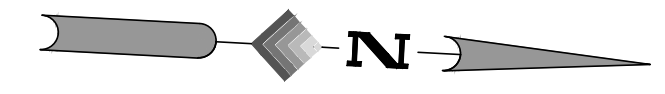


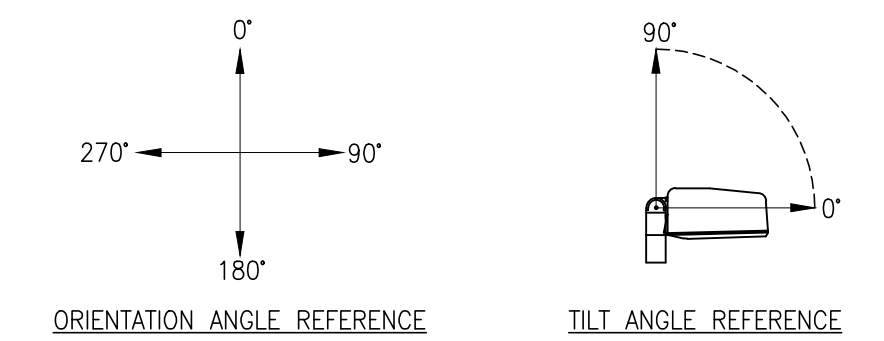
A B C D E F G H I J

760'-0" FROM EDGE OF FENCE TO EDGE OF PROPERTY LINE.



LUMINARE SCHEDULE						
LABEL	QTY	CATALOG NUMBER	DESCRIPTION	LAMP	LLF	WATTAGE
A	9	ALEDM3TSFY	RAB LED FLOODLIGHT	LED	.85	75.4
B	4	SLIM26Y/D10	RAB LIGHTING LED WALLPACK	LED	.85	29.2

STATISTICS			
DESCRIPTION	LINETYPE	AVG (AROUND MAJOR EQUIPMENT)	MAX.
CALC ZONE #1	---	2.0fc	14.7fc



LUMINARE LOCATIONS				
LIGHT #	LABEL	MOUNTING HEIGHT	ORIENTATION	TILT ANGLE
1	A	28'-0"	110°	0°
2	A	28'-0"	110°	0°
3	A	28'-0"	70°	0°
4	A	28'-0"	225°	0°
5	A	28'-0"	270°	0°
6	A	28'-0"	290°	0°
7	A	28'-0"	110°	0°
8	A	28'-0"	70°	0°
9	A	28'-0"	225°	0°
10	A	28'-0"	315°	0°
11	B	10'-0"	0°	0°
12	B	10'-0"	90°	0°
13	B	10'-0"	180°	0°
14	B	10'-0"	90°	0°

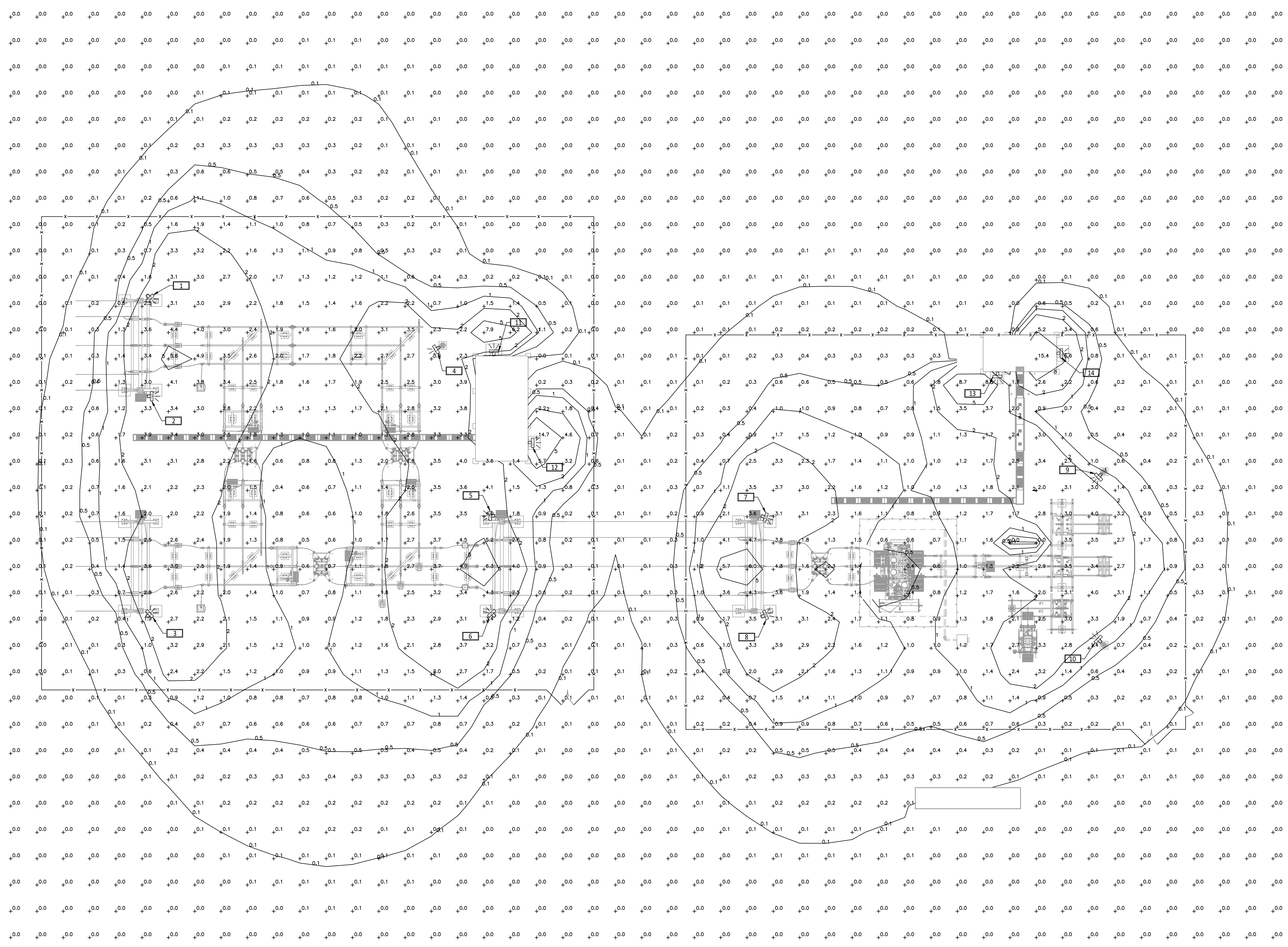
NOTES:

- LIGHTING CONTACTOR TO BE PLACED IN THE OFF POSITION WHEN THE SUBSTATION IS UNOCCUPIED. THIS IS THE DEFAULT SETTING FOR THE LIGHTS.
- LIGHTING CONTACTOR TO BE PLACED ON AUTO MODE, TO BE CONTROLLED BY THE PHOTOCELL, WHEN PERSONNEL ARE AT THE SUBSTATION.
- LIGHTING CONTACTOR TO BE PLACED IN THE ON POSITION, WHEN PERSONNEL ARE PERFORMING NIGHTTIME MAINTENANCE OR UPGRADES AT THE SUBSTATION.
- STATION LIGHTS ARE DARK SKY COMPLIANT.

REFERENCE DRAWINGS:

115KV SUBSTATION GENERAL ARRANGEMENT PLAN 601-01
115KV SWITCHYARD GENERAL ARRANGEMENT PLAN 701-01

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470'-0" FROM EDGE OF FENCE TO EDGE OF PROPERTY LINE.

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REV.	DATE	DESCRIPTIONS	BY	CHK'D	APR'D	REV.	DATE	DESCRIPTIONS	BY	CHK'D	APR'D
						D	11/01/24	ISSUED FOR REVIEW	SDD	MRC	BRB
						C	10/24/22	ISSUED FOR REVIEW	SDD	MRC	BRB
						B	02/22/24	ISSUED FOR REVIEW	SDD	MRC	BRB
						A	02/16/24	ISSUED FOR REVIEW	SDD	MRC	BRB



NORTH SENECA SOLAR PROJECT
SAVION
115KV SWITCHYARD
ILLUMINATION STUDY
LIGHTING PLAN VIEW

PLOT SCALE: ARCH 0 1 2 ENGRG 0 1 2	PROJ. NO.: 19349	SCALE: 1" = 20'-0"
	DWG. NO.: 710	SHEET: 01
		REV.: D

A B C D E F G H I J

ALEDM3TSFY



Color: Bronze

Weight: 17.8 lbs

Project:	Type:
Prepared By:	Date:

Driver Info		LED Info	
Type	Constant Current	Watts	150W
120V	1.25A	Color	3000K (Warm)
208V	0.73A	Temp	
240V	0.63A	Color Accuracy	82 CRI
277V	0.55A	L70 Lifespan	100,000 Hours
Input Watts	147.3/91/75.4W	Lumens	19,524/12,835/10,769 lm
		Efficacy	132.5/141/142.8 lm/W

Technical Specifications

Field Adjustability

Field Adjustable (Wattage):

Field adjustable light output in 3 discrete steps: Medium Housing: 150W/90W/78W (factory default 150W)

Compliance

UL Listed:

Suitable for wet locations

IP Rating:

Ingress protection rating of IP66 for dust and water

IESNA LM-79 & LM-80 Testing:

RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

Dark Sky Conformance:

Dark Sky Approved in 3000K. Conforms to (allows for conformance to) the IDA's fully shielding requirement, emitting no light above 90 degrees (with the exclusion of incidental light reflecting from fixture housing, mounts, and pole).

Light Usage for Night Applications:

This product has received the Design Lights Consortium's LUNA listing for 3000K Models. Designed to meet LUNA 5.1 requirements. LUNA Product Code: S-E1RUL3

DLC Listed:

This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities. Designed to meet DLC 5.1 requirements. DLC Product Code: S-E1RUL3

LED Characteristics

LEDs:

Long-life, high-efficacy, discrete, surface-mount LEDs

Color Consistency:

7-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color

Color Stability:

LED color temperature is warrantied to shift no more than 200K in color temperature over a 5-year period

Color Uniformity:

RAB's range of Correlated Color Temperature follows the guidelines of the American National Standard for (SSL) Products, ANSI C78.377-2017.

Electrical

Driver:

78W: Constant Current, Class 2, 120-277V, 50/60 Hz, 120V: 0.65A, 208V: 0.38A, 240V: 0.33A, 277V: 0.29A

90W: Constant Current, Class 2, 120-277V, 50/60 Hz, 120V: 0.75A, 208V: 0.44A, 240V: 0.38A, 277V: 0.33A

150W: Constant Current, Non-Class 2, 120-277V, 50/60 Hz, 120V: 1.25A, 208V: 0.73A, 240V: 0.63A, 277V: 0.55A

Dimming Driver:

Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims down to 10%.

THD:

3.59% at 120V, 8.04% at 277V

Power Factor:

100% at 120V, 95.6% at 277V

Surge Protection:

Line to Line: 10kV
Line to Ground: 6kV

Performance

Lifespan:
100,000-Hour LED lifespan based on IES LM-80 results and TM-21 calculations

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SLIM26Y/PC



Color: Bronze

Weight: 4.1 lbs

Project:	Type:
Prepared By:	Date:

Driver Info		LED Info	
Type	Constant Current	Watts	26W
120V	0.25A	Color Temp	3000K (Warm)
208V	N/A	Color Accuracy	72 CRI
240V	N/A	L70 Lifespan	100,000 Hours
277V	N/A	Lumens	3,762 lm
Input Watts	29.2W	Efficacy	128.8

Technical Specifications

Compliance

UL Listed:

Suitable for wet locations. Suitable for mounting within 4ft (1.2m) of the ground.

IP Rating:

Ingress protection rating of IP66 for dust and water

ADA Compliant:

SLIM™ is ADA Compliant

IESNA LM-79 & LM-80 Testing:

RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

Trade Agreements Act Compliant:

This product is a product of Cambodia and a "designated country" end product that complies with the Trade Agreements Act

Dark Sky Conformance:

Dark Sky Approved in 3000K. Conforms to (allows for conformance to) the IDA's fully shielding requirement, emitting no light above 90 degrees (with the exclusion of incidental light reflecting from fixture housing, mounts, and pole).

DLC Listed:

This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities. Designed to meet DLC 5.1 requirements. DLC Product Code: P6GMC1KT

Electrical

Driver:

Constant Current, Class 2, 120V, 50-60Hz, 120V: 0.25A

Dimming Driver:

Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims down to 10%.

THD:

10.84% at 120V, 11.03% at 277V

Power Factor:

98.2% at 120V, 95.2% at 277V

Photocell:

120V Button photocell included. Photocell is only compatible with 120V.

LED Characteristics

LEDs:

Long-life, high-efficacy, surface-mount LEDs

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color

Color Stability:

LED color temperature is warrantied to shift no more than 200K in color temperature over a 5-year period

Color Uniformity:

RAB's range of Correlated Color Temperature follows the guidelines for the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Performance

Lifespan:

100,000-Hour LED lifespan based on IES LM-80 results and TM-21 calculations

Wattage Equivalency:

Equivalent to 150W Metal Halide

Construction

Cold Weather Starting:

The minimum starting temperature is -40°C (-40°F)

Maximum Ambient Temperature:

Suitable for use in up to 40°C (104°F)

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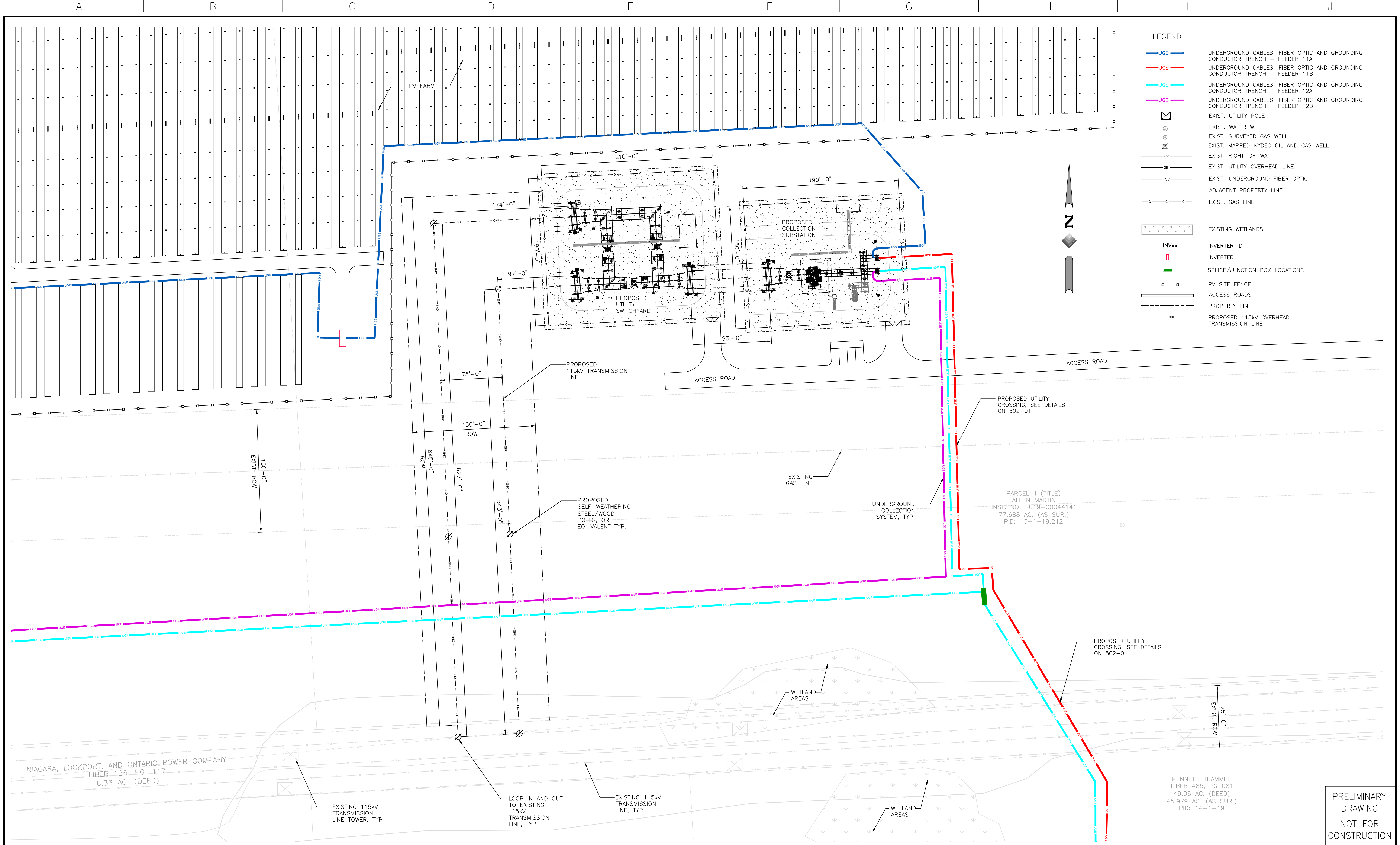
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REV.	DATE	DESCRIPTIONS	BY	CHK'D	APR'D	REV.	DATE	DESCRIPTIONS	BY	CHK'D	APR'D
						D	11/01/24	ISSUED FOR REVIEW	SDD	MRC	BRB
						C	10/24/24	ISSUED FOR REVIEW	SDD	MRC	BRB
						B	02/22/24	ISSUED FOR REVIEW	SDD	MRC	BRB
						A	02/16/24	ISSUED FOR REVIEW	SDD	MRC	BRB



NORTH SENECA SOLAR PROJECT
SAVION
115kV SWITCHYARD
ILLUMINATION STUDY
LIGHTING SPECIFICATIONS

PROJ. NO.:	19349	SCALE:	NONE
DWG. NO.:	710	SHEET:	02
REV.:		REV.:	D



- LEGEND**
- UG — UNDERGROUND CABLES, FIBER OPTIC AND GROUNDING CONDUCTOR TRENCH — FEEDER 11A
 - UG — UNDERGROUND CABLES, FIBER OPTIC AND GROUNDING CONDUCTOR TRENCH — FEEDER 11B
 - UG — UNDERGROUND CABLES, FIBER OPTIC AND GROUNDING CONDUCTOR TRENCH — FEEDER 12A
 - UG — UNDERGROUND CABLES, FIBER OPTIC AND GROUNDING CONDUCTOR TRENCH — FEEDER 12B
 - ⊗ EXIST. UTILITY POLE
 - EXIST. WATER WELL
 - EXIST. SURVEYED GAS WELL
 - ⊗ EXIST. MAPPED NYDEC OIL AND GAS WELL
 - RW — EXIST. RIGHT-OF-WAY
 - OHL — EXIST. UTILITY OVERHEAD LINE
 - FOC — EXIST. UNDERGROUND FIBER OPTIC
 - PL — ADJACENT PROPERTY LINE
 - GL — EXIST. GAS LINE
 - *** EXISTING WETLANDS
 - INVxx INVERTER ID
 - INVERTER
 - SPLICE/JUNCTION BOX LOCATIONS
 - PV SITE FENCE
 - AR — ACCESS ROADS
 - PL — PROPERTY LINE
 - OHL — PROPOSED 115kV OVERHEAD TRANSMISSION LINE



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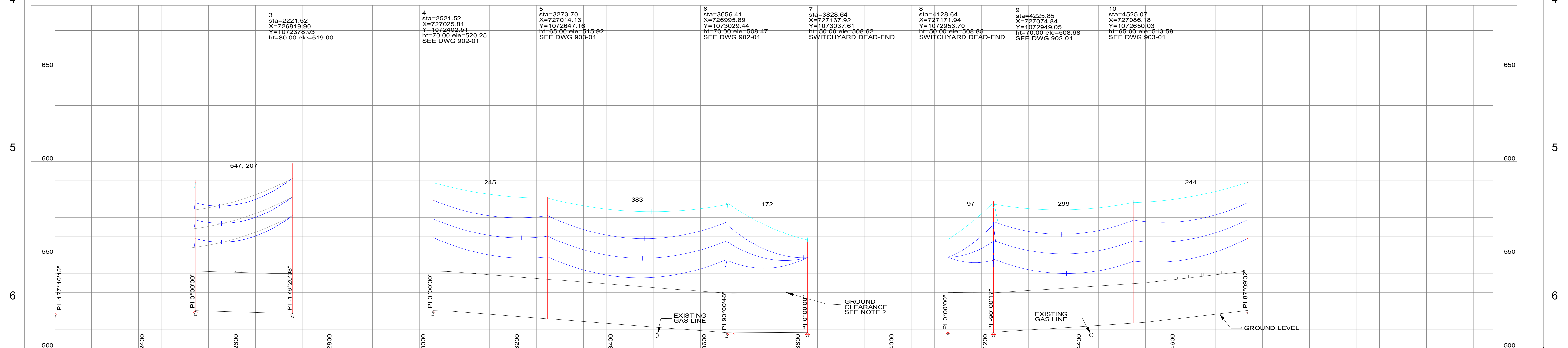
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						C	10/24/24	ISSUED FOR REVIEW	SDD	DS	DS
						B	02/22/24	ISSUED FOR REVIEW	SDD	DS	DS
						A	01/12/24	ISSUED FOR REVIEW	SDD	DS	DS



NORTH SENECA SOLAR PROJECT SAVION
 115kV TRANSMISSION LINE
 115kV INTERCONNECTION
 OVERALL AERIAL PLAN VIEW

PROJ. NO.:	19349	SCALE:	1"=50'
DWG. NO.:	900	SHEET:	01
		REV.:	D

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4 - 6, 0kV, 3/8 inch EHS 7 Strands Steel
 8 - 9, 0kV, 3/8 inch EHS 7 Strands Steel
 9 - 11, 0kV, 3/8 inch EHS 7 Strands Steel
 4 - 6, 115kV, 795.0 kcmil 26/7 Drake/ACSR/GA2
 9 - 11, 115kV, 795.0 kcmil 26/7 Drake/ACSR/GA2
 3 - 4, 115kV, 795.0 kcmil 26/7 Drake/ACSR/GA2
 6 - 7, 115kV, 795.0 kcmil 26/7 Drake/ACSR/GA2
 8 - 9, 115kV, 795.0 kcmil 26/7 Drake/ACSR/GA2
 6 - 7, 0kV, 3/8 inch EHS 7 Strands Steel

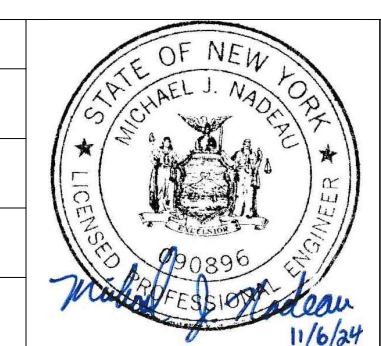
PROJECT COORDINATE SYSTEM:
 COORDINATE SYSTEM: STATE PLANE - NAD 83, PROJECTION: 3102, NEW YORK CENTRAL (US FT.)

GENERAL NOTES:
 1. OVERHEAD 115kV TRANSMISSION LINE IS DESIGNED TO MEET NESC 2023 DESIGN REQUIREMENTS.
 2. THE BOTTOM PHASE OF THE CONDUCTOR CLEARANCE IS 21.9FT. ABOVE GROUND LEVEL (20.8FT. NESC REQUIREMENT + 1FT.) AT THE MAXIMUM OPERATING TEMPERATURE OF THE CONDUCTOR AT 212DEG. F.

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7
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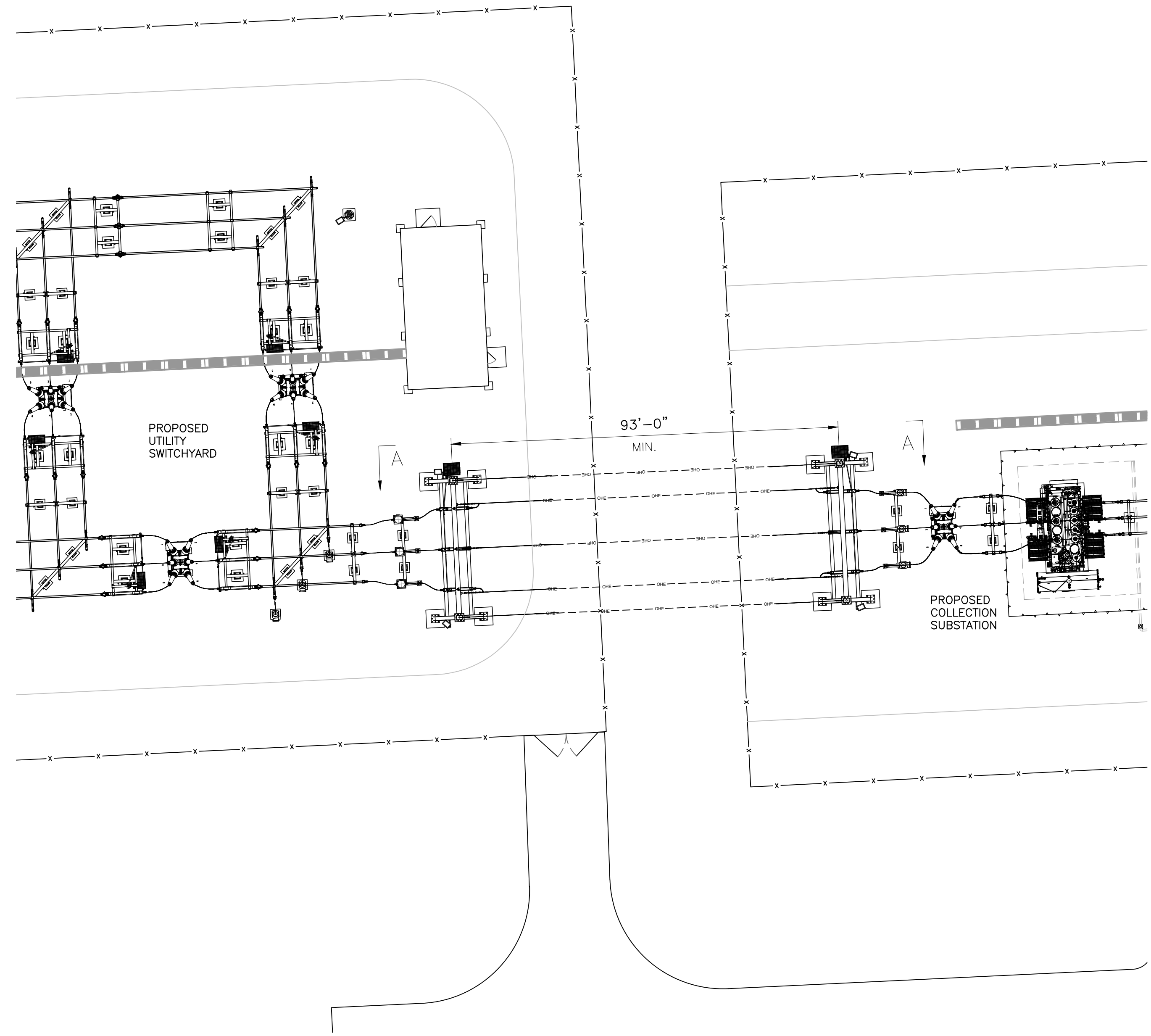
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C	02/22/24	ISSUED FOR REVIEW	SDD	DS	DS				SDD	DS	DS
B	01/12/24	ISSUED FOR REVIEW	SDD	DS	DS				SDD	DS	DS
A	11/22/23	ISSUED FOR REVIEW	SDD	DS	DS				SDD	DS	DS



NORTH SENECA SOLAR PROJECT
 SAVION
 115kV TRANSMISSION LINE
 115kV INTERCONNECTION POLE
 PLAN AND PROFILE

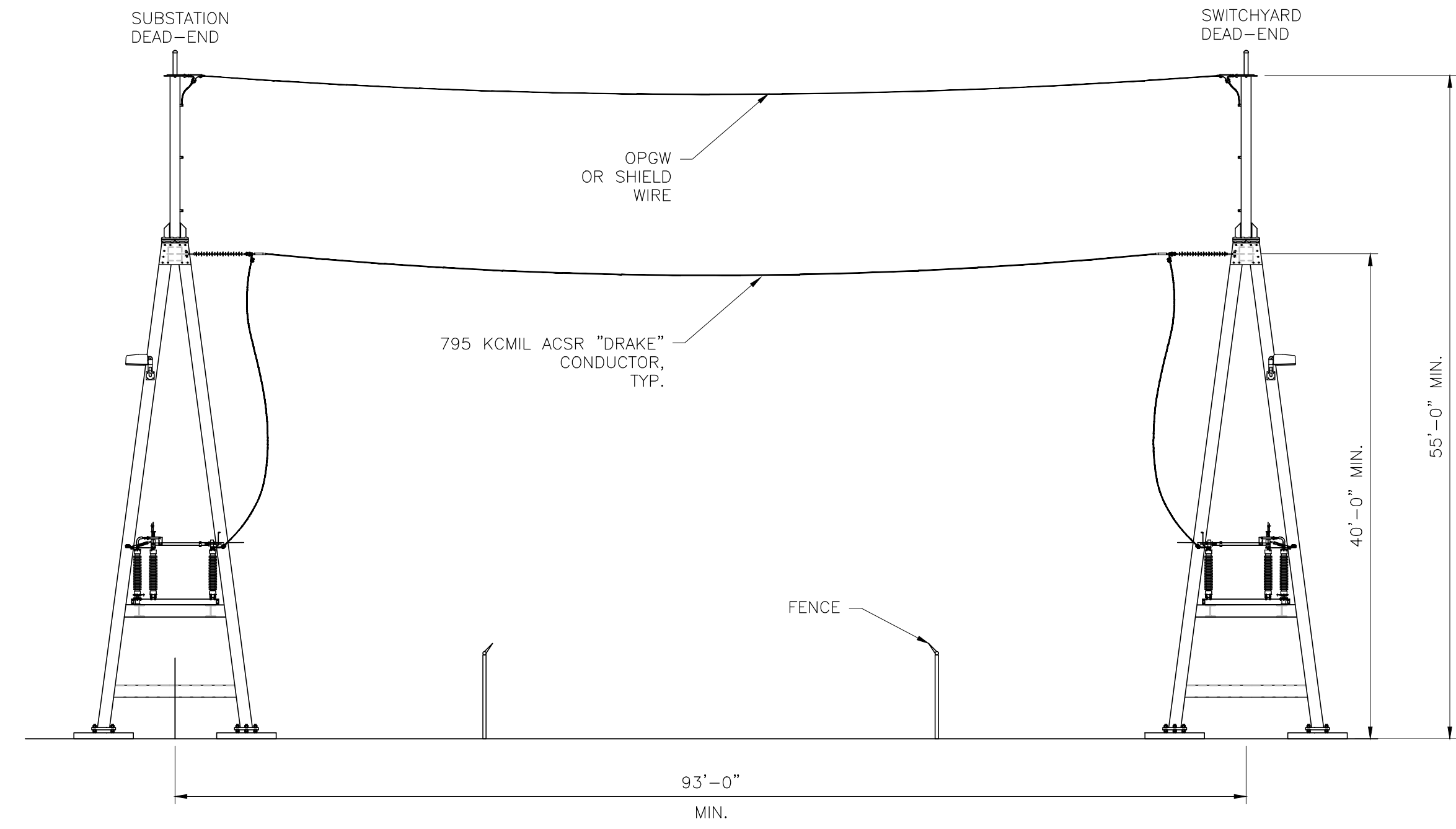
PLOT SCALE:	ARCH	ENGRG	SCALE	AS NOTED
PROJ. NO. 19349	DWG. NO. 901	SHEET 01	REV. E	

A | B | C | D | E | F | G | H | I | J



NORTH SENECA SOLAR INTERCONNECTION— PLAN VIEW
SCALE: 1"=20'-0"

SAMPLE BILL OF MATERIAL				
STRUCTURE TYPE:		115kV, SAMPLE SUBSTATION/SWITCHYARD DEAD-END STRUCTURES		
STRUCTURE No.		sample		
QUANTITY	UNIT	SAMPLE DESCRIPTION OF MATERIAL	SAMPLE MANUFACTURER	SAMPLE PART NUMBER
6	Assembly	ASSEMBLY FOR 115KV DEAD-END INSULATOR WITH "DRAKE" 795 KCMIL STRANDED ACSR CONDUCTOR	HUBBELL	TAG-11-27573
6	Each	DEAD-END COMPRESSION, CORONA FREE, UNI-GRIP, EYE, DOUBLE TONGUE INCLUDING 15° JUMPER TERMINALS, ALUMINUM ALLOY FOR DRAKE 795 KCMIL ACSR CONDUCTOR	AFL	HES-126-EHV
6	Each	SURGE ARRESTER, 115KV, STATION CLASS	SIEMENS	3EL2 120-2PM31-4NH5
2	Each	DEAD-END CLAMP QUAD. STYLE, DUCTILE IRON FOR 3/8"EHS STL GND WIRE	HUBBELL	SWDE55N
2	Each	ANCHOR SHACKLE WITH BOLT, NUT AND COTTER KEY	HUBBELL	AS25BNK
2	Each	CONNECTOR, COMPRESSION, 2-HOLE LUG TYPE, FOR 4/0 CABLE	BURNDY	YA282N
2	Each	DEAD-END CLAMP (BOLTED) FOR .630" DIA. OPGW CABLE, RBS = 19,750 lbs	AFL	ODES630/639G09
2	Each	GROUND WIRE, COPPER, WITH (2) 1-HOLE COMPRESSION LUGS, 4 FT. LONG	AFL	BWCU50-48
2	Each	LINK PLATE, 15" LONG ULTIMATE STR. 40,000 Lbs.	AFL	ODELP15
2	Each	Y-CLEVIS CLEVIS, ULTIMATE STR. 30,000 Lbs.	AFL	YCC



SUBSTATION DEAD-ENDS — ELEVATION VIEW A-A
SCALE: 1"=10'-0"

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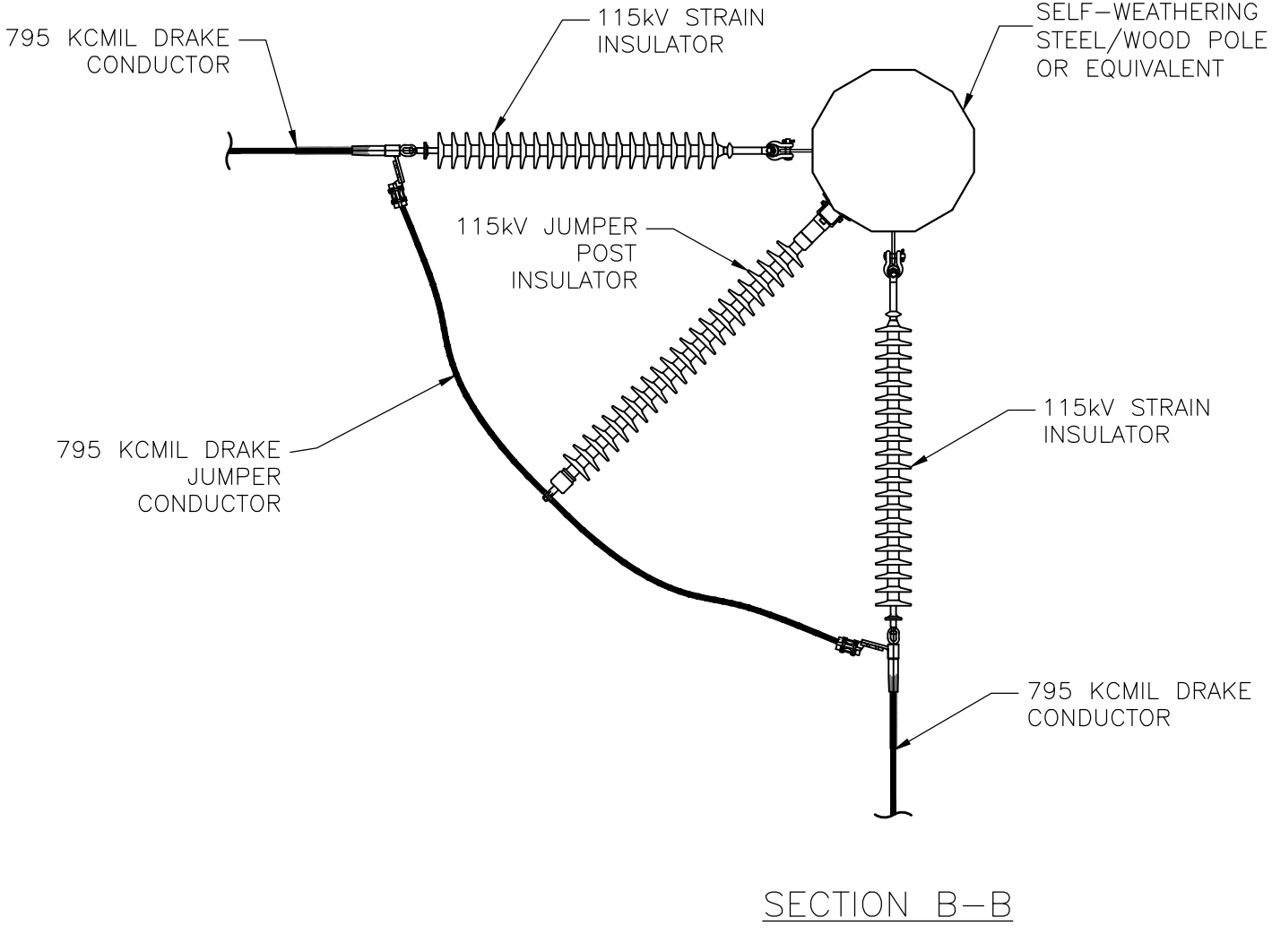
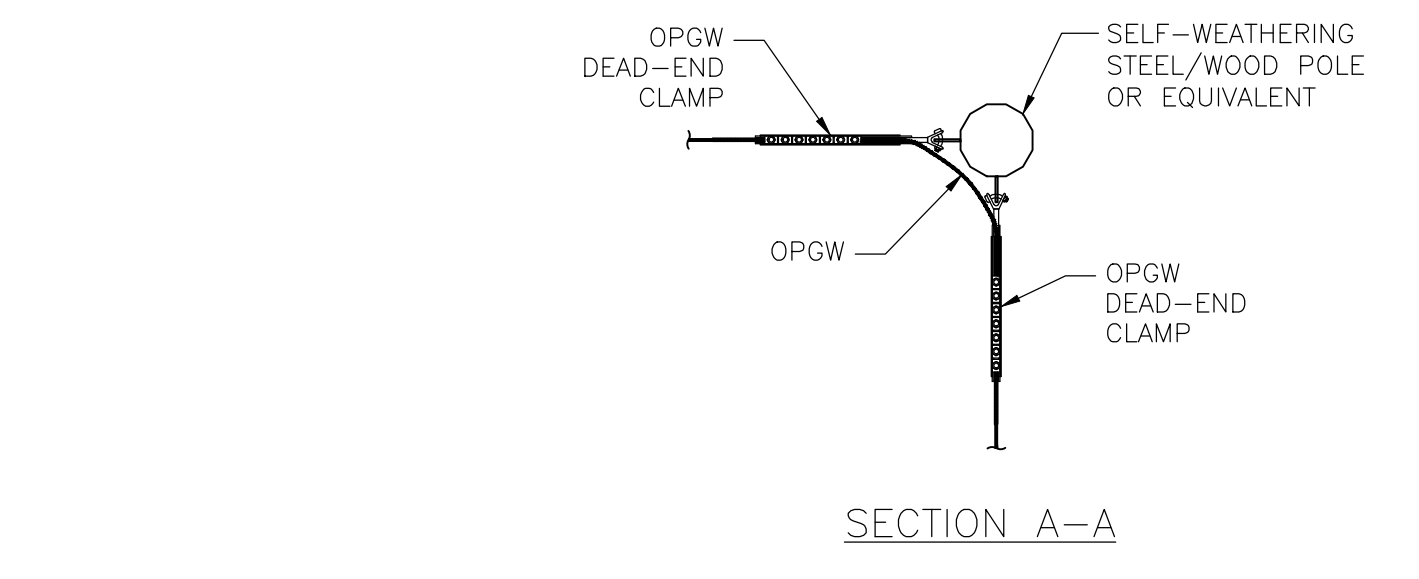
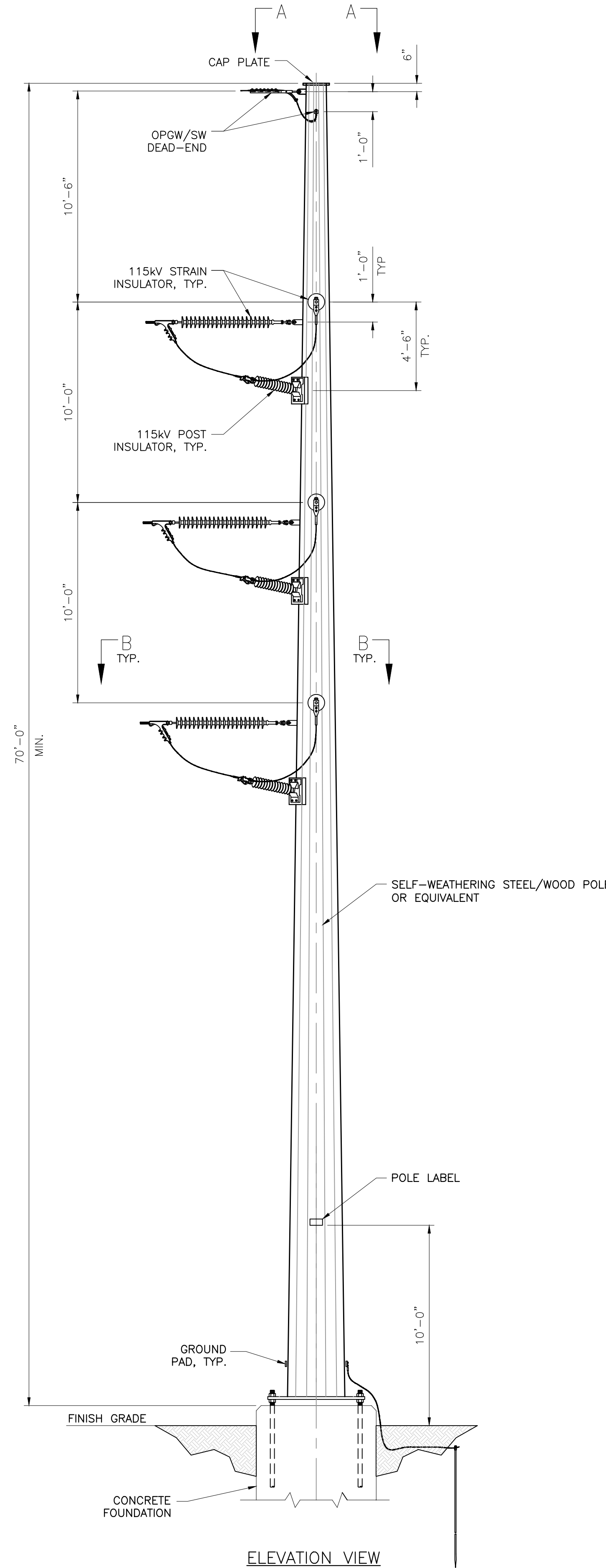
REV.	DATE	DESCRIPTIONS	BY	CHK'D	APRV'D	REV.	DATE	DESCRIPTIONS	BY	CHK'D	APRV'D
D	11/01/24	ISSUED FOR REVIEW	SDD	DS	MN						
C	10/24/24	ISSUED FOR REVIEW	SDD	DS	DS						
B	02/22/24	ISSUED FOR REVIEW	SDD	DS	DS						
A	01/12/24	ISSUED FOR REVIEW	SDD	DS	DS						



NORTH SENECA SOLAR PROJECT
SAVION
115KV TRANSMISSION LINE
115KV INTERCONNECTION
PLAN AND ELEVATION VIEWS

PROJ. NO.:	19349	SCALE:	AS NOTED
DWG. NO.:	901	SHEET:	02
REV.:		REV.:	D

A | B | C | D | E | F | G | H | I | J



SAMPLE BILL OF MATERIAL

STRUCTURE TYPE: 115kV, SAMPLE SINGLE CIRCUIT, SINGLE STEEL POLE, HEAVY ANGLE DEAD-END				
STRUCTURE No. sample				
QUANTITY	UNIT	SAMPLE DESCRIPTION OF MATERIAL	SAMPLE MANUFACTURER	SAMPLE PART NUMBER
3	Assembly	ASSEMBLY FOR 115kV DEAD-END INSULATOR, FOR "DRAKE" 795 KCMIL STRANDED ACSR CONDUCTOR, Y-CLEVIS, AND COMPRESSION DEAD-END SINGLE TONGUE FITTING	HUBBELL	S03003652010
3	Assembly	ASSEMBLY FOR 115kV JUMPER POST INSULATOR, "DRAKE" 795 KCMIL STRANDED ACSR CONDUCTOR, WITH FLAT GAIN BASE, HORIZ. CLAMPTOP, & CLAMPTOP CLAMP TSC150	HUBBELL	P25003650020
2	Assembly	ASSEMBLY FOR OPGW DEAD-END, .506 DIA. CABLE, DNO-8721, HEXACORE, RBS 18,016 LBS	AFL	ODES500/509G09
1	Assembly	SIGNAGE, STRUCTURE NUMBER AND WARNING WITH MOUNTING ACCESSORIES	OPEN MARKET	CUSTOM
2	Ea.	BOLT, 1/2-13 UNC X 1 1/2" LG., FULLY THREADED WITH NUT AND WASHER, 316 ST. STL.	FASTENAL	1177209
2	Ea.	WASHER, FLAT, 1/2", 316 STAINLESS STEEL	FASTENAL	78021
1	Ea.	GROUND ROD, COPPER CLAD, 5/8" X 8' LENGTH	ERICO 615880	615880
1	Ea.	LUG, COMPRESSION, 2 HOLE, FOR SIZE 19#9. STR. COPPER	BURNDY	YGA292N
1	Ea.	CONNECTOR, COPPER GROUNDING FOR 5/8" GROUND ROD & 19#9 STR. COPPER	BURNDY	YGL29C29
6	Ea.	TERMINALS, ALUMINUM ALLOY FOR SINGLE 795KCMIL ACSR DRAKE CABLE TO 4" FLAT PAD	SEFCOR	AL-1108-4B
25	Ea.	WIRE, SIZE 19#9, COPPERWELD, STRANDED BARE WIRE, FT.	AFL	CCS19094D
12	Ea.	BOLT, 3/4-10 UNC X 2 1/2" LG., FULLY THREADED WITH NUT AND WASHER, 316 ST. STL.	FASTENAL	77363
12	Ea.	NUT, 3/4-10 UNC, HEX HEAD, 316 ST. STL.	FASTENAL	77717
12	Ea.	FLAT WASHER, 3/4" I.D., 316 ST. STL.	FASTENAL	78027

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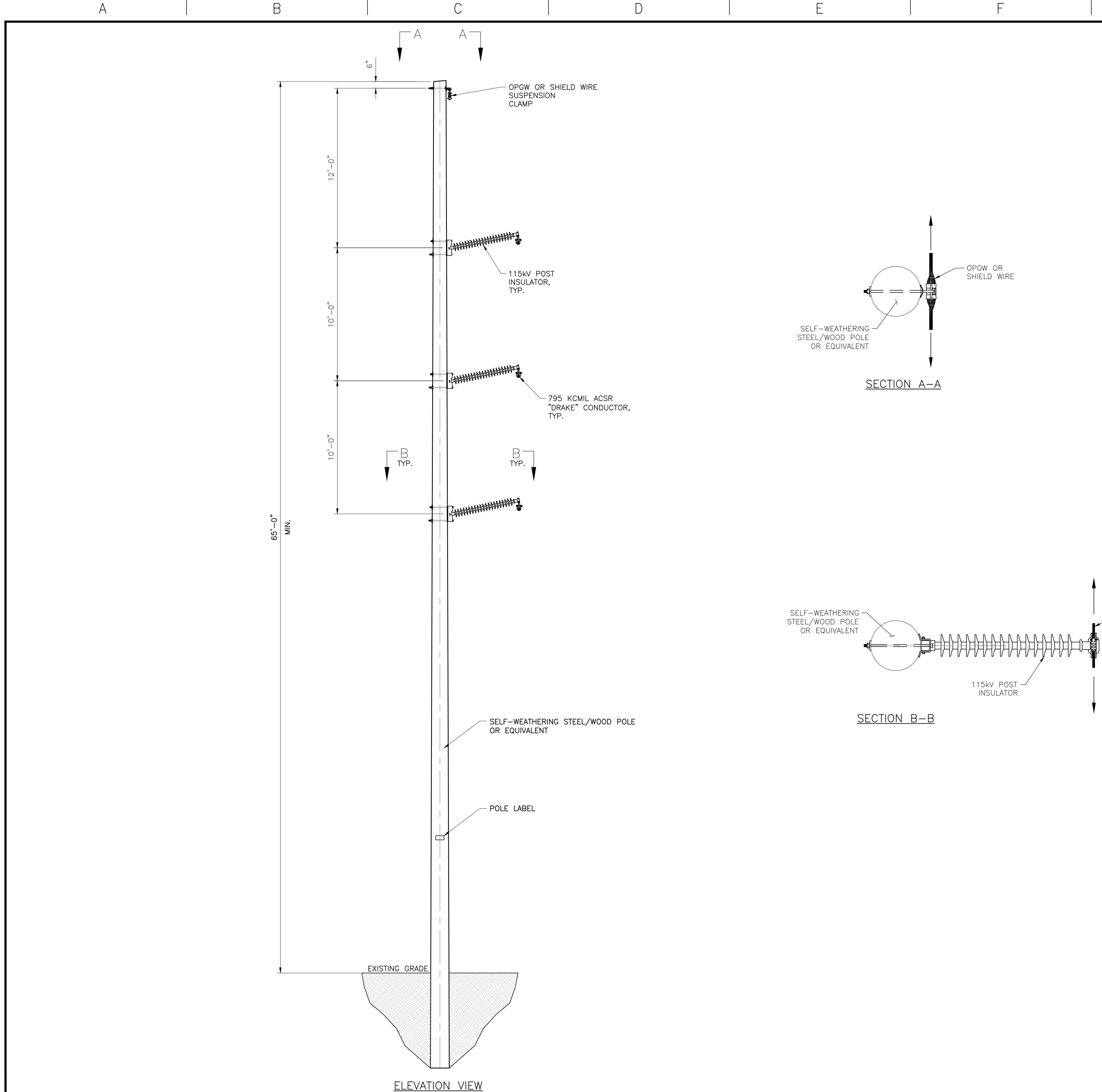
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REV.	DATE	DESCRIPTIONS	BY	CHK'D	APRV'D	REV.	DATE	DESCRIPTIONS	BY	CHK'D	APRV'D
						D	11/01/24	ISSUED FOR REVIEW	SDD	DS	MN
						C	10/24/24	ISSUED FOR REVIEW	SDD	DS	DS
						B	02/22/24	ISSUED FOR REVIEW	SDD	DS	DS
						A	01/12/24	ISSUED FOR REVIEW	SDD	DS	DS

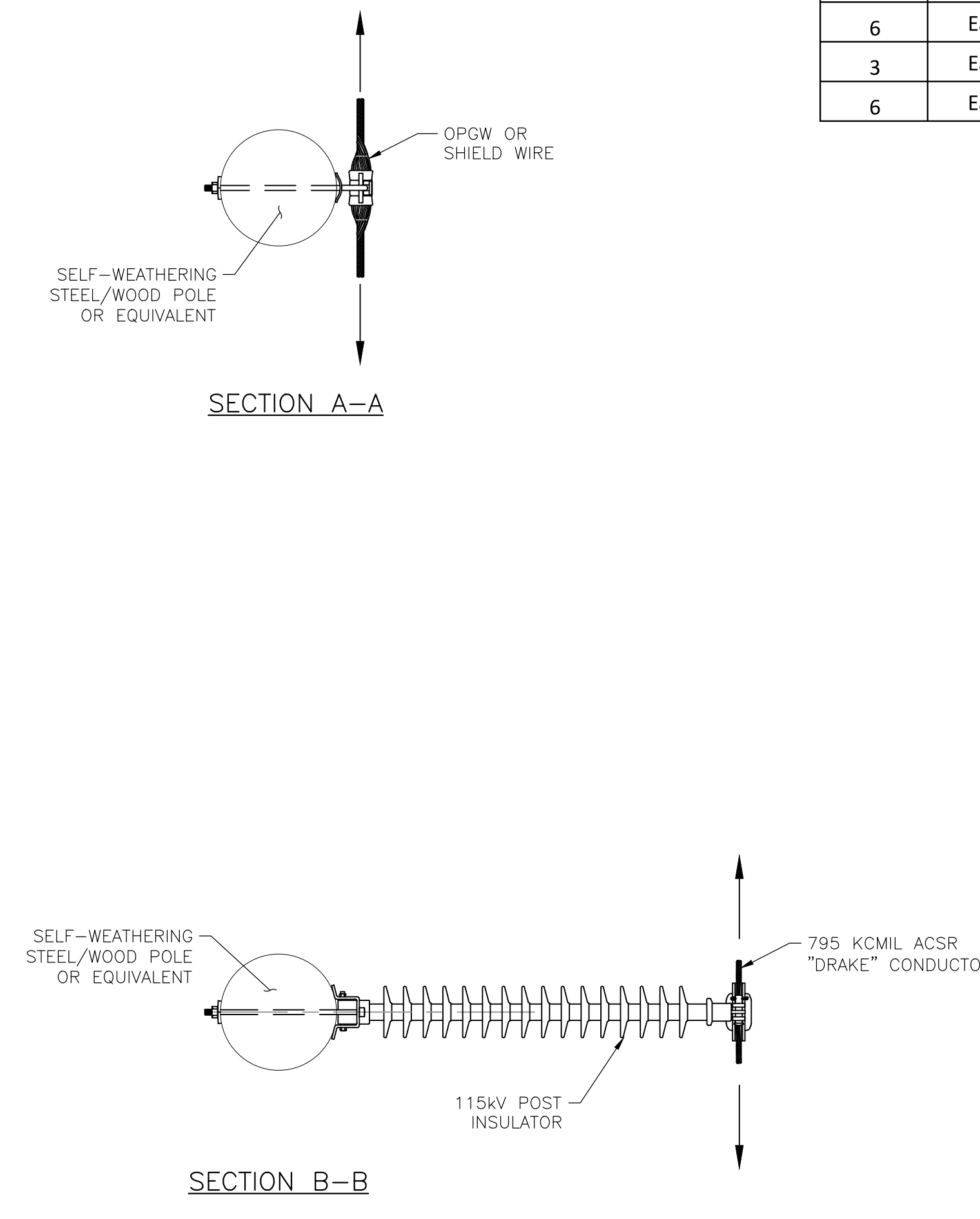


NORTH SENECA SOLAR PROJECT
SAVION
115kV TRANSMISSION LINE
SAMPLE SINGLE CIRCUIT, SINGLE STEEL POLE
HEAVY ANGLE DEAD-END STRUCTURE

PROJ. NO.: 19349	SCALE: NONE
DWG. NO.: 902	SHEET: 01
	REV.: D



SAMPLE BILL OF MATERIAL				
STRUCTURE TYPE:		115kV, SAMPLE SINGLE CIRCUIT, SINGLE WOOD POLE, TANGENT		
STRUCTURE No.		sample		
QUANTITY	UNIT	SAMPLE DESCRIPTION OF MATERIAL	SAMPLE MANUFACTURER	SAMPLE PART NUMBER
3	Assembly	ASSEMBLY FOR 115kV LINE POST INSULATOR, "DRAKE" 795 KCMIL STRANDED ACSR CONDUCTOR, WITH GAIN BASE, HORIZ. CLAMPTOP, & CLAMPTOP CLAMP TSC150	HUBBELL	P250036S0020
1	Assembly	SIGNAGE, STRUCTURE NUMBER AND WARNING WITH MOUNTING ACCESSORIES	OPEN MARKET	CUSTOM
2	Ea.	SUSPENSION CLAMP FOR OPGW, .506 DIA. CABLE, DNO-8721, HEXACORE	HUBBELL	HAS182N
1	Ea.	Y-CLEVIS EYE, GALVANIZED, ULTIMATE STRENGTH 30,000 LBS.	HUBBELL	YCS1690
1	Ea.	BRACKET, OPGW SUPPORT, 3/4" DIA, ROD, 14" LENGTH.	HUGHES BROTHERS	2812.6-14-B1CL
1	Ea.	Y-CLEVIS EYE, GALVANIZED, ULTIMATE STRENGTH 30,000 LBS.	HUGHES BROTHERS	MF70
6	Ea.	BOLT, MACHINE, 7/8" X REQ'D LENGTH, SQ. HEAD, W/SQ NUT, GALV.		
6	Ea.	LOCKNUT, SQUARE, FOR 7/8" BOLT, GALV. STEEL	HUGHES BROTHERS	MF80
3	Ea.	NUT, SQUARE, FOR 7/8" BOLT, GALV. STEEL	HUGHES BROTHERS	N80
6	Ea.	WASHER, CURVED, 4" X 4" X 3/16", FOR 7/8" BOLT	HUGHES BROTHERS	CW80



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REV.	DATE	DESCRIPTIONS	BY	CHK'D	APRV'D	REV.	DATE	DESCRIPTIONS	BY	CHK'D	APRV'D
						B	11/01/24	ISSUED FOR REVIEW	SDD	DS	MN
						A	10/24/24	ISSUED FOR REVIEW	SDD	DS	DS



NORTH SENECA SOLAR PROJECT
 SAVION
 115kV TRANSMISSION LINE
 SAMPLE SINGLE CIRCUIT, SINGLE WOOD POLE
 TANGENT STRUCTURE

PLT SCALE:	ARCH	ENGRG	SCALE:	NONE			
PROJ. NO.:	19349	DWG. NO.:	903	SHEET:	01	REV.:	B

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