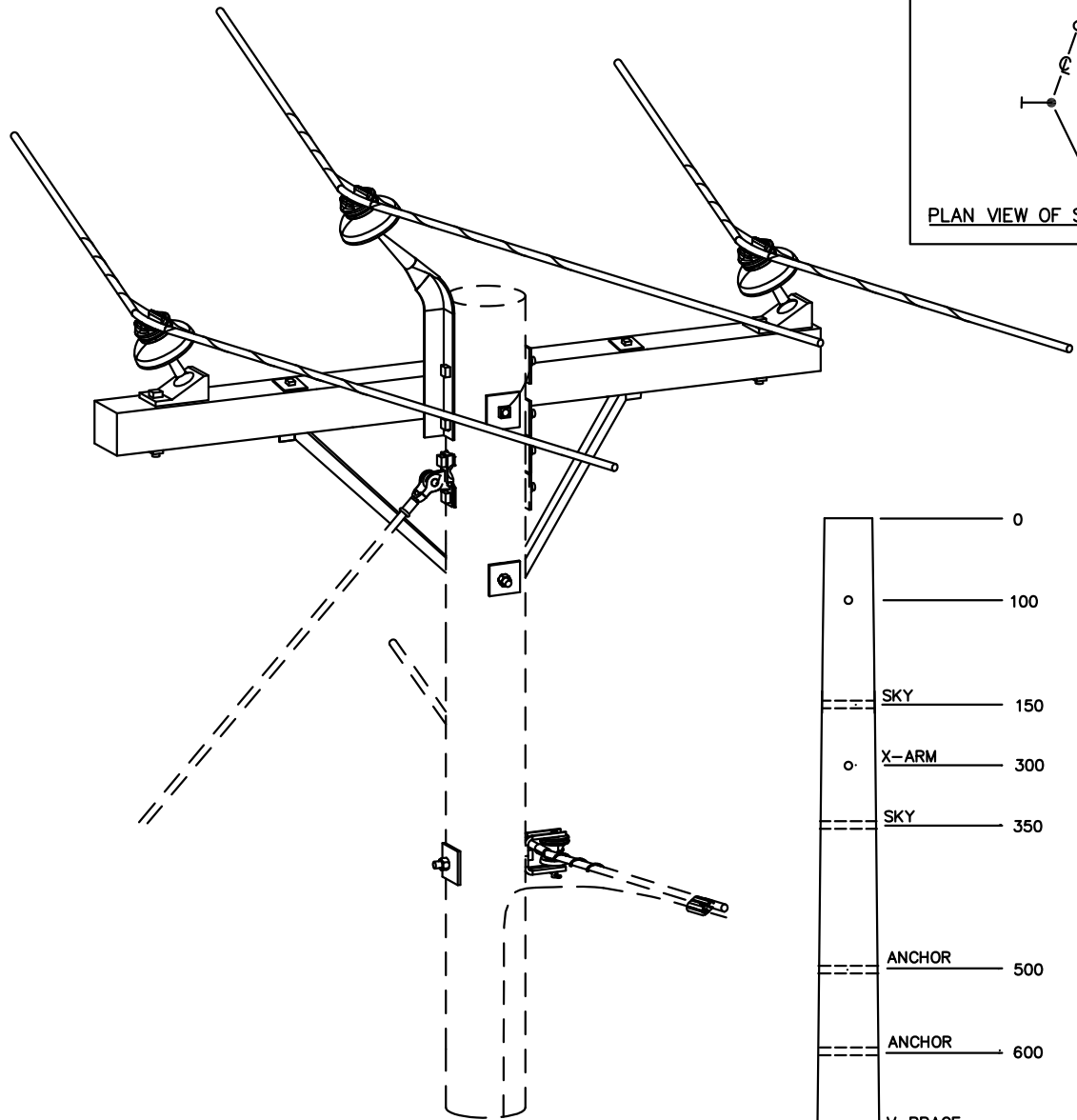
2) For grounding use s2592

3) For neutral material use 2660

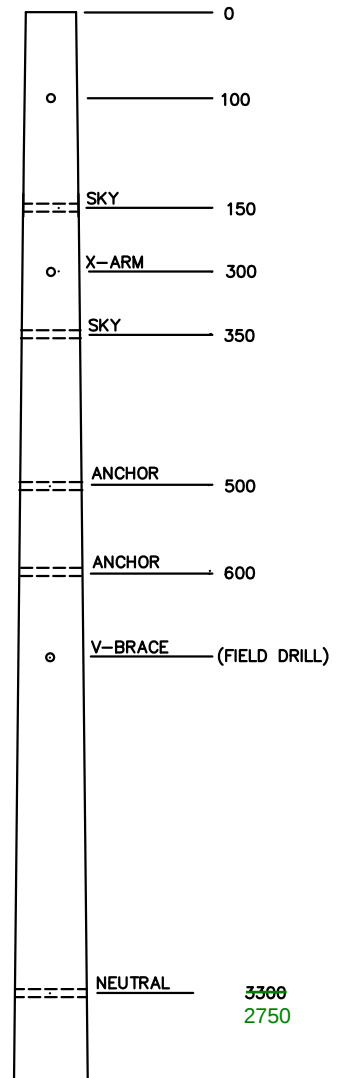
4) Designer to check for aeolian vibration for spans more than 100 m

ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL

					DRAWN BY		THREE PHASE PRIMARY 25kv PRIMARY TANGENT BILL OF MATERIALS BOM SHEET 1 OF 1	
					CHECKED BY			
					APPROVED BY			
					DRAWING No.		REV.	
					2700		1	
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		



PLAN VIEW OF STRUCTURE



DRILLING DETAIL

1. ALL HOLES ARE DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
2. HARDWARE WITHIN 100MM MUST BE BONDED TOGETHER
3. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN MILLIMETERS
4. FOR NEUTRAL USE 2660

CONDUCTOR	MAX SPAN (M)	MAX ANGLE (°)
PELICAN	90	10°
PIGEON	120	15°
HADDOCK	120	26°



NOTE: MAX SPANS BASED ON CSA MED B LOADINGS, FLAT TERRAIN

					DRAWN BY		THREE PHASE PRIMARY ANGLE STRUCTURE	
					CHECKED BY			
					APPROVED BY			
							DRAWING No.	
							2705	
							REV.	
							1	

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE

Fortis		B i l l o f M a t e r i a l			2008/08/21
Structure # 2705		25 KV THREE PHASE PRIMARY ANGLE STR			
Item #	UI	-1	-2	-3	Description
5020207		1	1	1	CROSSARM, WOOD, 3 3/4" X 4 3/4" X 9'.
5110003		2	2	2	PIN, CROSSARM, ANGLE, 1" LEAD THREAD
5110142		1	1	1	PIN, POLE TOP, ANGLE, 1" LEAD TREAD PIN
5110269		1	1	1	BRACE, V, 60"
5132608		2	2	2	BOLT, MACHINE, 3/4 X 8 INCH
5132612		2	2	2	BOLT, MACHINE, 3/4 X 12 INCH
5132614		2	2	2	BOLT, MACHINE, 3/4 X 14 INCH
5132616		1	1	1	BOLT, MACHINE, 3/4 X 16 INCH
5141106		2	2	2	NUT, UNFIN SQ, GLV 3/4
5142106		1	1	1	WASHER, ROUND, 13/16" HOLE, 2" RIM
5142206		9	9	9	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
5142603		8	8	8	WASHER, SPRING LOCK, DOUBLE 3/4
5561306	SE	3			TIES, PREFORMED, DISTRIBUTION #2
5561314	SE		3		TIES, PREFORMED, DISTRIBUTION # 110
5561389				3	TIES, PRFD. DIST. COND. BARE 477 PELICAN
5710404		3	3	3	INSULATOR, 14.4/25KV, PIN TYPE, ANSI 55-5

XXXXXXX 1 1 1 CROSSARM 3 3/4" x 4 3/4" x 8'

REMARKS:

1) Intended uses:

2705-1 is for #2 ASCR

2705-2 is for 3/0 ASCR

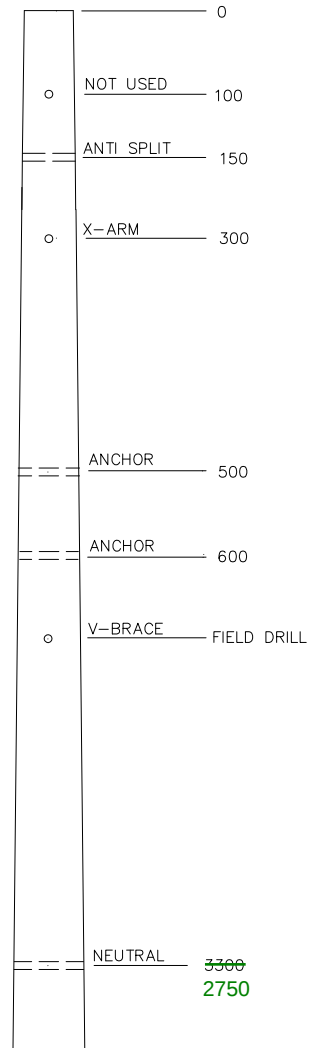
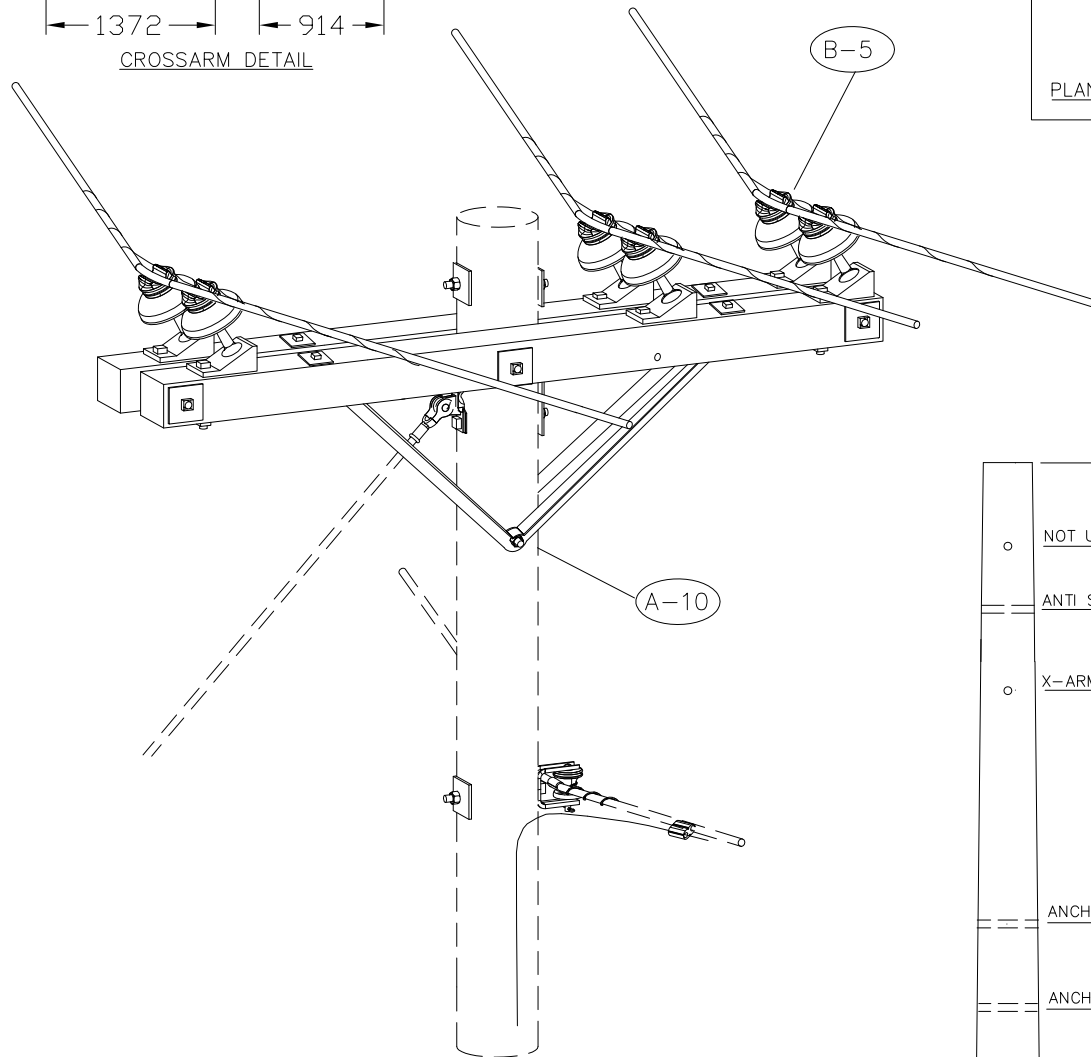
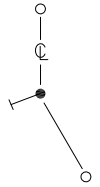
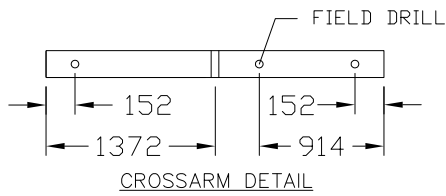
2705-3 is for 477 ASCR

2) For grounding use s2592

3) For neutral material use 2660

4) Designer to check for aeolian vibration for spans more than 100 m

ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL



1. ALL HOLES ARE DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
2. HARDWARE WITHIN 100MM MUST BE BONDED TOGETHER
3. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN MILLIMETERS
4. FOR NEUTRAL USE 2660

CONDUCTOR	MAX SPAN (M)	MAX ANGLE (°)	
PELICAN	155	18	
	50	30	
PIGEON	155	25	
	50	40	

NOTE: MAX SPANS BASED ON CSA MED B LOADINGS, FLAT TERRAIN

					DRAWN BY		THREE PHASE 25kV PRIMARY MED. ANGLE STRUCTURE	
					CHECKED BY			
					APPROVED BY			
							DRAWING No.	REV.
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE	2707	1

Fortis		B i l l o f M a t e r i a l		2008/08/21
Structure # 2707		25 KV THREE PHASE PRIM MEDIUM ANGLE ST		
Item #	UI	-2	-3	Description
5020207		2	2	CROSSARM, WOOD, 3 3/4" X 4 3/4" X 9'.
5110003		6	6	PIN, CROSSARM, ANGLE, 1" LEAD THREAD
5110269		2	2	BRACE, V, 60"
5110913		2	2	GAIN, POLE, 4" X 6" X 13/16" HOLE, GLV.
5132608		4	4	BOLT, MACHINE, 3/4 X 8 INCH
5132612		2	2	BOLT, MACHINE, 3/4 X 12 INCH
5132614		1	1	BOLT, MACHINE, 3/4 X 14 INCH
5133624		3	3	BOLT, D.A. 3/4"X 24"
5142206		20	20	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
5142603		19	19	WASHER, SPRING LOCK, DOUBLE 3/4
5561395			3	DOUBLE TIE PRFD. DIST. BARE 477 PELICAN
5561396		3		DOUBLE TIE PRFD. DIST. BARE 3/0 PIGEON
5710404		6	6	INSULATOR, 14.4/25kV,PIN TYPE, ANSI 55-5

XXXXXXX 2 2 CROSSARM 3 3/4" x 4 3/4" x 8'

REMARKS:

1) Intended uses

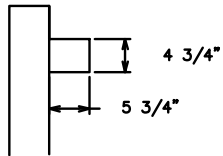
2707-2 is for 3/0 Pigeon

2707-3 is for 477 Pelican

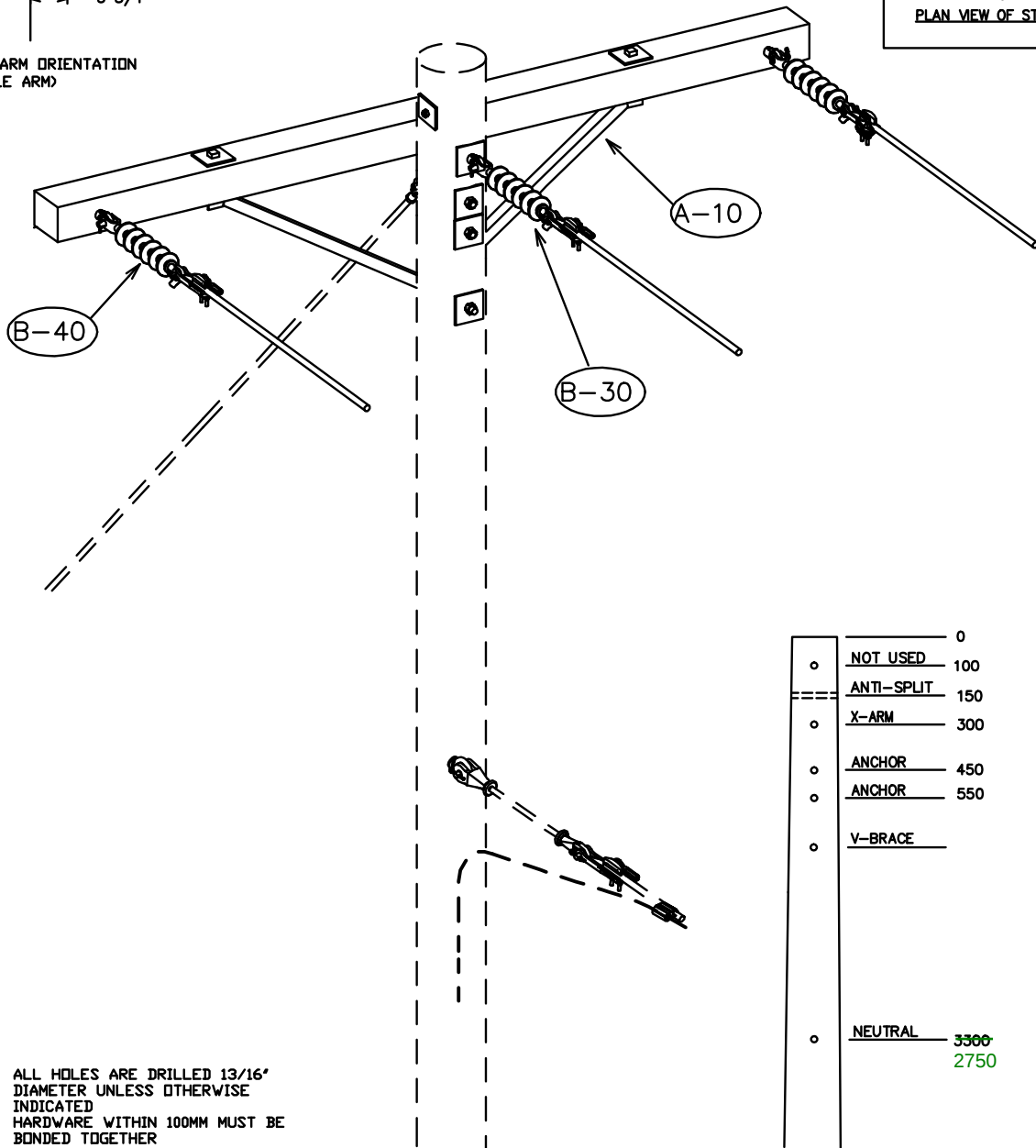
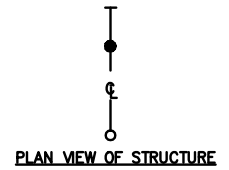
2) for grounding use s2592

3) for neutral use s2660

ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL



CROSSARM ORIENTATION
(SINGLE ARM)



1. ALL HOLES ARE DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
2. HARDWARE WITHIN 100MM MUST BE BONDED TOGETHER
3. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN MILLIMETERS
4. FOR NEUTRAL USE 2610

○	NOT USED	0
○	ANTI-SPLIT	100
○	X-ARM	150
○	ANCHOR	300
○	ANCHOR	450
○	ANCHOR	550
○	V-BRACE	
○	NEUTRAL	3300 2750

DRILLING DETAIL

CONDUCTOR	MAX SPAN (M)
HADDOCK	140

NOTE: MAX SPANS BASED ON CSA MED B LOADINGS, FLAT TERRAIN

					DRAWN BY		THREE PHASE PRIMARY DEADEND STRUCTURE SHEET 1 OF 2	
					CHECKED BY			
					APPROVED BY			
					DRAWING No.		REV.	
					2709		1	
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		

							DRAWN BY		THREE PHASE PRIMARY DEADEND STRUCTURE (DOUBLE ARM) SHEET 2 OF 2		
							CHECKED BY				
							APPROVED BY				
									DRAWING No.		REV.
									2709		2
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE			

ASSEMBLY REF #		ITEM #	Fortis Bill of Material					
			Structure # 2709 25KV THREE PHASE PRIMARY DEADEND					
			Item #	UI	-1	-2	-3	Description
		1	5020304		1	2	2	CROSSARM, WOOD, SAWN OR GLULAM WOOD
		2	5110269		1	1	1	BRACE, V, 60"
		3	5132608		2	2	2	BOLT, MACHINE, GALV, 3/4" X 8",
		4	5132612		2	2	2	BOLT, MACHINE, GALV, 3/4" X 12",
		5	5132614		1	1	1	BOLT, MACHINE, GALV, 3/4" X 14",
		6	5133628			2	2	BOLT, D.A. 3/4"X 28"
		7	5135608		2			BOLT, SHOULDER EYE, 3/4 X 8"
		8	5135620		1			BOLT, SHOULDER EYE, 3/4 X 20"
		9	5135622		1	1	1	BOLT, SHOULDER EYE, 3/4 X22"
		10	5141306		1	2	2	NUT, EYE, 3/4
		11	5142106				4	WASHER, ROUND, 13/16" HOLE, 2" RIM
		12	5142206		11	15	15	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
		13	5142603		7	9	9	WASHER, SPRING LOCK, DOUBLE 3/4
		14	5571652		3			CLAMP, CLEVIS D.E, #6 - 2/0 ACSR,
		15	5571657			3	3	CLAMP, CLEVIS DE, 3/0-556 ACSR,
		16	5720402		3	3	3	INSULATOR, POLYMER, D.E, CLEVIS END,
			XXXXXXX		1	2	2	CROSSARM 4 3/4" x 5 3/4" x 8'

REMARKS;

1) Intended uses:
2709-1 is for #2 ACSR
2709-2 is for 3/0 ACSR
2709-3 is for 477 ACSR

2) For grounding use s2592

3) For neutral use s2610

4) For use in Bird (Osprey) nesting area, use assembly H-31 and include the following materials:

FBC Item # QTY

5161003 1

5790417 1

BCH# 420-1521 3 1 1 SQUARE WASHER (50mm x 50mm)

BCH# 420-1009 3 1 1 EXTENSION STRAP (125mm)

BCH# 413-0130 3 1 1 DEAD END CLEVIS

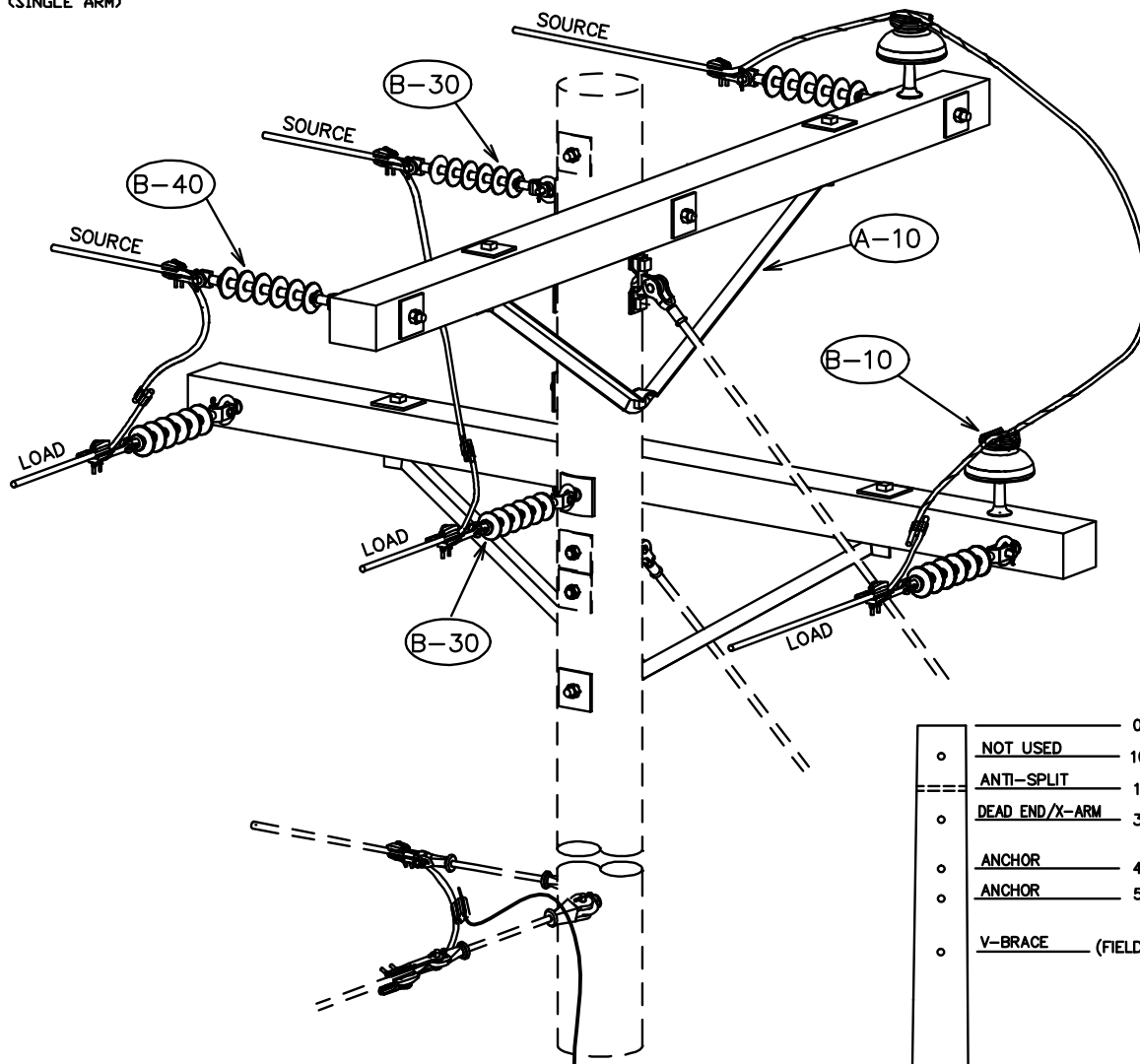
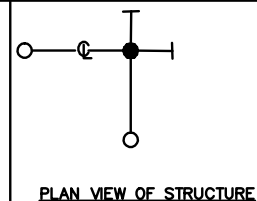
BCH# 100-XXXX 3 1 1 MACHINE BOLT (5/8" x LENGTH)

ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL

				DRAWN BY		THREE PHASE PRIMARY STRUCTURES 25kv DEADEND BILL OF MATERIALS BOM SHEET 1 OF 1
				CHECKED BY		
				APPROVED BY		
				DRAWING No.		REV.
				2709		1

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
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CROSSARM ORIENTATION (SINGLE ARM)



1. ALL HOLES ARE DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
2. HARDWARE WITHIN 100MM MUST BE BONDED TOGETHER
3. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN MILLIMETERS
4. FOR NEUTRAL USE 2642

CONDUCTOR	MAX SPAN (M)
HADDOCK	85

NOTE: MAX SPANS BASED ON CSA MED B LOADINGS, FLAT TERRAIN

○	NOT USED	100
=====	ANTI-SPLIT	150
○	DEAD END/X-ARM	300
○	ANCHOR	450
○	ANCHOR	550
○	V-BRACE (FIELD DRILL)	
=====	DEAD END/X-ARM	1060
=====	ANCHOR	1210
=====	ANCHOR	1310
=====	V-BRACE (FIELD DRILL)	
○	NEUTRAL	3150 2900
=====	NEUTRAL	3300 3050

DRILLING DETAIL

								DRAWN BY			THREE PHASE PRIMARY SINGLE ARM DEAD-END (SINGLE ARMS) RIGHT ANGLE STRUCTURE SHEET 1 OF 2	
								CHECKED BY				
								APPROVED BY				
											DRAWING No.	REV.
											2710	1
REV	DATE	BY	CHECKED	DESCRIPTION				APP.	DATE			

							DRAWN BY			THREE PHASE 25kV DOUBLE DEADEND STRUCTURE	
							CHECKED BY				
							APPROVED BY				
									SHEET 2 OF 2		
									DRAWING No.		REV
									2710		2
REV	DATE	BY	CHECKED	DESCRIPTION			APP.	DATE			

ASSEMBLY REF #		ITEM #	Fortis Bill of Material					
			Structure # 2710 25KV THREE PHASE PRIMARY DEADEND STRUCTURE					
			Item #	UI	-1	-2	-3	Description
		1	5020304		2	4	4	CROSSARM, WOOD, SAWN OR GLULAM WOOD
		2	5110102		2	4	4	PIN, 6" TOP, 3/4 X 6.5" SHK, 1" PIN
		3	5110269		2	2	2	BRACE, V, 60"
		4	5110913		2	4	4	GAIN, POLE, GLV 4" X 6" X 13/16" HOLE,
		5	5132608		4	4	4	BOLT, MACHINE, GALV, 3/4" X 8"
		6	5132612		2	2	2	BOLT, MACHINE, GALV, 3/4" X 12",
		7	5132614		1	1	1	BOLT, MACHINE, GALV, 3/4" X 14",
		8	5133624		2	2	2	BOLT, D.A. 3/4"X 24"
		9	5135608		4			BOLT, SHOULDER EYE, 3/4 X 8"
		10	5135616		2			BOLT, SHOULDER EYE, 3/4 X 16"
		11	5135620		2			BOLT, SHOULDER EYE, 3/4 X 20"
		12	5135622			2	2	BOLT, SHOULDER EYE, 3/4 X22"
		13	5141306		1	4	4	NUT, EYE, 3/4
		14	5142106		2	1	1	WASHER, ROUND, 13/16" HOLE, 2" RIM
		15	5142206		22	33	33	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
		16	5142603		14	28	28	WASHER, SPRING LOCK, DOUBLE 3/4
		17	5530131		3			CONNECTOR, COMPRESSION, AL, H-TYPE
		18	5530136			6		CONNECTOR, COMPRESSION, AL, H-TYPE
		19	5531447				6	CONN, W-TYPE, 477 - 477 OR 556 - 336,
		20	5571652		6			CLAMP, CLEVIS D.E, #6 - 2/0 ACSR,
		21	5571653			6		CLAMP, CLEVIS D.E, #4 - 336.4 ACSR,
		22	5571657				6	CLAMP, CLEVIS D.E, 3/0 - 556.5 ACSR,
		23	5710404		2	4	4	INSULATOR, 14.4/25kV, PIN TYPE, ANSI 55-5
		24	5720402		6	6	6	INSULATOR, POLYMER, D.E, CLEVIS END,
			XXXXXXX		2	4	4	CROSSARM 4 3/4" x 5 3/4" x 8"

REMARKS:

1) Intended Uses:

2710-1 is for #2 Haddock, see sheet 1 of 2.

2710-2 is for 3/0 ACSR

2710-3 is for 477 ACSR

2) For neutral use s2642

3) For grounding use s2592

4) Guying and anchor materials are not included.

5) For use in Bird (Osprey) nesting area, use assembly H-31 and include the following materials:

FBC Item #	QTY	
5161003	1	
5790417	2	

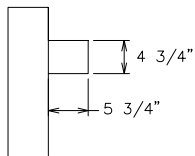
BCH# 420-1521	8	2	2	SQUARE WASHER (50mm x 50mm)
BCH# 420-1009	8	2	2	EXTENSION STRAP (125mm)
BCH# 413-0130	8	2	2	DEAD END CLEVIS
BCH# 100-XXXX	8	2	2	MACHINE BOLT (5/8" x LENGTH)

ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL

				DRAWN BY	THREE PHASE PRIMARY STRUCTURES DEADEND RIGHT ANGLE BILL OF MATERIALS BOM SHEET 1 OF 1
				CHECKED BY	
				APPROVED BY	
				DRAWING No.	REV.
				2710	1

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
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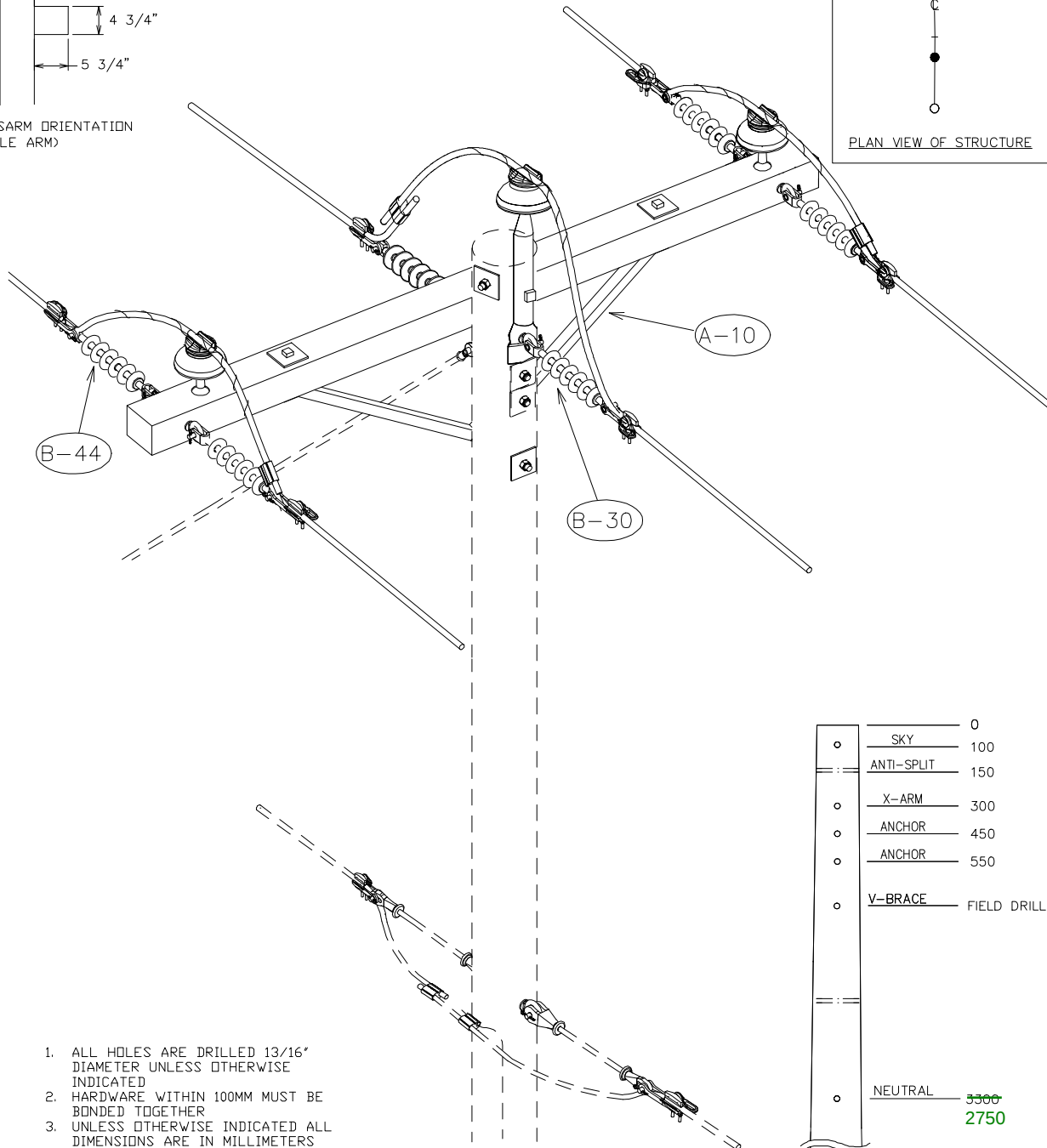




CROSSARM ORIENTATION
(SINGLE ARM)



PLAN VIEW OF STRUCTURE



1. ALL HOLES ARE DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
2. HARDWARE WITHIN 100MM MUST BE BONDED TOGETHER
3. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN MILLIMETERS
4. FOR NEUTRAL USE 2642

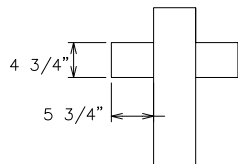
CONDUCTOR	MAX SPAN (M)
HADDOCK	140

○	SKY	0
○	ANTI-SPLIT	100
○	X-ARM	150
○	ANCHOR	300
○	ANCHOR	450
○	ANCHOR	550
○	V-BRACE	FIELD DRILL
○	NEUTRAL	5300
		2750

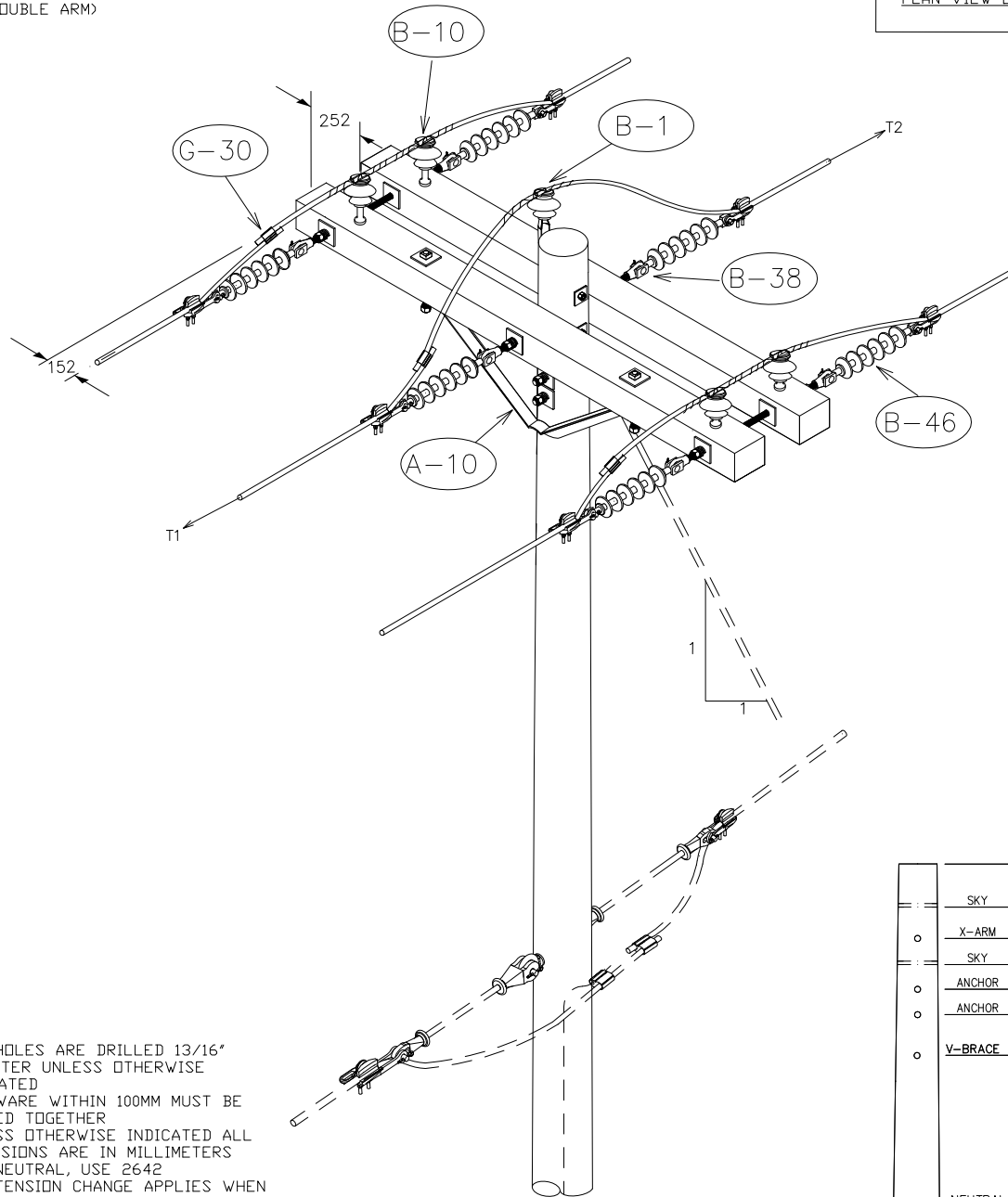
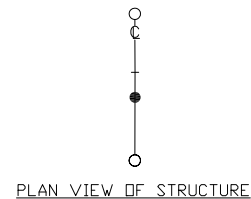
DRILLING DETAIL

NOTE: MAX SPANS BASED ON CSA MED B LOADINGS, FLAT TERRAIN

					DRAWN BY		TWO WAY DEADEND STRUCTURE	
					CHECKED BY			
					APPROVED BY			
					SHEET 1 OF 2			
					DRAWING No.		REV.	
					2778		2	
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE		



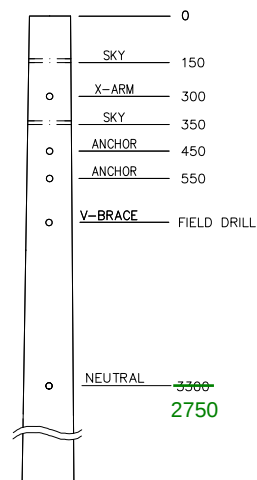
CROSSARM ORIENTATION
(DOUBLE ARM)



1. ALL HOLES ARE DRILLED 13/16" DIAMETER UNLESS OTHERWISE INDICATED
2. HARDWARE WITHIN 100MM MUST BE BONDED TOGETHER
3. UNLESS OTHERWISE INDICATED ALL DIMENSIONS ARE IN MILLIMETERS
4. FOR NEUTRAL, USE 2642
5. MAX TENSION CHANGE APPLIES WHEN USING DIFFERENT CONDUCTORS FOR AHEAD & BACK SPANS

CONDUCTOR	MAX SPAN (M)	MAX TENSION CHANGE (T1-T2) (N)
PELICAN	100	18086
PIGEON	140	11511

NOTE: MAX SPANS BASED ON CSA MED B LOADING, FLAT TERRAIN



DRILLING DETAIL

					DRAWN BY		TWO WAY DEADEND STRUCTURE	
					CHECKED BY			
					APPROVED BY			
							SHEET 2 OF 2	
							DRAWING No.	
							2778	
							REV.	
							2	

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE

ASSEMBLY REF #		ITEM #	Fortis Bill of Material					
			Structure # 2778 25KV THREE PHASE TWO WAY DEADEND					
			Item #	UI	-1	-2	-3	Description
		1	5020304		1	2	2	CROSSARM, WOOD, SAWN OR GLULAM WOOD
		2	5110102		2	6	4	PIN, 6" TOP, 3/4 X 6.5" SHK, 1" PIN
		3	5110135		1		1	PIN, POLE TOP, 24", 1" THREAD
		4	5110269		1	1	1	BRACE, V, 60"
		5	5132608		2	4	4	BOLT, MACHINE, GALV, 3/4" X 8"
		6	5132612		2	2	4	BOLT, MACHINE, GALV, 3/4" X 12"
		7	5132614		2	2	2	BOLT, MACHINE, GALV, 3/4" X 14"
		8	5133628				3	BOLT, D.A. 3/4" X 28"
		9	5135608		2			BOLT, SHOULDER EYE, 3/4 X 8"
		10	5135616		1			BOLT, SHOULDER EYE, 3/4 X 16"
		11	5141306		3	6	6	NUT, EYE, 3/4
		12	5142106		1	1	1	WASHER, ROUND, 13/16" HOLE, 2" RIM
		13	5142206		13	19	19	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
		14	5142603		10	15	15	WASHER, SPRING LOCK, DOUBLE 3/4
		15	5530131		3			CONNECTOR, COMPRESSION, AL, H-TYPE
		16	5530136			3		CONNECTOR, COMPRESSION, AL, H-TYPE
		17	5531447				3	CONN, W-TYPE, 477 - 477 OR 556 - 336,
		18	5561306	SE	3			TIES, PRFD, DIST, BARE #2 SPARROW,
		19	5561314	SE		1		TIES, PRFD, DIST, BARE 3/0 PIGEON,
		20	5561389				1	TIES, PRFD. DIST. COND. BARE 477 PELICAN
		21	5561395				2	DOUBLE TIE PRFD. DIST. BARE 477 PELICAN
		22	5561396			2		DOUBLE TIE PRFD. DIST. BARE 3/0 PIGEON
		23	5571652		6			CLAMP, CLEVIS D.E, #6 - 2/0 ACSR,
		24	5571653			6		CLAMP, CLEVIS D.E, #4 - 336.4 ACSR,
		25	5571657				6	CLAMP, CLEVIS DE 3/0 - 556.5 ACSR,
		26	5710404		3	6	6	INSULATOR, 14.4/25kV, PIN TYPE, ANSI 55-5
		27	5720402		6	6	6	INSULATOR, POLYMER, D.E, CLEVIS END,
			XXXXXXX		1	2	2	CROSSARM 4 3/4" x 5 3/4" x 8'

1

REMARKS:

1) Intended Uses:
2778-1 is for #2 Haddock, see sheet 1 of 2.
2778-2 is for 3/0 ACSR.
2778-3 is for 477 ACSR.

2) For neutral use s2642.

3) For grounding use s2592.

4) Guying and anchor materials are not included.

5) For use in Bird (Osprey) nesting area, use assembly H-31 and include the following materials:

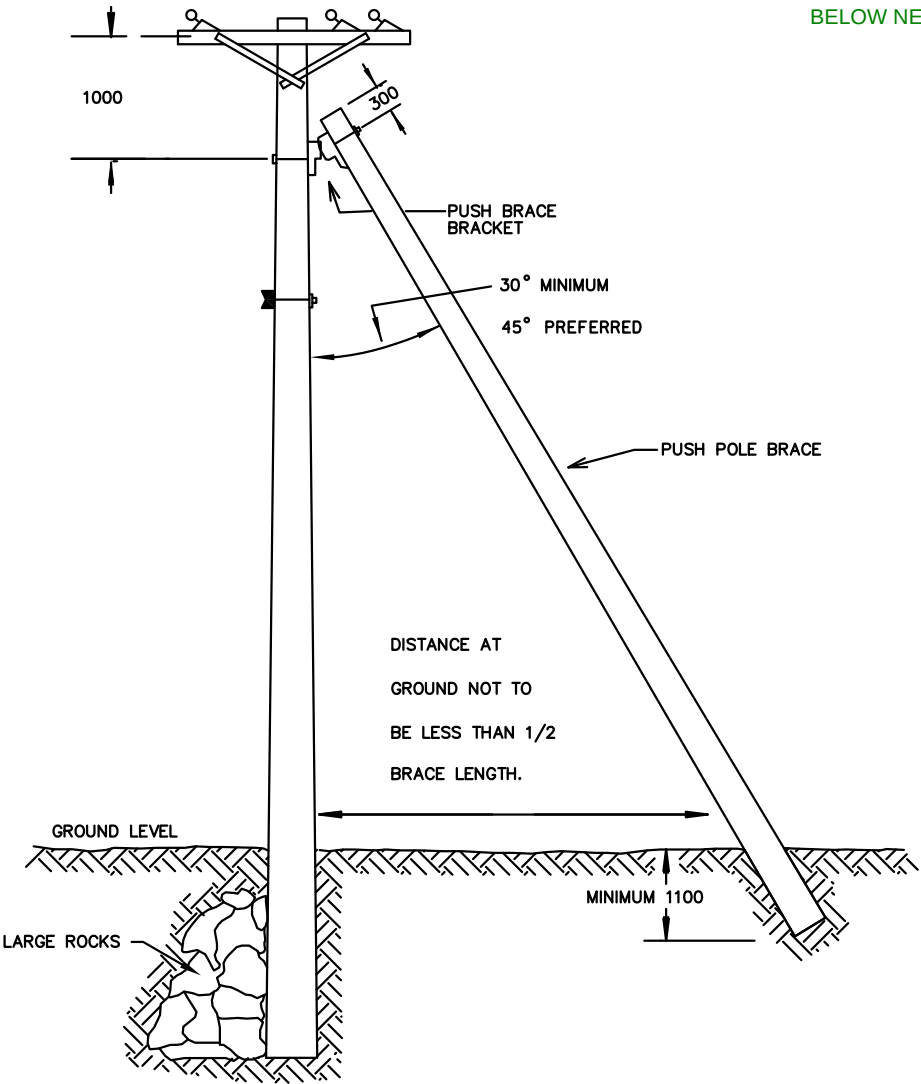
FBC Item #	QTY			
5161003	1			
5790417	1			
BCH# 420-1521	3	0	0	SQUARE WASHER (50mm x 50mm)
BCH# 420-1009	3	0	0	EXTENSION STRAP (125mm)
BCH# 413-0130	3	0	0	DEAD END CLEVIS
BCH# 100-XXXX	3	0	0	MACHINE BOLT (5/8" x LENGTH)

ADJUST AS REQUIRED FOR 266 ACSR PRIMARY AND 1/0 ACSR NEUTRAL

				DRAWN BY		THREE PHASE PRIMARY STRUCTURE TWO WAY DEADEND BILL OF MATERIALS BOM SHEET 1 OF 1
				CHECKED BY		
				APPROVED BY		
				DRAWING No.		REV.
				2778		1

REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE
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ATTACH PUSHBRACE 300mm
BELOW NEUTRAL

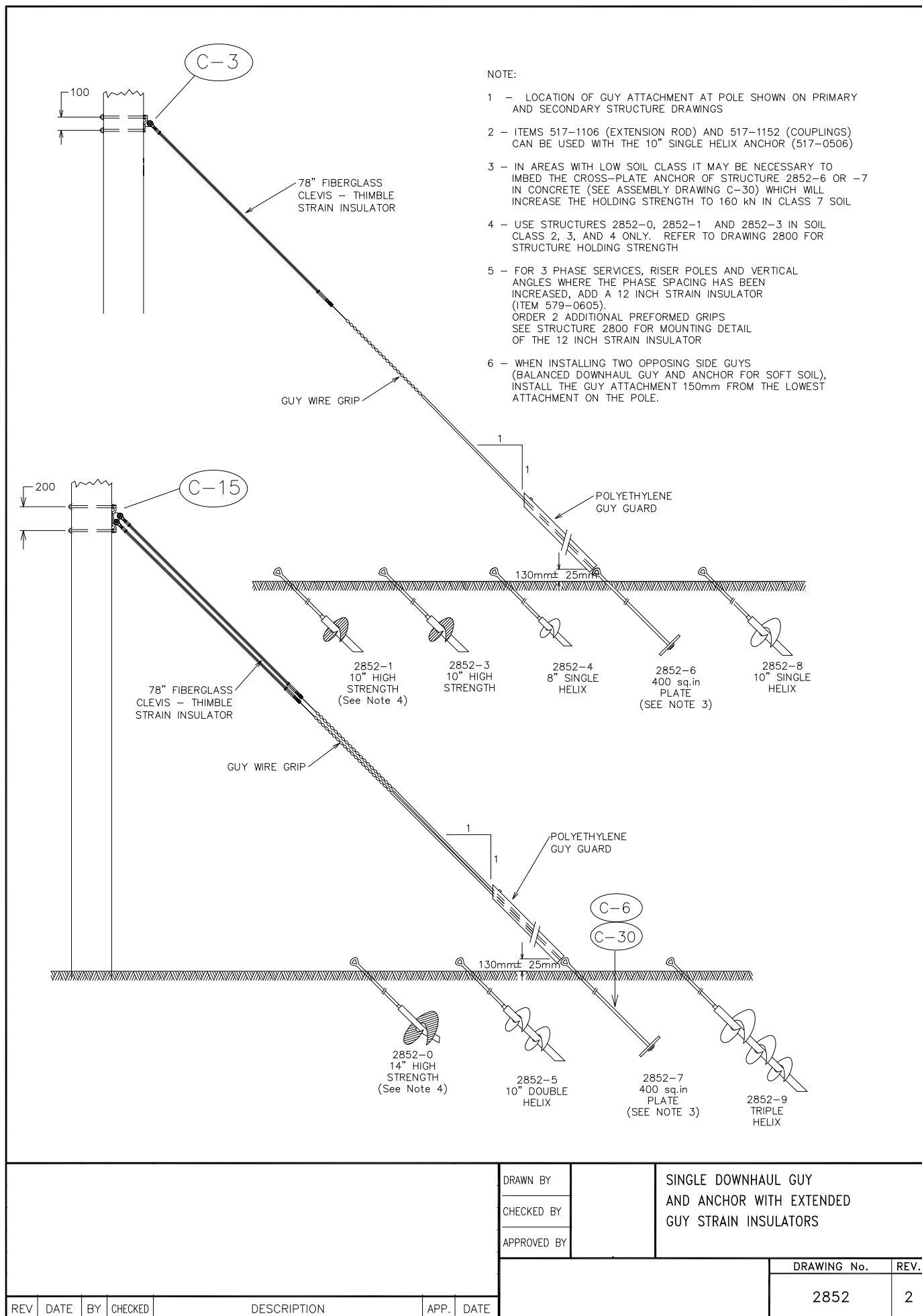


	PRIMARY 3x477 A.S.C.				PRIMARY 3x2/0 A.S.C.R.				SINGLE PHASE
	NEUTRAL 1x2/0 A.S.C.R.				NEUTRAL 1xNO.2 A.S.C.R.				
	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	CLASS	USE CLASS 3 POLE TO 45°
POLE CLASS	1	2	3	4	1	2	3	4	
LINE DEFLECTION	30°	25°	15°	10°	45°	40°	30°	20°	

- NOTE:
- 1 – THE PUSH BRACE DESIGN MAKES IT EASIER FOR THE PUBLIC TO ACCESS ENERGIZED CONDUCTORS. IT SHALL BE USED ONLY WHERE IT IS IMPOSSIBLE TO USE A STANDARD ANCHOR. SIGNAGE AND MEASURES TO OBSTRUCT PUBLIC ACCESS MIGHT BE APPROPRIATE
 - 2 – ALL DIMENSIONS IN MILLIMETRES

					DRAWN BY	PUSH BRACE	DRAWING No.		REV.
					CHECKED BY				
					APPROVED BY				
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE	2820		1

Fortis		B i l l o f M a t e r i a l		2010/08/05
Structure # 2820		PUSH BRACE		
Item #	UI	-1	Description	
5132612		2	BOLT, MACHINE, GALV, 3/4" X 12",	
5142206		2	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE	
5142603		2	WASHER, SPRING LOCK, DOUBLE 3/4	
5172251		1	BRACKET, PUSH BRACE, REGULAR DUTY	

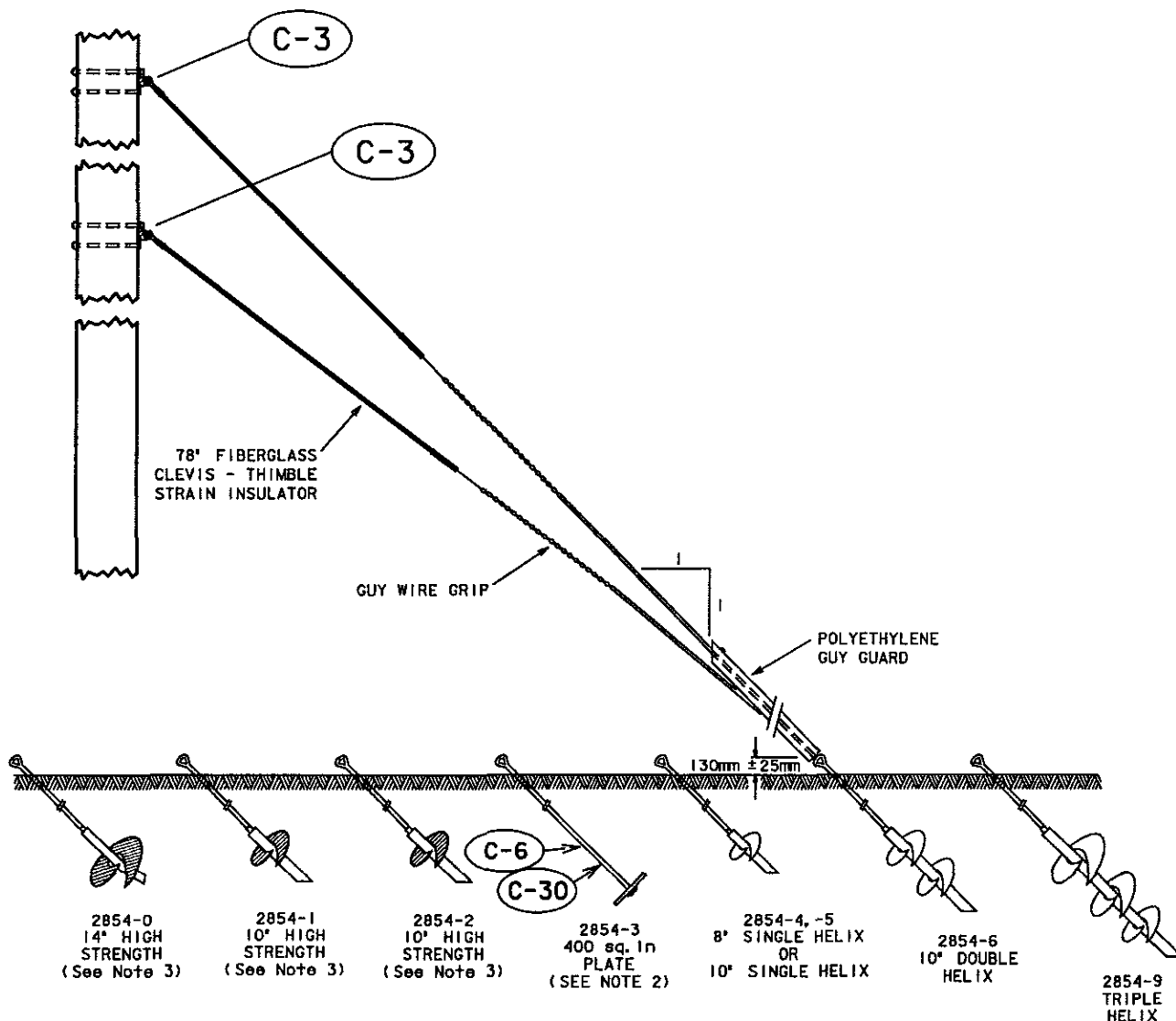


							DRAWN BY		SINGLE DOWNHAUL GUY AND ANCHOR WITH EXTENDED GUY STRAIN INSULATORS
							CHECKED BY		
							APPROVED BY		
								DRAWING No.	REV.
								2852	2
REV	DATE	BY	CHECKED	DESCRIPTION	APP.	DATE			

Fortis		B i l l o f M a t e r i a l					2010/12/07
Structure # 2852		SINGLE DOWNHAUL GUY & ANCHOR					
Item #	UI	-3	-6	-7	-8	-9	Description
5132612		2	2	2	2	2	BOLT, MACHINE, GALV, 3/4" X 12",
5142206		2	2		2		WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
5142304				2		2	WASHER, CURVED, 4X4X3/8, 13/16 HOLE.
5142603		2	2	2	2	2	WASHER, SPRING LOCK, DOUBLE 3/4
5170302			1	1			ANCHOR, XPLATE, 400 SQ IN
5170511					1		ANCHOR, SCREW, 10" SGL HELIX ONLY
5170513		1					ANCHOR, 10" SINGLE HELIX, 10,000 FT. LBS
5170515						1	ANCHOR, TRIPLE HELIX, 1.5" Sq., 10", 12", 14"
5171106		1			1		ROD, EXT FOR PISA, 1" X 7'
5171109						1	ROD, EXT FOR 517-0515 1.5" x 1.5" x 7'
5171112			1	1			ROD, ANCHOR, 1"x10ft. FORGED TRIPLE EYE
5171206		1			1		NUT, TWIN EYE, GLV, FOR 3/4" OR 1" ROD
5171208						1	NUT, TRIPLEEYE, ACHR TERMINATOR
5172605		1	1		1		HOOK, GUY, COMBINATION
5172606				1		1	GUYING TEE, DOUBLE
5173052		1	1	1	1	1	GUARD, GUY, 7', ORANGE, POLYETHEYLENE
5380107	M	16	16	32	16	32	WIRE, GUY 7/16, 7 WIRE STEEL STRAND
5560107		2	2	4	2	4	GRIP, PRFD DE, FOR 7/16" GUY, 40" GREEN,
5790609		1	1	2	1	2	GUY STRAIN INSULATOR, 78" LONG

NOTE:

- 1 - LOCATION OF GUY ATTACHMENT AT POLE SHOWN ON PRIMARY AND SECONDARY STRUCTURE DRAWINGS.
- 2 - IN AREAS WITH LOW SOIL CLASS IT MAY BE NECESSARY TO IMBED THE CROSS-PLATE ANCHOR OF STRUCTURE 2854-3 IN CONCRETE (SEE ASSEMBLY DRAWING C30) WHICH WILL INCREASE THE HOLDING STRENGTH TO 147kN IN CLASS 7 SOIL.
- 3 - USE STRUCTURES 2854-0, 2854-1 AND 2854-2 IN SOIL CLASS 2, 3, AND 4 ONLY. REFER TO DRAWING 2800 FOR STRUCTURE HOLDING STRENGTH



DOUBLE DOWNHAUL GUY
AND ANCHOR WITH EXTENDED
GUY STRAIN INSULATORS

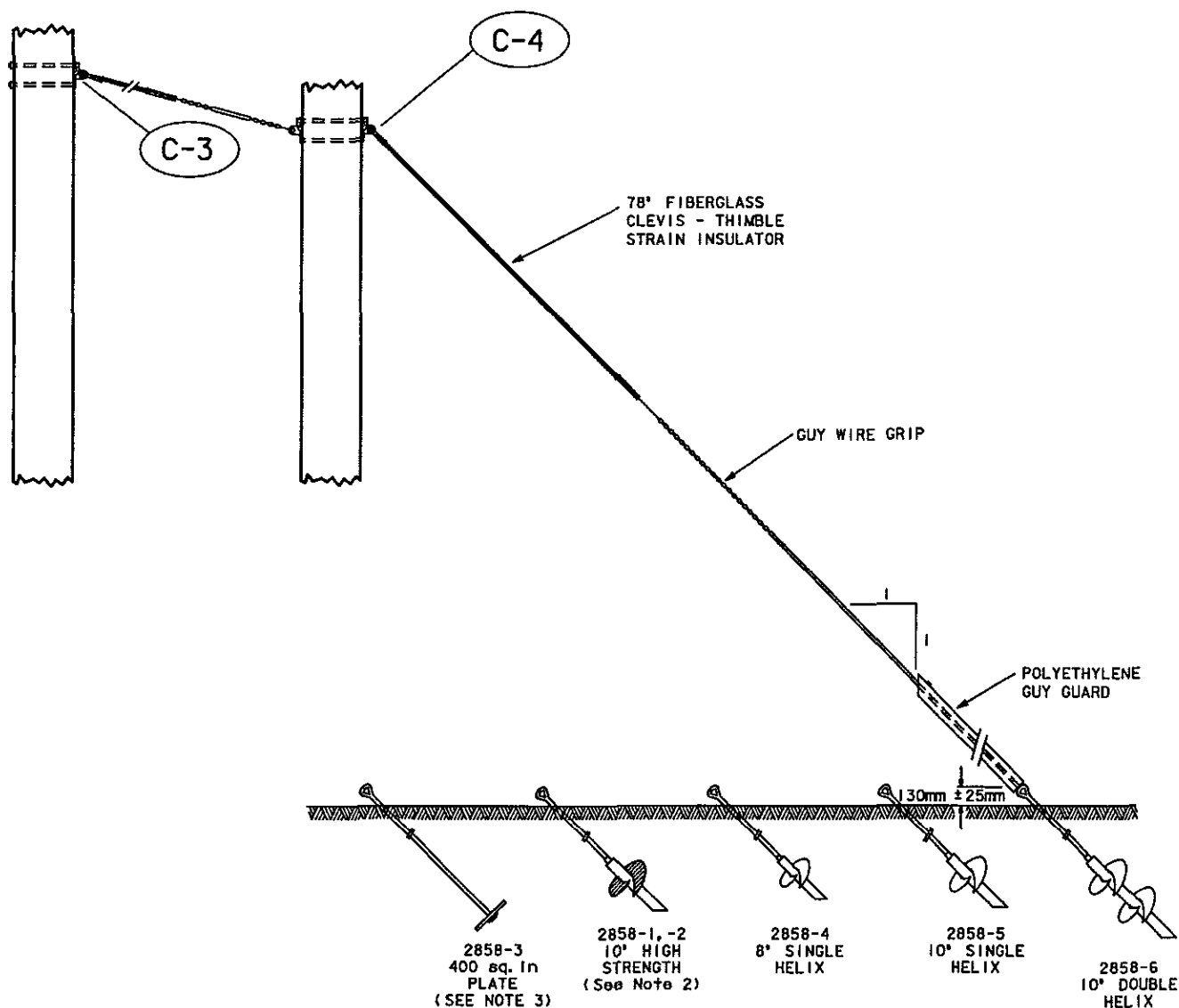
NOT TO SCALE

Drawing Number	Sheet
2854	1/1

Fortis		B i l l o f M a t e r i a l				2010/11/26
Structure # 2854		DOUBLE DOWNHAUL GUY & ANCHOR				
Item #	UI	-2	-3	-6	-9	Description
5132612		4	4	4	4	BOLT, MACHINE, GALV, 3/4" X 12",
5142206		4	4	4	4	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
5142603		4	4	4	4	WASHER, SPRING LOCK, DOUBLE 3/4
5170302			1			ANCHOR, XPLATE, 400 SQ IN
5170512				1		ANCHOR, SCREW, 10" DBL HELIX ONLY
5170513		1				ANCHOR, 10" SINGLE HELIX, 10,000 FT. LBS
5170515					1	ANCHOR, TRIPLE HELIX, 1.5" Sq., 10", 12", 14"
5171106		1		1		ROD, EXT FOR PISA, 1" X 7'
5171109					1	ROD, EXT FOR 517-0515 1.5" x 1.5" x 7'
5171112			1			ROD, ANCHOR, 1"x10ft. FORGED TRIPLE EYE
5171206		1		1		NUT, TWIN EYE, GLV, FOR 3/4" OR 1" ROD
5171208					1	NUT, TRIPLEEYE, ACHR TERMINATOR
5172605		2	2	2	2	HOOK, GUY, COMBINATION
5173052		1	1	1	1	GUARD, GUY, 7', ORANGE, POLYETHEYLENE
5380107	M	32	32	32	32	WIRE, GUY 7/16, 7 WIRE STEEL STRAND
5560107		4	4	4	4	GRIP, PRFD DE, FOR 7/16" GUY, 40" GREEN,
5790609		2	2	2	2	GUY STRAIN INSULATOR, 78" LONG

NOTE:

- 1 - LOCATION OF GUY ATTACHMENT AT POLE SHOWN ON PRIMARY AND SECONDARY STRUCTURE DRAWINGS
- 2 - USE STRUCTURES 2858-0, 2858-1 IN SOIL CLASS 2, 3 AND 4 ONLY. REFER TO DRAWING 2800 FOR STRUCTURE HOLDING STRENGTH
- 3 - IN AREAS WITH LOW SOIL CLASS, IT MAY BE NECESSARY TO IMBED THE CROSS-PLATE ANCHOR OF STRUCTURE 2858-3 IN CONCRETE (SEE ASSEMBLY DRAWING C30) WHICH WILL INCREASE THE HOLDING STRENGTH TO 147KN IN CLASS 7 SOIL

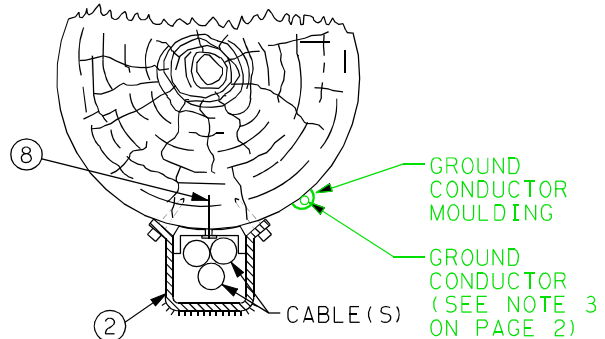
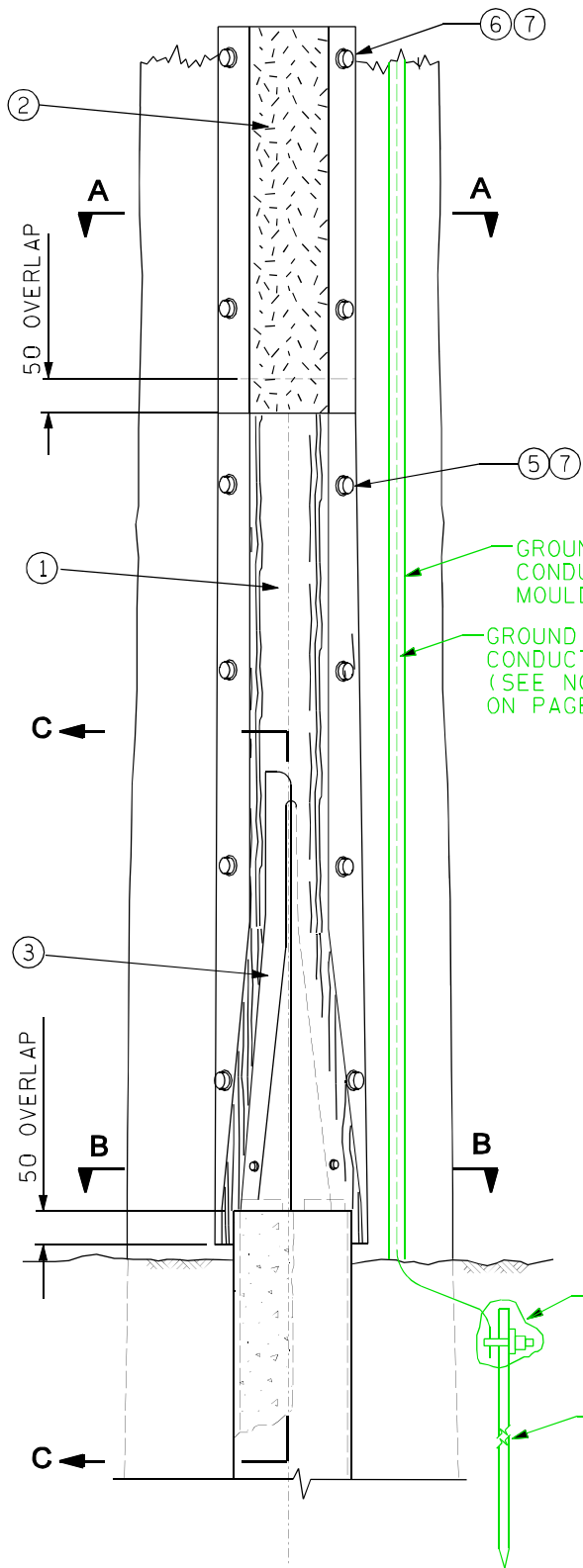


SINGLE OVERHEAD GUY AND ANCHOR
WITH GUY STRAIN INSULATORS

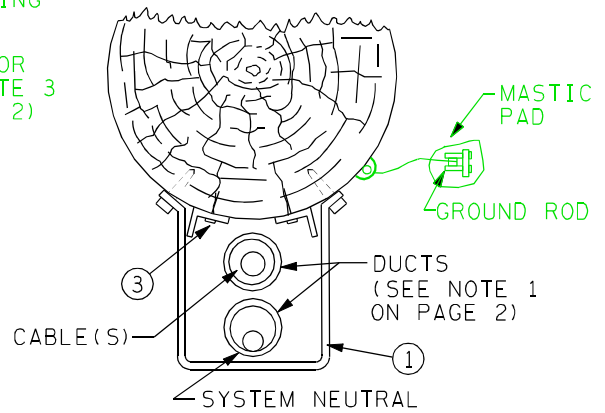
NOT TO SCALE

Drawing Number	Sheet
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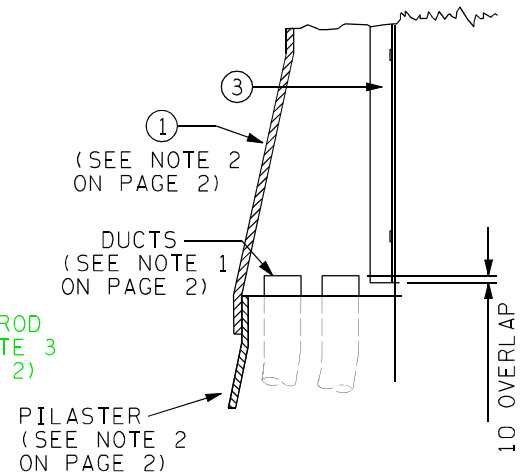
Fortis		B i l l o f M a t e r i a l			2010/11/26
Structure # 2858		SINGLE OVERHEAD GUY & ANCHOR			
Item #	UI	-2	-3	-6	Description
5132612		4	4	4	BOLT, MACHINE, GALV, 3/4" X 12",
5142206		2	2	2	WASHER, SQ, 3 X 3 X 1/4, 13/16 HOLE
5142603		4	4	4	WASHER, SPRING LOCK, DOUBLE 3/4
5170302			1		ANCHOR, XPLATE, 400 SQ IN
5170512				1	ANCHOR, SCREW, 10" DBL HELIX ONLY
5170513		1			ANCHOR, 10" SINGLE HELIX, 10,000 FT. LBS
5171106		1		1	ROD, EXT FOR PISA, 1" X 7'
5171112			1		ROD, ANCHOR, 1"x10ft. FORGED TRIPLE EYE
5171206		1		1	NUT, TWIN EYE, GLV, FOR 3/4" OR 1" ROD
5172605		3	3	3	HOOK, GUY, COMBINATION
5173052		1	1	1	GUARD, GUY, 7', ORANGE, POLYETHEYLENE
5380107	M	38	38	38	WIRE, GUY 7/16, 7 WIRE STEEL STRAND
5560107		4	4	4	GRIP, PRFD DE, FOR 7/16" GUY, 40" GREEN,
5790609		2	2	2	GUY STRAIN INSULATOR, 78" LONG



SECTION A-A

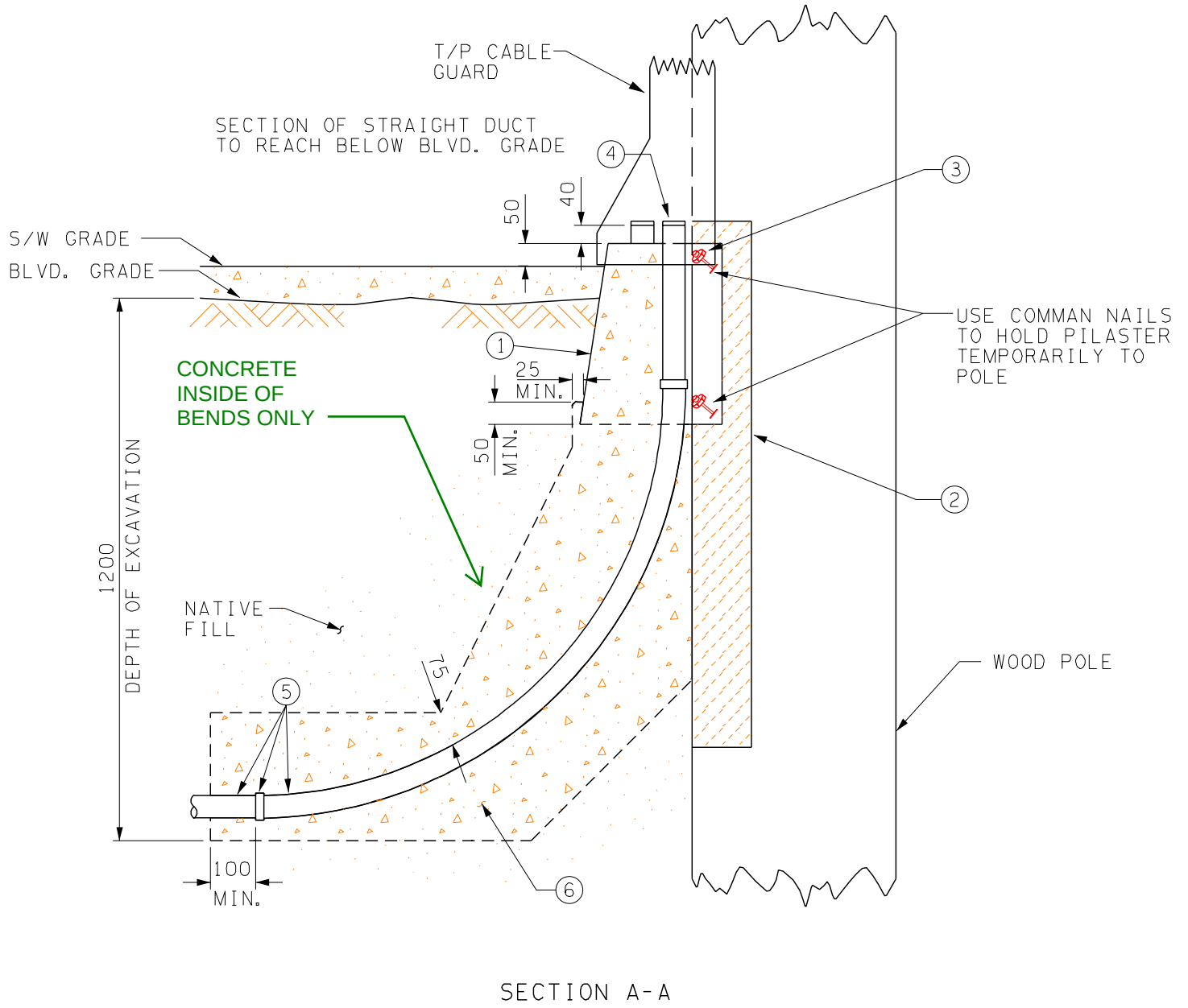
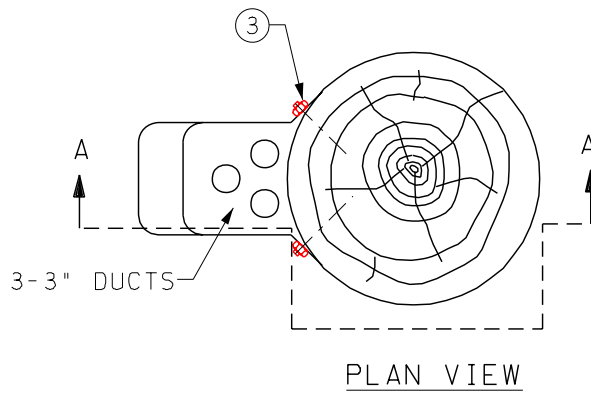
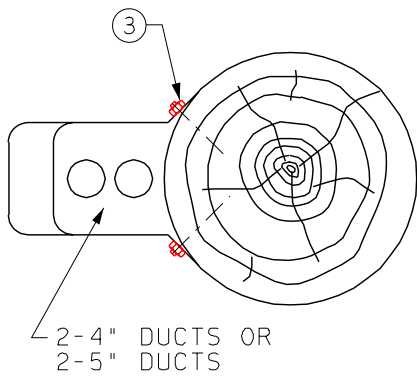


SECTION B-B



SECTION C-C

STRUCTURES ON WOOD POLES
GUARD AND COVER
INSTALLATION DETAILS



PILASTER ON WOOD POLES INSTALLATION DETAILS

NOTES:

- 1. Cover the entire contact area at the pole with a sheet of clear polyethylene, 0.5m x 1.4m, 0.1mm (4 mil) minimum thickness.
- 2. Install duct bend(s) and secure temporarily to the pole above pilaster position with cord or wire; cap duct(s).
- 3. Secure the fibreglass pilaster to the pole with 4 common nails bent back.
- 4. Encase the duct, coupling and bend with concrete to 50mm (min.) past the bottom line of the pilaster.
- 5. Backfill to finished grade and fill fibreglass pilaster with concrete mix.
- 6. BC Hydro designer shall specify the size and number of items 4 and 5 and refer to drawing ES53/54 Z2-01 for stock numbers.

BILL OF MATERIAL

Item	Quantity	Description	Stock No.	Supplied By	Installed By
1	As req'd	Pilaster: Large Small	400-0543 400-0533	BC Hydro BC Hydro	Contractor Contractor
2	1 Sheet	Polyethylene Sheet (See Note #1)	N/A	Contractor	Contractor
3	4	74mm Nail	N/A	BC Hydro	Contractor
4	As req'd	Plastic Caps	See Note 6	BC Hydro	Contractor
5	As req'd	Duct, Couplings, 90° Bends		BC Hydro	Contractor
6	As req'd	Concrete Mix	N/A	Contractor	Contractor

Maximum Combination of Ducts	
Small Pilaster	Large Pilaster
1 - 5" duct	2 - 5" ducts
1 - 4" duct	2 - 4" ducts
2 - 3" ducts	3 - 3" ducts

ES53/54 Z8-01 Pilasters
ES53/54 Z2-01 Duct and Accessories

REFERENCE DRAWINGS

REVISED

			PILASTER ON WOOD POLES INSTALLATION DETAILS		
			PAGE 2 OF 2	ES54 M1-01.02	R. 2