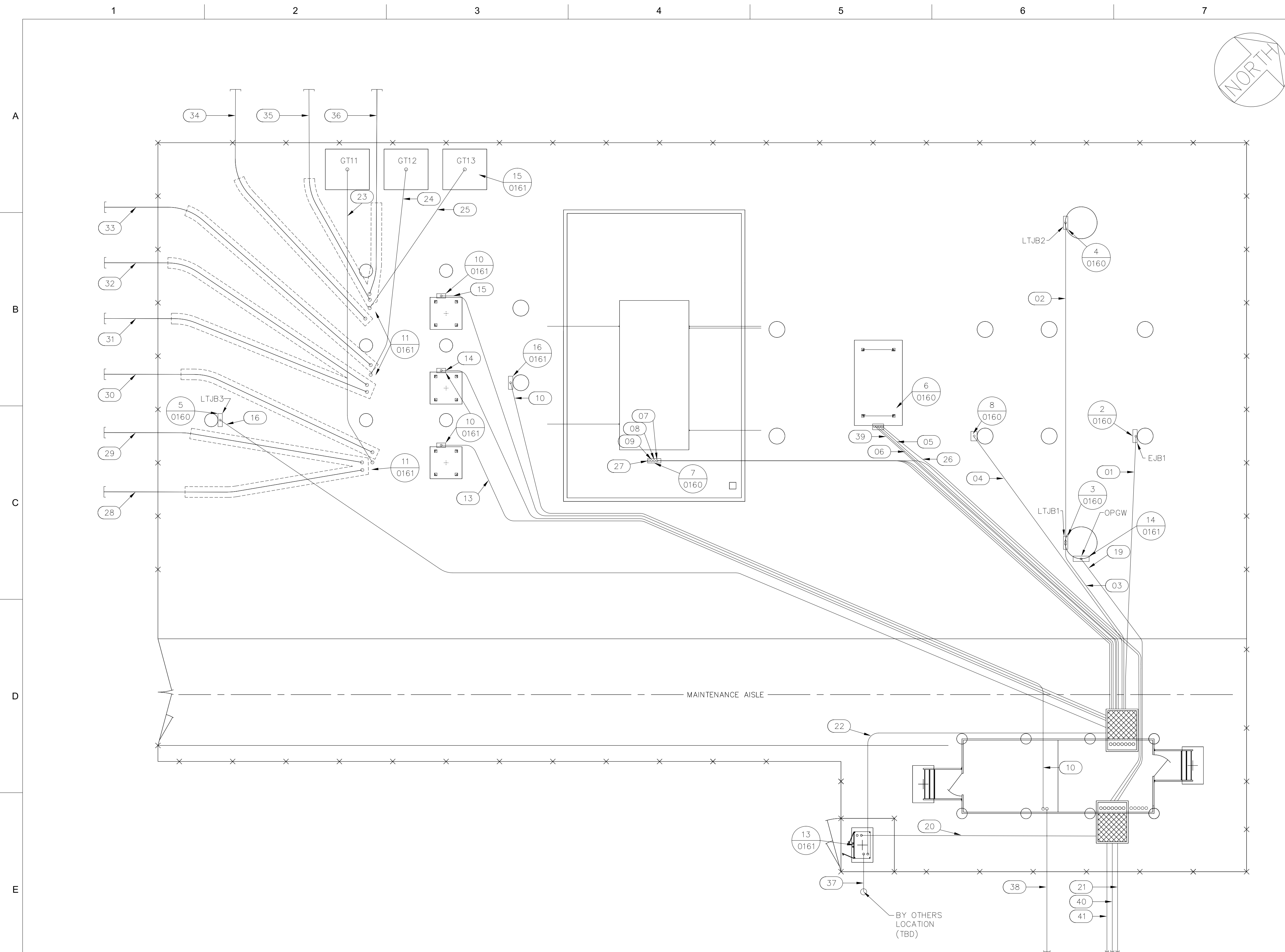


Appendix 11-3:

Electrical Design



8	9	10
CONDUIT SCHEDULE		
NUMBER	SIZE	CABLE
01	4"	345kV CVT J.BOX
02	2"	LTJB2
03	2"	PULL BOX
04	2"	MOD 89L1
05	4"	345kV PCB 52U1
06	4"	345kV PCB 52U1
07	4" W/ 1-1/4" I.D.	XFMR T1
08	4"	XFMR T1
09	4"	XFMR T1
10	4"	STATION SERVICE
11	2"	34.5kV BUS VT J.BOX
12	4"	34.5kV PCB 52C11
13	4"	34.5kV PCB 52F11
14	4"	34.5kV PCB 52F12
15	4"	34.5kV PCB 52F13
16	2"	PULL BOX
17		
18		
19	4" W/ 1-1/4" I.D.	OPGW FIBER SPUCE BOX
20	4" W/ 1-1/4" I.D.	PULL BOX
21	4" W/ 1-1/4" I.D.	PULL BOX
22	2"	PULL BOX
23	6"	FDR RISER F11
24	6"	FDR RISER F12
25	6"	FDR RISER F13
26	4" W/ 1-1/4" I.D.	345kV PCB 52U1
27	4"	XFMR T1
28	8"	FDR RISER F11A1
29	8"	FDR RISER F11A2
30	8"	FDR RISER F11B
31	8"	FDR RISER F12A1
32	8"	FDR RISER F12A2
33	8"	FDR RISER F12B
34	8"	FDR RISER F13A
35	8"	FDR RISER F13B1
36	8"	FDR RISER F13B2
37	4"	PHONE COMPANY (INCOMING)
38	4"	AUXILLARY STATION SERVICE
39	4"	345kV PCB 52U1
40	6"	PULL BOX
41	6"	PULL BOX
42	--	--
43	--	--
44	--	--
45	--	--
46	--	--
47	--	--
48	--	--
49	--	--
50	--	--
51	--	--

LEGEND

- ITEM IN BILL OF MATERIAL
-
- MARKER, FIBER OPTIC ROUTE WITH SIGNAL HEAD
-
- CONDUIT SUPPLIED AND INSTALLED BY SUBSTATION CONTRACTOR.
- [—]
- CONCRETE ENCASE CONDUIT FOR ROAD CROSSING
- [- -]
- CONCRETE ENCASE FEEDER CONDUIT
-
- CONDUIT RISER
- (—)
- INDICATES CONDUIT NO. IN CONDUIT SCHEDULE ABOVE
- (—)
- INDICATES DETAIL NUMBER
- (- -)
- INDICATES DRAWING NUMBER IN WHICH DETAIL APPEARS

NOTES

1. PROVIDE WEEP HOLES IN CONDUIT AT EACH CONDUIT RISER POSITION AND AT THE LOW POINT IN EACH CONDUIT RUN.
2. ALL BELOW GRADE POWER AND CONTROL CONDUITS SHALL BE SCHEDULE 40 PVC. CONDUITS SHALL BE BURIED AND BEDDED WITH COMPACTED FINE EARTH COVER.
3. ABOVE GRADE CONDUITS SHALL BE RIGID GALVANIZED STEEL OR LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT; REFER TO CONDUIT DETAIL DRAWING(S).
4. SUBCONTRACTOR SHALL INSTALL BELOW GRADE AND ABOVE GRADE CONDUIT SYSTEM AS SHOWN ON THIS CONDUIT PLAN AND DETAILS AND PER THE WRITTEN SPECIFICATIONS.
5. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING THE JUNCTION BOXES AND ACCESSORIES AS SHOWN ON CONDUIT DETAIL DRAWING(S).
6. CONDUITS SHALL BE INSTALLED IN A WORKMANLIKE MANNER, FREE FROM OBSTRUCTIONS AND SHARP CORNERS.
7. MAINTAIN A MINIMUM OF 12" CLEARANCE FROM FEEDER CONDUIT TO CONTROL CONDUITS.
8. CAP FEEDER CONDUITS 5'-0" OUTSIDE SUBSTATION FENCE.

REFERENCE DRAWING

13666-053-E1-0160	CONDUIT DETAILS
13666-053-E1-0162	CONDUIT AND PULL BOX DETAILS

--							SCALE: 1" = 10'-0" 	
--								
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--								
--								
--								
B	07/16/2020	PRELIMINARY - NOT FOR CONSTRUCTION			SV	JGO	KVP	S&L
A	05/16/2020	PRELIMINARY			SV	JGO	KVP	S&L
NO	DATE	REVISIONS AND RECORD OF ISSUE			DRWN	REV'D	APPR	COMP
					APPD:		KVP	DATE: 05/29/2020

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE; INCLUDING CONTRACTOR'S /INSTALLER'S PERSONNEL (OR THAT OF IT'S SUB-CONTRACTOR(S)) PERFORMING THE WORK.

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Sargent & Lundy
55 EAST MONROE ST., CHICAGO, ILL.

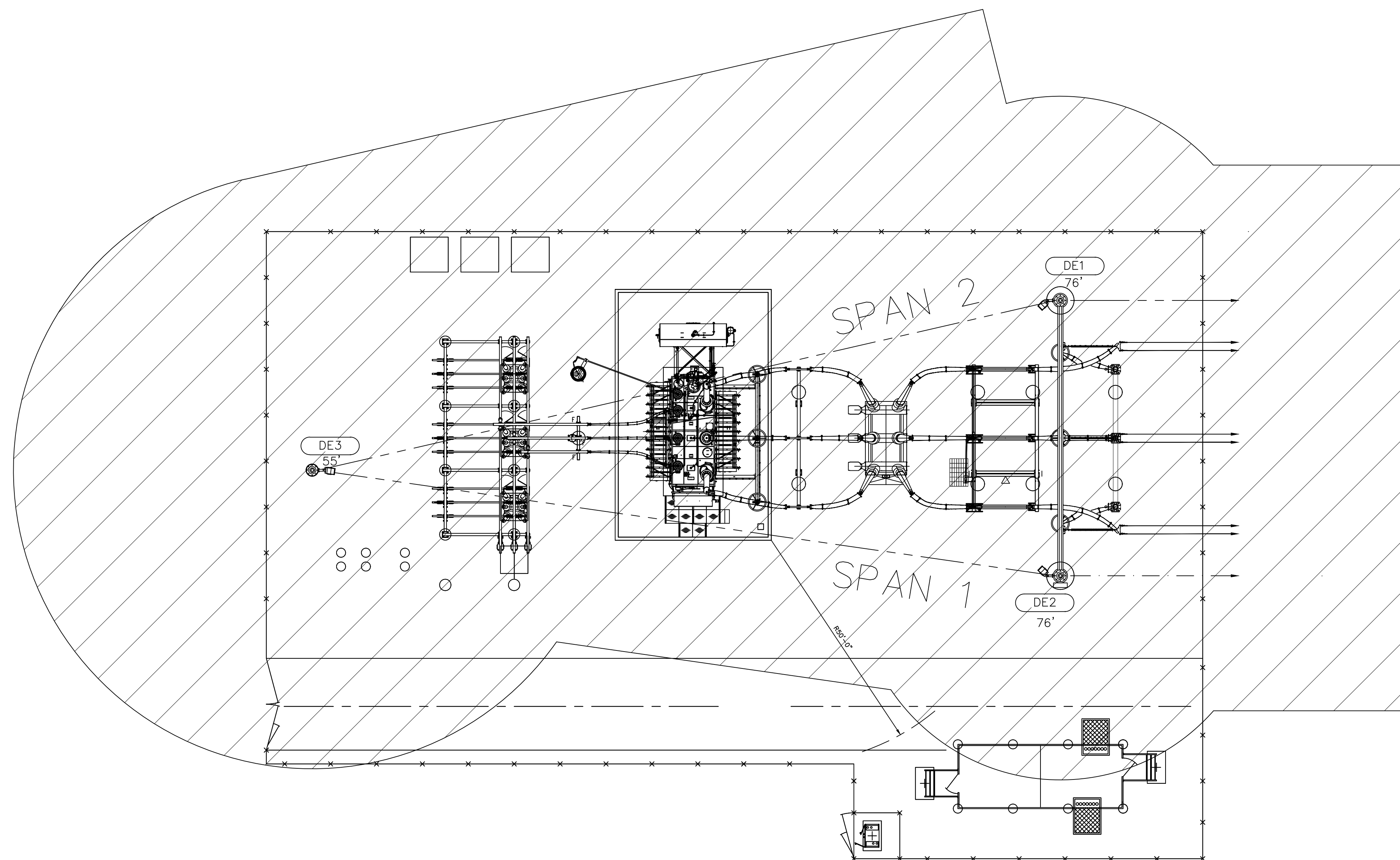


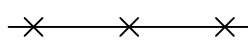
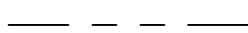
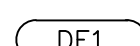
NEXTERA ENERGY RESOURCES, LLC
EXCELISIOR ENERGY CENTER, LLC
345/34.5 kV SUBSTATION
CONDUIT PLAN

13666-053-E1-0155

SPAN 1											
3/8" 7 STRAND STEEL EHS			DESIGN TENSION 1290 LBS. (NESC HEAVY, INITIAL)						SPAN = 164 FEET		
TEMPERATURE °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
SAG (FT.)	NOT APPLICABLE (INCLINED SPAN)										
TENSION (LBS.)	334	322	311	301	292	284	276	269	263	256	251

SPAN 2											
3/8" 7 STRAND STEEL EHS	DESIGN TENSION 1320 LBS. (NESC HEAVY, INITIAL)								SPAN = 248 FEET		
TEMPERATURE °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
SAG (FT.)	NOT APPLICABLE (INCLINED SPAN)										
TENSION (LBS.)	349	337	325	314	304	295	287	279	272	265	259



•	BOLLARD
o	TE CATCH
	EXPANSION BUS FITTING
	FIXED BUS FITTING
	SLIP BUS FITTING
	MOD SWITCH OPERATOR
	SUBSTATION FENCE
	SHIELD WIRE
	AREA PROTECTED FOR EQUIP. UP TO 76'
	STRUCTURE DESIGNATION (DWG.13666-XXX-E1-???)

PRELIMINARY
NOT FOR CONSTRUCTION

<u>REFERENCE DRAWINGS</u>	
13666-053-E1-1000	SWITCHING DIAGRAM
13666-053-E1-0100	ULTIMATE ELECTRICAL PLAN
13666-053-E1-0101	SECTION A-A, B-B, C-C & D-D
13666-053-E1-0102	SECTIONS E-E, F-F, G-G & H-H

--							SCALE: 1" = 15'-0" 			
--										
--										
--										
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--										
B	07/16/2020	PRELIMINARY - NOT FOR CONSTRUCTION			SV	JGO	KVP	S&L		
A	05/16/2020	PRELIMINARY			SV	JGO	KVP	S&L	PREP: SV	CHKD: JGO
NO	DATE	REVISIONS AND RECORD OF ISSUE			DRWN	REV'D	APPR	COMP	APPD: KVP	DATE: 05/29/2020

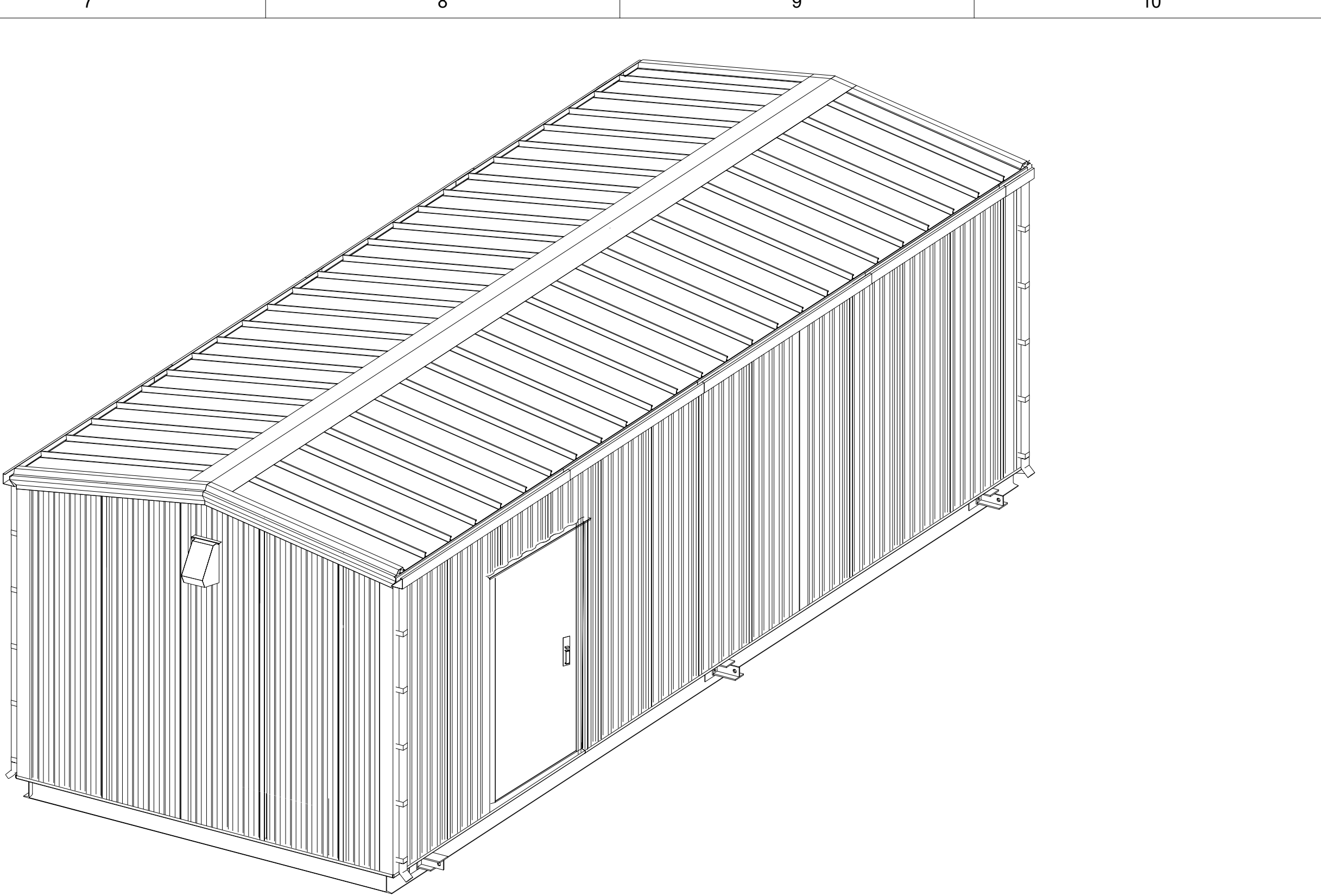
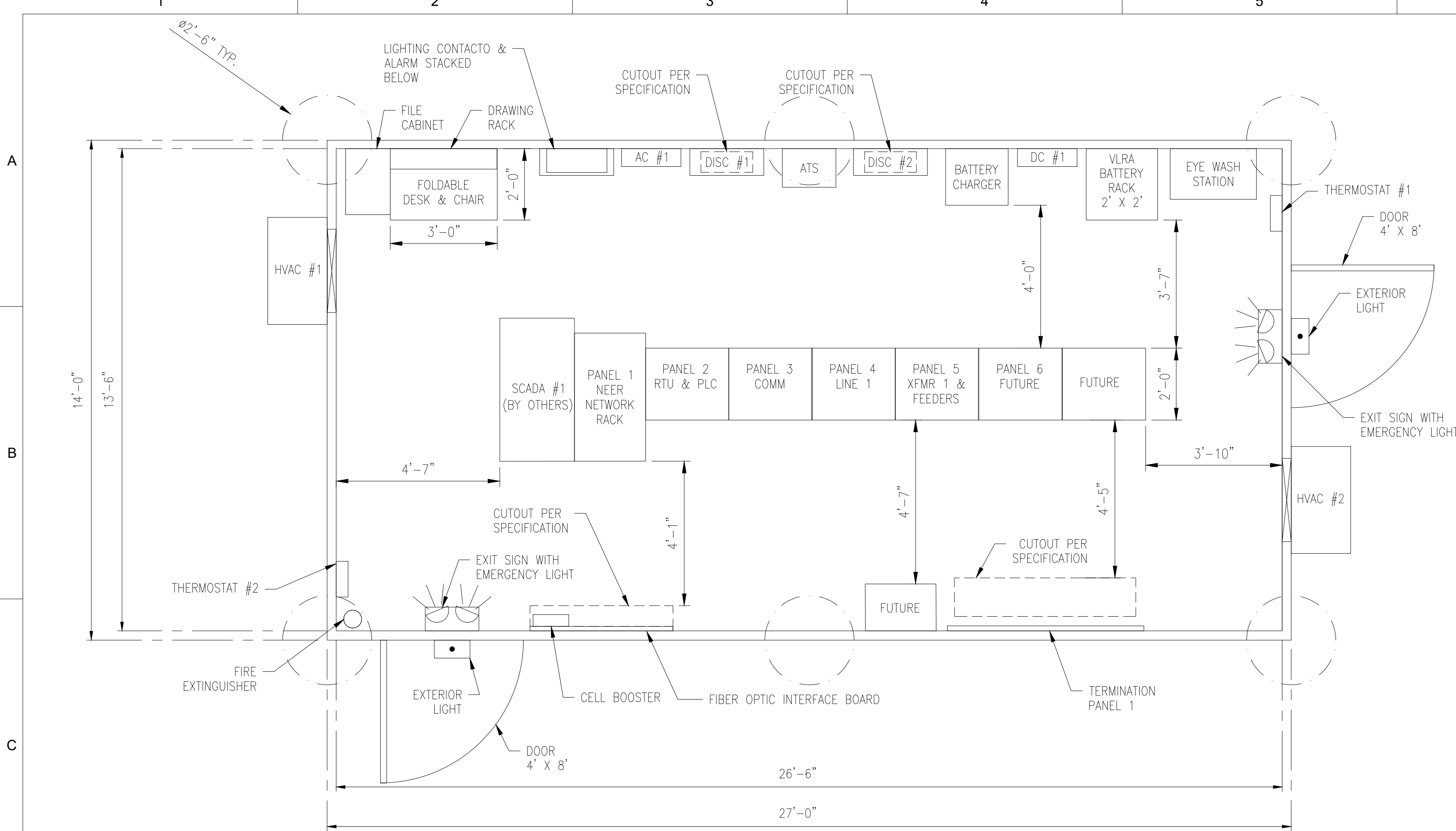
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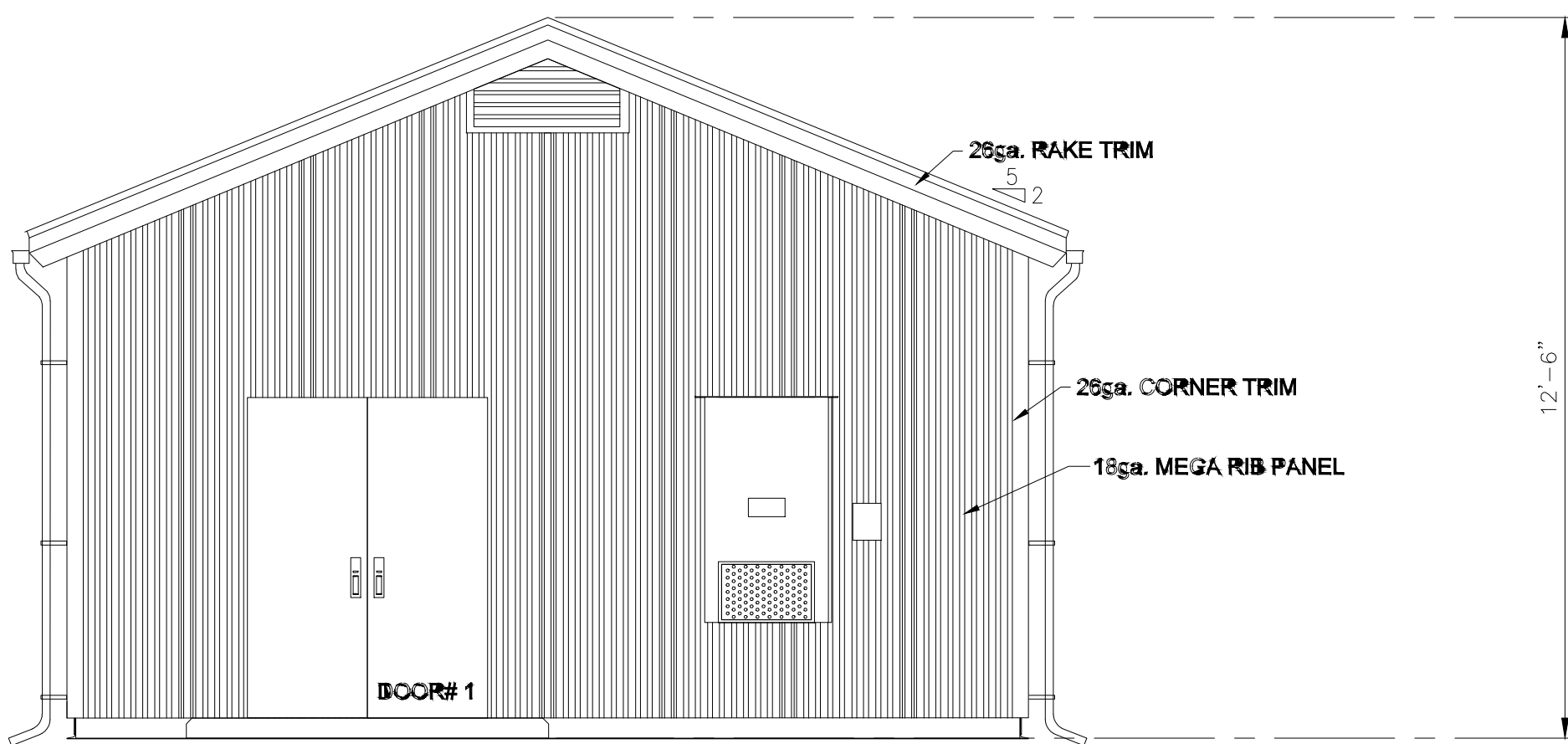
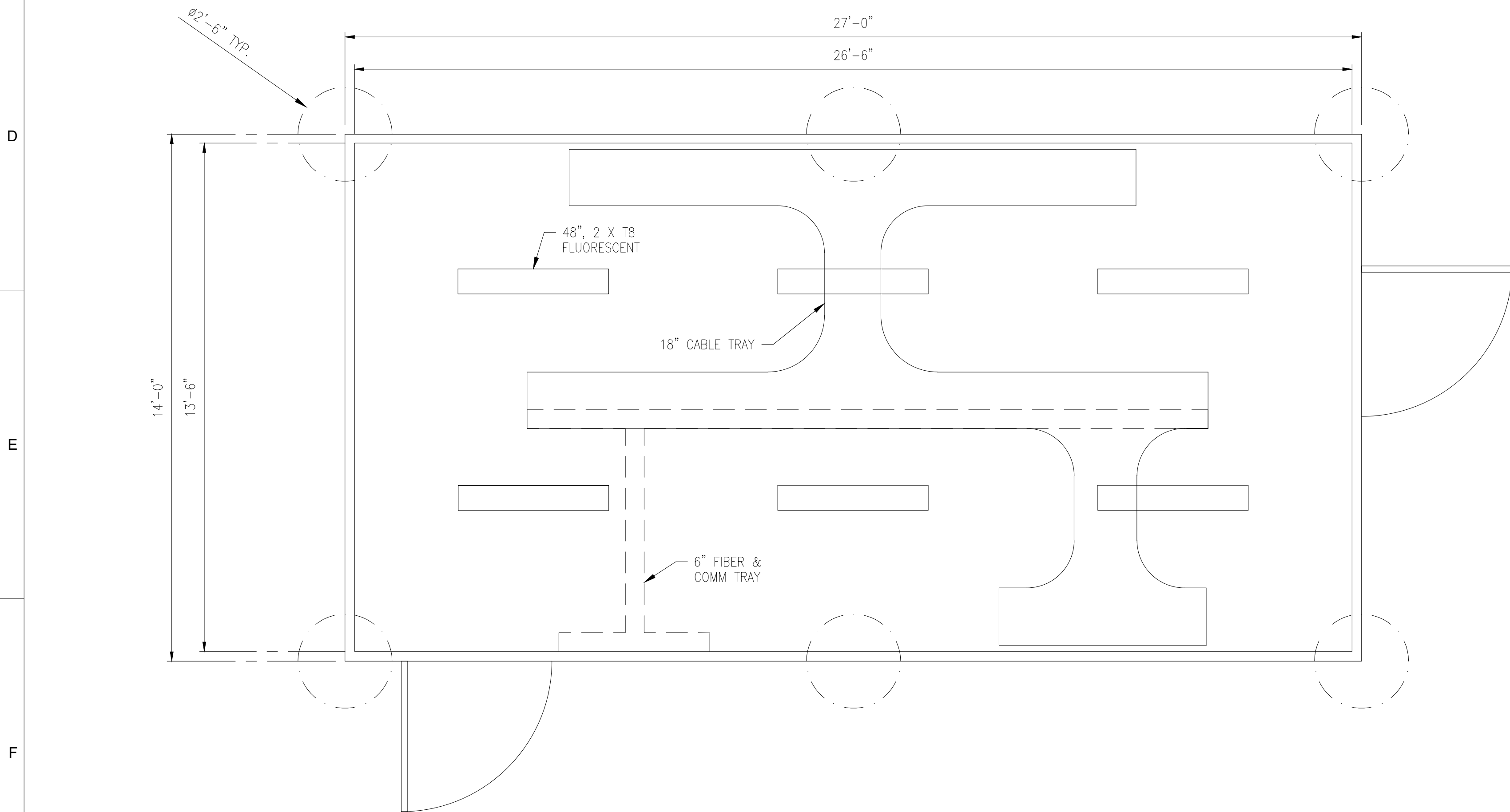


NEXTERA ENERGY RESOURCES, LLC
EXCELISIOR ENERGY CENTER, LLC
345/34.5kV SUBSTATION
LIGHTNING PROTECTION PLAN

13666-053-E1-0185



ISO VIEW



SECTION VIEW

PRELIMINARY
NOT FOR CONSTRUCTION

1	2	3	4	5	6	7	8	9	10
A									
B									
C									
D									
E									
F									
NO	DATE	REVISIONS AND RECORD OF ISSUE			DRWN	REV'D	APPR	COMP	APPD
B	06/22/2020	PRELIMINARY - NOT FOR CONSTRUCTION			NT	KVP	KVP	S&L	
A	04/30/2020	PRELIMINARY - NOT FOR CONSTRUCTION			NJM	JTB	KVP	S&L	
					PREP:	NJM	CHKD:	JTB	
					APPD:	KVP	DATE:	04/01/2020	

SCALE:
NONE

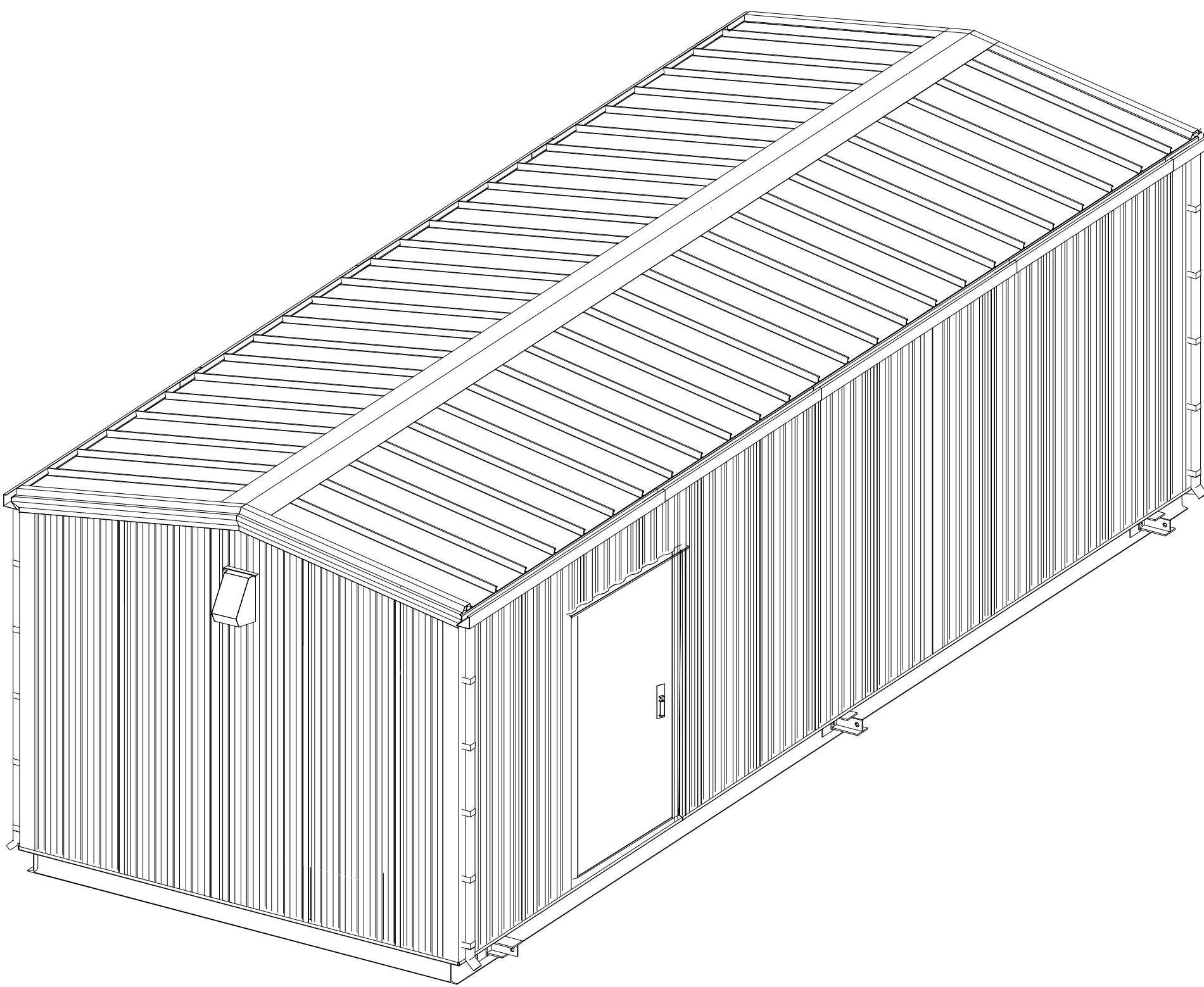
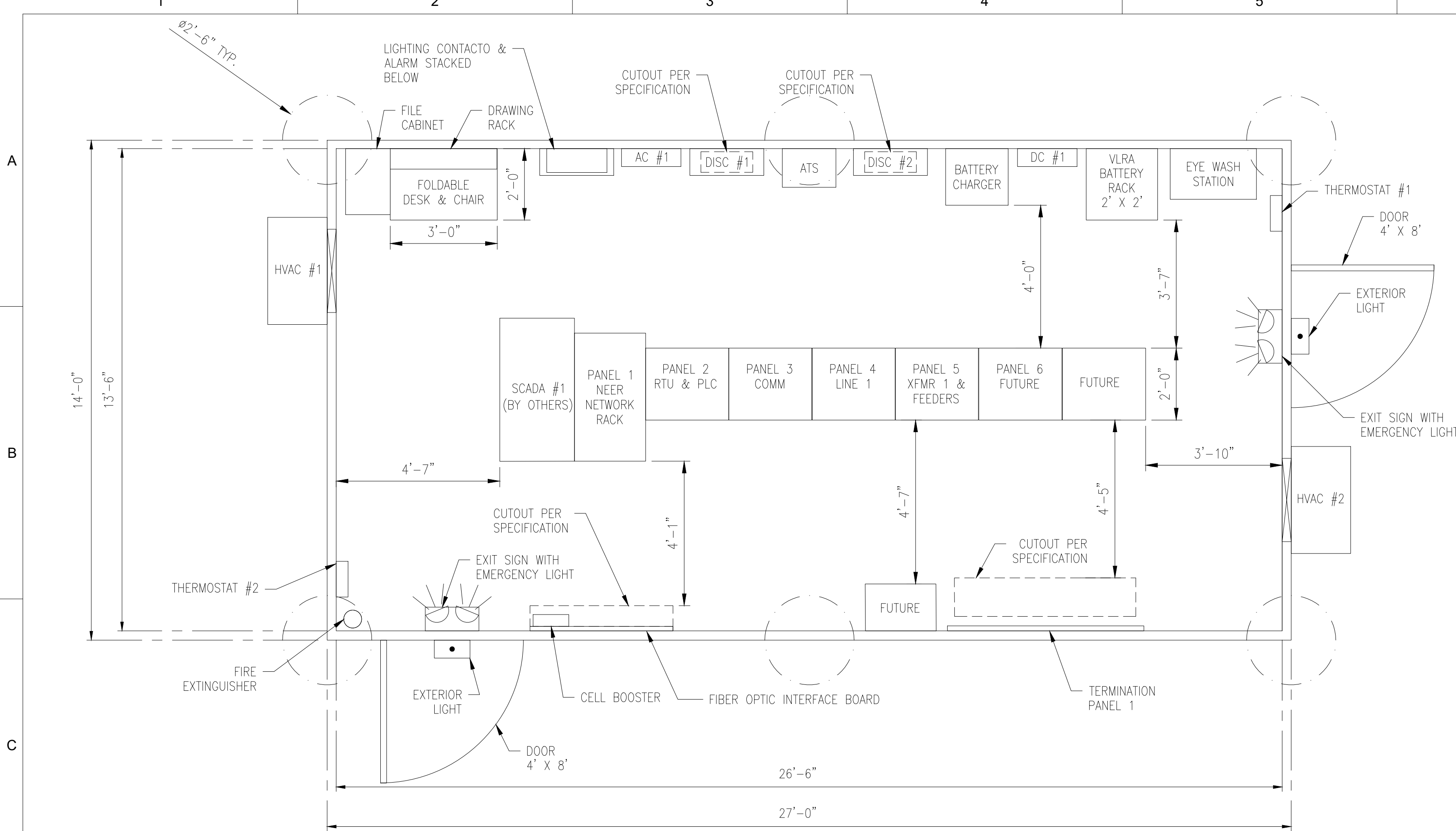
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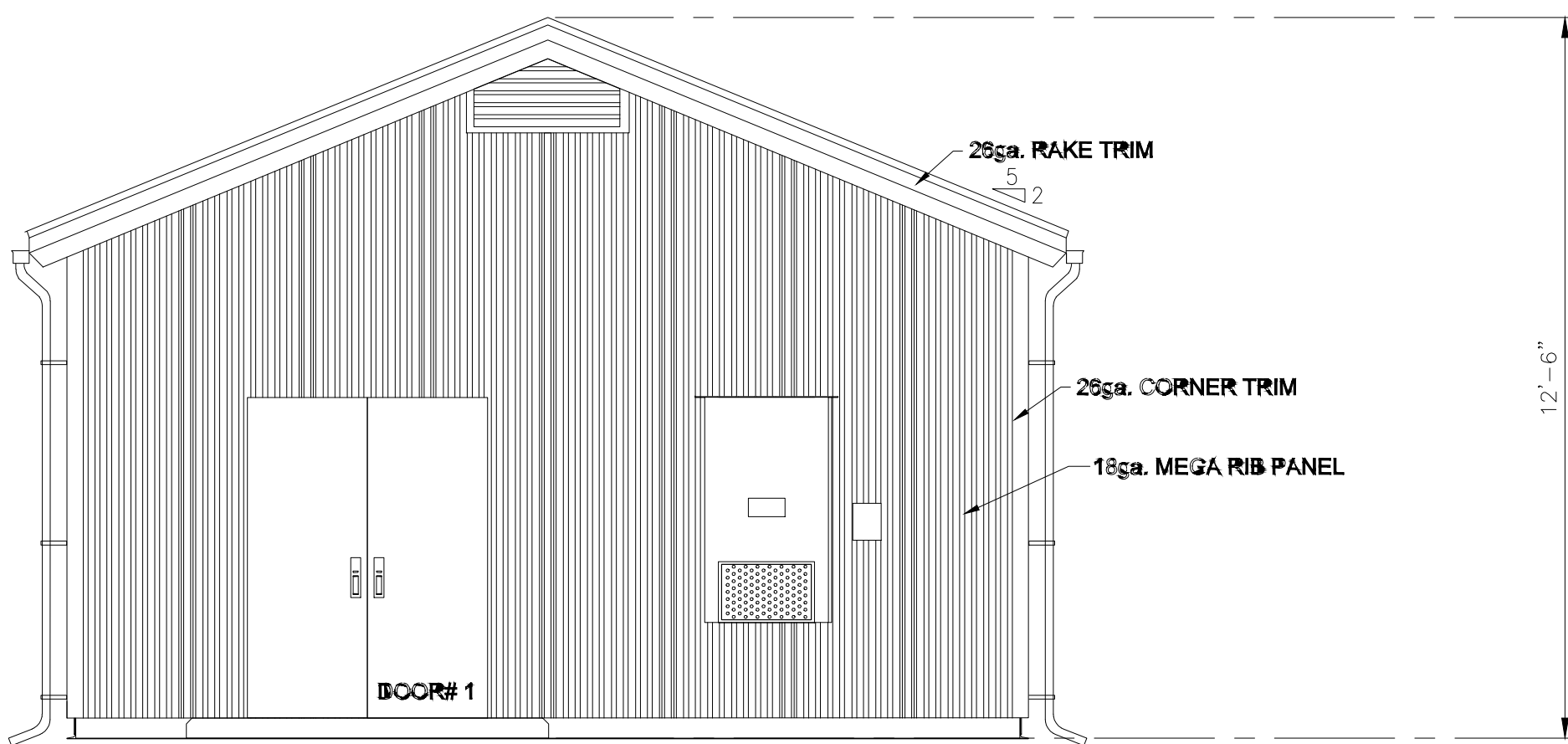
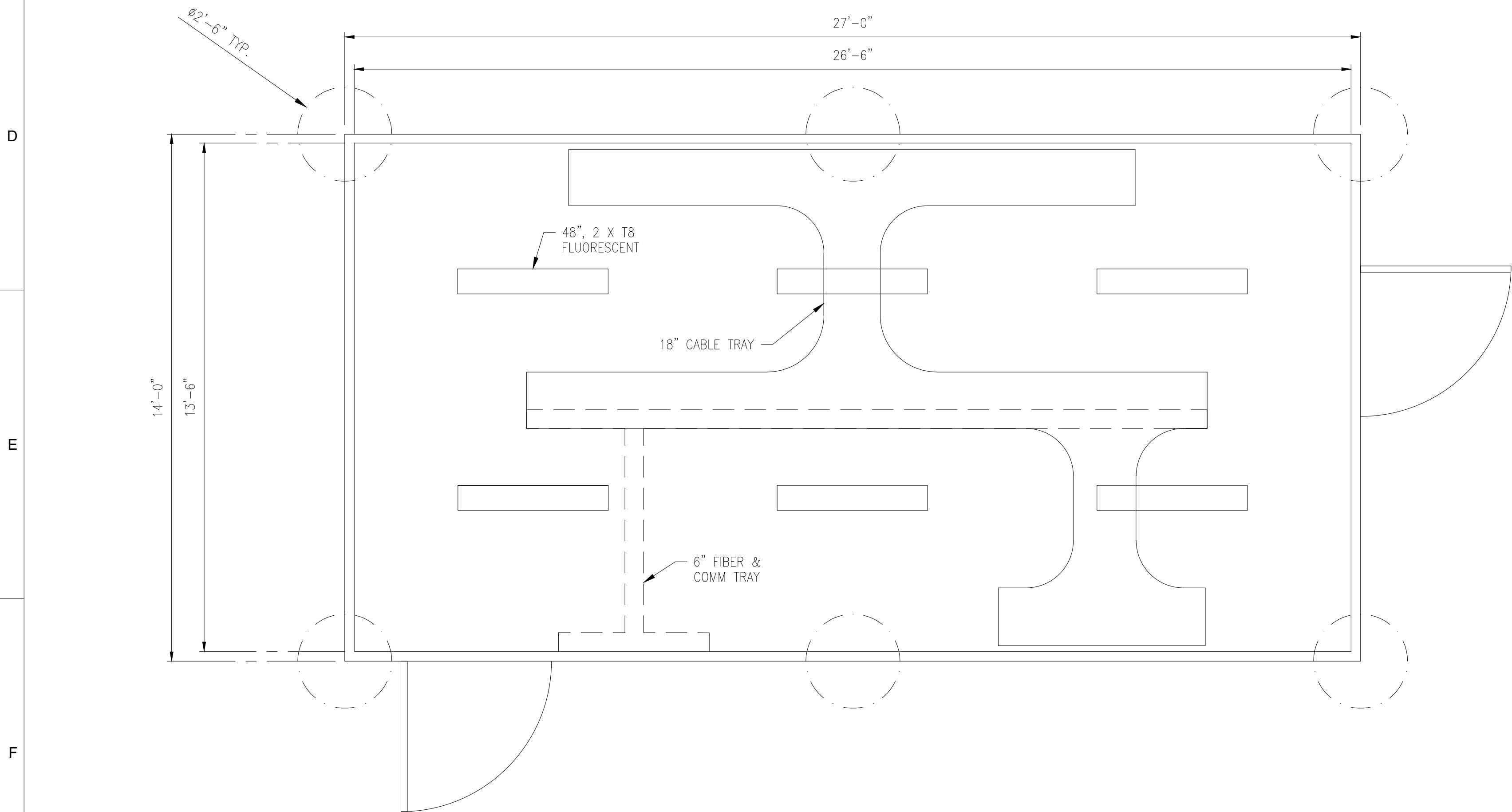


NEXTERA ENERGY RESOURCES, LLC
EXCELSIOR ENERGY CENTER, LLC
345 kV SUBSTATION
CONTROL HOUSE PLAN

13666-053-E1-0300



ISO VIEW



SECTION VIEW

PRELIMINARY
NOT FOR CONSTRUCTION

1	2	3	4	5	6	7	8	9	10
A									
B									
C									
D									
E									
F									
NO	DATE	REVISIONS AND RECORD OF ISSUE			DRWN	REV'D	APPR	COMP	APPD
B	06/22/2020	PRELIMINARY - NOT FOR CONSTRUCTION			NT	KVP	KVP	S&L	
A	04/30/2020	PRELIMINARY - NOT FOR CONSTRUCTION			NJM	JTB	KVP	S&L	
					PREP:	NJM	CHKD:	JTB	
					APPD:	KVP	DATE:	04/01/2020	

SCALE:
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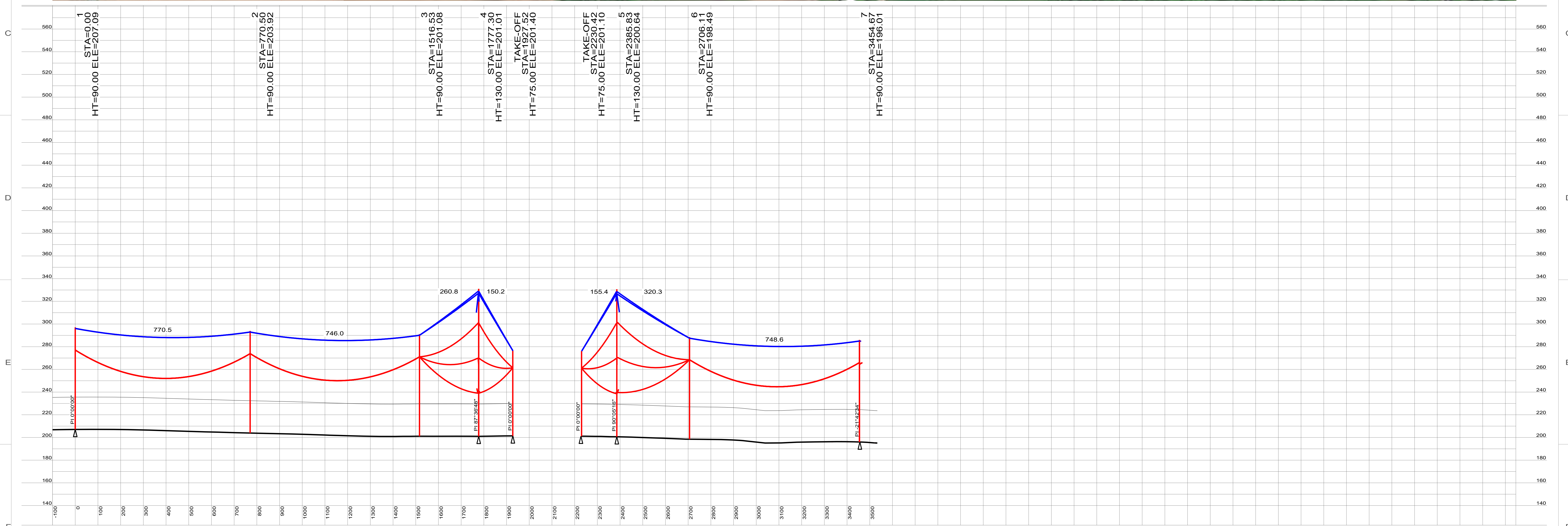
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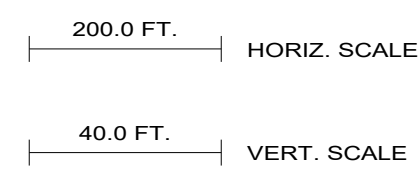


NEXTERA ENERGY RESOURCES, LLC
EXCELSIOR ENERGY CENTER, LLC
345 kV SUBSTATION
CONTROL HOUSE PLAN

13666-053-E1-0300



REV.	DATE	REVISIONS AND RECORD OF ISSUE	DRWN	REV'D	APPR	COMP
A	07/17/2020	PRELIMINARY - NOT FOR CONSTRUCTION	KVP	JDJ	-	S&L





55 EAST MONROE ST., CHICAGO, IL

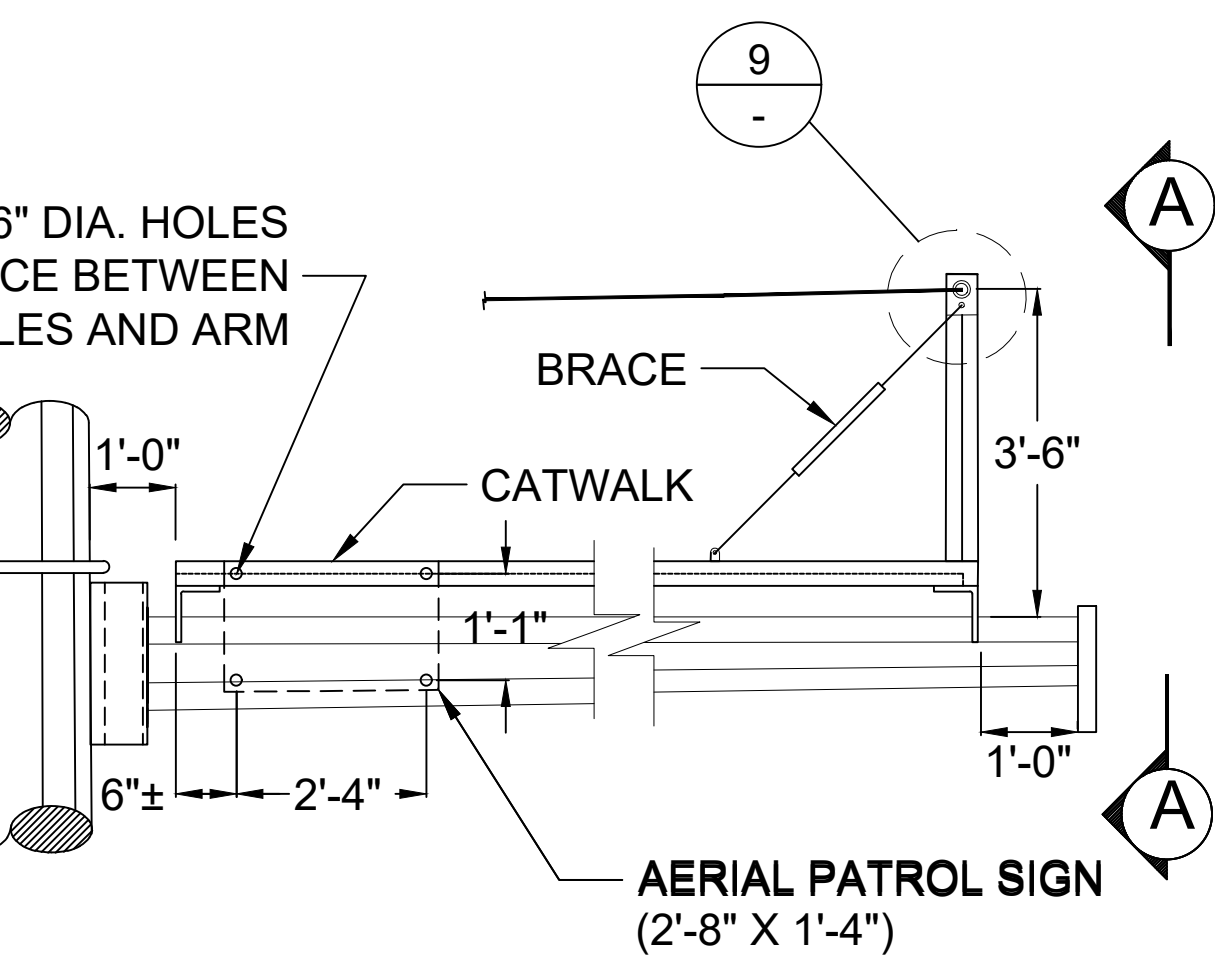
ANY MODIFICATION OR ADDITION TO THIS DRAWING BY ANY ORGANIZATION OTHER THAN SARGENT & LUNDY IS NOT THE RESPONSIBILITY OF SARGENT & LUNDY

PREP: KVP	CHKD: JDJ
APPD: -	DATE 07/09/2020



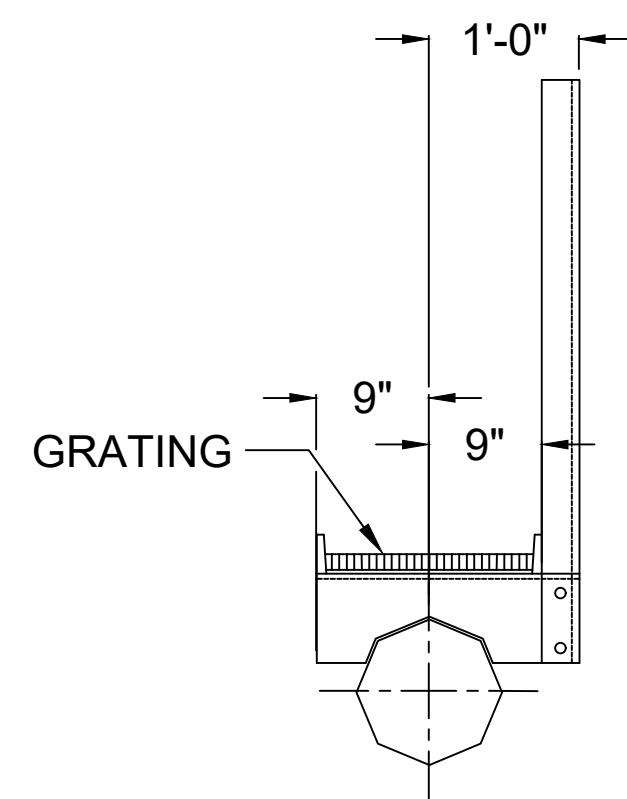
NEXTERA ENERGY RESOURCES, LLC
EXCELSIOR ENERGY CENTER, LLC
345 KV TRANSMISSION LINE
PLAN & PROFILES

13666-053-T1-0100

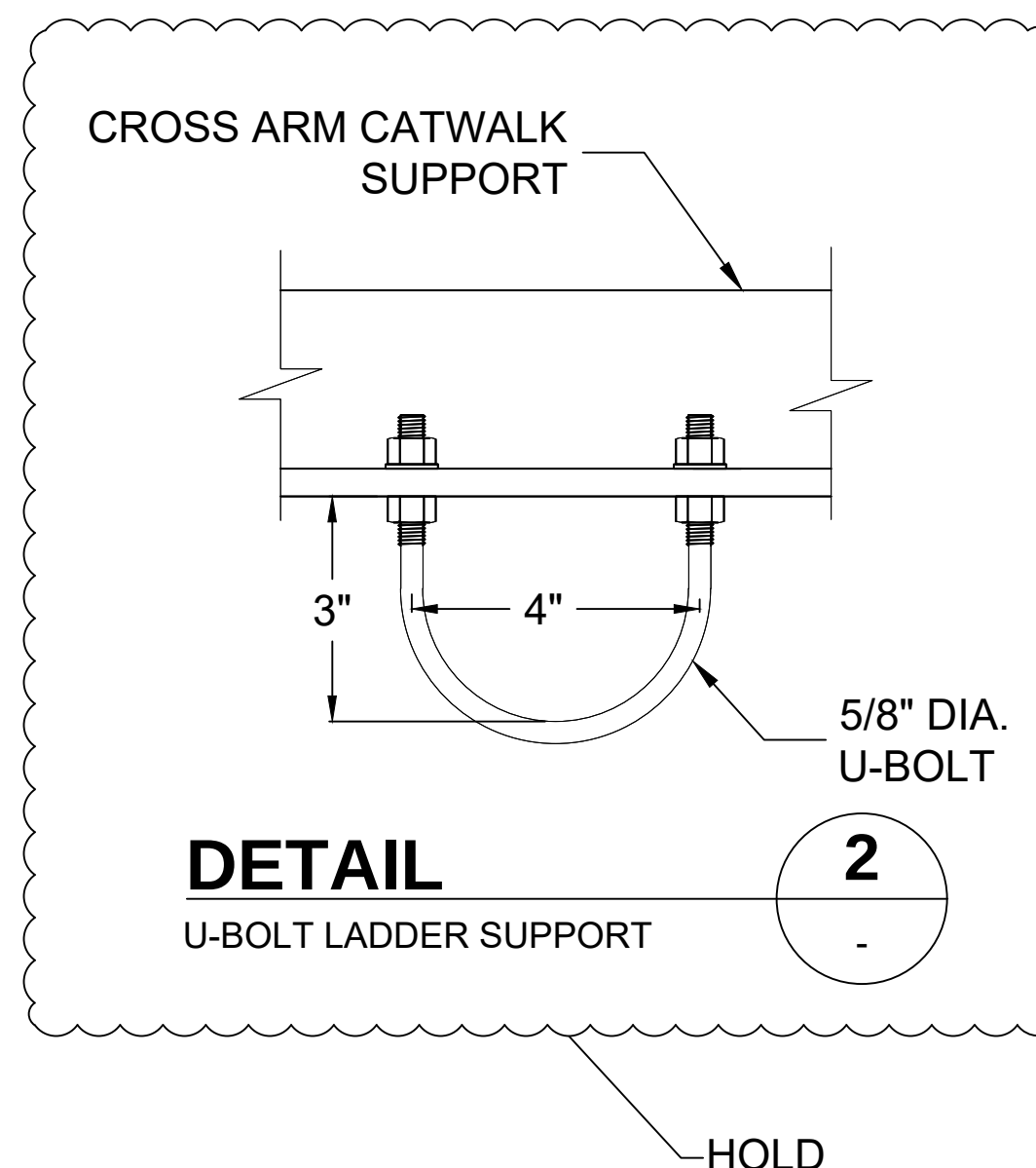


DETAIL

CATWALK ARM DETAIL

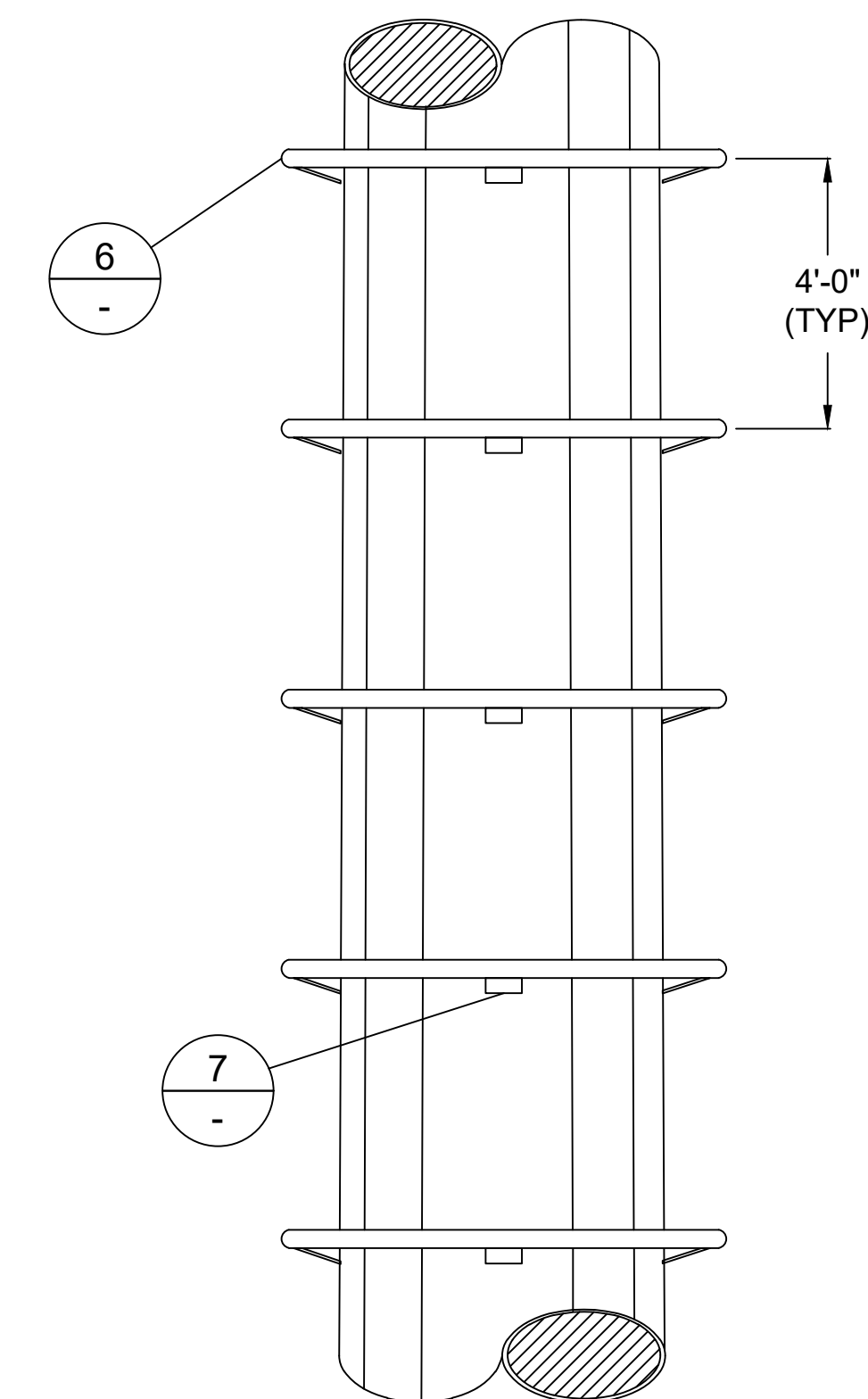


VIEW



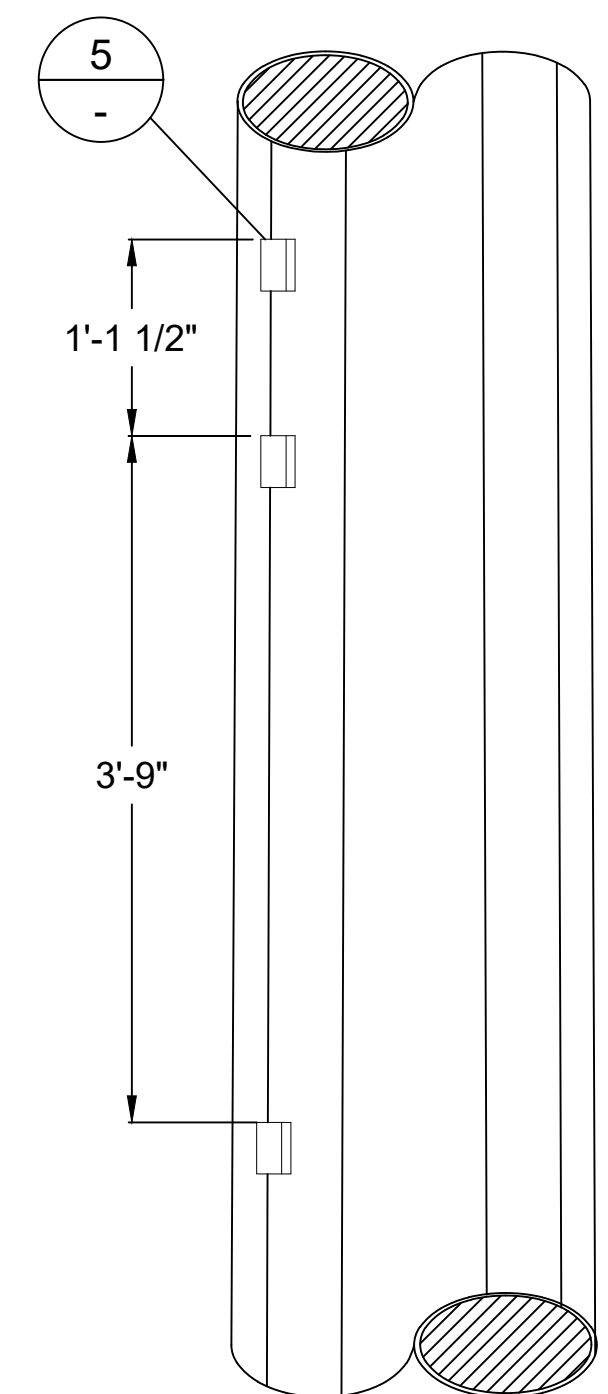
DETAIL

U-BOLT LADDER SUPPORT



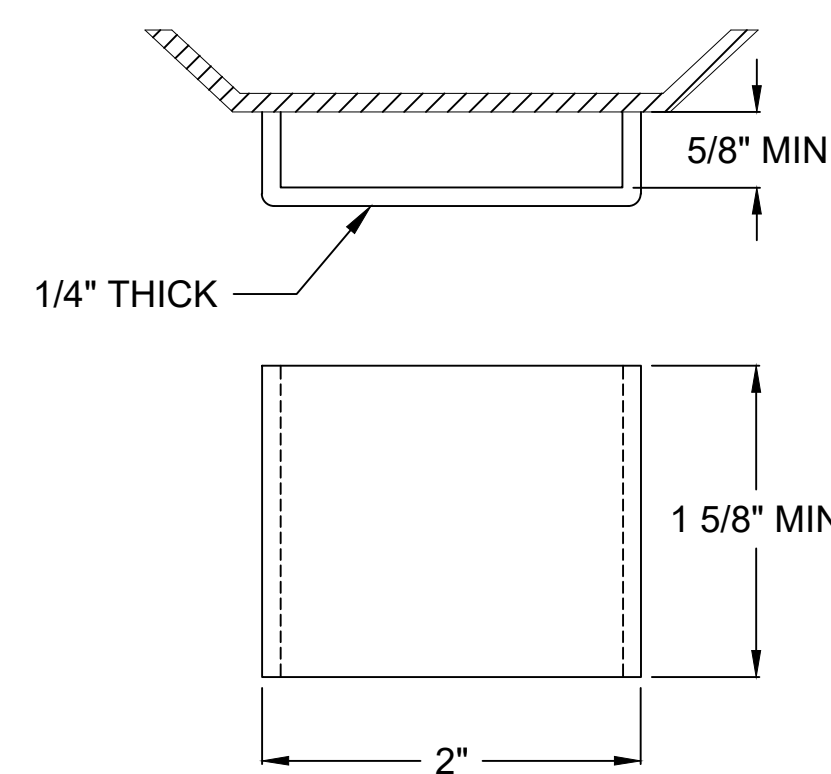
DETAIL

WORKING RING DETAIL



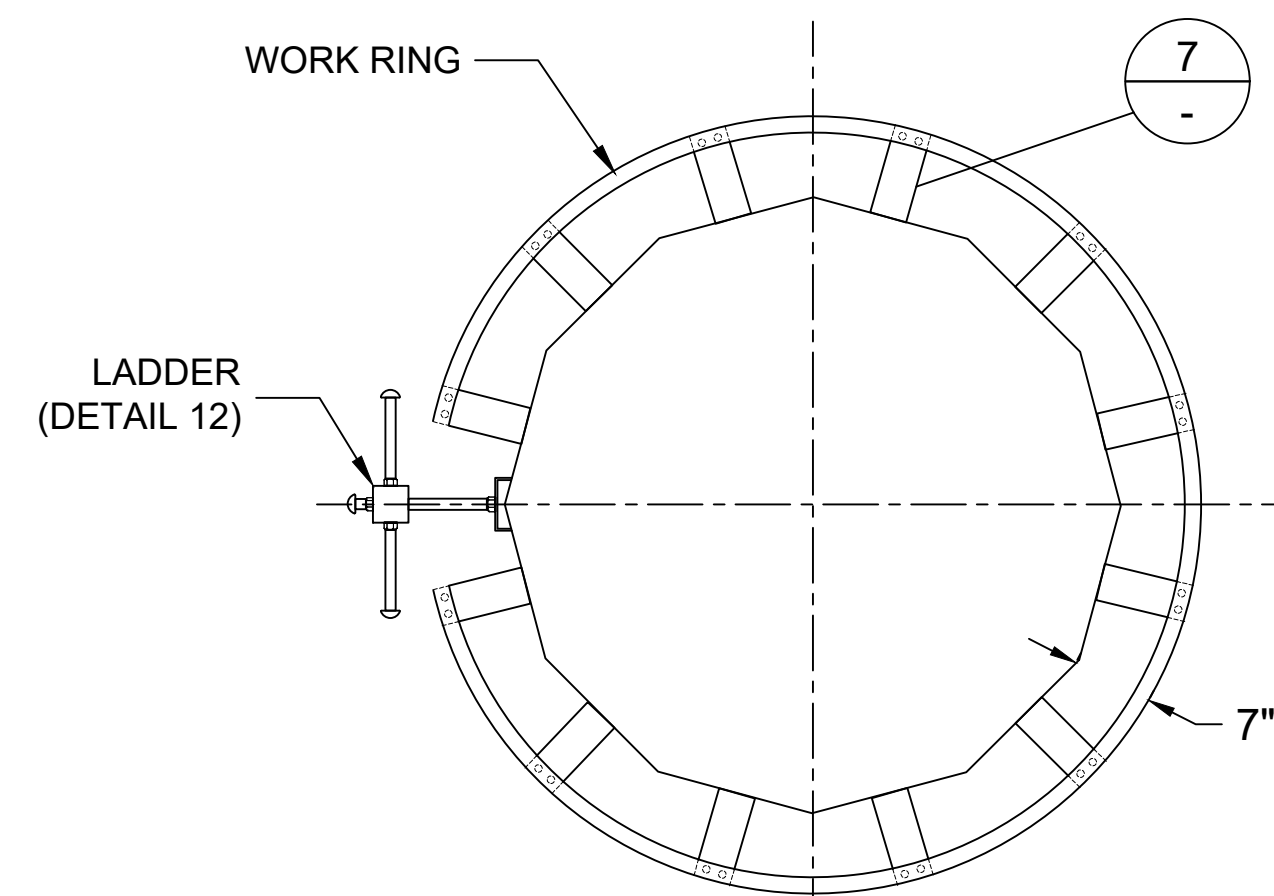
DETAIL

LADDER CLIP DETAIL



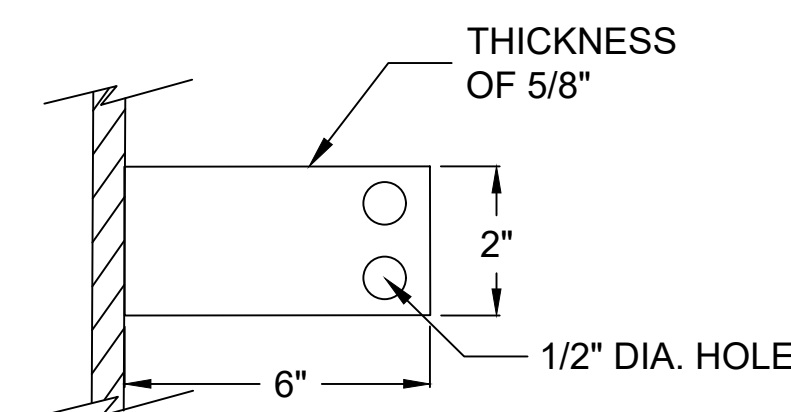
DETAIL

LADDER CLIP DETAIL



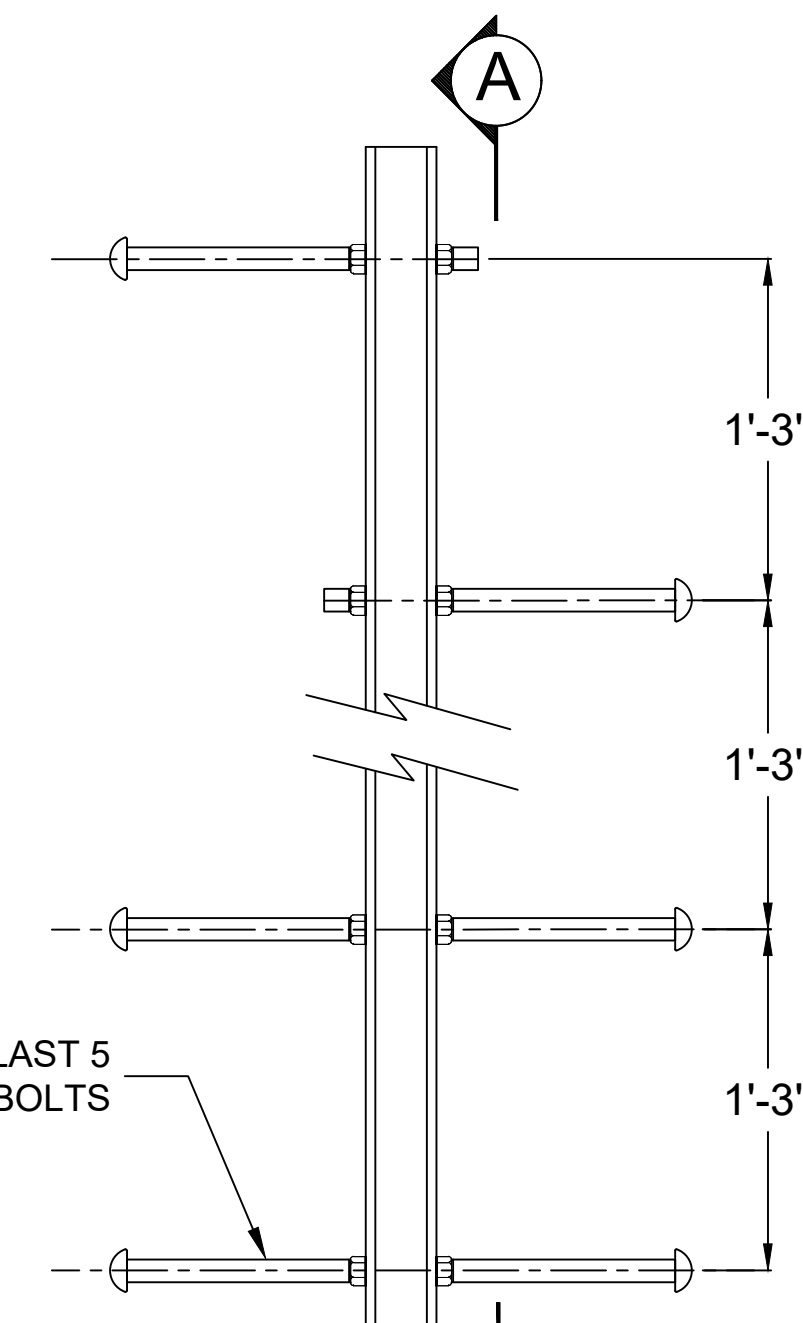
DETAIL

WORKING RING DETAIL
(17 PLACES)
TOP VIEW



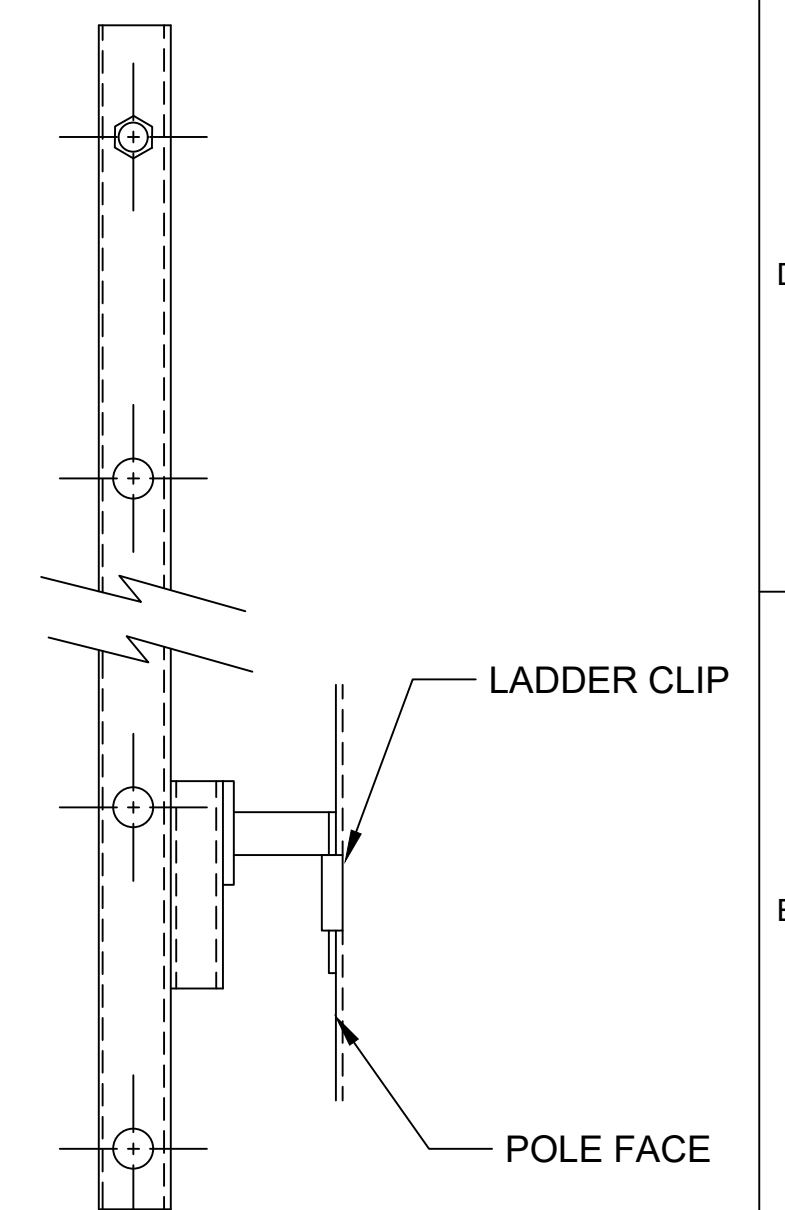
DETAIL

WORKING RING TAB DETAIL

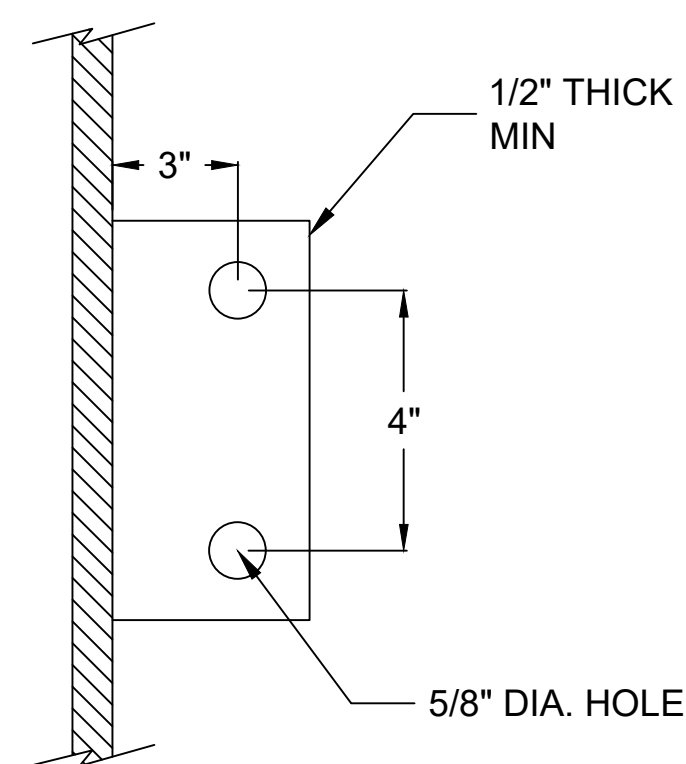


DETAIL

POLE CLIMBING LADDER DETAIL

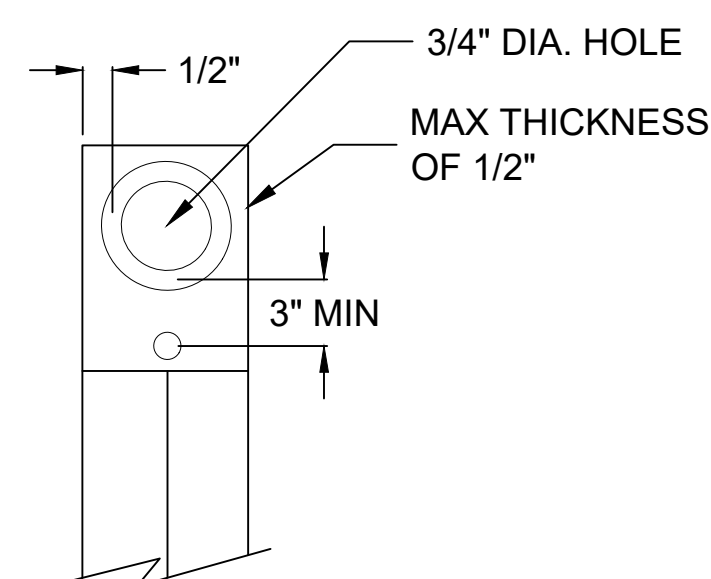


SECTION



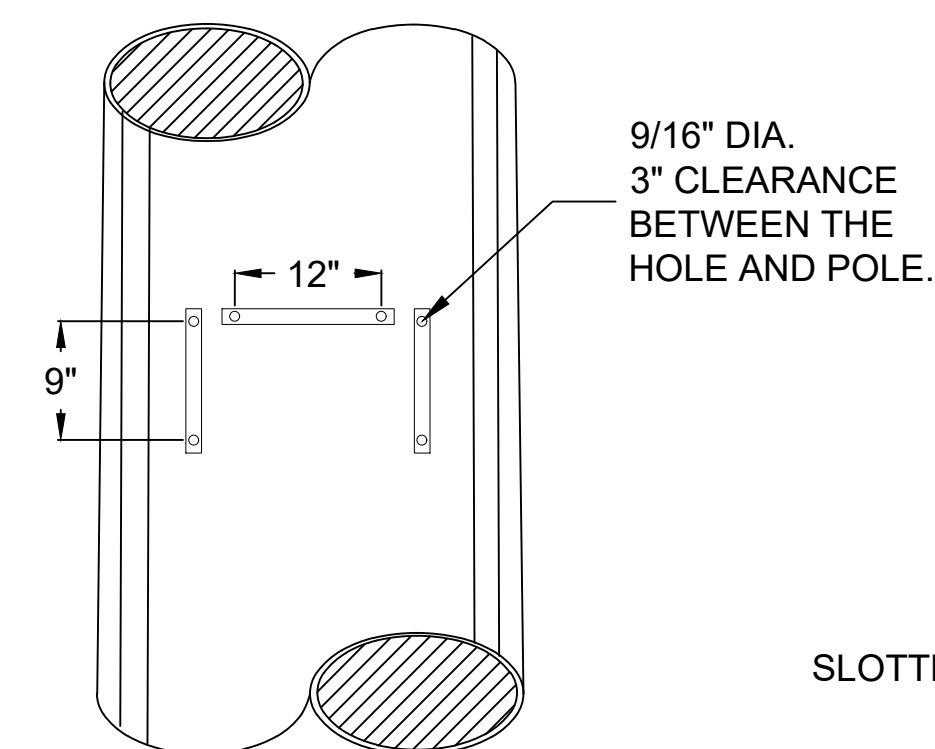
DETAIL

FALL ARREST RAIL ANCHOR



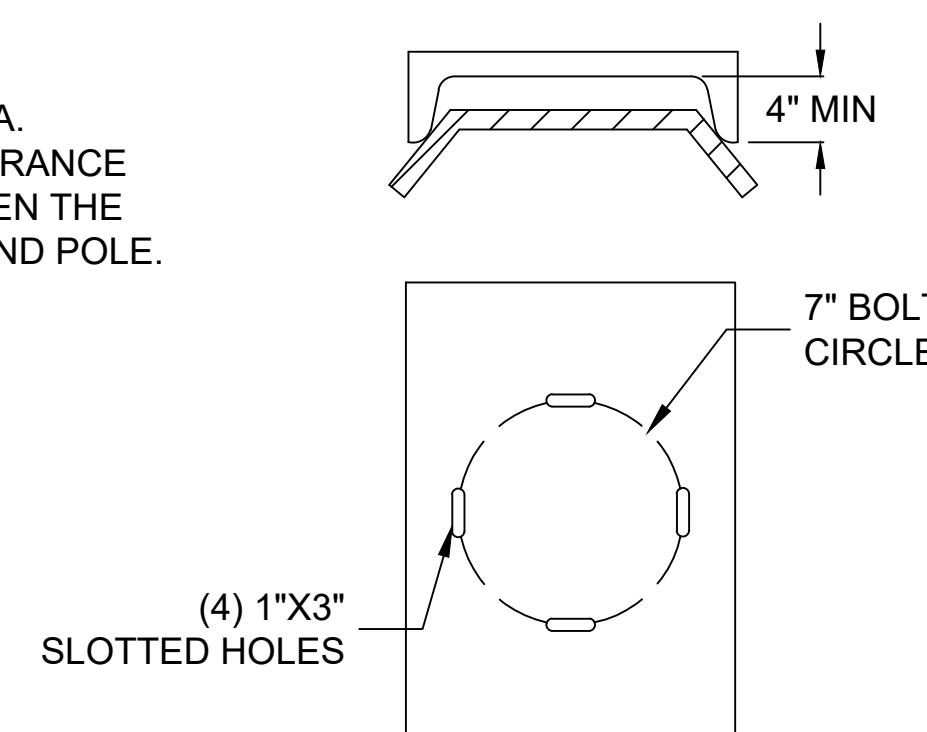
DETAIL

HORIZONTAL FALL ARREST ARM



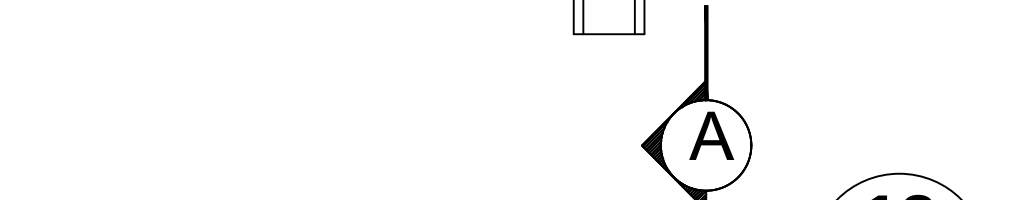
DETAIL

DANGER SIGN AND
TOWER NO. BRACKET



DETAIL

POST BRACKET
(INSTALL ON FACE 8)



DETAIL

POLE CLIMBING LADDER DETAIL

PRELIMINARY
NOT FOR CONSTRUCTION

--								SCALE: NONE					
--													
--													
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--													
--													
--													
A	06/22/2020	PRELIMINARY - NOT FOR CONSTRUCTION				DIV	JDJ	KVP	S&L	PREP:	DIV	CHKD:	JDJ
NO	DATE	REVISIONS AND RECORD OF ISSUE				DRWN	REV'D	APPR	COMP	APPD:	KVP	DATE:	02/27/2020

—SCALE:

NONE

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NEXTERA ENERGY RESOURCES, LLC
EXCELSIOR ENERGY CENTER
345 KV DEADEND TAP STRUCTURE (75°-105°)
NYPA DETAILS

13666-053-T1-0272