

Badger Coulee 345 kV Transmission Project

EMF Report

Prepared For:

American Transmission Company & Xcel Energy

Prepared By:

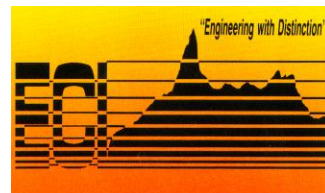
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1 – Overview

In support of American Transmission Company's (ATC) and Xcel Energy's CPCN and Utility Permit Application submittal to the Public Service Commission of Wisconsin (PSCW) for the Badger Coulee 345 kV Transmission Project, Electrical Consultants, Inc. (ECI) has conducted a magnetic field study to determine the EMF effects of the proposed project. Magnetic field calculations were conducted for all transmission route options and measurements were taken at the two existing substations involved with the project. The EMF study was conducted in such a manner as to support the filing requirements outlined by the PSCW and Wisconsin DNR (WDNR) in the "Application Filing Requirements for Transmission Line Projects in Wisconsin" and "Application Filing Requirements for Substation Projects in Wisconsin" documents dated January 2013.

2 – Project Description

The Badger Coulee Transmission Line Project (BCTLP) consists of constructing a new single circuit 345kV transmission line from northern La Crosse County to northern Dane County. The transmission line will start from a new substation that Xcel Energy is constructing in the Town of Onalaska as part of the CapX2020 project called Briggs Road. From the Briggs Road Substation, the transmission line will extend to the North Madison Substation in the town of Vienna and will continue and ultimately terminate in the Cardinal Substation in the town of Middleton. The length of the line will be approximately 160 – 180 miles depending on the PSCW ordered route.

There are currently two proposed route options for this project, the Northern Route option and the Southern Route option. Two route maps are provided in Appendix A depicting these route options. The first route map reflects the Briggs Road – North Madison segment and the second route map reflects the North Madison – Cardinal segment. Within the Northern and Southern Route options the line was broken up into segments. The Northern Route is comprised of segments A, D, E, G, H, J, K, M, N, and P or P-East. The Southern Route is comprised of segments B or B-North, C, F, G, I, J, L, M, and O.

2.1 – Northern Route

The Northern Route will begin at the Briggs Road Substation that Xcel Energy is building in the Town of Onalaska as part of the CapX2020 project. There are two variations to this route alternative when exiting the Briggs Road Substation. For the first option (Segment P) the Badger Coulee line will exit the substation and head northwest as a double circuit line with Dairyland Power Cooperative (DPC) line Q-1D for approximately one mile. The Badger Coulee line then turns and heads north as single circuit for approximately 1.5 miles through agricultural fields and alongside local roadways until the DPC N-226 line is reached. From this point the line will travel double circuit with N-226 for approximately one mile. At this point the Badger Coulee line will turn and head east single circuit along HWY 35 until the HWY 53 intersection is reached. For the second option (Segment P-East) the Badger Coulee line will exit the substation and head north single circuit on the east side of HWY 53. The line will continue along HWY 53 until the intersection of HWY 35. Heading north from the intersection of HWY 53 and HWY 35 the route options in Segment P are common. From this intersection the Badger Coulee line will head north and run adjacent to the highway for approximately five miles until the Black River is reached. At this point the line will continue north and cross the Black River and run parallel to the proposed CapX2020 345 kV and Xcel Energy 161 kV W3203 double circuit line for three spans. After approximately three spans the CapX2020 345 kV line turns and heads west; the Badger Coulee line will continue north and run double circuit with Xcel Energy's W3203 line for approximately 16 miles until the Northern State Power Company's Tremval Substation just outside of Blair is reached. W3203 enters the south side of the substation and terminates

there. The Badger Coulee line will bypass the substation and then double circuit with existing Xcel Energy 161kV circuit W3204 after it exits the north side of the substation. The Badger Coulee line will travel east double circuited with W3204 until it reaches I-94 in Black River Falls (~20.5 miles). After crossing I-94, the Badger Coulee line will split from W3204 and travel as a single circuit southeast along the interstate until just south of the I-90/I-94 split. At this point the Badger Coulee line will depart from the interstate in order to avoid airspace restrictions associated with Volk Field at the Camp Douglas military base, and also to avoid Mill Bluff State Park and Mill Bluff State Natural Area. The line will travel cross country, south and east, until it again intersects the interstate southeast of Camp Douglas and northwest of New Lisbon. The line will continue southeast along the interstate until it reaches existing ATC 69kV line Y-74 northwest of Mauston. The Badger Coulee line will be double circuited with Y-74 for one (1) span before Y-74 crosses the interstate and travels in a different direction. The Badger Coulee line will continue as a single circuit southeast along the interstate until it reaches existing ATC 69kV line Y-101 southeast of Mauston. The Badger Coulee line will be double circuited with Y-101 from this point through Lyndon Station (~7 miles). The existing Y-101 ROW will be utilized while also paralleling the interstate. Southeast of Lyndon Station, Y-101 turns and heads south and the Badger Coulee line will continue as a single circuit heading southeast along the interstate until just west of the southern interchange with Highway 12 in the Wisconsin Dells. At this point the Badger Coulee line will depart from the interstate and travel cross country, south and east, a short distance before it again intersects the interstate. The Badger Coulee line will travel as a single circuit adjacent to the interstate until the I-39/I-90/I-94 interchange in Caledonia is reached. At the I-39/I-90/I-94 interchange in Caledonia, the Badger Coulee line will be double circuited with existing ATC 69kV line Y-16 for several spans while routing around the interchange. South of the interchange, the Badger Coulee line will continue as a single circuit southeast along the interstate. In this segment the line will cross the Wisconsin River. When the line reaches the location where the existing ATC double circuit 345kV line from Columbia to North Madison crosses the interstate, the Badger Coulee line will turn and head south, paralleling the existing double circuit 345kV line the rest of the way to North Madison Substation.

The Northern Route will be double circuited with existing ATC 138kV circuit 13875 from the North Madison Substation to the Cardinal Substation. The only portion of the line that will not be double circuited will be just north of the Cardinal Substation. In this portion of the line, the 345kV circuit will separate from the existing 138kV circuit and run east along a short distribution line corridor, cross Highway 14 and then be routed into the Cardinal Substation. The majority of the route will be on the existing line 13875 centerline except for a few areas where there are opportunities to straighten out line 13875, and in the previously mentioned segment just north of Cardinal Substation.

2.2 – Southern Route

The Southern Route will begin at the Briggs Road Substation that Xcel Energy is building in the Town of Onalaska as part of the CapX2020 project. After exiting the substation to the south, the Badger Coulee line will travel south along Highway 53 toward the I-90 interchange. With the exception of a few spans, it will be a single circuit line from the substation to the I-90 interchange. Just south of the substation along Highway 53, the Badger Coulee line will be double circuited with existing Xcel Energy 161kV circuit W3203 for approximately five (5) spans. At the interchange of Highway 53 and I-90, the Badger Coulee line will turn and travel east along I-90. At a point about halfway between Rockland and Sparta, the Badger Coulee line will depart from the interstate and travel cross country south for 0.5 miles until it reaches existing Xcel Energy 69kV circuit W3411. The Badger Coulee line will travel east double circuited with W3411 for 0.4 miles before it turns and heads cross country, south and east, for approximately four (4) miles until it reaches existing Xcel Energy 69kV circuit W3414. The Badger Coulee

line will travel south double circuited with W3414 until it reaches the Village of Cashton (~10 miles). The south traveling line will be routed west of Cashton and then turn east and be routed south of Cashton. When the line turns from south to east, the circuit that the Badger Coulee line is double circuited with will change from Xcel Energy 69kV circuit W3414 to DPC 69kV circuit N-93 (~2 miles). At the east end of Cashton, N-93 will continue north and the Badger Coulee line will head east as a single circuit for approximately 17 miles until it reaches existing DPC 69kV circuit N-322. The Badger Coulee line will travel east double circuited with N-322 for approximately nine (9) spans. At this point the Badger Coulee line will jog south then head east as a single circuit for approximately 12 miles until it reaches existing DPC 69kV circuit N-101. The Badger Coulee line will travel east double circuited with N-101 for approximately eight and one half (8.5) miles, at which point N-101 turns and heads north and the Badger Coulee line will continue east as a single circuit. The Badger Coulee line will continue heading cross country and along roadways to the east until it reaches existing ATC 69kV line Y-101 just northwest of the Village of Lyndon Station. The Badger Coulee line will travel southeast double circuited with Y-101 until it reaches Koval Road just southeast of Lyndon Station, at which point the double circuit line will turn and head south along Koval Road until it reaches the CPR railroad tracks. At the tracks, Y-101 will continue south and the Badger Coulee line will turn and head southeast as a single circuit along the tracks until the railroad intersects with I-90/I-94 north of the Wisconsin Dells. The Badger Coulee line will turn and head south along the interstate until it reaches Highway H in the Wisconsin Dells, at which point the line will turn and head east through the Wisconsin Dells until it reaches the Kilbourn Substation. In the Wisconsin Dells, the Badger Coulee line will be double circuited with existing ATC 69kV line Y-101 again for several spans just east of the Wisconsin Dells Municipal Substation. The Badger Coulee line will cross the Wisconsin River adjacent to the hydro-electric power plant that is next to the Kilbourn Substation. The Badger Coulee line will bypass Kilbourn Substation and then double circuit with existing ATC 138kV line X-68 after it exits the substation to the east. The Badger Coulee line will travel southeast double circuited with X-68 until it reaches the Trienda Substation where X-68 terminates, except for a section that is a little over a mile where the Badger Coulee line will depart from being double circuit with X-68 to route around an existing ACEC substation. The Badger Coulee line will bypass Trienda Substation and then double circuit with existing ATC 138kV line X-19 after it exits the substation to the east. The Badger Coulee line will travel southeast double circuited with X-19 until just west of I-39 in Portage, at which point it will split from X-19 and travel as a single circuit cross country, south and east, until it intersects with I-39. From the point where the Badger Coulee line intersects X-68 until it splits from X-19 (~15 miles), the double circuit line will be paralleling CPR railroad tracks. The Badger Coulee line will travel south along I-39 until it reaches the I-39/I-90/I-94 interchange. In this segment the line will cross the Wisconsin River. South of the interchange, the Badger Coulee line will continue southeast along the I-39/I-90/I-94 interstate and cross the Wisconsin River again. Just south of the river crossing, the Badger Coulee line will depart from the interstate and travel cross country, south and east, the rest of the way to North Madison Substation.

The Southern Route between the North Madison and Cardinal Substations consists of portions that will be double circuited with existing ATC 69kV circuits Y-85, Y-131 and 6927 (~1.3 miles with Y-85, ~2.2 miles with Y-131, and ~1.4 miles with 6927), but will primarily travel cross-country and along existing roadways as a single circuit 345kV line. There is another route option in this area that would place the 345kV line alignment north of Segment B, single circuit, on a cross country corridor rather than double circuit with line 6927 on the existing corridor. This option would be used to avoid the Sunnyside Seed Farm if necessary.

3 – Data Gathering Summary

There were numerous existing transmission lines and distribution lines within 300' of the proposed project centerline that ran parallel to the proposed centerline for a length that was deemed long enough to affect the overall EMF. If a distribution or transmission line ran parallel to the proposed centerline for 200' or longer in populated areas and 1000' or longer in rural areas it was deemed long enough to affect the overall EMF and information was requested and calculations completed. In order to properly model the EMF within 300' of each side of the proposed centerline a significant data gathering effort was needed.

3.1 – Data Gathering Process

In 2012, requests to all the transmission and local distribution companies were made in order to obtain electronic versions of their current electric lines/facilities. Once this electronic data was received it was compared against the proposed Badger Coulee centerlines and all the facilities that matched the criteria (i.e. within 300' of either side of the proposed centerline and running parallel for at least the pre-determined length) were identified and tabulated. Use of the Pictometry data that was also received for the project was used to find any other facilities that may not have been included in the initial electronic submittal from the transmission and local distribution companies. Informational request tables were then compiled and sent to the all transmission companies and local distribution companies in order to obtain the necessary information to complete the EMF models. Information requests sought existing line information such as voltage, phasing, conductor type, shield wire type, structure configuration (if overhead), bury depth and configuration (if underground), and load flow information for the current year (2013), year one of the proposed Badger Coulee project (2018) and year ten of the proposed Badger Coulee project (2028). If phasing orientation angle was not known by the local distribution company a 30° rotation was assumed over the phasing angle orientation of the transmission company that serves the local distribution company. As for the phasing of the transmission companies involved in the project ATC's phasing is $A = 0^\circ$, $B = 240^\circ$, and $C = 120^\circ$, and the relation that was applied in the EMF calculations was that for Xcel Energy the phasing relationship to ATC was $A(ATC) = C(Xcel\ Energy)$, $B(ATC) = A(Xcel\ Energy)$, $C(ATC) = B(Xcel\ Energy)$ and for DPC, $A(ATC) = B(DPC)$, $B(ATC) = C(DPC)$, and $C(ATC) = A(DPC)$. Over the following year the transmission and local distribution companies returned the informational requests sheets with the necessary data.

The transmission companies that had existing facilities within 300' of the proposed centerline consisted of ATC, Xcel Energy, and DPC. The completed informational request tables received back from each transmission company are included in Appendix B. The informational request table for ATC only consists of load flow data as ECI already had access to existing phasing diagrams and structure configuration drawings for ATC facilities.

The distribution companies that had existing facilities within 300' of the proposed centerline consisted of Madison Gas & Electric (MG&E), Alliant Energy, Adams Columbia Electric Cooperative (ACEC), Oakdale Electric Cooperative, Jackson Electric Cooperative, Black River Falls Municipal, Bangor Municipal, Riverland Energy, Vernon Electrical Cooperative, and Xcel Energy. The completed informational request tables received back from each local distribution company are included in Appendix C.

4 – Calculation Summary

Magnetic field profiles were calculated for each unique structure type. The proposed line routes were broken up into sub segments as applicable to handle all the different structure types/configurations and existing transmission line or distribution line contributions.

4.1 – Modeling Software

All calculations were completed in the EPRI ENVIRO module of the EPRI EMF Workstation.

4.2 – EMF Figure Development & Model Inputs

Cross section figures were created for each unique structure type. The cross section figures included the required structure configuration design information in order to properly model the magnetic fields. This information included the dimension of poles arms, dimensions of conductor locations, horizontal distance from the pole to the conductors, the height of the lowest conductor at mid-span, phase ID and phase angles, and the depth to ground surface for any underground circuits. Phasing of the proposed 345 kV was oriented in such a way as to minimize EMF to the maximum extent possible. Existing parallel transmission lines will be co-located with the proposed 345 kV circuit wherever possible, however there are no plans to allow distribution to be underbuilt on the 345 kV transmission line. In locations where the existing parallel distribution lines are within 25' of either side of the proposed centerline it has been assumed the distribution circuits will be relocated underground. Distribution lines that are farther away than 25' of either side of the proposed centerline were assumed to remain in their existing configuration. There were also a handful of locations where it was recommended that existing overhead distribution lines that were farther than 25' away from the proposed centerline be buried for NEV purposes. These locations have also been accounted for in the future year magnetic field calculations by being assumed as buried. The underground circuits were modeled in the ENVIRO module by adjusting the calculation height of the buried circuits to 3.28' + the burial depth, while also adjusting the overhead circuits calculation height the burial depth of the underground circuit. The appropriate conductor, load flow data and flow direction also were included on the figures.

4.3 – Load Flow Data

For existing circuits (both transmission and distribution) three different years of load flow data was requested, current year (2013), year one of in-service (2018), and year ten of in-service (2028). For each of these three years 100 percent of peak load and 80 percent of peak load amperages were requested and the corresponding magnetic fields calculated. It should be noted that the load flow data that was received from DPC was based on a planning study of the peak loads of DPC's system for the three years that load flow data was requested and not just the peak levels of the particular circuits requested.

For the proposed 345 kV Badger Coulee circuit load flow data for year one of in-service (2018) and year ten of in-service (2028) was obtained. Again, for each of these years 100 percent of peak load and 80 percent of peak load amperages were obtained and the corresponding magnetic fields calculated. In the initial stages of the project it was thought that the in-service date would be in 2017 for the proposed 345 kV circuit, as such the initial request to ATC Planning for load flow data was made for 2017 and 2027. After the target in-service date was moved to 2018, ATC Planning confirmed via email on November 29, 2012 that the 2017 and 2027 values could be assumed to be the same for 2018 and 2028.

4.4 – Substation Measurements

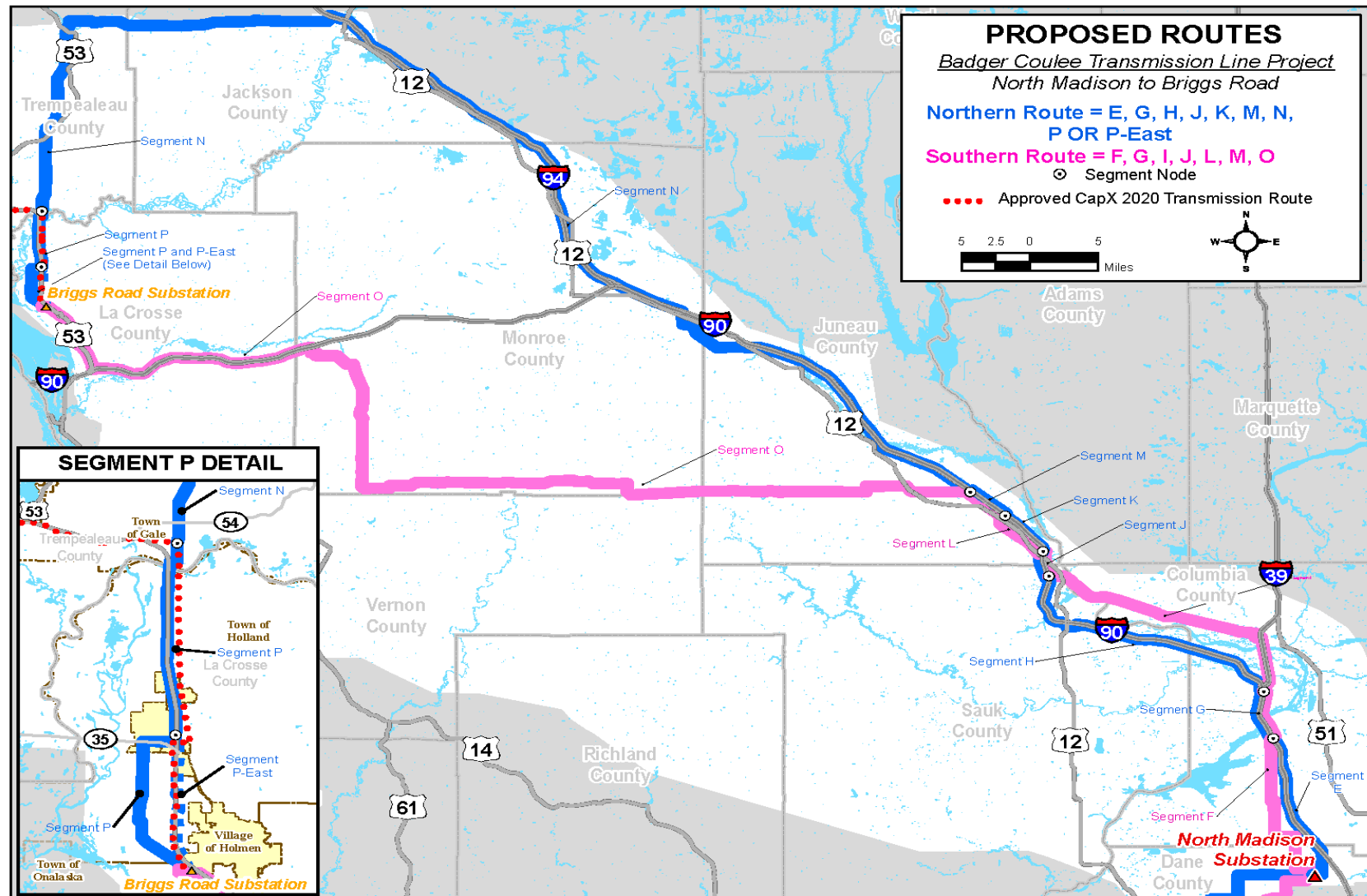
There are two existing ATC substations that are associated with the proposed Badger Coulee project, North Madison 1 Substation and Cardinal Substation. EMF readings have been taken with a digital readout gaussmeter at 25' intervals moving outward to a distance of 100' at the substation fence corners and fence mid-points as well as several readings inside each substation. Readings were also taken beneath all entering and exiting existing transmission lines (at 25' intervals moving outward as well).

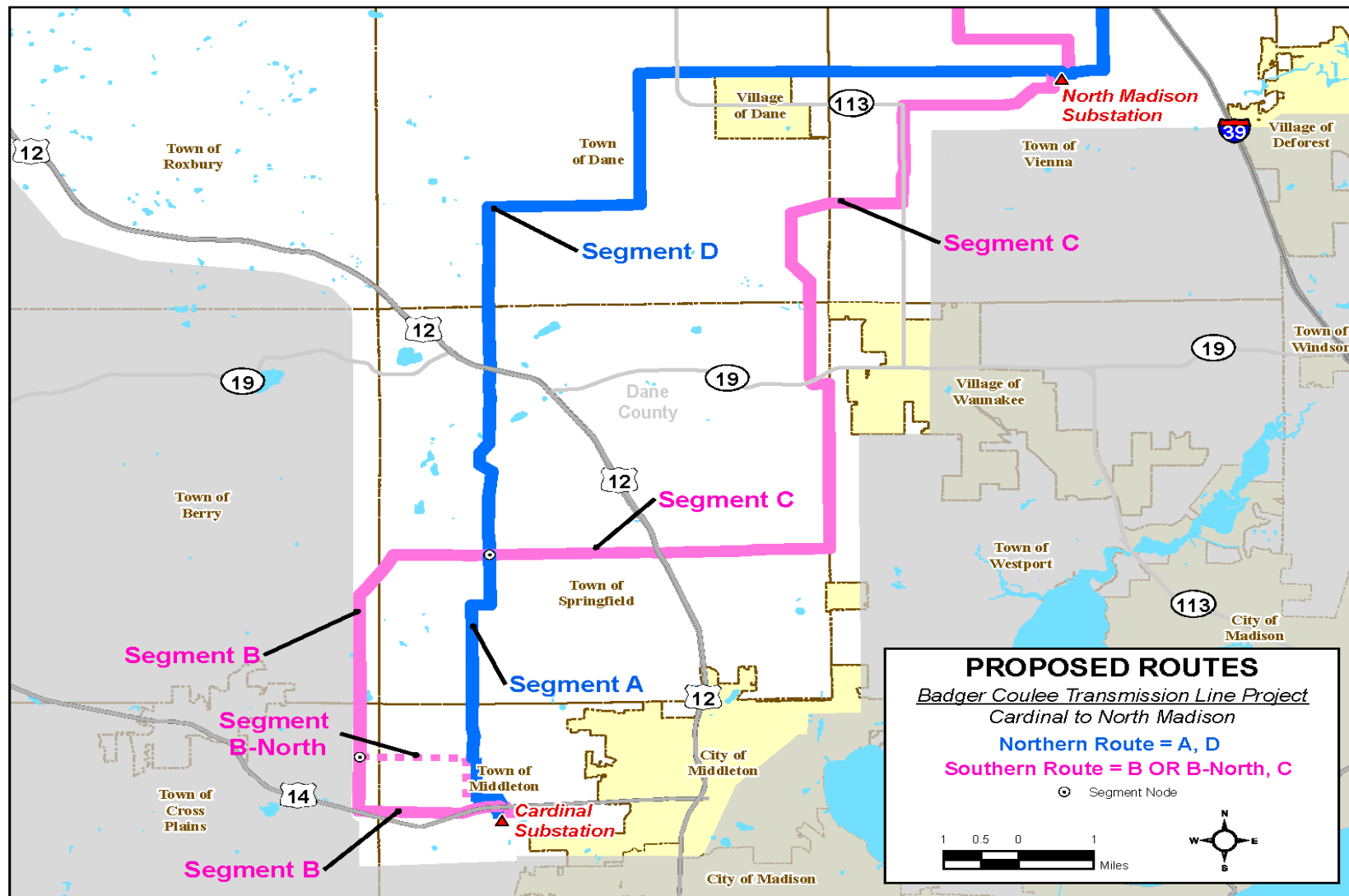
Along with the measurements taken around the substations calculations were completed for the proposed Badger Coulee 345 kV circuit as it enters and exits the two substations along with any other 345 kV existing circuit as they enter and exit either of the two substations. These calculations were completed in the same manner as described in Section 4.2.

5 – Results

The results of the EMF study have been organized into tables for submission to the PSCW in the CPCN and Utility Permit Application. In addition to the calculation tables prepared an EMF Segment Map (Appendix D) and EMF Cross Reference Table (Appendix E) have been compiled to aid in finding the corresponding location to go along with the calculation tables and figures. The substation measurement drawings are located in Appendix F (North Madison 1 Substation) and Appendix G (Cardinal Substation). The calculation tables themselves are located in Appendix H and the EMF figures are located in Appendix I.

Appendix A – Project Route Option Maps





Appendix B – Existing Transmission Line Information Summary Sheets

Appendix G Exhibit 1

			Without Badger Coulee, Without Cardinal Bluffs								With Badger Coulee, Without Cardinal Bluffs								With Badger Coulee, With Cardinal Bluffs							
Circuit ID	Circuit From Bus - To Bus	Voltage	2013 Peak		2017 Peak		2017 Shoulder (70% Load)		2017 West - East Bias		2022 Peak		2022 Shoulder (70% Load)		2022 West - East Bias		2027 Peak		2022 Peak		2022 Shoulder (70% Load)		2022 West - East Bias		2027 Peak	
			MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA	MW Mvar	Amp MVA
W12	NLAX 3 - NMA 345	345	---	---	---	---	---	---	---	---	147.0	257.0	157.0	272.2	551.4	922.8	151.4	263.9	114.0	205.1	123.2	218.6	504.2	844.4	118.4	212.0
			---	---	---	---	---	---	---	---	-44.4	153.6	-42.5	162.7	-1.5	551.4	-44.1	157.7	-45.0	122.6	-43.4	130.6	-18.4	504.5	-45.0	126.7
W13	NMA 345 - CARDINAL	345	---	---	---	---	---	---	---	---	132.4	222.7	154.7	259.7	327.2	548.8	109.5	185.3	61.2	102.7	73.2	122.9	183.5	307.1	38.9	65.4
			---	---	---	---	---	---	---	---	132.1	233.1	155.2	269.2	337.2	561.4	110.7	193.4	61.4	102.7	73.5	122.9	183.5	307.1	38.9	65.4
W11	ROE 345 - CARDINAL	345	258.8	433.4	269.5	451.6	190.9	319.5	142.0	238.0	208.6	349.2	118.2	201.3	-76.8	128.9	237.7	397.8	132.8	222.9	15.5	46.8	-255.3	429.3	162.7	272.9
			8.8	258.9	13.6	269.8	-2.7	190.9	-7.5	142.2	-5.2	208.7	-2.3	120.3	5.7	177.0	-3.1	237.7	-10.4	133.2	-23.3	28.0	24.9	256.5	-11.3	163.1
13875	NMA 138 - CARDINAL	138	60.4	252.7	52.3	219.1	61.9	259.3	80.5	337.2	57.3	239.8	51.5	215.5	65.9	276.6	56.0	234.4	53.4	223.4	47.5	198.7	59.8	250.7	52.1	218.0
			0.2	60.4	2.9	52.4	-3.0	62.0	-3.8	80.6	0.9	57.3	0.7	51.5	-5.2	66.1	1.4	56.0	0.7	53.4	0.3	47.5	-3.9	59.9	1.0	52.1
	WMD 69 - TLT 69	138	35.0	146.4	36.9	154.6	26.8	112.1	-0.6	49.0	43.4	181.6	23.1	98.6	13.3	62.9	47.2	197.5	38.2	160.5	22.5	96.2	19.1	82.6	40.8	170.8
			0.3	35.0	1.9	36.9	0.3	26.8	11.7	11.7	1.0	43.4	4.7	23.6	7.0	15.0	-0.3	47.2	3.6	38.4	4.7	23.0	5.0	19.7	1.4	40.8
6927	TLT 69 - TBL 69	138	20.8	51.3	21.2	51.9	3.3	14.0	3.3	14.0	5.2	22.1	3.4	14.4	3.4	14.4	5.3	22.5	5.2	22.1	3.4	14.4	3.4	14.4	5.3	22.5
			0.8	5.0	0.8	5.1	0.5	3.3	0.5	3.3	0.9	5.3	0.5	3.4	0.5	3.4	0.9	5.4	0.9	5.3	0.5	3.4	0.5	3.4	0.9	5.4
	TLT 69 - STG 69	138	29.9	125.1	31.7	132.7	23.4	97.9	-3.9	50.8	38.0	159.9	19.7	64.5	9.9	50.2	41.6	174.1	32.9	138.1	19.0	81.6	15.6	68.3	35.4	148.1
			-0.4	29.9	1.1	31.7	0.0	23.4	11.5	12.1	0.1	38.0	4.4	20.2	6.8	12.0	-1.3	41.6	2.8	33.0	4.4	19.5	4.8	16.3	0.4	35.4
Y-85	DAN 69 - NMA 69	69	-49.7	428.4	-49.3	424.4	-38.2	334.8	-33.4	288.0	-48.7	420.3	-35.8	313.6	-32.5	286.3	-49.7	429.0	-47.7	411.0	-35.2	308.6	-32.7	287.6	-48.4	417.1
			12.3	51.2	11.9	50.7	11.9	40.0	8.3	34.4	12.3	50.2	11.1	37.5	10.7	34.2	12.6	51.3	11.7	49.1	11.0	36.9	10.6	34.4	11.9	49.8
	WKE 69 - CENTENL PK T	69	24.2	202.6	25.2	212.2	21.5	183.1	26.6	226.2	19.2	160.7	13.1	113.0	19.7	175.8	20.6	172.4	17.7	148.1	11.7	102.0	17.9	159.9	19.0	159.0
			0.9	24.2	2.8	25.4	-4.1	21.9	-4.8	27.0	-0.4	19.2	-3.3	13.5	-7.3	21.0	-0.2	20.6	-0.1	17.7	-3.4	12.2	-6.7	19.1	-0.2	19.0
	CENTENL PK T - WPT 69	69	16.6	139.6	17.1	143.1	16.1	143.8	21.2	186.0	10.4	91.3	7.3	75.5	13.9	139.9	11.2	97.9	8.9	78.9	5.9	66.4	12.1	124.2	9.6	85.2
			-1.7	16.7	0.0	17.1	-6.0	17.2	-6.7	22.2	-3.3	10.9	-5.3	9.0	-9.3	16.7	-3.4	11.7	-3.1	9.4	-5.3	7.9	-8.6	14.8	-3.4	10.2
	CENTENL PK T - CENTENL PK	69	7.2	64.1	8.1	71.4	5.4	47.6	5.4	47.6	8.8	77.8	5.8	51.3	5.8	51.3	9.4	83.1	8.8	77.8	5.8	51.3	5.8	51.3	9.4	83.1
			2.6	7.7	2.7	8.5	1.8	5.7	1.8	5.7	3.0	9.3	2.0	6.1	2.0	6.1	3.2	9.3	3.0	9.3	2.0	6.1	2.0	6.1	3.2	9.3
	WPT 69 - PHB 69	69	53.7	93.7	47.7	89.1	79.9	126.6	12.9	126.6	47.7	93.7	2.1	58.0	4.5	97.1	-6.4	72.0	-5.3	64.5	-3.5	62.5	2.7	86.7	-7.0	81.1
			-3.6	6.4	-2.1	5.1	-7.1	10.6	-7.9	15.1	-5.9	7.0	-6.6	6.9	-10.7	11.6	-6.7	8.6	-5.6	7.7	-6.6	7.5	-10.0	10.4	-6.7	9.7
Y-74	COC 69 - CDT 69	69	12.2	102.7	21.6	181.1	11.0	92.4	45.0	385.5	19.2	160.7	15.7	131.4	37.4	318.2	19.3	161.5	17.6	147.4	14.2	118.9	35.0	297.1	17.6	147.4
			1.3	12.3	-1.3	21.6	-1.0	11.0	-9.9	46.1	-0.1	19.2	0.0	15.7	-6.9	38.0	0.0	19.3	0.8	17.6	0.6	14.2	-6.0	35.5	0.6	17.6
	CDT 69 - NLT 69	69	7.9	66.2	16.7	141.8	8.0	68.4	40.3	357.8	14.0	118.0	12.3	103.2	33.0	288.8	13.7	115.6	12.4	103.9	10.8	90.4	30.7	267.2	12.0	100.8
			0.3	7.9	-2.9	16.9	-1.7	8.2	-14.3	42.8	-1.7	14.1	-0.9	12.3	-10.1	34.5	-1.8	13.8	-0.7	12.4	-0.2	10.8	-8.8	31.9	-1.0	12.0
	CDT 69 - CAD 69	69	4.1	35.5	4.4	38.2	2.9	25.2	2.9	25.2	4.9	42.4	3.2	27.6	3.2	27.6	5.3	45.9	4.9	42.4	3.2	27.6	3.2	27.6	5.3	45.9
			1.1	4.2	1.2	4.6	0.8	3.0	0.8	3.0	1.3	5.1	0.8	3.3	0.8	3.3	1.4	5.5	1.3	5.1	0.8	3.3	0.8	3.3	1.4	5.5
	NLT 69 - WMT 69	69	1.4	21.8	9.8	96.2	5.3	49.8	37.5	339.5	7.0	69.2	5.5	54.6	26.4	245.5	6.7	67.5	5.4	53.0	4.0	40.9	24.1	223.4	5.0	51.9
			-2.2	2.6	-5.6	11.4	-2.7	5.9	-15.5	40.6	-4.4	8.3	-5.5	6.5	-12.8	29.3	8.1	8.1	-11.5	6.3	-2.8	4.9	-11.5	26.7	-3.6	6.2
	NLT 69 - LISBONWS	69	6.5	58.3	6.8	60.9	2.7	24.1	2.7	24.1	7.0	62.8	6.8	60.9	6.5	58.3	7.0	62.8	7.0	62.8	6.8	60.9	6.5	58.3	7.0	62.8
			2.5	7.0	2.6	7.3	1.0	2.9	1.0	2.9	2.7	7.5	2.6	7.3	2.5	7.0	2.7	7.5	2.7	7.5	2.6	7.3	2.5	7.0	2.7	7.5
	WMT 69 - HLT 69	69	1.4	19.1	9.8	93.6	5.2	47.6	36.0	339.5	7.0	67.9	5.5	53.2	25.6	245.0	6.6	65.5	5.4	51.7	4.0	39.5	23.5	223.1	4.9	49.4
			-1.8	2.3	-5.4	11.2	-2.3	5.7	-18.7	40.6	-4.1	8.1	-3.2	6.4	-14.2	29.3	-4.2	7.8	-3.0	6.2	-2.5	4.7	-12.6	26.7	-3.3	

Appendix G Exhibit 1

Dairy Land Power Transmission																								
Location			Line Information			Existing Information										Future Information								
Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name and Voltage	Owner	Existing Conductor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	
								2013	2013							2018	2028	2018	2028					
O4-O6	O1	1	T	Q-10 (161 kV)	DPC	336 ACSR	3/8 HS Steel & OPGW	66	52.8	N to S	H-Frame	15'	A -7 C +115 B -124 West to East	795 ACSR	1 OPGW and 1 3/8 EHS OHGW	126.2	136.7	101.0	109.4	S to N	H-Frame	*unknown	A -7 C +115 B -124 West to East	
O27-O41	O4, O5	2-3	T	Q-10 (161 kV)	DPC	336 ACSR	3/8 HS Steel & OPGW	66	52.8	N to S	H-Frame	15'	Sheet 2: A -12 C +113 B -117 West to East Sheet3: A-7 C+115 B -118 West to East	795 ACSR	1 OPGW and 1 3/8 EHS OHGW	126.2	136.7	101.0	109.4	S to N	H-Frame	*unknown	Sheet 2: A -12 C +113 B -117 West to East Sheet3: A-7 C+115 B -118 West to East	
O28-O41	O4, O5	2-3	T	N-222 (69 kV)	DPC	477 ACSR	3/8 HS STEEL	126.3	101.04	E to W	Horizontal Post & H-Frame	2-5'V; 3-10.5'H	Sheet 2: C +111 B -130 A +1 Top to Bottom Sheet 3: A -16 C +115 B -117 West to East	477 ACSR	3/8 EHS Steel	20.1	44	16.1	35.2	S to N	Horizontal Post & H-Frame	*unknown	Sheet 2: C +111 B -130 A +1 Top to Bottom Sheet 3: A -16 C +115 B -117 West to East	
O239-O254	O11, O12	4-5	T	N- 93 (69 kV)	DPC	1/0 ACSR	3/8 HS STEEL	30.12	24.096	E to W	Wishbone	1.5',4.5'V;9.5',11.5'	Sheet 4: C +113 A -1 B -117 Top to Bottom Sheet 5: C +127 A +7 B -122 Top to Bottom	477 ACSR	1 OPGW and 1 7/16 EHS OHGW	31.8	33.6	21.8	23.3	E to W	Wishbone	**	Sheet 4: C +113 A -1 B -117 Top to Bottom Sheet 5: C +127 A +7 B -122 Top to Bottom	
O340-O343	O17	6-7	T	N-322 (69 kV)	DPC	477 ACSR	3/8 HS STEEL	262.7	210.16	W to E	Horizontal Post & H-Frame	5' Vertical	Sheet 6: A -7 C + 120 B -103 Top to Bottom Sheet 7: A C B Top to Bottom (unable to get angle)	477 ACSR	1 OPGW and 1 7/16 EHS OHGW	213.4	227.5	173.2	193.9	W to E	Horizontal Post & H-Frame	**	Sheet 6: A -7 C + 120 B -103 Top to Bottom Sheet 7: A C B Top to Bottom (unable to get angle)	
O408-O464	O22 - O25	8-15	T	N-101 (69 kV)	DPC	477 ACSR	3/8 HS STEEL	201.7	161.36	W to E	Horizontal Post & H-Frame	See Below Left	See Below for each sheet info	477 ACSR	1 OPGW and 1 7/16 EHS OHGW	244.07	216.3	199.1	195.8	W to E	Horizontal Post & H-Frame	**	See Below for each sheet info	
P4-P9	P	16	T	Q-10 (161 kV)	DPC	336 ACSR	3/8 HS Steel & OPGW	66	52.8	N to S	H-Frame	15'	A -7 C +115 B -124 West to East	795 ACSR	1 OPGW and 1 3/8 EHS OHGW	112.1	113.7	89.7	91.0	S to N	H-Frame	*18'	A -7 C +115 B -124 West to East	
P17-P28	P	17	T	N-226	DPC	477 ACSR	3/8 HS STEEL	78.7	62.96	N to S	Horizontal Post	5' Vertical	ABC Top to Bottom	477 ACSR	3/8 EHS Steel	87.1	106.9	69.7	85.5	S to N	Horizontal Post	**	ABC Top to Bottom	
*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact													*If not part of Badger Coulee and thus result separately by DPC											
													*Note: DPC has no plans for changes to these lines for the future											

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact
**Normal Loads are 80% of the estimated peak load for the years with the system intact
ATC Phasing
**** indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom)
Assumed

*If not part of Badger Coulee and thus rebuilt separately by DPC
*Note: DPC has no plans for changes to these lines for the future

Sheet N-101
8 A -12 C +119 B -127 North to South
9 A -12 C +111 B -125 North to South
10 A -7 C +115 B -124 Top to Bottom
11
12 C +114 B -123 A +4 Top to Bottom
13 C +116 B -109 A -7 Top to Bottom
14A C +109 B -126 A +4 Top to Bottom
14B C+123 B -122 A +3 Top to Bottom
15 C +112 B -101 A -2 Top to Bottom

Sheet N-101
8 A -12 C +119 B -127 North to South
9 A -12 C +111 B -125 North to South
10 A -7 C +115 B -124 Top to Bottom
11
12 C +114 B -123 A +4 Top to Bottom
13 C +116 B -109 A -7 Top to Bottom
14A C +109 B -126 A +4 Top to Bottom
14B C+123 B -122 A +3 Top to Bottom
15 C +112 B -101 A -2 Top to Bottom

Appendix G Exhibit 1

Location			Line Information					Existing Information										Future Information							
Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name and Voltage	Owner	Substation Node	Substation Node	Existing Conductor Per Phase	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****
										2013	2013							2018	2028	2018	2028				
N1-N87	N	1-13	T	W3203 (161 kV)	XCEL	Tremval	May Fair	477 ACSR 26/7	3/8 " EHS	80.69	64.552	S- N	H-Frame; Horizontal	15' 6"	C-B-A (W to E)	NA	NA	309.12	338.16	247.3	270.5	N - S	H-Frame; Horizontal	15' 6"	C-B-A (W to E)
N87-N213	N	14-30	T	W3204 (161 kV)	XCEL	Tremval	Jackson County	795 ACSR 45/7	3/8" EHS	133.4	106.72	W - E	H-Frame; Horizontal	15' 6"	A-B-C (N to S)	NA	NA	145.2	187.55	116.2	150.0	W - E	H-Frame; Horizontal	15' 6"	A-B-C (N to S)
O8 to O14	O2	31-32	T	W3203 (161 kV)	XCEL	Tremval	May Fair	477 ACSR 26/7	3/8 " EHS	80.69	64.552	S - N	H-Frame; Horizontal	15' 6"	C-B-A (W to E)	NA	NA	309.12	338.16	247.3	270.5	N - S	H-Frame; Horizontal	15' 6"	C-B-A (W to E)
O26-O28	O4	33	T	W3482 (69 kV)	XCEL	La Crosse	DPC N. LaCrosse	477 ACSR 26/7	3/8" EHS	218.39	174.712	S - N	Horizontal Post; Same Side; Vertical	7'	A-B-C (T to B)	NA	NA	181.57	224.25	145.3	179.4	N - S	Horizontal Post; Same Side; Vertical	7'	A-B-C (T to B)
O37-O41	O5	34	T	W3203 (161 kV)	XCEL	Tremval	May Fair	477 ACSR 26/7	3/8 " EHS	80.69	64.552	S- N	H-Frame; Horizontal	15' 6"	A-B-C (W to E)	BCA (T to B)	NA	309.12	338.16	247.3	270.5	N - S	H-Frame; Horizontal	15' 6"	A-B-C (W to E)
O74-O77	O6	35	T	W3411 (69 kV)	XCEL	La Crosse	West Salem	477 ACSR 26/7	3/8 " EHS	268.59	214.872	W - E	Horizontal Post; Same Side; Vertical	7'	A-B-C (T to B)	NA	NA	501.21	603.29	401.0	482.6	W - E	Horizontal Post; Same Side; Vertical	7'	A-B-C (T to B)
O136-O137	O6	36	T	W3411 (69 kV)	XCEL	West Salem	Monroe County	477 ACSR 26/7	3/8 " EHS	87.86	70.288	W - E	Horizontal Post; Same Side; Vertical	7'	A-B-C (T to B)	NA	NA	274.45	370.68	219.6	296.5	W - E	Horizontal Post; Same Side; Vertical	7'	A-B-C (T to B)
O173-O239	O8-O10	37-45	T	W3414 (69 kV)	XCEL	Monroe County	Viroqua	477 ACSR 26/7	3/8 " EHS	139.74	111.792	S - N	Horizontal Post; Delta ; Vertical & Horizontal Post; Same Side ; Vertical	10'	A-C-B (T to B)	NA	NA	100.41	110.45	80.3	88.4	N - S	Horizontal Post; Delta ; Vertical & Horizontal Post; Same Side ; Vertical	10	A-C-B (T to B)
P58-P61	P	46	T	W3203 (161 kV)	XCEL	Tremval	May Fair	477 ACSR 26/7	3/8 " EHS	80.69	64.552	S- N	H-Frame; Horizontal	15' 6"	A-B-C (W to E)	NA	NA	309.12	338.16	247.3	270.5	N - S	H-Frame; Horizontal	15' 6"	A-B-C (W to E)

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact

**Normal Loads are 80% of the estimated peak load for the years with the system intact

ATC Phasing = A (0°), B (240°), C(120°)



Xcel Energy Phase rotations are counter clockwise with Xcel Energy's A-Phase as the zero reference point A (0°); B (240°); C (120°)

**** Indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom)

Appendix C – Existing Distribution Line Information Summary Sheets

Appendix G Exhibit 1

	ACEC																									
	Location			Line Information			Existing Infromation									***Future Information										
Line Identifier	Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name (Voltage)	Owner	Existing Condcutor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground
									2013	2013								2018	2028	2018	2028					
1-C	I58-I65	I6	ACEC-1	D	7.2/12.47kV	ACEC	4/0 AL URD	Full neutral - CU	17	13	W to E	Burried	N/A	Random	36" Min			19	23	15	18					
2-C	I72-I78	I8	ACEC-2 TO 3	D	7.2 kV	ACEC	1/0 AL URD	Full neutral - CU	14	11	W to E	Burried	N/A	Random	36" Min			15	19	12	15					

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact
**Normal Loads are 80% of the estimated peak load for the years with the system intact
***Green Highlighted rows will be located underground due to physcial proximity to new transmission line
ATC Phasing = A (0°), B (240°), C(120°)
**** Indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom)
Assumed

Appendix G Exhibit 1

Alliant																											
Location				Line Information				Existing Information										***Future Information									
Line Identifier	Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name (Voltage)	Owner	Existing Conductor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	Comments	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground
									2013	2013									2018	2028	2018	2028					
1-A	N330-331	N6	ALLIANT-1	D	WRNA4611 (24.9 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	8	6.4	S to N	Vertical	7'	B						8.16	8.48	6.53	6.78				
2-A	N336-N337	N6	ALLIANT-2	D	WRNA4611 (24.9 kV)	Alliant	4/0 AL UG (24.9 kV)	4/0 AL UG	0	0	S to N	UG		ABC	36"	Line used as alternate tie incase of UG contingency.			0.00	0.00	0.00	0.00					
2-A	N336-N337	N6	ALLIANT-2	D	WRNA4611 (24.9 kV)	Alliant	1/0 AL UG (14.4 kV)	1/0 AL UG	1	0.8	S to N	UG		A	36"	Added: 1ph line running parallel to line above.			1.02	1.06	0.82	0.85					
3-A	N338-N339	N7	ALLIANT-2	D	WRNA4611 (24.9 kV)	Alliant	4/0 AL UG (24.9 kV)	4/0 AL UG	21	16.8	S to N	UG		ABC	36"	All 3ph amps listed will be the total amps sum from A, B, and C phases.			21.42	22.26	17.14	17.81					
4-A	N343-N344	N7	ALLIANT-3	D	WRNA4611 (24.9 kV)	Alliant	80 ACSR (7.2 kV)	80 ACSR	1	0.8	N to S	Vertical	7'	C					1.02	1.06	0.82	0.85					
5-A	N515-N516	N17	ALLIANT-4	D	MAUA2314 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	4	3.2	E to W	Vertical	7'	A					4.08	4.24	3.26	3.39					
6-A	N537-N539	N17	ALLIANT-5	D	MAUA2314 (12.4 kV)	Alliant	2 ACSR (7.2 kV)	2 ACSR	65	52	S to N	Vertical	7'	A					66.30	68.90	53.04	55.12					
7-A	N551-N553	N19	ALLIANT-6	D	MAUA2314 (12.4 kV)	Alliant	1/0 ACSR (12.4 kV)	1/0 ACSR	140	112	E to W	Flat	45" 23" 23" 45"	ACB			#2 AL URD	#2 AL URD	142.80	148.40	114.24	118.72					
8-A	M8-M12	M1	ALLIANT-7	D	LYSA497 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	1	0.8	E to W	Vertical	7'	A					1.02	1.06	0.82	0.85					
9-A	M12-M18	M1	ALLIANT-8	D	LYSA497 (12.4 kV)	Alliant	3/0 ACSR (12.4 kV)	1/0 ACSR	84	67.2	N to S	UB Flat	45" 23" 23" 45"	CBA			500 MCM AL	501 MCM AL	85.68	89.04	68.54	71.23					
10-A	J14-I4	J1, I1	ALLIANT-9	D	KILX69 (12.4 kV)	Alliant	4 ACSR (12.4 kV)	4 ACSR	18	14.4	E to W	Flat	45" 23" 23" 45"	AB		All 2ph amps listed will be the total amps sum from both phases.			18.36	19.08	14.69	15.26					
11-A	I4-I6	I2	ALLIANT-9	D	KILX69 (12.4 kV)	Alliant	1/0 ACSR (12.4 kV)	1/0 ACSR	18	14.4	E to W	UB Flat	45" 23" 23" 45"	AB					18.36	19.08	14.69	15.26					
12-A	I17-I24	I5	ALLIANT-10 TO 11	D	KILX65 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	3	2.4	N to S	UB Flat	45" 23" 23" 45"	B					3.06	3.18	2.45	2.54					
13-A1	I96-I102	I10,I9	ALLIANT-12 TO 11	D	TRIC1118 (12.4 kV)	Alliant	1000 AL UG (12.4kV)	1000 AL	171	136.8	W to E	UG		ACB	36"				174.42	181.26	139.54	145.01					
13-A2	I96-I103	I10,I10	ALLIANT-12 TO 12	D	TRIC1104 (12.4 kV)	Alliant	1000 AL UG (12.4 kV)	1000 AL	646	516.8	W to E	UG		ABC	36"				658.92	684.76	527.14	547.81					
13-A3	I96-I104	I10,I11	ALLIANT-12 TO 13	D	TRIC1105 (12.4 kV)	Alliant	500 AL UG (12.4 kV)	500 AL	788	630.4	W to E	UG		ABC	36"				803.76	835.28	643.01	668.22					
14-A	I103-I105	I11	ALLIANT-13	D	PPKC1212 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	1	0.8	E to W	Vertical	7'	A					1.02	1.06	0.82	0.85					
15-A1	I131-I134	I13	ALLIANT-14	D	CLDC944 (12.4 kV)	Alliant	336 ACSR (12.4 kV)	3/0 ACSR	36	28.8	S to N	Flat	45" 23" 23" 45"	CAB	North of Bulgrien Dr.				36.72	38.16	29.38	30.53					
15-A2	I131-I134	I13	ALLIANT-14	D	CLDC944 (12.4 kV)	Alliant	1/0 ACSR (12.4 kV)	1/0 ACSR	9	7.2	N to S	Flat	45" 23" 23" 45"	CAB	South of Bulgrien Dr.				9.18	9.54	7.34	7.63					
16-A	H23-H27	H2	ALLIANT-15	D	BWDB3543 (24.9 kV)	Alliant	336 ACSR (24.9 kV)	336 ACSR	730	584	N to S	Flat	45" 23" 23" 45"	BCA			500 MCM AL	501 MCM AL	744.60	773.80	595.68	619.04					
17-A	H129-H131	H8	ALLIANT-16	D	CLDC944 (12.4 kV)	Alliant	500 AL UG (12.4 kV)	500 AL UG	47	37.6	S to N	UG		ABC	36"				47.94	49.82	38.35	39.86					
43-A1	H129-H131	H8	ALLIANT-16	D	CLDC944 (12.4 kV)	Alliant	2 AL UG	2 AL UG	0.5	0.3	S to N	UG		AC	36"	Used to create UG backup loop.			0.51	0.53	0.31	0.32					
44-A1	H129-H131	H8	ALLIANT-16	D	CLDC944 (12.4 kV)	Alliant	1 AL UG	1 AL UG	0.3	0.2	S to N	UG		B	36"	Used to create UG backup loop.			0.31	0.32	0.20	0.21					
18-A	G8-G11	G1	ALLIANT-17 TO 18	D	CLDC944 (12.4 kV)	Alliant	2 AL UG (7.2 kV)	2 AL UG	4	3.2	N to S	UG		C	36"				4.08	4.24	3.26	3.39					
19-A	G13-G15	G2	ALLIANT-18	D	CLDC944 (12.4 kV)	Alliant	2 AL UG (7.2 kV)	2 AL UG	3	2.4	S to N	UG		C	36"				3.06	3.18	2.45	2.54					
20-A	F24-F26	F2	ALLIANT-19 TO 20	D	QKEB826 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	3	2.4	N to S	Vertical	7'	A					3.06	3.18	2.45	2.54					
21-A	F26-F28	F3	ALLIANT-20	D	QKEB826 (12.4 kV)	Alliant	1 AL UG (7.2 kV)	1 AL	1	0.8	N to S	UG		A	36"				1.02	1.06	0.82	0.85					
22-A	F50-F52	F3	ALLIANT-21	D	AGNC1569 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	2	1.6	S to N	Vertical	7'	C					2.04	2.12	1.63	1.70					
23-A	F79-F85	F4	ALLIANT-22 TO 23	D	VIEN14818 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	1	0.8	E to W	Vertical	7'	C					1.02	1.06	0.82	0.85					
24-A	E11-E15	E1	ALLIANT-24 TO 25	D	PTECG31 (12.4 kV)	Alliant	1/0 ACSR (12.4 kV)	1/0 ACSR	52	41.6	S to N	Flat	45" 23" 23" 45"	ABC					53.04	55.12	42.43	44.10					
25-A2	E19-E26	E1	ALLIANT-26	D	PTECG31 (12.4 kV)	Alliant	2 AL UG (7.2 kV)	2 AL UG	2	1.6	N to S	UG		A	36"	North of MC Gowan Rd			2.04	2.12	1.63	1.70					
25-A1	E19-E26	E1	ALLIANT-26	D	PTECG31 (12.4 kV)	Alliant	1 AL UG (7.2 kV)	1 AL UG	1	0.8	N to S	UG		A	36"	South of MC Gowan Rd			1.02	1.06	0.82	0.85					
26-A	E57-E59	E1	ALLIANT-27	D	VIEN14818 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	1	0.8	S to N	Vertical	7'	B					1.02	1.06	0.82	0.85					
27-A	D4-D5	D1	ALLIANT-28	D	VIEN14818 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	1	0.8	E to W	Vertical	7'	B					1.02	1.06	0.82	0.85					
28-A	C4-C6	C1	ALLIANT-28	D	VIEN14818 (12.4 kV)	Alliant	2 ACSR (12.4 kV)	2 ACSR	36	28.8	S to N	Flat	45" 23" 23" 45"	CAB					36.72	38.16	29.38	30.53					
29-A	C11-C19	C3	ALLIANT-29 TO 30	D	VIEN14818 (12.4 kV)	Alliant	3/0 ACSR (12.4 kV)	3/0 ACSR	3	2.4	E to W	Flat	45" 23" 23" 45"	BAC		N.O. switch 5 poles east of Madigan Rd			3.06	3.18	2.45	2.54					
29-A	C11-C19	C3	ALLIANT-29 TO 30	D	DANN618 (12.4 kV)	Alliant	3/0 ACSR (12.4 kV)	3/0 ACSR	2	1.6	W to E	Flat	45" 23" 23" 45"	BAC		N.O. switch 5 poles east of Madigan Rd			2.04	2.12	1.63	1.70					
30-A	C19-C25	C4	ALLIANT-30	D	DANN618 (12.4 kV)	Alliant	3/0 ACSR (7.2 kV)	3/0 ACSR	2	1.6	N to S	Vertical	7'	B					2.04	2.12	1.63	1.70					
40-A	C25-C26	C4	ALLIANT-30	D	DANN618 (12.4 kV)	Alliant	1/0 ACSR (7.2 kV)	1/0 ACSR	1	0.8	N to S	Vertical	7'	B					1.02	1.06	0.82	0.85					
41-A	C53-C54	C5	ALLIANT-31	D	DANN618 (12.4 kV)	Alliant	2 ACSR (7.2 kV)	2 ACSR	1	0.8	W to E	Vertical	7'	C					1.02	1.06	0.82	0.85					
42-A	B32-B33	B3	ALLIANT-32	D	TBLN3915 (12.4 kV)	Alliant	2 AL UG (7.2 kV)	2 AL UG	12	9.6	S to N	UG		B	36"				12.24	12.72	9.79	10.18					
43-A2	N344-N345	N7	ALLIANT-3	D	WRNA4611 (12.4 kV)	Alliant	4 ACSR	4 ACSR	0.5	0.5	N to S	Vertical	89"	C ph^					0.5	1	0.5	1	N to S	Vertical	89"	C ph^	
44-A2	H119-H120	H8	ALLIANT-32	D	CLDC942 (12.4kV)	Alliant	1/0 ACSR	1/0 ACSR	A 177; B 124; C 129	A 6; B 5; C 4	N to S	Flat (drop neutral)	89"	CAB^		Winter peaking			A 177; B 124; C 129	A190; B 140; C 145	A 8; B 7; C 6	A 10; B 9; C 8	N to S	at (drop neutra	89"	CAB^	
25-A3	E19-E26	E1	ALLIANT-25 TO 26	D	PTECG31 (12.4 kV)	Alliant	2 ACSR	2 ACSR	30	20	N to S	Vertical	89"	A ph^					32.00	35.00	25.60	28.00	N to S	Vertical	89"	A ph^	
45-A	H120-H121	H8	ALLIANT-32	D	CLDC942 (12.4 kV)	Alliant	500 AL UG	500 AL UG	A 177; B 124; C 130	A 6; B 5; C 5	N to S		CAB^	36"		Winter peaking			A 177; B 124; C 130	A190; B 140; C 146	A 8; B 7; C 7	A 10; B 9; C 9	N to S	Vertical	89"	CAB^	
46-A	G16-G17	G2	ALLIANT-33	D	MASC1107 (12.4 kV)	Alliant	4 ACSR	4 ACSR	1	0.5	S to N	Vertical	89"	B ph^					1	1.5	0.80	1.20	S to N	Vertical	89"	B ph^	
47-A	F14-F15	F2	ALLIANT-34	D	PTECG31 (12.4 kV)	Alliant	2 ACSR	2 ACSR	0.5	0.5	N to S	Vertical	8														

^ Distribution is 30 degree shift lagging from transmission.

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact

Appendix G Exhibit 1

	Bangor																									
	Location			Line Information			Existing Infromation									***Future Information										
Line Identifier	Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name (Voltage)	Owner	Existing Condcutor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground
									2013	2013								2018	2028	2018	2028					
1-B	O114-O116	O6	BANGOR	D	Labus 2 (7.2 kV)	Bangor	1/0 220 mil Jacketed	1/0 cu	20	16	w to e	urd		A-0°	36"				20	20	16	16				

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact
**Normal Loads are 80% of the estimated peak load for the years with the system intaci
***Green Highlighted rows will be located underground due to physcial proximity to new transmission line
ATC Phasing = A (0°), B (240°), C(120°)
**** Indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom)

Appendix G Exhibit 1

	Black River Falls																									
Line Identifier	Location			Line Information			Existing Infomation										***Future Information									
	Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name and Voltage	Owner	Existing Condcutor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground
									2013	2013								2018	2028	2018	2028					
1-BRF	N215-218	N6	BLACK RIVER FALLS - 1	D - UG	GERHILL	Black River Falls	1/0 Alum	1/0 Copper	80	64	W to E			A	36" to 42"			84	92	67	74	W to E				36" to 42"
2-BRF	N215-220	N6	BLACK RIVER FALLS - 1	D - UG	GERHILL	Black River Falls	1/0 Alum	1/0 Copper	80	64	W to E			ABC	36" to 42"			84	92	67	74	W to E				36" to 42"
3-BRF	N224-N227	N6	BLACK RIVER FALLS - 2	D - UG	POW	Black River Falls	1/0 Alum	1/0 Copper	125	100	N to S			B	36" to 42"			132	144	106	115	N to S				36" to 42"
4-Jackson	N229-N230	N6	Jackson Electric	D - UG	BROCKWAY	Jackson Electric																				

Black River Falls Municipal Utilities Distribution System Voltage is 4160Y/2400

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact
**Normal Loads are 80% of the estimated peak load for the years with the system intact
DPC Phasing = A (120°), B (0°), C(240°) BRF Phasing = A (150°), B (30°), C(270°)
**** Indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom
PHASING ASSUMED

Appendix G Exhibit 1

Jackson																											
Line Identifier	Location			Line Information			Existing Infromation								***Future Information												
	Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name and Voltage	Owner	Existing Condcutor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	
									2013	2013								2018	2028	2018	2028						
1-J	N212-213	N5	JACKSON-1	D - OH	12480/7200	Jackson Electric	4A Copper	4A Copper	Est 5	Est 3	S to N	Vertical	4'	Single Phase (A)				Est 5	Est 5	Est 400	Est 4						
2-J	N229-N231	N6	JACKSON-2	D - UG	12480/7200	Jackson Electric	4/0 URD Primary Wire	4/0 URD Primary Wire	Est 400	Est 300	See Insert	UG		3 Ph and Single Ph	40"			Est 400	Est 400	Est 300	Est 300						
3-J	N234-N238	N6	JACKSON-3 to 4	D - UG	12480/7200	Jackson Electric	4/0 URD Pri Wire	4/0 URD Pri Wire	Est 50	Est 30	SE to NW	UG		3 Phase (ABC)	40"	4/0 URD Primary Wire		est 50	est 55	est 30	est 30	SE to NW					40"
4-J	N260-N271	N6	JACKSON-5 to 6	D - UG	12480/7200	Jackson Electric	1/0 UG		Est 20	Est 15	SE to NW	UG		Single Phase (B)	40"	1/0 UG		est 20	est 20	est 15	est 15	SE to NW					40"

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact
**Normal Loads are 80% of the estimated peak load for the years with the system intact
ATC Phasing = A (0°), B (240°), C(120°)
**** Indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom)

	MGE																									
	Location			Line Information			Existing Infromation									***Future Information										
Line Identifier	Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name (Voltage)	Owner	Existing Condcutor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground
									2013	2013								2018	2028	2018	2028					
1-M	C74-C85	C8	MGE-1 TO 2	D	WPT 1332 (1PH 7.97 kV)	MGE	4 CU	4 CU	3	2.4	E to W	2-wire flat	36"	C PH		4 CU	4 CU	3	3	2.4	2.4	E to W				
2-M	B9-B14	B2	MGE-3	D	WMN 1334 (3PH 13.8 kV)	MGE	4 CU	4CU	8	6.4	N to S	4-wire diamond with dropped neutral	36"	ABC PH		4 CU	4 CU	10	27	8	21.6	N to S				
3-M	B21-B22	B3	MGE-4	D	WMD 1334 (1PH 7.97 kV)	MGE	1/0 AL (13.8 kV)	b) #14 CU concentric neut	3	2.4	E to W	Direct buried cable	36"	B PH		1/0 AL (ug)	(16) #14 CU concentric neutral	3	3	2.4	2.4	E to W				
4-M	B42-B43	B5	MGE-5	D	WMD 1335 (3PH 13.8 kV)	MGE	477 AL (13.8kV)	477 AL	49	39.2	E to W	4-wire diamond with dropped neutral	36"	ABC PH		477 AL	477 AL	50	59	40	47.2	E to W				
5-M	B43-B45	B5	MGE-5	D	WMD 1335 (3PH 13.8 kV)	MGE	500 CU (13.8 kV)	j) #20 CU consentric neut	49	39.2	E to W	Direct buried cable	36"	ABC PH		500 CU	(24) #20 CU consentric neutral	50	59	40	47.2	E to W				
6-M	A6-A8	A2	MGE-6	D	WMD 1334 (3PH 13.8 kV)	MGE	336 AL (13.8kV)	336 AL	27	21.6	W to E	4-wire flat underbuild with dropped neutral	36"	ABC PH		336 AL	336 AL	27	27	21.6	21.6	W to E				
7-M	A17-A27	A5, A6	MGE-7 TO 8	D	WMD 1334 (3PH 13.8 kV)	MGE	477 AL (13.8kV)	477 AL	327	261.6	S to N	4-wire flat underbuild with dropped neutral	36"	ABC PH		500 CU (13.8 kV)	(24) #20 CU consentric neutral	331	355	264.8	284	S to N				
8-M	A27-A29	A7	MGE-8	D	WMD 1334 (3PH 13.8 kV)	MGE	477 AAC (13.8kV)	477 AL	328	262.4	E to W	4-wire armless with dropped neutral	36"	ABC PH		477 AL	477 AL	331	356	264.8	284.8	E to W				

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact
**Normal Loads are 80% of the estimated peak load for the years with the system intact
***Green Highlighted rows will be located underground due to physcial proximity to new transmission line
ATC Phasing = A (0°), B (240°), C (120°)
MGE Phasing = A (30°) B (270°) C (150°)
**** Indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom)
Assumed

Appendix G Exhibit 1

	Oakdale																									
	Location			Line Information			Existing Infomation									***Future Information										
Line Identifier	Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name (Voltage)	Owner	Existing Condcutor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing***** (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground
									2013	2013								2018	2028	2018	2028					
1-O	N406-N408	N9	OAKDALE-1	D	1 Ph 7.2 kV	Oakdale	4 ACSR	4 ACSR	3	2.4	SE to NW	A1 vertical	See drawing	B		1/0 URD		3	3	2.4	2.4	SE to NW				40"
2-O	N430-N433	N9	OAKDALE-2	D	1 Ph 7.2 kV	Oakdale	4 ACSR	4 ACSR	1	0.8	W to E	A1 vertical	See drawing	A		1/0 URD		1	1	0.8	0.8	W to E				40"
3-O	N447-N449	N11	OAKDALE-3	D	1 Ph 7.2 kV	Oakdale	4 ACSR	4 ACSR	8	6.4	W to E	A1 vertical	See drawing	A				8	8	6.4	6.4	W to E				
4-O	N453-N456	N11	OAKDALE-4	D	1 Ph 7.2 kV	Oakdale	6A CW	6A CW	6	4.8	S to N	A1 vertical	See drawing	C		1/0 URD		6	6	4.8	4.8	S to N				40"
5-O	O426-O429	O22	OAKDALE-5	D	1 Ph 7.2 kV	Oakdale	1/0 ACSR	2 ACSR	6	4.8	E to W	A1 vertical	See drawing	B				6	6	4.8	4.8	E to W				
6-O	O435-O440	O23	OAKDALE-6 TO 7	D	2 Ph 12.47 kV	Oakdale	1/0 ACSR	1/0 ACSR	18	14.4	E to W	at underbuild or	See drawing	B and C		4/0 URD		18	18	14.4	14.4	E to W				40"
7-O	O456-O478	O26	OAKDALE-8 TO 10	D	3 Ph 12.47 kV	Oakdale	3/0 ACSR	1/0 ACSR	70	56	W to E	C1 Flat	See drawing	A, B, C		4/0 URD		70	70	56	56	W to E				40"
8-O	L4-L10	L1	OAKDALE-11 TO 12	D	1 Ph 7.2 kV	Oakdale	6A CW	6A CW	33	26.4	SE to NW	A1 vertical	See drawing	B		3 Ph 12.47 kV 1/0 ACSR	1/0 ACSR	15	20	12	16	SE to NW	See drawing			
9-O	N449-N451	N11	OAKDALE-3	D	1 Ph 7.2 kV	Oakdale	1/0 URD		2	1.5	W to E		4'	A	40"			2	2	1.5	1.5	W to E				40"
10-O	N376	N7	OAKDALE-13	D	1 ph/7200	Oakdale	1/0 URD		15	5	N-S	Underground		Unknown	40"			15	5	12	4		Underground			
11-O	N382	N8	OAKDALE-13	D	3 ph/12470	Oakdale	3-4/0 ACSR	1-1/0ACSR	20	10	W-E	C-1 Horizontal	4'		Unknown			20	10	20	10		See drawing			
12-O	N385	N8	OAKDALE-14	D	1 ph/7200	Oakdale	1/0 URD		3	1	W-E	Underground		Unknown	40"			3	1	2.4	0.8		Underground			
13-O	N488	N15	OAKDALE-15	D	1 ph/7200	Oakdale	1-4ACSR	1-4 ACSR	1	1	E-W	A1 Vertical	4'	Unknown				1	1	1	1		See drawing			
			Oakdale-15	D	3 ph/12470	Oakdale	3-336 ACSR	1-336 ACSR	50	30	S-N	C-1 Horizontal	4'	Unknown												

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact

**Normal Loads are 80% of the estimated peak load for the years with the system intact

***Green Highlighted rows will be located underground due to physical proximity to new transmission line

ATC Phasing = A (0°), B (240°), C(120°)

Oakdale Phasing = A (150°), B (30°), C(270°)

**** Indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom)

***** Define framing configurations (i.e. A1 Vertical - 2' spacing between phases, drop neutral 7' below lowest phase)

Assumed

Appendix G Exhibit 1

	Riverland Energy																									
Line Identifier	Location			Line Information			Existing Infomation								***Future Information											
	Applicable Structure Range	REC Sub & Fdr	Sheet	T-Line (T) or Dist (D)	Circuit Name and Voltage	Owner	Existing Condcutor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground
									2013	2013								2018	2028	2018	2028					
1-R	O2-O4	BPR 1	RIVERLAND-1	D - UG	12470/7200	Riverland	1/OPRI-U	CU concentric	1	0.8	W to E	NA	NA	ABC	3 ft.	4/0 AL	CU concentric	1	1	0.8	0.8	W to E	NA	NA	ABC	3 ft.
2-R	O9-O11	BPR 1	RIVERLAND-2	D - OH	7200	Riverland	8A	8A	4.0	3.2	W to E	Vertical	4 ft.	C-ph	NA		8A	4.2	4.6	3.4	3.7	W to E	Vertical	4 ft.	C-ph	NA
3-R	O24-O25	SLK 1	RIVERLAND-3	D - UG	7200	Riverland	1/OPRIUJ	CU concentric	19.0	15.2	N to S	NA	NA	B-ph	3 ft.		CU concentric	20.0	22.0	16.0	17.6	N to S	NA	NA	B-ph	3 ft.
4-R	O27-O28	CDR 8	RIVERLAND-4	D - UG	7200	Riverland	4/OPRIUJ	CU concentric	10.0	8.0	N to S	NA	NA	B-ph	3 ft.	1/0 PRIUJ	CU concentric	10.0	10.0	8.0	8.0	N to S	NA	NA	B-ph	3 ft.
5-R	O29-O30	CDR 8	RIVERLAND-4	D - UG	7200	Riverland	1/OPRIUJ	CU concentric	4.0	3.2	N to S	NA	NA	B-ph	3 ft.		CU concentric	4.0	4.0	3.2	3.2	N to S	NA	NA	B-ph	3 ft.
6-R	O29-O31	CDR 8	RIVERLAND-4	D - UG	12470/7200	Riverland	1/OPRIUJ	CU concentric	105.0	84.0	N to S	NA	NA	ABC	3 ft.	4/0 PRIUJ	CU concentric	110.3	121.8	88.2	97.4	N to S	NA	NA	ABC	3 ft.
7-R	O34-O37	SLK 3	RIVERLAND-5	D - UG	12470/7200	Riverland	1/OPRI-U	CU concentric	8.0	6.4	N to S	NA	NA	ABC	3 ft.	4/0 PRIUJ	CU concentric	8.4	9.3	6.7	7.4	N to S	NA	NA	ABC	3 ft.
8-R	P7-P8	NAM 3	RIVERLAND-6	D - OH	12470/7200	Riverland	4/0 ACSR	4/0 ACSR	1.0	0.8	N to S	Horizontal	3.7 ft.	ABC	NA	4/0 PRIUJ	CU concentric	1.1	1.2	0.8	0.9	N to S	Horizontal	3.7 ft.	ABC	NA
9-R	P10-P14	NAM 3	RIVERLAND-7	D - UG	12470/7200	Riverland	4/OPRIUJ	CU concentric	5.0	4.0	N to S	NA	NA	ABC	3 ft.	4/0 PRIUJ	CU concentric	5.3	5.8	4.2	4.6	N to S	NA	NA	ABC	3 ft.
10-R	P17-P23	NAM 3	RIVERLAND-8	D - OH	12470/7200	Riverland	4/0 ACSR	4/0 ACSR	44.0	35.2	N to S	Horizontal	3.7 ft.	ABC	NA	4/0 PRIUJ	CU concentric	46.2	51.0	37.0	40.8	N to S	Horizontal	3.7 ft.	ABC	NA
11-R	P19-P20	NAM 3	RIVERLAND-8	D - UG	7200	Riverland	4/OPRIUJ	CU concentric	1.0	0.8	N to S	NA	NA	A-ph	3 ft.	1/0 PRIUJ	CU concentric	1.1	1.2	0.8	0.9	N to S	NA	NA	A-ph	3 ft.
12-R	P20-P21	NAM 3	RIVERLAND-8	D - UG	7200	Riverland	4/OPRIUJ	CU concentric	3.0	2.4	N to S	NA	NA	A-ph	3 ft.	1/0 PRIUJ	CU concentric	3.2	3.5	2.5	2.8	N to S	NA	NA	A-ph	3 ft.
13-R	P23-P24	NAM 3	RIVERLAND-8	D - UG	12470/7200	Riverland	4/OPRIUJ	CU concentric	6.0	4.8	W to E	NA	NA	ABC	3 ft.	4/0 PRIUJ	CU concentric	6.3	7.0	5.0	5.6	W to E	NA	NA	ABC	3 ft.
14-R	P23-P25	NAM 2	RIVERLAND-8 AND 9	D - UG	12470/7200	Riverland	4/OPRIUJ	CU concentric	2.0	1.6	W to E	NA	NA	ABC	3 ft.	4/0 PRIUJ	CU concentric	2.1	2.3	1.7	1.9	W to E	NA	NA	ABC	3 ft.
15-R	P33-P48	NAM 9	RIVERLAND-10 TO 12	D - UG	12470/7200	Riverland	4/OPRIUJ	CU concentric	40.0	32.0	S to N	NA	NA	ABC	3 ft.	4/0 PRIUJ	CU concentric	42.0	46.4	33.6	37.1	S to N	NA	NA	ABC	3 ft.
16-R	P37-P39	NAM 9	RIVERLAND-10 to 11	D - OH	12470/7200	Riverland	1/0-ACSR	1/0 ACSR	2.0	1.6	N to S	Horizontal	3.7 ft.	ABC	NA		4 ACSR	2.1	2.3	1.7	1.9	N to S	Horizontal	3.7 ft.	Unknown	NA
17-R	P39-P54	NAM 9	RIVERLAND-11 TO 12	D - UG	12470/7200	Riverland	4/OPRIUJ	CU concentric	43.0	34.4	S to N	NA	NA	ABC	3 ft.	4/0 PRIUJ	CU concentric	45.2	49.9	36.1	39.9	S to N	NA	NA	ABC	3 ft.
18-R	P48-P49	NAM 1	RIVERLAND-12	D - UG	7200	Riverland	1/OPRI-U	CU concentric	2.0	1.6	S to N	NA	NA	A	3 ft.	3/0 PRIUJ	CU concentric	2.1	2.3	1.7	1.9	S to N	NA	NA	A	3 ft.
19-R	P54-P55	NAM 1	RIVERLAND-12 TO 13	D - OH	12470/7200	Riverland	4/0 ACSR	4/0 ACSR	25.0	20.0	S to N	Horizontal	3.7 ft.	ABC	NA	4/0 ACSR	4/0 ACSR	26.3	29.0	21.0	23.2	S to N	Horizontal	3.7 ft.	Unknown	NA
20-R	P55-P56	NAM 1	RIVERLAND-13	D - OH	7200	Riverland	1/0 CU	1/0 CU	1.0	0.8	W to E	Vertical	4 ft.	C-ph	NA		1/0 CU	1.1	1.2	0.8	0.9	W to E	Vertical	4 ft.	C-ph	NA
21-R	P55-P56	NAM 1	RIVERLAND-13	D - OH	7200	Riverland	4-ACSR	4 ACSR	4.0	3.2	W to E	Vertical	4 ft.	C-ph	NA		4 ACSR	4.2	4.6	3.4	3.7	W to E	Vertical	4 ft.	C-ph	NA
22-R	P55-P56	NAM 1	RIVERLAND-13	D - UG	7200	Riverland	1/OPRIUJ	CU concentric	2.0	1.6	W to E	NA	NA	C-ph	3 ft.		CU concentric	2.1	2.3	1.7	1.9	W to E	NA	NA	C-ph	3 ft.
23-R	P13E-P15E	HOL 5	RIVERLAND-14	D - UG	7200	Riverland	1/OPRIUJ	CU concentric	1.0	0.8	S to N	NA	NA	B-ph	3 ft.		CU concentric	1.1	1.2	0.8	0.9	S to N	NA	NA	B-ph	3 ft.
24-R	P15E-P16E	HOL 5	RIVERLAND-14	D - UG	7200	Riverland	1/OPRIUJ	CU concentric	1.0	0.8	N to S	NA	NA	B-ph	3 ft.		CU concentric	1.1	1.2	0.8	0.9	N to S	NA	NA	B-ph	3 ft.

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact

**Normal Loads are 80% of the estimated peak load for the years with the system intact

***Green Highlighted rows are proposed to be located underground due to physcial proximity to new transmission line

ATC Phasing = A (0°), B (240°), C(120°)

**** Indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom)

Assumed

Appendix G Exhibit 1

	Vernon Electric																									
	Location			Line Information			Existing Infomation										***Future Information									
Line Identifier	Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name and Voltage	Owner	Existing Condcutor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****DPC - ABC VEC -ACB	Typical Bury Depth for Underground	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground
									2013	2013								2018	2028	2018	2028					
1-V	O165-O166	O7	VERNON-1	D	1-PH, 7200	VERNON	8A	8A	3.75	3	E-W	Vertical	4' Phase - Neutral	C	36"	*****		4	5	3.2	4					
7-V	O190-O197	O9	VERNON-2	D	3-PH, 1240	VERNON	2 ACSR	2 ACSR	45.75	36.6	N-S	Horizontal	4' Phase - Phase	ABC W-E	36"	*****		50.2	57	40.16	45.6					
2-V	O247-O250	O11	VERNON-3	D	3-PH, 1240	VERNON	3/0 ACSR	1/0 ACSR	26.25	21	E-W	Horizontal	4' Phase - Phase	C B A N-S	36"	*****		27.5	33	22	26.4					
3-V	O252-O254	O12	VERNON-3	D	3-PH, 1240	VERNON	8A	8A	9	7.2	N-S	Vertical	4' Phase - Neutral	B	36"	***** jacketed 4/0		9.5	11.25	7.6	9					36"
4-V	O268-O269	O13	VERNON-4	D	1-PH, 7200	VERNON	1/0 ACSR	1/0 ACSR	9.25	7.4	E-W	Vertical	4' Phase - Neutral	B	36"	***** jacketed 1/0		9.75	11.5	7.8	9.2					36"
8-V	O276-O277	O14	VERNON-5	D	1-PH, 7200	VERNON	8A	8A	3.75	3	W-E	Vertical	4' Phase - Neutral	A	36"	*****		4	5	3.2	4					
5-V	O333-O340	O16	VERNON-6	D	3-PH, 1240	VERNON	6A	8A	6	4.8	E-W	Horizontal	4' Phase - Phase	C B A N-S	36"	*****		6.25	7.5	5	6					
			VERNON-6	D	3-PH, 1240	VERNON	3/0 ACSR	1/0 ACSR	12.75	10.2	E-W	Horizontal	4' Phase - Neutral	C B A N-S	36"	*****		13.5	16	10.8	12.8					
6-V	O347-O349	O19	VERNON-7	D	1-PH, 7200	VERNON	8A	8A	1	0.8	E-W	Vertical	4' Phase - Neutral	C	36"	***** jacketed 1/0		1	1.25	0.8	1					36"
6-V	O347-O349	O19	VERNON-7	D	1-PH, 7200	VERNON	8A	8A	1	0.8	W-E	Vertical	4' Phase - Neutral	C	36"	***** jacketed 1/0		1	1.25	0.8	1					36"

*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact
**Normal Loads are 80% of the estimated peak load for the years with the system intact
***Green Highlighted rows will be located underground due to physcial proximity to new transmission line
ATC Phasing = A (0°), B (240°), C(120°) DPC Phasing = A (120°), B (0°), C(240°) VEC Phasing = A (150°), B (30°), C(270°)
**** Indicate phase angle and orientation (i.e. A-30° C-270° B-150° East to West, B-270° A-30° Top to Bottom)

Appendix G Exhibit 1

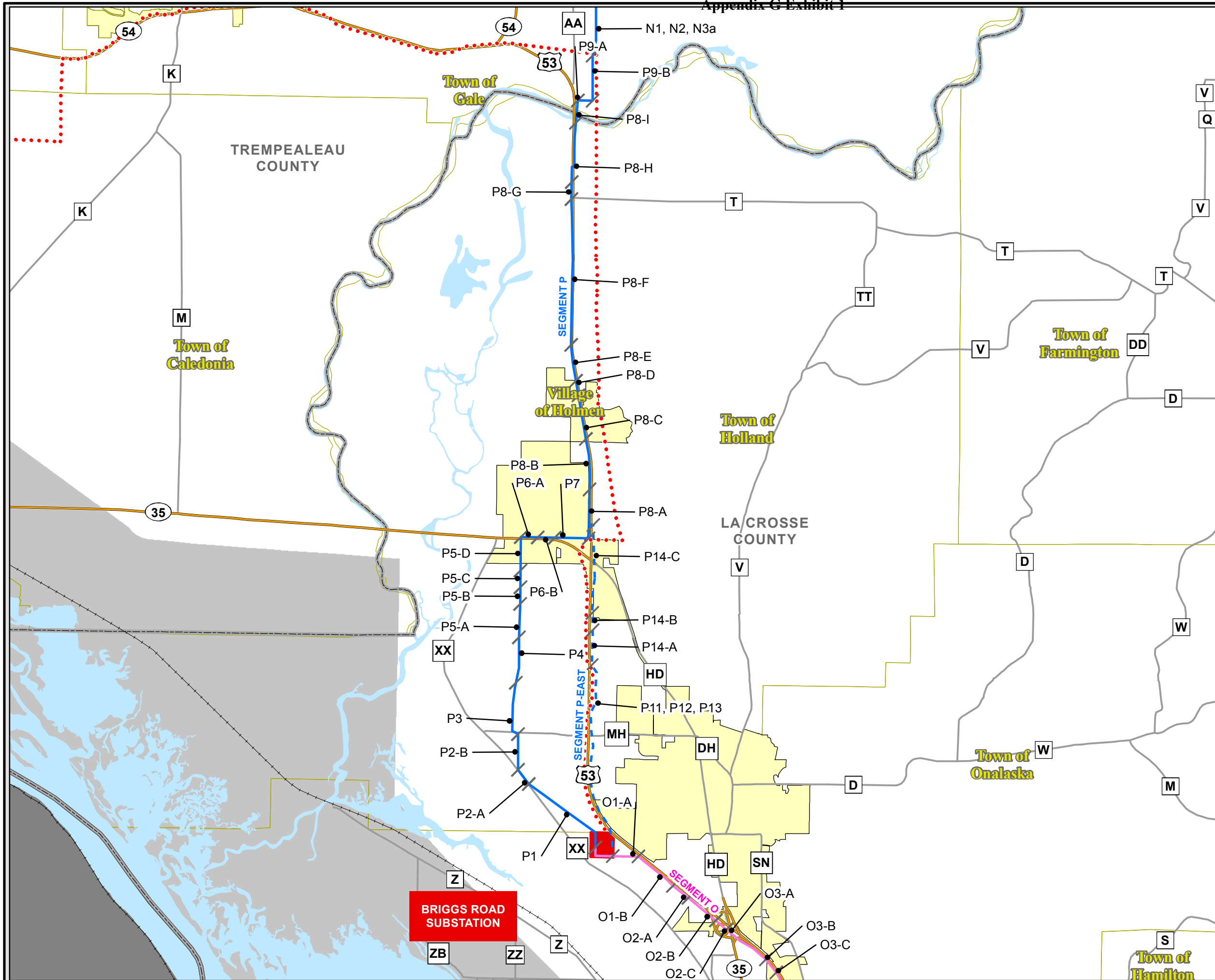
	XCEL Distribution																									
	Location			Line Information			Existing Infomation								***Future Information											
Line Identifier	Applicable Structure Range	Found in Segments	Sheet	T-Line (T) or Dist (D)	Circuit Name and Voltage	Owner	Existing Condcutor	Existing Shield Wire or Neutral	*Peak Load (Amps)	**Normal Load (Amps)	Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground	Conductor (if different from existing)	Shield Wire or Neutral	*Peak Load (Amps)		**Normal Load (Amps)		Direction of Load Flow (i.e. E to W or N to S)	Typical Framing (i.e. Vertical)	Phase Spacing (i.e. 5')	Phasing****	Typical Bury Depth for Underground
									2013	2013								2018	2028	2018	2028					
1-X	O16-O17	O3	XCEL-1	D	HLA 62 13.8 / 8 kv	XCEL	1/0 AI UG	typically 1/3 neutral	4	3.2	S - N	NA	NA	B ph	30 in min			4	4	3.2	3.2	S - N	NA	NA	B ph	30 in min
2-X	O17-O18	O3	XCEL-1	D	HLA 62 13.8 / 8 kv	XCEL	1/0 AI UG	UG	10	8	S - N	NA	NA	B ph				10	14	8	11.2	S - N	NA	NA	B ph	
3-X	O18-O19	O3	XCEL-2	D	HLA 62 13.8 / 8 kv	XCEL	1/0 AI UG	UG	4	3.2	S - N	NA	NA	C ph				4	4	3.2	3.2	S - N	NA	NA	C ph	
4-X	O18-O20	O3	XCEL-2	D	HLA 62 13.8 / 8 kv	XCEL	#1 AI	UG	16	12.8	N - S	NA	NA	ABC UG				16	18	12.8	14.4	N - S	NA	NA	ABC UG	
5-X	O40-O41	O5-O6	XCEL-3 TO 4	D	MAF 71 13.8 / 8	XCEL	336 ACSR 18/1	# 2 ACSR	220	176	S -N	Horizontal	4 '	CAB E - W				235	240	188	192	S -N	Horizontal	4 '	CAB E - W	
6-X	O43-O46	O6	XCEL-4	D	MAF 71 13.8 / 8	XCEL	336 ACSR 18/1	#2 ACSR	11	8.8	N-S	Horizontal	4 '	CBA S - N		#1 AL		11	12	8.8	9.6	N-S	Horizontal	4 '	CBA S - N	
7-X	O46-O47	O6	XCEL-4	D	MAF 71 13.8 / 8	XCEL	#2 ACSR 7/1	# 2 ACSR	12	9.6	W - E	1 PH	NA	A ph				12	12	9.6	9.6	W - E	1 PH	NA	A ph	
8-X	O47-O48	O6	XCEL-4	D	MAF 71 13.8 / 8	XCEL	#4 ACSR 6/1	#4 ACSR	7	5.6	W - E	1 PH	NA	A ph				7	7	5.6	5.6	W - E	1 PH	NA	A ph	
9-X	O51-O52	O6	XCEL-5	D	MAF 72 13.8 / 8	XCEL	#1 AI UG	UG	30	24	E - W	NA	NA	ABC UG				32	35	25.6	28	E - W	NA	NA	ABC UG	
10-X	O55-O59	O6	XCEL-5 TO 6	D	MAF 72 13.8 / 8	XCEL	#1 AI UG	UG	50	40	W - E	NA	NA	ABC UG		#1 AL		54	57	43.2	45.6	W - E	NA	NA	ABC UG	
11-X	O55-O56	O6	XCEL-6	D	MAF 72 13.8 / 8	XCEL	#2 ACSR 7/1	# 2 ACSR	60	48	W - E	1 PH	NA	B ph				65	68	52	54.4	W - E	1 PH	NA	B ph	
12-X	O64-O65	O6	XCEL-7	D	MAF 72 13.8 / 8	XCEL	# 2 ACSR	# 2 ACSR	15	12	W - E	1 PH	NA	B ph		#1 AL		15	15	12	12	W - E	1 PH	NA	B ph	
13-X	O73-O78	O6	XCEL-8	D	WSM 81 23.9 / 13.8 KV	XCEL	#2 ACSR 7/1	# 2 ACSR	2	1.6	E - W	1 PH	NA	B ph				2	2	1.6	1.6	E - W	1 PH	NA	B ph	
14-X	O74-O78	O6	XCEL-8	D	WSM 81 23.9 / 13.8 KV	XCEL	13-X and 14-X same line			0			NA							0	0			NA		
15-X	O78-O80	O6	XCEL-9	D	WSM 81 23.9 / 13.8 KV	XCEL	# 2 ACSR	# 2 ACSR	1	0.8	E - W	1 PH	NA	A ph		#1 AL		1	1	0.8	0.8	E - W	1 PH	NA	A ph	
16-X	O81-O82	O6	XCEL-9	D	WSM 81 23.9 / 13.8 KV	XCEL	336 ACSR 18/1	# 2 ACSR	100	80	N - S	Horizontal	4 '	ABC N-S & ABC W - E				105	110	84	88	N - S	Horizontal	4 '	ABC N-S & ABC W - E	
17-X	O81-O82	O6	XCEL-9	D	WSM 81 23.9 / 13.8 KV	XCEL	#1 AI UG	UG	5	4	W - E	NA	NA	A ph UG				5	5	4	4	W - E	NA	NA	A ph UG	
18-X	O85-O88	O6	XCEL-9 TO 10	D	WSM 92 23.9 / 13.8	XCEL	#2 ACSR 7/1	# 2 ACSR	4	3.2	E - W	1 PH	NA	ABC N-S & ABC W - E				4	4	3.2	3.2	E - W	1 PH	NA	ABC N-S & ABC W - E	
19-X	O88-O89	O6	XCEL-10	D	WSM 92 23.9 / 13.8	XCEL	# 1 AI UG	UG	4	3.2	W - E	NA	NA	ABC UG				4	4	3.2	3.2	W - E	NA	NA	ABC UG	
20-X	O92-O93	O6	XCEL-10	D	WSM 92 23.9 / 13.8	XCEL	1/0 AI UG	UG	0.5	0.4	E - W	NA	NA	B ph		#1 AL		0.5	0.5	0.4	0.4	E - W	NA	NA	B ph	
21-X	O92-O93	O6	XCEL-10	D	WSM 92 23.9 / 13.8	XCEL	#4 ACSR 6/1	# 4 ACSR	30	24	W - E	1 ph	NA	B ph				32	33	25.6	26.4	W - E	1 ph	NA	B ph	
22-X	O96-O97	O6	XCEL-11	D	WSM 92 23.9 / 13.8	XCEL	#2 ACSR 7/1	# 2 ACSR	0.5	0.4	N - S & W - E	1 PH	NA	B ph		#1 AL		0.5	0.5	0.4	0.4	N - S & W - E	1 PH	NA	B ph	
23-X	O98-O99	O6	XCEL-11	D	WSM 92 23.9 / 13.8	XCEL	# 1 AI UG	UG	0.3	0.24	E - W	NA	NA	B ph		#1 AL		0.3	0.3	0.24	0.24	E - W	NA	NA	B ph	
24-X	O99-O101	O6	XCEL-11	D	WSM 92 23.9 / 13.8	XCEL	#4 ACSR 6/1	# 4 ACSR	0.9	0.72	W - E	1 PH	NA	B ph				0.9	0.9	0.72	0.72	W - E	1 PH	NA	B ph	
25-X	O102-O103	O6	XCEL-12	D	WSM 92 23.9 / 13.8	XCEL	#2 AI UG	UG	0.3	0.24	E - W	NA	NA	B ph				0.3	0.3	0.24	0.24	E - W	NA	NA	B ph	
26-X	O103-O104	O6	XCEL-12	D	WSM 92 23.9 / 13.8	XCEL	#4 ACSR 6/1	# 4 ACSR	0.7	0.56	E - W	1 PH	NA	B ph				0.7	0.7	0.56	0.56	E - W	1 PH	NA	B ph	
27-X	O136-O138	O6	XCEL-13	D	RKL 21 12.5 / 7.2	XCEL	2/0 ACSR 6/1	2/0 ACSR	20	16	W - E	Horizontal	4 '	ABC W - E CBA N-S				21	22	16.8	17.6	W - E	Horizontal	4 '	ABC W - E CBA N-S	
28-X	O148-O149	O7	XCEL-14	D	RKL 21 12.5 / 7.2	XCEL	2/0 ACSR	2/0 ACSR	15	12	W - E	Horizontal	4 '	CBA N - S		#1 AL		15	16	12	12.8	W - E	Horizontal	4 '	CBA N - S	
29-X	O149-O150	O7	XCEL-14	D	RKL 21 12.5 / 7.2	XCEL	6A CW	6A CW	4	3.2	N - S	1 PH	NA	B ph				4	5	3.2	4	N - S	1 PH	NA	B ph	
30-X	O215-O233	O10	XCEL-15 TO 17	D	CSH 21 12.5 / 7.2	XCEL	2/0 ACSR	# 2 ACSR	40	32	S - N	Horizontal	3 ' and 6.3 '	CBA W - E		#1 AL		40	42	32	33.6	S - N	Horizontal	3 ' and 6.3 '	CBA W - E	
31-X	P30-P36	P5	XCEL-18	D	HLA 71 13.8 / 8	XCEL	#2 ACSR 7/1	# 2 ACSR	0.3	0.24	S - N	1 PH	NA	CBA W - E				0.3	0.3	0.24	0.24	S - N	1 PH	NA	CBA W - E	

=New

Where you requested Xcel to replace OH facilities with UG, we have not yet had the opportunity to determine if we need to Underground or if relocation is an option. So left these as if

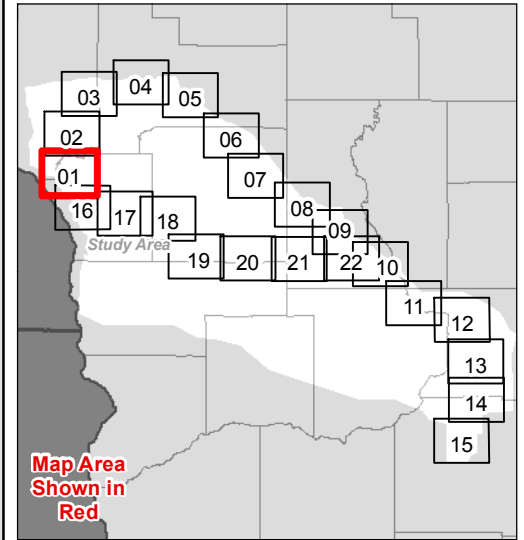
*Peak Loads are defined as 100% of the estimated peak load for the years with the system intact
**Normal Loads are 80% of the estimated peak load for the years with the system intact
***Green Highlighted rows are proposed to be relocated underground due to physcial proximity to new transmission line
ATC Phasing = A (0°), B (240°), C(120°)
XCEL Phasing = A (210°), B (90°), C (330°)

Appendix D – EMF Segment Map



APPENDIX G FIGURE 1 EMF SEGMENTS

BADGER COULEE 345 KV TRANSMISSION LINE PROJECT



- N** Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
- Alternative Segment P-East**
- O** Southern Route (Segments B, C, F, G, I, J, L, M, O)
- Alternative Segment B-North**
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

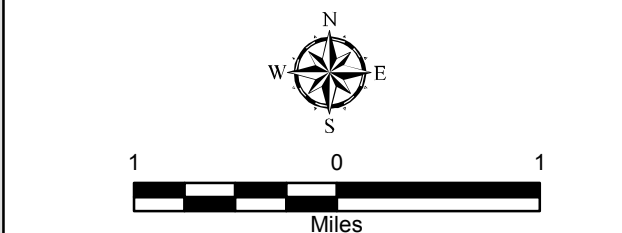
Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

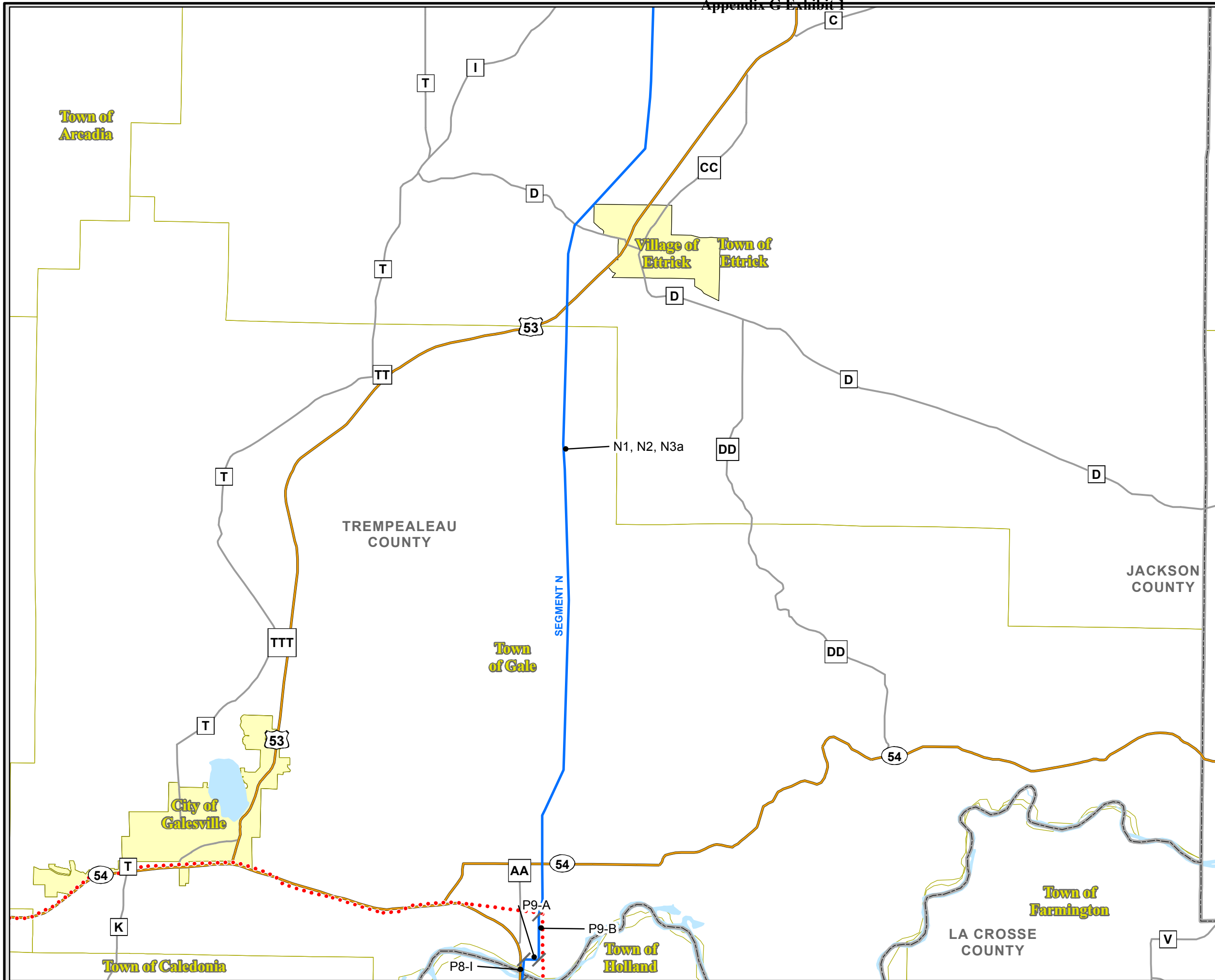
City/Village



The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

OCTOBER 2013	MAP G1- 01	PAGE 01 OF 22
APPENDIX G FIGURE 1 EMF SEGMENTS		



APPENDIX G FIGURE 1
EMF SEGMENTS
BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT

N Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
Alternative Segment P-East
O Southern Route (Segments B, C, F, G, I, J, L, M, O)
Alternative Segment B-North
→ EMF Segment Node
→ Route Segment ID

Approved Hampton-Rochester-La Crosse
345 kV Transmission Project

Outside Study Area

Study Area

EXISTING
SUBSTATION

COUNTY BOUNDARY

City/Village

1 0 1
Miles

ATC AMERICAN TRANSMISSION COMPANY®
Xcel Energy®

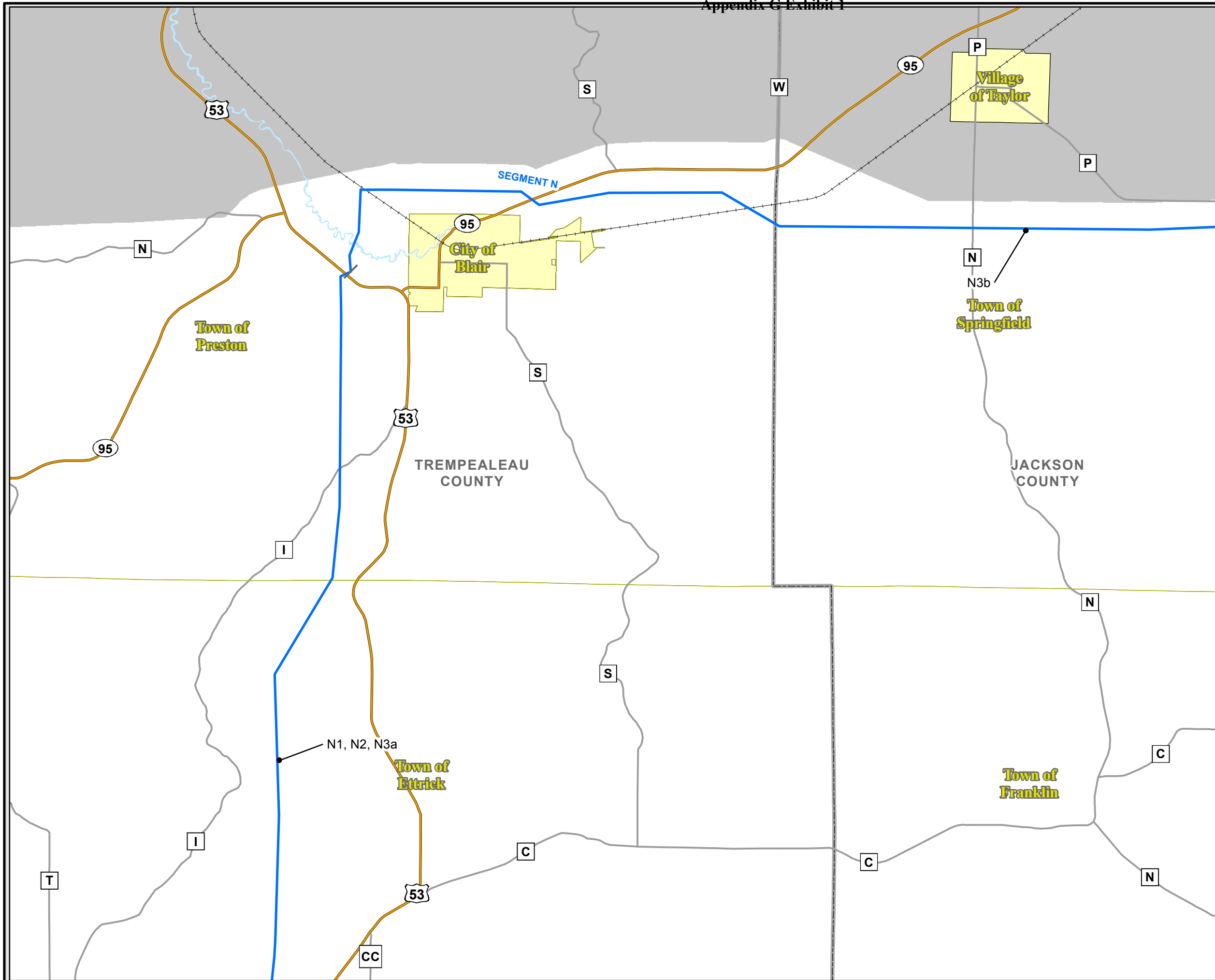
The information presented in this map document is advisory and is intended for reference purposes only.
Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

OCTOBER 2013	MAP G1- 02	PAGE 02 OF 22
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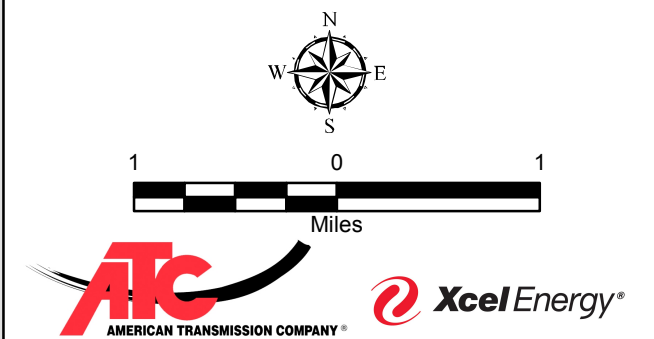
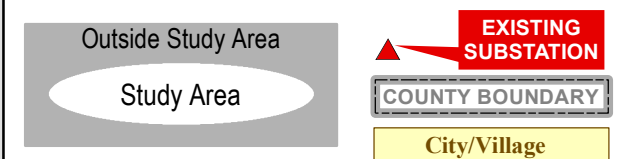
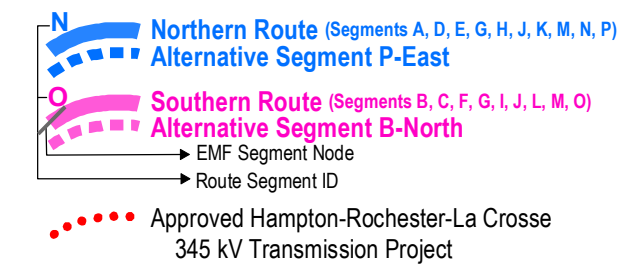
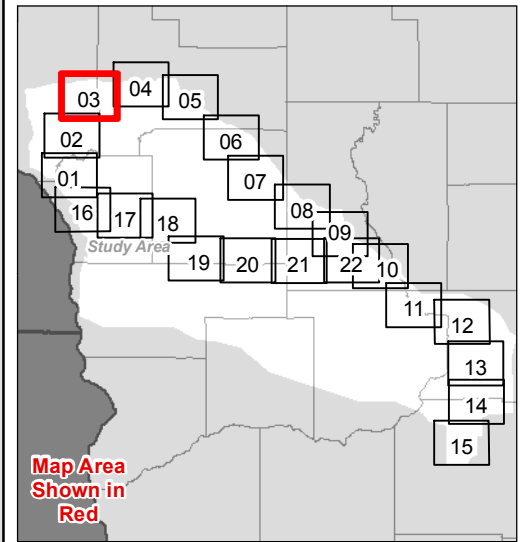
APPENDIX G FIGURE 1 EMF SEGMENTS

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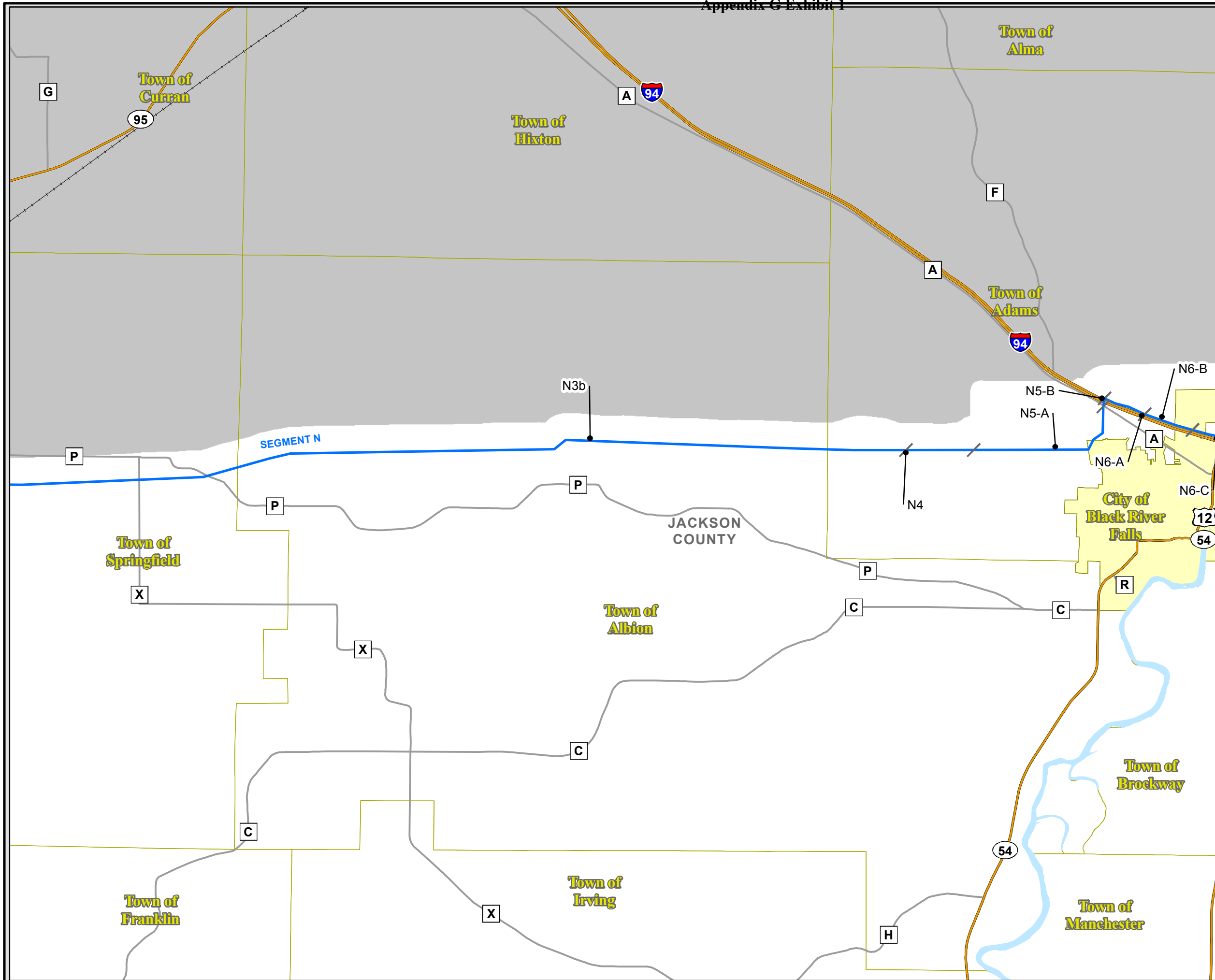
**APPENDIX G FIGURE 1
EMF SEGMENTS**

**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



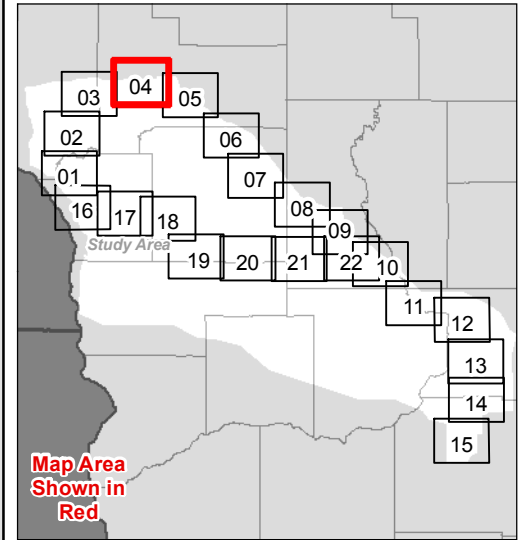
The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.



**APPENDIX G FIGURE 1
EMF SEGMENTS**

**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



- N** Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
Alternative Segment P-East
- O** Southern Route (Segments B, C, F, G, I, J, L, M, O)
Alternative Segment B-North
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

Outside Study Area



Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

City/Village



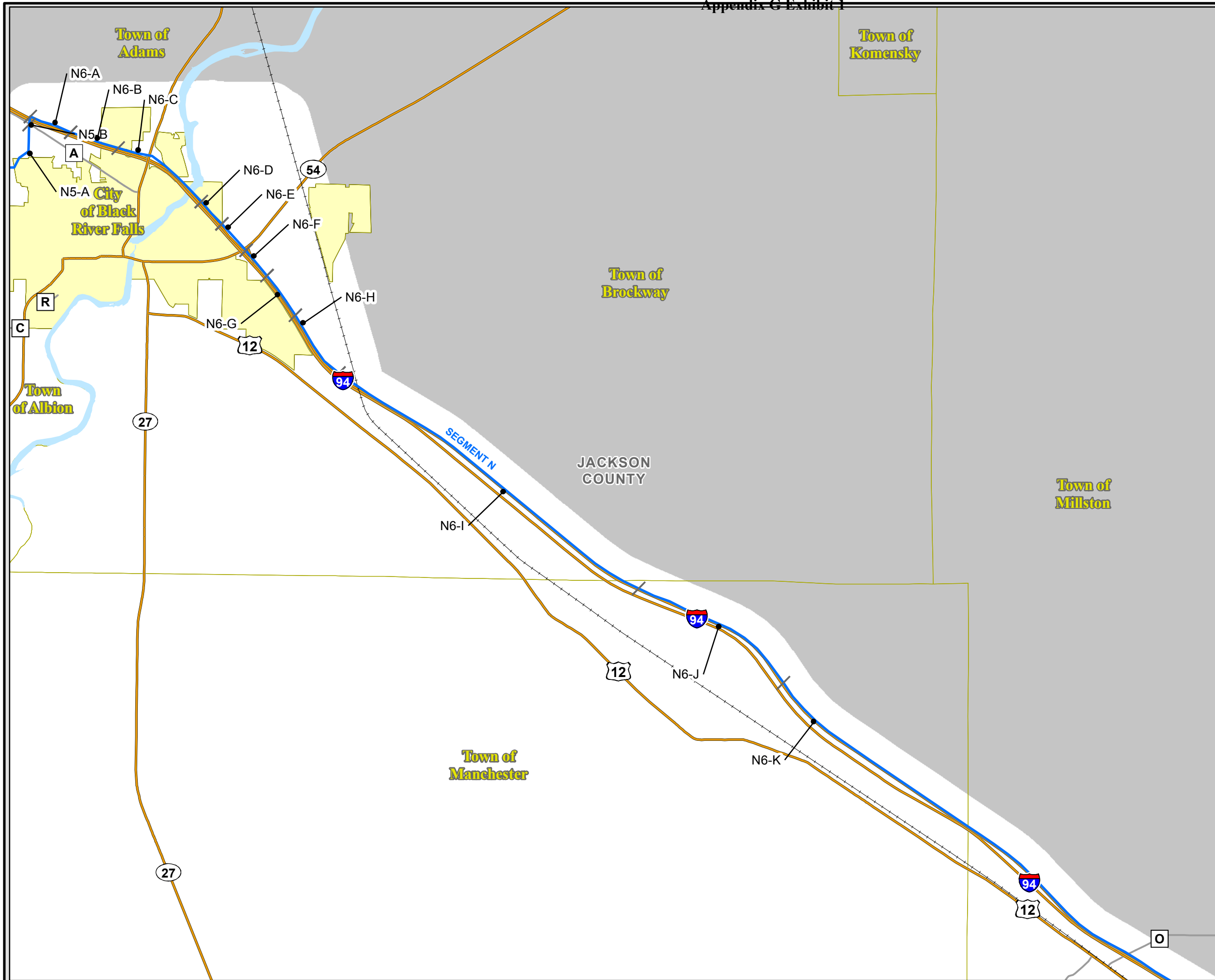


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Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

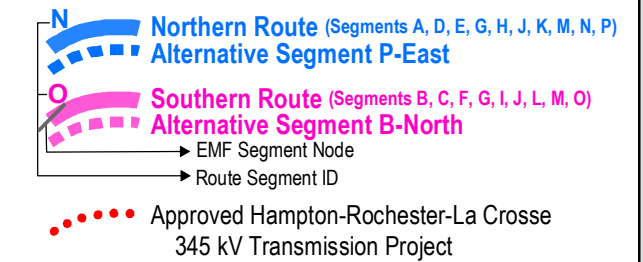
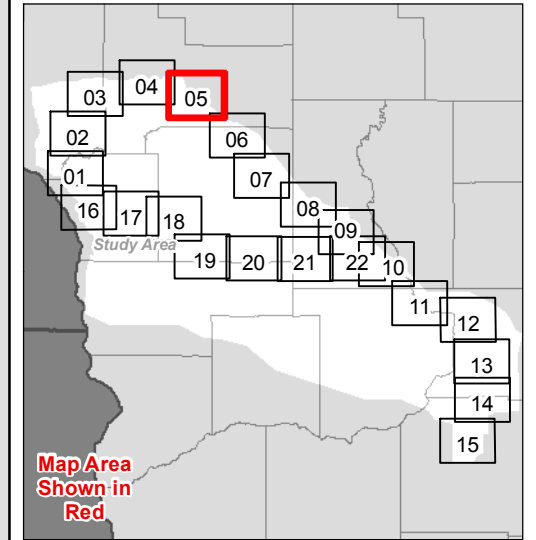
OCTOBER 2013	MAP G1- 04	PAGE 04 OF 22
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APPENDIX G FIGURE 1 EMF SEGMENTS



**APPENDIX G FIGURE 1
EMF SEGMENTS**

**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

City/Village

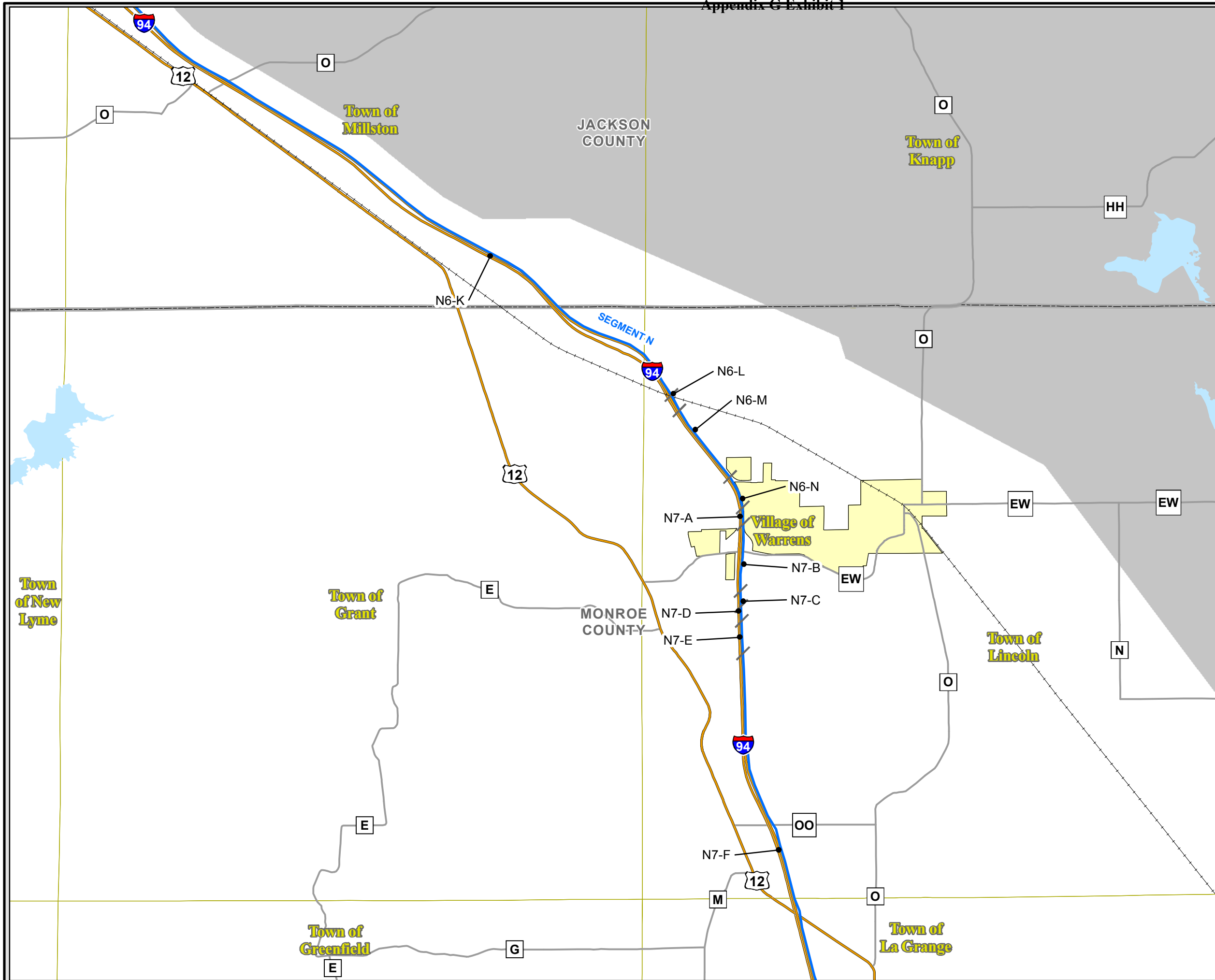
1 0 1
Miles

The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

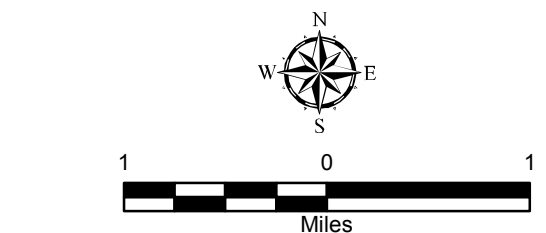
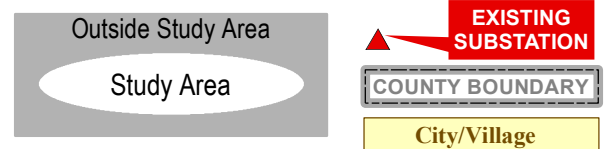
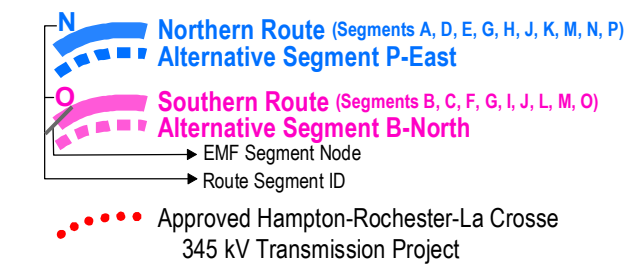
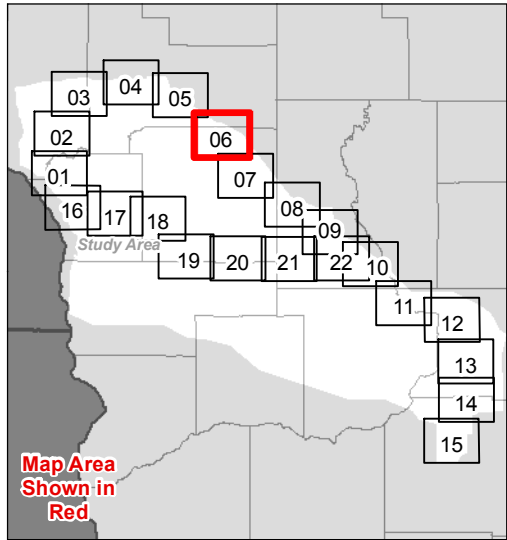
OCTOBER 2013	MAP G1- 05	PAGE 05 OF 22
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APPENDIX G FIGURE 1 EMF SEGMENTS



**APPENDIX G FIGURE 1
EMF SEGMENTS**

**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



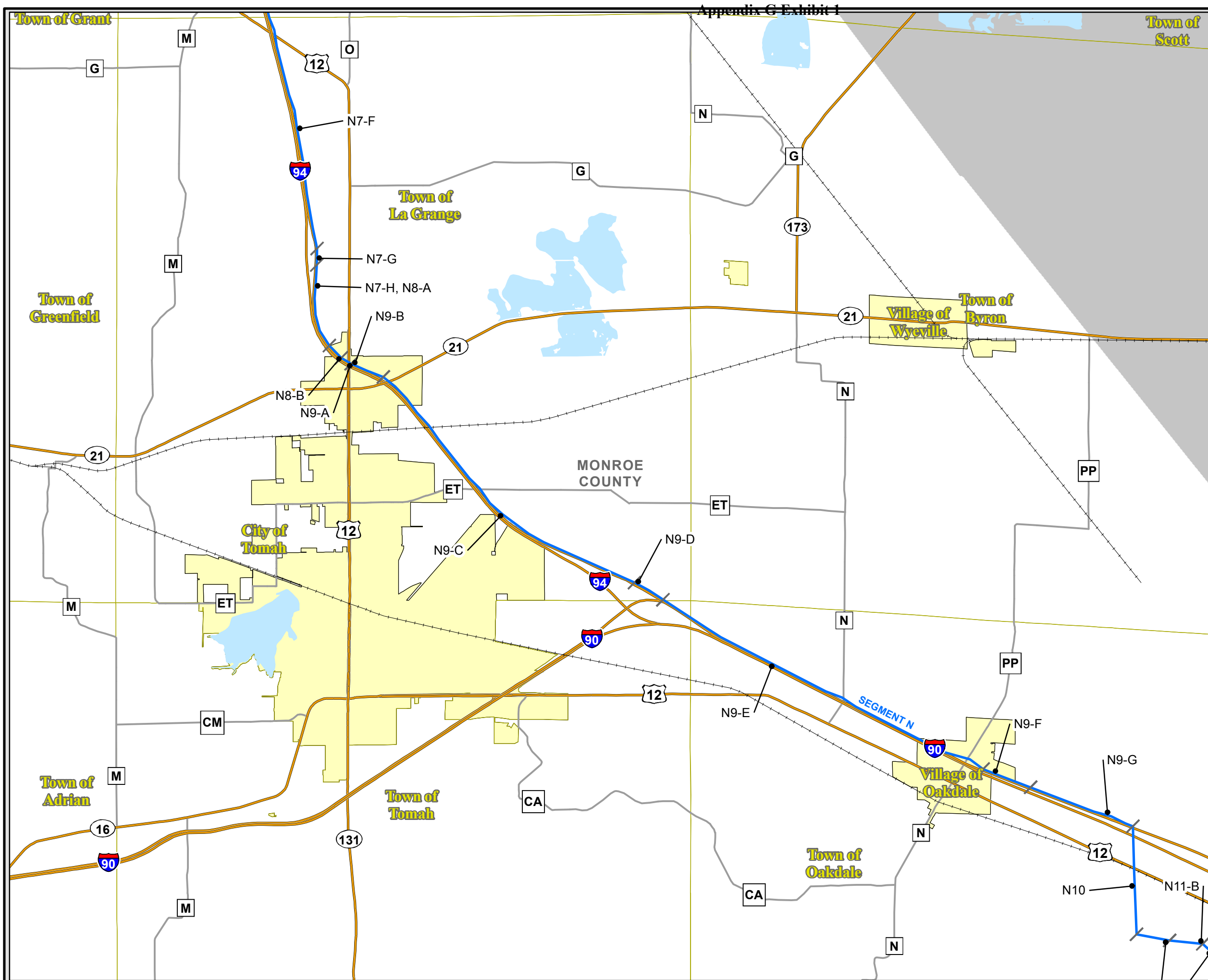


The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

OCTOBER 2013	MAP G1- 06	PAGE 06 OF 22
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APPENDIX G FIGURE 1 EMF SEGMENTS



APPENDIX G FIGURE 1
EMF SEGMENTS
BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT

Map Area Shown in Red

N Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
Alternative Segment P-East

O Southern Route (Segments B, C, F, G, I, J, L, M, O)
Alternative Segment B-North

→ EMF Segment Node
→ Route Segment ID

Approved Hampton-Rochester-La Crosse
345 kV Transmission Project

Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

City/Village

1 0 1
Miles

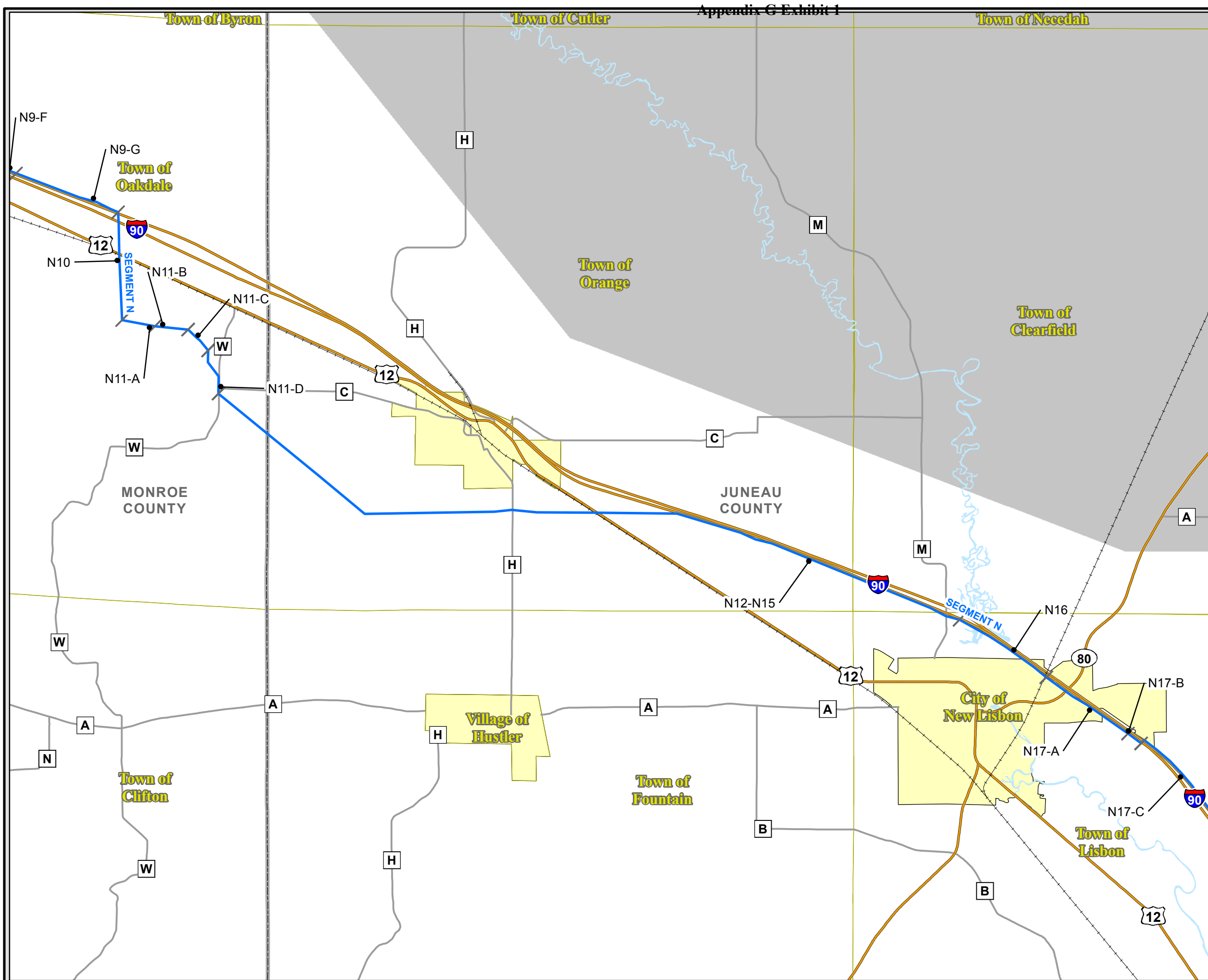
ATC AMERICAN TRANSMISSION COMPANY®
Xcel Energy®

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Applicants' owned and operated facility locations are approximate.

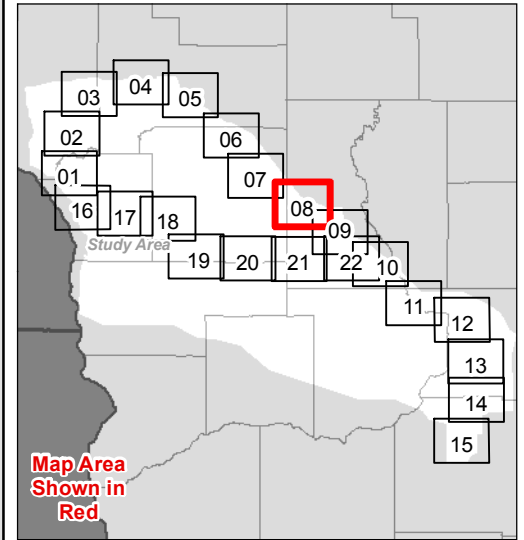
Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

OCTOBER 2013	MAP G1- 07	PAGE 07 OF 22
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APPENDIX G FIGURE 1 EMF SEGMENTS



APPENDIX G FIGURE 1
EMF SEGMENTS
BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT



- N** Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
- Alternative Segment P-East**
- O** Southern Route (Segments B, C, F, G, I, J, L, M, O)
- Alternative Segment B-North**
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

City/Village



ATC AMERICAN TRANSMISSION COMPANY®

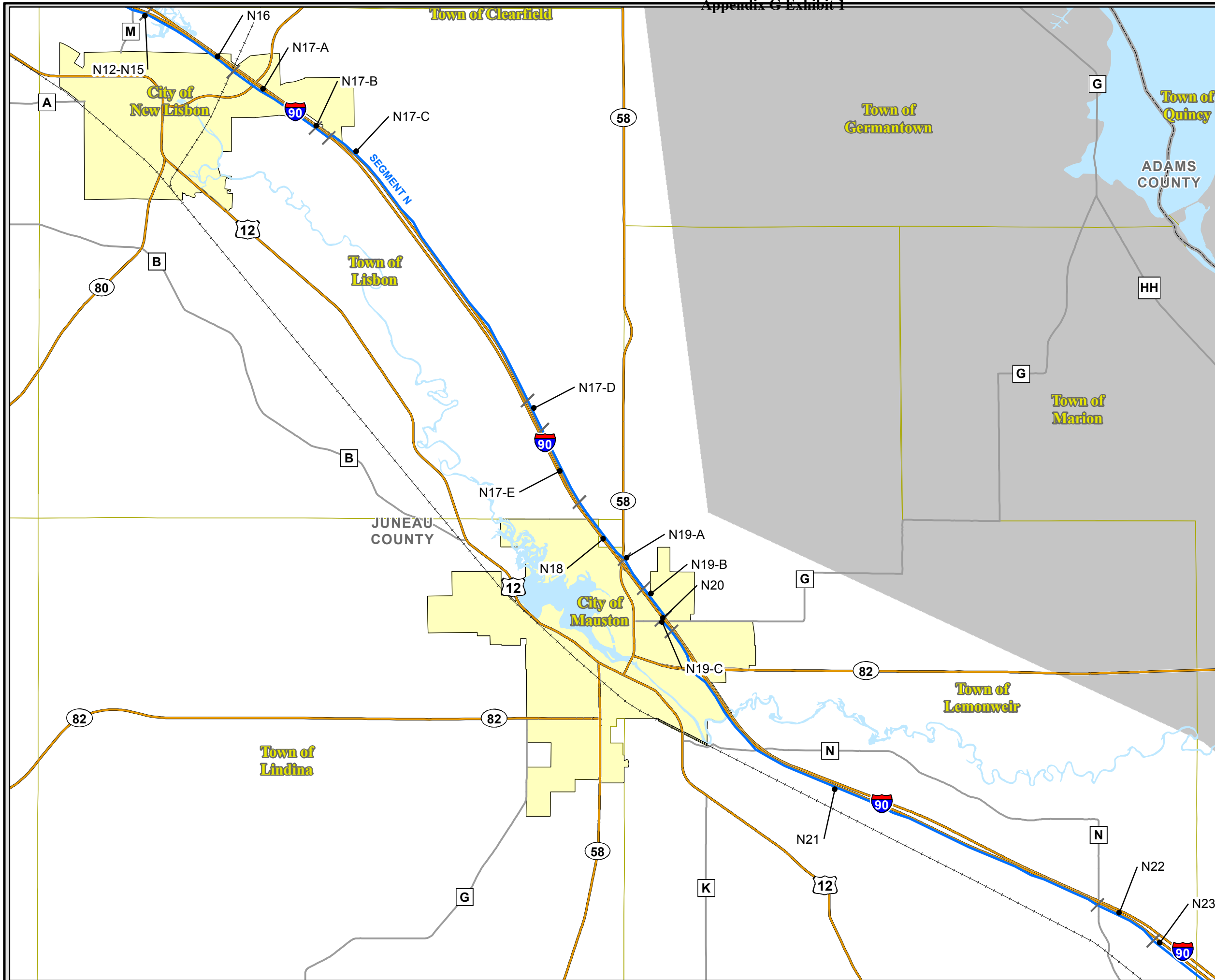
Xcel Energy®

The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

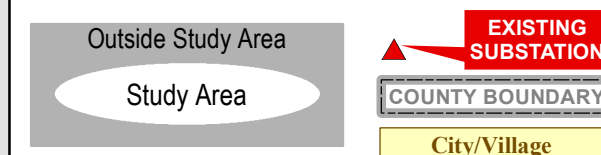
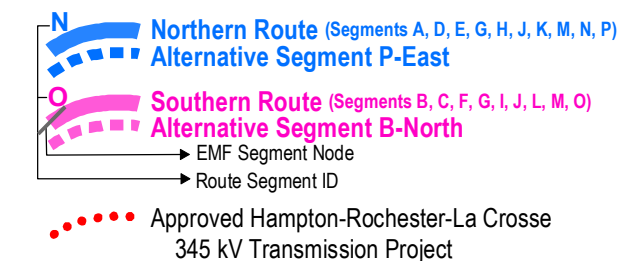
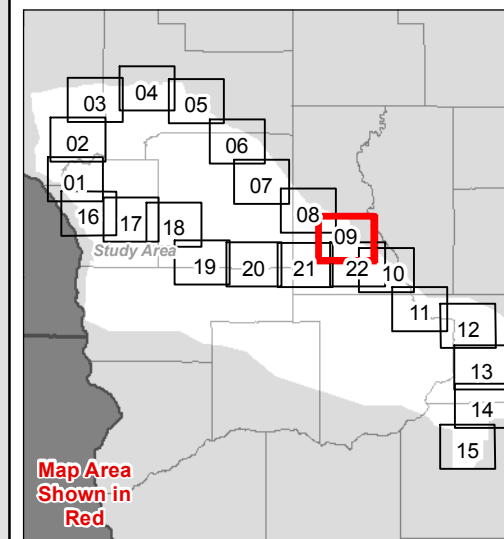
OCTOBER 2013	MAP G1- 08	PAGE 08 OF 22
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APPENDIX G FIGURE 1 EMF SEGMENTS



APPENDIX G FIGURE 1 EMF SEGMENTS

BADGER COULEE 345 KV TRANSMISSION LINE PROJECT

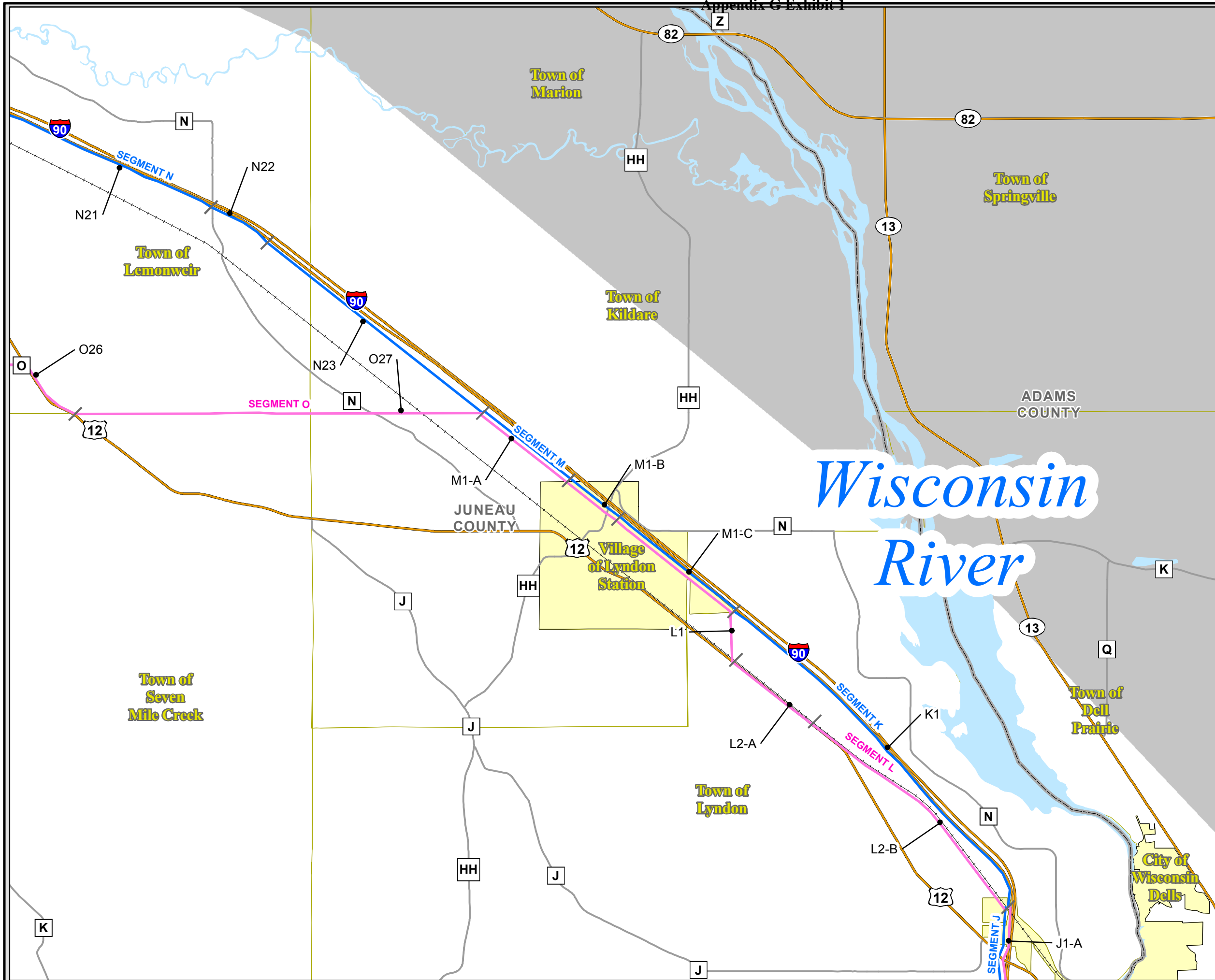


The information presented in this map document is advisory and is intended for reference purposes only.
Applicants' owned and operated facility locations are approximate.

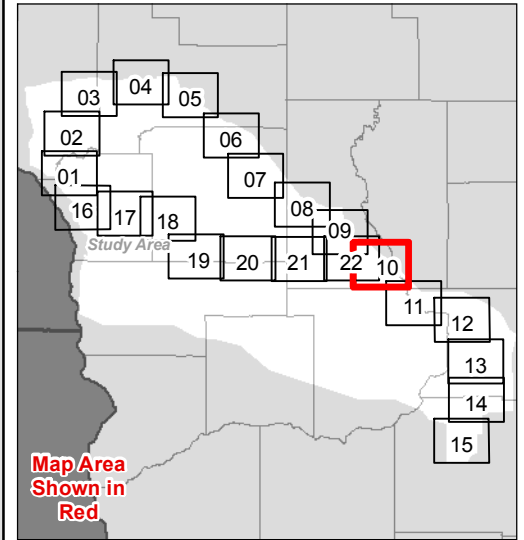
Base Map Data Sources: ATC, WDNr, PSCW, NSPW, NNG, DPC, WDOT.

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APPENDIX G FIGURE 1 EMF SEGMENTS



**APPENDIX G FIGURE 1
EMF SEGMENTS**
**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



- Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
- Alternative Segment P-East
- Southern Route (Segments B, C, F, G, I, J, L, M, O)
- Alternative Segment B-North
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

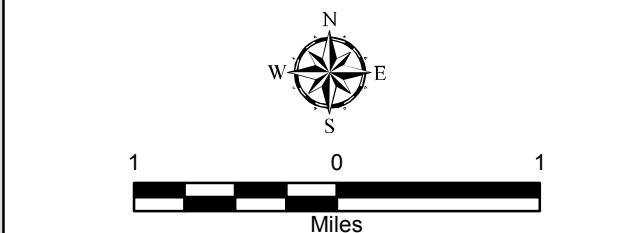
Outside Study Area

Study Area

EXISTING SUBSTATION

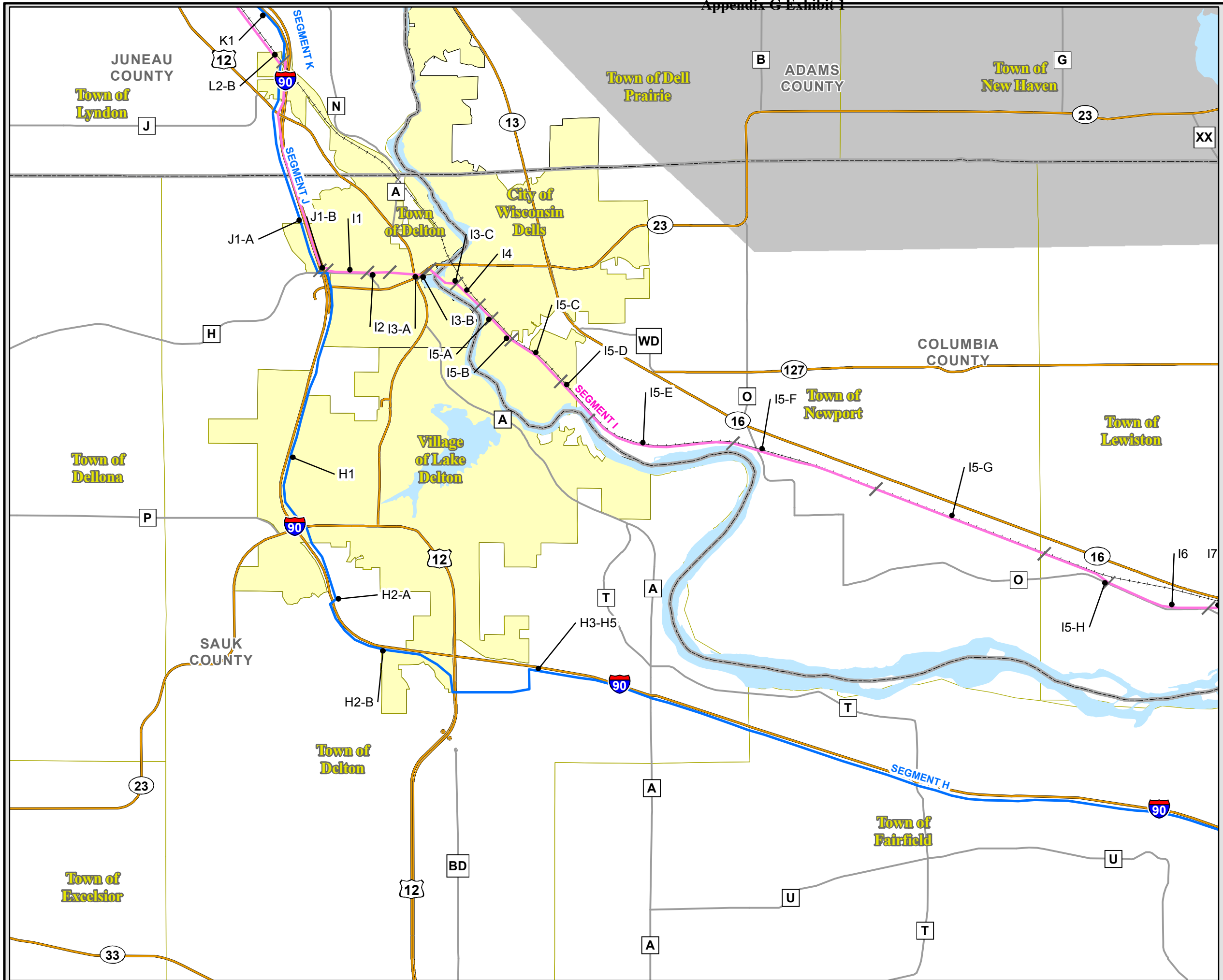
COUNTY BOUNDARY

City/Village



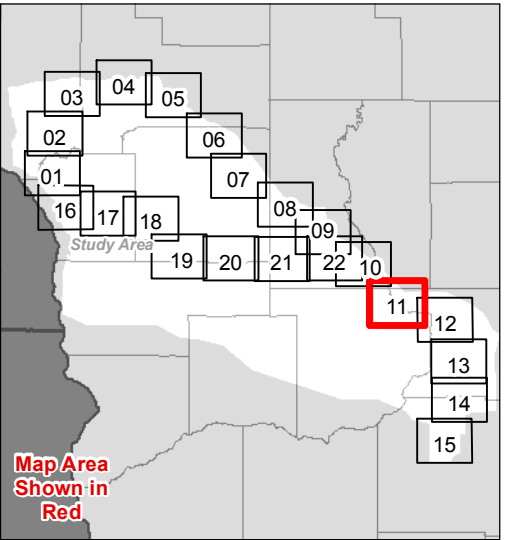
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Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.



**APPENDIX G FIGURE 1
EMF SEGMENTS**

**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



- Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
- Alternative Segment P-East
- Southern Route (Segments B, C, F, G, I, J, L, M, O)
- Alternative Segment B-North
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

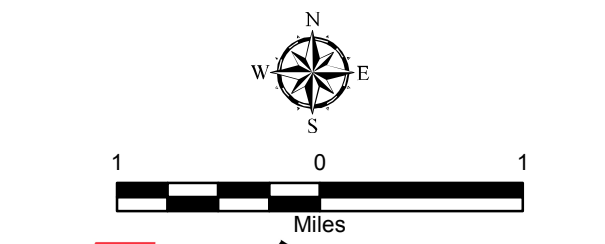
Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

City/Village



The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.



APPENDIX G FIGURE 1
EMF SEGMENTS
BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT

EMF Segment Node
Route Segment ID

Approved Hampton-Rochester-La Crosse
345 kV Transmission Project

Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

City/Village

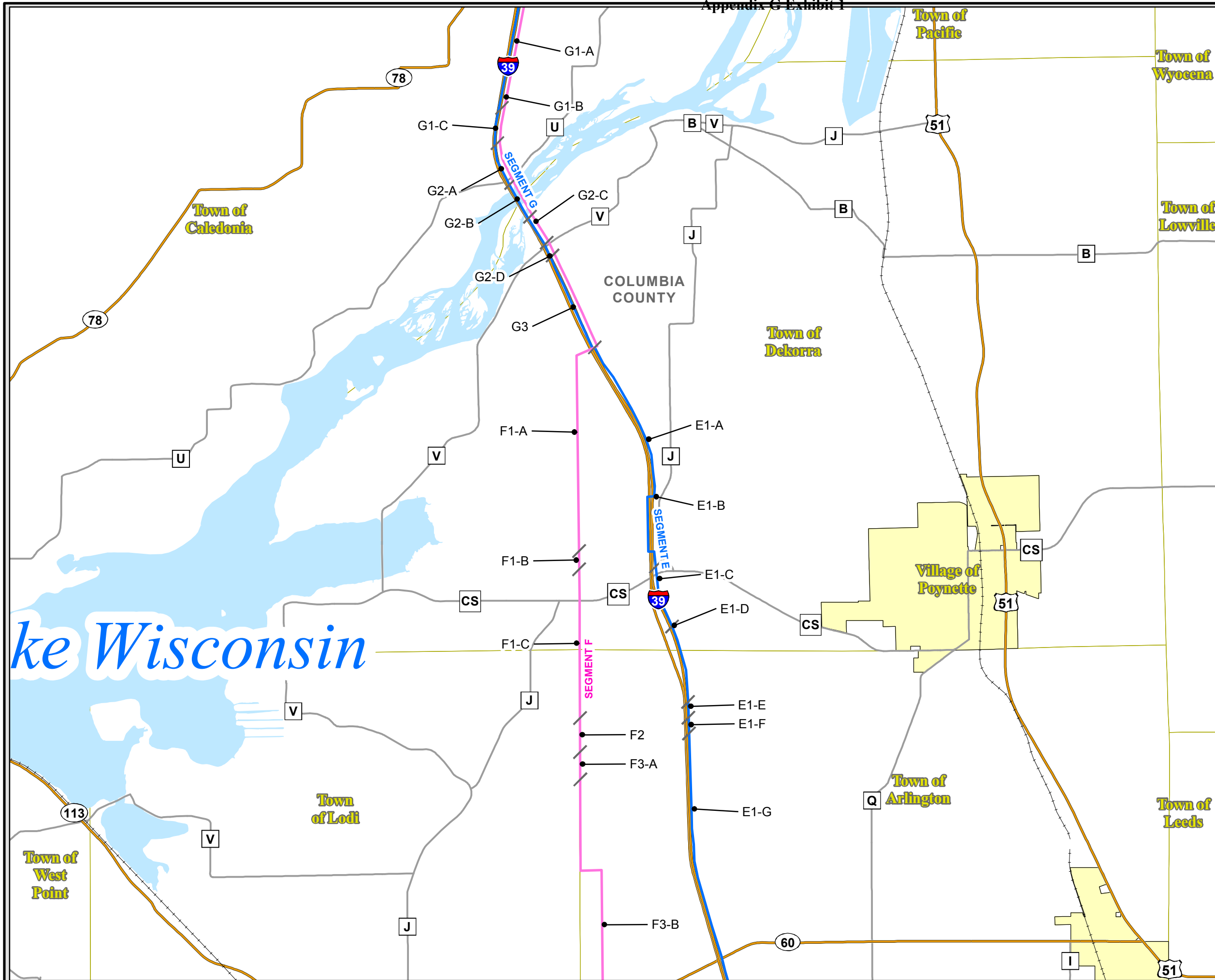
The information presented in this map document is advisory and is intended for reference purposes only.
Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

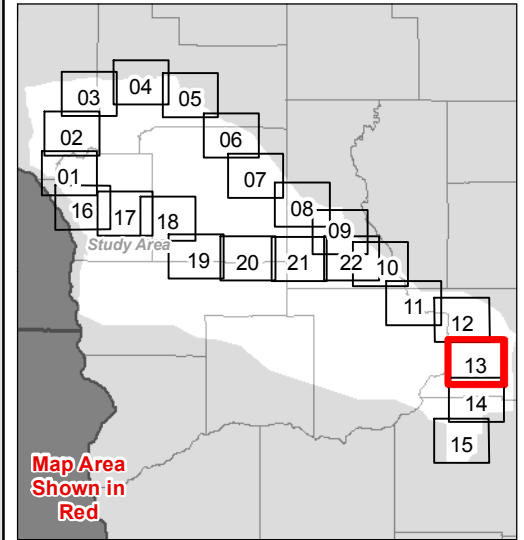
OCTOBER 2013	MAP G1- 12	PAGE 12 OF 22
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APPENDIX G FIGURE 1 EMF SEGMENTS

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**APPENDIX G FIGURE 1
EMF SEGMENTS**
**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



- N** Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
- Alternative Segment P-East**
- S** Southern Route (Segments B, C, F, G, I, J, L, M, O)
- Alternative Segment B-North**
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

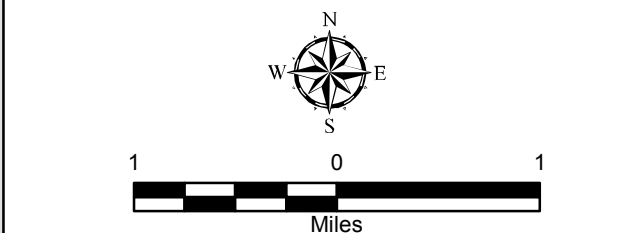
Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

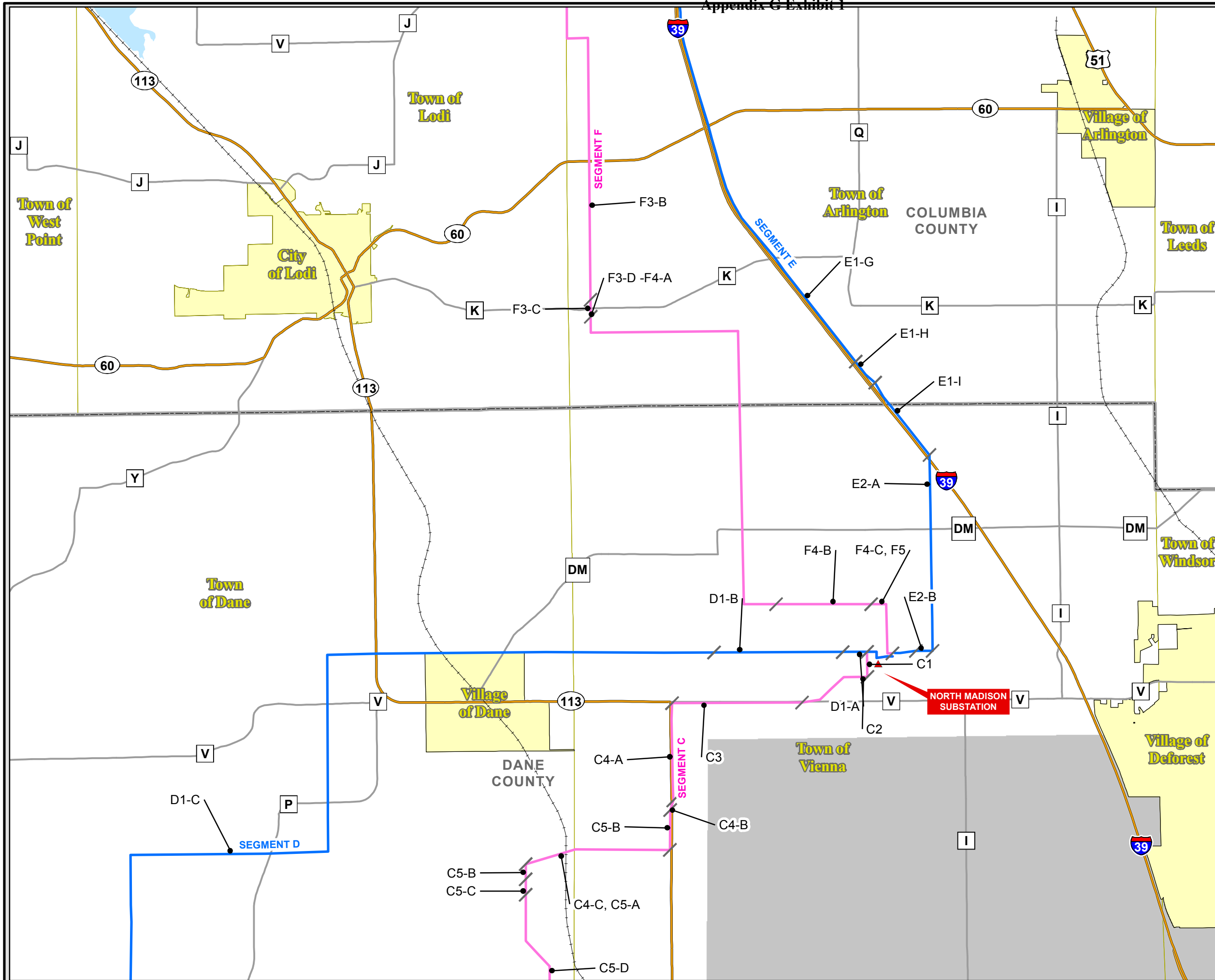
City/Village



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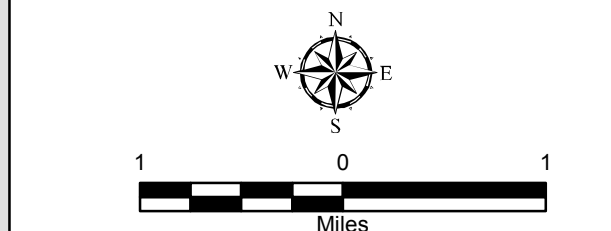
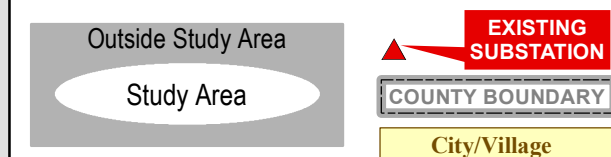
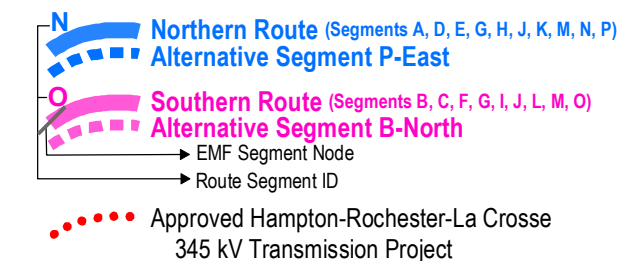
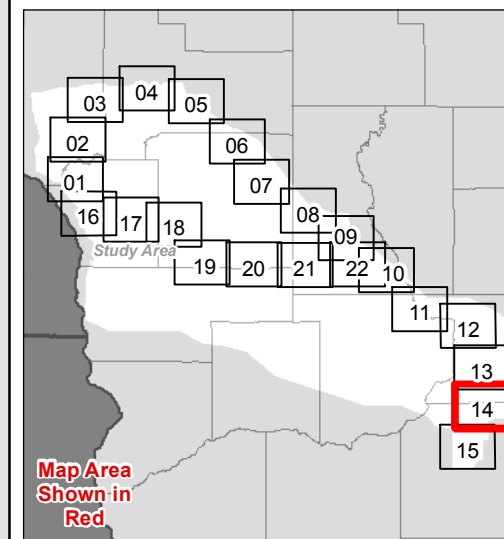
Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

OCTOBER 2013	MAP G1- 13	PAGE 13 OF 22
APPENDIX G FIGURE 1 EMF SEGMENTS		



APPENDIX G FIGURE 1 EMF SEGMENTS

BADGER COULEE 345 KV TRANSMISSION LINE PROJECT

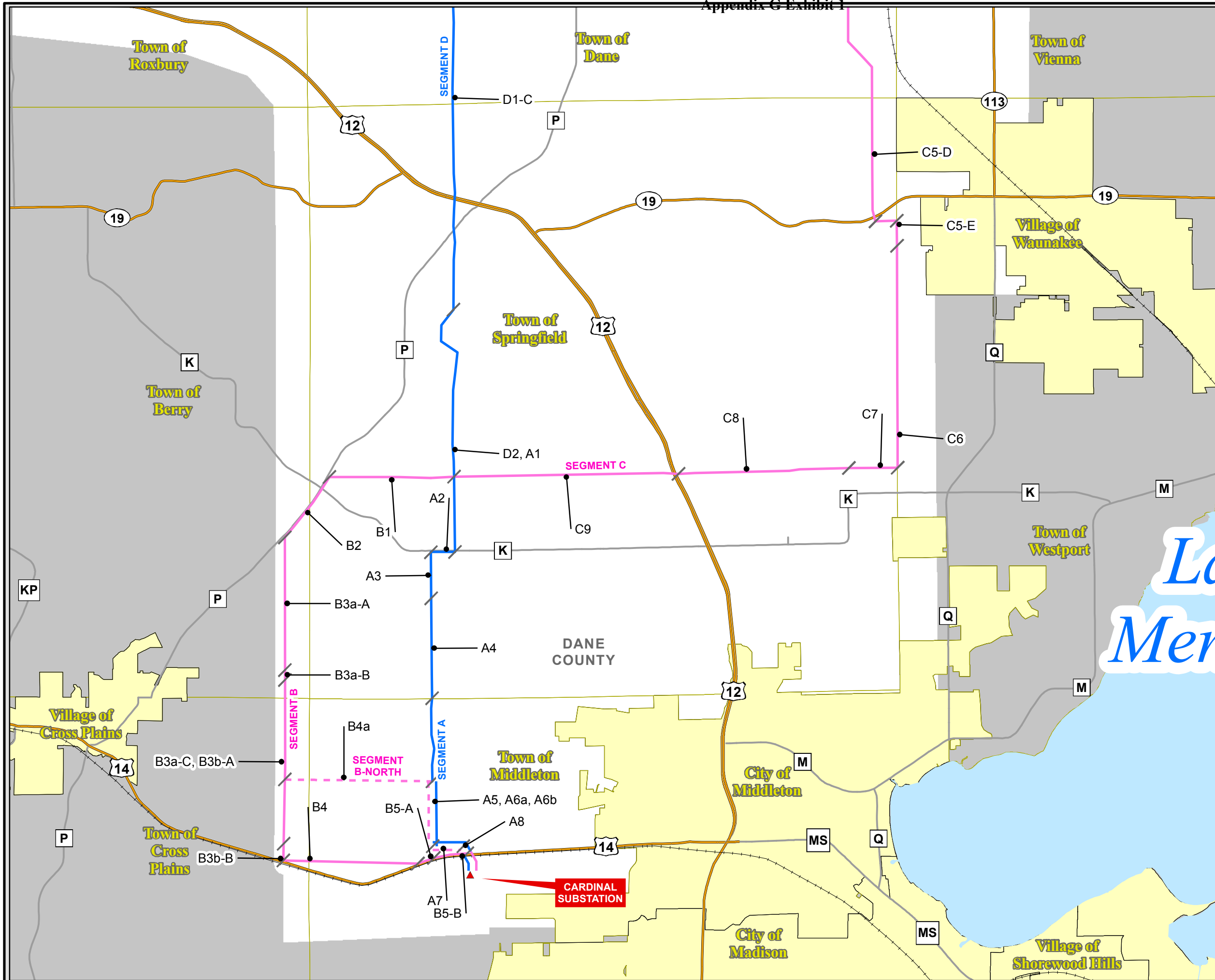


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Base Map Data Sources: ATC, WDNr, PSCW, NSPW, NNG, DPC, WDOT.

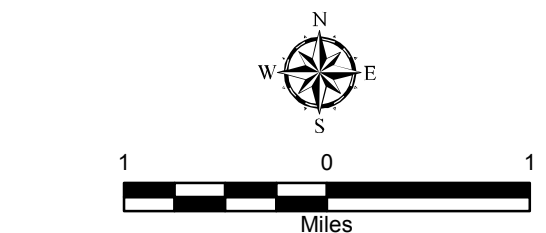
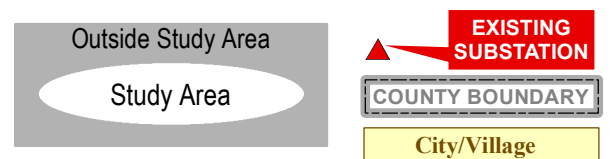
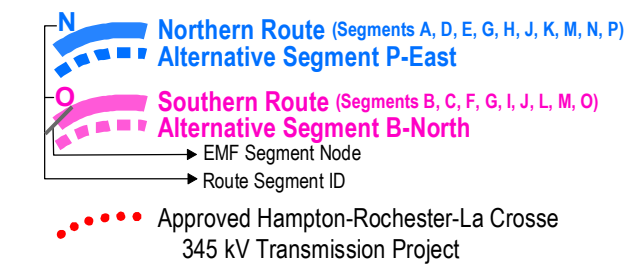
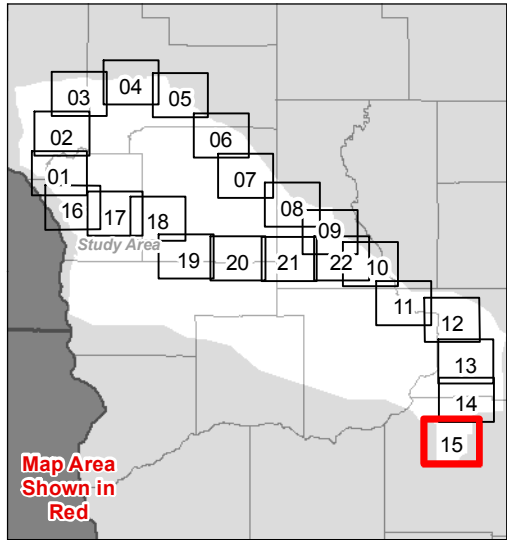
OCTOBER 2013 MAP G1- 14 PAGE 14 OF 22

APPENDIX G FIGURE 1 EMF SEGMENTS



**APPENDIX G FIGURE 1
EMF SEGMENTS**

**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



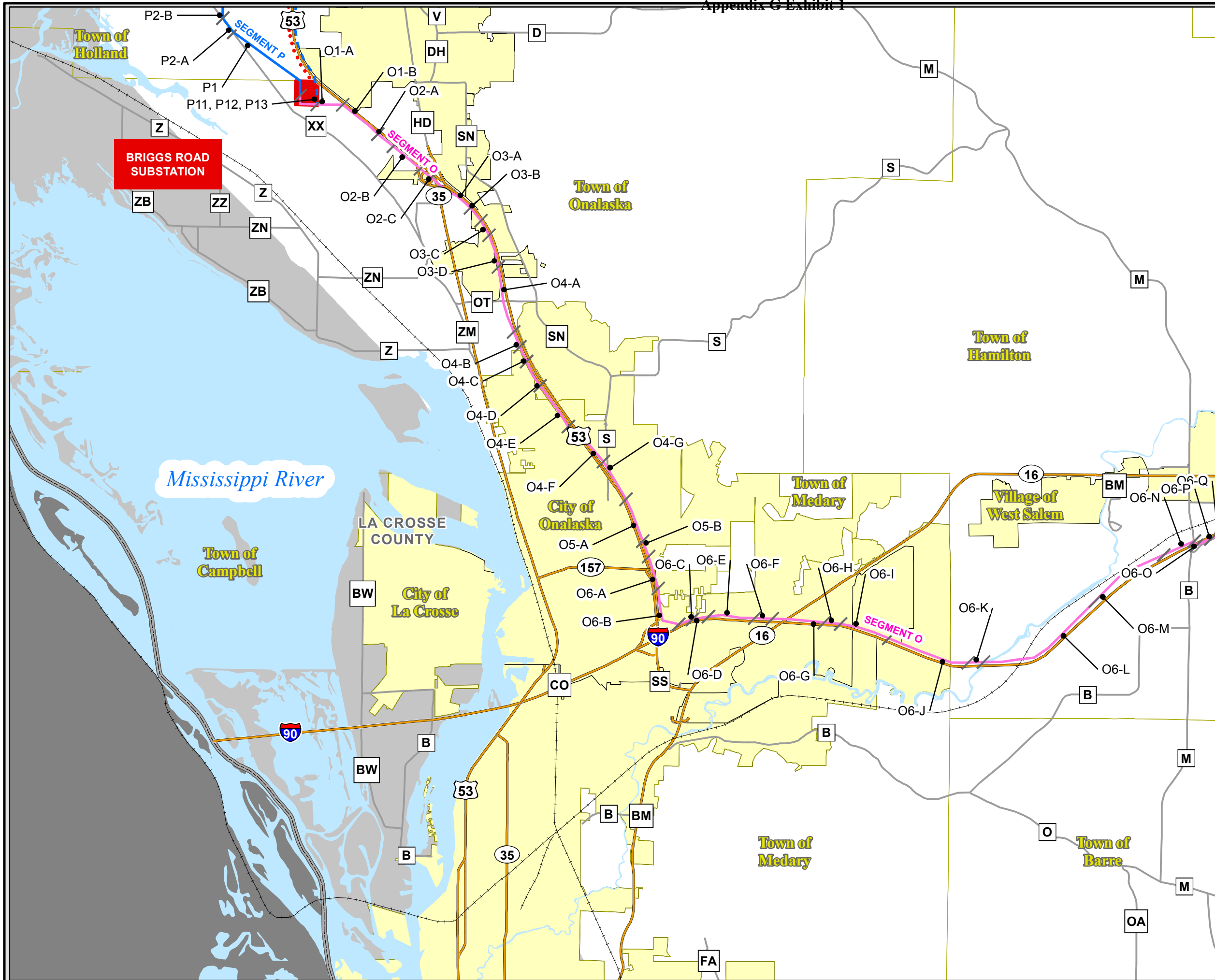
ATC AMERICAN TRANSMISSION COMPANY® **Xcel Energy**®

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Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

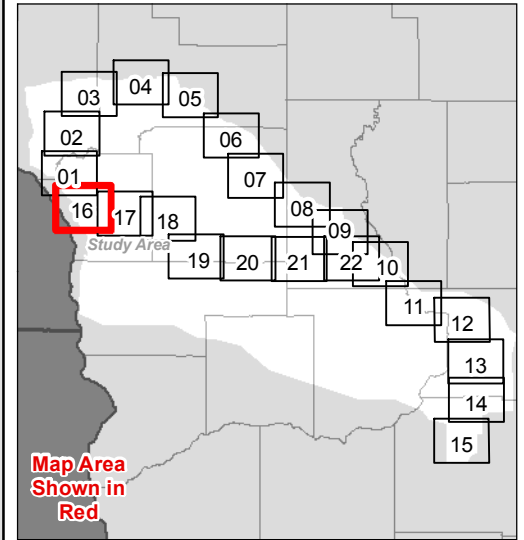
OCTOBER 2013	MAP G1- 15	PAGE 15 OF 22
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APPENDIX G FIGURE 1 EMF SEGMENTS



**APPENDIX G FIGURE 1
EMF SEGMENTS**

**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



- Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
Alternative Segment P-East
- Southern Route (Segments B, C, F, G, I, J, L, M, O)
Alternative Segment B-North
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

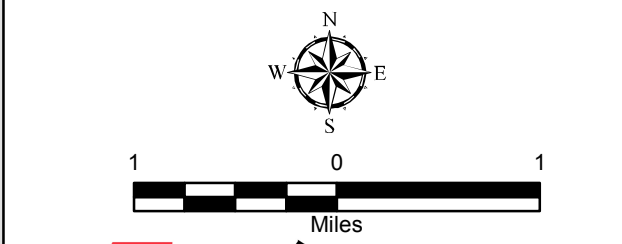
Outside Study Area

Study Area

EXISTING SUBSTATION

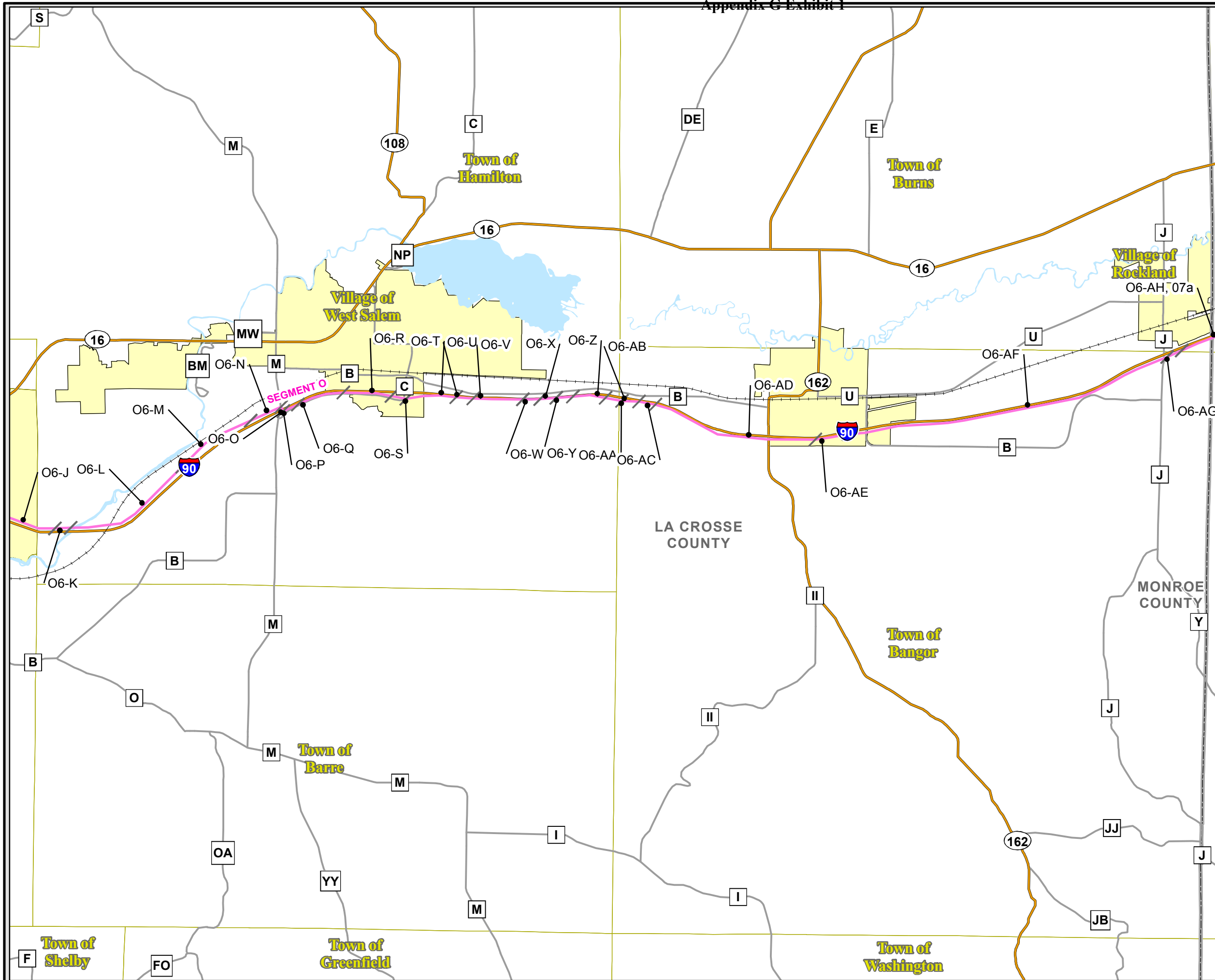
COUNTY BOUNDARY

City/Village

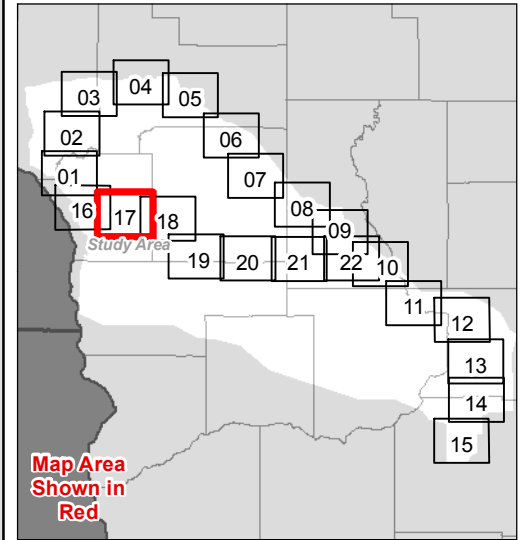


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Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.



**APPENDIX G FIGURE 1
EMF SEGMENTS**
**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



- N** Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
- Alternative Segment P-East**
- O** Southern Route (Segments B, C, F, G, I, J, L, M, O)
- Alternative Segment B-North**
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

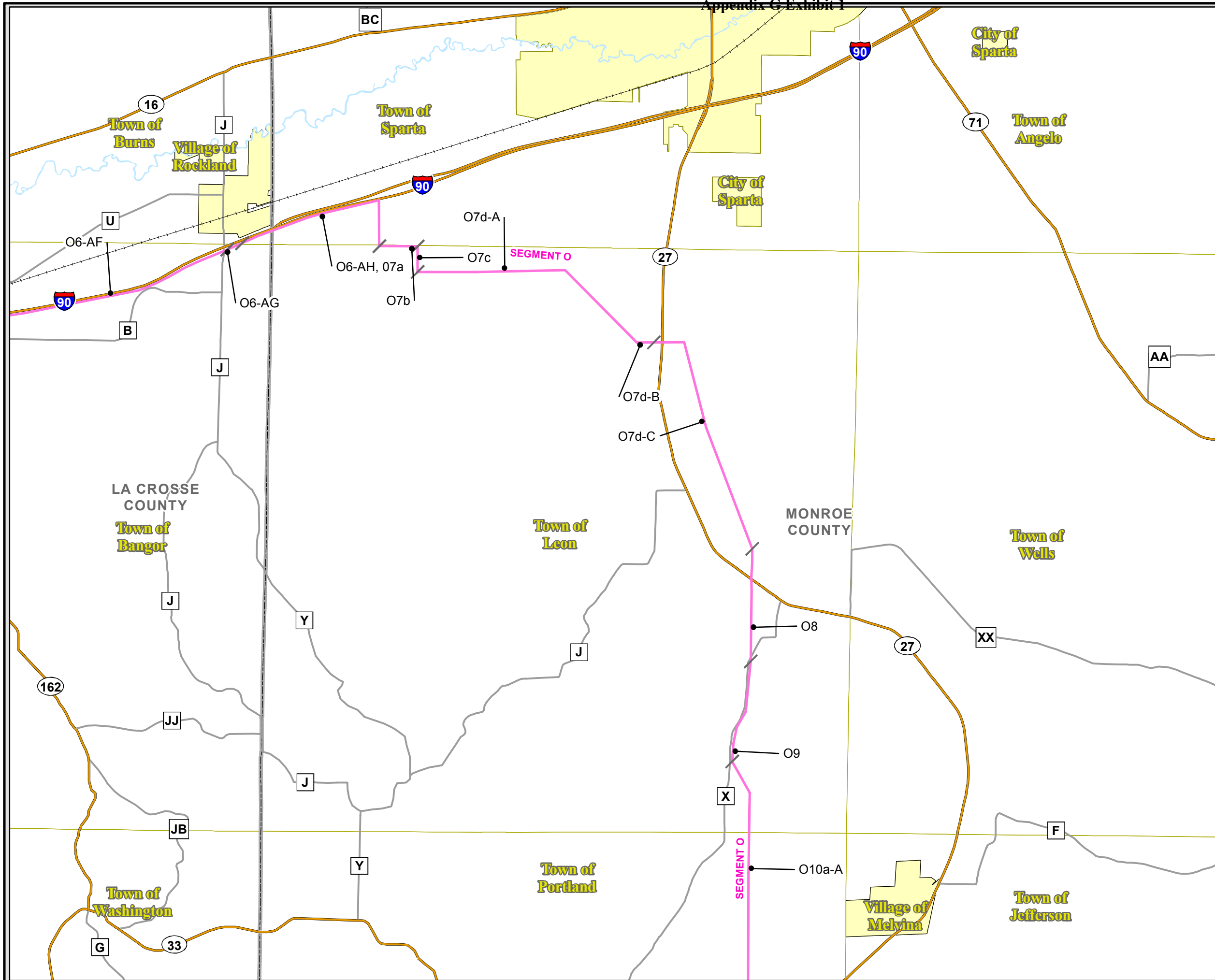
City/Village



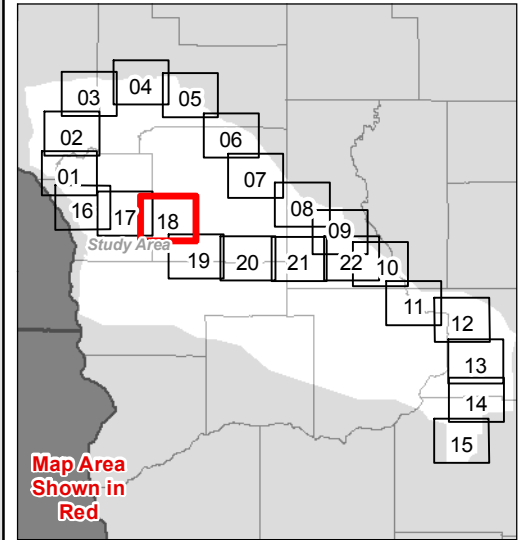
The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

OCTOBER 2013	MAP G1- 17	PAGE 17 OF 22
APPENDIX G FIGURE 1 EMF SEGMENTS		



**APPENDIX G FIGURE 1
EMF SEGMENTS**
**BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT**



- N** Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
- Alternative Segment P-East**
- O** Southern Route (Segments B, C, F, G, I, J, L, M, O)
- Alternative Segment B-North**
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

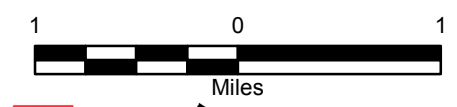
Outside Study Area

Study Area

EXISTING SUBSTATION

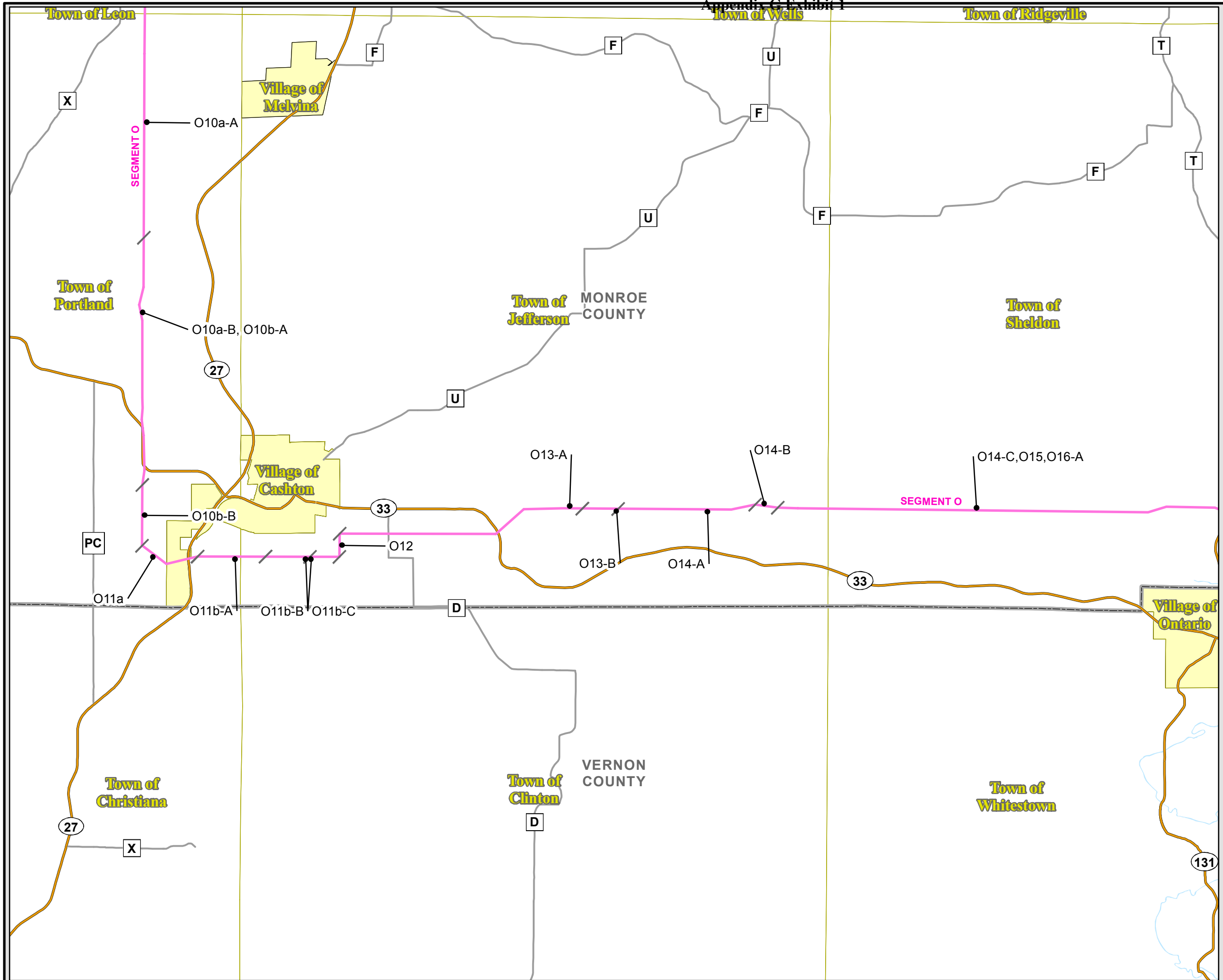
COUNTY BOUNDARY

City/Village



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Base Map Data Sources: ATC, WDNr, PSCW, NSPW, NNG, DPC, WDOT.



APPENDIX G FIGURE 1
EMF SEGMENTS
BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT

Map Area Shown in Red

N Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
Alternative Segment P-East

O Southern Route (Segments B, C, F, G, I, J, L, M, O)
Alternative Segment B-North

→ EMF Segment Node
→ Route Segment ID

Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

City/Village

1 0 1
Miles

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Xcel Energy®

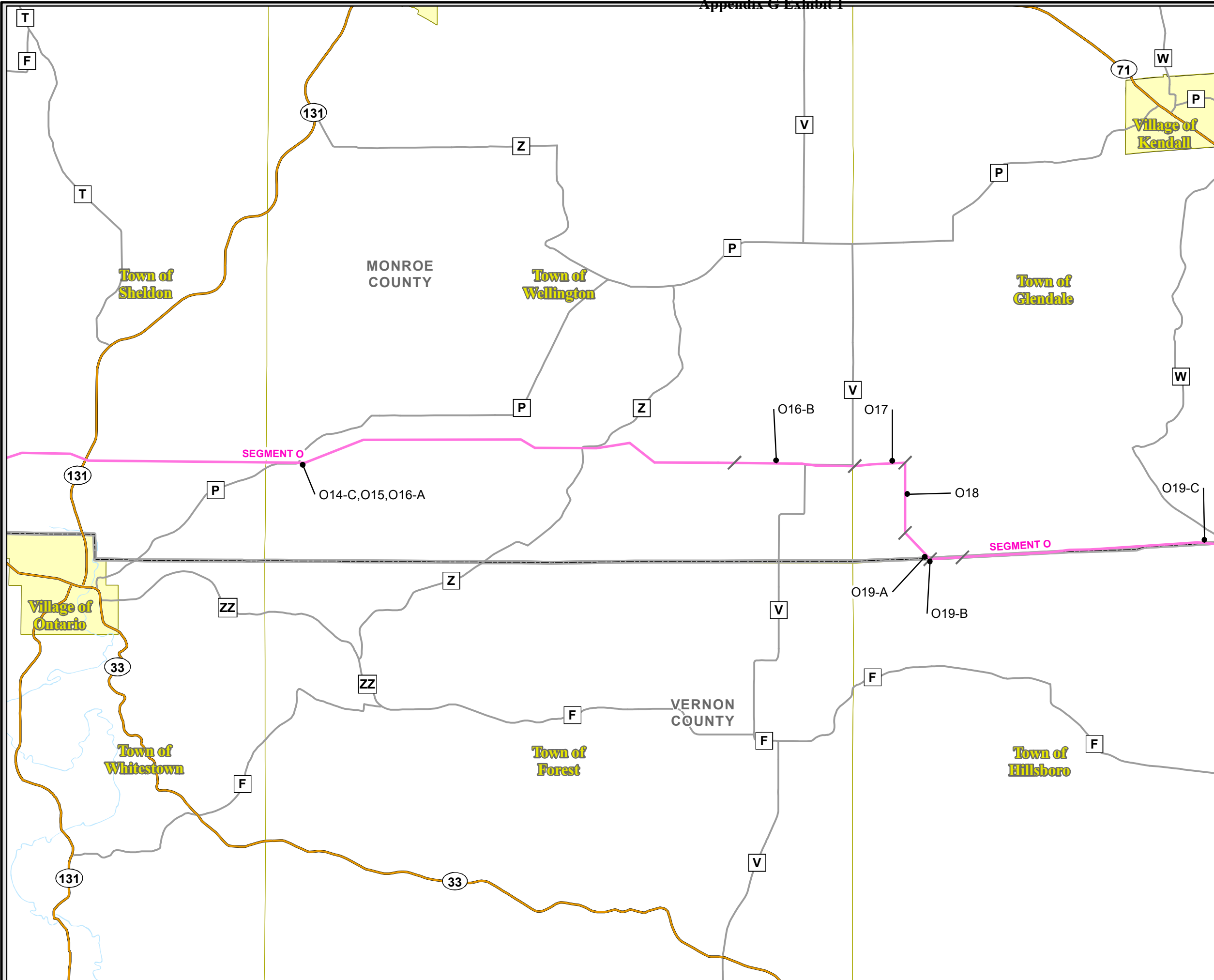
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Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

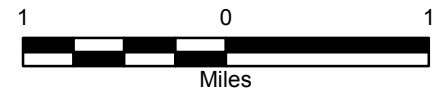
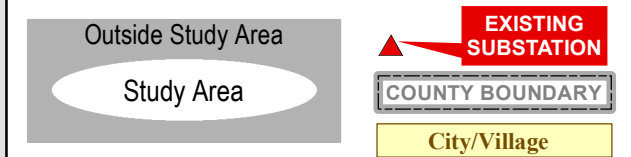
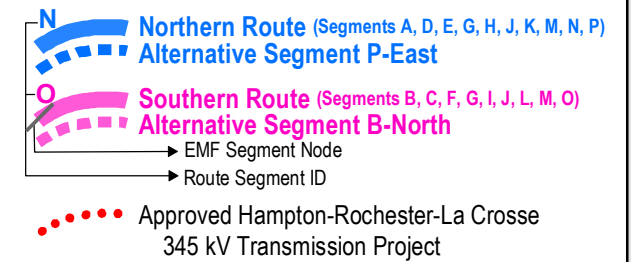
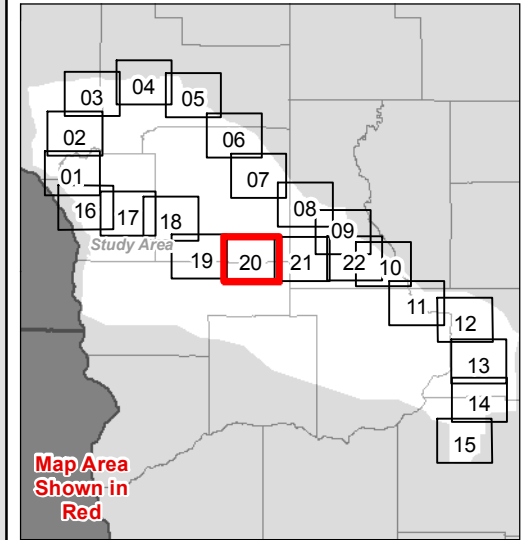
OCTOBER 2013	MAP G1- 19	PAGE 19 OF 22
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APPENDIX G FIGURE 1 EMF SEGMENTS

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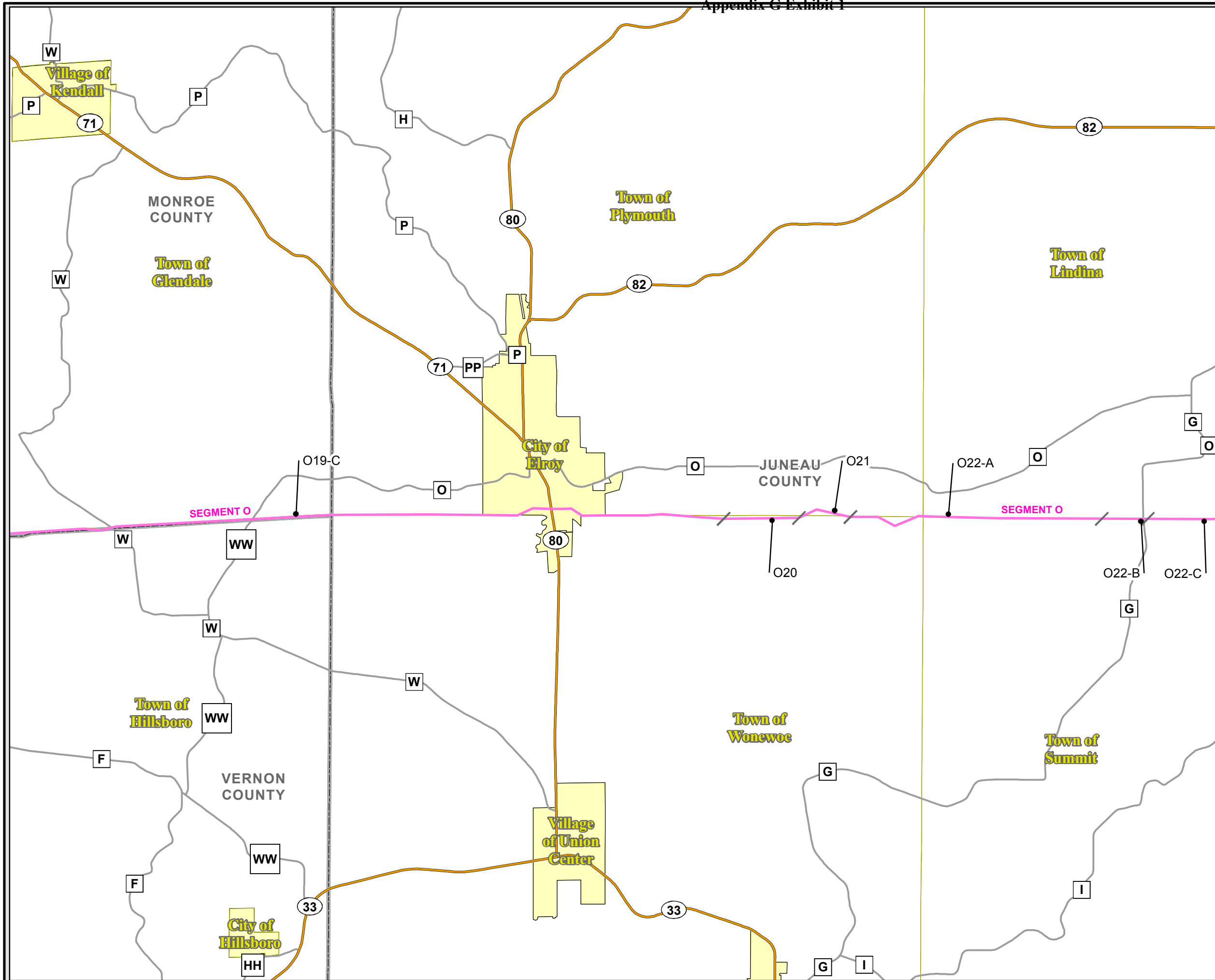


APPENDIX G FIGURE 1
EMF SEGMENTS
BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT

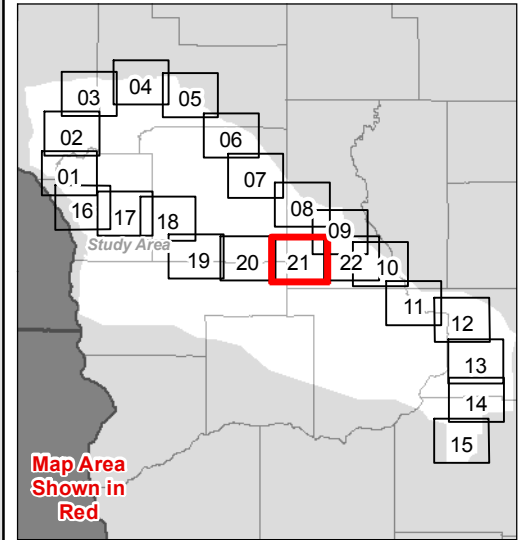


The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.



APPENDIX G FIGURE 1
EMF SEGMENTS
BADGER COULEE 345 KV
TRANSMISSION LINE PROJECT



- N** Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
Alternative Segment P-East
- O** Southern Route (Segments B, C, F, G, I, J, L, M, O)
Alternative Segment B-North
- EMF Segment Node
- Route Segment ID
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

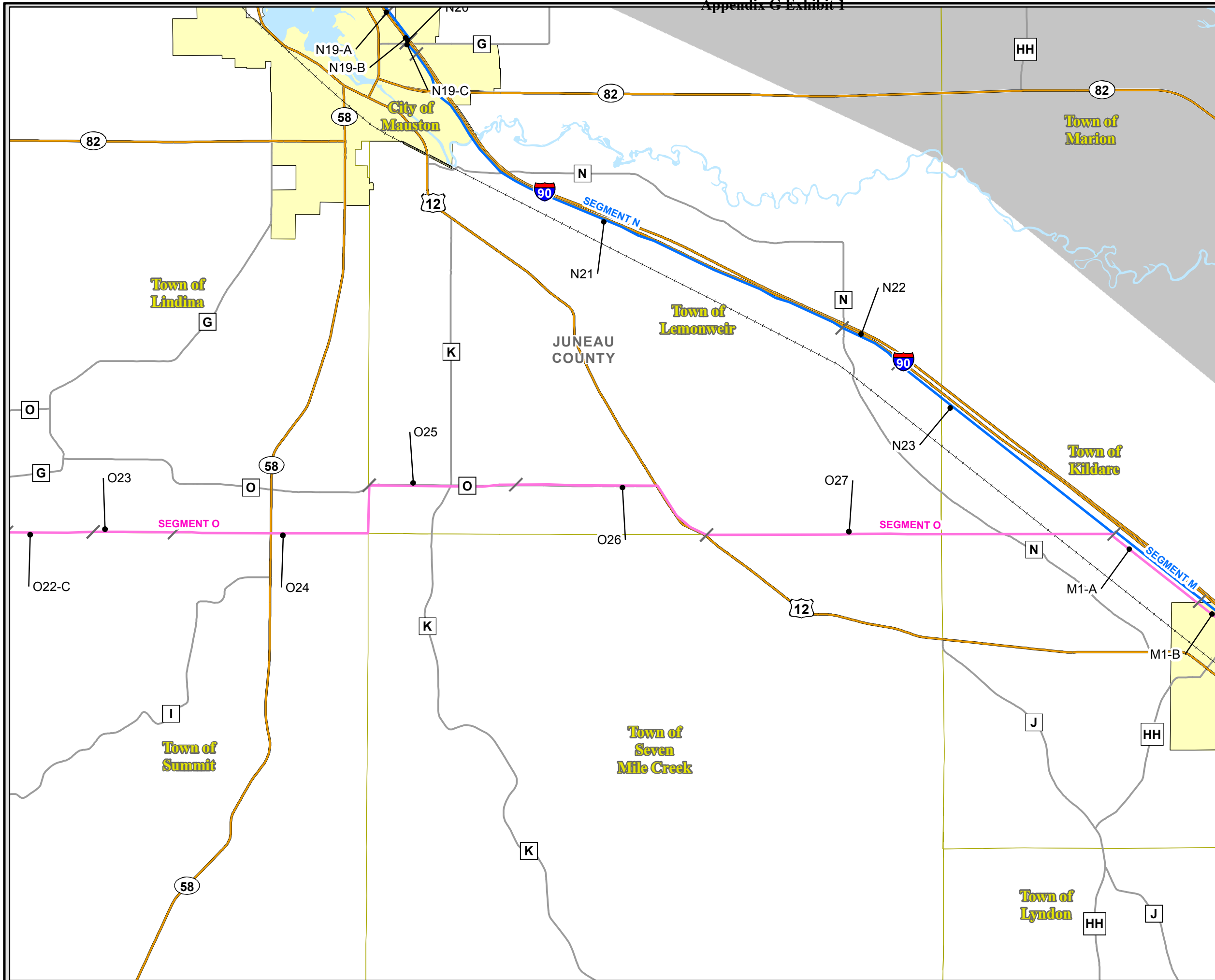
City/Village



The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

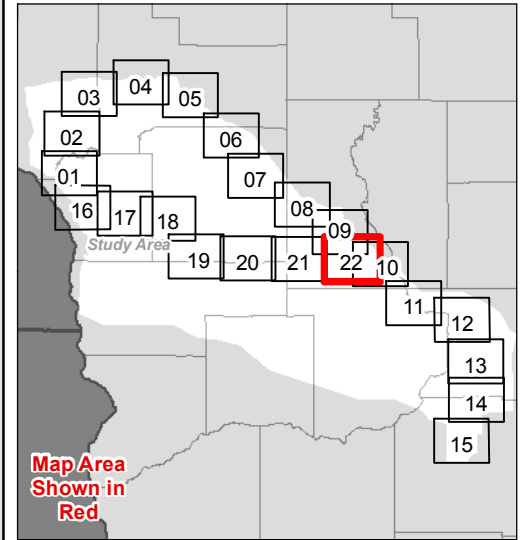
Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

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APPENDIX G FIGURE 1 EMF SEGMENTS		



APPENDIX G FIGURE 1 EMF SEGMENTS

BADGER COULEE 345 KV TRANSMISSION LINE PROJECT



- N** Northern Route (Segments A, D, E, G, H, J, K, M, N, P)
Alternative Segment P-East
- O** Southern Route (Segments B, C, F, G, I, J, L, M, O)
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Outside Study Area

Study Area

EXISTING SUBSTATION

COUNTY BOUNDARY

City/Village



The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate.

Base Map Data Sources: ATC, WDNR, PSCW, NSPW, NNG, DPC, WDOT.

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APPENDIX G FIGURE 1 EMF SEGMENTS

Appendix E – EMF Cross Reference Table

Appendix G Exhibit 1

EMF Cross Reference Table			
Badger-Coulee 345 kV Transmission Project			
EMF Segment	Figure Number		Table Number
	Proposed	Existing	
Northern Route			
P1	122	156	1
P2-A	170	267	2
P2-B, P4, P8-A, P14-C, N7-B, N7-E, N9-C, N9-E, N9-G, N11-C, N12, N13, N14, N15	1	N/A	3
P3	171	268	4
P5-A, P5-D	123	157	5
P5-B	124	158	6
P5-C	125	159	7
P6-A	172	269	8
P6-B	173	270	9
P7	341	N/A	10
P8-B	174	271	11
P8-C	175	272	12
P8-D	176	273	13
P8-E	177	274	14
P8-F	178	275	15
P8-G	179	276	16
P8-H	180	277	17
P8-I	181	278	18
P9-A	182	279	19
P9-B	183	265	20
P11, P12, P13	336	N/A	21
P14-A	346	348	22
P14-B	347	349	23
N1, N2, N3a	4	35	24
N3b, N5-A	5	36	25
N4	21	37	26
N5-B	126	160	27
N6-A, N6-C, N6-E, N6-G, N6-I, N6-K, N6-M, N9-A, N10	3	N/A	28
N6-B	20	280	29
N6-D	184	281	30
N6-F	185	282	31
N6-H	186	283	32
N6-J	187	284	33
N6-L	188	38	34
N6-N	189	39	35
N7-A	190	285	36
N7-C	191	40	37
N7-D	192	286	38
N7-F, N7-H, N8-A	25	41	39
N7-G	193	287	40
N8-B	194	288	41

Appendix G Exhibit 1

EMF Cross Reference Table			
Badger-Coulee 345 kV Transmission Project			
EMF Segment	Figure Number		Table Number
	Proposed	Existing	
N9-B	195	289	42
N9-D	196	290	43
N9-F	197	291	44
N11-A	198	292	45
N11-B	199	293	46
N11-D	200	294	47
N16	344	N/A	48
N17-A, N17-C, N17-E, N19-A, N19-C, N21, K1, J1-A, H1, H3, H4, H5, H7-A, H7-D, H9, G1-A	337	N/A	49
N17-B	201	42	50
N17-D	202	43	51
N18	342	N/A	52
N19-B	203	44	53
N20	9	45	54
N22	10	N/A	55
N23, M1-A	10	46	56
M1-B	127	47	57
M1-C	111	48	58
J1-B	204	49	59
H2-A	205	50	60
H2-B, H6	8	N/A	61
H7-B	206	296	62
H7-C	207	297	63
H8-A	11	161	64
H8-B	128	51	65
G1-B	208	298	66
G1-C	338	N/A	67
G2-A	209	299	68
G2-B, G2-D	345	N/A	69
G2-C	210	300	70
G3, E1-A, E1-B, E1-C, E1-G, E1-I	339	N/A	71
E1-D	211	53	72
E1-E	263	301	73
E1-F	264	302	74
E1-H	212	109	75
E2-A	26	54	76
E2-B	27	55	77
D1-A	153	110	78
D1-B	6	90	79
D1-C, A3	6	91	80
D2, A1, A4	6	N/A	81
A2	154	92	82
A5, A6a, A6b	155	93	83
A7	252	94	84
A8	2	N/A	85
CARDINAL SS	351	N/A	86

Appendix G Exhibit 1

EMF Cross Reference Table			
Badger-Coulee 345 kV Transmission Project			
EMF Segment	Figure Number		Table Number
	Proposed	Existing	
Southern Route			
O1-A	213	303	87
O1-B	28	56	88
O2-A, O2-C	129	266	89
O2-B	130	162	90
O3-A	343	N/A	91
O3-B	131	304	92
O3-C	132	305	93
O3-D	133	306	94
O4-A, O4-C, O4-F, O6-A, O6-E, O6-G, O6-J, O6-L, O6-O, O6-Q, O6-T, O6-V, O6-X, O6-AA, O6-AD, O6-AF, O6-AH, O7a	340	N/A	95
O4-B	134	332	96
O4-D	29	57	97
O4-E	30	58	98
O4-G	135	333	99
O5-A	31	59	100
O5-B	136	60	101
O6-B	138	61	102
O6-C	214	307	103
O6-D	215	308	104
O6-F	216	309	105
O6-H	217	310	106
O6-I	218	311	107
O6-K	219	312	108
O6-M	220	62	109
O6-N	221	63	110
O6-P	222	313	111
O6-R	223	64	112
O6-S	224	314	113
O6-U	225	315	114
O6-W	226	316	115
O6-Y	227	317	116
O6-Z	228	65	117
O6-AB	229	318	118
O6-AC	230	319	119
O6-AE	231	320	120
O6-AG	232	163	121
O7b	139	164	122
O7c	233	321	123
O7d-A, O7d-C, O27, L2-B, J1-A, I3-A, I3-C, I12-B, I13-A, I13-D, F1-A	337	N/A	49
O7d-B	234	66	124
O8	12	67	125
O9	140	165	126
O10a-A	12	52	127

Appendix G Exhibit 1

EMF Cross Reference Table			
Badger-Coulee 345 kV Transmission Project			
EMF Segment	Figure Number		Table Number
	Proposed	Existing	
O10a-B, O10b-A	141	166	128
O10b-B	12	80	129
O11a, O11b-A, O11b-C	13	69	130
O11b-B	142	70	131
O-12	143	68	132
O13-A, O14-A, O14-C, O-15, O16-A, O18	7	N/A	133
O13-B	235	71	134
O14-B	236	335	135
O16-B	237	72	136
O17	14	73	137
O19-A, O19-C, O21, I7, G1-C	338	N/A	67
O19-B	238	74	138
O20	19	N/A	139
O22-A, O22-C	15	76	140
O22-B	144	167	141
O23	145	75	142
O24	15	77	143
O25	239	78	144
O26	240	79	145
M1-A	10	46	56
M1-B	127	47	57
M1-C	111	48	58
L1	10	113	146
L2-A	22	322	147
J1-B	204	49	59
I1	241	49	148
I2	146	81	149
I3-B	242	323	150
I4	23	115	151
I5-A, I5-G	23	82	152
I5-B	23	116	153
I5-C	147	83	154
I5-D	147	117	155
I5-E, I5-H	23	118	156
I5-F	23	114	157
I6	243	324	158
I8-A, I8-E	112	119	159
I8-B	112	120	160
I8-C	149	168	161
I8-D	112	121	162
I9	32	84	163
I10	24	85	164
I11-A	150	106	165
I11-B	150	169	166
I11-C	152	107	167
I12-A	244	108	168

Appendix G Exhibit 1

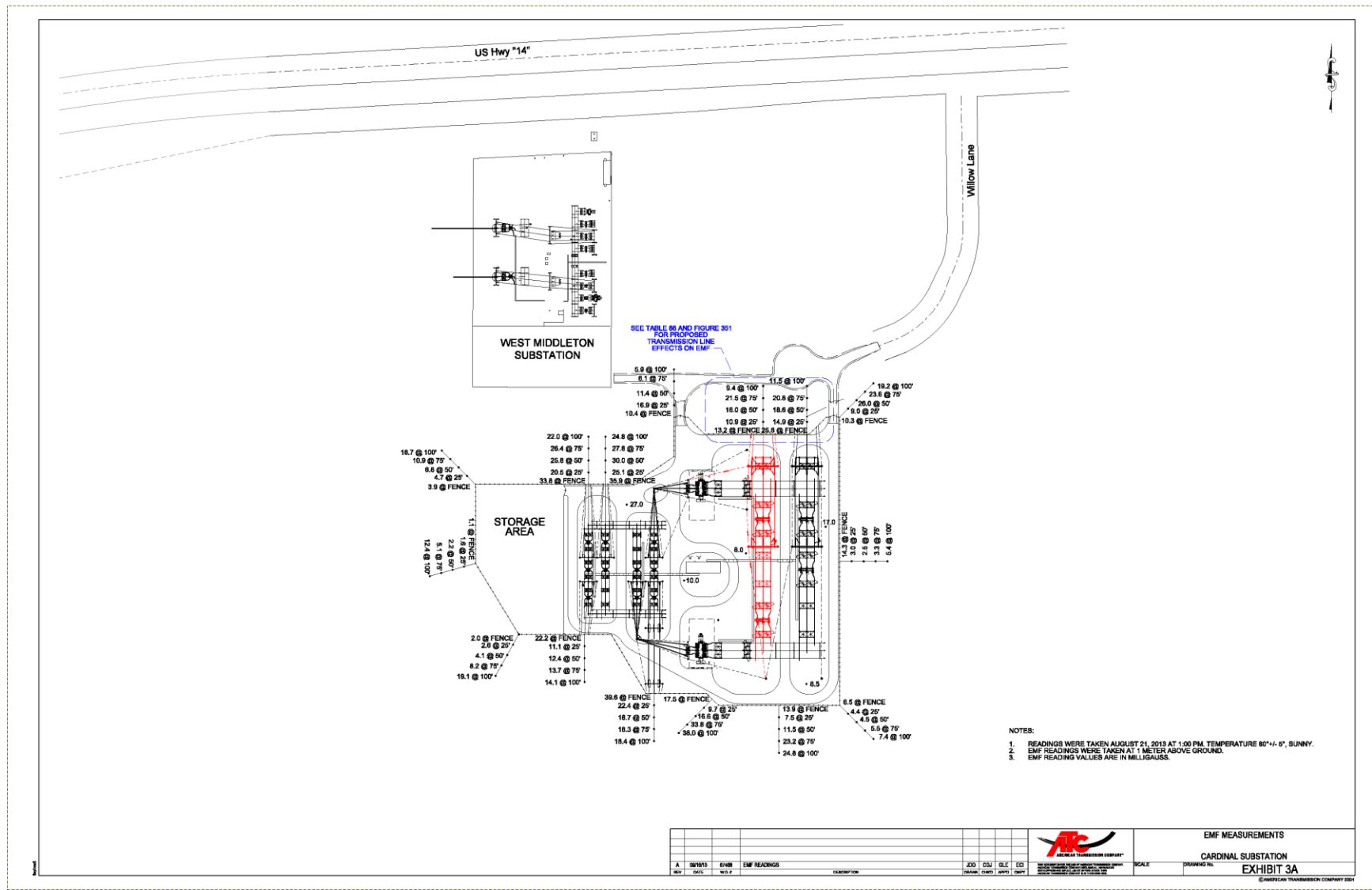
EMF Cross Reference Table			
Badger-Coulee 345 kV Transmission Project			
EMF Segment	Figure Number		Table Number
	Proposed	Existing	
I13-B	245	325	169
I13-C	246	86	170
G1-B	208	298	66
G2-A	209	299	68
G2-B, G2-D	345	N/A	69
G2-C	210	300	70
G3, F1-C, F3-B, F3-D, F4-A, F4-C, F5	339	N/A	71
F1-B	247	326	171
F2	248	87	172
F3-A	249	327	173
F3-C	250	88	174
F4-B	251	89	175
North Madison SS	350	N/A	176
C1	253	95	177
C2, C4-C, C5-A, C5-D, C5-F, C7, B4a	2	N/A	85
C3	16	96	178
C4-A	254	97	179
C4-B	255	98	180
C5-B	256	328	181
C5-C	257	329	182
C5-E	258	99	183
C6	17	100	184
C8	259	101	185
C9, B1, B3a-A, B3a-C, B3b-A	334	N/A	186
B2	260	102	187
B3a-B	261	330	188
B3b-B	34	331	189
B4	18	103	190
B5-A	262	104	191
B5-B	33	105	192
Cardinal SS	351	N/A	86

Appendix F – North Madison 1 Substation EMF Measurements



Appendix G – Cardinal Substation EMF Measurements

Appendix G Exhibit 1



Badger Coulee 345 kV Transmission Project

Appendix H – EMF Calculation Tables

DOCKET NO. 05-CE-142

Table 1 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P1

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	17.2	21.5	31.6	39.5	29.5	36.9
50	7.7	9.6	16.4	20.4	15.1	18.9
100	1.2	1.5	5.2	6.5	4.7	5.9
150	0.4	0.5	2.3	2.9	2.1	2.7
200	0.3	0.3	1.3	1.7	1.2	1.5
300	0.1	0.2	0.6	0.8	0.6	0.7

Figure Diagram Number: 122 (Proposed) & 156 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 2 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P2-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.1	34.8	43.5	32.7	40.8
50	0.0	0.0	19.3	24.1	18.1	22.6
100	0.0	0.0	6.6	8.3	6.2	7.8
150	0.0	0.0	3.2	4.0	3.0	3.7
200	0.0	0.0	1.9	2.3	1.7	2.2
300	0.0	0.0	0.9	1.1	0.8	1.0

Figure Diagram Number: 170 (Proposed) & 267 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 3 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P2-B, P4, P8-A, P14-C,
N7-B, N7-E, N9-C, N9-E,

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	34.7	43.4	32.6	40.7
50	N/A	N/A	17.7	22.2	16.6	20.8
100	N/A	N/A	5.6	7.0	5.3	6.6
150	N/A	N/A	2.6	3.3	2.5	3.1
200	N/A	N/A	1.5	1.9	1.4	1.8
300	N/A	N/A	0.7	0.9	0.7	0.8

Figure Diagram Number: 1

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 4 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P3

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.7	43.4	32.6	40.7
50	0.0	0.0	18.2	22.8	17.1	21.3
100	0.0	0.0	5.9	7.4	5.6	7.0
150	0.0	0.0	2.9	3.6	2.7	3.4
200	0.0	0.0	1.7	2.1	1.6	2.0
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 171 (Proposed) & 268 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 5 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P5-A, P5-D

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	4.3	5.3	32.2	40.3	29.6	37.0
50	1.7	2.1	17.0	21.2	15.3	19.1
100	0.7	0.9	5.5	6.9	4.8	6.0
150	0.4	0.5	2.5	3.2	2.2	2.7
200	0.3	0.4	1.4	1.8	1.2	1.5
300	0.2	0.2	0.7	0.8	0.6	0.7

Figure Diagram Number: 123 (Proposed) & 157 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 6 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P5-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	5.4	6.8	32.2	40.3	29.6	37.0
50	2.3	2.8	16.9	21.2	15.3	19.1
100	0.7	0.8	5.5	6.8	4.8	6.0
150	0.4	0.5	2.5	3.1	2.2	2.7
200	0.3	0.4	1.4	1.8	1.2	1.5
300	0.2	0.2	0.7	0.8	0.6	0.7

Figure Diagram Number: 124 (Proposed) & 158 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 7 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P5-C

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	5.6	7.0	32.2	40.2	29.6	37.0
50	2.8	3.5	16.9	21.1	15.2	19.0
100	0.7	0.8	5.4	6.8	4.8	6.0
150	0.4	0.5	2.5	3.1	2.2	2.7
200	0.3	0.4	1.4	1.8	1.2	1.5
300	0.2	0.2	0.7	0.8	0.6	0.7

Figure Diagram Number: 125 (Proposed) & 159 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 8 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P6-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	33.8	42.2	31.7	39.6
50	0.0	0.0	17.1	21.4	16.0	20.1
100	0.0	0.0	5.2	6.5	4.8	6.1
150	0.0	0.0	2.6	3.2	2.4	3.0
200	0.0	0.0	1.6	2.0	1.5	1.9
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 172 (Proposed) & 269 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 9 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P6-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	33.8	42.2	31.7	39.6
50	0.0	0.0	17.1	21.4	16.0	20.1
100	0.0	0.0	5.2	6.5	4.8	6.1
150	0.0	0.0	2.6	3.2	2.4	3.0
200	0.0	0.0	1.6	2.0	1.5	1.9
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 173 (Proposed) & 270 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 10 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P7

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	33.8	42.2	31.7	39.6
50	N/A	N/A	17.1	21.4	16.0	20.1
100	N/A	N/A	5.2	6.5	4.8	6.1
150	N/A	N/A	2.6	3.2	2.4	3.0
200	N/A	N/A	1.6	2.0	1.5	1.9
300	N/A	N/A	0.8	1.0	0.8	1.0

Figure Diagram Number: 341

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 11 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P8-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.8	43.4	32.6	40.8
50	0.0	0.0	18.2	22.7	17.1	21.3
100	0.0	0.0	5.9	7.4	5.6	7.0
150	0.0	0.0	2.9	3.6	2.7	3.3
200	0.1	0.1	1.7	2.1	1.6	2.0
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 174 (Proposed) & 271 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 12 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P8-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	18.2	22.7	17.1	21.3
100	0.1	0.1	5.9	7.4	5.6	7.0
150	0.1	0.1	2.9	3.6	2.7	3.4
200	0.0	0.0	1.7	2.1	1.6	2.0
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 175 (Proposed) & 272 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 13 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P8-D

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.8	43.5	32.6	40.8
50	0.0	0.0	18.2	22.7	17.1	21.3
100	0.0	0.1	5.9	7.4	5.6	7.0
150	0.1	0.1	2.9	3.6	2.7	3.4
200	0.0	0.0	1.7	2.1	1.6	2.0
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 176 (Proposed) & 273 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 14 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P8-E

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.7	43.4	32.6	40.7
50	0.0	0.0	18.2	22.7	17.1	21.3
100	0.0	0.0	5.9	7.4	5.6	7.0
150	0.9	1.2	2.9	3.6	2.7	3.4
200	0.0	0.0	1.7	2.1	1.6	2.0
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 177 (Proposed) & 274 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 15 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P8-F

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.0	1.2	35.0	43.7	32.9	41.1
50	0.1	0.1	18.2	22.7	17.0	21.3
100	0.0	0.0	5.9	7.4	5.6	7.0
150	0.3	0.3	2.9	3.6	2.7	3.4
200	0.0	0.0	1.7	2.1	1.6	2.0
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 178 (Proposed) & 275 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 16 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P8-G

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.0	1.3	35.0	43.7	32.9	41.1
50	0.1	0.1	18.2	22.7	17.0	21.3
100	0.1	0.1	6.0	7.4	5.6	7.0
150	0.1	0.1	2.9	3.6	2.7	3.4
200	0.2	0.3	1.7	2.1	1.6	2.0
300	0.2	0.2	0.8	1.0	0.8	1.0

Figure Diagram Number: 179 (Proposed) & 276 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 17 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P8-H

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.0	1.2	34.9	43.6	32.8	41.0
50	0.1	0.1	18.2	22.7	17.0	21.3
100	0.0	0.0	5.9	7.4	5.6	7.0
150	0.0	0.0	2.9	3.6	2.7	3.4
200	0.0	0.0	1.7	2.1	1.6	2.0
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 180 (Proposed) & 277 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 18 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P8-I

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.8	43.5	32.7	40.8
50	0.0	0.0	18.4	22.9	17.2	21.5
100	0.0	0.1	6.2	7.7	5.8	7.2
150	0.1	0.1	3.1	3.9	3.0	3.7
200	0.2	0.2	2.2	2.7	2.1	2.6
300	1.8	2.2	1.2	1.5	1.4	1.7

Figure Diagram Number: 181 (Proposed) & 278 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 19 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P9-A

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.4	0.5	35.4	44.2	33.2	41.5
50	0.7	0.9	22.0	27.6	20.7	25.8
100	0.5	0.6	5.4	6.7	5.0	6.3
150	0.2	0.3	2.6	3.2	2.4	3.0
200	0.1	0.2	1.5	1.9	1.4	1.7
300	0.1	0.1	0.7	0.8	0.6	0.8

Figure Diagram Number: 182 (Proposed) & 279 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 20 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P9-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.4	0.4	35.0	43.8	32.8	41.0
50	0.5	0.6	18.7	23.4	17.7	22.1
100	1.1	1.4	6.3	7.9	6.3	7.9
150	4.3	5.4	16.0	20.1	18.6	23.2
200	21.9	27.3	28.5	35.7	34.2	42.8
300	1.2	1.5	4.6	5.8	5.7	7.1

Figure Diagram Number: 183 (Proposed) & 265 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 21 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P11, P12, P13

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	35.8	44.7	34.0	42.5
50	N/A	N/A	19.3	24.1	18.6	23.3
100	N/A	N/A	8.2	10.2	8.9	11.2
150	N/A	N/A	13.5	16.9	16.8	21.1
200	N/A	N/A	27.6	34.6	33.5	41.9
300	N/A	N/A	6.4	8.0	7.3	9.1

Figure Diagram Number: 336

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 22 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P14-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.7	43.4	32.6	40.7
50	0.2	0.2	17.7	22.2	16.6	20.8
100	0.3	0.3	5.6	7.0	5.2	6.5
150	0.1	0.1	2.6	3.3	2.4	3.1
200	0.0	0.1	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.6	0.8

Figure Diagram Number: 346 (Proposed) & 348 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 23 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): P14-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.2	0.2	34.7	43.4	32.6	40.8
50	0.4	0.6	17.7	22.1	16.5	20.7
100	0.1	0.2	5.6	7.0	5.3	6.6
150	0.1	0.1	2.6	3.3	2.5	3.1
200	0.0	0.1	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 347 (Proposed) & 349 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 24 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N1, N2, N3a

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	12.9	16.2	30.1	37.6	33.4	41.8
50	4.4	5.5	13.1	16.4	15.4	19.2
100	1.2	1.5	3.4	4.2	4.2	5.3
150	0.5	0.7	1.3	1.6	1.7	2.2
200	0.3	0.4	0.6	0.8	0.9	1.1
300	0.1	0.2	0.2	0.3	0.4	0.5

Figure Diagram Number: 4 (Proposed) & 35 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 25 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N3b, N5-A

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	21.4	26.7	40.9	51.1	40.7	50.9
50	7.3	9.1	24.0	30.0	24.2	30.2
100	1.9	2.4	8.8	11.0	9.0	11.3
150	0.9	1.1	4.4	5.4	4.5	5.6
200	0.5	0.6	2.6	3.2	2.7	3.4
300	0.2	0.3	1.3	1.6	1.3	1.7

Figure Diagram Number: 5 (Proposed) & 36 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 26 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N4

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	21.4	26.7	40.9	51.1	40.7	50.9
50	7.3	9.1	24.0	30.0	24.2	30.2
100	1.9	2.4	8.8	11.0	9.0	11.3
150	0.9	1.1	4.4	5.4	4.5	5.6
200	0.5	0.6	2.6	3.2	2.7	3.4
300	0.2	0.3	1.3	1.6	1.3	1.7

Figure Diagram Number: 21 (Proposed) & 37 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 27 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N5-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	21.4	26.7	41.2	51.5	41.1	51.4
50	7.4	9.2	24.5	30.6	24.7	30.9
100	2.1	2.6	9.6	12.0	9.9	12.4
150	1.3	1.7	7.2	9.0	7.5	9.4
200	0.5	0.6	2.3	2.9	2.5	3.1
300	0.2	0.3	1.2	1.4	1.2	1.5

Figure Diagram Number: 126 (Proposed) & 160 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 28 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N6-A, N6-C, N6-E, N6-G,
N6-I, N6-K, N6-M,

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	34.8	43.5	32.7	40.8
50	N/A	N/A	19.3	24.1	18.1	22.6
100	N/A	N/A	6.6	8.3	6.2	7.8
150	N/A	N/A	3.2	4.0	3.0	3.7
200	N/A	N/A	1.9	2.3	1.7	2.2
300	N/A	N/A	0.9	1.1	0.8	1.0

Figure Diagram Number: 3

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 29 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N6-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	3.4	4.2	34.5	43.1	32.3	40.4
50	4.2	5.2	18.1	22.6	16.8	21.0
100	8.3	10.4	10.6	13.3	11.1	13.9
150	66.8	83.5	68.4	85.8	75.6	94.0
200	8.3	10.3	4.7	5.9	5.2	6.4
300	2.8	3.5	1.5	1.9	1.7	2.1

Figure Diagram Number: 20 (Proposed) & 280 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 30 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N6-D

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	5.7	7.1	34.6	43.2	32.4	40.5
50	7.3	9.1	19.9	24.9	18.8	23.5
100	16.2	20.2	17.3	21.5	18.8	23.5
150	55.5	69.3	59.4	74.0	64.3	80.5
200	10.9	13.6	11.4	14.2	12.3	15.4
300	4.1	5.1	4.1	5.1	4.4	5.5

Figure Diagram Number: 184 (Proposed) & 281 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 31 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N6-F

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	7.9	9.9	34.0	42.6	31.9	39.9
50	0.6	0.7	19.1	23.9	18.0	22.4
100	0.1	0.1	6.6	8.3	6.2	7.8
150	0.0	0.0	3.2	4.0	3.0	3.7
200	0.0	0.0	1.9	2.3	1.7	2.2
300	0.0	0.0	0.9	1.1	0.8	1.0

Figure Diagram Number: 185 (Proposed) & 282 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 32 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N6-H

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.0	1.2	33.5	41.8	31.4	39.2
50	0.1	0.1	19.1	23.9	18.0	22.4
100	0.0	0.0	6.6	8.3	6.2	7.8
150	0.0	0.0	3.2	4.0	3.0	3.7
200	0.0	0.0	1.9	2.3	1.7	2.2
300	0.0	0.0	0.9	1.1	0.8	1.0

Figure Diagram Number: 186 (Proposed) & 283 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 33 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N6-J

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	5.7	7.2	34.2	42.7	32.1	40.1
50	3.1	3.9	18.9	23.6	17.7	22.2
100	1.2	1.5	6.4	8.0	6.0	7.5
150	0.8	0.9	3.0	3.8	2.8	3.5
200	0.5	0.7	1.8	2.2	1.7	2.1
300	0.4	0.4	0.9	1.1	0.8	1.0

Figure Diagram Number: 187 (Proposed) & 284 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 34 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N6-L

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.4	34.8	43.5	32.6	40.8
50	0.4	0.5	19.3	24.1	18.1	22.6
100	1.0	1.2	6.7	8.3	6.2	7.8
150	0.7	0.9	3.2	4.0	3.0	3.7
200	0.3	0.4	1.9	2.3	1.7	2.1
300	0.2	0.2	0.9	1.1	0.8	1.0

Figure Diagram Number: 188 (Proposed) & 38 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 35 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N6-N

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.8	43.5	32.7	40.8
50	0.1	0.1	19.3	24.1	18.1	22.6
100	0.2	0.2	6.6	8.3	6.2	7.8
150	0.3	0.3	3.2	4.0	3.0	3.7
200	0.1	0.1	1.8	2.3	1.7	2.2
300	0.0	0.0	0.9	1.1	0.8	1.0

Figure Diagram Number: 189 (Proposed) & 39 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 36 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N7-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.7	22.2	16.6	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.1	0.2	2.6	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 190 (Proposed) & 285 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 37 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N7-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.7	43.4	32.6	40.7
50	0.1	0.1	17.7	22.1	16.6	20.7
100	0.2	0.2	5.6	7.0	5.3	6.6
150	0.1	0.1	2.6	3.3	2.5	3.1
200	0.0	0.1	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 191 (Proposed) & 40 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 38 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N7-D

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.7	22.2	16.6	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.0	0.0	2.6	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.1	0.1	0.7	0.9	0.7	0.8

Figure Diagram Number: 192 (Proposed) & 286 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 39 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N7-F, N7-H, N8-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	2.9	3.6	34.7	43.4	32.6	40.7
50	1.0	1.3	17.7	22.2	16.6	20.8
100	0.3	0.4	5.6	7.0	5.3	6.6
150	0.1	0.2	2.6	3.3	2.5	3.1
200	0.1	0.1	1.7	2.1	1.7	2.2
300	0.0	0.1	2.6	3.2	3.8	4.7

Figure Diagram Number: 25 (Proposed) & 41 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 40 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N7-G

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.2	1.5	34.0	42.5	31.8	39.8
50	1.9	2.4	17.6	22.0	16.5	20.6
100	6.5	8.1	8.3	10.3	5.2	6.5
150	1.3	1.6	3.0	3.8	2.4	3.0
200	0.7	0.9	1.8	2.2	1.4	1.7
300	0.4	0.5	0.9	1.1	0.6	0.8

Figure Diagram Number: 193 (Proposed) & 287 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 41 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N8-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.8	43.5	32.6	40.8
50	0.1	0.1	19.2	24.0	18.0	22.5
100	0.2	0.3	6.6	8.2	6.2	7.7
150	2.1	2.7	4.4	5.5	4.2	5.2
200	0.3	0.4	1.8	2.3	1.7	2.1
300	0.0	0.0	0.9	1.1	0.8	1.0

Figure Diagram Number: 194 (Proposed) & 288 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 42 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N9-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.2	0.3	34.8	43.5	32.7	40.8
50	0.3	0.4	19.3	24.1	18.1	22.6
100	2.5	3.1	6.7	8.3	6.2	7.8
150	0.3	0.4	3.2	4.0	3.0	3.7
200	0.2	0.2	1.9	2.3	1.7	2.2
300	0.1	0.1	0.9	1.1	0.8	1.0

Figure Diagram Number: 195 (Proposed) & 289 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 43 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N9-D

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.8	1.0	34.3	42.8	32.1	40.2
50	0.4	0.5	17.7	22.1	16.6	20.7
100	0.2	0.2	5.7	7.1	5.3	6.6
150	0.1	0.1	2.7	3.3	2.5	3.1
200	0.1	0.1	1.5	1.9	1.5	1.8
300	0.1	0.1	0.7	0.9	0.7	0.8

Figure Diagram Number: 196 (Proposed) & 290 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 44 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N9-F

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.3	34.6	43.3	32.5	40.6
50	0.2	0.2	17.6	21.9	16.5	20.6
100	0.1	0.1	5.5	6.9	5.2	6.5
150	0.0	0.0	2.6	3.2	2.4	3.0
200	0.0	0.0	1.5	1.9	1.4	1.7
300	0.0	0.0	0.7	0.8	0.6	0.8

Figure Diagram Number: 197 (Proposed) & 291 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 45 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N11-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.9	1.1	34.6	43.2	32.4	40.6
50	1.8	2.2	17.3	21.6	16.2	20.2
100	0.8	1.0	5.8	7.2	5.5	6.8
150	0.4	0.5	2.7	3.4	2.5	3.2
200	0.3	0.3	1.6	1.9	1.5	1.8
300	0.2	0.2	0.7	0.9	0.7	0.9

Figure Diagram Number: 198 (Proposed) & 292 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 46 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N11-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.7	0.8	33.1	41.6	30.9	38.9
50	0.3	0.3	17.9	22.4	16.9	21.0
100	0.1	0.2	5.7	7.1	5.4	6.7
150	0.1	0.1	2.7	3.4	2.5	3.2
200	0.1	0.1	1.6	1.9	1.5	1.8
300	0.0	0.1	0.7	0.9	0.7	0.9

Figure Diagram Number: 199 (Proposed) & 293 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 47 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N11-D

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.0	1.2	31.6	39.5	29.4	36.8
50	0.6	0.7	18.5	23.1	17.4	21.7
100	0.3	0.4	5.8	7.3	5.5	6.9
150	0.2	0.2	2.7	3.4	2.6	3.2
200	0.1	0.2	1.6	2.0	1.5	1.9
300	0.1	0.1	0.7	0.9	0.7	0.9

Figure Diagram Number: 200 (Proposed) & 294 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 48 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N16

Facility description (structure type, configuration): Horizontal

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	54.5	68.1	51.1	63.9
50	N/A	N/A	27.7	34.7	26.0	32.5
100	N/A	N/A	7.6	9.6	7.2	9.0
150	N/A	N/A	3.5	4.4	3.3	4.1
200	N/A	N/A	2.0	2.6	1.9	2.4
300	N/A	N/A	1.0	1.2	0.9	1.1

Figure Diagram Number: 344

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 49 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N17-A, N17-C, N17-E,
N19-A, N19-C, N21, K1,

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	33.8	42.2	31.7	39.6
50	N/A	N/A	17.1	21.4	16.0	20.1
100	N/A	N/A	5.2	6.5	4.8	6.1
150	N/A	N/A	2.6	3.2	2.4	3.0
200	N/A	N/A	1.6	2.0	1.5	1.9
300	N/A	N/A	0.8	1.0	0.8	1.0

Figure Diagram Number: 337

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 50 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N17-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.2	0.3	33.9	42.4	31.8	39.8
50	0.3	0.4	17.6	22.0	16.5	20.6
100	0.6	0.7	5.6	7.0	5.2	6.5
150	0.2	0.3	2.5	3.2	2.4	3.0
200	0.1	0.2	1.6	1.9	1.5	1.8
300	0.1	0.1	0.8	1.0	0.7	0.9

Figure Diagram Number: 201 (Proposed) & 42 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 51 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N17-D

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	5.3	6.6	33.3	41.7	31.2	39.1
50	9.1	11.4	18.0	22.5	17.0	21.2
100	6.9	8.6	6.0	7.5	5.7	7.2
150	3.1	3.8	3.0	3.7	2.9	3.6
200	1.9	2.4	1.8	2.3	1.8	2.2
300	1.1	1.4	1.0	1.2	0.9	1.2

Figure Diagram Number: 202 (Proposed) & 43 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 52 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N18

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	34.3	42.9	32.2	40.3
50	N/A	N/A	19.3	24.2	18.1	22.7
100	N/A	N/A	6.8	8.6	6.4	8.0
150	N/A	N/A	3.3	4.1	3.1	3.9
200	N/A	N/A	1.9	2.4	1.8	2.3
300	N/A	N/A	0.9	1.2	0.9	1.1

Figure Diagram Number: 342

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 53 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N19-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	8.5	10.7	39.7	49.6	37.9	47.4
50	10.7	13.3	16.1	20.2	15.7	19.6
100	1.3	1.6	4.7	5.9	4.4	5.5
150	0.4	0.5	2.4	3.1	2.3	2.9
200	0.2	0.3	1.5	1.9	1.4	1.8
300	0.1	0.1	0.8	1.0	0.7	0.9

Figure Diagram Number: 203 (Proposed) & 44 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 54 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N20

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.1	1.4	12.2	15.2	10.3	12.8
50	0.4	0.5	8.3	10.3	7.3	9.1
100	0.1	0.2	4.1	5.2	3.8	4.7
150	0.1	0.1	2.4	3.0	2.2	2.7
200	0.0	0.1	1.5	1.9	1.4	1.8
300	0.0	0.0	0.8	1.0	0.7	0.9

Figure Diagram Number: 9 (Proposed) & 45 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 55 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N22

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	14.8	18.6	13.9	17.4
50	N/A	N/A	10.2	12.7	9.6	11.9
100	N/A	N/A	4.3	5.4	4.0	5.0
150	N/A	N/A	2.2	2.7	2.1	2.6
200	N/A	N/A	1.4	1.8	1.3	1.7
300	N/A	N/A	0.8	1.0	0.7	0.9

Figure Diagram Number: 10

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 56 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): N23, M1-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	3.1	3.9	14.8	18.6	13.9	17.4
50	1.2	1.4	10.2	12.7	9.6	11.9
100	0.3	0.4	4.3	5.4	4.0	5.0
150	0.2	0.2	2.2	2.7	2.1	2.6
200	0.1	0.1	1.4	1.8	1.3	1.7
300	0.0	0.1	0.8	1.0	0.7	0.9

Figure Diagram Number: 10 (Proposed) & 46 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 57 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): M1-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	3.8	4.8	14.6	18.2	13.6	17.0
50	1.4	1.8	10.1	12.6	9.4	11.8
100	0.5	0.6	4.3	5.3	4.0	5.0
150	0.2	0.2	2.1	2.6	2.0	2.5
200	0.1	0.1	1.3	1.6	1.2	1.5
300	0.1	0.1	0.7	0.8	0.6	0.8

Figure Diagram Number: 127 (Proposed) & 47 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 58 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): M1-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	7.5	9.4	14.4	18.0	14.5	18.1
50	2.6	3.3	10.1	12.6	9.7	12.2
100	0.7	0.9	4.3	5.3	4.0	5.1
150	0.4	0.4	2.2	2.8	2.0	2.5
200	0.2	0.3	1.4	1.8	1.3	1.6
300	0.1	0.1	0.8	1.0	0.7	0.9

Figure Diagram Number: 111 (Proposed) & 48 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 59 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): J1-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	3.9	4.9	26.5	33.1	25.8	32.2
50	2.3	2.9	18.4	23.0	17.4	21.8
100	1.0	1.2	5.6	7.1	5.4	6.7
150	0.6	0.8	2.6	3.2	2.4	3.0
200	0.5	0.6	1.4	1.8	1.4	1.7
300	0.3	0.4	0.6	0.8	0.6	0.8

Figure Diagram Number: 204 (Proposed) & 49 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 60 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): H2-A

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	45.4	56.7	34.7	43.4	32.6	40.7
50	14.5	18.1	19.3	24.1	18.1	22.6
100	3.6	4.5	6.6	8.3	6.2	7.8
150	1.7	2.1	3.1	3.9	2.9	3.7
200	1.0	1.2	1.8	2.3	1.7	2.1
300	0.5	0.6	0.8	1.1	0.8	1.0

Figure Diagram Number: 205 (Proposed) & 50 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 61 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): H2-B, H6

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	35.0	43.8	32.9	41.1
50	N/A	N/A	19.5	24.3	18.3	22.8
100	N/A	N/A	6.7	8.4	6.3	7.9
150	N/A	N/A	3.2	4.0	3.0	3.8
200	N/A	N/A	1.9	2.4	1.8	2.2
300	N/A	N/A	0.9	1.1	0.9	1.1

Figure Diagram Number: 8

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 62 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): H7-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	6.5	8.1	36.0	45.0	34.1	42.7
50	16.8	20.9	29.0	36.3	29.1	36.4
100	2.3	2.9	5.5	6.9	5.4	6.7
150	0.7	0.8	2.6	3.3	2.5	3.1
200	0.3	0.4	1.6	2.0	1.5	1.9
300	0.1	0.1	0.8	1.0	0.8	1.0

Figure Diagram Number: 206 (Proposed) & 296 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 63 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): H7-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	33.8	42.2	31.7	39.6
50	0.1	0.1	17.1	21.4	16.1	20.1
100	4.1	5.1	4.9	6.1	4.6	5.8
150	0.1	0.1	2.6	3.2	2.4	3.0
200	0.0	0.0	1.6	2.0	1.5	1.9
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 207 (Proposed) & 297 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 64 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): H8-A

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	20.0	25.0	34.3	42.8	32.7	40.8
50	6.7	8.4	18.6	23.2	17.6	21.9
100	1.9	2.3	6.0	7.5	5.6	7.0
150	0.9	1.2	2.7	3.4	2.5	3.2
200	0.5	0.7	1.5	1.9	1.4	1.8
300	0.3	0.3	0.7	0.9	0.6	0.8

Figure Diagram Number: 11 (Proposed) & 161 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 65 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): H8-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	20.0	25.0	34.9	43.6	33.3	41.6
50	6.7	8.4	18.5	23.2	17.5	21.9
100	1.9	2.3	6.0	7.5	5.6	7.0
150	0.9	1.1	2.7	3.4	2.5	3.2
200	0.5	0.7	1.5	1.9	1.4	1.8
300	0.3	0.3	0.7	0.9	0.6	0.8

Figure Diagram Number: 128 (Proposed) & 51 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 66 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): G1-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.3	34.7	43.4	32.6	40.8
50	0.4	0.4	17.7	22.2	16.6	20.8
100	1.8	2.2	5.6	7.0	5.3	6.6
150	0.5	0.7	2.6	3.3	2.4	3.1
200	0.2	0.3	1.5	1.9	1.4	1.8
300	0.1	0.1	0.7	0.9	0.6	0.8

Figure Diagram Number: 208 (Proposed) & 298 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 67 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): G1-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	34.7	43.4	32.6	40.7
50	N/A	N/A	17.7	22.2	16.6	20.8
100	N/A	N/A	5.6	7.0	5.3	6.6
150	N/A	N/A	2.6	3.3	2.5	3.1
200	N/A	N/A	1.5	1.9	1.4	1.8
300	N/A	N/A	0.7	0.9	0.7	0.8

Figure Diagram Number: 338

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 68 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): G2-A

Facility description (structure type, configuration): Horizontal

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.4	53.9	67.4	50.6	63.2
50	0.6	0.8	27.6	34.5	25.9	32.4
100	0.6	0.8	7.1	8.9	6.7	8.3
150	0.2	0.3	3.2	4.0	3.0	3.8
200	0.1	0.2	1.8	2.3	1.7	2.1
300	0.1	0.1	0.8	1.0	0.8	1.0

Figure Diagram Number: 209 (Proposed) & 299 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 69 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): G2-B, G2-D

Facility description (structure type, configuration): Horizontal

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	54.0	67.6	50.7	63.4
50	N/A	N/A	27.3	34.1	25.6	32.0
100	N/A	N/A	7.4	9.2	6.9	8.7
150	N/A	N/A	3.3	4.2	3.1	3.9
200	N/A	N/A	1.9	2.4	1.8	2.2
300	N/A	N/A	0.9	1.1	0.8	1.0

Figure Diagram Number: 345

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 70 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): G2-C

Facility description (structure type, configuration): Horizontal

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	54.0	67.5	50.6	63.3
50	0.1	0.1	27.3	34.2	25.6	32.0
100	0.2	0.2	7.0	8.8	6.6	8.2
150	0.1	0.1	3.1	3.9	2.9	3.7
200	0.0	0.1	1.8	2.2	1.7	2.1
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 210 (Proposed) & 300 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 71 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): G3, E1-A, E1-B, E1-C,
E1-G, E1-I

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	33.8	42.2	31.7	39.6
50	N/A	N/A	17.1	21.4	16.0	20.1
100	N/A	N/A	5.2	6.5	4.8	6.1
150	N/A	N/A	2.6	3.2	2.4	3.0
200	N/A	N/A	1.6	2.0	1.5	1.9
300	N/A	N/A	0.8	1.0	0.8	1.0

Figure Diagram Number: 339

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 72 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): E1-D

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	4.7	5.9	34.3	42.9	32.3	40.4
50	4.9	6.2	18.3	22.8	17.3	21.6
100	1.9	2.3	5.9	7.3	5.6	7.0
150	1.1	1.3	2.8	3.5	2.7	3.3
200	0.7	0.9	1.6	2.1	1.6	2.0
300	0.5	0.6	0.9	1.1	0.8	1.0

Figure Diagram Number: 211 (Proposed) & 53 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 73 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): E1-E

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.7	2.1	32.6	40.7	30.4	38.1
50	0.4	0.5	17.4	21.7	16.3	20.4
100	0.1	0.2	5.3	6.6	4.9	6.2
150	0.1	0.1	2.6	3.2	2.4	3.0
200	0.1	0.1	1.6	2.0	1.5	1.9
300	0.0	0.1	0.8	1.0	0.8	1.0

Figure Diagram Number: 263 (Proposed) & 301 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 74 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): E1-F

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	33.8	42.2	31.7	39.6
50	0.1	0.1	17.1	21.4	16.1	20.1
100	0.8	1.0	5.2	6.5	5.0	6.2
150	0.1	0.1	2.6	3.3	2.4	3.1
200	0.1	0.1	1.6	2.0	1.5	1.9
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 264 (Proposed) & 302 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 75 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): E1-H

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.0	42.4	31.9	39.9
50	0.1	0.1	17.1	21.4	16.1	20.1
100	0.0	0.0	5.2	6.5	4.8	6.1
150	0.0	0.0	2.6	3.2	2.4	3.0
200	0.0	0.0	1.6	2.0	1.5	1.9
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 212 (Proposed) & 109 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 76 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): E2-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.3	1.6	33.7	42.1	31.6	39.5
50	1.7	2.2	17.1	21.3	16.0	20.0
100	3.9	4.9	5.2	6.5	4.9	6.1
150	12.9	16.1	18.2	22.7	15.8	19.7
200	57.9	72.4	60.7	75.8	52.7	65.9
300	10.1	12.6	4.6	5.8	4.0	5.0

Figure Diagram Number: 26 (Proposed) & 54 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 77 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): E2-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	2.7	3.3	33.6	42.1	31.6	39.5
50	4.8	6.0	16.8	21.0	15.8	19.7
100	21.7	27.1	20.9	26.2	18.2	22.8
150	66.0	82.5	63.3	79.1	55.0	68.8
200	11.6	14.5	12.6	15.8	11.1	13.9
300	3.9	4.9	3.2	4.0	2.7	3.3

Figure Diagram Number: 27 (Proposed) & 55 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 78 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): D1-A

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	71.1	88.8	21.4	26.7	23.2	29.0
50	30.2	37.7	9.6	12.5	10.8	13.5
100	7.3	9.1	2.4	2.7	2.9	3.7
150	3.3	4.2	0.9	1.1	1.2	1.4
200	2.0	2.4	0.4	0.5	0.6	0.7
300	1.0	1.2	0.2	0.2	0.2	0.2

Figure Diagram Number: 153 (Proposed) & 110 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 79 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): D1-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	71.1	88.8	22.3	27.9	24.1	30.1
50	30.2	37.7	10.3	12.8	11.4	14.3
100	7.3	9.1	2.7	3.4	3.2	4.0
150	3.3	4.2	1.1	1.4	1.3	1.7
200	2.0	2.4	0.6	0.7	0.7	0.9
300	0.9	1.2	0.3	0.3	0.3	0.4

Figure Diagram Number: 6 (Proposed) & 90 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 80 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): D1-C, A3

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	25.0	31.3	22.3	27.9	24.1	30.1
50	9.8	12.2	10.3	12.8	11.4	14.3
100	2.9	3.6	2.7	3.4	3.2	4.0
150	1.4	1.7	1.1	1.4	1.3	1.7
200	0.8	1.0	0.6	0.7	0.7	0.9
300	0.4	0.5	0.3	0.3	0.3	0.4

Figure Diagram Number: 6 (Proposed) & 91 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 81 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): D2, A1, A4

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	22.3	27.9	24.1	30.1
50	N/A	N/A	10.3	12.8	11.4	14.3
100	N/A	N/A	2.7	3.4	3.2	4.0
150	N/A	N/A	1.1	1.4	1.3	1.7
200	N/A	N/A	0.6	0.7	0.7	0.9
300	N/A	N/A	0.3	0.3	0.3	0.4

Figure Diagram Number: 6

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 82 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): A2

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.4	22.9	28.6	24.7	30.9
50	0.8	1.0	10.4	13.0	11.6	14.5
100	1.3	1.6	2.8	3.5	3.3	4.1
150	0.2	0.2	1.1	1.4	1.3	1.7
200	0.1	0.1	0.6	0.7	0.7	0.9
300	0.0	0.0	0.3	0.3	0.3	0.4

Figure Diagram Number: 154 (Proposed) & 92 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 83 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): A5, A6a, A6b

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	16.1	20.2	22.4	28.0	23.7	29.7
50	6.6	8.2	10.5	13.2	11.7	14.7
100	2.4	3.0	2.8	3.5	3.3	4.1
150	1.3	1.6	1.1	1.4	1.4	1.7
200	0.9	1.1	0.6	0.7	0.7	0.9
300	0.5	0.6	0.3	0.3	0.3	0.4

Figure Diagram Number: 155 (Proposed) & 93 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 84 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): A7

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	22.4	28.0	24.9	31.2	23.6	29.4
50	11.4	14.2	12.5	15.6	11.6	14.5
100	1.5	1.9	3.9	4.9	3.7	4.6
150	0.5	0.6	1.8	2.3	1.7	2.1
200	0.2	0.3	1.1	1.3	1.0	1.2
300	0.1	0.2	0.5	0.6	0.5	0.6

Figure Diagram Number: 252 (Proposed) & 94 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 85 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): A8

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	24.5	30.6	22.9	28.6
50	N/A	N/A	12.5	15.6	11.7	14.6
100	N/A	N/A	4.0	4.9	3.7	4.6
150	N/A	N/A	1.9	2.3	1.7	2.2
200	N/A	N/A	1.1	1.3	1.0	1.3
300	N/A	N/A	0.5	0.6	0.5	0.6

Figure Diagram Number: 2

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 86 - Estimated Magnetic Field Data

Transmission Route: Northern

Segment(s): CARDINAL SS

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	29.4	36.7	26.6	33.2
50	N/A	N/A	43.1	53.9	38.2	47.8
100	N/A	N/A	65.2	81.5	57.3	71.7
150	N/A	N/A	16.1	20.1	14.2	17.7
200	N/A	N/A	5.7	7.1	5.1	6.3
300	N/A	N/A	1.7	2.1	1.5	1.9

Figure Diagram Number: 351

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 87 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O1-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.7	22.2	16.6	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.0	0.0	2.6	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 213 (Proposed) & 303 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 88 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O1-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.5	0.6	35.1	43.8	32.9	41.2
50	0.7	0.9	19.2	23.9	18.2	22.7
100	1.9	2.4	10.1	12.7	10.2	12.7
150	12.6	15.8	30.1	37.6	32.7	40.9
200	7.8	9.8	9.3	11.7	10.1	12.6
300	0.5	0.6	1.1	1.4	1.1	1.4

Figure Diagram Number: 28 (Proposed) & 56 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 89 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O2-A, O2-C

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	12.9	16.2	48.6	60.8	51.1	63.9
50	4.4	5.5	29.5	36.9	30.9	38.6
100	1.2	1.5	11.4	14.2	11.8	14.7
150	0.5	0.7	5.8	7.2	5.9	7.4
200	0.3	0.4	3.5	4.4	3.6	4.5
300	0.1	0.2	1.7	2.2	1.8	2.2

Figure Diagram Number: 129 (Proposed) & 266 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 90 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O2-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	12.8	16.0	30.7	38.4	34.1	42.7
50	4.4	5.5	14.6	18.2	17.4	21.7
100	1.2	1.5	3.0	3.7	3.3	4.1
150	0.5	0.7	1.1	1.4	1.3	1.7
200	0.3	0.4	0.5	0.7	0.7	0.8
300	0.2	0.2	0.2	0.3	0.3	0.3

Figure Diagram Number: 130 (Proposed) & 162 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 91 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O3-A

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	34.3	42.9	32.2	40.3
50	N/A	N/A	19.3	24.2	18.1	22.7
100	N/A	N/A	6.8	8.6	6.4	8.0
150	N/A	N/A	3.3	4.1	3.1	3.9
200	N/A	N/A	1.9	2.4	1.8	2.3
300	N/A	N/A	0.9	1.2	0.9	1.1

Figure Diagram Number: 343

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 92 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O3-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.2	34.2	42.7	32.1	40.1
50	0.2	0.2	19.3	24.1	18.1	22.6
100	0.3	0.4	6.8	8.5	6.4	8.0
150	1.0	1.3	3.2	4.1	3.0	3.8
200	0.7	0.9	1.9	2.3	1.8	2.2
300	0.2	0.2	0.9	1.1	0.8	1.0

Figure Diagram Number: 131 (Proposed) & 304 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 93 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O3-C

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.4	0.5	34.2	42.7	32.1	40.1
50	0.4	0.6	19.3	24.1	18.1	22.6
100	0.8	0.9	6.7	8.4	6.3	7.9
150	2.5	3.2	4.1	5.1	4.9	6.2
200	1.7	2.1	1.8	2.3	1.9	2.4
300	0.4	0.5	0.8	1.0	0.8	1.0

Figure Diagram Number: 132 (Proposed) & 305 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 94 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O3-D

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.5	0.7	34.1	42.7	32.0	32.0
50	1.3	1.6	19.2	24.0	18.0	18.0
100	0.6	0.7	6.8	8.5	6.4	6.4
150	0.3	0.3	3.3	4.1	3.1	3.1
200	0.2	0.2	1.9	2.4	1.8	1.8
300	0.1	0.1	0.9	1.1	0.8	0.8

Figure Diagram Number: 133 (Proposed) & 306 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 95 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O4-A, O4-C, O4-F, O6-A,
O6-E, O6-G, O6-J, O6-L,

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	34.7	43.4	32.6	40.7
50	N/A	N/A	17.7	22.2	16.6	20.8
100	N/A	N/A	5.6	7.0	5.3	6.6
150	N/A	N/A	2.6	3.3	2.5	3.1
200	N/A	N/A	1.5	1.9	1.4	1.8
300	N/A	N/A	0.7	0.9	0.7	0.8

Figure Diagram Number: 340

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 96 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O4-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.4	0.5	34.4	43.0	32.2	40.3
50	0.4	0.6	17.2	21.5	16.0	20.0
100	0.6	0.7	4.9	6.2	4.5	5.7
150	0.8	1.0	2.2	2.8	2.1	2.6
200	1.3	1.7	1.3	1.6	1.2	1.5
300	3.9	4.8	4.7	5.8	5.0	6.3

Figure Diagram Number: 134 (Proposed) & 332 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 97 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O4-D

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	4.7	5.8	32.9	41.1	30.4	38.0
50	11.1	13.9	15.8	19.7	14.8	18.5
100	18.7	23.4	22.5	28.1	25.0	31.2
150	14.9	18.6	23.1	28.9	25.1	31.4
200	2.0	2.5	4.3	5.4	4.6	5.8
300	0.4	0.5	1.2	1.5	1.2	1.5

Figure Diagram Number: 29 (Proposed) & 57 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 98 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O4-E

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.4	1.7	35.0	43.8	32.9	41.1
50	2.4	3.0	19.2	24.0	18.3	22.9
100	14.8	18.5	9.9	12.4	9.7	12.2
150	14.6	18.2	30.0	37.5	32.5	40.6
200	5.4	6.8	9.2	11.5	10.0	12.5
300	0.5	0.6	1.4	1.7	1.4	1.8

Figure Diagram Number: 30 (Proposed) & 58 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 99 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O4-G

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.7	22.2	16.6	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.0	0.0	2.6	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 135 (Proposed) & 333 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 100 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O5-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.8	2.2	34.6	43.3	32.5	40.6
50	3.5	4.3	21.3	26.6	21.6	27.1
100	13.8	17.2	58.2	72.7	63.8	79.8
150	17.1	21.4	35.4	44.2	43.5	54.3
200	4.0	5.0	9.3	11.6	11.1	13.8
300	0.4	0.5	0.8	1.0	0.9	1.2

Figure Diagram Number: 31 (Proposed) & 59 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 101 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O5-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	3.3	4.1	34.0	42.5	31.8	39.8
50	6.2	7.8	39.1	48.9	40.8	51.0
100	28.6	35.7	18.7	23.4	21.1	26.4
150	4.0	5.1	4.2	5.3	4.8	6.0
200	2.3	2.9	1.9	2.3	2.1	2.6
300	30.3	37.9	0.7	0.9	0.8	1.0

Figure Diagram Number: 136 (Proposed) & 60 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 102 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.5	0.6	34.7	43.3	32.5	40.7
50	0.2	0.2	17.7	22.2	16.6	20.8
100	0.1	0.1	5.6	7.0	5.3	6.6
150	0.0	0.0	2.6	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 138 (Proposed) & 61 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 103 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.3	34.8	43.5	32.7	40.8
50	0.3	0.4	17.7	22.1	16.6	20.7
100	0.5	0.6	5.5	6.9	5.2	6.5
150	0.9	1.1	2.8	3.5	2.6	3.3
200	2.6	3.2	4.6	5.7	4.5	5.6
300	0.5	0.6	0.8	1.0	0.8	1.0

Figure Diagram Number: 214 (Proposed) & 307 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 104 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-D

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.2	0.2	34.8	43.5	32.6	40.8
50	0.2	0.3	17.7	22.1	16.6	20.7
100	0.3	0.4	5.6	6.9	5.2	6.5
150	0.6	0.7	2.6	3.2	2.4	3.0
200	1.8	2.3	3.7	4.6	3.6	4.5
300	0.3	0.4	0.8	0.9	0.7	0.9

Figure Diagram Number: 215 (Proposed) & 308 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 105 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-F

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.7	22.2	16.6	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.0	0.0	2.6	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 216 (Proposed) & 309 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 106 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-H

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	2.4	3.0	34.4	43.0	32.2	40.3
50	3.7	4.7	17.8	22.3	16.7	20.9
100	9.0	11.2	11.3	14.1	11.6	14.5
150	6.5	8.2	5.9	7.4	6.3	7.8
200	2.8	3.5	2.3	2.8	2.4	3.0
300	1.3	1.6	1.0	1.3	1.0	1.3

Figure Diagram Number: 217 (Proposed) & 310 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 107 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-I

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.5	43.2	32.4	40.5
50	0.0	0.0	17.8	22.2	16.7	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.0	0.0	2.6	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 218 (Proposed) & 311 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 108 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-K

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	2.0	2.5	34.3	42.8	32.3	40.3
50	1.1	1.4	17.6	22.0	16.5	20.7
100	0.6	0.7	5.9	7.3	5.5	6.9
150	0.4	0.5	2.8	3.6	2.7	3.4
200	0.3	0.4	1.7	2.1	1.6	2.0
300	0.2	0.2	0.8	1.0	0.8	1.0

Figure Diagram Number: 219 (Proposed) & 312 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 109 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-M

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	2.8	3.4	33.0	41.3	30.5	38.2
50	5.5	6.9	18.0	22.5	19.0	23.8
100	36.3	45.4	63.8	79.7	77.9	97.4
150	6.3	7.9	12.7	15.8	15.0	18.7
200	1.8	2.3	4.2	5.3	4.8	6.0
300	0.5	0.6	1.3	1.6	1.5	1.8

Figure Diagram Number: 220 (Proposed) & 62 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 110 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-N

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.2	33.9	42.4	31.8	39.7
50	0.1	0.1	17.8	22.3	16.7	20.9
100	0.0	0.1	5.7	7.1	5.3	6.6
150	0.0	0.0	2.7	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 221 (Proposed) & 63 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 111 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-P

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.2	0.3	34.8	43.5	32.7	40.9
50	0.3	0.3	18.0	22.5	16.9	21.1
100	0.5	0.7	6.1	7.7	5.8	7.2
150	4.5	5.7	4.7	5.9	4.7	5.8
200	0.5	0.7	1.3	1.6	1.2	1.5
300	0.2	0.2	0.6	0.8	0.6	0.7

Figure Diagram Number: 222 (Proposed) & 313 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 112 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-R

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.9	22.4	16.8	21.0
100	0.3	0.4	6.3	7.9	6.0	7.4
150	0.1	0.1	2.3	2.8	2.1	2.7
200	0.0	0.0	1.3	1.7	1.3	1.6
300	0.0	0.0	0.6	0.8	0.6	0.7

Figure Diagram Number: 223 (Proposed) & 64 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 113 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-S

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.7	22.2	16.6	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.0	0.0	2.6	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 224 (Proposed) & 314 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 114 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-U

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.8	1.1	34.6	43.2	32.4	40.5
50	0.9	1.1	17.7	22.1	16.6	20.8
100	1.1	1.4	5.7	7.1	5.4	6.7
150	1.8	2.2	3.7	4.7	3.7	4.6
200	4.5	5.7	5.7	7.1	5.8	7.2
300	1.7	2.1	1.4	1.7	1.4	1.8

Figure Diagram Number: 225 (Proposed) & 315 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 115 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-W

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.8
50	0.0	0.0	17.9	22.3	16.8	20.9
100	0.0	0.0	5.9	7.4	5.5	6.9
150	0.1	0.1	3.2	3.9	3.0	3.7
200	0.0	0.1	1.3	1.7	1.2	1.6
300	0.0	0.0	0.6	0.8	0.6	0.7

Figure Diagram Number: 226 (Proposed) & 316 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 116 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-Y

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.8	43.5	32.6	40.8
50	0.0	0.0	17.7	22.2	16.6	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.0	0.0	2.6	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 227 (Proposed) & 317 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 117 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-Z

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	34.7	43.4	32.6	40.7
50	0.1	0.1	17.8	22.3	16.7	20.9
100	0.2	0.3	5.5	6.9	5.1	6.4
150	0.1	0.1	2.4	3.0	2.3	2.8
200	0.0	0.1	1.4	1.8	1.3	1.6
300	0.0	0.0	0.6	0.8	0.6	0.8

Figure Diagram Number: 228 (Proposed) & 65 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 118 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-AB

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.7	22.2	16.6	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.1	0.1	2.7	3.3	2.5	3.1
200	0.1	0.1	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 229 (Proposed) & 318 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 119 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-AC

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.8	22.2	16.7	20.9
100	0.0	0.1	5.8	7.2	5.4	6.7
150	0.1	0.1	3.0	3.7	2.8	3.5
200	0.1	0.2	1.3	1.7	1.2	1.6
300	0.0	0.0	0.6	0.8	0.6	0.7

Figure Diagram Number: 230 (Proposed) & 319 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 120 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-AE

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.6	0.8	34.9	43.6	32.7	40.9
50	0.7	0.9	17.6	22.0	16.5	20.6
100	1.1	1.3	5.5	6.9	5.2	6.4
150	2.1	2.6	3.5	4.4	3.4	4.2
200	16.7	20.9	16.2	20.2	16.2	20.3
300	1.1	1.3	0.9	1.1	0.9	1.1

Figure Diagram Number: 231 (Proposed) & 320 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 121 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O6-AG

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.0	1.2	32.6	40.8	29.7	37.1
50	1.9	2.4	13.0	16.2	12.1	15.1
100	10.1	12.7	27.1	33.9	35.4	44.2
150	1.7	2.1	6.6	8.2	8.2	10.2
200	0.5	0.7	2.3	2.8	2.7	3.4
300	0.2	0.2	0.8	1.0	0.8	1.0

Figure Diagram Number: 232 (Proposed) & 163 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 122 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): 07b

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.6	2.0	29.3	36.6	36.8	46.0
50	3.9	4.9	12.9	16.2	17.7	22.1
100	4.8	6.1	3.3	4.1	5.0	6.3
150	0.9	1.2	1.3	1.6	2.1	2.6
200	0.4	0.5	0.7	0.8	1.1	1.4
300	0.2	0.2	0.3	0.4	0.5	0.6

Figure Diagram Number: 139 (Proposed) & 164 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 123 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O7c

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.4	0.5	33.7	42.1	31.6	39.5
50	0.8	1.0	17.0	21.3	16.0	20.0
100	0.6	0.7	5.1	6.4	4.8	6.0
150	0.2	0.3	2.5	3.1	2.3	2.9
200	0.2	0.2	1.5	1.9	1.4	1.8
300	0.1	0.1	0.8	1.0	0.7	0.9

Figure Diagram Number: 233 (Proposed) & 321 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 124 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O7d-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.3	33.9	42.3	31.8	39.8
50	0.5	0.6	17.8	22.1	16.7	21.0
100	0.4	0.5	5.0	6.2	4.6	5.7
150	0.2	0.2	2.5	3.2	2.4	3.0
200	0.1	0.1	1.6	2.0	1.5	1.8
300	0.1	0.1	0.8	1.0	0.8	0.9

Figure Diagram Number: 234 (Proposed) & 66 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 125 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): 08

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	10.7	13.4	31.5	39.4	29.2	36.5
50	3.8	4.8	16.7	20.8	15.2	19.0
100	1.1	1.3	5.5	6.9	4.9	6.2
150	0.5	0.6	2.5	3.2	2.3	2.8
200	0.3	0.4	1.5	1.8	1.3	1.6
300	0.1	0.2	0.7	0.9	0.6	0.8

Figure Diagram Number: 12 (Proposed) & 67 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 126 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): 09

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	10.6	13.2	37.7	47.1	36.0	45.0
50	3.8	4.8	21.7	27.1	20.8	26.0
100	5.4	6.7	11.8	14.7	12.4	15.5
150	0.9	1.1	3.7	4.6	3.6	4.5
200	0.3	0.4	2.2	2.7	2.1	2.6
300	0.1	0.2	1.0	1.3	1.0	1.2

Figure Diagram Number: 140 (Proposed) & 165 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 127 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O10a-A

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	20.2	25.2	31.5	39.4	29.2	36.5
50	6.4	8.0	16.7	20.8	15.2	19.0
100	1.7	2.1	5.5	6.9	4.9	6.2
150	0.8	1.0	2.5	3.2	2.3	2.8
200	0.4	0.5	1.5	1.8	1.3	1.6
300	0.2	0.3	0.7	0.9	0.6	0.8

Figure Diagram Number: 12 (Proposed) & 52 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 128 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O10a-B, O10b-A

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	7.7	9.6	31.2	39.1	28.9	36.1
50	3.1	3.9	16.7	20.9	15.3	19.1
100	1.1	1.3	5.5	6.9	4.9	6.2
150	0.6	0.7	2.5	3.2	2.3	2.8
200	0.4	0.5	1.5	1.8	1.3	1.6
300	0.2	0.3	0.7	0.9	0.6	0.8

Figure Diagram Number: 141 (Proposed) & 166 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 129 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O10b-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	11.1	13.9	31.5	39.4	29.2	36.5
50	4.2	5.2	16.7	20.8	15.2	19.0
100	1.2	1.5	5.5	6.9	4.9	6.2
150	0.6	0.7	2.5	3.2	2.3	2.8
200	0.3	0.4	1.5	1.8	1.3	1.6
300	0.2	0.2	0.7	0.9	0.6	0.8

Figure Diagram Number: 12 (Proposed) & 80 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 130 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O11a, O11b-A, O11b-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	2.3	2.8	35.1	44.1	33.1	41.5
50	0.8	1.0	19.9	25.0	18.8	23.6
100	0.2	0.3	7.0	8.9	6.6	8.3
150	0.1	0.1	3.4	4.3	3.2	4.0
200	0.1	0.1	2.0	2.5	1.9	2.4
300	0.0	0.0	1.0	1.2	0.9	1.1

Figure Diagram Number: 13 (Proposed) & 69 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 131 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O11b-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.2	1.6	35.1	44.1	33.1	41.5
50	0.5	0.6	19.9	25.0	18.7	23.5
100	0.2	0.2	7.0	8.8	6.6	8.3
150	0.1	0.1	3.4	4.3	3.2	4.0
200	0.1	0.1	2.0	2.5	1.9	2.4
300	0.0	0.1	1.0	1.2	0.9	1.1

Figure Diagram Number: 142 (Proposed) & 70 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 132 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O12

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	2.6	3.2	31.5	39.5	29.0	36.4
50	1.0	1.3	21.2	26.6	20.3	25.5
100	0.4	0.4	7.3	9.2	7.0	8.8
150	0.2	0.2	3.5	4.4	3.3	4.2
200	0.1	0.2	2.0	2.6	1.9	2.4
300	0.1	0.1	1.0	1.2	0.9	1.1

Figure Diagram Number: 143 (Proposed) & 68 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 133 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O13-A, O14-A, O14-C, O-15,
O16-A, O18

Facility description (structure type, configuration): Horizontal

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	54.0	67.6	50.7	63.4
50	N/A	N/A	27.3	34.1	25.6	32.0
100	N/A	N/A	7.4	9.2	6.9	8.7
150	N/A	N/A	3.3	4.2	3.1	3.9
200	N/A	N/A	1.9	2.4	1.8	2.2
300	N/A	N/A	0.9	1.1	0.8	1.0

Figure Diagram Number: 7

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 134 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O13-B

Facility description (structure type, configuration): Horizontal

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.6	2.0	54.7	68.3	51.4	64.3
50	1.0	1.2	27.3	34.1	25.6	32.0
100	0.4	0.5	7.2	9.0	6.8	8.5
150	0.2	0.3	3.2	4.0	3.0	3.7
200	0.2	0.2	1.8	2.2	1.7	2.1
300	0.1	0.1	0.8	1.0	0.7	0.9

Figure Diagram Number: 235 (Proposed) & 71 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 135 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O14-B

Facility description (structure type, configuration): Horizontal

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.4	0.5	54.2	67.8	50.9	63.6
50	0.8	1.0	27.3	34.1	25.6	32.0
100	0.5	0.6	7.4	9.2	7.0	8.8
150	0.2	0.3	3.3	4.1	3.1	3.8
200	0.1	0.2	1.9	2.3	1.7	2.2
300	0.1	0.1	0.8	1.1	0.8	1.0

Figure Diagram Number: 236 (Proposed) & 335 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 136 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O16-B

Facility description (structure type, configuration): Horizontal

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	54.0	67.5	50.7	63.3
50	0.3	0.4	27.4	34.2	25.7	32.2
100	0.2	0.2	7.1	8.9	6.6	8.3
150	0.0	0.0	3.2	4.0	3.0	3.8
200	0.0	0.0	1.9	2.3	1.7	2.2
300	0.0	0.0	0.9	1.1	0.8	1.0

Figure Diagram Number: 237 (Proposed) & 72 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 137 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O17

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	13.0	16.2	29.5	36.9	27.3	34.3
50	4.7	5.9	14.1	17.7	12.5	15.9
100	1.3	1.7	4.1	5.1	3.4	4.4
150	0.6	0.8	1.7	2.2	1.4	1.8
200	0.4	0.5	1.0	1.2	0.7	1.0
300	0.2	0.2	0.4	0.6	0.3	0.5

Figure Diagram Number: 14 (Proposed) & 73 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 138 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O19-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.3	33.9	42.4	31.6	39.4
50	0.2	0.2	17.8	22.3	16.8	21.0
100	0.1	0.1	5.7	7.1	5.3	6.7
150	0.0	0.1	2.7	3.3	2.5	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 238 (Proposed) & 74 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 139 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O20

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	34.7	43.4	32.6	40.7
50	N/A	N/A	17.7	22.2	16.6	20.8
100	N/A	N/A	5.6	7.0	5.3	6.6
150	N/A	N/A	2.6	3.3	2.5	3.1
200	N/A	N/A	1.5	1.9	1.4	1.8
300	N/A	N/A	0.7	0.9	0.7	0.8

Figure Diagram Number: 19

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 140 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O22-A, O22-C

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	21.7	27.2	29.2	36.6	27.3	34.4
50	6.9	8.7	13.5	17.0	12.4	16.2
100	1.9	2.3	3.7	4.7	3.3	4.6
150	0.9	1.1	1.5	2.0	1.4	1.9
200	0.5	0.6	0.8	1.1	0.7	1.1
300	0.2	0.3	0.4	0.5	0.3	0.5

Figure Diagram Number: 15 (Proposed) & 76 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 141 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O22-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	21.8	27.3	29.1	36.5	27.3	34.3
50	7.0	8.8	13.4	16.9	12.4	16.1
100	1.9	2.4	3.7	4.7	3.4	4.6
150	0.9	1.1	1.7	2.2	1.5	2.2
200	0.7	0.9	1.7	2.1	1.6	2.1
300	0.9	1.2	0.4	0.4	0.3	0.5

Figure Diagram Number: 144 (Proposed) & 167 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 142 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O23

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	17.5	21.9	36.3	45.5	34.6	43.5
50	6.1	7.6	14.3	17.9	13.4	17.1
100	1.4	1.8	3.3	4.2	3.0	4.1
150	0.6	0.7	1.2	1.5	1.1	1.5
200	0.3	0.4	0.6	0.7	0.5	0.7
300	0.1	0.2	0.2	0.3	0.2	0.3

Figure Diagram Number: 145 (Proposed) & 75 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 143 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O24

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	11.7	14.6	29.2	36.6	27.3	34.4
50	4.3	5.4	13.5	17.0	12.4	16.2
100	1.2	1.6	3.7	4.7	3.3	4.6
150	0.6	0.7	1.5	2.0	1.4	1.9
200	0.3	0.4	0.8	1.1	0.7	1.1
300	0.2	0.2	0.4	0.5	0.3	0.5

Figure Diagram Number: 15 (Proposed) & 77 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 144 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O25

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	12.3	15.4	29.7	37.2	27.8	35.1
50	4.2	5.3	13.4	16.9	12.4	16.2
100	1.3	1.7	3.7	4.7	3.3	4.6
150	0.7	0.9	1.5	2.0	1.4	1.9
200	0.5	0.6	0.8	1.1	0.7	1.1
300	0.3	0.3	0.4	0.5	0.3	0.5

Figure Diagram Number: 239 (Proposed) & 78 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 145 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): O26

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	3.2	4.1	33.4	41.7	31.3	39.1
50	1.1	1.4	17.1	21.4	16.1	20.1
100	0.4	0.4	5.2	6.5	4.8	6.1
150	0.2	0.2	2.6	3.2	2.4	3.0
200	0.1	0.2	1.6	2.0	1.5	1.9
300	0.1	0.1	0.8	1.0	0.8	1.0

Figure Diagram Number: 240 (Proposed) & 79 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 146 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): L1

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	3.9	4.8	14.8	18.6	13.9	17.4
50	1.4	1.8	10.2	12.7	9.6	11.9
100	0.4	0.5	4.3	5.4	4.0	5.0
150	0.2	0.2	2.2	2.7	2.1	2.6
200	0.1	0.1	1.4	1.8	1.3	1.7
300	0.1	0.1	0.8	1.0	0.7	0.9

Figure Diagram Number: 10 (Proposed) & 113 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 147 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): L2-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.6	0.7	33.7	42.1	31.5	39.4
50	0.7	0.8	16.9	21.2	15.8	19.7
100	0.8	1.0	4.9	6.2	4.6	5.7
150	1.1	1.4	2.5	3.2	2.4	2.9
200	1.7	2.1	1.5	1.9	1.4	1.8
300	8.6	10.7	3.0	3.8	3.8	4.8

Figure Diagram Number: 22 (Proposed) & 322 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 148 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I1

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	3.9	4.9	34.1	42.6	32.4	40.5
50	2.3	2.9	16.8	21.0	15.8	19.7
100	1.0	1.2	5.3	6.7	5.0	6.3
150	0.6	0.8	2.4	3.1	2.3	2.9
200	0.5	0.6	1.4	1.7	1.3	1.6
300	0.3	0.4	0.6	0.8	0.6	0.8

Figure Diagram Number: 241 (Proposed) & 49 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 149 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I2

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	4.4	5.5	16.7	20.9	16.1	20.1
50	2.2	2.7	8.1	10.1	7.7	9.6
100	1.0	1.3	3.9	4.9	3.6	4.5
150	0.7	0.8	2.1	2.7	1.9	2.4
200	0.5	0.6	1.3	1.6	1.2	1.5
300	0.3	0.4	0.6	0.8	0.6	0.7

Figure Diagram Number: 146 (Proposed) & 81 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 150 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I3-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	4.7	5.8	31.2	39.0	28.8	36.0
50	11.6	14.6	16.6	20.8	16.9	21.1
100	1.5	1.8	5.1	6.4	5.1	6.4
150	0.4	0.5	2.7	3.4	2.6	3.2
200	0.2	0.2	1.7	2.1	1.6	2.0
300	0.1	0.1	0.9	1.1	0.9	1.1

Figure Diagram Number: 242 (Proposed) & 323 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 151 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I4

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	24.0	30.0	40.6	50.8	49.4	61.8
50	9.0	11.2	19.4	24.3	24.9	31.1
100	2.9	3.6	5.7	7.1	7.7	9.6
150	1.5	1.9	2.4	3.0	3.4	4.2
200	1.0	1.2	1.3	1.6	1.8	2.3
300	0.5	0.7	0.5	0.6	0.8	0.9

Figure Diagram Number: 23 (Proposed) & 115 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 152 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I5-A, I5-G

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	82.9	103.6	40.6	50.8	49.4	61.8
50	28.0	35.0	19.4	24.3	24.9	31.1
100	7.2	9.0	5.7	7.1	7.7	9.6
150	3.3	4.1	2.4	3.0	3.4	4.2
200	1.9	2.3	1.3	1.6	1.8	2.3
300	0.9	1.1	0.5	0.6	0.8	0.9

Figure Diagram Number: 23 (Proposed) & 82 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 153 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I5-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	23.2	29.0	40.6	50.8	49.4	61.8
50	8.8	11.1	19.4	24.3	24.9	31.1
100	2.6	3.3	5.7	7.1	7.7	9.6
150	1.3	1.6	2.4	3.0	3.4	4.2
200	0.8	1.0	1.3	1.6	1.8	2.3
300	0.5	0.6	0.5	0.6	0.8	0.9

Figure Diagram Number: 23 (Proposed) & 116 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 154 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I5-C

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	80.1	100.1	40.6	50.8	49.4	61.8
50	28.0	35.0	19.3	24.1	24.8	31.0
100	7.5	9.3	5.6	6.9	7.6	9.5
150	3.5	4.3	2.3	2.9	3.3	4.2
200	2.1	2.6	1.2	1.5	1.8	2.2
300	1.0	1.3	0.5	0.6	0.7	0.9

Figure Diagram Number: 147 (Proposed) & 83 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 155 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I5-D

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	68.3	85.3	40.6	50.8	49.4	61.8
50	26.9	33.7	19.3	24.1	24.8	31.0
100	7.7	9.6	5.6	6.9	7.6	9.5
150	3.7	4.6	2.3	2.9	3.3	4.2
200	2.2	2.8	1.2	1.5	1.8	2.2
300	1.1	1.4	0.5	0.6	0.7	0.9

Figure Diagram Number: 147 (Proposed) & 117 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 156 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I5-E, I5-H

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	82.9	103.6	40.6	50.8	49.4	61.8
50	28.0	35.0	19.4	24.3	24.9	31.1
100	7.2	9.0	5.7	7.1	7.7	9.6
150	3.3	4.1	2.4	3.0	3.4	4.2
200	1.9	2.3	1.3	1.6	1.8	2.3
300	0.9	1.1	0.5	0.6	0.8	0.9

Figure Diagram Number: 23 (Proposed) & 118 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 157 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I5-F

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	82.9	103.6	40.6	50.8	49.4	61.8
50	28.0	35.0	19.4	24.3	24.9	31.1
100	7.2	9.0	5.7	7.1	7.7	9.6
150	3.3	4.1	2.4	3.0	3.4	4.2
200	1.9	2.3	1.3	1.6	1.8	2.3
300	0.9	1.1	0.5	0.6	0.8	0.9

Figure Diagram Number: 23 (Proposed) & 114 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 158 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I6

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	34.7	43.4	32.6	40.7
50	0.0	0.0	17.7	22.2	16.6	20.8
100	0.0	0.0	5.6	7.0	5.3	6.6
150	0.4	0.5	2.6	3.3	2.4	3.1
200	0.0	0.0	1.5	1.9	1.4	1.8
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 243 (Proposed) & 324 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 159 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I8-A, I8-E

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	85.8	107.3	42.3	52.9	51.4	64.2
50	29.0	36.2	20.4	25.6	26.1	32.6
100	7.5	9.3	6.0	7.5	8.1	10.1
150	3.4	4.2	2.6	3.2	3.6	4.5
200	1.9	2.4	1.3	1.7	1.9	2.4
300	0.9	1.1	0.5	0.7	0.8	1.0

Figure Diagram Number: 112 (Proposed) & 119 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 160 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I8-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	85.8	107.3	42.3	52.9	51.4	64.2
50	29.0	36.2	20.4	25.6	26.1	32.6
100	7.5	9.3	6.0	7.5	8.1	10.1
150	3.4	4.2	2.6	3.2	3.6	4.5
200	1.9	2.4	1.3	1.7	1.9	2.4
300	0.9	1.1	0.5	0.7	0.8	1.0

Figure Diagram Number: 112 (Proposed) & 120 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 161 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I8-C

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	85.6	106.9	42.1	52.6	51.1	63.9
50	28.9	36.1	20.1	25.2	25.7	32.1
100	7.5	9.4	5.8	7.3	7.9	9.9
150	3.4	4.3	2.5	3.2	3.5	4.4
200	2.3	2.9	1.8	2.2	2.4	3.0
300	2.3	2.9	2.6	3.2	3.3	4.2

Figure Diagram Number: 149 (Proposed) & 168 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 162 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I8-D

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	85.8	107.3	42.3	52.9	51.4	64.2
50	29.0	36.2	20.4	25.6	26.1	32.6
100	7.5	9.3	6.0	7.5	8.1	10.1
150	3.4	4.2	2.6	3.2	3.6	4.5
200	1.9	2.4	1.3	1.7	1.9	2.4
300	0.9	1.1	0.5	0.7	0.8	1.0

Figure Diagram Number: 112 (Proposed) & 121 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 163 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I9

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	10.9	13.7	33.6	42.0	31.4	39.2
50	22.8	28.5	17.3	21.6	16.2	20.3
100	58.5	73.1	33.4	41.8	46.7	58.3
150	5.0	6.3	4.8	6.0	4.7	5.8
200	100.8	126.0	15.1	18.9	17.4	21.8
300	11.1	13.9	65.7	82.1	77.8	97.2

Figure Diagram Number: 32 (Proposed) & 84 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 164 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I10

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	94.0	117.5	47.8	59.8	63.8	79.7
50	31.5	39.3	25.2	31.5	34.7	43.3
100	7.7	9.6	7.2	9.0	10.7	13.4
150	3.4	4.2	3.1	3.9	4.8	6.0
200	2.1	2.6	1.7	2.1	2.6	3.3
300	1.0	1.2	0.7	0.9	1.1	1.4

Figure Diagram Number: 24 (Proposed) & 85 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 165 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I11-A

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	99.4	124.2	47.8	59.7	63.8	79.7
50	31.5	39.4	24.1	30.1	33.7	42.1
100	8.1	10.1	7.6	9.5	11.1	13.8
150	3.6	4.5	5.6	7.1	6.3	7.8
200	2.0	2.6	1.9	2.3	2.8	3.5
300	0.9	1.2	0.8	1.0	1.2	1.5

Figure Diagram Number: 150 (Proposed) & 106 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 166 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I11-B

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	8.5	10.7	47.8	59.7	63.8	79.7
50	15.9	19.9	24.1	30.1	33.7	42.1
100	112.1	140.2	7.6	9.5	11.1	13.8
150	64.7	80.9	5.6	7.1	6.3	7.8
200	13.0	16.2	1.9	2.3	2.8	3.5
300	2.7	3.3	0.8	1.0	1.2	1.5

Figure Diagram Number: 150 (Proposed) & 169 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 167 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I11-C

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	14.9	18.7	48.4	60.5	64.4	80.5
50	31.6	39.5	23.6	29.5	33.1	41.4
100	141.3	176.6	7.2	9.0	10.7	13.3
150	31.9	39.9	3.1	3.9	4.8	6.0
200	8.4	10.5	1.7	2.1	2.6	3.3
300	2.3	2.8	0.7	0.9	1.1	1.4

Figure Diagram Number: 152 (Proposed) & 107 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 168 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I12-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	33.6	42.1	31.6	39.5
50	0.1	0.1	17.2	21.4	16.1	20.1
100	0.2	0.2	5.2	6.6	4.9	6.1
150	0.1	0.1	2.4	3.0	2.2	2.8
200	0.0	0.1	1.4	1.7	1.3	1.6
300	0.0	0.0	0.7	0.9	0.7	0.8

Figure Diagram Number: 244 (Proposed) & 108 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 169 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I13-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.4	33.6	42.0	31.5	39.4
50	0.8	1.0	17.1	21.4	16.0	20.0
100	2.2	2.8	5.2	6.5	4.9	6.1
150	0.3	0.4	2.4	2.9	2.2	2.8
200	0.1	0.1	1.3	1.7	1.2	1.6
300	0.0	0.1	0.6	0.8	0.6	0.7

Figure Diagram Number: 245 (Proposed) & 325 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 170 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): I13-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.4	33.6	42.0	31.6	39.4
50	0.8	1.1	17.1	21.4	16.1	20.1
100	2.2	2.7	5.2	6.5	4.9	6.1
150	0.3	0.4	2.4	3.0	2.2	2.8
200	0.1	0.1	1.4	1.7	1.3	1.6
300	0.0	0.0	0.7	0.9	0.6	0.8

Figure Diagram Number: 246 (Proposed) & 86 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 171 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): F1-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.0	0.0	33.8	42.2	31.7	39.6
50	0.0	0.0	17.1	21.4	16.1	20.1
100	0.0	0.0	5.2	6.5	4.8	6.1
150	0.0	0.0	2.6	3.2	2.4	3.0
200	0.0	0.1	1.6	2.0	1.5	1.9
300	0.0	0.0	0.8	1.0	0.8	0.9

Figure Diagram Number: 247 (Proposed) & 326 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 172 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): F2

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.4	0.5	32.0	40.0	29.9	37.3
50	0.2	0.3	17.5	21.9	16.5	20.6
100	0.1	0.1	5.3	6.6	5.0	6.2
150	0.1	0.1	2.6	3.2	2.4	3.0
200	0.1	0.1	1.6	2.0	1.5	1.9
300	0.0	0.1	0.8	1.0	0.8	1.0

Figure Diagram Number: 248 (Proposed) & 87 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 173 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): F3-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.7	0.8	33.8	42.2	31.7	39.6
50	0.2	0.2	17.2	21.4	16.1	20.1
100	0.1	0.1	5.2	6.5	4.9	6.1
150	0.0	0.1	2.6	3.2	2.4	3.0
200	0.0	0.0	1.6	2.0	1.5	1.9
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 249 (Proposed) & 327 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 174 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): F3-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.3	0.3	32.2	40.3	30.0	37.5
50	0.2	0.2	17.3	21.6	16.3	20.3
100	0.1	0.1	5.3	6.6	5.0	6.2
150	0.1	0.1	2.6	3.2	2.4	3.0
200	0.0	0.1	1.6	2.0	1.5	1.8
300	0.0	0.0	0.8	1.0	0.8	0.9

Figure Diagram Number: 250 (Proposed) & 88 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 175 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): F4-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	33.0	41.2	30.8	38.5
50	0.1	0.1	17.2	21.5	16.2	20.2
100	0.0	0.0	5.2	6.5	4.9	6.1
150	0.0	0.0	2.6	3.2	2.4	3.0
200	0.0	0.0	1.6	2.0	1.5	1.9
300	0.0	0.0	0.8	1.0	0.8	1.0

Figure Diagram Number: 251 (Proposed) & 89 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 176 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): North Madison SS

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	225.0	281.3	211.1	263.9
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	17.8	21.8	16.6	20.8
50	N/A	N/A	10.4	12.7	9.7	12.1
100	N/A	N/A	9.0	11.2	8.5	10.6
150	N/A	N/A	27.1	33.9	25.4	31.8
200	N/A	N/A	19.7	24.7	18.5	23.1
300	N/A	N/A	2.7	3.4	2.6	3.2

Figure Diagram Number: 350

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 177 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C1

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	1.4	1.7	24.4	30.5	22.8	28.5
50	0.5	0.6	12.5	15.6	11.7	14.6
100	0.1	0.2	4.0	4.9	3.7	4.6
150	0.1	0.1	1.9	2.3	1.7	2.2
200	0.0	0.1	1.1	1.3	1.0	1.2
300	0.0	0.0	0.5	0.6	0.5	0.6

Figure Diagram Number: 253 (Proposed) & 95 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 178 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C3

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	17.9	22.3	41.4	51.7	41.3	51.6
50	7.3	9.2	18.2	22.7	18.0	22.4
100	2.5	3.1	6.1	7.7	6.0	7.5
150	1.3	1.6	3.0	3.7	2.9	3.6
200	0.9	1.1	1.7	2.2	1.7	2.1
300	0.5	0.6	0.8	1.0	0.8	1.0

Figure Diagram Number: 16 (Proposed) & 96 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 179 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C4-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.2	0.3	25.7	32.1	24.2	30.2
50	0.1	0.2	12.3	15.3	11.4	14.3
100	0.1	0.1	3.9	4.9	3.6	4.5
150	0.0	0.1	1.8	2.3	1.7	2.1
200	0.0	0.0	1.0	1.3	1.0	1.2
300	0.0	0.0	0.5	0.6	0.4	0.6

Figure Diagram Number: 254 (Proposed) & 97 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 180 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C4-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	24.4	30.5	22.8	28.5
50	0.1	0.1	12.3	15.4	11.5	14.4
100	0.0	0.0	3.9	4.9	3.6	4.5
150	0.0	0.0	1.8	2.3	1.7	2.1
200	0.0	0.0	1.1	1.3	1.0	1.2
300	0.0	0.0	0.5	0.6	0.5	0.6

Figure Diagram Number: 255 (Proposed) & 98 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 181 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C5-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	24.5	30.6	22.9	28.6
50	0.0	0.0	12.5	15.6	11.7	14.6
100	0.0	0.0	4.0	4.9	3.7	4.6
150	0.0	0.0	1.9	2.3	1.7	2.2
200	0.0	0.0	1.1	1.3	1.0	1.3
300	0.0	0.0	0.5	0.6	0.5	0.6

Figure Diagram Number: 256 (Proposed) & 328 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 182 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C5-C

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.2	0.2	24.7	30.9	23.1	28.9
50	0.1	0.2	12.5	15.7	11.7	14.6
100	0.1	0.1	3.9	4.9	3.7	4.6
150	0.0	0.0	1.8	2.3	1.7	2.2
200	0.0	0.0	1.1	1.3	1.0	1.2
300	0.0	0.0	0.5	0.6	0.5	0.6

Figure Diagram Number: 257 (Proposed) & 329 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 183 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C5-E

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.2	0.2	23.7	29.6	22.0	27.5
50	0.1	0.1	12.6	15.8	11.8	14.7
100	0.0	0.1	4.0	5.0	3.8	4.7
150	0.0	0.0	1.9	2.4	1.8	2.2
200	0.0	0.0	1.1	1.4	1.0	1.3
300	0.0	0.0	0.5	0.6	0.5	0.6

Figure Diagram Number: 258 (Proposed) & 99 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 184 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C6

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	18.8	23.5	21.1	26.4	20.3	25.4
50	6.1	7.7	10.1	12.6	10.2	12.8
100	1.7	2.1	2.9	3.6	3.1	3.9
150	0.8	1.0	1.2	1.5	1.4	1.7
200	0.5	0.6	0.7	0.8	0.8	1.0
300	0.2	0.3	0.3	0.4	0.4	0.4

Figure Diagram Number: 17 (Proposed) & 100 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 185 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C8

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.8	1.0	26.3	32.9	24.7	30.9
50	0.5	0.6	12.1	15.2	11.3	14.2
100	0.2	0.3	3.8	4.8	3.6	4.5
150	0.1	0.2	1.8	2.3	1.7	2.1
200	0.1	0.1	1.0	1.3	1.0	1.2
300	0.1	0.1	0.5	0.6	0.4	0.6

Figure Diagram Number: 259 (Proposed) & 101 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 186 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): C9, B1, B3a-A, B3a-C, B3b-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	N/A	N/A	24.5	30.6	22.9	28.6
50	N/A	N/A	12.5	15.6	11.7	14.6
100	N/A	N/A	4.0	4.9	3.7	4.6
150	N/A	N/A	1.9	2.3	1.7	2.2
200	N/A	N/A	1.1	1.3	1.0	1.3
300	N/A	N/A	0.5	0.6	0.5	0.6

Figure Diagram Number: 334

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 187 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): B2

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.7	0.8	24.5	30.6	23.0	28.7
50	0.2	0.2	12.5	15.6	11.7	14.6
100	0.0	0.0	4.0	4.9	3.7	4.6
150	0.0	0.0	1.9	2.3	1.7	2.2
200	0.0	0.0	1.1	1.3	1.0	1.2
300	0.0	0.0	0.5	0.6	0.5	0.6

Figure Diagram Number: 260 (Proposed) & 102 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 188 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): B3a-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.1	0.1	24.5	30.6	22.9	28.6
50	0.1	0.1	12.5	15.6	11.7	14.6
100	0.2	0.2	4.0	5.0	3.7	4.6
150	0.3	0.4	1.9	2.3	1.7	2.2
200	2.5	3.1	2.9	3.7	2.9	3.6
300	0.2	0.2	0.5	0.6	0.5	0.6

Figure Diagram Number: 261 (Proposed) & 330 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

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Table 189 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): B3b-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	10.0	12.5	24.4	30.5	23.1	28.8
50	2.4	3.1	12.4	15.6	11.7	14.6
100	0.8	1.0	4.2	5.2	3.9	4.9
150	0.5	0.6	2.0	2.5	1.9	2.4
200	0.4	0.5	1.2	1.5	1.2	1.4
300	0.2	0.3	0.6	0.7	0.6	0.7

Figure Diagram Number: 34 (Proposed) & 331 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 190 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): B4

Facility description (structure type, configuration): Vertical

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	8.9	11.7	19.6	24.5	19.5	24.3
50	3.4	4.4	8.8	11.0	8.6	10.7
100	1.0	1.3	2.4	3.0	2.3	2.8
150	0.5	0.6	1.0	1.2	0.9	1.1
200	0.3	0.4	0.5	0.6	0.5	0.6
300	0.1	0.2	0.2	0.2	0.2	0.3

Figure Diagram Number: 18 (Proposed) & 103 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 191 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): B5-A

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	5.6	7.0	24.7	30.9	23.1	28.9
50	1.4	1.8	12.5	15.6	11.6	14.5
100	0.2	0.2	3.9	4.9	3.7	4.6
150	0.1	0.1	1.9	2.3	1.7	2.2
200	0.1	0.1	1.1	1.3	1.0	1.2
300	0.0	0.0	0.5	0.6	0.5	0.6

Figure Diagram Number: 262 (Proposed) & 104 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

DOCKET NO. 05-CE-142

Table 192 - Estimated Magnetic Field Data

Transmission Route: Southern

Segment(s): B5-B

Facility description (structure type, configuration): Delta

	Existing 2013		First Year of Operation 2018		Year Ten of Operation 2028	
	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load	80% of Peak Load	100% of Peak Load
Current (A)	See Figure	See Figure	158.6	198.3	148.2	185.3
Distance from Centerline (ft)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)	Magnetic Field Estimate (mG)
25	0.7	0.9	24.4	30.6	22.9	28.6
50	0.9	1.1	12.4	15.5	11.6	14.5
100	1.3	1.6	3.7	4.7	3.5	4.4
150	2.6	3.2	1.9	2.4	1.9	2.3
200	9.7	12.2	7.9	9.9	8.3	10.3
300	20.3	25.4	15.3	19.1	19.3	24.1

Figure Diagram Number: 33 (Proposed) & 105 (Existing)

Height of lowest conductor at midspan: 27 feet above ground

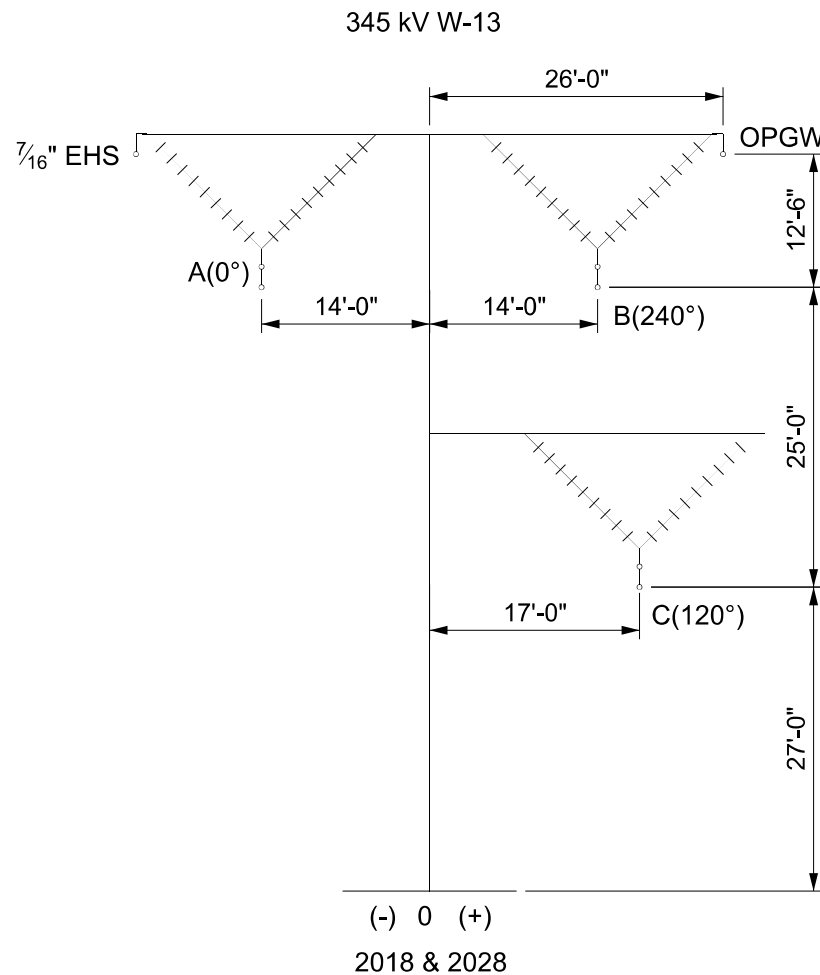
1. Normal and peak load is defined as 100% of estimated peak, system normal configuration and "Normal Load" is defined as the 80% of the estimated peak.
2. The Magnetic Field Values are the resultant RMS magnetic field at the specified distance from the centerline of the structure's configuration and are calculated using EPRI's EMF Workstation 2.51 "ENVIRO" program at the distance of one meter above the ground.

Appendix I – EMF Figures

Appendix G Exhibit 1

Segments: N7-B, N9-C, N9-E,
N9-G, N7-E, N11-C, N12 - N15,
P2-B, P4, P8-A, P14-C

345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak
	I=281.3
2028	Normal
	I=225.0
2028	Normal Peak
	I=263.9
2028	Normal
	I=211.1



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE IS EAST OR SOUTH

FIGURE 1

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SCALE		
NTS		

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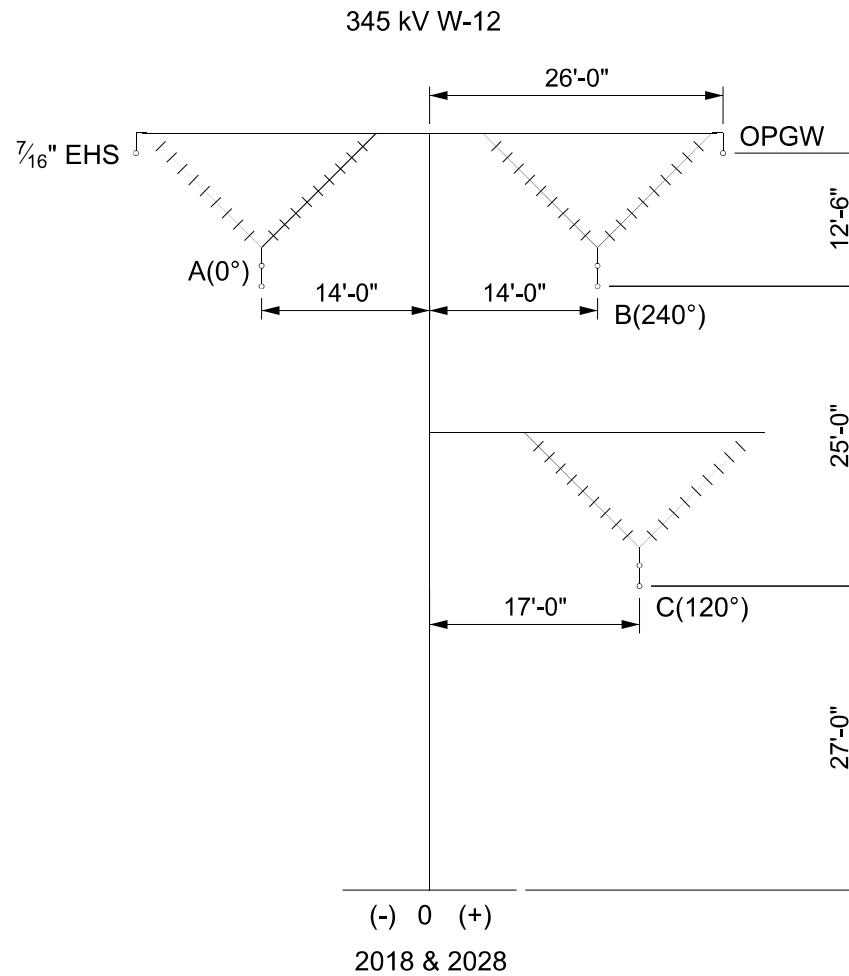
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Segments: A8, C2, C4-C, C5-A, C7, C5-C, C5-F, B49

345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is South	
2018	Normal Peak I=198.3
	Normal I=158.6
2028	Normal Peak I=185.3
	Normal I=148.2



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
3. Phasing for all transmission circuits is assumed.
4. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING SOUTH TOWARD CARDINAL SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE IS SOUTH

FIGURE 2

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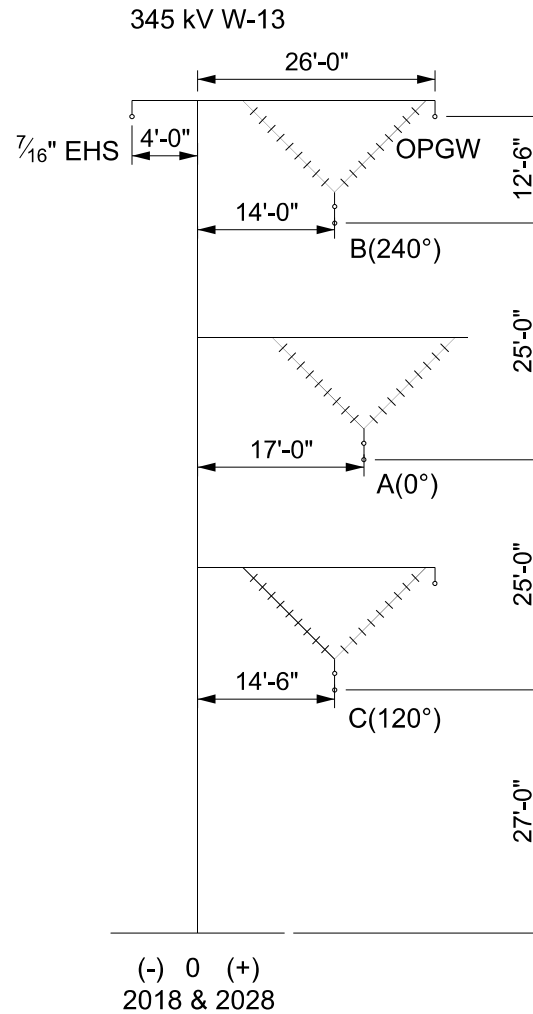
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Appendix G Exhibit 1

Segments: N6-A, N6-C, N6-E, N6-G,
N6-I, N6-K, N6-M, N10, N9-A

345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak
	I=281.3
	Normal
2028	I=225.0
	Normal Peak
	I=263.9
	Normal
	I=211.1



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE IS EAST OR SOUTH

FIGURE 3

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SCALE		
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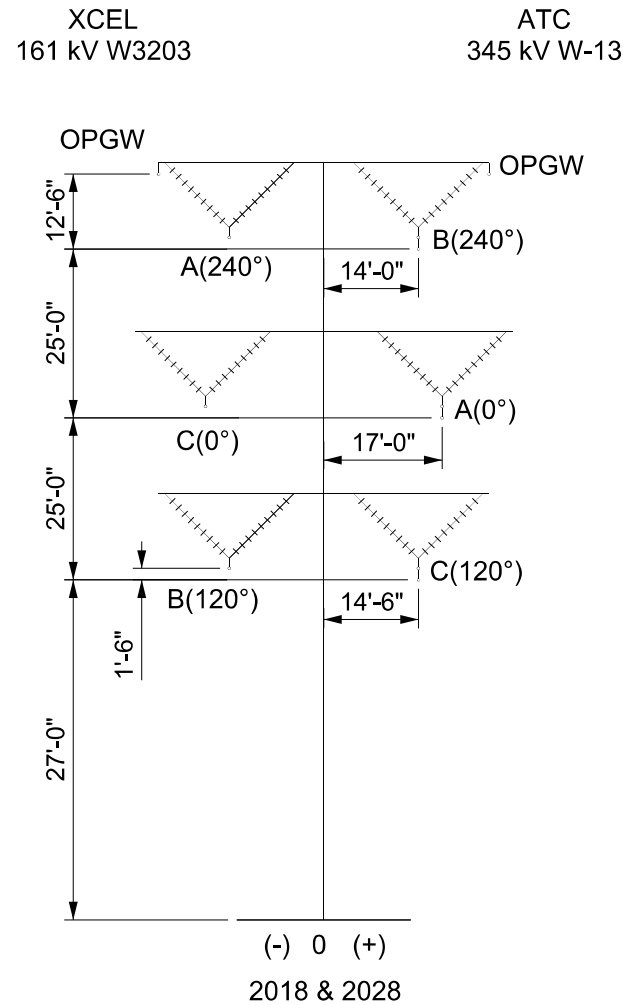
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Appendix G Exhibit 1

Segments: N1, N2, N3-A

W-13 345 kV Transmission 2-477 T2 Hawk (26/7) ACSR	
Flow is North	
2018	Normal Peak I=281.3
	Normal I=225.0
2028	Normal Peak I=263.9
	Normal I=211.1

W3203 161 kV Transmission 477 T2 Hawk (26/7) ACSR	
Flow is South	
2018	Normal Peak I=309.1
	Normal I=247.3
2028	Normal Peak I=338.2
	Normal I=270.5



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC Criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING NORTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR W-13 LINE IS NORTH
TRANSMISSION CURRENT FLOW FOR LINE W3203 IS SOUTH

FIGURE 4

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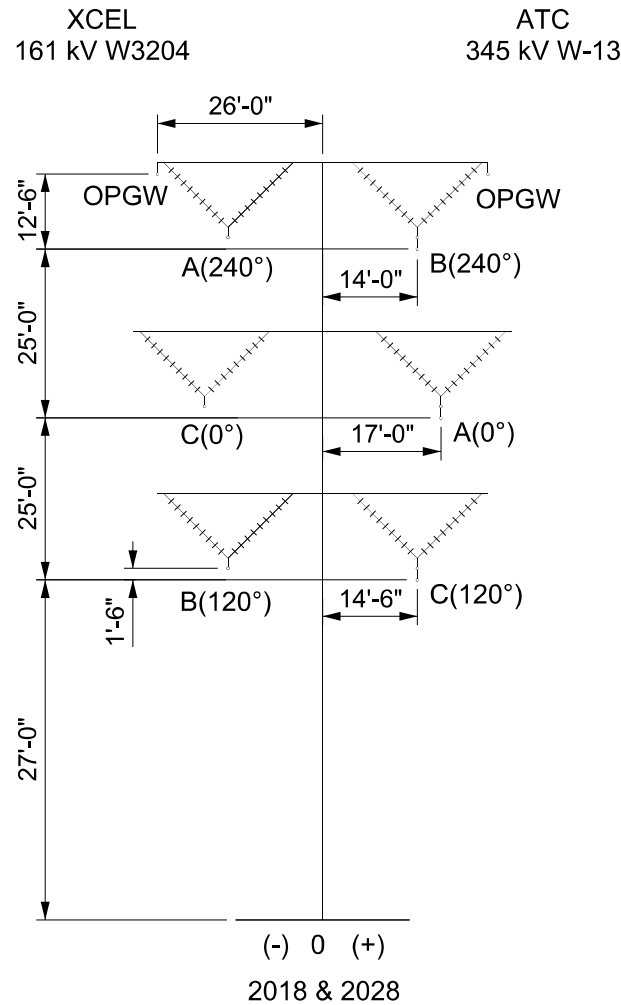
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Appendix G Exhibit 1

Segments: N3-B, N5-A

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
2028	Normal Peak I=263.9
	Normal I=211.1

W3204 161 kV Transmission	
477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=145.2
	Normal I=116.2
2028	Normal Peak I=187.6
	Normal I=150.0



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR W-13 LINE IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE W3204 IS EAST OR SOUTH

FIGURE 5

0	FINAL	09-27-13
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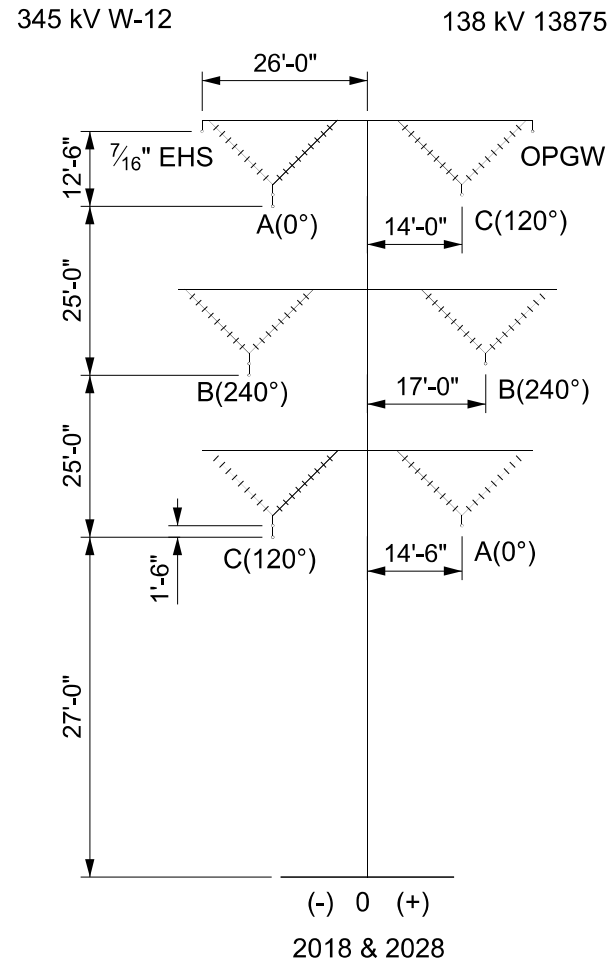
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Appendix G Exhibit 1

Segments: D1-B, D1-C, D2, A1, A3, A4

W-12 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is South	
2018	Normal Peak I=198.3
	Normal I=158.6
2028	Normal Peak I=185.3
	Normal I=148.2

13875 138 kV Transmission	
477 T2 Hawk (26/7) ACSR	
Flow is South	
2018	Normal Peak I=219.1
	Normal I=175.3
2028	Normal Peak I=234.4
	Normal I=187.5



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING SOUTH TOWARD CARDINAL SUBSTATION
TRANSMISSION CURRENT FLOW FOR W-12 LINE IS SOUTH
TRANSMISSION CURRENT FLOW FOR LINE 13875 IS SOUTH

FIGURE 6

0	FINAL	09-27-13
SCALE		
NTS		

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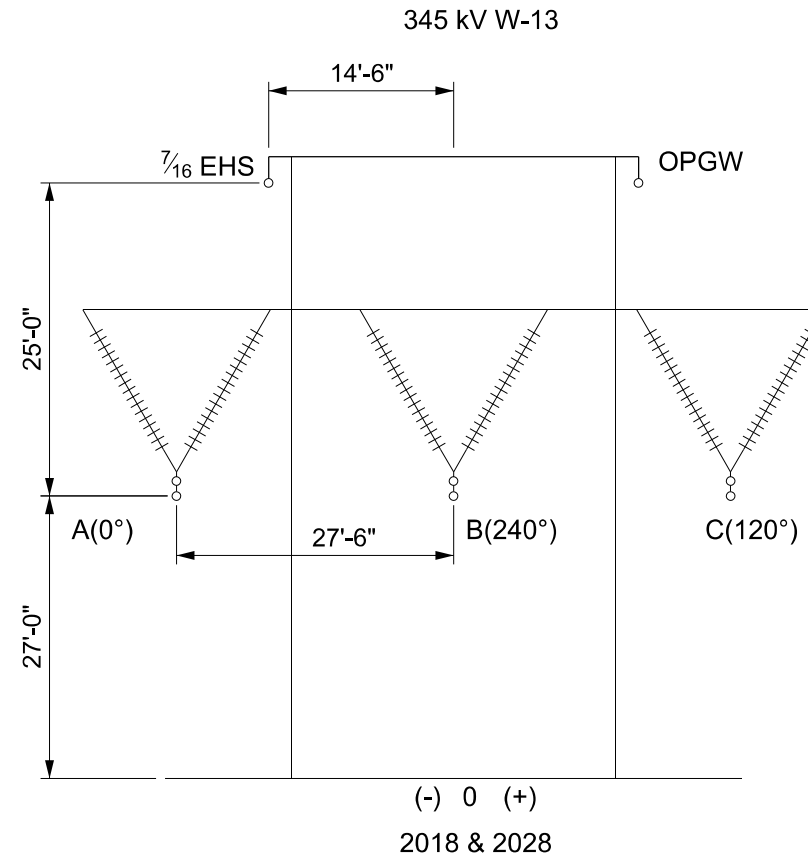
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**Segments: O13-A, O14-A, O14-C,
O15, O16-A, O18**

345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3 Normal I=225.0
2028	Normal Peak I=263.9 Normal I=211.1



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH

FIGURE 7

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SCALE		
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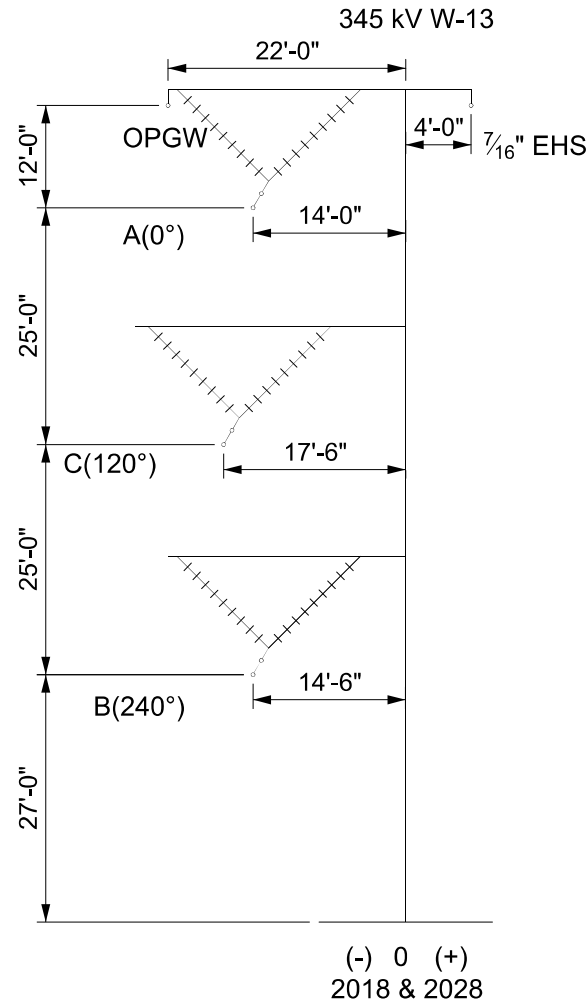
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Appendix G Exhibit 1

Segments: H2-A, H6

345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak
	I=281.3
	Normal
2028	Normal Peak
	I=263.9
	Normal
	I=211.1



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH

FIGURE 8

0	FINAL	09-27-13
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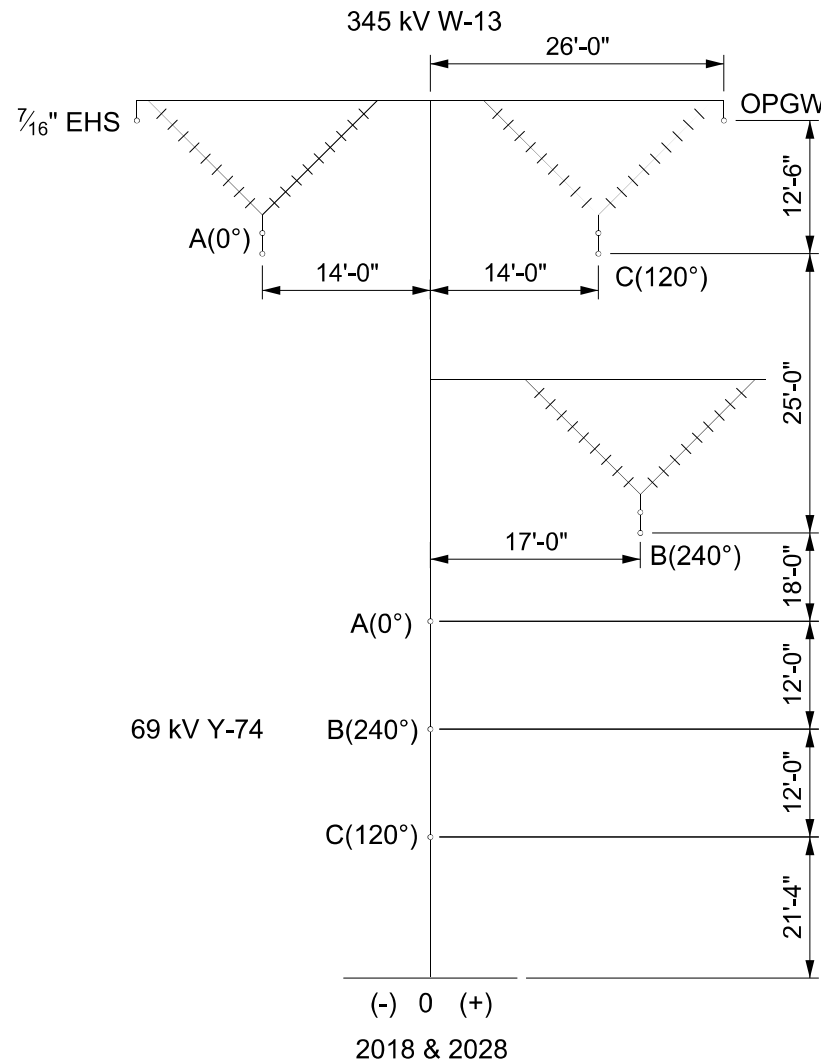
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Appendix G Exhibit 1

Segment: N20

W-12 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
2028	Normal Peak I=263.9
	Normal I=211.1

Y-74 69 kV Transmission	
336 T2 Linnet (26/7) ACSR	
Flow is East	
2018	Normal Peak I=93.6
	Normal I=74.9
2028	Normal Peak I=65.5
	Normal I=52.4



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING SOUTH OR EAST TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE Y-74 IS EAST

FIGURE 9

0	FINAL	09-27-13
SCALE		
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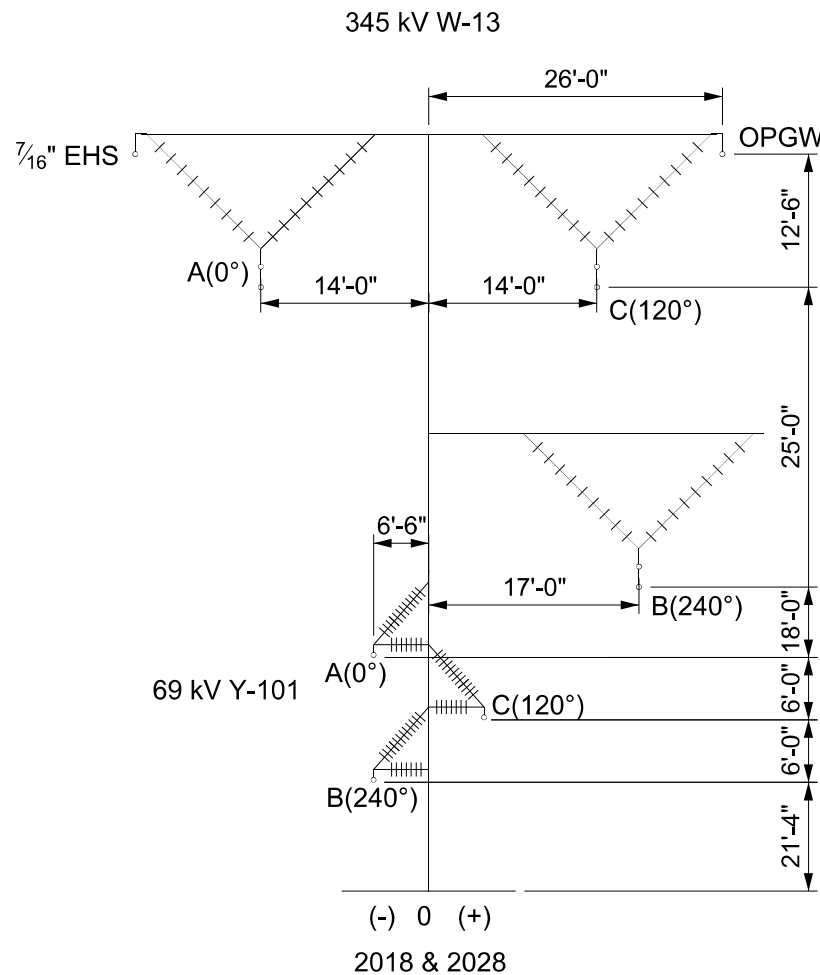
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Appendix G Exhibit 1

Segments: N23, M1-A, L1

W-12 345 kV Transmission 2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
	Normal Peak I=263.9
2028	Normal I=211.1

Y-101 69 kV Transmission 336 T2 Linnet (26/7) ACSR	
Flow is North	
2018	Normal Peak I=44.4
	Normal I=35.5
	Normal Peak I=40.7
2028	Normal I=32.5



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE Y-101 IS NORTH

FIGURE 10

0	FINAL	09-27-13
SCALE		
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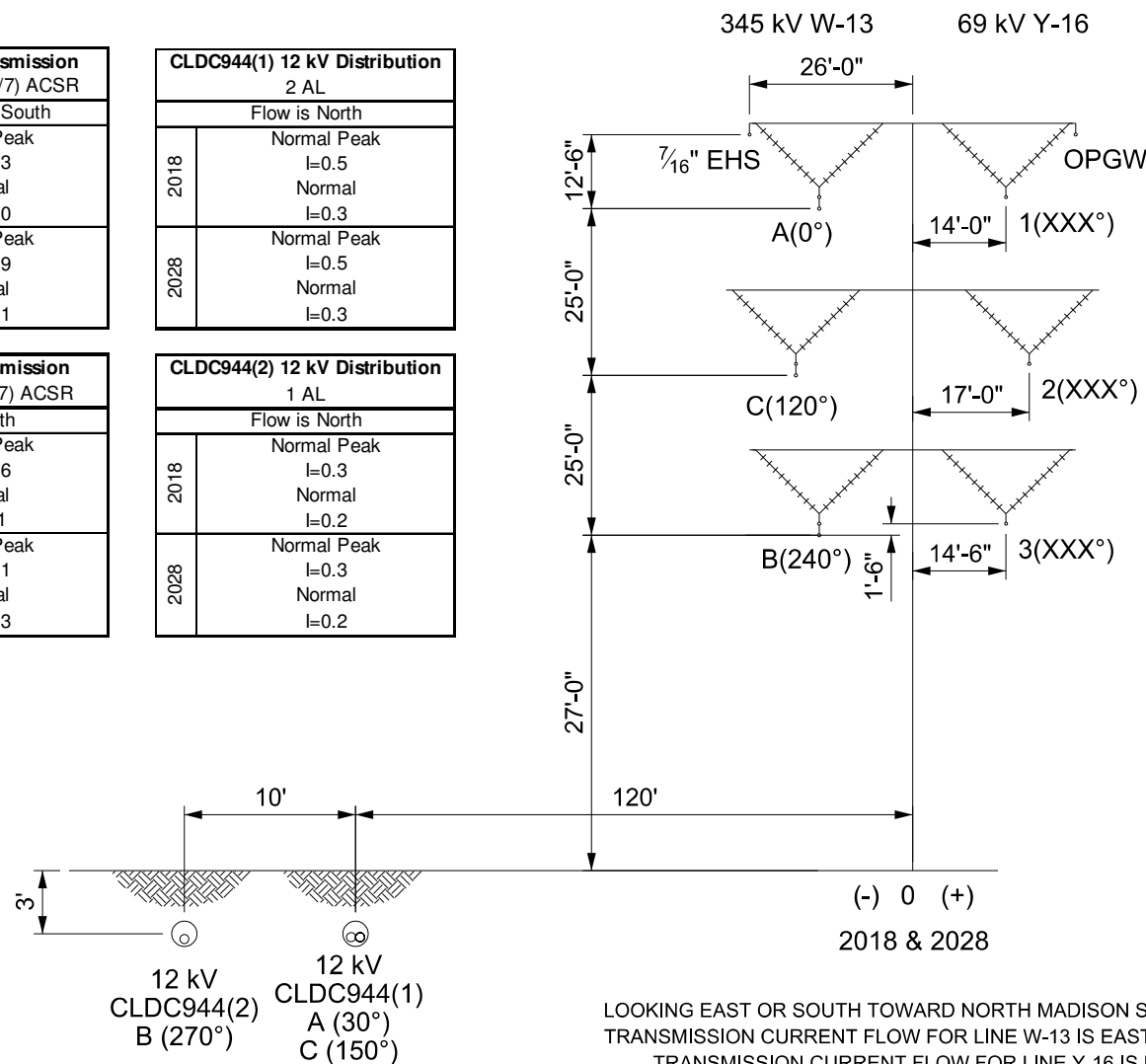
Segment: H8-A

W-13 345 kV Transmission 2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
	Normal Peak I=263.9
2028	Normal I=211.1

CLDC944(1) 12 kV Distribution 2 AL	
Flow is North	
2018	Normal Peak I=0.5
	Normal I=0.3
	Normal Peak I=0.5
2028	Normal I=0.3

Y-16 69 kV Transmission 336 T2 Linnet (26/7) ACSR	
Flow is North	
2018	Normal Peak I=122.6
	Normal I=98.1
	Normal Peak I=164.1
2028	Normal I=131.3

CLDC944(2) 12 kV Distribution 1 AL	
Flow is North	
2018	Normal Peak I=0.3
	Normal I=0.2
	Normal Peak I=0.3
2028	Normal I=0.2



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.
4. Optimize Y-16 phasing.

FIGURE 11

0 FINAL 09-27-13

SCALE

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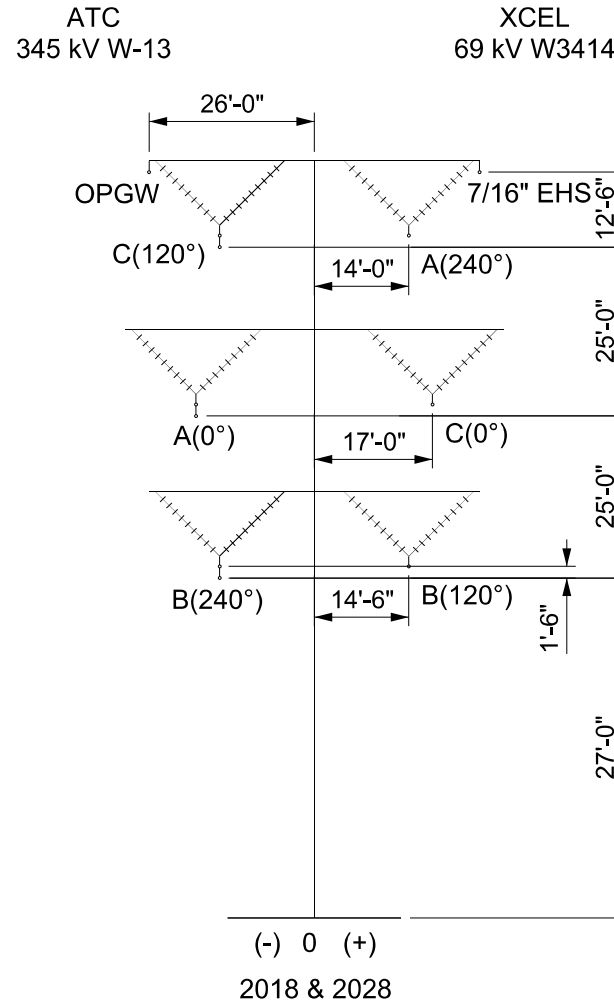
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Appendix G Exhibit 1

Segments: O8, O10a-A, O10b-B

W-13 345 kV Transmission	
477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
2028	Normal Peak I=263.9
	Normal I=211.1

W3414 69 kV Transmission	
477 T2 Hawk (26/7) ACSR	
Flow is South	
2018	Normal Peak I=100.4
	Normal I=80.3
2028	Normal Peak I=110.5
	Normal I=88.4



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE W3414 IS SOUTH

FIGURE 12

0	FINAL	09-27-13
SCALE		
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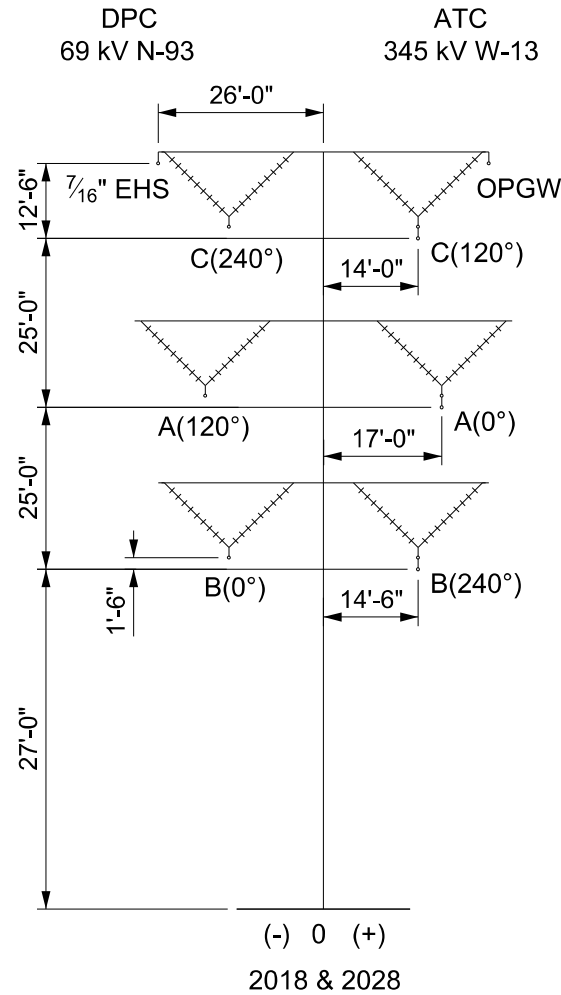
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Appendix G Exhibit 1

Segment: O11-B

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
2028	Normal Peak I=263.9
	Normal I=211.1

N-93 69 kV Transmission	
477 Flicker (24/7) ACSR	
Flow is West	
2018	Normal Peak I=31.8
	Normal I=21.8
2028	Normal Peak I=33.6
	Normal I=23.3



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. DPC loads are based on Planning Study of peak loads of DPC's system for the years included in the calculations.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE N-93 IS WEST

FIGURE 13

0	FINAL	09-27-13
SCALE		
NTS		

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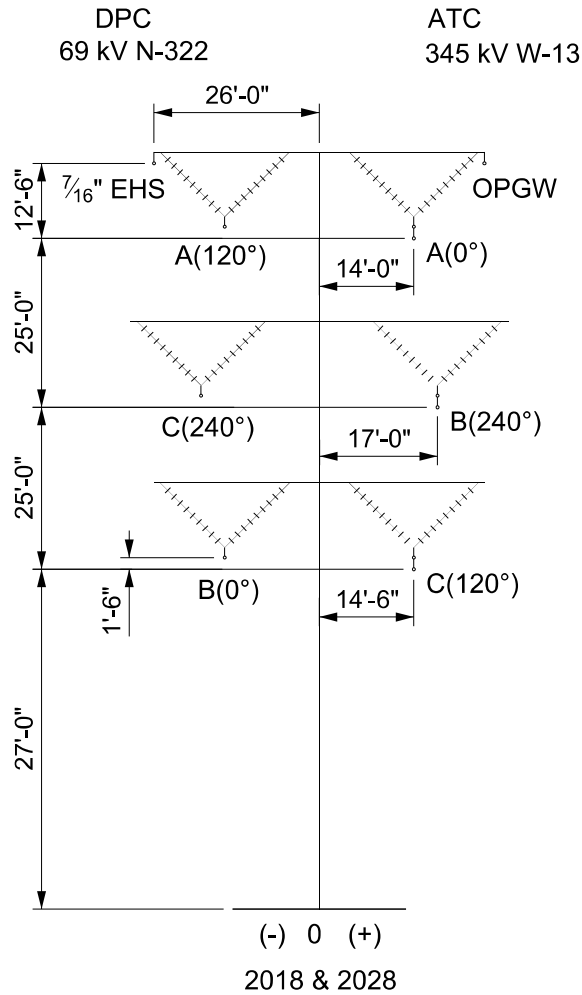
ER-10- 000575 -013

Appendix G Exhibit 1

Segment: 017

W-13 345 kV Transmission 2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3 Normal I=225.0
2028	Normal Peak I=263.9 Normal I=211.1

N-322 69 kV Transmission	
477 Flicker (24/7) ACSR	
Flow is East	
2018	Normal Peak I=213.4 Normal I=173.2
2028	Normal Peak I=227.5 Normal I=193.9




Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. DPC loads are based on Planning Study of peak loads of DPC's system for the years included in the calculations.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE N-322 IS EAST

FIGURE 14

0	FINAL	09-27-13
SCALE		
NTS		
		
0		



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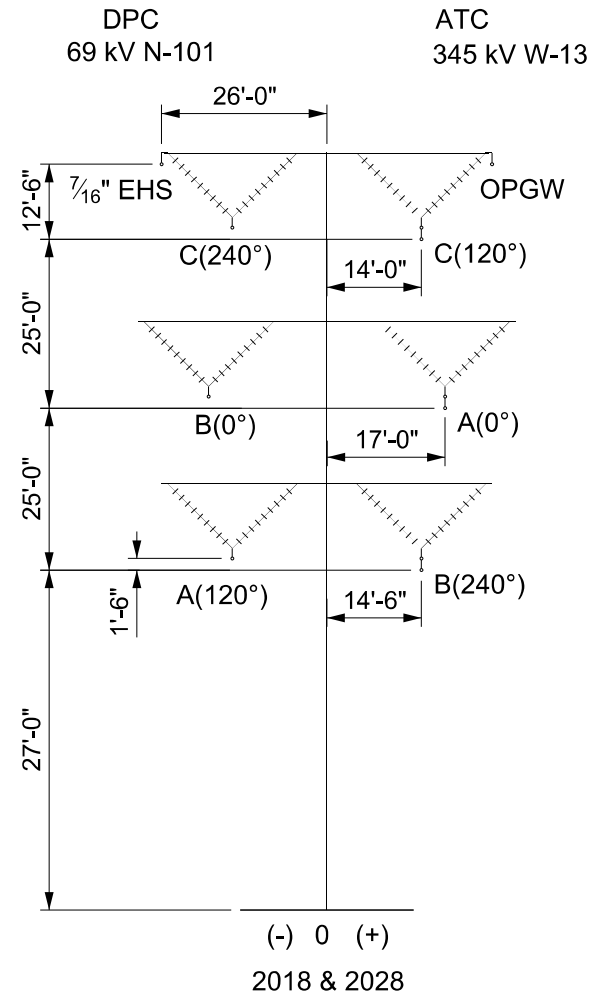
ENGINEERING RECORD DRAWING No.

ER-10- 000575 -014

Segments: O22-A, O22-C, O24

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3 Normal I=225.0
2028	Normal Peak I=263.9 Normal I=211.1

N-101 69 kV Transmission	
477 Flicker (24/7) ACSR	
Flow is East	
2018	Normal Peak I=244.1 Normal I=199.1
2028	Normal Peak I=216.3 Normal I=195.8



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. DPC loads are based on Planning Study of peak loads of DPC's system for the years included in the calculations.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE N-101 IS EAST

FIGURE 15

0	FINAL	09-27-13
SCALE		
NTS		

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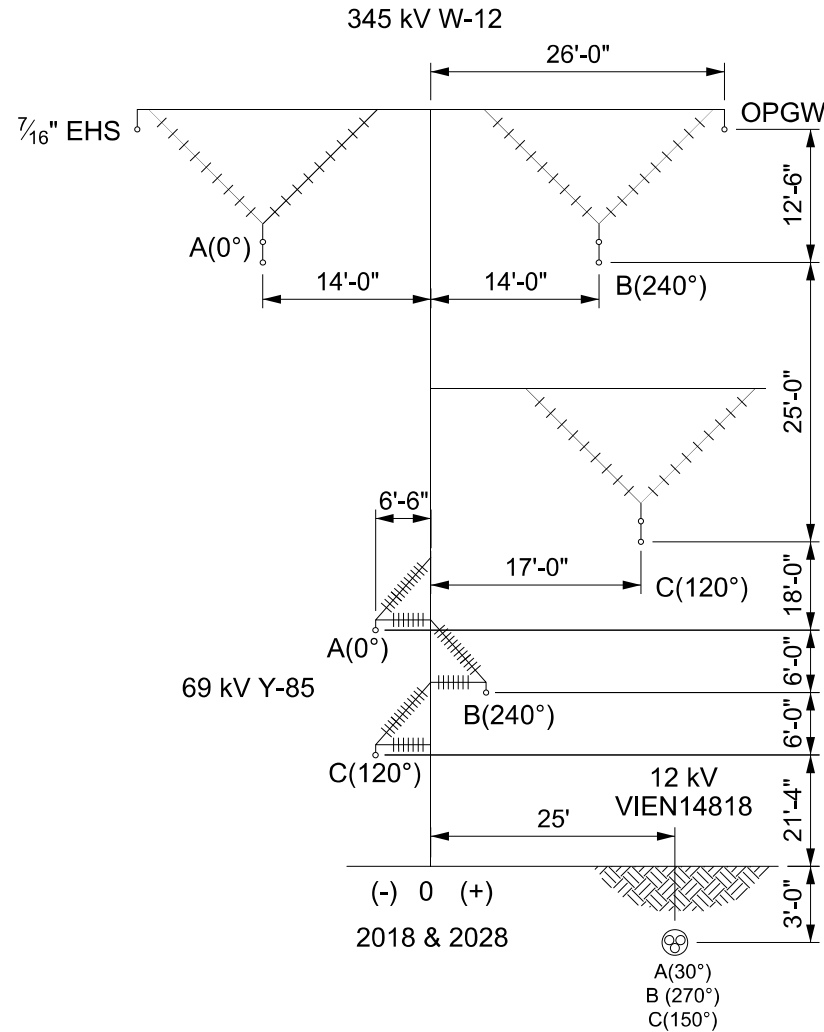
Appendix G Exhibit 1

Segment: C3

W-12 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is South or West	
2018	Normal Peak I=198.3 Normal I=158.6
2028	Normal Peak I=185.3 Normal I=148.2

Y-85 69 kV Transmission	
336 T2 Linnet (26/7) ACSR	
Flow is West	
2018	Normal Peak I=424.4 Normal I=339.5
2028	Normal Peak I=429.0 Normal I=343.2

VIEN14818 12 kV Distribution	
500 AL	
Flow is West	
2018	Normal Peak I=3.1 Normal I=2.5
2028	Normal Peak I=3.1 Normal I=2.5



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING WEST TOWARD CARDINAL SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-12 IS WEST
TRANSMISSION CURRENT FLOW FOR LINE Y-85 IS WEST
DISTRIBUTION CURRENT FLOW FOR LINE VIEN14818 IS WEST

FIGURE 16

0	FINAL	09-27-13
SCALE		
NTS		



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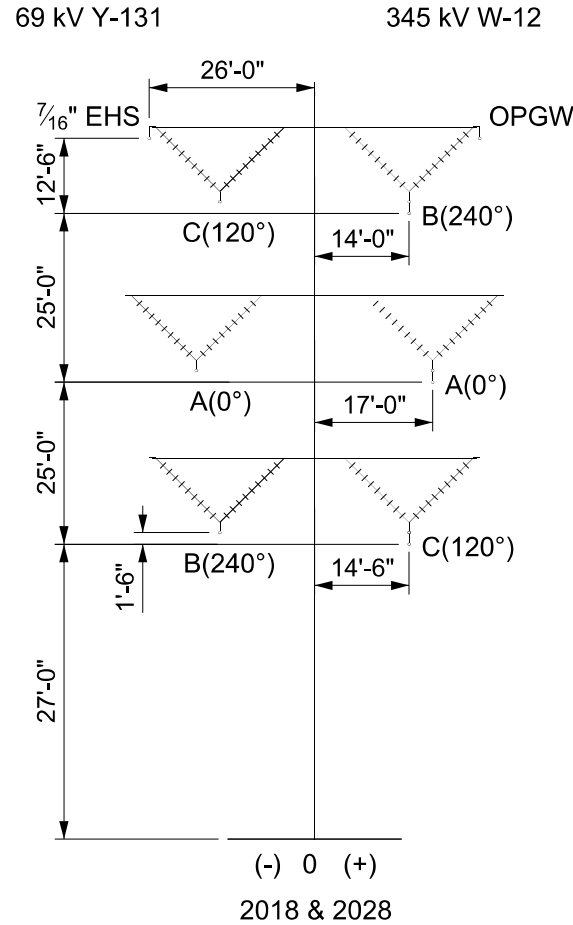
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ER-10- 000575 -016

Segment: C6

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is South	
2018	Normal Peak I=198.3
	Normal I=158.6
2028	Normal Peak I=185.3
	Normal I=148.2

Y-131 69 kV Transmission	
336 T2 Linnet (26/7) ACSR	
Flow is South	
2018	Normal Peak I=143.1
	Normal I=114.5
2028	Normal Peak I=97.9
	Normal I=78.4



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING SOUTH TOWARD CARDINAL SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-12 IS SOUTH
TRANSMISSION CURRENT FLOW FOR LINE Y-131 IS SOUTH

FIGURE 17

0	FINAL	09-27-13
SCALE		
NTS		

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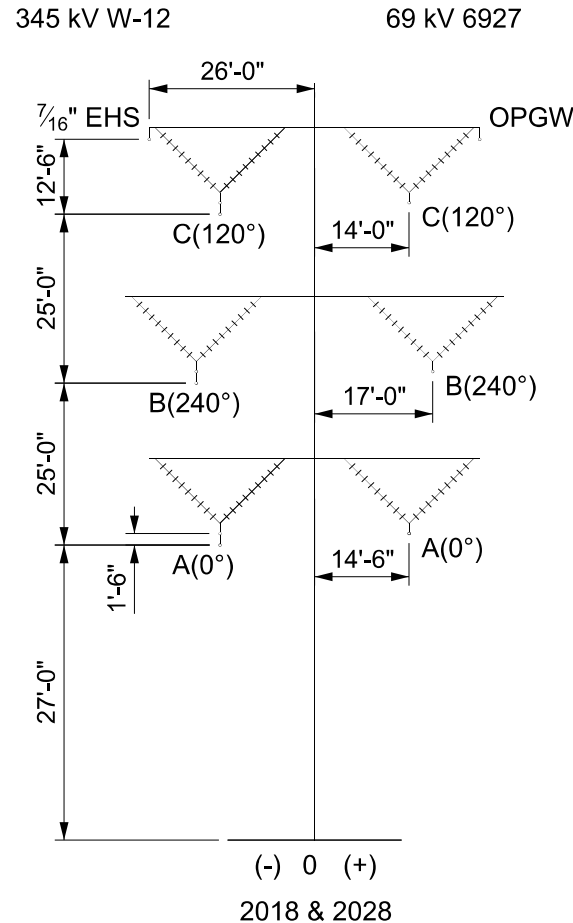
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Segment: B4

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East	
2018	Normal Peak
	I=198.3
	Normal
2028	Normal Peak
	I=185.3
	Normal
2028	Normal Peak
	I=148.2
	Normal

6927 69 kV Transmission	
336 T2 Linnet (26/7) ACSR	
Flow is West	
2018	Normal Peak
	I=154.6
	Normal
2028	Normal Peak
	I=197.5
	Normal
2028	Normal Peak
	I=158.0
	Normal



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST TOWARD CARDINAL SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-12 IS EAST
TRANSMISSION CURRENT FLOW FOR LINE 6927 IS WEST

FIGURE 18

0	FINAL	09-27-13
SCALE		
NTS		

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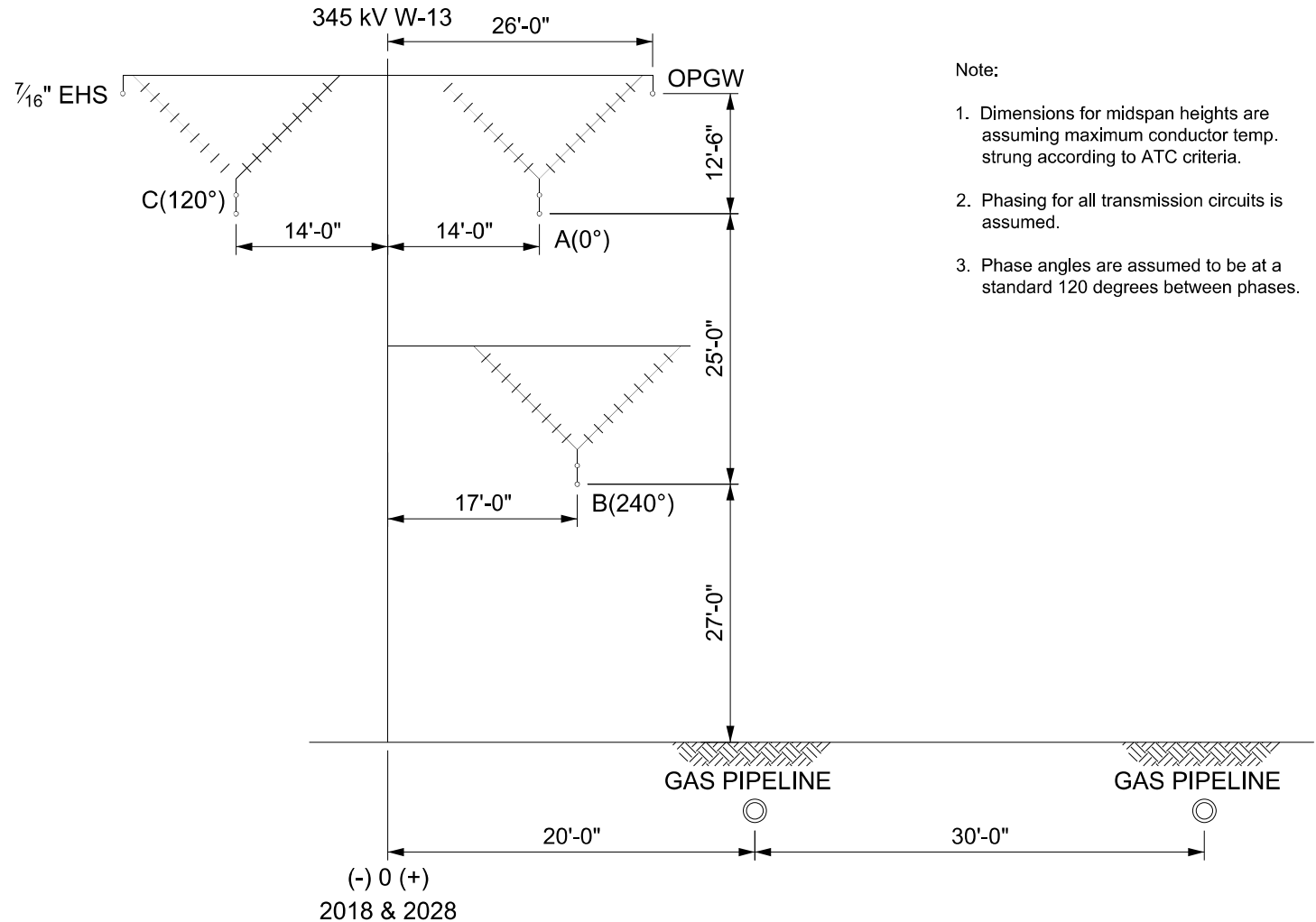
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Appendix G Exhibit 1

Segment: O20

345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3 Normal I=225.0
2028	Normal Peak I=263.9 Normal I=211.1



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH

FIGURE 19

0	FINAL	09-27-13
SCALE		
NTS		



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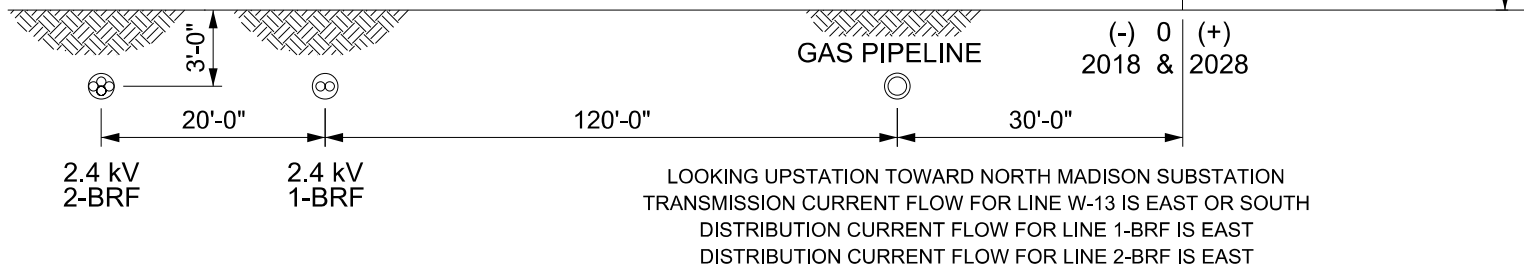
Appendix G Exhibit 1

Segment: N6-B

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3 Normal I=225.0
2028	Normal Peak I=263.9 Normal I=211.1

1-BRF 2.4 kV Distribution	
1/0 AL	
Flow is East	
2018	Normal Peak I=84.0 Normal I=67.0
2028	Normal Peak I=92.0 Normal I=74.0

2-BRF 2.4 kV Distribution	
1/0 AL	
Flow is East	
2018	Normal Peak I=84.0 Normal I=67.0
2028	Normal Peak I=92.0 Normal I=74.0



Note:

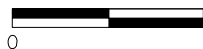
1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

FIGURE 20

0 FINAL 09-27-13

SCALE

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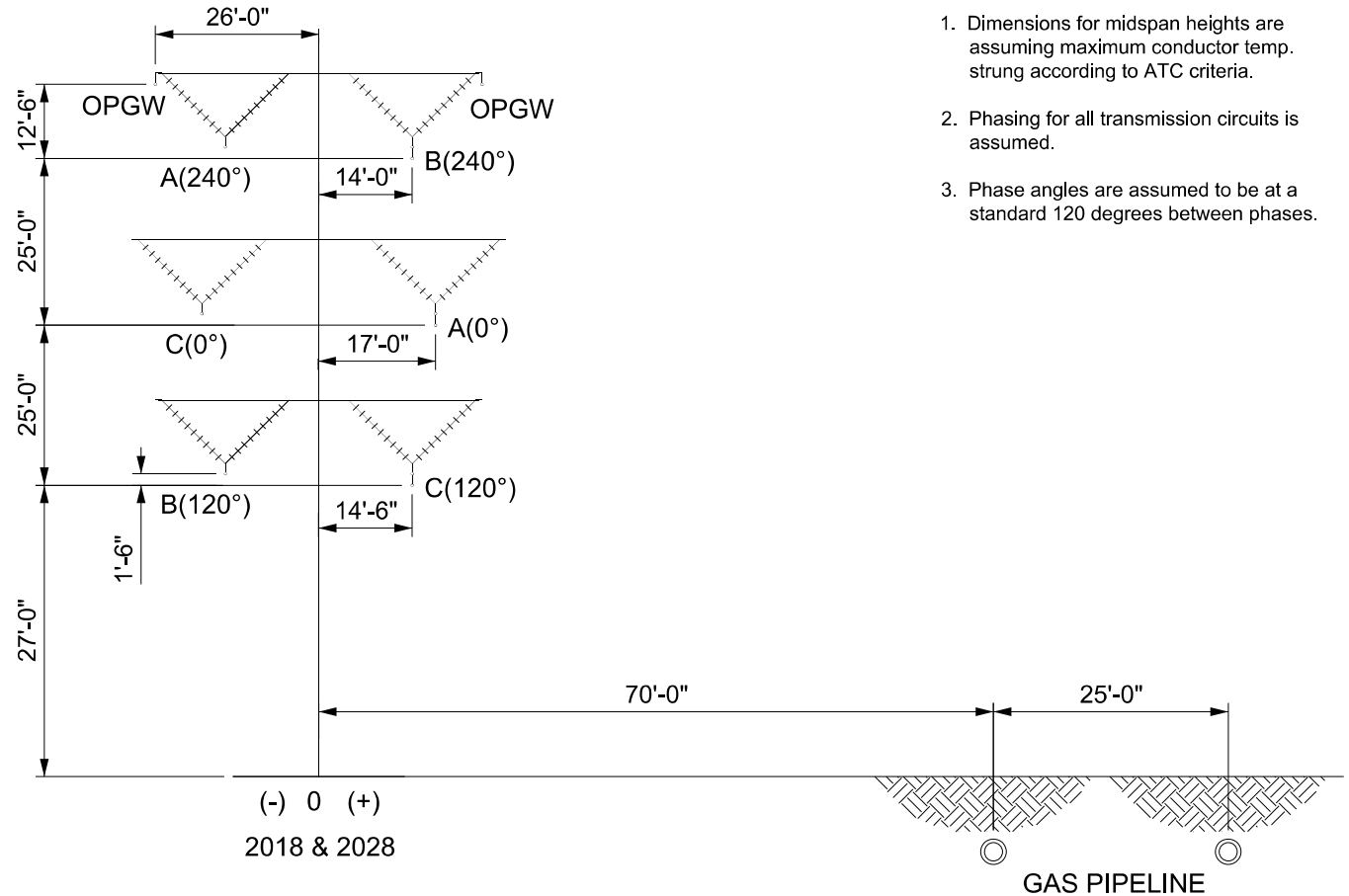
Segment: N4

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak
	I=281.3
	Normal
2028	Normal Peak
	I=263.9
	Normal
2028	Normal Peak
	I=211.1
	Normal

W3204 161 kV Transmission	
477 T2 Hawk (26/7) ACSR	
Flow is East	
2018	Normal Peak
	I=145.2
	Normal
2028	Normal Peak
	I=187.6
	Normal
2028	Normal Peak
	I=150.0
	Normal

XCEL
161 kV W3204

ATC
345 kV W-13



LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR W-13 LINE IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE W3204 IS EAST

FIGURE 21

0	FINAL	09-27-13
SCALE		
NTS		

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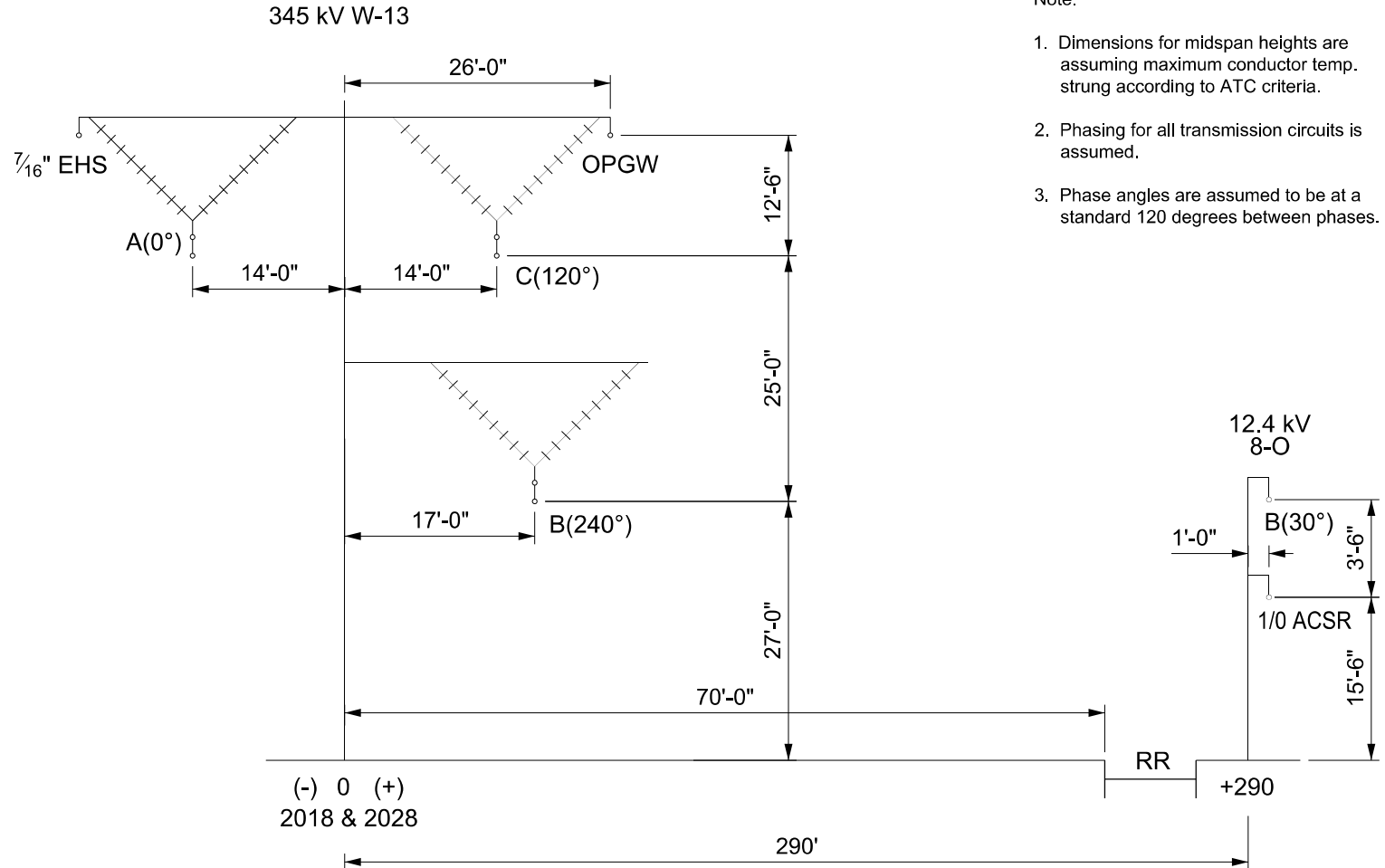
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Appendix G Exhibit 1

Segment: L2-A

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
2028	Normal Peak I=263.9
	Normal I=211.1

8-O 12.4 kV Distribution	
1/0 ACSR	
Flow is North	
2018	Normal Peak I=15.0
	Normal I=12.0
2028	Normal Peak I=20.0
	Normal I=16.0



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
DISTRIBUTION CURRENT FLOW FOR LINE 8-O IS NORTH

FIGURE 22

0	FINAL	09-27-13
SCALE		
NTS		

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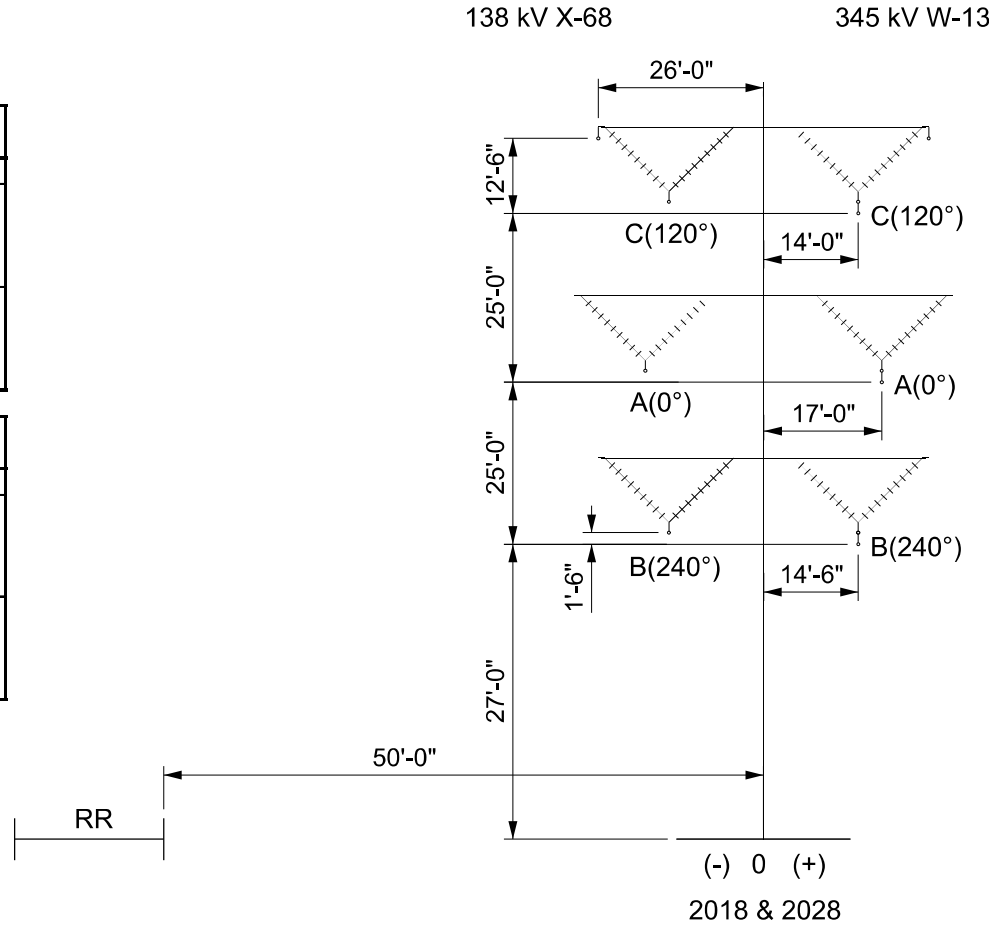
ENGINEERING RECORD DRAWING No.

ER-10-000575-022

**Segments: I4, I5-A, I5-B, I5-E,
I5-F, I5-G, I5-H**

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
2028	Normal Peak I=263.9
	Normal I=211.1

X-68 138 kV Transmission	
477 T2 Hawk (26/7) ACSR	
Flow is North	
2018	Normal Peak I=415.1
	Normal I=332.1
2028	Normal Peak I=492.1
	Normal I=393.7



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR W-13 LINE IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE X-68 IS NORTH

FIGURE 23

0 FINAL 09-27-13

SCALE

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Segment: I10

W-13 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3 Normal I=225.0
2028	Normal Peak I=263.9 Normal I=211.1

X-19 138 kV Transmission	
477 T2 Hawk (26/7) ACSR	
Flow is North	
2018	Normal Peak I=481.0 Normal I=384.8
2028	Normal Peak I=619.4 Normal I=495.5

TRIC1118 12 kV Distribution	
1000 AL	
Flow is South	
2018	Normal Peak I=174.4 Normal I=139.5
2028	Normal Peak I=181.3 Normal I=145.0

TRIC1104 12 kV Distribution	
1000 AL	
Flow is South	
2018	Normal Peak I=658.9 Normal I=527.1
2028	Normal Peak I=684.8 Normal I=547.8

TRIC1105 12 kV Distribution	
500 AL	
Flow is South	
2018	Normal Peak I=803.8 Normal I=643.0
2028	Normal Peak I=835.3 Normal I=668.2

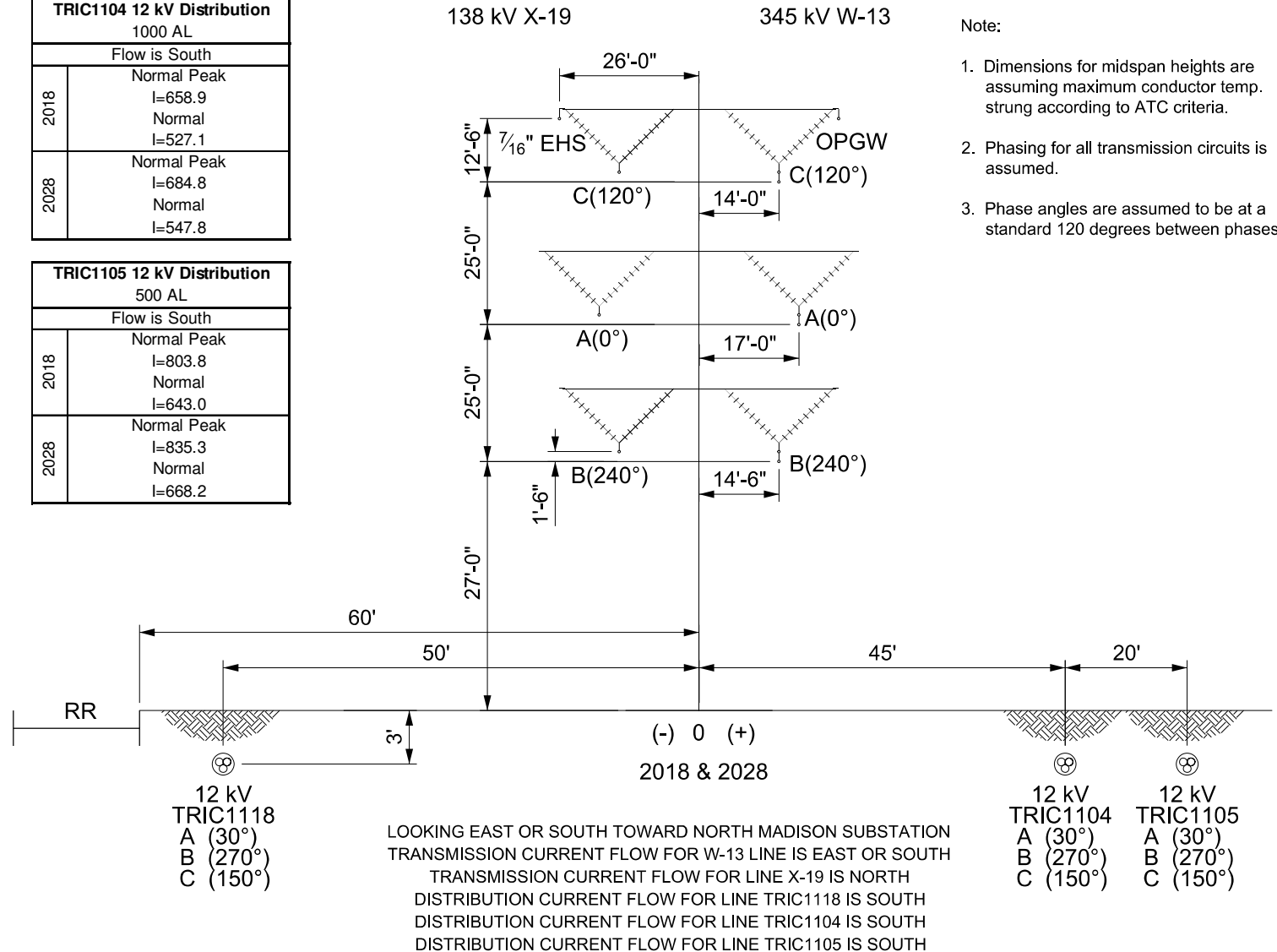


FIGURE 24

0	FINAL	09-27-13
SCALE		
NTS		

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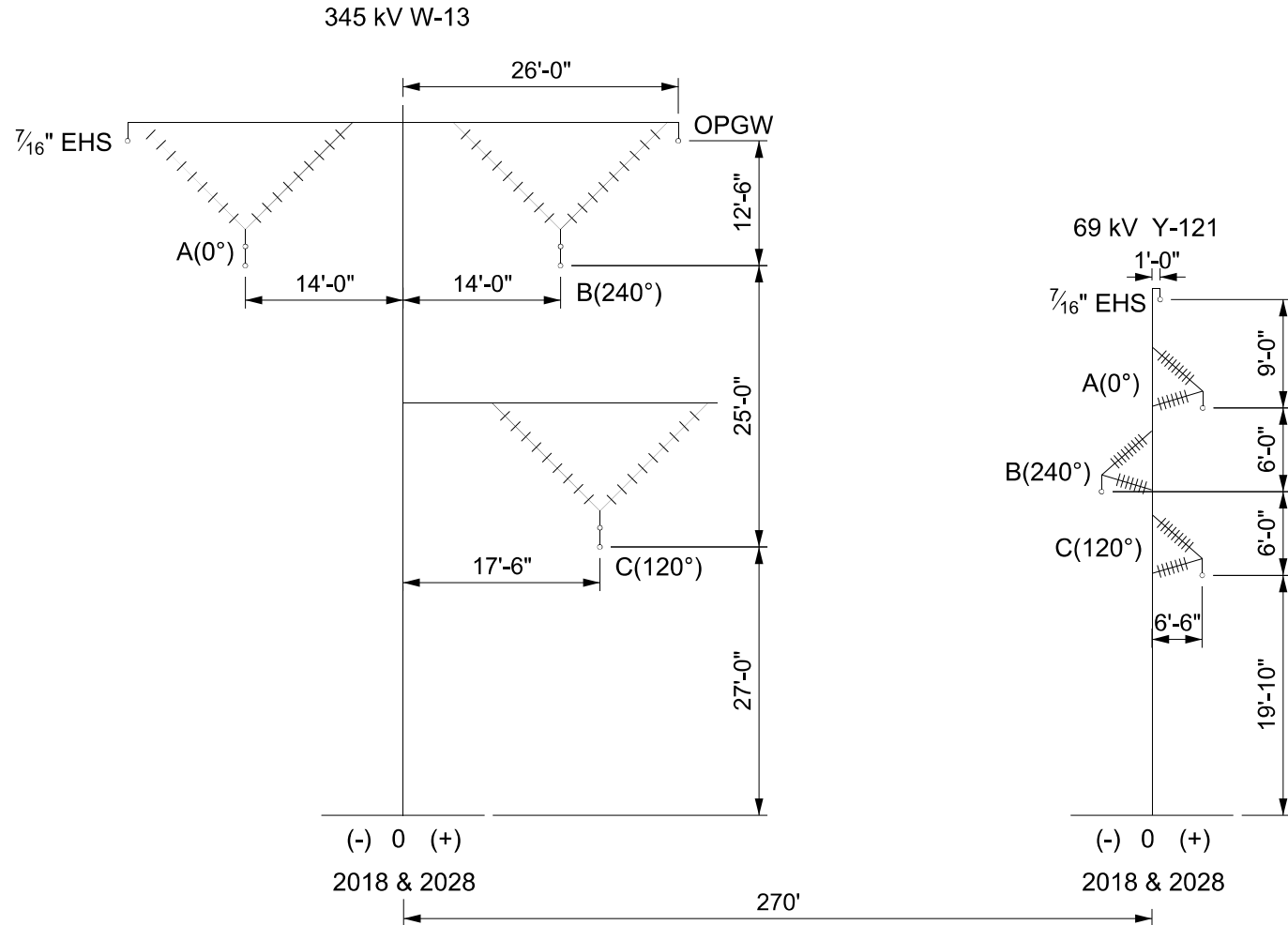
Segments: N7-E, N8-A

W-12 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
2028	Normal Peak I=263.9
	Normal I=211.1

Y-121 69 kV Transmission	
4/0 T2 Penguin (6/1) ACSR	
Flow is North	
2018	Normal Peak I=42.7
	Normal I=34.1
2028	Normal Peak I=60.3
	Normal I=48.2

Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.



LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE Y-121 IS NORTH

FIGURE 25

0	FINAL	09-27-13
SCALE		
NTS		

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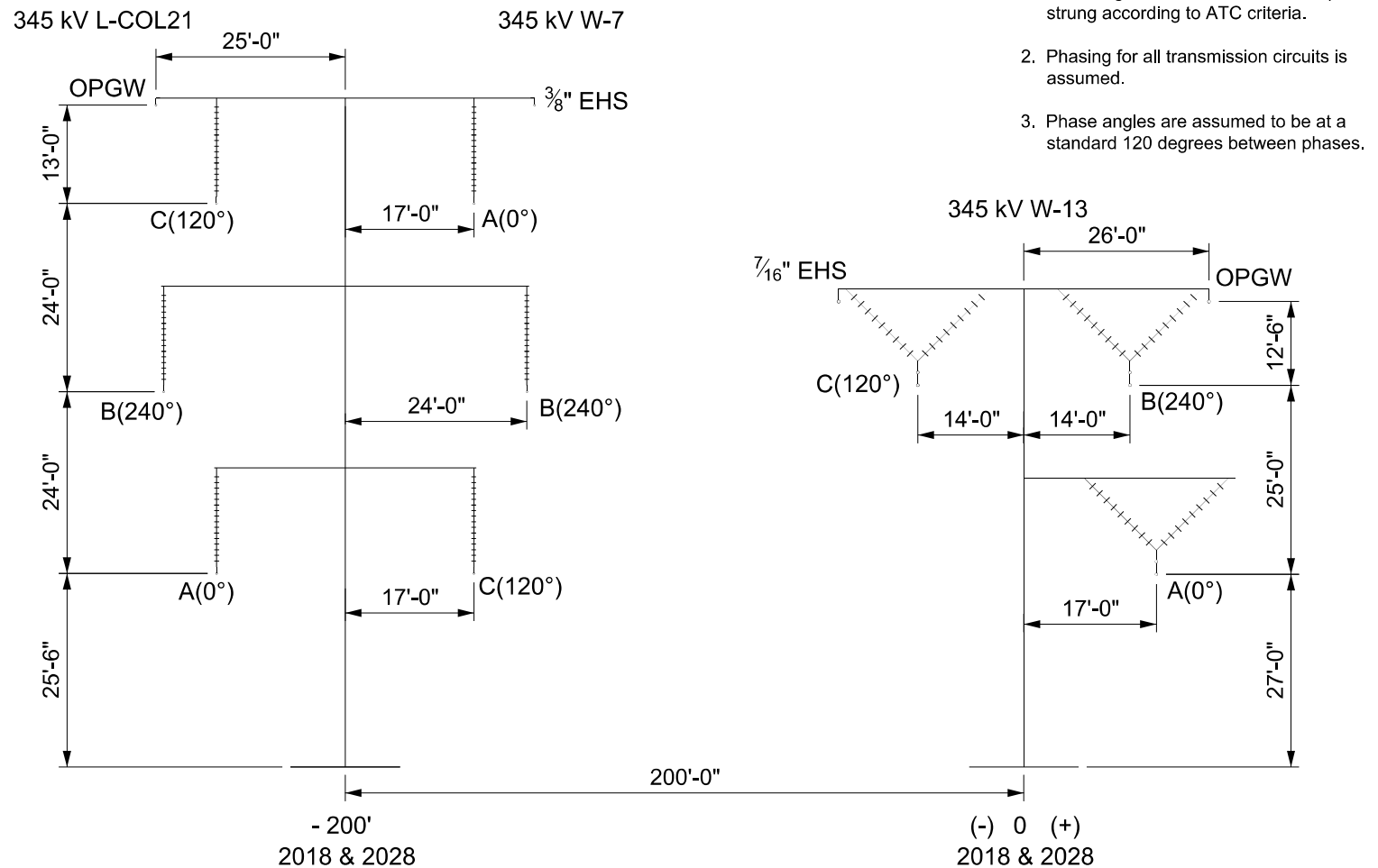
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Segment: E2-A

W-12 345 kV Transmission	
2-477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak
	I=281.3
	Normal
2028	I=225.0
	Normal Peak
	I=263.9
	Normal
	I=211.1

W-7 345 kV Transmission	
2156 Bluebird (84/19) ACSR	
Flow is South	
2018	Normal Peak
	I=344.5
	Normal
2028	I=275.6
	Normal Peak
	I=299.1
	Normal
	I=239.2

L-COL21 345 kV Transmission	
2156 Bluebird (84/19) ACSR	
Flow is South	
2018	Normal Peak
	I=344.5
	Normal
2028	I=275.6
	Normal Peak
	I=299.1
	Normal
	I=239.2



LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
 TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
 TRANSMISSION CURRENT FLOW FOR LINE W-7 IS SOUTH
 TRANSMISSION CURRENT FLOW FOR LINE L-COL21 IS SOUTH

FIGURE 26

0 FINAL 09-27-13

SCALE

NTS



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Segment: E2-B

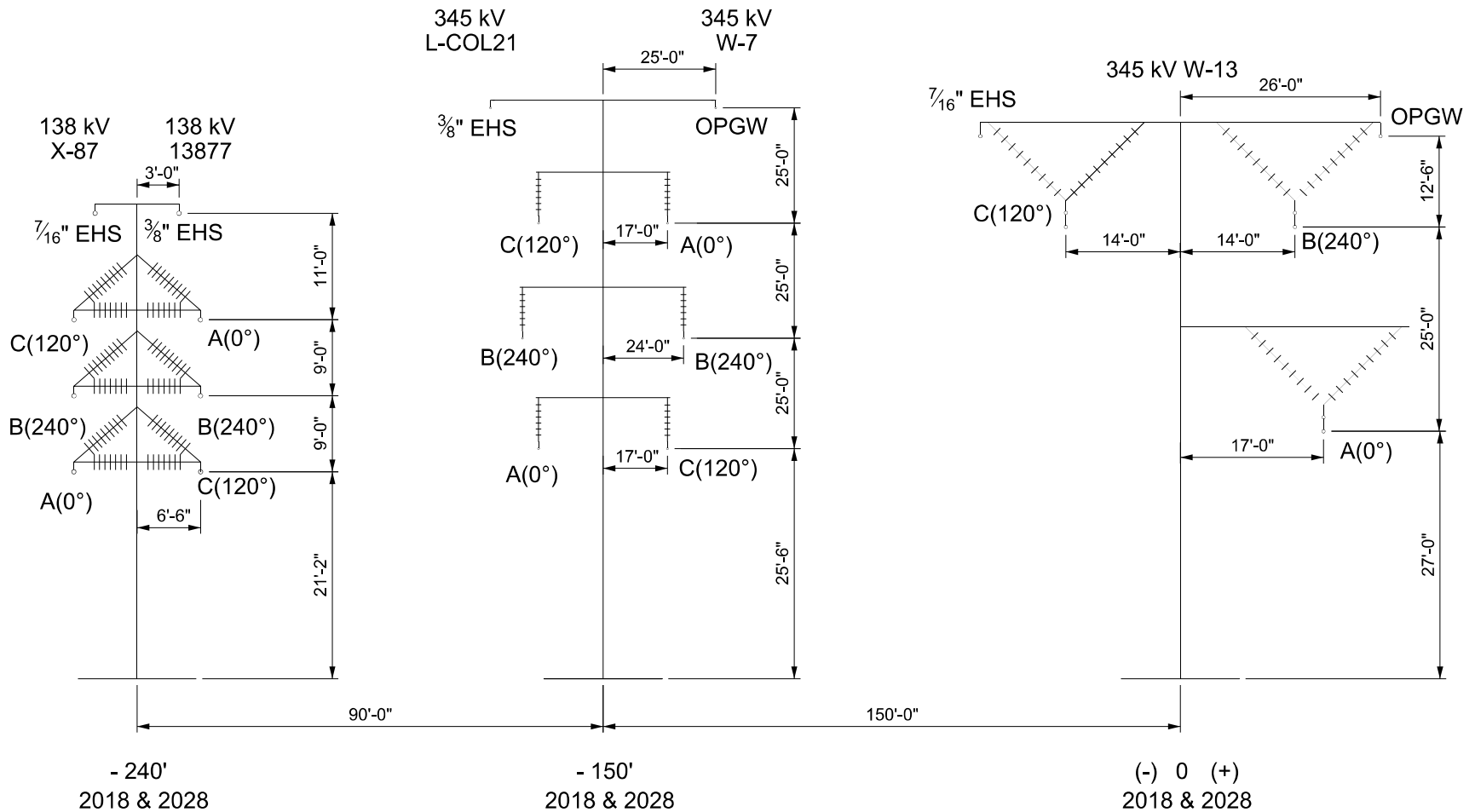
W-12 345 kV Transmission 2-477 T2 Hawk (26/7) ACSR	
Flow is West	
2018	Normal Peak I=281.3 Normal I=225.0
	Normal Peak I=263.9 Normal I=211.1

W-7 345 kV Transmission 2156 Bluebird (84/19) ACSR	
Flow is West	
2018	Normal Peak I=344.5 Normal I=275.6
	Normal Peak I=299.1 Normal I=239.2

L-COL21 345 kV Transmission 2156 Bluebird (84/19) ACSR	
Flow is West	
2018	Normal Peak I=344.5 Normal I=275.6
	Normal Peak I=299.1 Normal I=239.2

13877 138 kV Transmission 477 T2 Hawk (26/7) ACSR	
Flow is East	
2018	Normal Peak I=617.6 Normal I=494.1
	Normal Peak I=551.6 Normal I=441.3

X-87 138 kV Transmission 477 T2 Hawk (26/7) ACSR	
Flow is East	
2018	Normal Peak I=387.8 Normal I=310.2
	Normal Peak I=357.5 Normal I=286.0



LOOKING WEST TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS WEST
TRANSMISSION CURRENT FLOW FOR LINE W-7 IS WEST
TRANSMISSION CURRENT FLOW FOR LINE L-COL21 IS WEST
TRANSMISSION CURRENT FLOW FOR LINE 13877 IS EAST
TRANSMISSION CURRENT FLOW FOR LINE X-87 IS EAST

Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

FIGURE 27

0	FINAL	09-27-13
SCALE		
NTS		
0		

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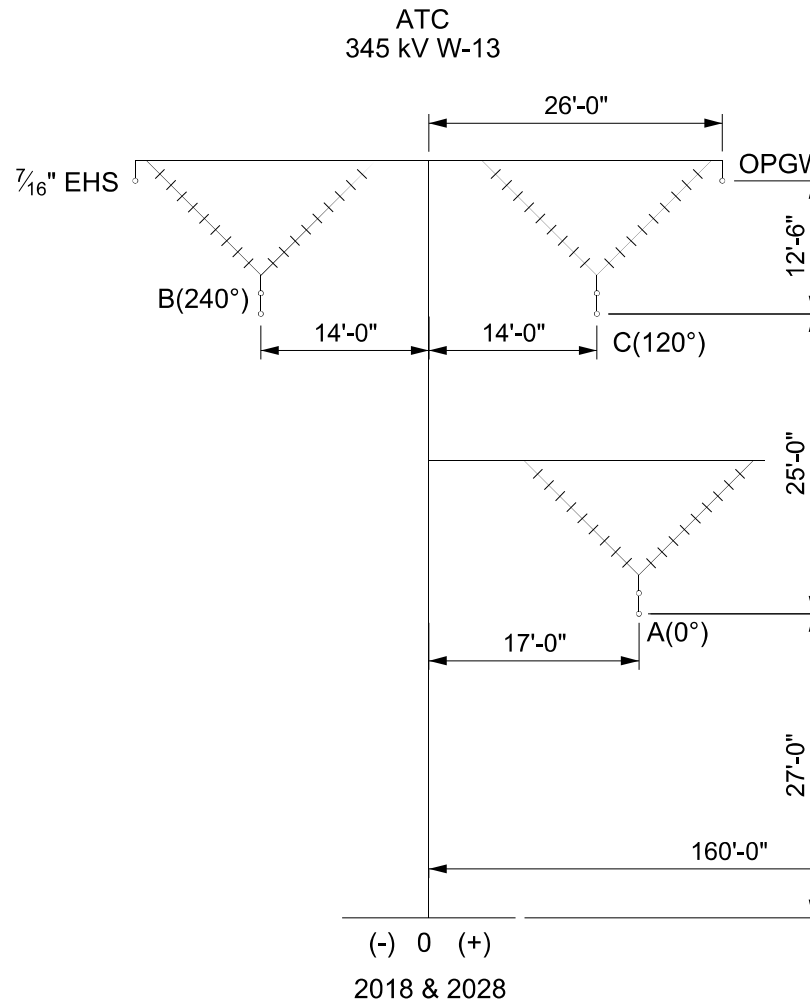
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Segment: O1-B

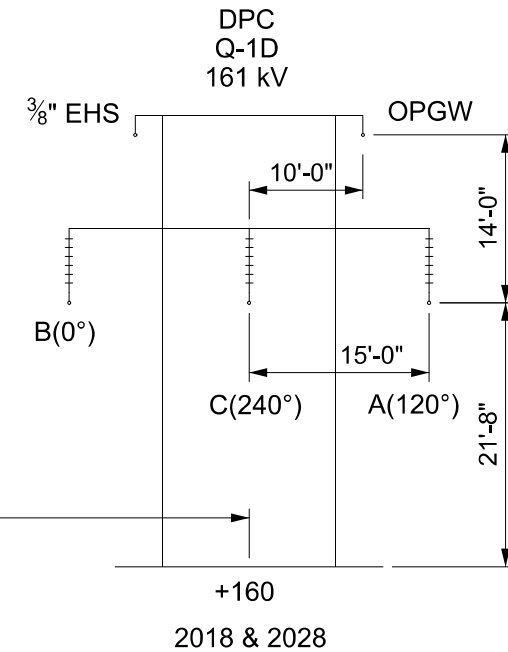
W-13 345 kV Transmission	
2 - 477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3
	Normal I=225.0
2028	Normal Peak I=263.9
	Normal I=211.1

Q-1D 161 kV Transmission	
795 ACSS	
Flow is North	
2018	Normal Peak I=126.2
	Normal I=101.0
2028	Normal Peak I=136.7
	Normal I=109.4



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.
4. DPC loads are based on Planning Study of peak loads of DPC's system for the years included in the calculations.



LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE Q-1D IS NORTH

FIGURE 28

0	FINAL	09-27-13
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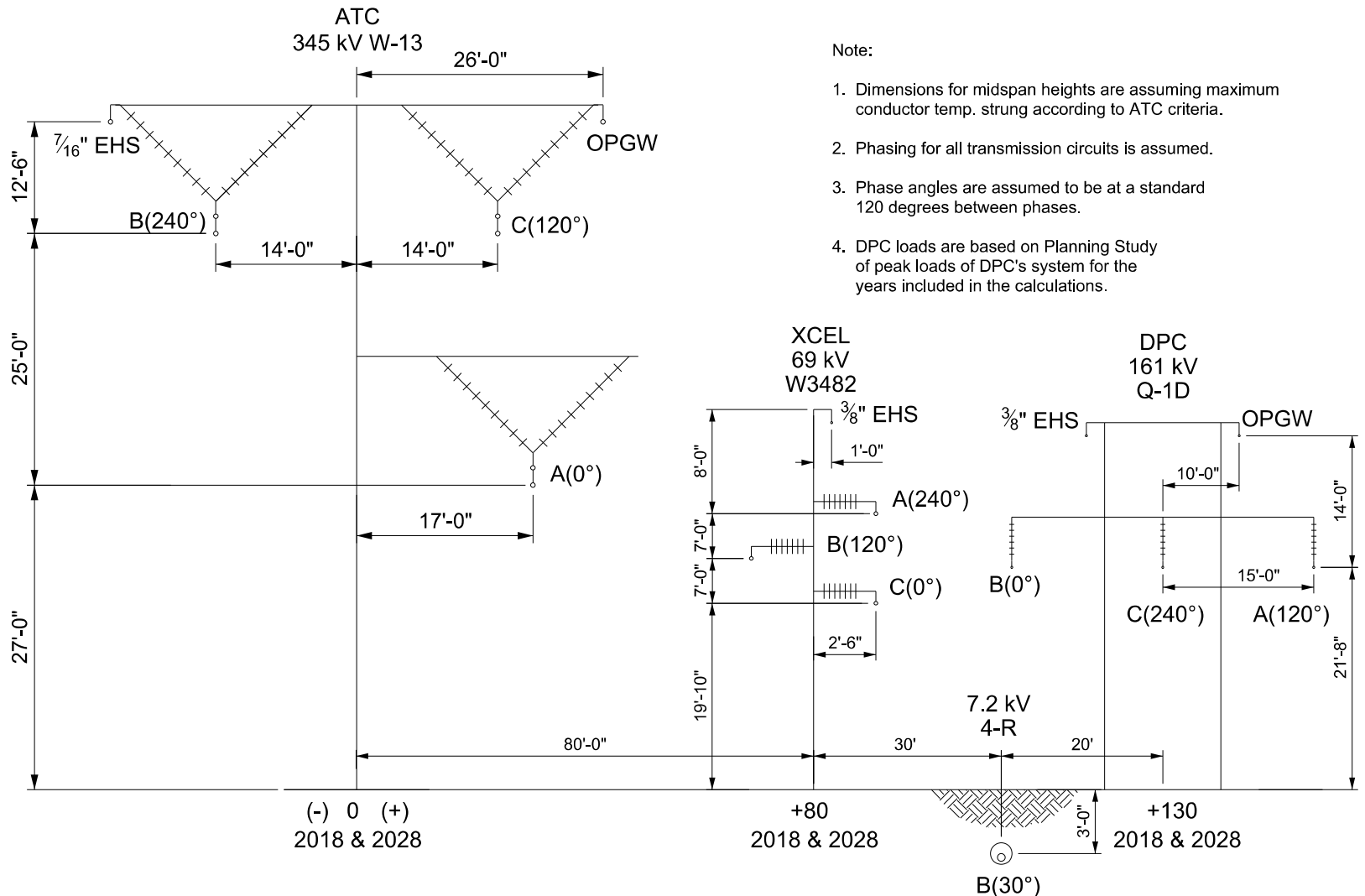
Segment: O4-D

W-13 345 kV Transmission 2 - 477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3 Normal I=225.0
2028	Normal Peak I=263.9 Normal I=211.1

W3482 69 kV Transmission 477 Hawk (26/7) ACSR	
Flow is South	
2018	Normal Peak I=181.6
	Normal I=145.3
2028	Normal Peak I=224.3
	Normal I=179.4

Q-1D 161 kV Transmission	
795 ACSS	
Flow is North	
2018	Normal Peak I=126.2 Normal I=101.0
2028	Normal Peak I=136.7 Normal I=109.4

4-R 7.2 kV Distribution	
1/0 PRIUJ	
Flow is South	
2018	Normal Peak I=10.0 Normal I=8.0
2028	Normal Peak I=10.0 Normal I=8.0



LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE W3482 IS SOUTH
TRANSMISSION CURRENT FLOW FOR LINE Q-1D IS NORTH
DISTRIBUTION CURRENT FLOW FOR LINE 4-R IS SOUTH

FIGURE 29

0	FINAL	09-27-13
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SCALE

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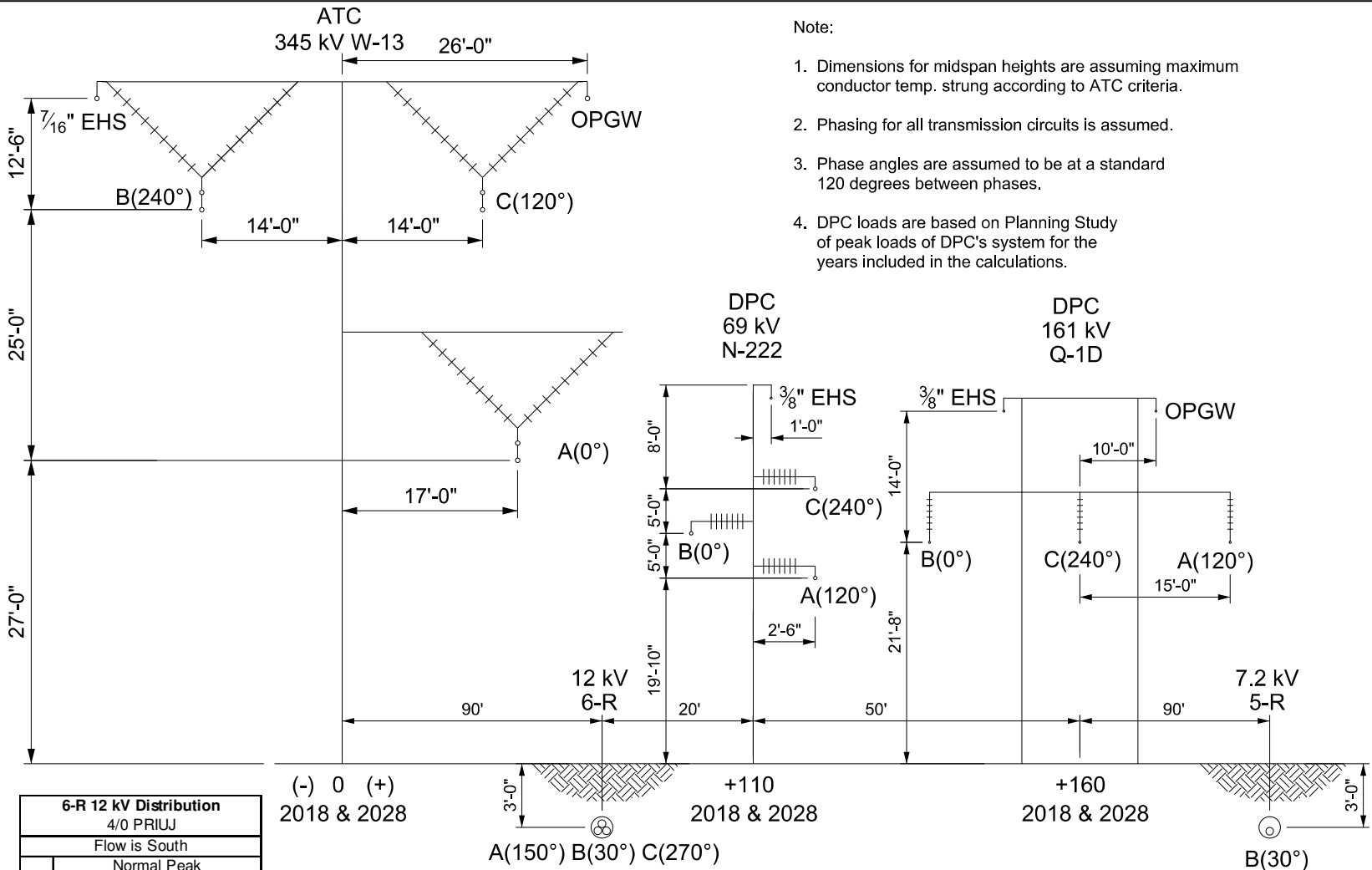
Segment: O4-E

W-13 345 kV Transmission	
2 - 477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3 Normal I=225.0
2028	Normal Peak I=263.9 Normal I=211.1

N-222 69 kV Transmission	
477 Flicker (24/7) ACSR	
Flow is North	
2018	Normal Peak I=20.1 Normal I=16.1
2028	Normal Peak I=44.0 Normal I=35.2

Q-1D 161 kV Transmission	
795 ACSS	
Flow is North	
2018	Normal Peak I=126.2 Normal I=101.0
2028	Normal Peak I=136.7 Normal I=109.4

5-R 7.2 kV Distribution	
1/0 PRIUJ	
Flow is South	
2018	Normal Peak I=4.0 Normal I=3.2
2028	Normal Peak I=4.0 Normal I=3.2



Note:

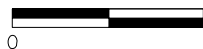
1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.
4. DPC loads are based on Planning Study of peak loads of DPC's system for the years included in the calculations.

FIGURE 30

0 FINAL 09-27-13

SCALE

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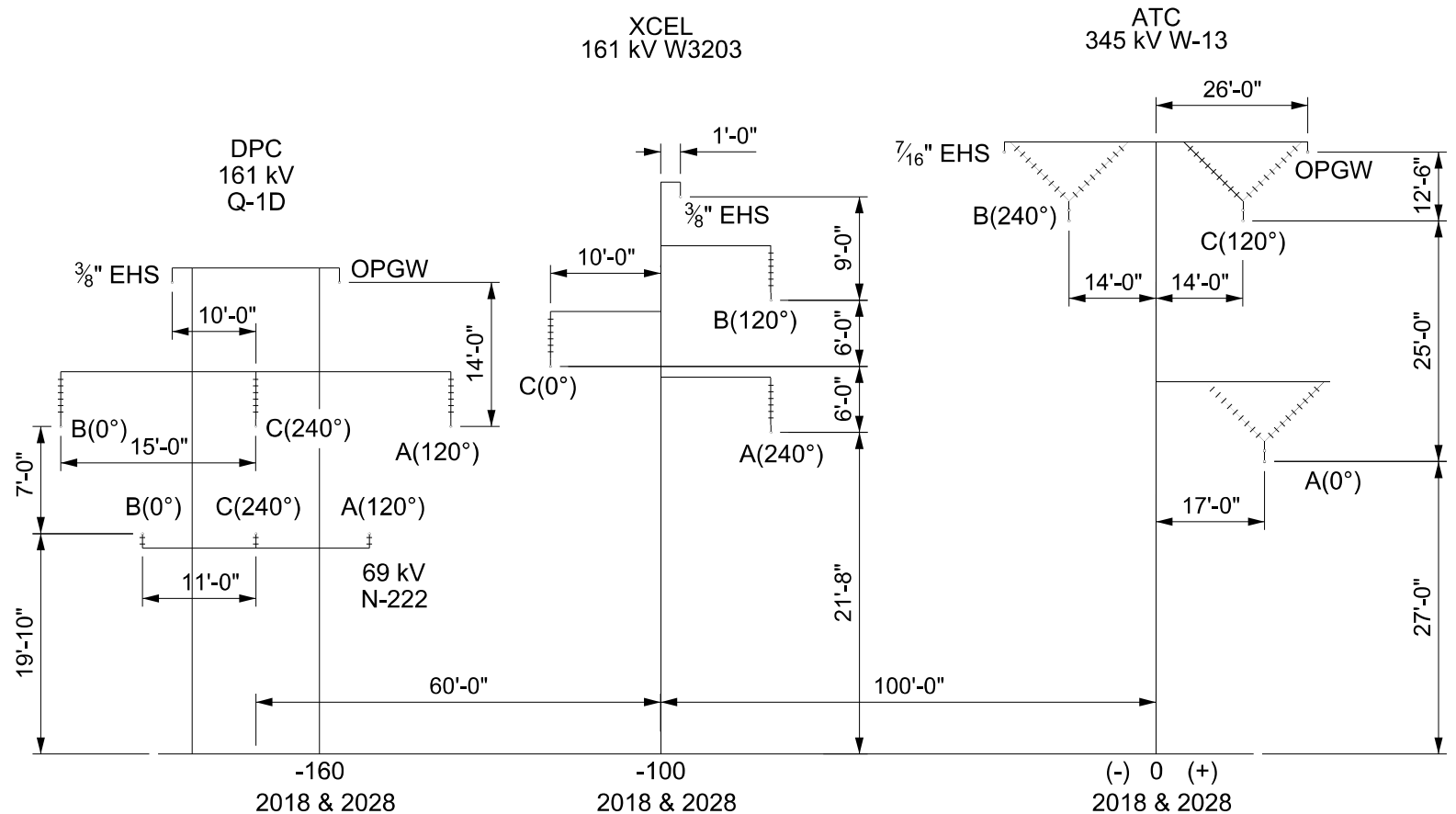
Segment: O5-A

W-13 345 kV Transmission	
2 - 477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak
	I=281.3
	Normal
2028	Normal Peak
	I=263.9
	Normal
2028	Normal Peak
	I=211.1
	Normal

W3203 161 kV Transmission	
477 Hawk (26/7) ACSR	
Flow is South	
2018	Normal Peak
	I=309.1
	Normal
2028	Normal Peak
	I=247.3
	Normal
2028	Normal Peak
	I=338.2
	Normal
2028	Normal Peak
	I=270.5
	Normal

Q-1D 161 kV Transmission	
795 ACSS	
Flow is North	
2018	Normal Peak
	I=126.2
	Normal
2028	Normal Peak
	I=101.0
	Normal
2028	Normal Peak
	I=136.7
	Normal
2028	Normal Peak
	I=109.4
	Normal

N-222 69 kV Transmission	
477 Hawk (26/7) ACSR	
Flow is North	
2018	Normal Peak
	I=20.1
	Normal
2028	Normal Peak
	I=16.1
	Normal
2028	Normal Peak
	I=44.0
	Normal
2028	Normal Peak
	I=35.2
	Normal



LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE N-222 IS NORTH
TRANSMISSION CURRENT FLOW FOR LINE Q-1D IS NORTH
TRANSMISSION CURRENT FLOW FOR LINE W3203 IS SOUTH

Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.
4. DPC loads are based on Planning Study of peak loads of DPC's system for the years included in the calculations.

FIGURE 31

0	FINAL	09-27-13
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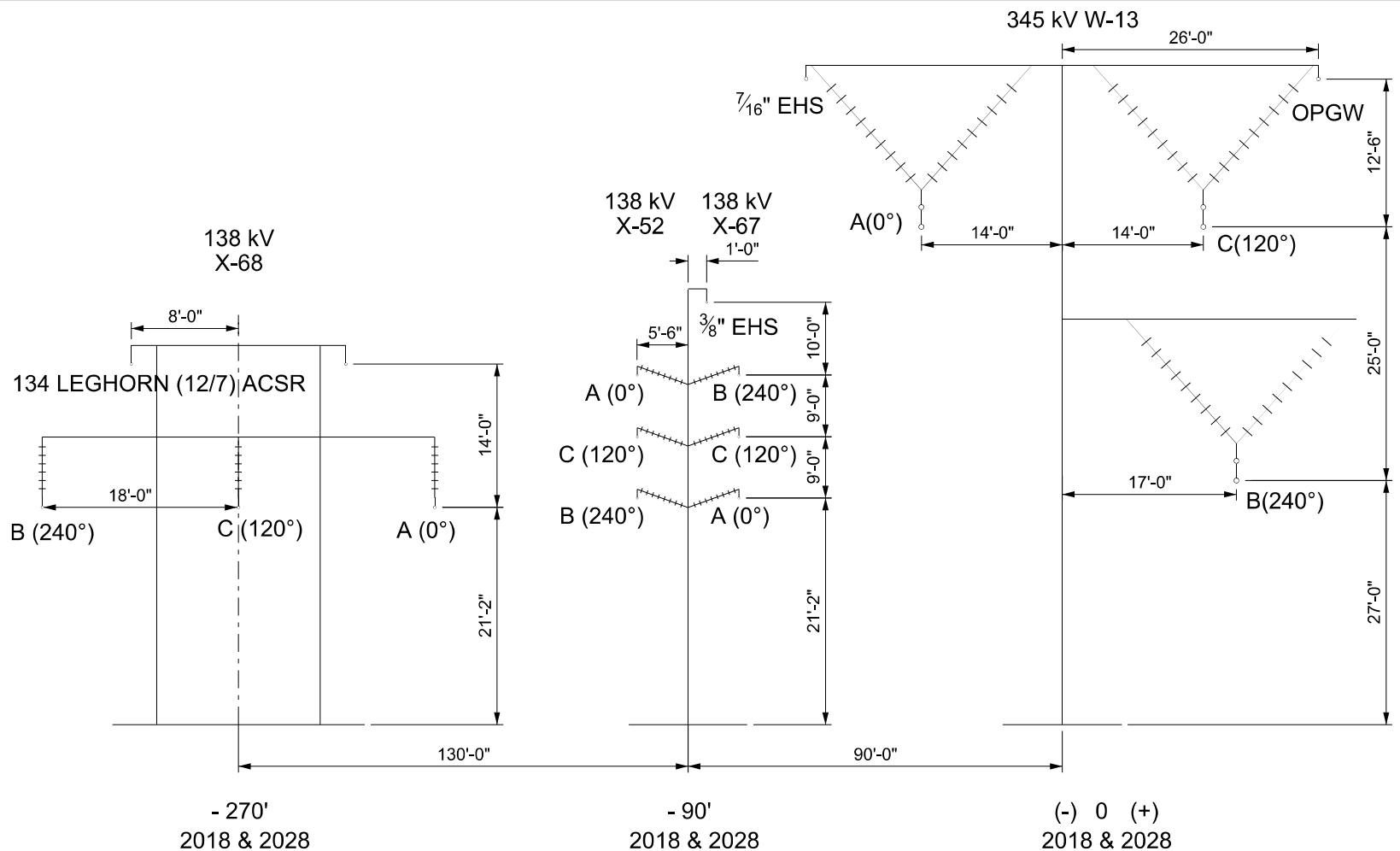
Segment: I9

W-12 345 kV Transmission	
2 - 477 T2 Hawk (26/7) ACSR	
Flow is East or South	
2018	Normal Peak I=281.3 Normal I=225.0
2028	Normal Peak I=263.9 Normal I=211.1

X-67 138 kV Transmission	
795 Tern (45/7) ACSR	
Flow is East	
2018	Normal Peak I=372.2 Normal I=297.8
2028	Normal Peak I=479.5 Normal I=383.6

X-52 138 kV Transmission	
795 Tern (45/7) ACSR	
Flow is East	
2018	Normal Peak I=372.9 Normal I=298.3
2028	Normal Peak I=521.2 Normal I=416.9

X-68 138 kV Transmission	
795 Drake (26/7) ACSR	
Flow is North	
2018	Normal Peak I=430.6 Normal I=344.5
2028	Normal Peak I=509.5 Normal I=407.6



LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-13 IS EAST OR SOUTH
TRANSMISSION CURRENT FLOW FOR LINE X-67 IS EAST
TRANSMISSION CURRENT FLOW FOR LINE X-52 IS EAST
TRANSMISSION CURRENT FLOW FOR LINE X-68 IS NORTH

Note:

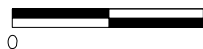
1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

0 FINAL 09-27-13

FIGURE 32

SCALE

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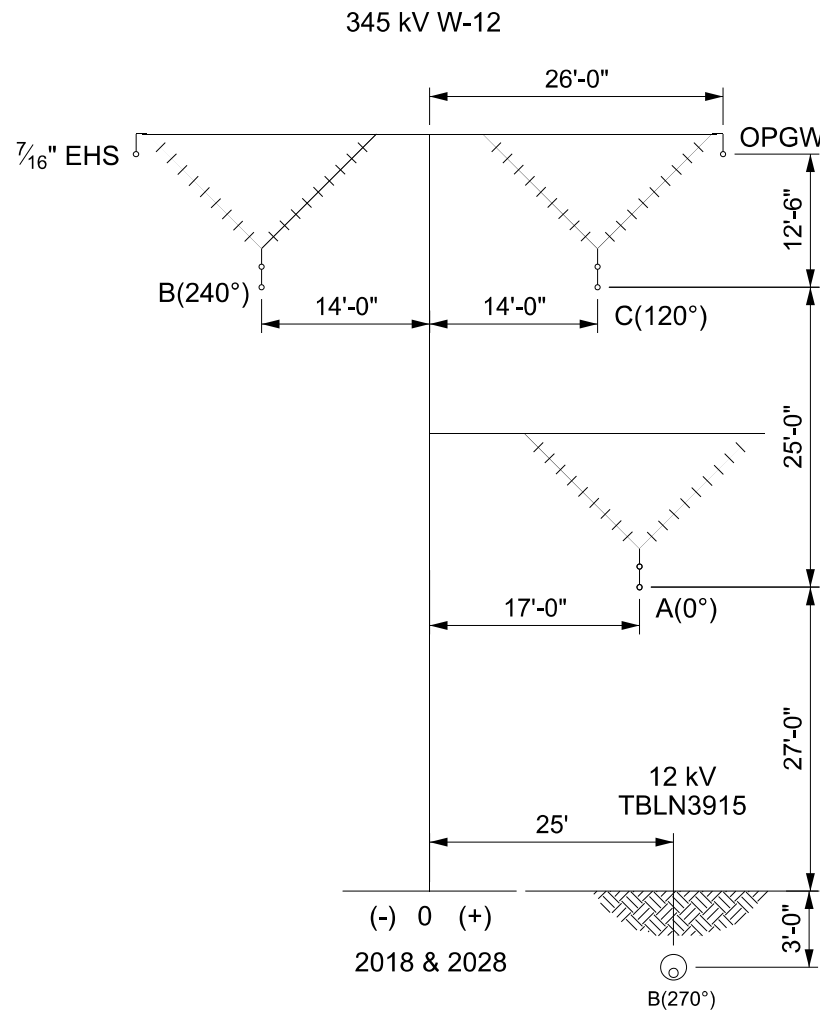
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Segment: B3-D

W-13 345 kV Transmission	
2 - 477 T2 Hawk (26/7) ACSR	
Flow is South	
2018	Normal Peak I=198.3
	Normal I=158.6
2028	Normal Peak I=185.3
	Normal I=148.2

TBLN3915 12 kV Distribution	
2 AL	
Flow is North	
2018	Normal Peak I=12.2
	Normal I=9.8
2028	Normal Peak I=12.7
	Normal I=10.2



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.
2. Phasing for all transmission circuits is assumed.
3. Phase angles are assumed to be at a standard 120 degrees between phases.

LOOKING SOUTH TOWARD CARDINAL SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W-12 IS SOUTH
DISTRIBUTION CURRENT FLOW FOR LINE TBLN3915 IS NORTH

FIGURE 34

0	FINAL	09-27-13
SCALE		
NTS		

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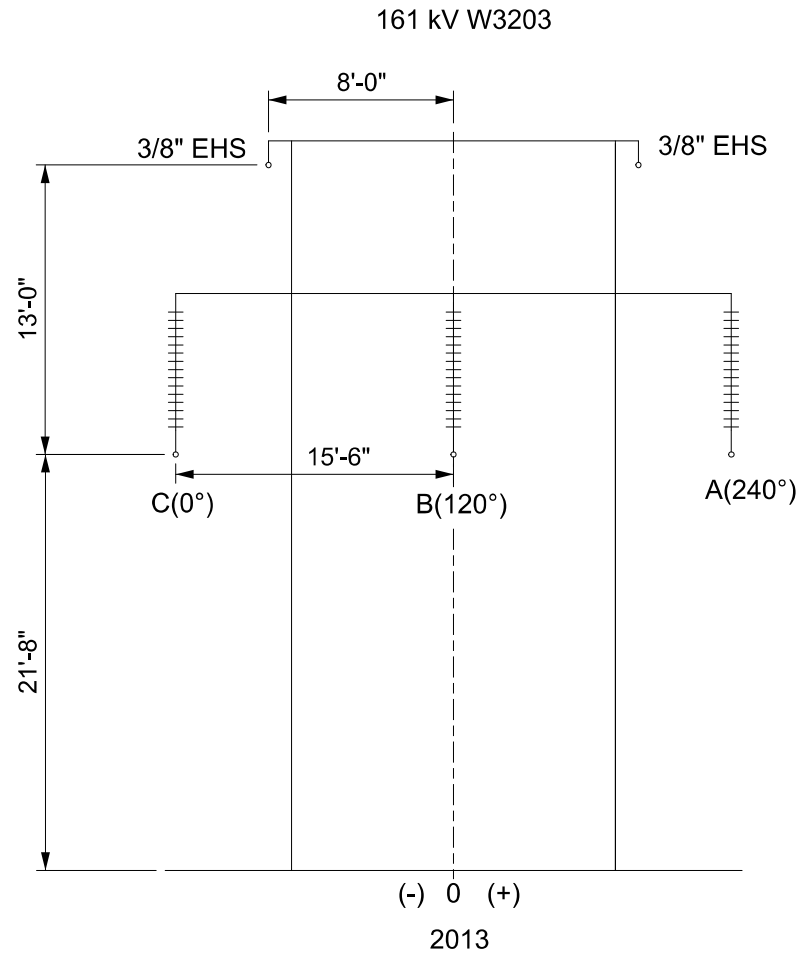
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Segments: N1, N2, N3-A

W3203 161 kV Transmission	
477 Hawk (26/7) ACSR	
Flow is North	
2013	Normal Peak
	I=80.7
	Normal
	I=64.6



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

LOOKING NORTH TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W3203 IS NORTH

FIGURE 35

0	FINAL	09-27-13
SCALE		
NTS		

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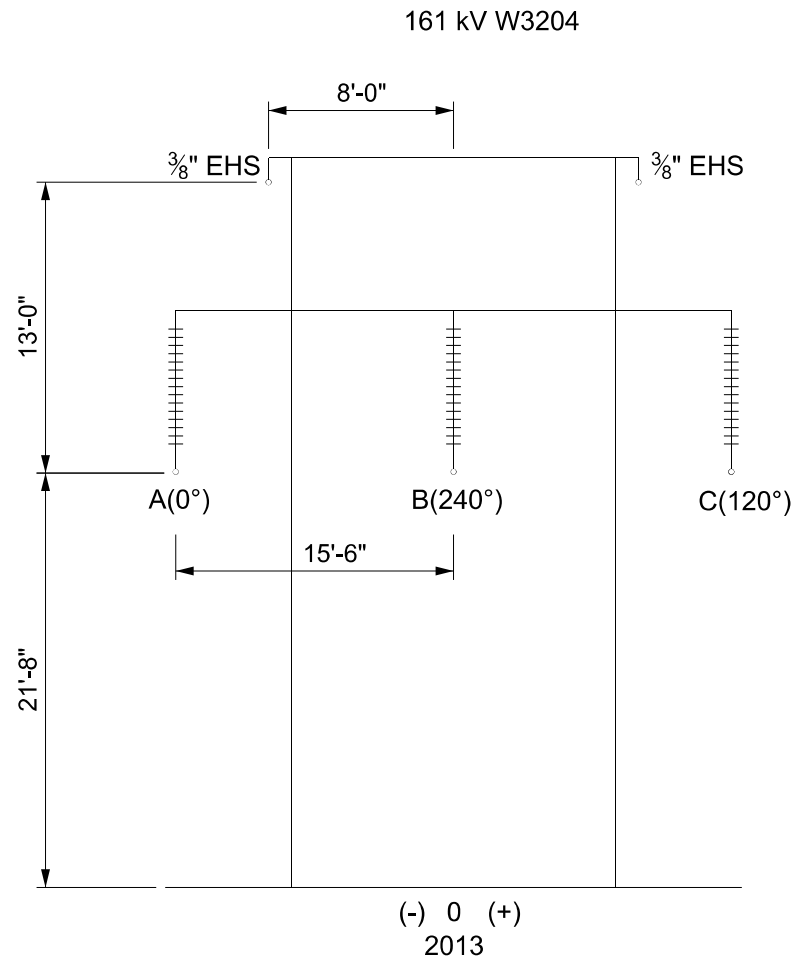
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Segments: N3-B, N5-A

W3204 161 kV Transmission	
795 Drake (45/7) ACSR	
Flow is East	
2013	Normal Peak
	I=133.4
	Normal
	I=106.7



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

LOOKING NORTH OR EAST TOWARD NORTH MADISON SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE W3204 IS EAST

FIGURE 36

0 FINAL 09-27-13

SCALE

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Segment: N4

W3204 161 kV Transmission	
795 Drake (45/7) ACSR	
Flow is East	
2013	Normal Peak
	I=133.4
	Normal
	I=106.7

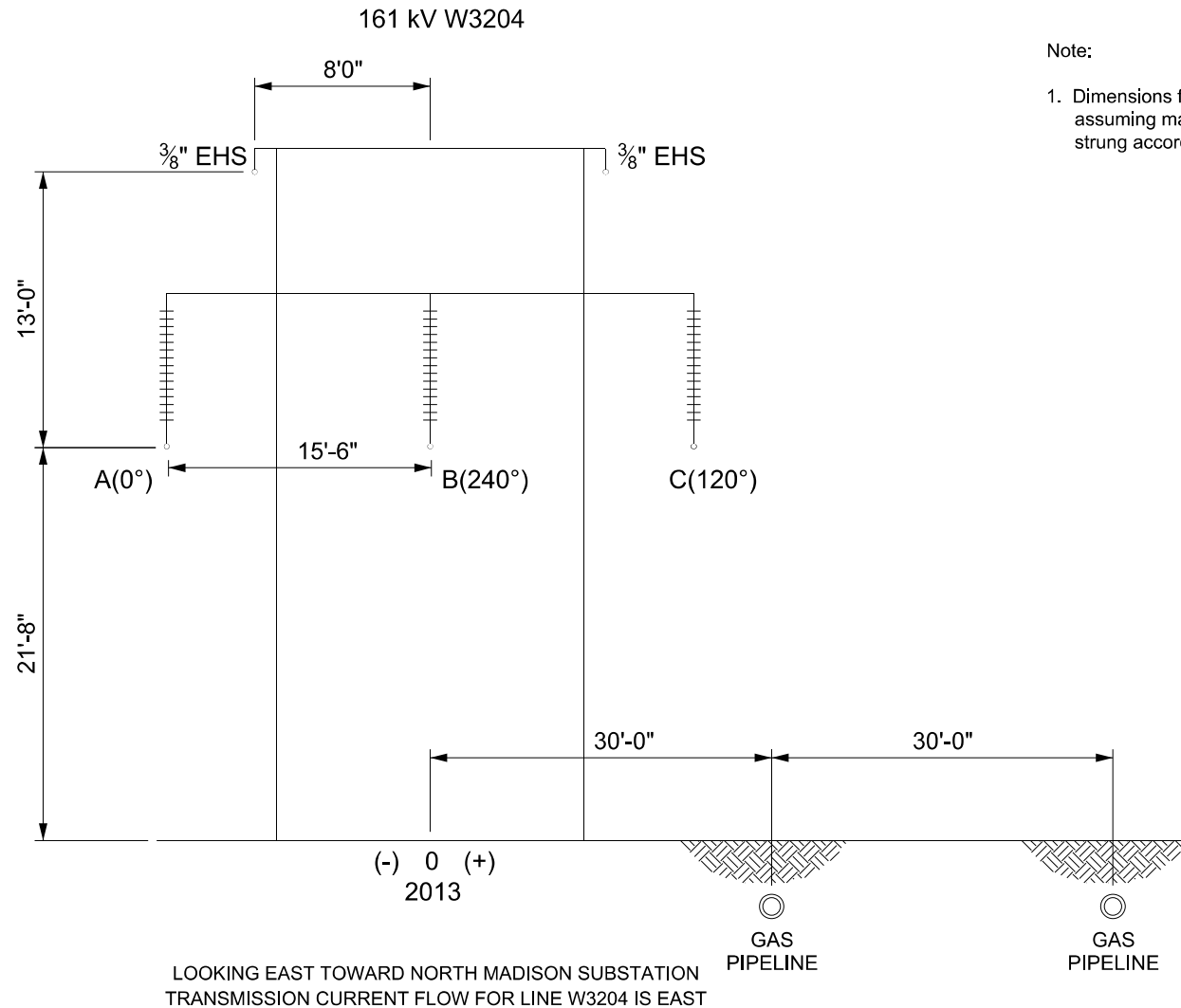


FIGURE 37

0	FINAL	09-27-13
SCALE		
NTS		

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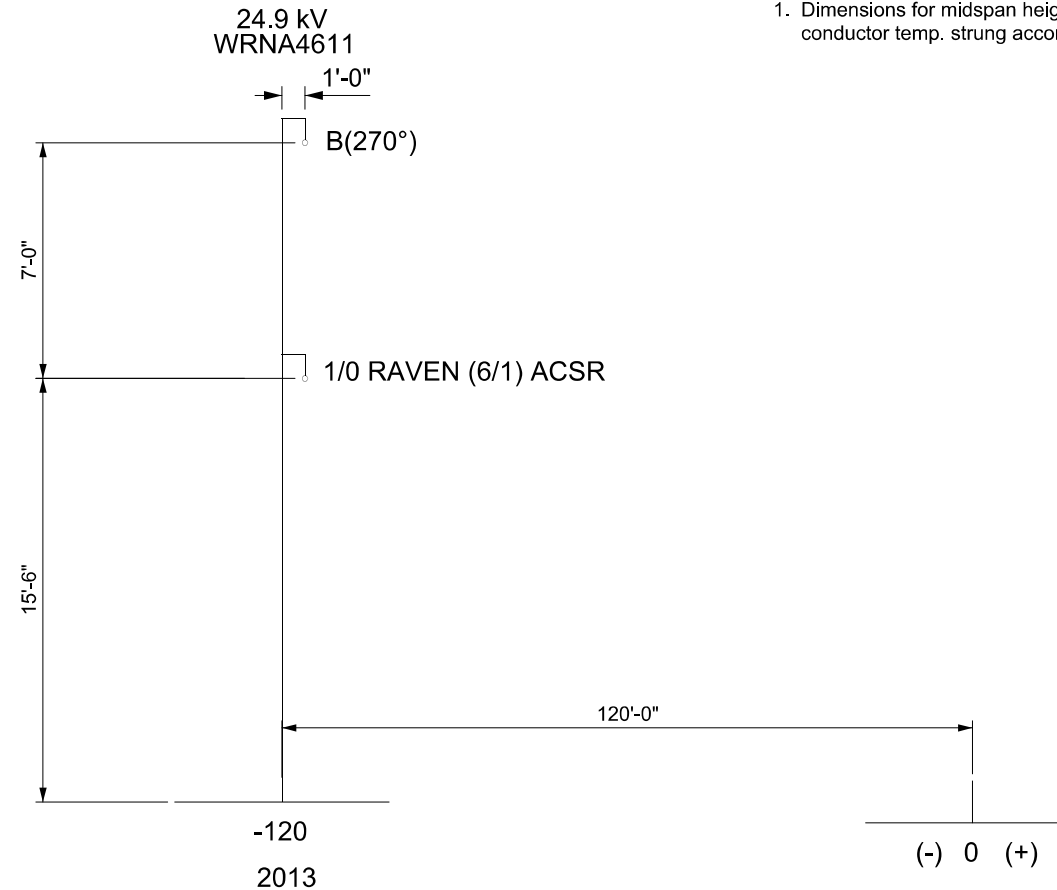
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Segment: N6-D

24.9 kV Distribution 1/0 Raven (6/1) ACSR	
Flow is North	
2013	Normal Peak I=8
	Normal I=6.4

Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.



LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
DISTRIBUTION CURRENT FLOW FOR LINE WRNA4611 IS NORTH

FIGURE 38

0	FINAL	09-27-13
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SCALE

NTS

0



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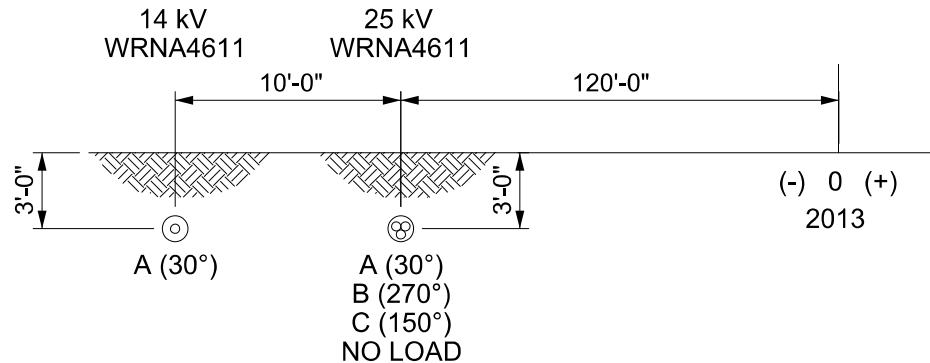
Segment: N6-N

WRNA4611 25 kV Distribution	
4/0 AL	
Flow is North	
2013	Normal Peak
	I=0
	Normal
	I=0

WRNA4611 14 kV Distribution	
1/0 AL	
Flow is North	
2013	Normal Peak
	I=1.0
	Normal
	I=0.8

Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.



LOOKING SOUTH TOWARD NORTH MADISON SUBSTATION
DISTRIBUTION CURRENT FLOW FOR LINE WRNA4611 IS NORTH
DISTRIBUTION CURRENT FLOW FOR LINE WRNA4611 IS NORTH

FIGURE 039

0	FINAL	09-27-13
SCALE		
NTS		

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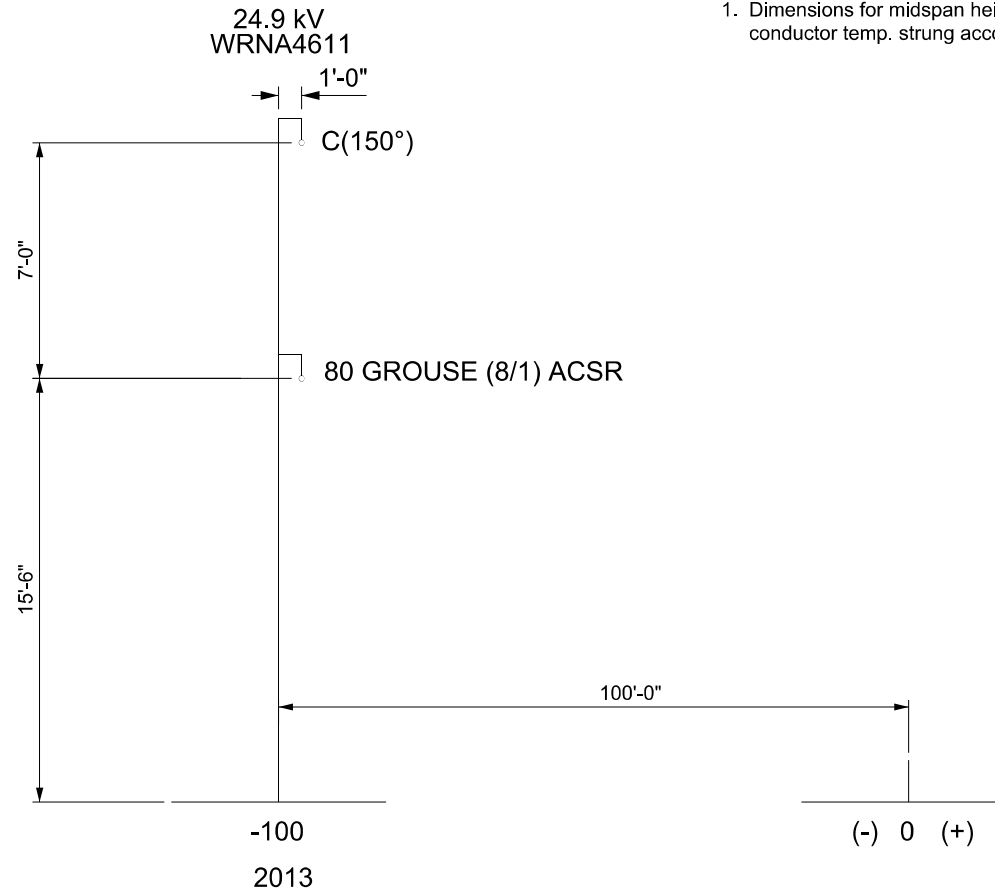
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Segment: N7-C

24.9 kV Distribution	
80 Grouse (8/1) ACSR	
Flow is South	
2013	Normal Peak
	I=1
	Normal
	I=0.8



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
DISTRIBUTION CURRENT FLOW FOR LINE WRNA4611 IS SOUTH

FIGURE 40

0	FINAL	09-27-13
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SCALE

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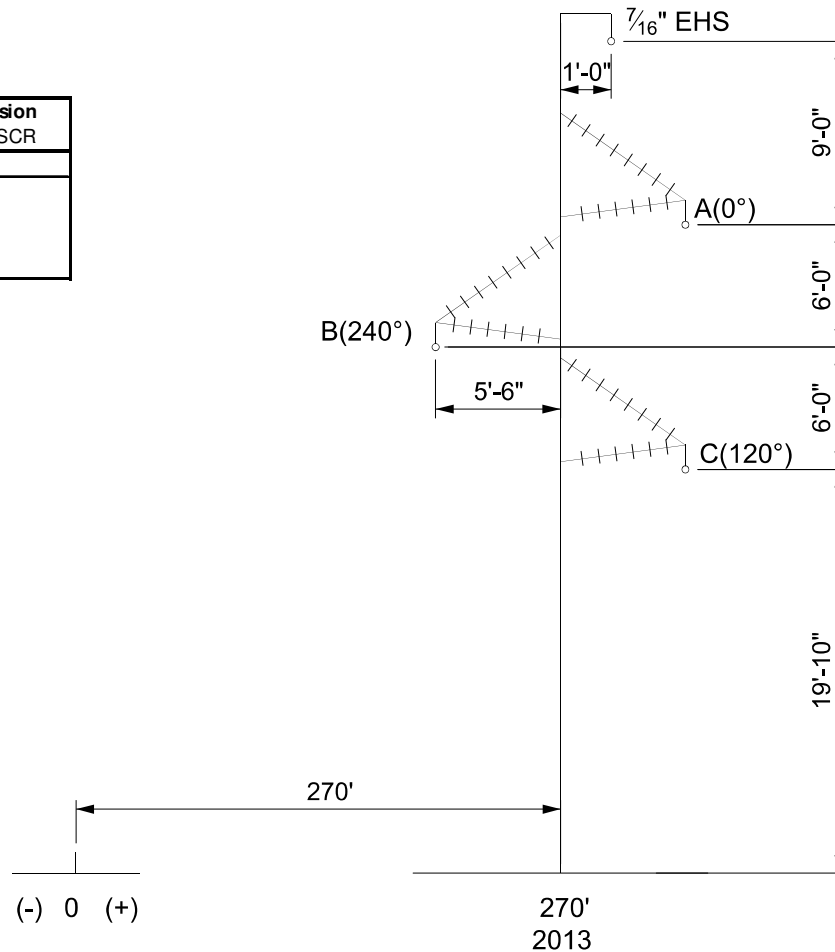
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Appendix G Exhibit 1

69 kV Y-121

Segments: N7-E, N8-A

Y-121 69 kV Transmission	
4/0 T2 Penguin (6/1) ASCR	
Flow is North	
2013	Normal Peak
	I=36.9
	Normal
	I=29.5



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

LOOKING SOUTH TOWARD WARRENS TAP SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE Y-121 IS NORTH

FIGURE 41

0	FINAL	09-27-13
SCALE		
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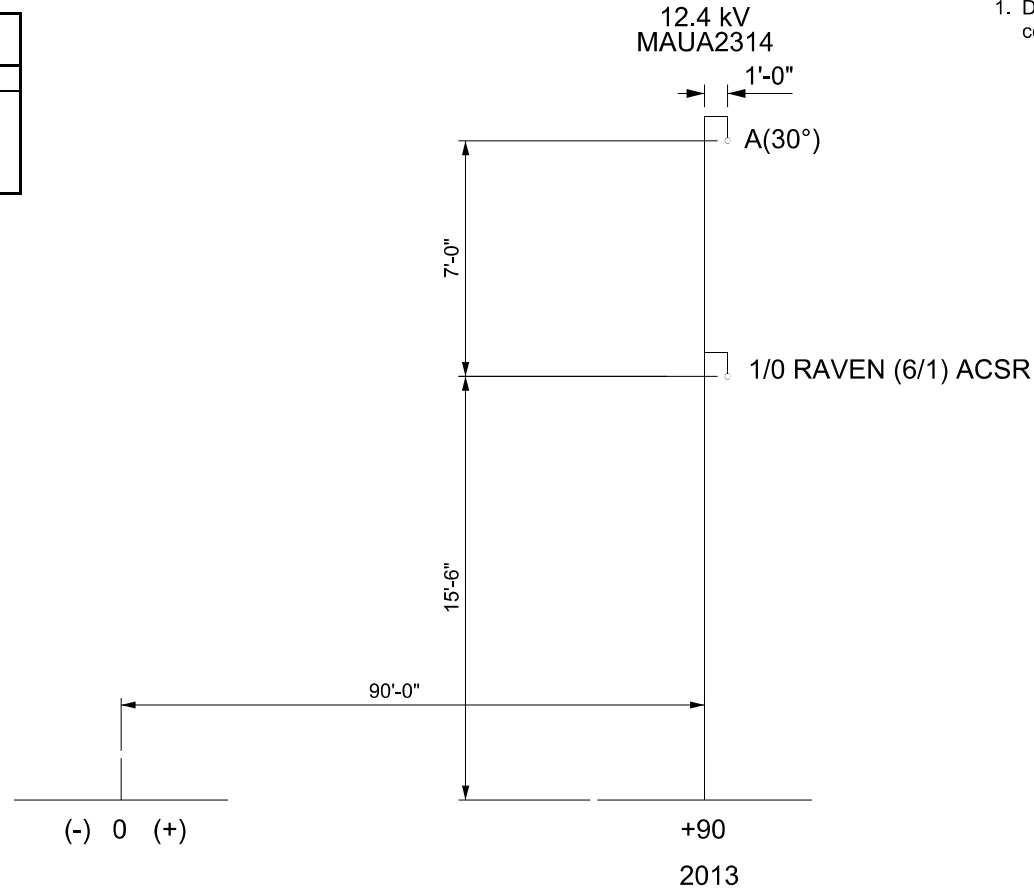
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Segment: N17-B

12.4 kV Distribution	
1/0 Raven (6/1) ACSR	
Flow is West	
2013	Normal Peak
	I=4
	Normal
	I=3.2

Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.



LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
DISTRIBUTION CURRENT FLOW FOR LINE MAUA2314 IS WEST

FIGURE 42

0	FINAL	09-27-13
SCALE		
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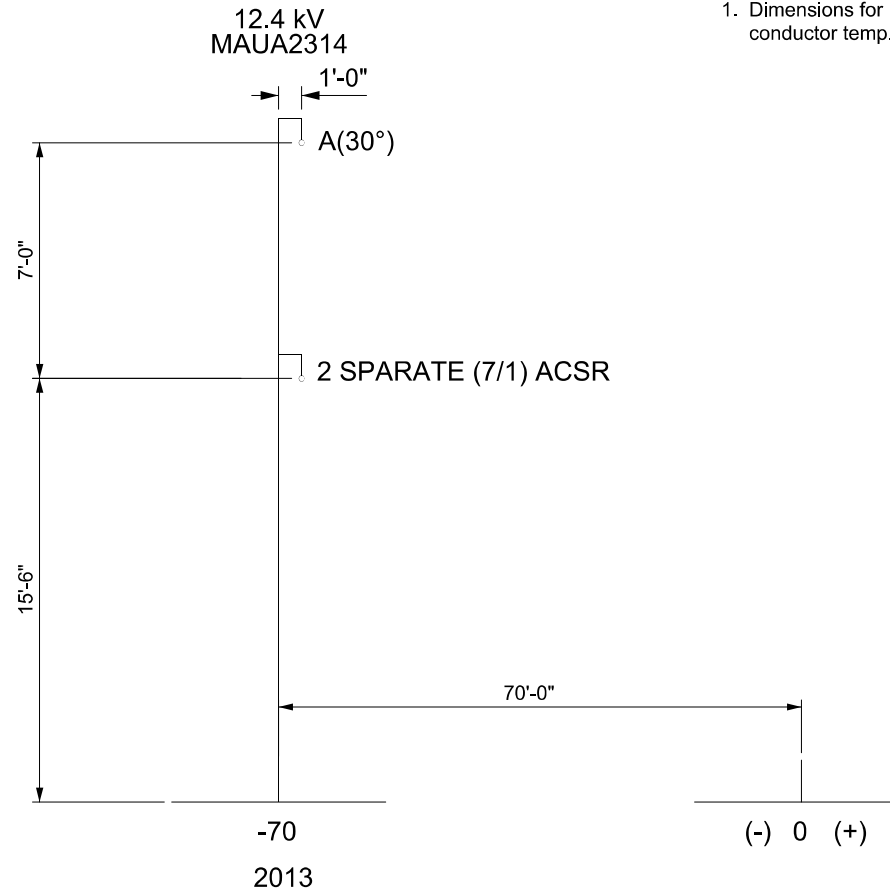
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Segment: N17-D

12.4 kV Distribution	
2 Sparate (7/1) ACSR	
Flow is North	
2013	Normal Peak
	I=65
	Normal
	I=52



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
DISTRIBUTION CURRENT FLOW FOR LINE MAUA2314 IS NORTH

FIGURE 43

0	FINAL	09-27-13
SCALE		
NTS		

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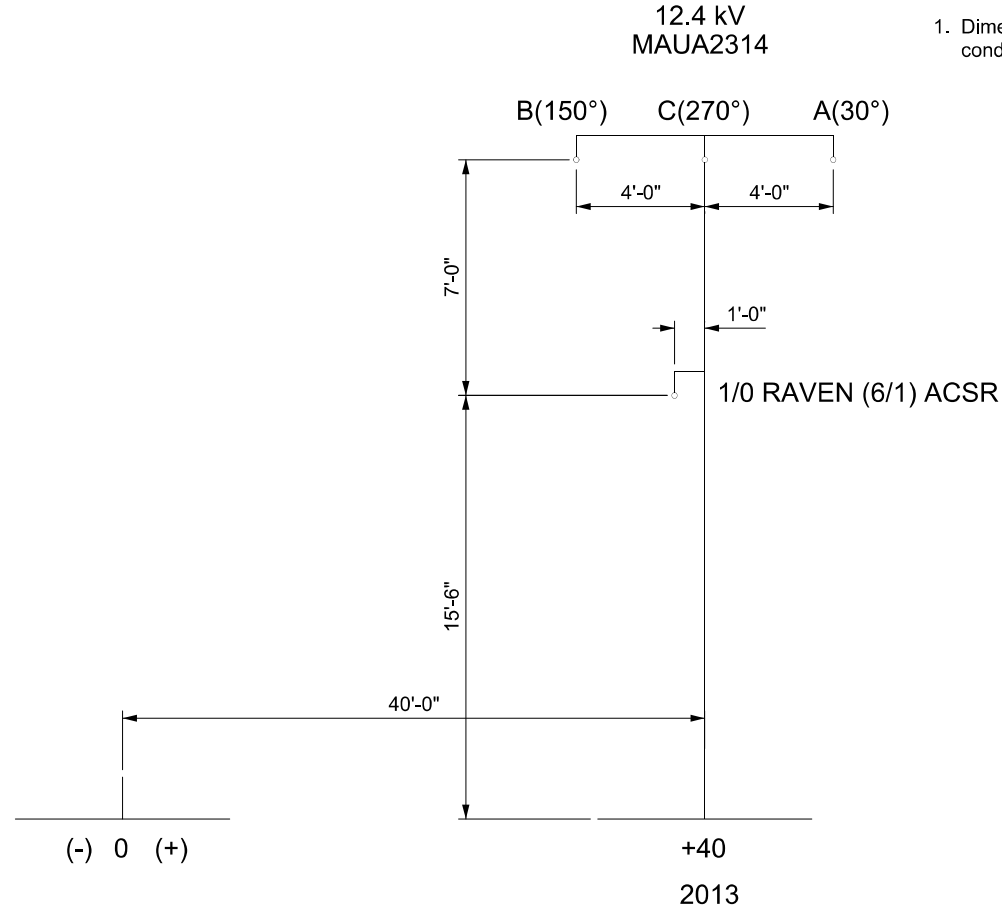
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Segment: N19-B

12.4 kV Distribution	
1/0 Raven (6/1) ACSR	
Flow is West	
2013	Normal Peak
	l=140
	Normal
	l=112



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

LOOKING EAST OR SOUTH TOWARD NORTH MADISON SUBSTATION
DISTRIBUTION CURRENT FLOW FOR LINE MAUA2314 IS WEST

FIGURE 44

0	FINAL	09-27-13
SCALE		
NTS		

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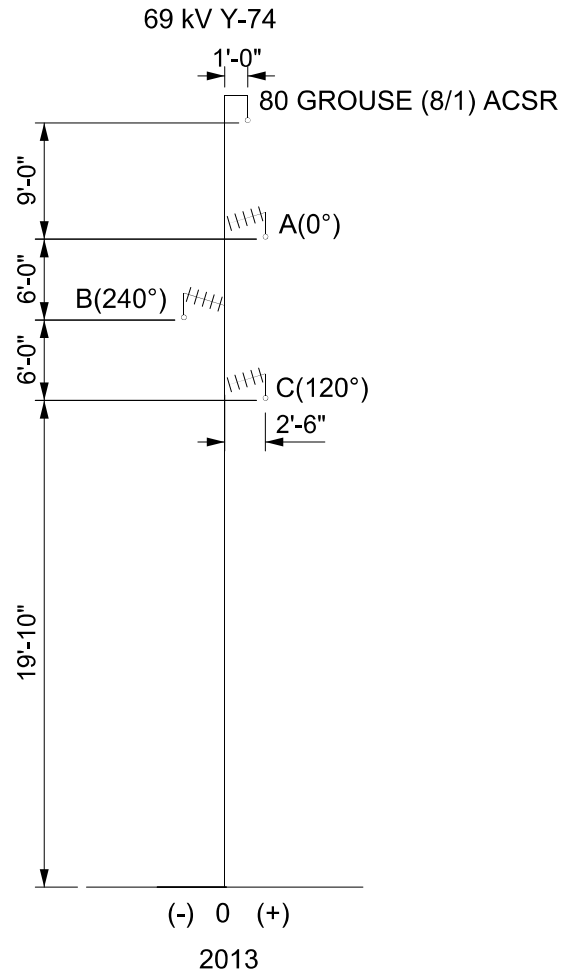
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Segment: N20

Y-74 69 kV Transmission	
336 Linnet (26/7) ACSR	
Flow is East	
2013	Normal Peak
	I=19.1
	Normal
	I=15.3



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

LOOKING EAST TOWARD HILLTOP SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE Y-74 IS EAST

FIGURE 45

0	FINAL	09-27-13
SCALE		
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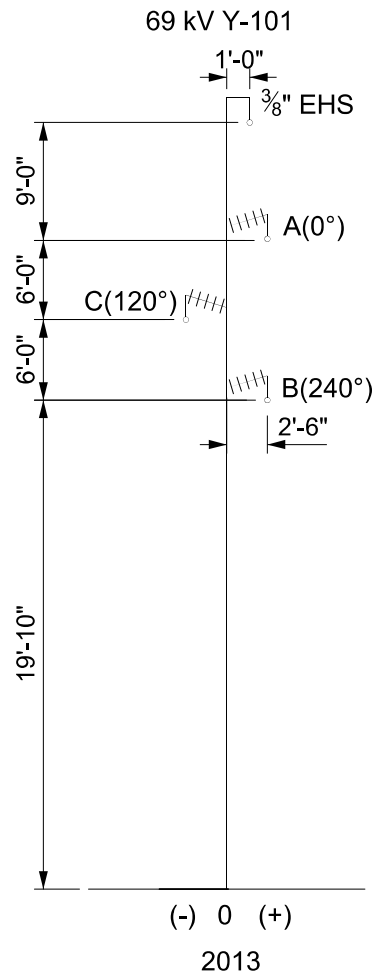
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Segments: N23,M1-A

Y-101 69 kV Transmission	
336 Linnet (26/7) ACSR	
Flow is North	
2013	Normal Peak
	I=53.8
	Normal
	I=43.0



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

LOOKING SOUTH TOWARD KILBOURN SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE Y-101 IS NORTH

FIGURE 46

0	FINAL	09-27-13
SCALE		
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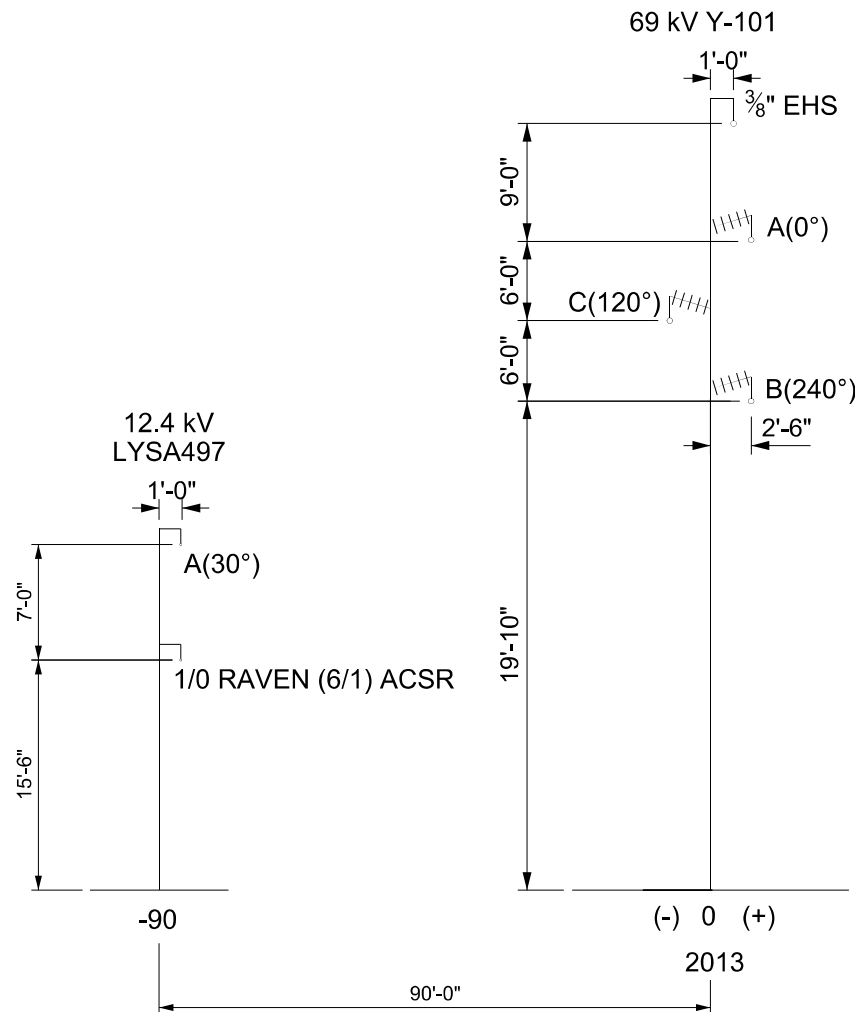
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Segment: M1-B

Y-101 69 kV Transmission	
336 Linnet (26/7) ACSR	
Flow is North	
2013	Normal Peak
	I=66.6
	Normal
	I=53.3

LYSA497 12 kV Distribution	
1/0 Raven (6/1) ACSR	
Flow is North	
2013	Normal Peak
	I=1.0
	Normal
	I=0.8



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

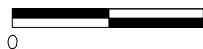
LOOKING SOUTH TOWARD KILBOURN SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE Y-101 IS NORTH
DISTRIBUTION CURRENT FLOW FOR LINE LYSA497 IS NORTH

FIGURE 47

0	FINAL	09-27-13
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SCALE

NTS



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EMF FIGURES
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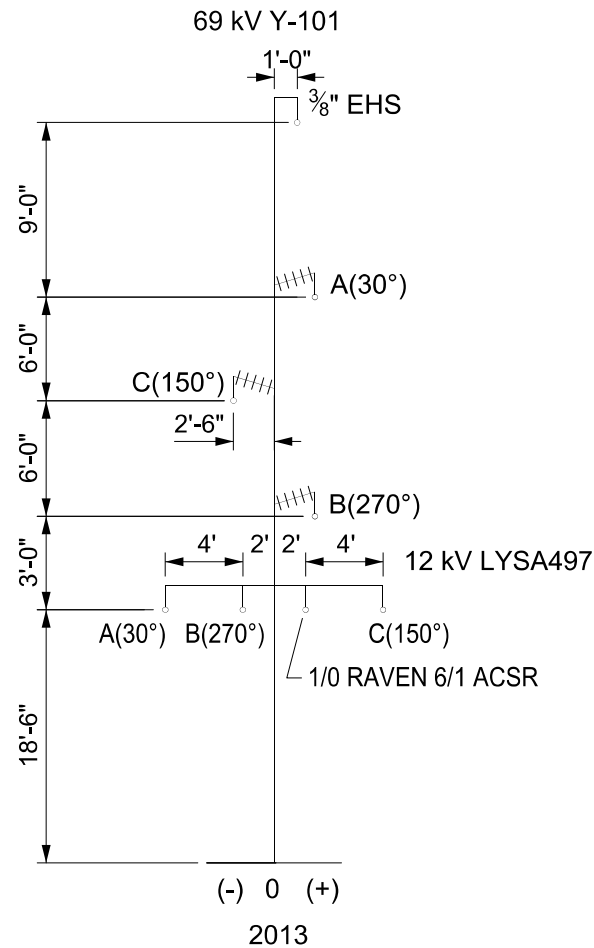
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Appendix G Exhibit 1

Segment: M1-C

Y-101 69 kV Transmission	
336 Linnet (26/7) ACSR	
Flow is North	
2013	Normal Peak
	I=66.6
	Normal
	I=53.3

LYSA497 12 kV Distribution	
3/0 Pigeon (6/1) ACSR	
Flow is South	
2013	Normal Peak
	I=84
	Normal
	I=67.2



Note:

1. Dimensions for midspan heights are assuming maximum conductor temp. strung according to ATC criteria.

LOOKING SOUTH TOWARD KILBOURN SUBSTATION
TRANSMISSION CURRENT FLOW FOR LINE Y-101 IS NORTH
DISTRIBUTION CURRENT FLOW FOR LINE LYSA497 IS SOUTH

FIGURE 48

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