A REPORT FOR
AGRICOLA WIND LLC

Agricola Wind

EMF Study Report

AUGUST 27, 2024

PREPARED FOR:

Agricola Wind LLC

PREPARED BY:

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ELECTRIC AND MAGNETIC FIELD (EMF) STUDY

Agricola Wind

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1. Introduction

The Agricola Wind Substation interconnection is located in Cayuga County, New York (the Project). Agricola Wind Substation is a proposed 115kV greenfield collection substation with an interconnecting span to a utility substation. The utility substation has an in-and-out interconnection off an existing transmission line.

An evaluation was performed of the electric and magnetic fields (EMFs) associated with the proposed 115kV in and out substation interconnection, as well as the interconnection between the collection substation and utility substation. The purpose of this study was to perform computer modeling of the lines associated with the Project and prepare a technical report of the calculation results, which are presented herein. Each line cross section was analyzed, and results are provided below for each segment.

As demonstrated in the calculations to follow, the maximum magnetic field produced by the three new transmission spans at the edge of the right-of-way is predicted to be 19.92 mG, which is below the New York state limit of 200 mG. The maximum electric field produced by the three new transmission spans anywhere within the right-of-way is predicted to be .421 kV/m, which is below the New York state limit of 11.8 kV/m. The maximum electric field produced by the three new transmission spans at the edge of the right-of-way is predicted to be .166 kV/m, below the New York state limit of 1.6 kV/m. There are no federal or New York state standards limiting occupational or residential exposure to 60-Hz EMF in the United States. There are no habitable buildings encroaching on any section of ROW or any transmission span for the three spans analyzed.

No transmission or substation design was included in the scope of this report, and information on heights, pole framings, and span lengths/tensions are based on reasonable assumptions for this voltage class. Assumptions and limitations for this analysis are listed in section 5 of this report.

2. General Description of Electric and Magnetic Fields

A. Background Information

The generation, delivery, and use of electricity produces both electric and magnetic fields. Electric and magnetic fields are created by electrical voltage and electrical current respectively. Electrical facilities, such as the Agricola Wind Substation Interconnection, produce electric and magnetic fields during operation. The exposure to electric and magnetic fields is complex and comes from multiple sources in the home and workplace in addition to power lines.

B. Units of Measure

Electric field values are reported using units of volts per meter (V/m). Often the electric field is reported using thousands of volts per meter (or kV/m).

Magnetic field values are reported using units of gauss (G). However, it is usually more convenient to report magnetic field using milligauss (mG) which is equal to one-thousandth of a gauss (i.e., 1 mG = 0.001 G). Some technical reports also use the unit tesla (T) or microtesla (µT; 1 µT = 0.000001 T) for magnetic fields. The conversion between these two units is 1 mG = 0.1 µT and 1 µT = 10mG.

C. Electric Fields

The potential or voltage (electrical pressure) on an object causes an electric field. Any object with an electric charge on it has a voltage (potential) at its surface caused by the accumulation of more electrons as compared with another object or surface. The voltage effect is not limited to the surface of the object but exists in the surrounding space in diminishing intensity. Electric fields can exert a force on the other electric charges at a distance. The change in voltage over distance is known as the electric field. The electric field becomes stronger near a charged object and decreases with distance away from the object. Electric fields are found in everyday life with typical values of electric field measured 1-foot away from common appliances shown in Figure 1.

Appliance	Electric Field (kV/m)
Electric Blanket	0.25*
Broiler	0.13
Refrigerator	0.06
Iron	0.06
Hand Mixer	0.05
Coffee Pot	0.03

* Note: 1 to 10 kV/m next to blanket wires
Source: Carstensen 1985; Enertech Consultants 1985

Figure 1 – Typical Electric Field Values for Appliances at 12 inches

In the United States, electric power transmission lines create 60 Hz electric fields. These fields result from the voltage of the transmission line phase conductors with respect to the ground.

Electric field strengths from a transmission line decrease with distance away from the outermost conductor, typically at a rate of approximately one divided by the distance squared ($1/d^2$). For example, in an undisturbed field, if the electric strength is 10 kV/m at 1 meter away, it will be approximately 2.5 kV/m at 2 meters away, and 0.625 kV/m at 4 meters away. Electric field strengths for a transmission line remain relatively constant over time because the voltage of the line is kept within bounds of about ± 5 percent of its rated voltage.

Transmission line electric fields are affected by the presence of grounded and conductive objects as demonstrated by Figure 1. Trees and buildings, for example can significantly reduce ground level electric fields by shielding the area nearby.

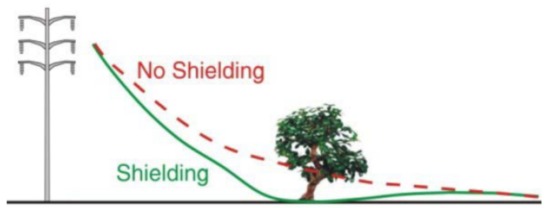


Figure 2 – Electric Field Measurements Demonstrate Shielding Due to the Presence of a Tree

D. Magnetic Fields

An electric current flowing in a conductor (electric equipment, household appliance, power circuits, etc.) creates a magnetic field. The commonly used magnetic field intensity unit of measure is the milligauss (mG).

Since the magnetic field is caused by the flow of an electric current, a device must be operated to create a magnetic field. Magnetic field strengths of many common household appliances were measured and typical magnetic field values for some appliances have been measured as low as 0.3 mG to as high as 20,000 mG. This is shown in figure 3.

Appliance	Magnetic Field at 12 inches Away (mG)	Maximum Magnetic Field (mG)
Electric Range	3 to 30	100 to 1,200
Electric Oven	2 to 25	10 to 50
Garbage Disposal	10 to 20	850 to 1,250
Refrigerator	0.3 to 3	4 to 15
Clothes Washer	2 to 30	10 to 400
Clothes Dryer	1 to 3	3 to 80
Coffee Maker	0.8 to 1	15 to 250
Toaster	0.6 to 8	70 to 150
Crock Pot	0.8 to 1	15 to 80
Iron	1 to 3	90 to 300
Can Opener	35 to 250	10,000 to 20,000
Blender, Popper, Processor	6 to 20	250 to 1,050
Vacuum Cleaner	20 to 200	2,000 to 8,000
Portable Heater	1 to 40	100 to 1,100
Fans/Blowers	0.4 to 40	20 to 300
Hair Dryer	1 to 70	60 to 20,000
Electric Shaver	1 to 100	150 to 15,000
Fluorescent Light Fixture	2 to 40	140 to 2,000
Fluorescent Desk Lamp	6 to 20	400 to 3,500
Circular Saws	10 to 250	2,000 to 10,000
Electric Drill	25 to 35	4,000 to 8,000

Source: IITRI 1984; Silva 1989

FIGURE 3 – MAGNETIC FIELDS FROM HOUSEHOLD APPLIANCES

Electric power transmission lines also create magnetic fields. These fields are typically generated by the current (amperes) flowing through the phase conductors. The magnetic field is a vector quantity having magnitude and direction.

Similar to the electric field, magnetic field strengths decrease with the inverse square of the distance away from the power line. Unlike electric fields that vary little over time, magnetic fields are not constant because the current on any power line changes in response to increasing and decreasing electrical load. Magnetic fields are not easily shielded.

E. EMF Standard Design Limits

There are no federal standards limiting occupational or residential exposure to 60-Hz EMF in the United States. However, New York has exposure limits for electric and magnetic fields measured based on IEEE (Institute of Electrical and Electronics Engineers) standard C95.3-2021, 1 meter from the ground. For electric fields the limit anywhere within the right-of-way of the transmission line is 11.8 kV/m and the limit at the edge of the right-of-way is 1.6 kV/m. For the magnetic field, the only limit is at the edge of the right-of-way, and it is 200 mG.

3. Project Overview

The Agricola Wind Substation Connection is broken up into three unique right-of-way sections, as defined below:

Table 1 – EMF Study Cross-reference

Calculation #	Cross-Section #	Description
1	1	One Horizontally Oriented 115 kV Circuit to Horizontal Substation Dead-End with 795 26/7 Drake ACSR Conductor.
2	2	One Horizontally Oriented 115 kV Circuit to Horizontal Substation Dead-End with 795 26/7 Drake ACSR Conductor.
3	3	One Horizontally Substation Dead-End to Horizontal Substation Dead-End with 795 26/7 Drake ACSR Conductor.

Table 2 – EMF Study Cross-Section Structure Range

Calculation #	Cross-Section #	Structure Range
1	1	Between Transmission Str. 1 and Utility SUB DE-1
2	2	Between Transmission Str. 2 and Utility SUB DE-2
3	3	Between Collection SUB DE-1 and Utility SUB DE-3

Figure 4 – Aerial imagery showing plan view of all cross sections and proposed substation *All Dimensions shown are in feet

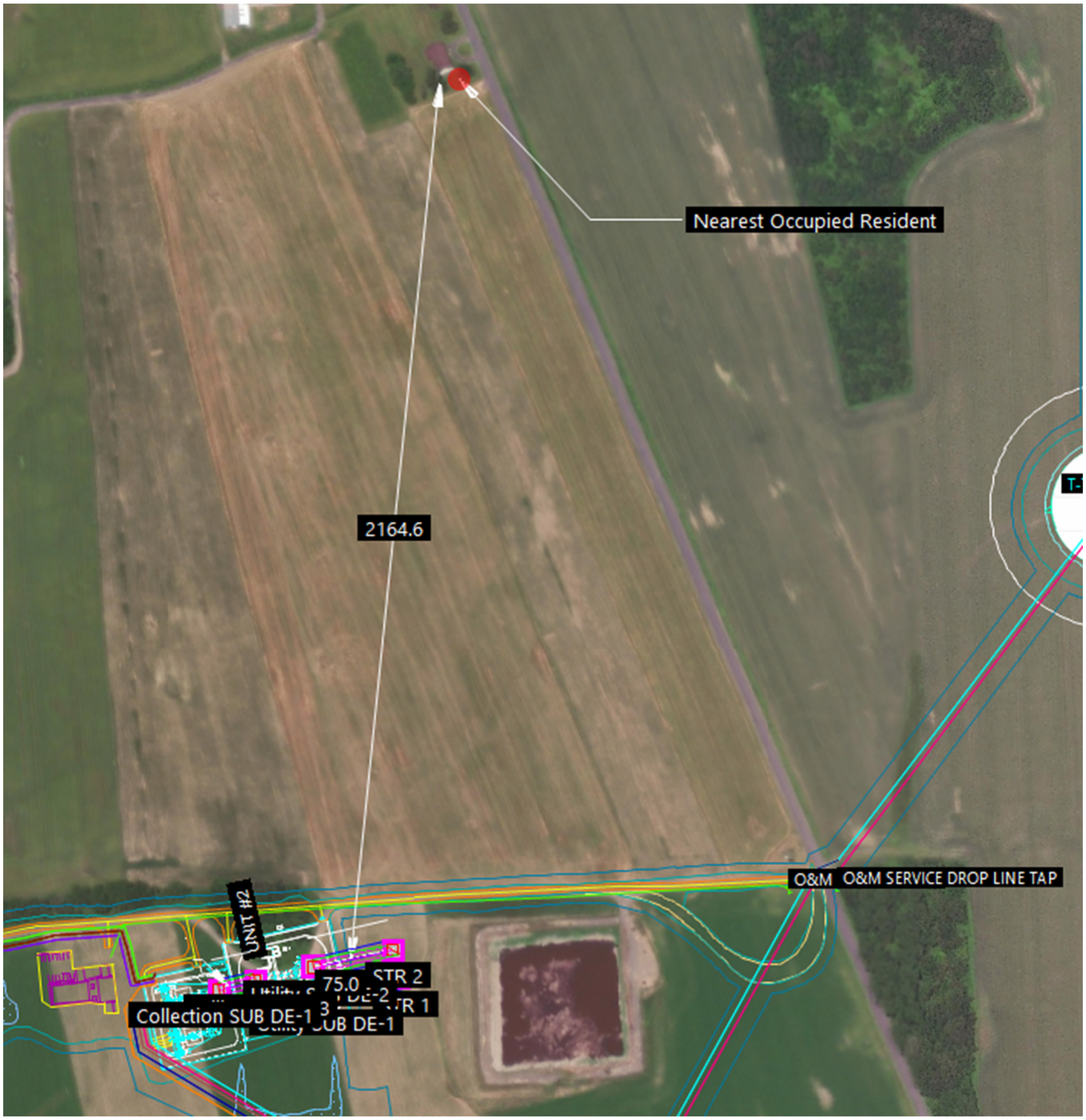


Figure 5 – Aerial imagery showing plan view of nearest occupied residence *All Dimensions shown are in feet

4. Calculations

A. Specific Parameters and Circuit Information for Calculations

Table 3 – EMF Study Modeling Parameters

Corridor Width for Calculation	Corridor width based on a future ROW proposed width of 150ft.
Frequency	60 Hz
Loading	Amperage used was based on the max hypothetical amperage the conductor will be operated up to at 212°F at the line location.
Wire Location	Based on PLS model (varies)
Measurement Location	3.28 ft. (1m) above ground
Software Used	PLS-CADD v19.16 x64
Phasing	For the purpose of the EMF study, phases A, B, and C will have phase angles of 0 degrees, 120 degrees, and 120 degrees, respectively. Balanced three phase loads were assumed. See Figure 4 to Figure 13 for phasing for each section.

Table 4 – EMF Study Modeling Parameters

Calculation #	Number of circuits in ROW Segment	Voltage	Status	Conductors Modeled	Summer Normal Current (Amps)
1	1	115 kV	New	795 26/7 Drake ACSR	1110A
2	1	115 kV	New	795 26/7 Drake ACSR	1110A
3	1	115 kV	New	795 26/7 Drake ACSR	556A

B. General Parameters

The modeling and calculations of electric and magnetic fields were performed using the 3D EMF calculator within PLS-CADD, based on Electric Power Research Institute (EPRI) and IEEE methods.

The calculations were performed on a 60 Hz frequency, with the conductors loaded with a max operating current. The calculations were made, based on IEEE standard C95.3-2021, at 1 meter (3.28ft) above ground in 5ft increments across the right-of-way at the point of Max electric/magnetic field along centerline.

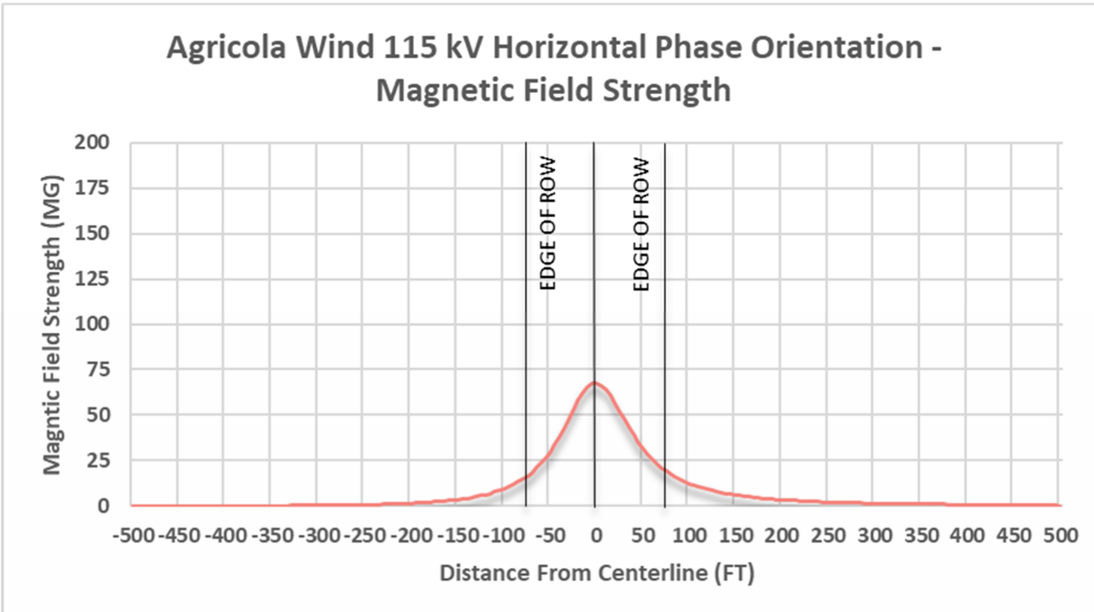
5. Assumptions & Limitations

Loading for this EMF report was based on maximum loading, per section, provided by Agricola Wind LLC. Assumed conductor was 795 ACSR “Drake”, as provided by Agricola Wind LLC. A different cable size or loading on the line would result in an increase or decrease in EMF contributions from the line. This EMF report is based off the EMF effects from each span on its own ROW and does not factor in the constructive or destructive interference from any other existing transmission, distribution or electrical equipment (existing or new). The effects of which will likely increase or decrease the EMF effects within the ROW. This was not included as no information on existing transmission or distribution lines was provided for this report by Agricola Wind LLC. Furthermore, the electrical equipment in the substation that will be installed in the future was not included in this analysis and would likely result in an increase or decrease in the effects of EMF on the ROW.

No transmission or substation design was included in the scope of this report. Information on heights, pole framings, and span lengths/tensions are based on reasonable assumptions for this voltage class, or information provided in appendix 5-c to exhibit 5 of the Applicant’s VIII Siting Permit Application. As Westwood made assumptions and used drawings provided by Agricola Wind LLC that are pending final design, final engineering may impact the EMF positively or negatively, of which the magnitude is unknown.

6. Results

CALC #1 Agricola Wind 115 kV Circuit Horizontal Phase Orientation – Magnetic Field



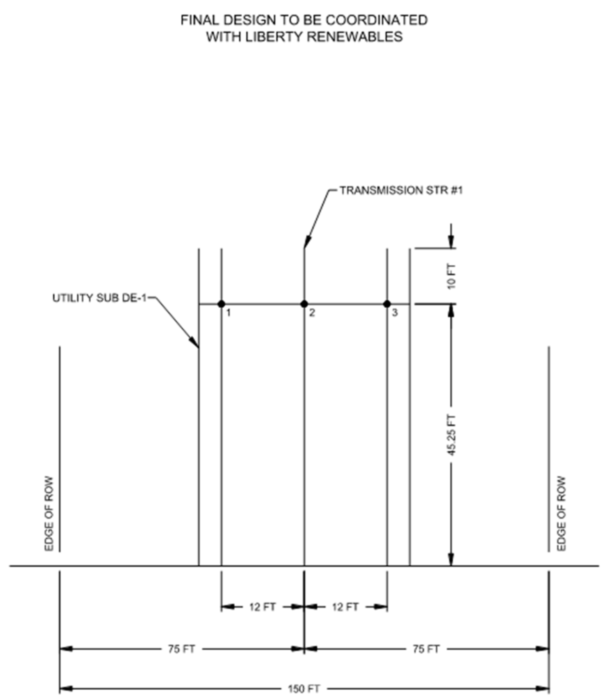
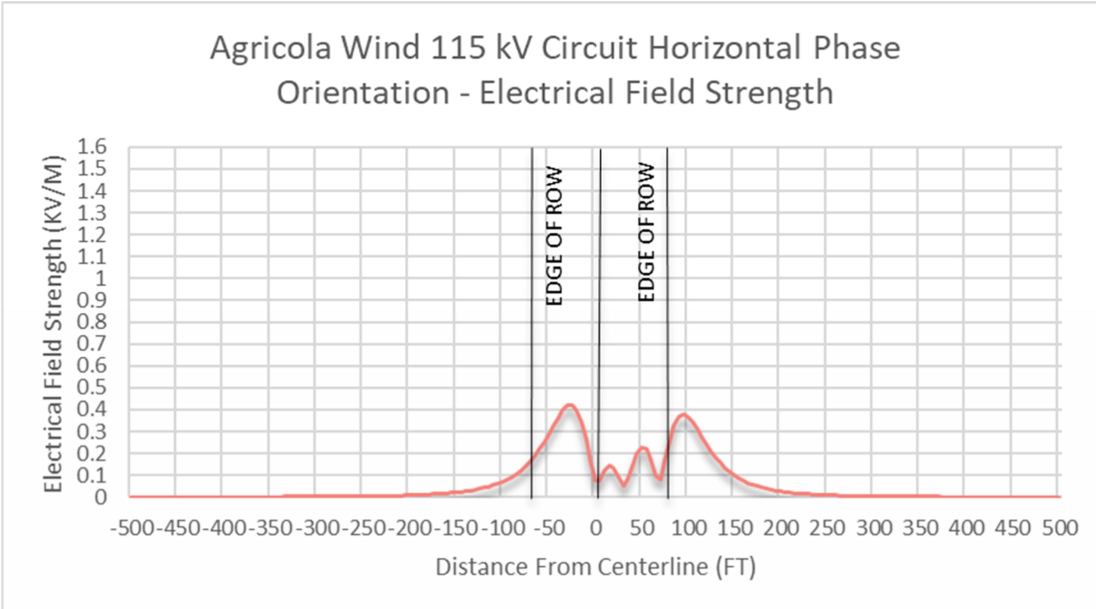


Figure 6 – Agricola Wind Project Phase Orientation Magnetic Field Strength for 115kV Circuit Between Transmission Str. 1 and Utility Sub DE-1

CALC #1 AGRICOLA WIND 115 KV CIRCUIT HORIZONTAL PHASE ORIENTATION – ELECTRIC FIELD



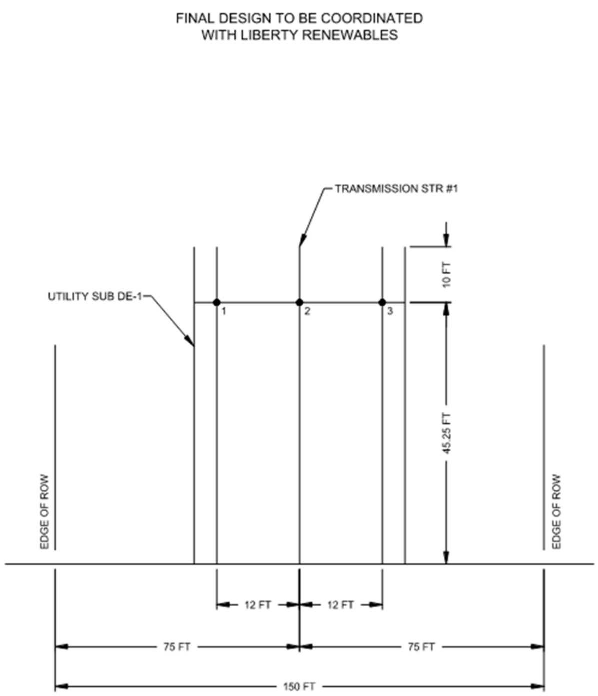
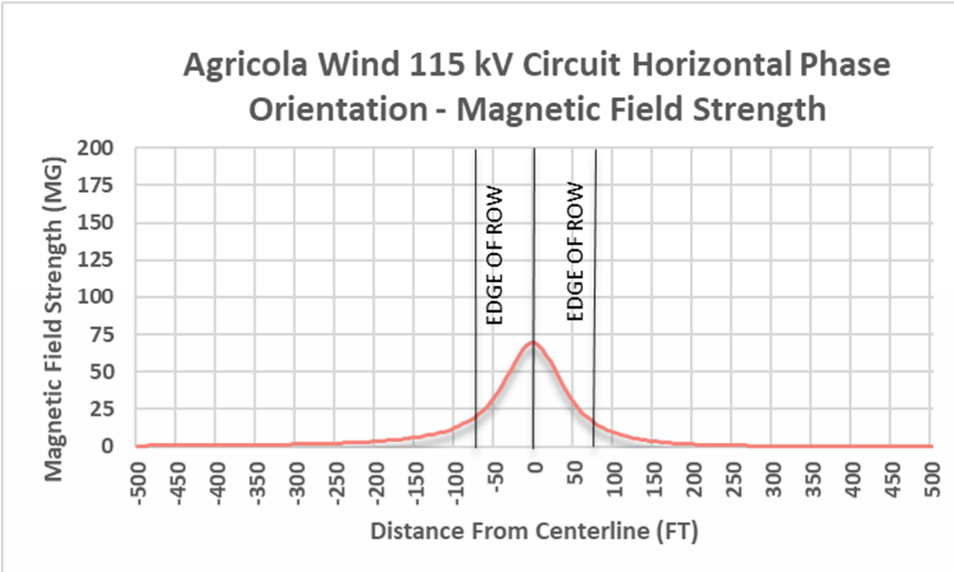


FIGURE 7 – AGRICOLA WIND PROJECT PHASE ORIENTATION ELECTRIC FIELD STRENGTH FOR 115KV CIRCUIT BETWEEN TRANSMISSION STR. 1 AND UTILITY SUB DE-1

CALC #2 AGRICOLA WIND 115 KV CIRCUIT HORIZONTAL PHASE ORIENTATION – MAGNETIC FIELD



FINAL DESIGN TO BE COORDINATED
WITH LIBERTY RENEWABLES

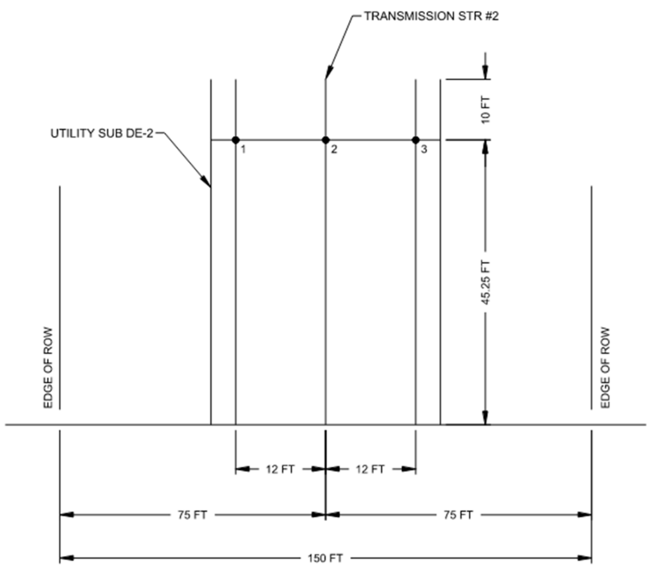
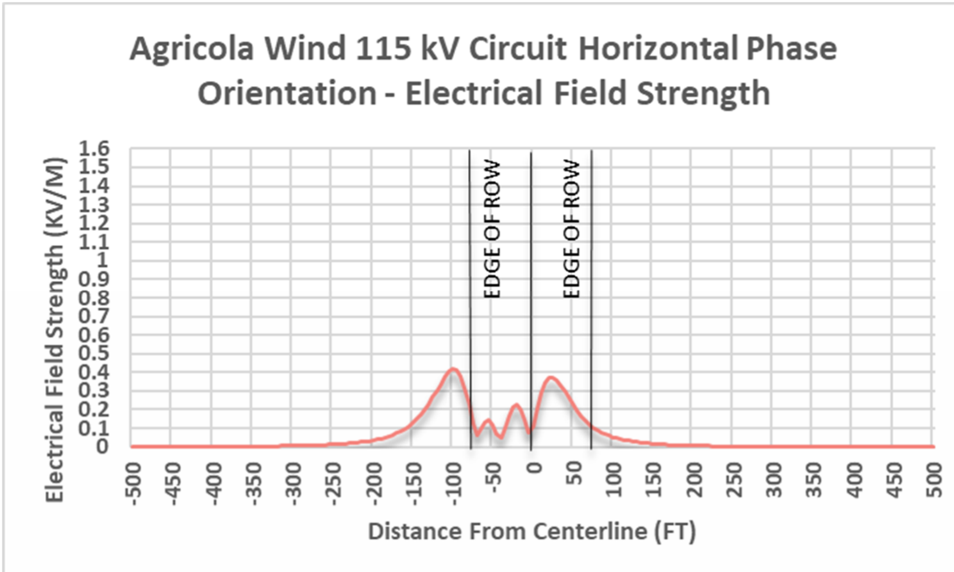


FIGURE 8 – AGRICOLA WIND PROJECT PHASE ORIENTATION MAGNETIC FIELD STRENGTH FOR 115KV CIRCUIT BETWEEN TRANSMISSION STR. 2 AND UTILITY SUB DE-2

CALC #2 AGRICOLA WIND 115 KV CIRCUIT HORIZONTAL PHASE ORIENTATION – ELECTRIC FIELD



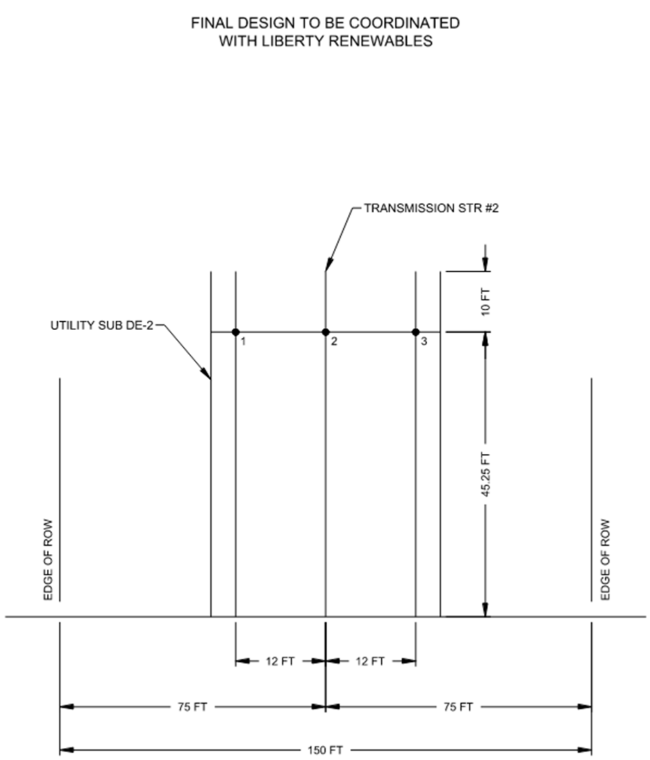
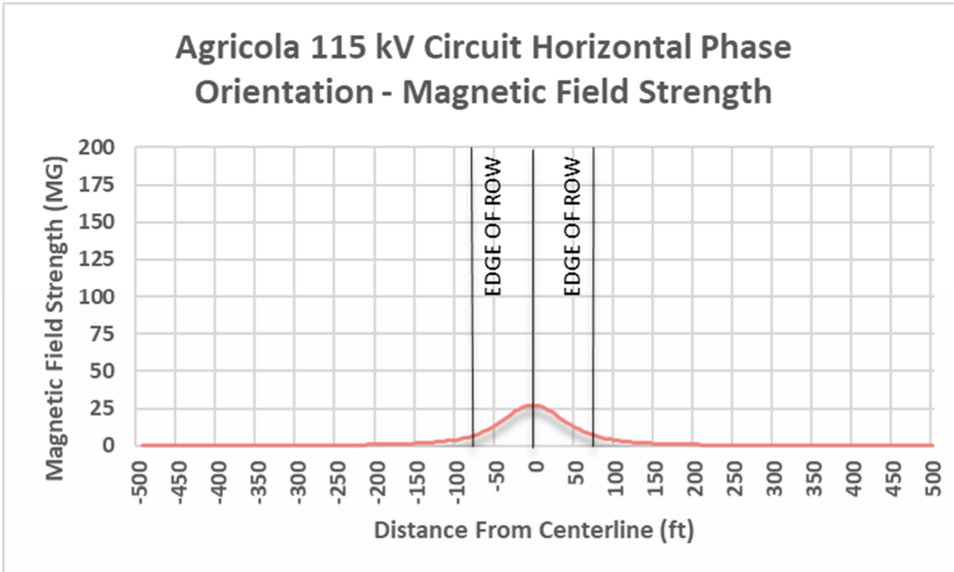


FIGURE 9 – AGRICOLA WIND PROJECT PHASE ORIENTATION ELECTRIC FIELD STRENGTH FOR 115KV CIRCUIT BETWEEN TRANSMISSION STR. 2 AND UTILITY SUB DE-2

CALC #3 AGRICOLA WIND 115 KV CIRCUIT HORIZONTAL PHASE ORIENTATION – MAGNETIC FIELD



FINAL DESIGN TO BE COORDINATED
WITH LIBERTY RENEWABLES

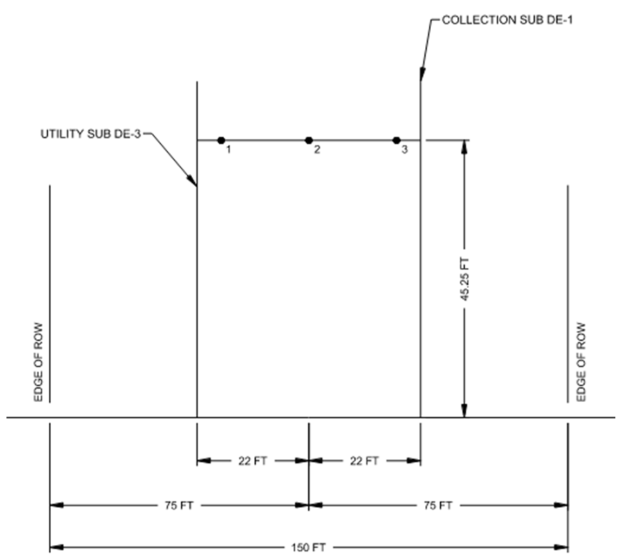
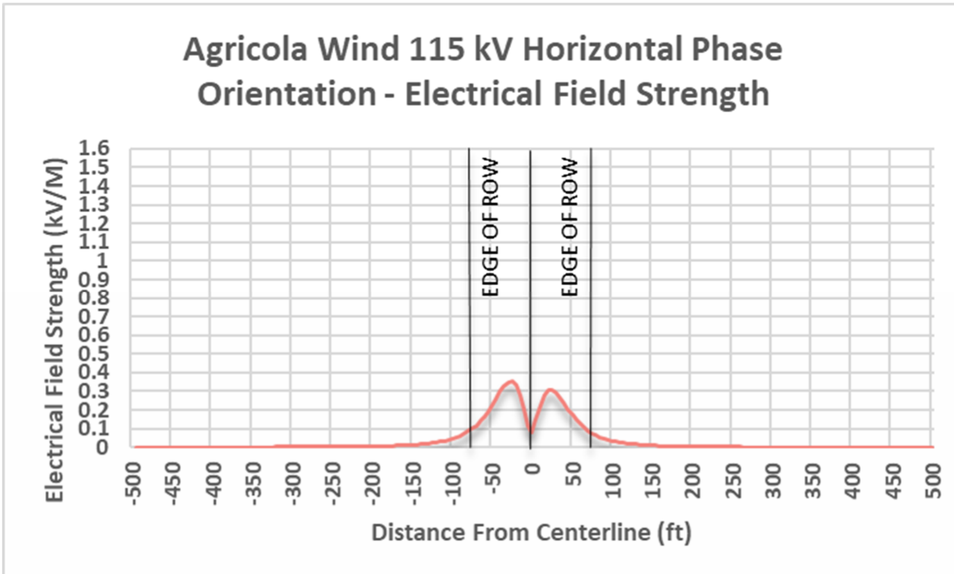


FIGURE 10 – AGRICOLA WIND PROJECT PHASE ORIENTATION MAGNETIC FIELD STRENGTH FOR 115KV CIRCUIT BETWEEN UTILITY SUB DE-3 AND COLLECTION SUB DE-1

CALC #3 AGRICOLA WIND 115 KV CIRCUIT HORIZONTAL PHASE ORIENTATION – ELECTRIC FIELD



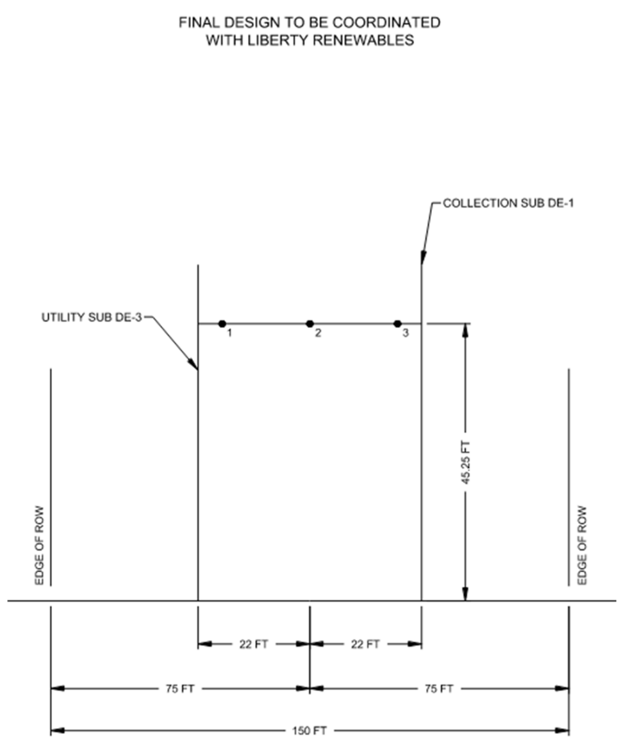


FIGURE 11 – AGRICOLA WIND PROJECT PHASE ORIENTATION ELECTRIC FIELD STRENGTH FOR 115KV CIRCUIT BETWEEN UTILITY SUB DE-3 AND COLLECTION SUB DE-1

7. Appendix A – EMF DATA

Calculated field strengths are shown in Table 7 and Table 8 below at various distances from centerline of the proposed line.

TABLE 5 - CALCULATED MAGNETIC FIELD STRENGTH RESULTS

	Magnetic Field Strength (mG)		
Distance From Centerline (ft)	Calc #1	Calc #2	Calc #3
-500	0	0	0
-495	0.048	0.446	0.049
-490	0.047	0.457	0.051
-485	0.046	0.468	0.052
-480	0.044	0.479	0.054
-475	0.043	0.49	0.055
-470	0.042	0.502	0.057
-465	0.041	0.515	0.059
-460	0.039	0.528	0.061
-455	0.038	0.541	0.063
-450	0.036	0.555	0.065
-445	0.035	0.569	0.067
-440	0.034	0.584	0.069
-435	0.033	0.6	0.072
-430	0.032	0.616	0.074
-425	0.032	0.633	0.077
-420	0.032	0.65	0.08
-415	0.032	0.668	0.082
-410	0.033	0.687	0.085
-405	0.035	0.707	0.089
-400	0.038	0.727	0.092
-395	0.041	0.748	0.095
-390	0.045	0.77	0.099
-385	0.05	0.793	0.103
-380	0.056	0.817	0.107
-375	0.062	0.842	0.111
-370	0.069	0.868	0.115
-365	0.077	0.896	0.12
-360	0.085	0.924	0.125
-355	0.095	0.954	0.13
-350	0.105	0.985	0.136
-345	0.116	1.018	0.141
-340	0.127	1.052	0.148
-335	0.14	1.088	0.154
-330	0.154	1.126	0.161

-325	0.169	1.165	0.168
-320	0.185	1.206	0.176
-315	0.203	1.25	0.184
-310	0.221	1.296	0.193
-305	0.242	1.344	0.202
-300	0.264	1.394	0.212
-295	0.287	1.448	0.223
-290	0.313	1.504	0.234
-285	0.341	1.563	0.246
-280	0.371	1.626	0.259
-275	0.403	1.692	0.273
-270	0.438	1.761	0.288
-265	0.476	1.835	0.304
-260	0.517	1.913	0.321
-255	0.562	1.996	0.339
-250	0.611	2.084	0.359
-245	0.663	2.178	0.38
-240	0.72	2.277	0.403
-235	0.783	2.383	0.428
-230	0.851	2.495	0.455
-225	0.925	2.615	0.484
-220	1.006	2.743	0.516
-215	1.094	2.88	0.55
-210	1.191	3.026	0.588
-205	1.296	3.183	0.629
-200	1.412	3.352	0.673
-195	1.538	3.533	0.722
-190	1.677	3.728	0.776
-185	1.83	3.939	0.835
-180	1.999	4.167	0.9
-175	2.185	4.414	0.972
-170	2.389	4.681	1.051
-165	2.615	4.97	1.14
-160	2.866	5.281	1.237
-155	3.142	5.619	1.346
-150	3.449	5.988	1.468
-145	3.79	6.395	1.604
-140	4.17	6.842	1.757
-135	4.592	7.333	1.929
-130	5.065	7.874	2.123
-125	5.594	8.471	2.343

-120	6.186	9.132	2.592
-115	6.848	9.867	2.871
-110	7.603	10.684	3.192
-105	8.454	11.598	3.558
-100	9.415	12.621	3.977
-95	10.494	13.772	4.457
-90	11.697	15.049	5.01
-85	13.057	16.478	5.645
-80	14.594	18.091	6.377
-75	16.355	19.915	7.221
-70	18.391	21.981	8.189
-65	20.714	24.323	9.305
-60	23.365	26.977	10.579
-55	26.385	29.978	12.029
-50	29.817	33.401	13.661
-45	33.692	37.283	15.397
-40	38.023	41.599	17.246
-35	42.786	46.306	19.165
-30	47.893	51.294	21.077
-25	53.169	56.349	22.88
-20	58.247	61.141	24.463
-15	62.376	65.183	25.719
-10	65.495	68.198	26.572
-5	67.286	69.827	26.984
0	67.581	69.841	26.955
5	66.393	68.175	26.502
10	63.895	65.093	25.655
15	60.558	60.994	24.452
20	56.549	56.288	22.95
25	52.122	51.229	21.23
30	47.573	46.099	19.387
35	43.129	41.195	17.512
40	38.942	36.642	15.682
45	35.093	32.507	13.955
50	31.61	28.81	12.365
55	28.496	25.531	10.927
60	25.713	22.64	9.644
65	23.257	20.059	8.51
70	21.091	17.816	7.515
75	19.172	15.862	6.646
80	17.463	14.149	5.887

85	15.946	12.649	5.226
90	14.597	11.324	4.636
95	13.4	10.154	4.12
100	12.327	9.119	3.677
105	11.362	8.206	3.295
110	10.496	7.395	2.961
115	9.716	6.674	2.674
120	9.012	6.033	2.426
125	8.375	5.457	2.206
130	7.797	4.947	2.007
135	7.27	4.495	1.827
140	6.79	4.089	1.668
145	6.351	3.724	1.529
150	5.951	3.395	1.409
155	5.583	3.098	1.299
160	5.245	2.83	1.195
165	4.935	2.587	1.101
170	4.651	2.366	1.017
175	4.388	2.165	0.941
180	4.144	1.984	0.872
185	3.918	1.819	0.809
190	3.709	1.67	0.753
195	3.514	1.533	0.701
200	3.332	1.409	0.65
205	3.164	1.295	0.606
210	3.008	1.192	0.567
215	2.862	1.097	0.531
220	2.726	1.01	0.499
225	2.599	0.93	0.468
230	2.479	0.857	0.44
235	2.367	0.79	0.413
240	2.261	0.728	0.388
245	2.162	0.671	0.366
250	2.068	0.619	0.347
255	1.98	0.571	0.328
260	1.897	0.527	0.311
265	1.819	0.486	0.294
270	1.746	0.448	0.279
275	1.676	0.413	0.265
280	1.61	0.381	0.252
285	1.548	0.351	0.239

	290	1.489	0.323	0.228
	295	1.433	0.298	0.217
	300	1.38	0.274	0.207
	305	1.329	0.252	0.197
	310	1.281	0.231	0.188
	315	1.236	0.212	0.18
	320	1.193	0.195	0.172
	325	1.152	0.178	0.164
	330	1.113	0.163	0.157
	335	1.075	0.149	0.15
	340	1.04	0.136	0.144
	345	1.006	0.124	0.138
	350	0.973	0.112	0.133
	355	0.943	0.102	0.127
	360	0.913	0.092	0.122
	365	0.885	0.083	0.117
	370	0.858	0.075	0.113
	375	0.832	0.067	0.108
	380	0.807	0.06	0.104
	385	0.783	0.054	0.1
	390	0.761	0.048	0.097
	395	0.739	0.043	0.093
	400	0.718	0.039	0.09
	405	0.698	0.035	0.087
	410	0.679	0.032	0.084
	415	0.66	0.029	0.081
	420	0.642	0.028	0.078
	425	0.625	0.027	0.075
	430	0.609	0.026	0.073
	435	0.593	0.027	0.07
	440	0.578	0.027	0.068
	445	0.563	0.028	0.066
	450	0.549	0.029	0.064
	455	0.535	0.031	0.062
	460	0.522	0.032	0.06
	465	0.509	0.034	0.058
	470	0.497	0.035	0.056
	475	0.485	0.036	0.054
	480	0.473	0.038	0.053
	485	0.462	0.039	0.051
	490	0.451	0.041	0.05

495	0.441	0.042	0.048
500	0	0	0
Maximum Field Strength	67.581	69.841	26.984
Maximum Field Strength at edge of ROW	19.172	19.915	7.221

TABLE 6 - CALCULATED ELECTRIC FIELD STRENGTH RESULTS

	Electrical Field Strength (kV/m)		
Distance From Centerline (ft)	Calc #1	Calc #2	Calc #3
-500	0	0	0
-495	0	0.001	0
-490	0	0.001	0
-485	0	0.001	0
-480	0	0.001	0
-475	0	0.001	0
-470	0	0.001	0
-465	0	0.001	0
-460	0	0.001	0
-455	0	0.001	0.001
-450	0	0.001	0.001
-445	0	0.001	0.001
-440	0	0.001	0.001
-435	0	0.001	0.001
-430	0	0.001	0.001
-425	0.001	0.001	0.001
-420	0.001	0.001	0.001
-415	0.001	0.001	0.001
-410	0.001	0.002	0.001
-405	0.001	0.002	0.001
-400	0.001	0.002	0.001
-395	0.001	0.002	0.001
-390	0.001	0.002	0.001
-385	0.001	0.002	0.001
-380	0.001	0.002	0.001
-375	0.001	0.002	0.001
-370	0.001	0.002	0.001
-365	0.001	0.002	0.001
-360	0.001	0.003	0.001
-355	0.001	0.003	0.001
-350	0.001	0.003	0.001

-345	0.001	0.003	0.001
-340	0.001	0.003	0.001
-335	0.002	0.004	0.001
-330	0.002	0.004	0.001
-325	0.002	0.004	0.001
-320	0.002	0.004	0.002
-315	0.002	0.005	0.002
-310	0.002	0.005	0.002
-305	0.002	0.005	0.002
-300	0.002	0.006	0.002
-295	0.002	0.006	0.002
-290	0.003	0.007	0.002
-285	0.003	0.007	0.002
-280	0.003	0.008	0.002
-275	0.003	0.008	0.002
-270	0.003	0.009	0.002
-265	0.003	0.01	0.003
-260	0.004	0.011	0.003
-255	0.004	0.012	0.003
-250	0.004	0.013	0.003
-245	0.004	0.014	0.003
-240	0.005	0.015	0.003
-235	0.005	0.017	0.003
-230	0.006	0.019	0.004
-225	0.006	0.021	0.004
-220	0.006	0.023	0.004
-215	0.007	0.025	0.004
-210	0.007	0.028	0.005
-205	0.008	0.031	0.005
-200	0.009	0.035	0.005
-195	0.01	0.039	0.006
-190	0.01	0.044	0.006
-185	0.011	0.05	0.007
-180	0.012	0.057	0.007
-175	0.014	0.065	0.008
-170	0.015	0.074	0.009
-165	0.016	0.085	0.01
-160	0.018	0.097	0.011
-155	0.02	0.112	0.012
-150	0.022	0.129	0.013
-145	0.024	0.149	0.014

-140	0.027	0.172	0.016
-135	0.03	0.199	0.018
-130	0.034	0.23	0.02
-125	0.038	0.265	0.023
-120	0.043	0.302	0.026
-115	0.048	0.34	0.03
-110	0.055	0.377	0.034
-105	0.062	0.405	0.039
-100	0.071	0.421	0.045
-95	0.081	0.414	0.052
-90	0.093	0.379	0.061
-85	0.107	0.314	0.072
-80	0.123	0.225	0.084
-75	0.142	0.127	0.099
-70	0.164	0.062	0.117
-65	0.19	0.094	0.139
-60	0.219	0.133	0.164
-55	0.252	0.142	0.193
-50	0.289	0.117	0.226
-45	0.327	0.072	0.261
-40	0.364	0.05	0.297
-35	0.397	0.103	0.328
-30	0.418	0.166	0.35
-25	0.42	0.211	0.354
-20	0.396	0.225	0.333
-15	0.342	0.201	0.282
-10	0.261	0.142	0.205
-5	0.163	0.074	0.115
0	0.076	0.109	0.077
5	0.075	0.204	0.147
10	0.122	0.287	0.223
15	0.144	0.344	0.277
20	0.132	0.371	0.303
25	0.092	0.373	0.305
30	0.05	0.356	0.291
35	0.08	0.327	0.265
40	0.145	0.293	0.235
45	0.2	0.258	0.204
50	0.228	0.224	0.175
55	0.22	0.194	0.149
60	0.173	0.167	0.126

65	0.1	0.144	0.106
70	0.08	0.123	0.09
75	0.166	0.106	0.076
80	0.258	0.092	0.064
85	0.327	0.079	0.055
90	0.366	0.069	0.047
95	0.377	0.06	0.04
100	0.367	0.052	0.034
105	0.342	0.046	0.03
110	0.309	0.04	0.026
115	0.274	0.036	0.022
120	0.239	0.032	0.02
125	0.207	0.028	0.017
130	0.179	0.025	0.015
135	0.154	0.022	0.013
140	0.132	0.02	0.012
145	0.114	0.018	0.011
150	0.098	0.016	0.01
155	0.085	0.015	0.009
160	0.074	0.013	0.008
165	0.064	0.012	0.007
170	0.056	0.011	0.006
175	0.049	0.01	0.006
180	0.043	0.009	0.005
185	0.038	0.008	0.005
190	0.033	0.008	0.004
195	0.03	0.007	0.004
200	0.026	0.006	0.004
205	0.023	0.006	0.003
210	0.021	0.005	0.003
215	0.019	0.005	0.003
220	0.017	0.005	0.003
225	0.015	0.004	0.003
230	0.014	0.004	0.002
235	0.012	0.004	0.002
240	0.011	0.003	0.002
245	0.01	0.003	0.002
250	0.009	0.003	0.002
255	0.009	0.003	0.002
260	0.008	0.003	0.002
265	0.007	0.002	0.001

270	0.007	0.002	0.001
275	0.006	0.002	0.001
280	0.006	0.002	0.001
285	0.005	0.002	0.001
290	0.005	0.002	0.001
295	0.004	0.002	0.001
300	0.004	0.002	0.001
305	0.004	0.001	0.001
310	0.004	0.001	0.001
315	0.003	0.001	0.001
320	0.003	0.001	0.001
325	0.003	0.001	0.001
330	0.003	0.001	0.001
335	0.002	0.001	0.001
340	0.002	0.001	0.001
345	0.002	0.001	0.001
350	0.002	0.001	0.001
355	0.002	0.001	0.001
360	0.002	0.001	0.001
365	0.002	0.001	0.001
370	0.002	0.001	0
375	0.001	0.001	0
380	0.001	0.001	0
385	0.001	0.001	0
390	0.001	0.001	0
395	0.001	0.001	0
400	0.001	0.001	0
405	0.001	0.001	0
410	0.001	0	0
415	0.001	0	0
420	0.001	0	0
425	0.001	0	0
430	0.001	0	0
435	0.001	0	0
440	0.001	0	0
445	0.001	0	0
450	0.001	0	0
455	0.001	0	0
460	0.001	0	0
465	0.001	0	0
470	0.001	0	0

475	0.001	0	0
480	0	0	0
485	0	0	0
490	0	0	0
495	0	0	0
500	0	0	0
Maximum Field Strength	0.42	0.421	0.354
Maximum Field Strength at edge of ROW	0.166	0.127	0.099