REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

NYSEG Flat Creek Solar
Electromagnetic Fields Report: FLCK-816-01

Project: Flat Creek Solar

Client: Cordelio Power

Revision	Date	Description	Prepared By	Checked By
0-0A	4/15/2024	Issued for Review / Permitting	UEI/AE	SR
0-0B	5/15/2024	Issued for Review / Permitting	UEI/AE	SR
0-0C	6/19/2024	Issued for Review / Permitting	UEI/AE	SR

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Table of Contents

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

1. Introduction

This report summarizes the supporting calculations of the electromagnetic fields on the Flat Creek 345kV transmission tie-lines located in Root, NY. An analysis was conducted to determine the effects on electric and magnetic fields produced throughout the Right of Way (ROW) on very short transmission tie-lines, both on the substation structure and the turning structure connecting to the adjacent transmission line.

2. Structure Modeling

There were two structures studied, which includes the H-frame structure within the substation and the turning structure that connects to the adjacent transmission line. There are three transmission lines exiting the Flat Creek substation, but all three transmission lines have the same structure and conductor orientation so only one was studied.

The highest EMF on a transmission line occurs when the conductors are nearest to the ground, and arranged in a horizontal configuration. For this project, the worst-case scenario would be at the substation dead-end so this scenario was studied, along with studying at the transmission turning structure to provide a variation in results due to the different structure configurations.

The rating assumptions are based on the table 2-5 included in the NYISO System Reliability Impact Study for Flat Creek Solar. The normal, long term emergency and short term emergency ratings were stated to all be the same. The summer MVA rating provided was 2038MVA. The winter MVA rating provided was 2216MVA. Therefore only two current loadings were studied and they can be considered 1) Normal, STE, LTE summer and 2) Normal, STE, LTE winter. These are the maximum allowable loads on the NYPA transmission line that will be intercepted and turned into the POI station. RAE is unable to model the average annual load as NYPA has just recently built this line and has not provided the average annual forecasted load to the developer.

The H-frame structure was modeled according to the following inputs, which are based on the substation drawing of the H-frame structure in Appendix B. Where information was not available, a value was assumed. Assumed values are noted by italics:

Model Input	**Value**
OHSW	(2) EHS 3/8” Diameter
CONDUCTOR	*795 kcmil ACSR Drake*
BUNDLING	*Double Bundled with 18” bundle spacing*
GEOMETRY	HFRAME with a structure height of 90 ft.
NOMINAL VOLTAGE	345 kV_{ll} with an assumption of *1.00 pu operating voltage*
CURRENT LOADING (Normal, LTE and STE Summer)	*Load current of 3414 Amps, (2038 MVA)*

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

CURRENT LOADING (Normal, LTE, STE Winter)	*Load current of 3712 Amps, (2216 MVA)*
ROW	200 ft.
SAG	*3%*

The turning structure was modeled according to the following inputs, which is based on the substation drawing of the turning structure in Appendix B. The turning structure design was not available at this time, so estimates were used for structure heights. Where information was not available, a value was assumed. Assumed values are noted by italics:

Model Input	**Value**
OHSW	EHS 3/8" Diameter
CONDUCTOR	*795 kcmil ACSR Drake*
BUNDLING	*Double Bundled with 18" bundle spacing*
GEOMETRY	Turning structure with a structure height of 140 ft.
NOMINAL VOLTAGE	345 kV_{ll} with an assumption of *1.00 pu operating voltage*
CURRENT LOADING (Normal, LTE and STE Summer)	*Load current of 3414 Amps, (2038 MVA)*
CURRENT LOADING (Normal, LTE, STE Winter)	*Load current of 3712 Amps, (2216 MVA)*
ROW	200 ft.
SAG	*3%*

3. Study Setup

This study was conducted with the aid of the Polaris-EMF software developed by Electric Utility Design Tools.

There are no federal standards limiting occupational or residential exposure to EMF in the United States. However, New York has exposure limits for electric and magnetic fields measured based on the Institute of Electrical and Electronics Engineers (IEEE) standard C95.3-2021. For electric fields the limit anywhere within the right-of-way of the transmission line is 11.8 kV/m or 3.6 kV/ft and the limit at the edge of the right-of-way is 1.6 kV/m or 0.5 kV/ft. For the magnetic field the only limit is at the edge of the right-of-way, and it is 200 milligauss (mG).

Electric and magnetic field sensors were modeled at approximately 1 meter (3.28 ft) above grade for the model.

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

The program incorporates measurements of the vertical and horizontal fields simultaneously in both real and imaginary components but provides the net magnitude to provide the maximum electric and magnetic field at a specific measurement point.

The settings used in Polaris are shown in Figure 1 below.

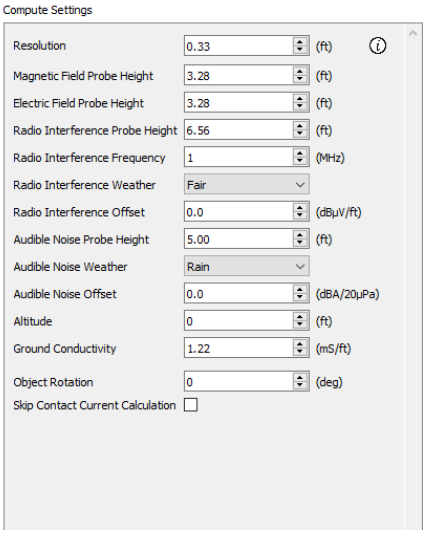


Figure 1: Study Settings

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

4. Results

a. Electric Field

Figure 2 below shows the magnitude of the electric field for the H-frame structure. The electric field is highest near the outside conductors and decreases near the center due to field cancellation from conductor phasing. The maximum value in the ROW is 1.68 kV/ft, which is below the acceptable limit of 3.6 kV/ft. The maximum value at the edge of the ROW is 0.153 kV/ft, which is below the acceptable limit of 0.5 kV/ft.

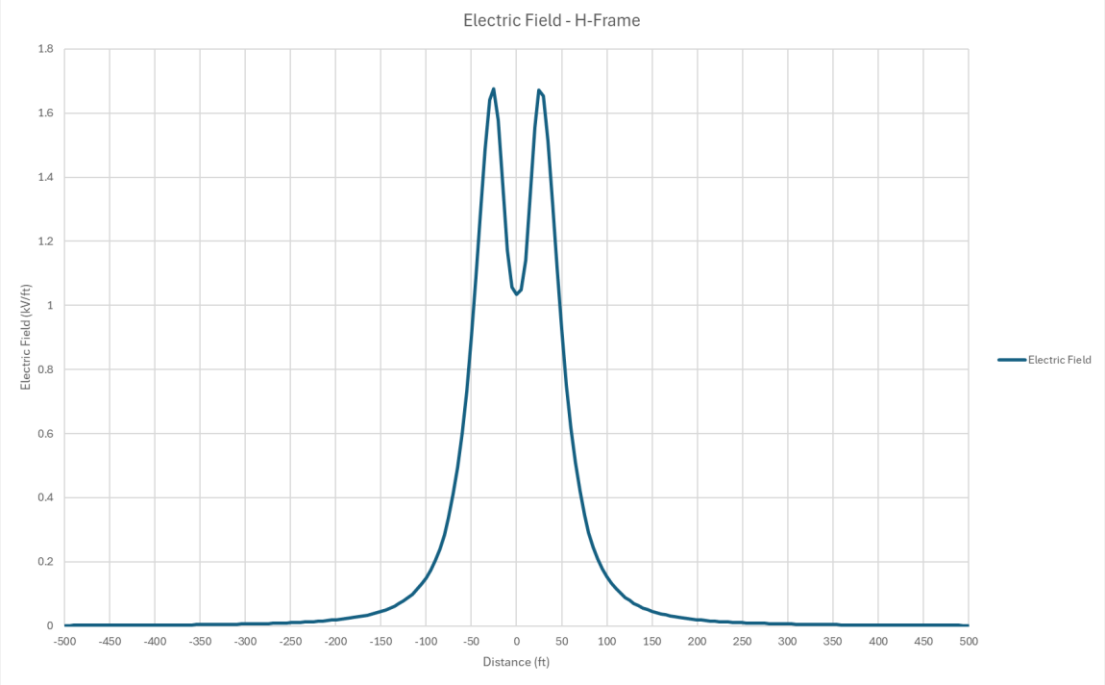


Figure 2: Electric Field – H-frame Structure

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Figure 3 below shows the magnitude of the electric field for the turning structure. The electric field is at its maximum above the shield wires and reduces downward as it nears the ROW. The maximum value in the ROW is 0.5 kV/ft, which is below the acceptable limit of 3.6 kV/ft. The maximum value at the edge of the ROW is 0.018 kV/ft, which is below the acceptable limit of 0.5 kV/ft.

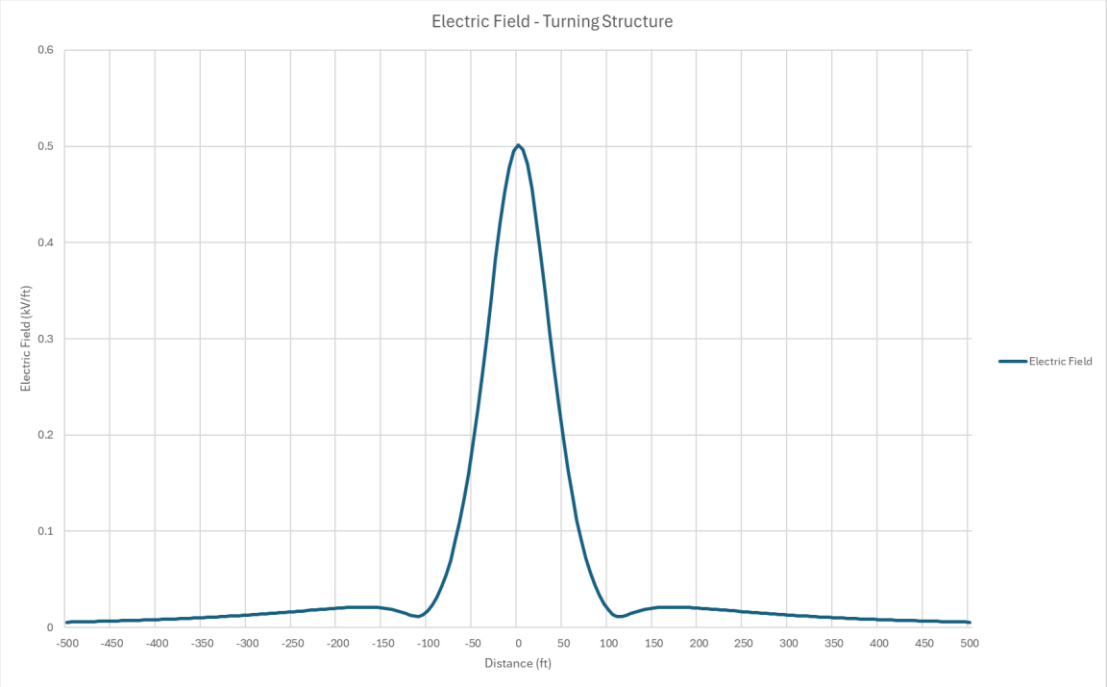


Figure 3: Electric Field – Turning Structure

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

b. Magnetic Field

Figure 4 below shows the magnitude of the magnetic field for the H-frame structure using the summer loading conditions. The magnetic field is at its maximum above the center of the structure and reduces downward as it nears the ROW. The maximum value in the ROW is 788.98 mG. The maximum value at the edge of the ROW is 83.95 mG, which is below the acceptable limit of 200 milligauss (mG).

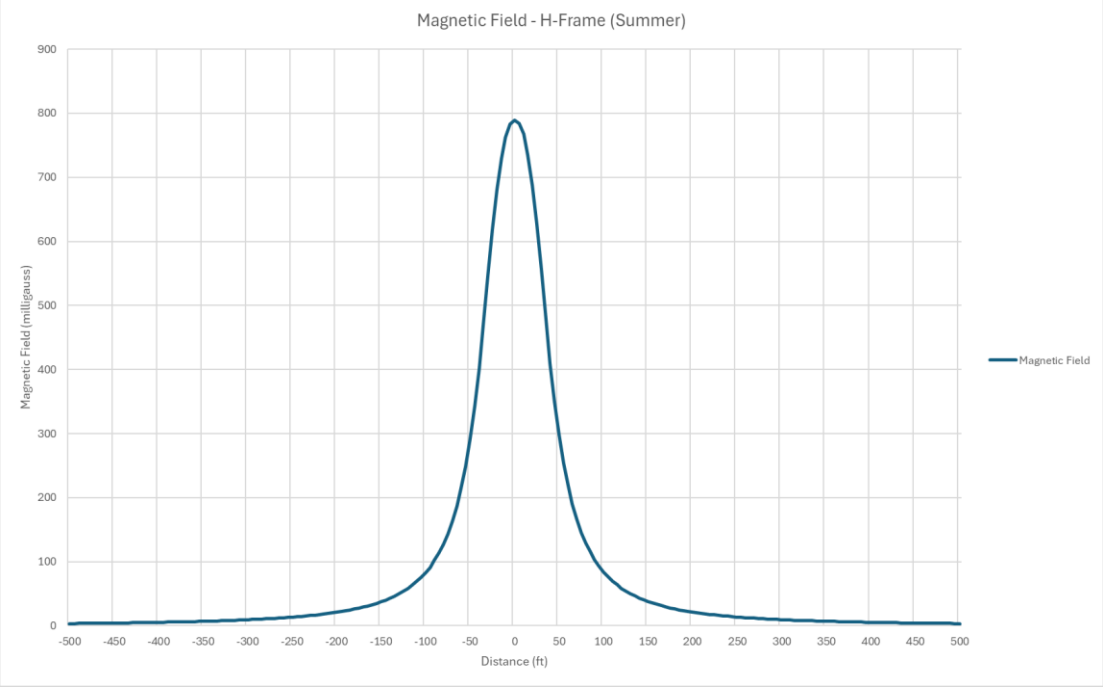


Figure 4: Magnetic Field – H-frame Structure (Summer)

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Figure 5 below shows the magnitude of the magnetic field for the H-frame structure using the winter loading conditions. The magnetic field is at its maximum above the center of the structure and reduces downward as it nears the ROW. The maximum value in the ROW is 857.85 mG. The maximum value at the edge of the ROW is 91.27 mG, which is below the acceptable limit of 200 milligauss (mG).

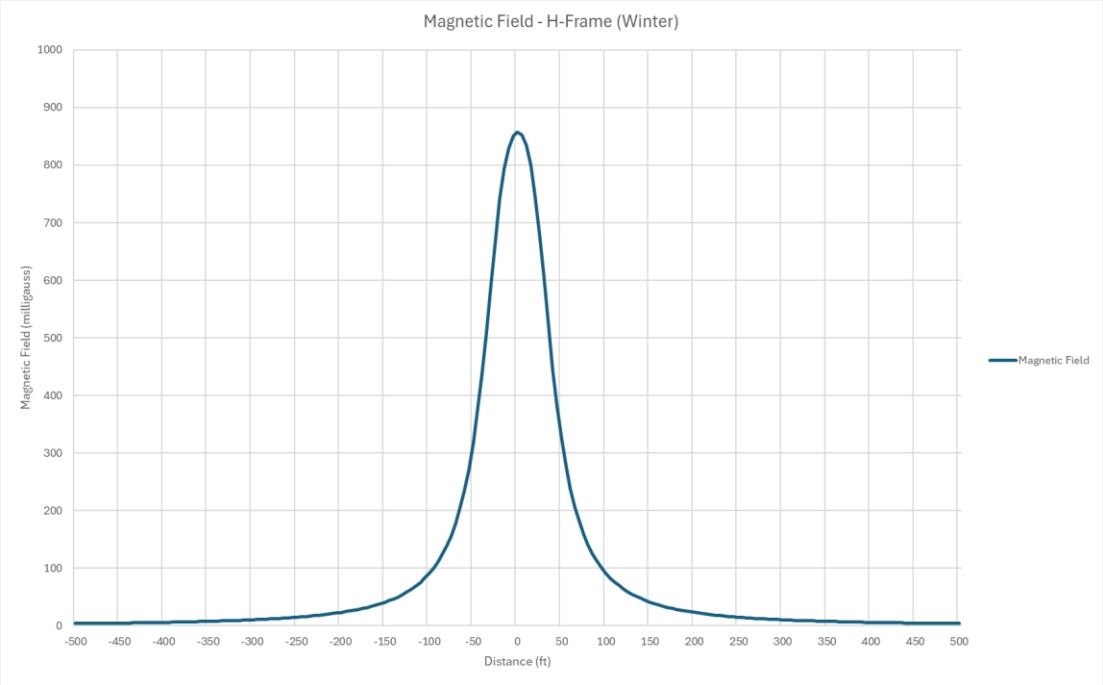


Figure 5: Magnetic Field – H-frame Structure (Winter)

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Figure 6 below shows the magnitude of the magnetic field for the turning structure using the summer loading condition. The magnetic field is at its maximum above the shield wire and reduces downward as it nears the ROW. The maximum value in the ROW is 119.95 mG. The maximum value at the edge of the ROW is 43.20 mG, which is below the acceptable limit of 200 mG.

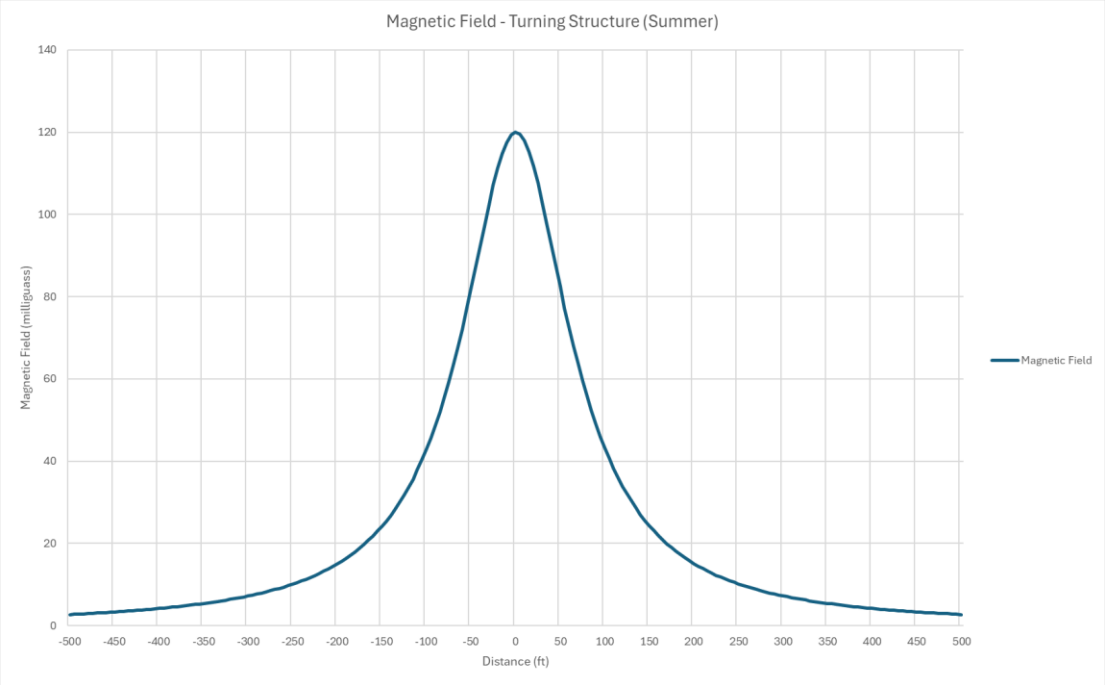


Figure 6: Magnetic Field – Turning Structure (Summer)

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Figure 7 below shows the magnitude of the magnetic field for the turning structure using the winter loading condition. The magnetic field is at its maximum above the shield wire and reduces downward as it nears the ROW. The maximum value in the ROW is 130.43 mG. The maximum value at the edge of the ROW is 46.97 mG, which is below the acceptable limit of 200 mG.

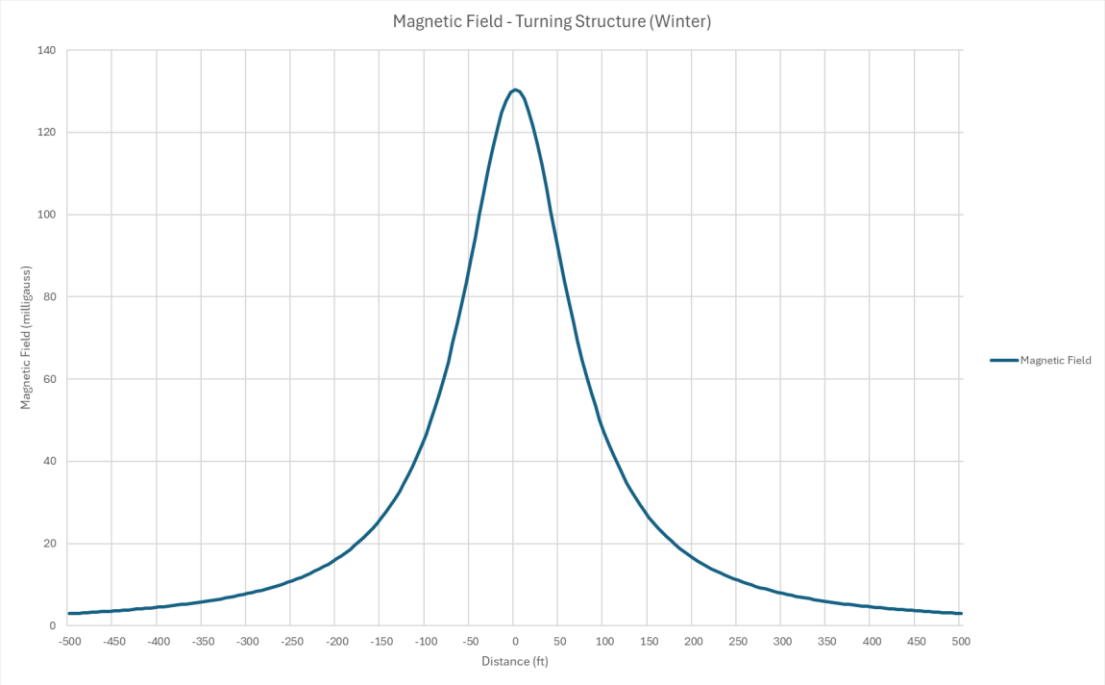


Figure 7: Magnetic Field – Turning Structure (Winter)

5. Conclusions

An analysis was conducted to determine the effects of electric and magnetic fields produced throughout the Right of Way (ROW) of the transmission tie-line. A maximum electric field is predicted to be 3.6 kV/ft with a maximum value of 0.153 kV/ft at the edge of the ROW.

For the magnetic fields, it was found that a maximum magnetic field value of 857.85 mG is predicted within the ROW. The corresponding maximum edge ROW value is predicted to be 91.27 mG.

Both the electric and magnetic field maximum values are well below the recommended exposure limits for the general public. Additionally, the transmission line facility, as modeled and shown in the report, conforms to the Public Service Commission's Statement of Interim Policy on Magnetic Fields on Major Electric Transmission Facilities. No equipment modifications are needed.

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Appendix A – Tabulated Results

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Electric Field – H-frame

X (Feet)	FIELD - net magnitude (kV/ft)
-500	0.00130116
-495	0.00133609
-490	0.00137497
-485	0.00141818
-480	0.0014604
-475	0.00150437
-470	0.00155018
-465	0.00160117
-460	0.0016511
-455	0.00170318
-450	0.00175754
-445	0.00181818
-440	0.00187766
-435	0.00193983
-430	0.00200486
-425	0.00207754
-420	0.002149
-415	0.00222386
-410	0.00230231
-405	0.00239023
-400	0.00247685
-395	0.00256782
-390	0.00266339
-385	0.00276388
-380	0.00287683
-375	0.00298851
-370	0.00310617
-365	0.00323021
-360	0.00337006
-355	0.00350874
-350	0.00365528
-345	0.00381024
-340	0.00398553

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
-335	0.00415993
-330	0.00434484
-325	0.00454105
-320	0.00476381
-315	0.00498628
-310	0.00522304
-305	0.00547525
-300	0.00576277
-295	0.00605116
-290	0.00635937
-285	0.00668916
-280	0.00706689
-275	0.00744761
-270	0.00785651
-265	0.00829624
-260	0.00876979
-255	0.00931593
-250	0.00987034
-245	0.0104701
-240	0.0111199
-235	0.0118742
-230	0.0126452
-225	0.0134849
-220	0.0144013
-215	0.0154734
-210	0.016578
-205	0.0177911
-200	0.0191261
-195	0.0207026
-190	0.0223426
-185	0.0241615
-180	0.0261841
-175	0.0285993
-170	0.0311418
-165	0.0339956

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
-160	0.0372097
-155	0.0411012
-150	0.0452582
-145	0.0499947
-140	0.0554144
-135	0.0616438
-130	0.0693564
-125	0.0777919
-120	0.0876392
-115	0.0991998
-110	0.113849
-105	0.130267
-100	0.149915
-95	0.17359
-90	0.204437
-85	0.240005
-80	0.28376
-75	0.337905
-70	0.41025
-65	0.495364
-60	0.601249
-55	0.731933
-50	0.90187
-45	1.08876
-40	1.29255
-35	1.48875
-30	1.64126
-25	1.67637
-20	1.57709
-15	1.37578
-10	1.1715
-5	1.05594
0	1.03351
5	1.04961
10	1.14017

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
15	1.34608
20	1.55454
25	1.67095
30	1.65308
35	1.51223
40	1.3199
45	1.11532
50	0.92535
55	0.751414
60	0.617158
65	0.508191
70	0.420545
75	0.346051
80	0.290325
85	0.245323
90	0.208773
95	0.177103
100	0.15282
105	0.132685
110	0.115875
115	0.101749
120	0.0890742
125	0.0790174
130	0.0704088
135	0.0629999
140	0.0561952
145	0.0506754
150	0.0458542
155	0.0416252
160	0.0376685
165	0.0344021
170	0.0315033
175	0.0289218
180	0.0264707
185	0.0244188

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
190	0.0225743
195	0.0209117
200	0.0193142
205	0.0179617
210	0.0167332
215	0.0156149
220	0.0145298
225	0.0136025
230	0.012753
235	0.0119733
240	0.0112563
245	0.0105537
250	0.00994758
255	0.00938739
260	0.00886885
265	0.00835736
270	0.00791329
275	0.00750044
280	0.00711611
285	0.00673486
290	0.00640206
295	0.00609107
300	0.00580014
305	0.00551012
310	0.00525575
315	0.005017
320	0.00479269
325	0.00456812
330	0.00437033
335	0.00418396
340	0.0040082
345	0.00383158
350	0.00367544
355	0.00352781
360	0.00338811

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
365	0.00325582
370	0.00312233
375	0.00300385
380	0.00289139
385	0.00278459
390	0.0026765
395	0.00258029
400	0.00248873
405	0.00240154
410	0.00231306
415	0.0022341
420	0.00215878
425	0.00208688
430	0.00201375
435	0.00194833
440	0.00188579
445	0.00182596
450	0.00176497
455	0.00171029
460	0.00165791
465	0.00160771
470	0.00155643
475	0.00151037
480	0.00146616
485	0.00142371
490	0.00138294
495	0.00134119
500	0.00130361

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Electric Field – Turning Structure

X (Feet)	FIELD - net magnitude (kV/ft)
-500	0.00556627
-495	0.00565938
-490	0.00576163
-485	0.00587363
-480	0.00598147
-475	0.00609215
-470	0.00620575
-465	0.00633028
-460	0.00645025
-455	0.00657347
-450	0.00670003
-445	0.00683884
-440	0.00697267
-435	0.0071102
-430	0.00725155
-425	0.00740668
-420	0.00755633
-415	0.00771021
-410	0.00786846
-405	0.00804223
-400	0.00820997
-395	0.00838252
-390	0.00856006
-385	0.00874273
-380	0.00894344
-375	0.00913728
-370	0.00933677
-365	0.0095421
-360	0.00976775
-355	0.0099857
-350	0.01021
-345	0.010441
-340	0.0106947
-335	0.0109397

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
-330	0.0111919
-325	0.0114513
-320	0.0117362
-315	0.0120112
-310	0.0122938
-305	0.0125843
-300	0.0129029
-295	0.0132098
-290	0.0135247
-285	0.0138476
-280	0.0142008
-275	0.0145399
-270	0.0148866
-265	0.0152406
-260	0.0156014
-255	0.0159932
-250	0.0163663
-245	0.0167442
-240	0.0171257
-235	0.0175351
-230	0.0179196
-225	0.0183026
-220	0.0186818
-215	0.0190789
-210	0.0194404
-205	0.0197873
-200	0.0201147
-195	0.0204357
-190	0.0207028
-185	0.0209287
-180	0.0211036
-175	0.0212209
-170	0.0212516
-165	0.0211897
-160	0.021017

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
-155	0.0206872
-150	0.0202171
-145	0.0195659
-140	0.0187088
-135	0.0176251
-130	0.0162123
-125	0.0146804
-120	0.0130758
-115	0.01174
-110	0.0114278
-105	0.0131465
-100	0.0171927
-95	0.0233818
-90	0.0321607
-85	0.0424503
-80	0.0548808
-75	0.069669
-70	0.0883273
-65	0.108799
-60	0.132396
-55	0.159295
-50	0.191695
-45	0.225422
-40	0.262016
-35	0.30078
-30	0.34329
-25	0.382634
-20	0.419546
-15	0.451871
-10	0.477418
-5	0.495025
0	0.501066
5	0.496438
10	0.481535
15	0.455715

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
20	0.42417
25	0.387741
30	0.348604
35	0.306059
40	0.267079
45	0.230147
50	0.19601
55	0.163136
60	0.135789
65	0.11176
70	0.0908843
75	0.0718323
80	0.056711
85	0.0439798
90	0.0334152
95	0.0243577
100	0.0178995
105	0.0135528
110	0.011527
115	0.011561
120	0.0128709
125	0.0144661
130	0.0160181
135	0.0173801
140	0.0185777
145	0.0194641
150	0.0201413
155	0.0206341
160	0.0209845
165	0.0211735
170	0.0212491
175	0.0212297
180	0.0211224
185	0.0209552
190	0.0207355

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
195	0.0204734
200	0.0201566
205	0.0198322
210	0.0194876
215	0.0191278
220	0.018732
225	0.0183535
230	0.0179708
235	0.0175864
240	0.0172023
245	0.0167949
250	0.0164165
255	0.0160427
260	0.0156743
265	0.0152883
270	0.0149334
275	0.0145857
280	0.0142456
285	0.0138913
290	0.0135673
295	0.0132513
300	0.0129433
305	0.0126236
310	0.0123321
315	0.0120484
320	0.0117724
325	0.0114865
330	0.011226
335	0.0109729
340	0.010727
345	0.0104722
350	0.0102404
355	0.0100152
360	0.00979645
365	0.00958388

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (kV/ft)
370	0.00936381
375	0.00916355
380	0.00896897
385	0.0087799
390	0.00858411
395	0.0084059
400	0.00823269
405	0.00806432
410	0.0078899
415	0.00773106
420	0.0075766
425	0.00742639
430	0.00727069
435	0.00712882
440	0.00699079
445	0.00685647
450	0.00671716
455	0.00659015
460	0.00646649
465	0.00634609
470	0.00622113
475	0.00610712
480	0.00599606
485	0.00588785
490	0.0057824
495	0.00567286
500	0.00557285

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Magnetic Field – H-frame (Summer)

X (Feet)	FIELD - net magnitude (mG)
-500	3.41238
-495	3.47591
-490	3.54597
-485	3.62305
-480	3.69762
-475	3.77452
-470	3.85384
-465	3.94124
-460	4.0259
-455	4.11332
-450	4.20362
-445	4.30325
-440	4.39991
-435	4.49986
-430	4.60326
-425	4.71752
-420	4.82855
-415	4.94354
-410	5.06269
-405	5.19459
-400	5.32299
-395	5.4562
-390	5.59447
-385	5.73807
-380	5.89741
-375	6.0529
-370	6.21462
-365	6.38291
-360	6.57005
-355	6.75308
-350	6.94385
-345	7.14282
-340	7.36463

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
-335	7.58208
-330	7.80931
-325	8.0469
-320	8.31247
-315	8.57356
-310	8.84714
-305	9.13401
-300	9.45565
-295	9.77287
-290	10.1063
-285	10.4571
-280	10.8517
-275	11.2424
-270	11.6544
-265	12.0896
-260	12.5495
-255	13.0696
-250	13.5872
-245	14.136
-240	14.7187
-235	15.3808
-230	16.043
-225	16.7487
-220	17.502
-215	18.3628
-210	19.2287
-205	20.1572
-200	21.1545
-195	22.3019
-190	23.4643
-185	24.7198
-180	26.0785
-175	27.6546
-170	29.2652
-165	31.0202

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
-160	32.9373
-155	35.1839
-150	37.5045
-145	40.0612
-140	42.8869
-135	46.0203
-130	49.7536
-125	53.6783
-120	58.0815
-115	63.0432
-110	69.0606
-105	75.5074
-100	82.8837
-95	91.3719
-90	101.908
-85	113.478
-80	127.057
-75	143.106
-70	163.605
-65	186.774
-60	214.709
-55	248.524
-50	292.483
-45	342.359
-40	401.323
-35	468.702
-30	546.298
-25	617.966
-20	680.909
-15	729.606
-10	762.698
-5	782.642
0	788.979
5	784.146
10	767.567

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
15	734.903
20	688.299
25	627.019
30	556.086
35	478.19
40	409.859
45	349.692
50	298.625
55	253.544
60	218.852
65	190.201
70	166.454
75	145.462
80	129.043
85	115.164
90	103.349
95	92.5992
100	83.9468
105	76.4336
110	69.8721
115	64.1107
120	58.7089
125	54.2362
130	50.2517
135	46.6878
140	43.286
145	40.4217
150	37.8311
155	35.4807
160	33.2062
165	31.266
170	29.4905
175	27.8616
180	26.268
185	24.8947

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
190	23.6261
195	22.4518
200	21.293
205	20.2861
210	19.3488
215	18.4748
220	17.6062
225	16.8463
230	16.1344
235	15.4667
240	14.8396
245	14.2117
250	13.6585
255	13.1369
260	12.6447
265	12.1494
270	11.7111
275	11.296
280	10.9026
285	10.5052
290	10.152
295	9.81636
300	9.49705
305	9.17331
310	8.8846
315	8.6093
320	8.34659
325	8.07939
330	7.84037
335	7.6118
340	7.39308
345	7.17
350	6.9699
355	6.77806
360	6.59402

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
365	6.41738
370	6.23667
375	6.0741
380	5.9178
385	5.76745
390	5.6133
395	5.47434
400	5.34046
405	5.21144
410	5.0789
415	4.95918
420	4.84365
425	4.7321
430	4.61731
435	4.51345
440	4.41305
445	4.31596
450	4.21589
455	4.12519
460	4.0374
465	3.95238
470	3.86461
475	3.78496
480	3.70774
485	3.63286
490	3.56023
495	3.48513
500	3.41686

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Magnetic Field – H-frame (Winter)

X (Feet)	FIELD - net magnitude (mG)
-500	3.71024
-495	3.77931
-490	3.85548
-485	3.9393
-480	4.02038
-475	4.10399
-470	4.19024
-465	4.28526
-460	4.37732
-455	4.47237
-450	4.57055
-445	4.67888
-440	4.78397
-435	4.89264
-430	5.00506
-425	5.1293
-420	5.25002
-415	5.37505
-410	5.5046
-405	5.64801
-400	5.78762
-395	5.93246
-390	6.0828
-385	6.23893
-380	6.41218
-375	6.58125
-370	6.75708
-365	6.94006
-360	7.14354
-355	7.34254
-350	7.54996
-345	7.7663
-340	8.00747

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
-335	8.24391
-330	8.49096
-325	8.74929
-320	9.03804
-315	9.32192
-310	9.61938
-305	9.9313
-300	10.281
-295	10.6259
-290	10.9885
-285	11.3699
-280	11.799
-275	12.2237
-270	12.6717
-265	13.1449
-260	13.6449
-255	14.2105
-250	14.7731
-245	15.3699
-240	16.0035
-235	16.7234
-230	17.4433
-225	18.2107
-220	19.0297
-215	19.9656
-210	20.9071
-205	21.9167
-200	23.001
-195	24.2486
-190	25.5125
-185	26.8775
-180	28.3548
-175	30.0685
-170	31.8197
-165	33.7279

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
-160	35.8123
-155	38.255
-150	40.7782
-145	43.5581
-140	46.6304
-135	50.0373
-130	54.0965
-125	58.3637
-120	63.1513
-115	68.5461
-110	75.0887
-105	82.0983
-100	90.1185
-95	99.3475
-90	110.803
-85	123.384
-80	138.148
-75	155.597
-70	177.885
-65	203.077
-60	233.451
-55	270.217
-50	318.014
-45	372.243
-40	436.354
-35	509.614
-30	593.983
-25	671.906
-20	740.344
-15	793.292
-10	829.273
-5	850.957
0	857.847
5	852.592
10	834.566

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
15	799.051
20	748.379
25	681.75
30	604.625
35	519.93
40	445.635
45	380.216
50	324.691
55	275.675
60	237.955
65	206.803
70	180.983
75	158.159
80	140.307
85	125.216
90	112.37
95	100.682
100	91.2743
105	83.1053
110	75.971
115	69.7068
120	63.8335
125	58.9703
130	54.6381
135	50.763
140	47.0643
145	43.95
150	41.1333
155	38.5778
160	36.1047
165	33.9952
170	32.0647
175	30.2935
180	28.5609
185	27.0677

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
190	25.6884
195	24.4116
200	23.1517
205	22.0568
210	21.0377
215	20.0875
220	19.143
225	18.3168
230	17.5428
235	16.8168
240	16.1349
245	15.4522
250	14.8507
255	14.2836
260	13.7484
265	13.2099
270	12.7333
275	12.282
280	11.8543
285	11.4222
290	11.0382
295	10.6732
300	10.326
305	9.97403
310	9.66011
315	9.36078
320	9.07514
325	8.78462
330	8.52474
335	8.27622
340	8.0384
345	7.79585
350	7.57828
355	7.3697
360	7.1696

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
365	6.97754
370	6.78106
375	6.60429
380	6.43435
385	6.27088
390	6.10328
395	5.95218
400	5.80662
405	5.66633
410	5.52223
415	5.39206
420	5.26644
425	5.14515
430	5.02034
435	4.90741
440	4.79825
445	4.69269
450	4.58388
455	4.48527
460	4.38981
465	4.29737
470	4.20194
475	4.11534
480	4.03138
485	3.94997
490	3.87099
495	3.78934
500	3.71511

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Magnetic Field – Turning Structure (Summer)

X (Feet)	FIELD - net magnitude (mG)
-500	2.72337
-495	2.77281
-490	2.82728
-485	2.88714
-480	2.94499
-475	3.00459
-470	3.06599
-465	3.13356
-460	3.19894
-455	3.26636
-450	3.33592
-445	3.41256
-440	3.48682
-435	3.56349
-430	3.64269
-425	3.73008
-420	3.81487
-415	3.90254
-410	3.99323
-405	4.09345
-400	4.19083
-395	4.29167
-390	4.39615
-385	4.50443
-380	4.62434
-375	4.74109
-370	4.86224
-365	4.98803
-360	5.12757
-355	5.26368
-350	5.40519
-345	5.55239
-340	5.716

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
-335	5.87591
-330	6.0425
-325	6.21614
-320	6.40955
-315	6.59902
-310	6.79683
-305	7.00347
-300	7.23419
-295	7.46076
-290	7.69787
-285	7.94616
-280	8.22413
-275	8.49782
-270	8.785
-265	9.08655
-260	9.40342
-255	9.75944
-250	10.1113
-245	10.4818
-240	10.8724
-235	11.3126
-230	11.7491
-225	12.2103
-220	12.698
-215	13.2497
-210	13.7987
-205	14.3809
-200	14.9988
-195	15.7005
-190	16.4015
-185	17.1477
-180	17.9428
-175	18.8493
-170	19.7587
-165	20.7307

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
-160	21.7706
-155	22.9612
-150	24.1607
-145	25.4477
-140	26.8302
-135	28.3165
-130	30.0265
-125	31.7571
-120	33.622
-115	35.6328
-110	37.9523
-105	40.3044
-100	42.8423
-95	45.5799
-90	48.7359
-85	51.9299
-80	55.3638
-75	59.0477
-70	63.2593
-65	67.473
-60	71.9361
-55	76.6306
-50	81.8571
-45	86.9098
-40	92.0371
-35	97.1429
-30	102.427
-25	107.073
-20	111.249
-15	114.78
-10	117.495
-5	119.331
0	119.954
5	119.477
10	117.927

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
15	115.193
20	111.761
25	107.661
30	103.067
35	97.8158
40	92.7215
45	87.5909
50	82.5237
55	77.2725
60	72.5492
65	68.054
70	63.8064
75	59.5581
80	55.8404
85	52.3736
90	49.1483
95	45.9608
100	43.1955
105	40.6318
110	38.2557
115	36.0535
120	33.8814
125	31.9978
130	30.2499
135	28.627
140	27.0222
145	25.6264
150	24.327
155	23.1164
160	21.9147
165	20.8653
170	19.8846
175	18.9671
180	18.0527
185	17.2508

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
190	16.4983
195	15.7915
200	15.0841
205	14.4612
210	13.8744
215	13.3211
220	12.7651
225	12.2737
230	11.8091
235	11.3694
240	10.953
245	10.5327
250	10.1596
255	9.80531
260	9.46872
265	9.1279
270	8.82436
275	8.53531
280	8.25987
285	7.98015
290	7.73031
295	7.49175
300	7.26381
305	7.03171
310	6.82386
315	6.62491
320	6.43435
325	6.23984
330	6.06524
335	5.89773
340	5.73695
345	5.57246
350	5.42448
355	5.28223
360	5.14541

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
365	5.01376
370	4.87874
375	4.75698
380	4.63966
385	4.52656
390	4.41036
395	4.30539
400	4.20407
405	4.10624
410	4.00556
415	3.91445
420	3.82639
425	3.74123
430	3.65345
435	3.5739
440	3.4969
445	3.42233
450	3.34536
455	3.27551
460	3.20781
465	3.14216
470	3.07432
475	3.01267
480	2.95284
485	2.89476
490	2.83836
495	2.77998
500	2.72686

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Magnetic Field – Turning Structure (Winter)

X (Feet)	FIELD - net magnitude (mG)
-500	2.96109
-495	3.01484
-490	3.07406
-485	3.13915
-480	3.20206
-475	3.26685
-470	3.33361
-465	3.40708
-460	3.47817
-455	3.55148
-450	3.62711
-445	3.71044
-440	3.79117
-435	3.87454
-430	3.96065
-425	4.05568
-420	4.14786
-415	4.24318
-410	4.34179
-405	4.45076
-400	4.55663
-395	4.66628
-390	4.77988
-385	4.89761
-380	5.02799
-375	5.15492
-370	5.28666
-365	5.42342
-360	5.57514
-355	5.72314
-350	5.877
-345	6.03704
-340	6.21493

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
-335	6.38881
-330	6.56994
-325	6.75873
-320	6.96903
-315	7.17504
-310	7.39011
-305	7.61478
-300	7.86565
-295	8.11199
-290	8.36979
-285	8.63977
-280	8.942
-275	9.23957
-270	9.55182
-265	9.8797
-260	10.2242
-255	10.6113
-250	10.9939
-245	11.3967
-240	11.8214
-235	12.3
-230	12.7746
-225	13.2761
-220	13.8064
-215	14.4063
-210	15.0032
-205	15.6362
-200	16.3081
-195	17.071
-190	17.8331
-185	18.6444
-180	19.5089
-175	20.4946
-170	21.4834
-165	22.5402

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
-160	23.6709
-155	24.9655
-150	26.2696
-145	27.669
-140	29.1722
-135	30.7882
-130	32.6475
-125	34.5291
-120	36.5568
-115	38.7431
-110	41.2651
-105	43.8225
-100	46.5819
-95	49.5585
-90	52.9899
-85	56.4627
-80	60.1964
-75	64.2018
-70	68.7811
-65	73.3626
-60	78.2152
-55	83.3195
-50	89.0022
-45	94.4959
-40	100.071
-35	105.622
-30	111.368
-25	116.419
-20	120.96
-15	124.799
-10	127.751
-5	129.747
0	130.425
5	129.906
10	128.221

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
15	125.247
20	121.517
25	117.058
30	112.064
35	106.354
40	100.815
45	95.2365
50	89.727
55	84.0174
60	78.8818
65	73.9942
70	69.3759
75	64.7568
80	60.7146
85	56.9452
90	53.4384
95	49.9726
100	46.9659
105	44.1784
110	41.5949
115	39.2006
120	36.8389
125	34.7908
130	32.8904
135	31.1258
140	29.3809
145	27.8633
150	26.4505
155	25.1341
160	23.8275
165	22.6866
170	21.6203
175	20.6227
180	19.6284
185	18.7565

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
190	17.9384
195	17.1699
200	16.4007
205	15.7235
210	15.0855
215	14.4839
220	13.8794
225	13.3451
230	12.8399
235	12.3618
240	11.909
245	11.4521
250	11.0464
255	10.6612
260	10.2952
265	9.92465
270	9.59462
275	9.28034
280	8.98086
285	8.67672
290	8.40507
295	8.14569
300	7.89786
305	7.6455
310	7.4195
315	7.20318
320	6.99599
325	6.7845
330	6.59466
335	6.41253
340	6.23771
345	6.05886
350	5.89797
355	5.7433
360	5.59454

REYNOLDS
ARCHITECTURE
ENGINEERING

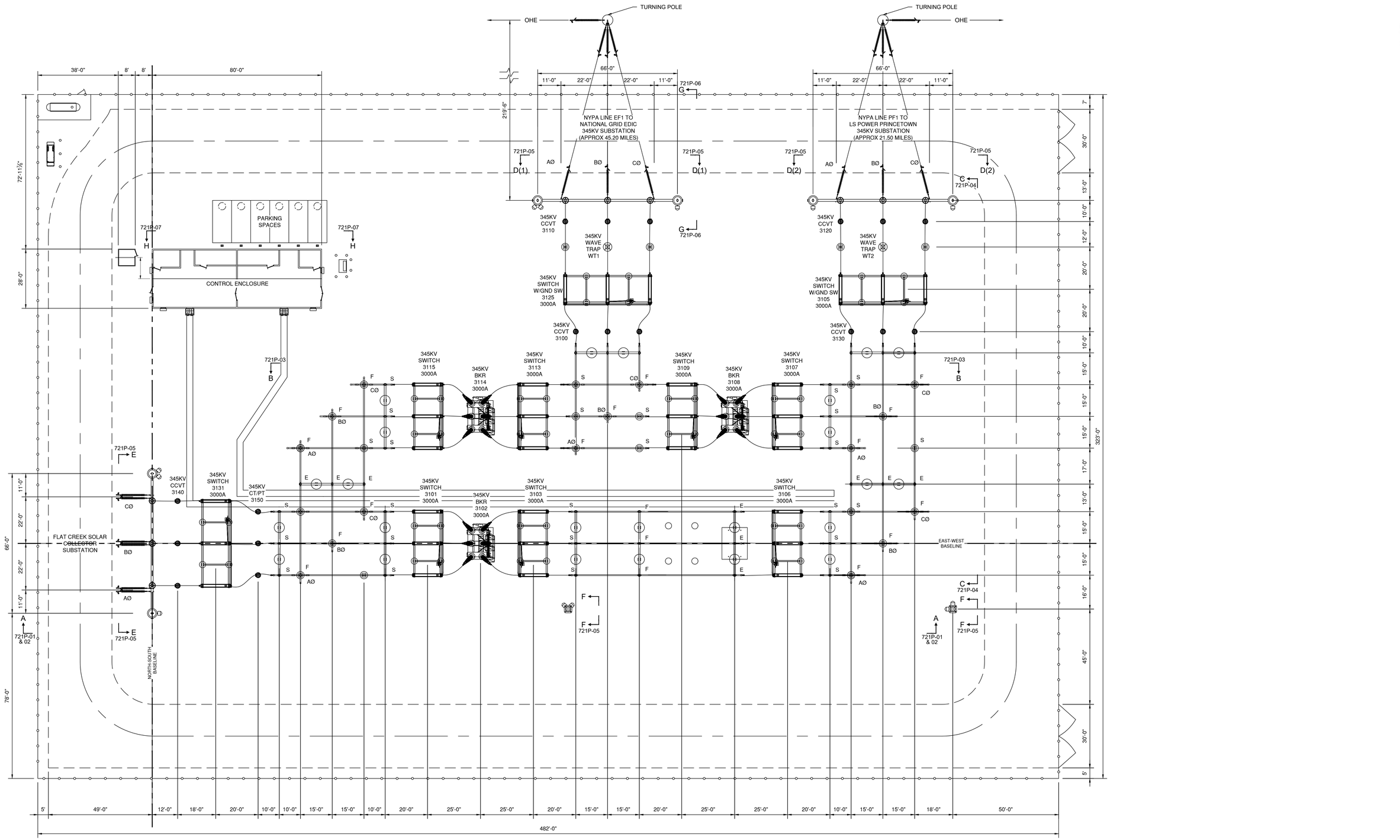
40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

X (Feet)	FIELD - net magnitude (mG)
365	5.4514
370	5.3046
375	5.17221
380	5.04464
385	4.92167
390	4.79533
395	4.68119
400	4.57103
405	4.46466
410	4.35519
415	4.25614
420	4.16038
425	4.06779
430	3.97235
435	3.88586
440	3.80213
445	3.72106
450	3.63737
455	3.56143
460	3.48781
465	3.41644
470	3.34267
475	3.27564
480	3.21058
485	3.14743
490	3.08611
495	3.02264
500	2.96488

REYNOLDS
ARCHITECTURE
ENGINEERING

40 Tamarack Lane
Niskayuna, New York 12309
518.225.9473

Appendix B – Drawings



PROPRIETARY INFORMATION

REYNOLDS ARCHITECTURAL ENGINEERING CLAIMS PROPRIETARY RIGHTS TO THE INFORMATION, DESIGN AND LAYOUT DISCLOSED HEREIN. THIS DRAWING IS ISSUED FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT BE REPRODUCED, DISCLOSED TO OTHERS OR USED TO DESIGN OR CONSTRUCT ANY OF THE ITEMS SHOWN HEREIN WITHOUT THE EXPRESSED WRITTEN CONSENT OF REYNOLDS ARCHITECTURE ENGINEERING.

REV.:	DATE:	DESCRIPTION OF REVISION:	DRAWN:	CHECKED:	APPRV'D:
C	04/19/2024	ILLUMINATION UPDATE	TB	SR	SR
B	03/25/2024	UPDATED PER CLIENT REVIEW	TB	SR	SR
A	03/07/2024	ISSUED FOR PERMIT	TB	SR	SR

P.E. STAMP

REYNOLDS ARCHITECTURE ENGINEERING
40 TAMARACK LANE
NYSKAYUNA, NY 12309
(518) 225-9473

SUNEAST FLAT CREEK SOLAR - 200MWAC

SUNEAST DEVELOPMENT, LLC

RAPPA RD, ROOT, NY 12166

STATION GENERAL ARRAGEMENT

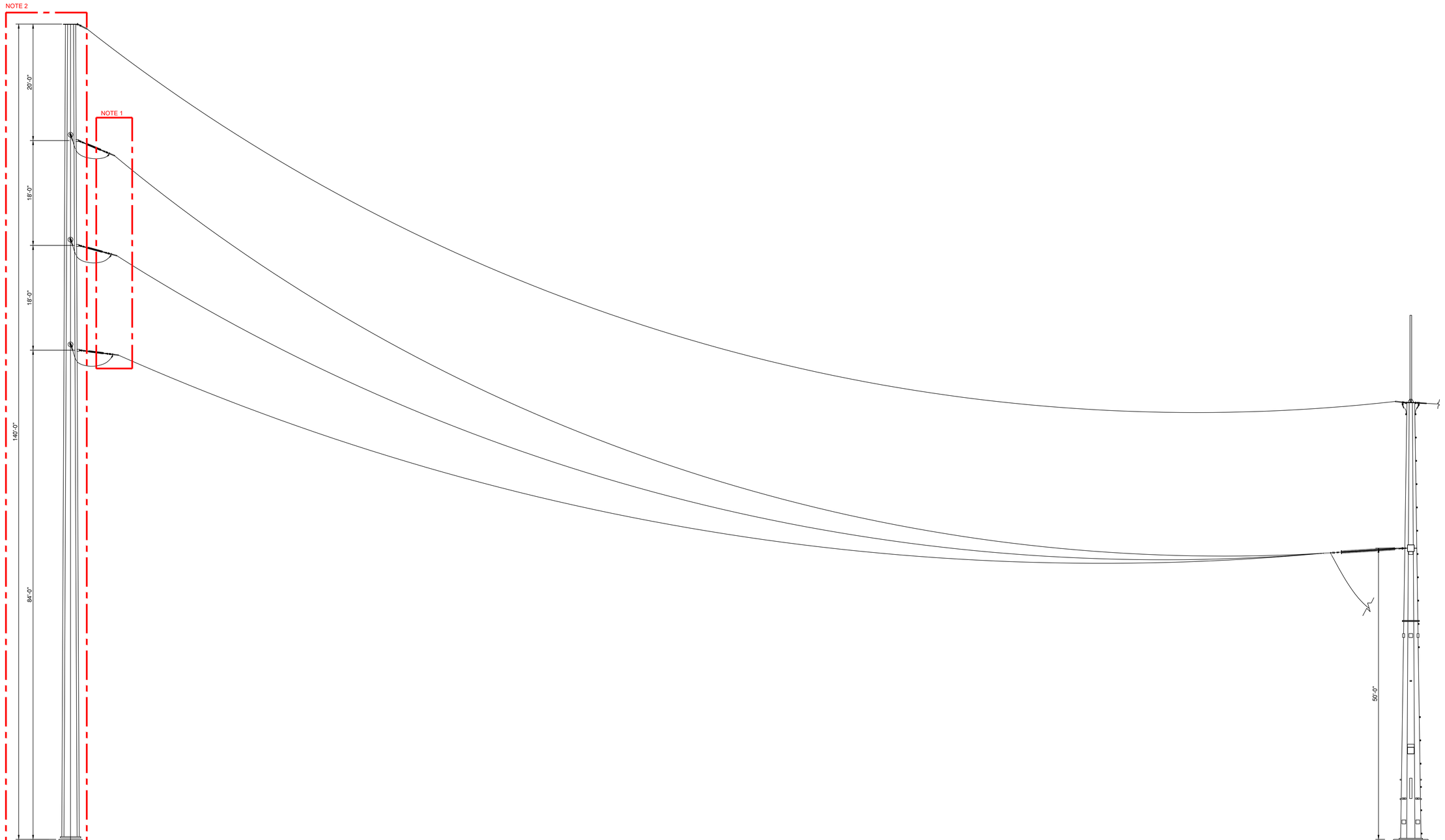
NYPA POI

PROJ. NO.: CP-FLCK

DWG. NO.: FLCK-720P

SH.: 1 REV.: C

SCALE: 1" = 20'-0"



SECTION G-G
(TYPICAL TURNING POLE
CONNECTION 2X)

NOTES:

1. PHASING ROTATION DETERMINED BY NYPA
2. TURNING POLE DEISGN BY NYPA CURRENT REPRESENTATION IS SUBJECT TO CHANGE BY NYPA DEPENDENT ON THE HEIGHTS OF THE NEW 345KV LINE FROM EDIC TO PRINCETOWN

LEGEND:

F	FIXED FITTING
S	SLIP FITTING
E	EXPANSION FITTING

NOT FOR CONSTRUCTION

REV.:	DATE:	DESCRIPTION OF REVISION:	DRAWN:	CHECKED:	APPRV'D:
B	03/25/2024	UPDATED PER CLIENT REVIEW	TB	SR	SR
A	03/07/2024	ISSUED FOR PERMIT	TB	SR	SR

P.E. STAMP

REYNOLDS ARCHITECTURE ENGINEERING
40 TAMARACK LANE
NYSKAYUNA, NY 12309
(518) 225-9473

SUNEAST FLAT CREEK SOLAR - 200MWAC

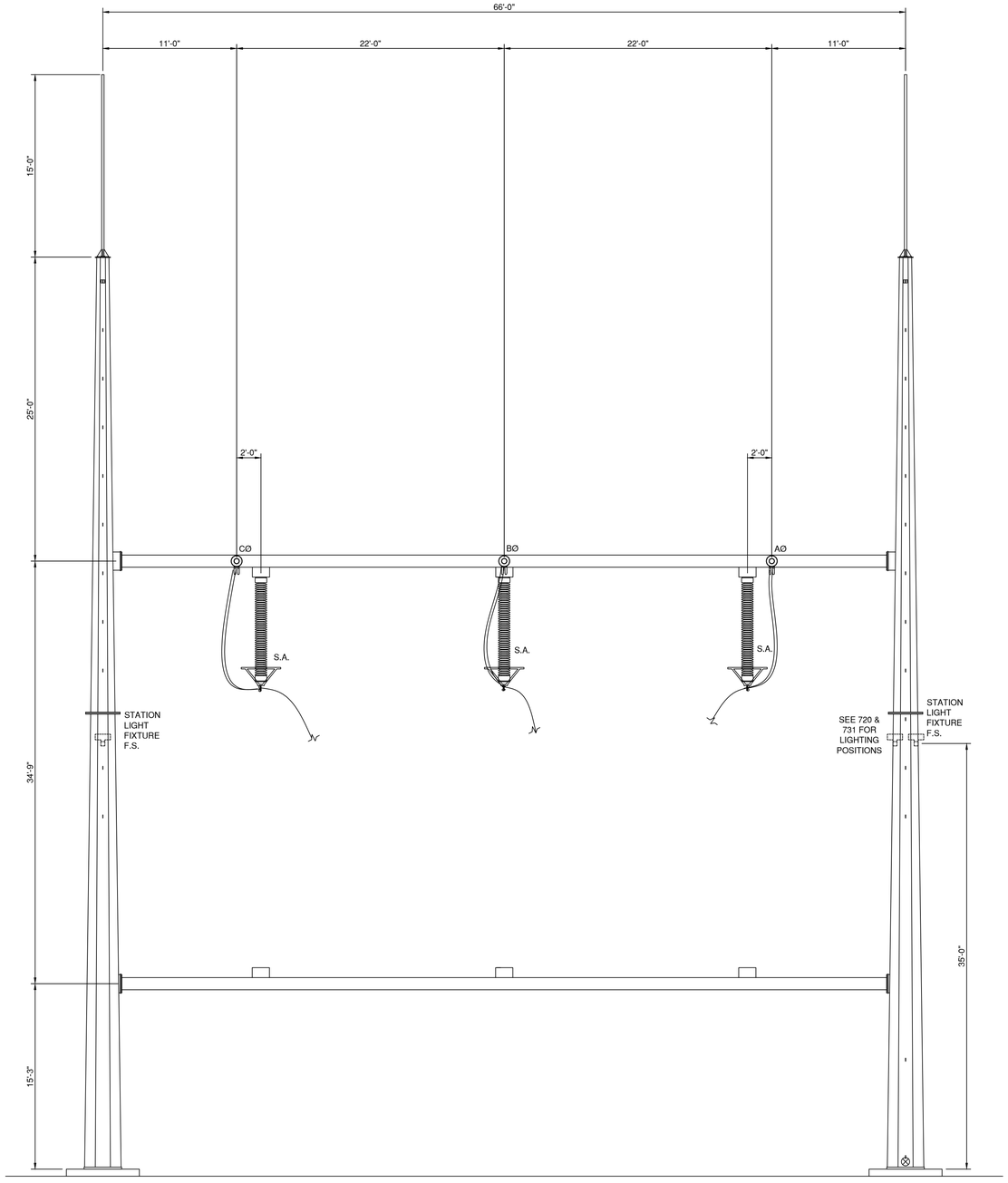
SUNEAST DEVELOPMENT, LLC

RAPPA RD, ROOT, NY 12166

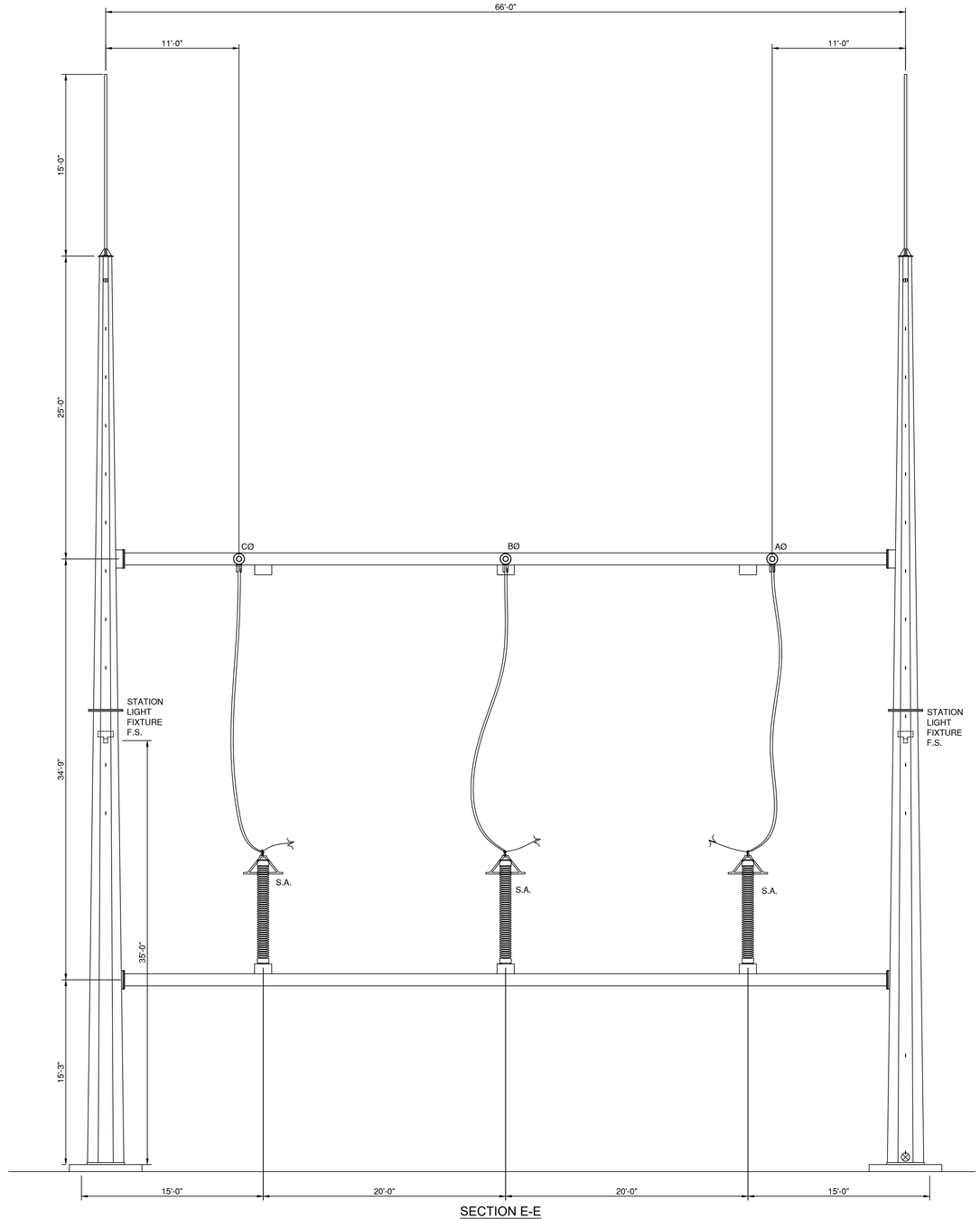
ELEVATION DETAILS

NYPA POI

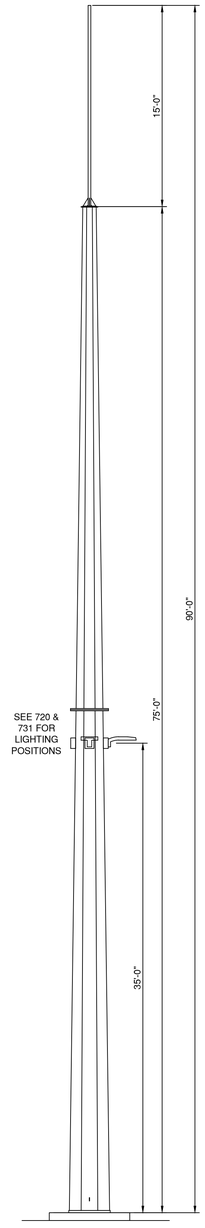
PROJ. NO.:	CP-FLCK
DWG. NO:	FLCK-721P
SH: 6	REV: B
SCALE:	1" = 20'-0"



SECTION D-D
(1 & 2)



SECTION E-E



SECTION F-F
TYP MAST

LEGEND:

F	FIXED FITTING
S	SLIP FITTING
E	EXPANSION FITTING

NOT FOR CONSTRUCTION

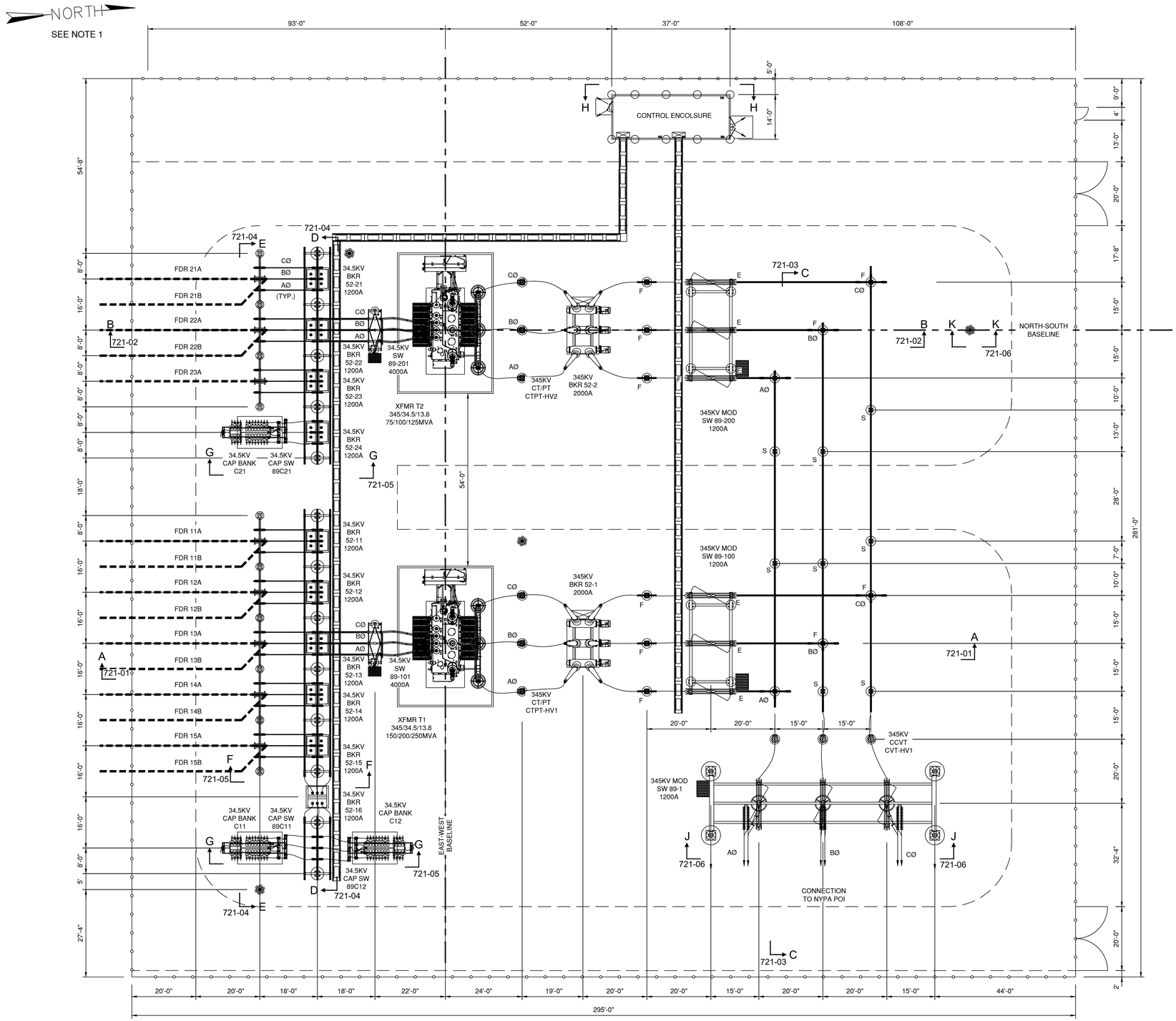
REV.:	DATE:	DESCRIPTION OF REVISION:	DRAWN:	CHECKED:	APPRV'D:
C	04/19/2024	ILLUMINATION UPDATE	TB	SR	SR
B	03/25/2024	UPDATED PER CLIENT REVIEW	TB	SR	SR
A	03/07/2024	ISSUED FOR PERMIT	TB	SR	SR

P.E. STAMP

REYNOLDS ARCHITECTURE ENGINEERING
40 TAMARACK LANE
NYSKAYUNA, NY 12309
(518) 225-9473

SUNEAST FLAT CREEK SOLAR - 200MWAC
SUNEAST DEVELOPMENT, LLC
RAPPA RD, ROOT, NY 12166
ELEVATION DETAILS
NYPA POI

PROJ. NO.: CP-FLCK
DWG. NO.: FLCK-721P
SH: 5
REV: C
SCALE: 1" = 20'-0"



NOTES:

1. SEE 760 SITE PLAN FOR INDICATION OF TRUE NORTH.

LEGEND:

F	FIXED FITTING
S	SLIP FITTING
E	EXPANSION FITTING
A / 721-0	INDICATES SECTION VIEW "A-A" / DRAWING ON WHICH SECTION APPEARS
	DRIVEABLE TRENCH
	PEDESTRIAN TRENCH
	FENCE
	STATION LIGHT

REV.:	DATE:	DESCRIPTION OF REVISION:	DRAWN:	CHECKED:	APPRV'D:
C	04/19/2024	CAP BANK ADDITION	TB	SR	SR
B	03/25/2024	UPDATED PER CLIENT REVIEW	TB	SR	SR
A	03/07/2024	ISSUED FOR PERMIT	TB	SR	SR

P.E. STAMP

REYNOLDS ARCHITECTURE ENGINEERING
40 TAMARACK LANE
NYSKAYUNA, NY 12309
(518) 225-9473

SUNEAST FLAT CREEK SOLAR - 200MWAC

SUNEAST DEVELOPMENT, LLC

RAPPA RD, ROOT, NY 12166

STATION GENERAL ARRANGEMENT

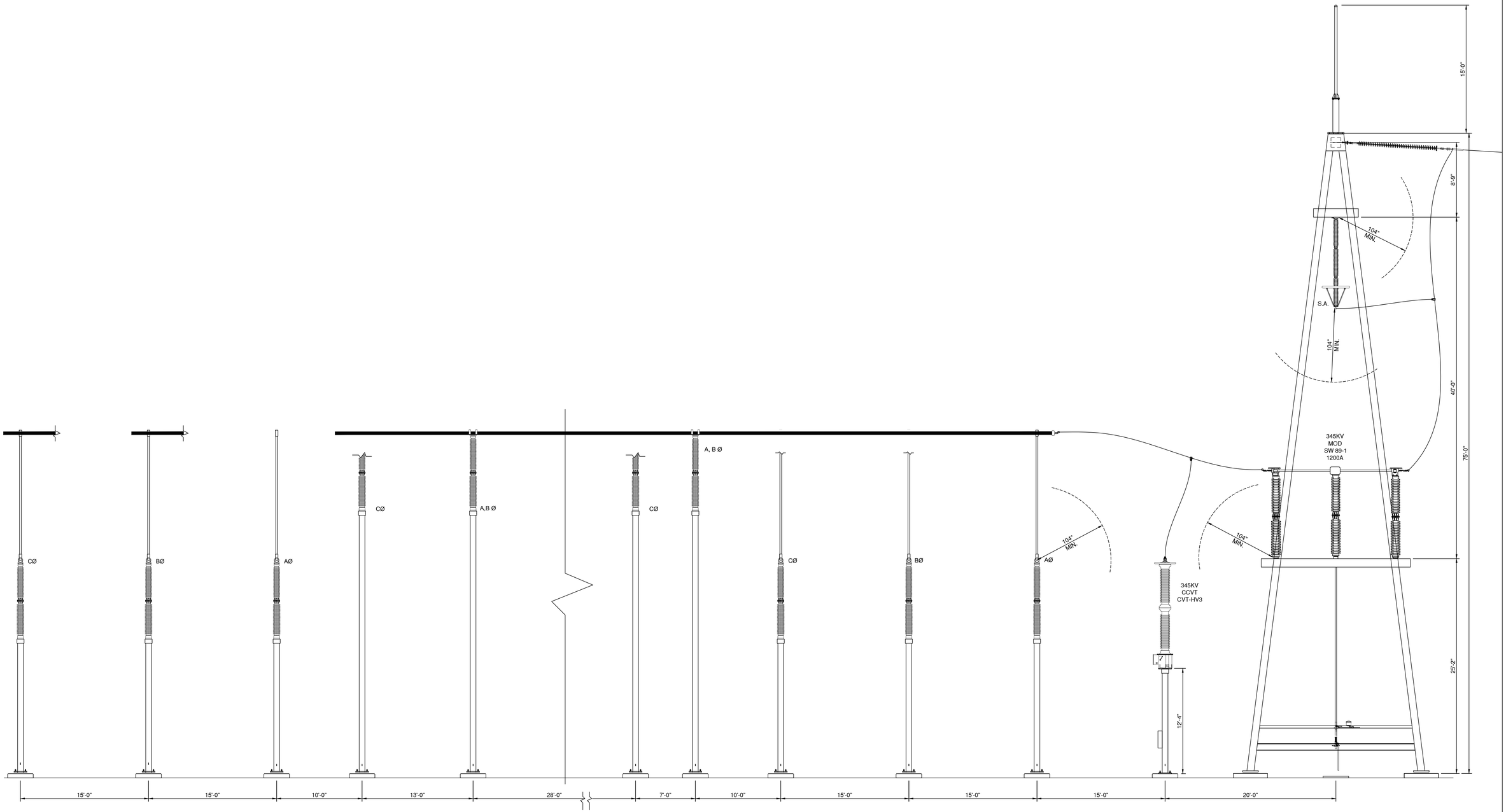
COLLECTOR SUBSTATION

PROJ. NO.: CP-FLCK

DWG. NO: FLCK-720

SH: 1 REV: C

SCALE: 1/16" = 1'-0"



SECTION C-C

LEGEND:

F	FIXED FITTING
S	SLIP FITTING
E	EXPANSION FITTING

NOT FOR CONSTRUCTION

REV.:	DATE:	DESCRIPTION OF REVISION:	DRAWN:	CHECKED:	APPRV'D:
B	03/25/2024	UPDATED PER CLIENT REVIEW	TB	SR	SR
A	03/07/2024	ISSUED FOR PERMIT	TB	SR	SR

P.E. STAMP

REYNOLDS ARCHITECTURE ENGINEERING
40 TAMARACK LANE
NYSKAYUNA, NY 12309
(518) 225-9473

SUNEAST FLAT CREEK SOLAR - 200MWAC

SUNEAST DEVELOPMENT, LLC

RAPPA RD, ROOT, NY 12166

ELEVATION DETAILS

COLLECTOR SUBSTATION

PROJ. NO.:	CP-FLCK
DWG. NO:	FLCK-721
SH: 3	REV: B
SCALE:	1/16" = 1'-0"