

# Appendix G

## EMF REPORT

# Silicon Valley Power NRS-KRS 115 kV Transmission Line Project

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## EMF Report

Prepared For:

Silicon Valley Power NRS-KRS 115 kV Transmission Line Project MND

Prepared By:

Electrical Consultants Inc.

## NRS-KRS 115 kV Transmission Line Project

### EMF Report

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Attachment A: Transmission Line Information Summary Sheets

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## **1 – Overview**

To support addressing public interest and concern in relation to exposure to electric and magnetic fields (EMF) as part of Silicon Valley Power's (SVP) proposed NRS-KRS Transmission Line Project, a study has been completed to determine the electromagnetic field (EMF) effects of the proposed project. Magnetic field calculations were conducted along the proposed transmission line route to estimate the magnetic field strength when measured 1 meter above ground at various distances from the proposed route centerline. These calculations take into account existing conditions of currently operating power facilities as well as future conditions after installation of the proposed transmission line.

## **2 – Project Description**

The project consists of constructing a new single-circuit 115kV transmission line from Northern Receiving Station (NRS) to the Kifer Receiving Station (KRS). The route considered for this EMF study starts at NRS and follows the median of Lafayette St. to Agnew Rd. After crossing Agnew Rd, the route continues on the east side of Lafayette St. colinear with existing transmission and distribution lines. Before reaching the onramp for Montague Expy. the route crosses Lafayette St. and Bassett St. to continue south along the west side of Bassett St., once again colinear with existing transmission and distribution lines. The route continues south along Bassett St. to the intersection with George St. where Bassett St. turns south. The route crosses Bassett St. at this intersection to continue south on the east side of Bassett St. The route then continues south along Bassett St. until crossing Bayshore Fwy. and continuing into KRS. The total length of the proposed route is about 2.24 miles.

## **3 – Data Gathering Summary**

There are numerous existing power lines within 100 feet of the proposed project centerline. Transmission or distribution lines that run parallel to the proposed centerline for a minimum of 100 feet were deemed long enough to affect the overall EMF of the proposed NRS-KRS transmission line. Therefore, line information was requested and used to complete EMF calculations. Transmission and distribution lines that parallel the transmission line for less than 100 feet or crossed perpendicular to the proposed route were considered non-typical and were excluded from these calculations.

### **3.1 – Data Gathering Process**

Electronic maps of current electric lines and facilities were requested from SVP. After receipt, this electronic data was compared against the proposed centerline and all the facilities that matched the criteria (i.e. within 100 feet of either side of the proposed centerline and running parallel for at least 100 feet) were identified and tabulated. Informational request tables were then compiled and sent to SVP in order to obtain the necessary information to complete the EMF models. Information requests sought existing line information such as voltage, phasing, conductor type, structure configuration, load flow information for the year 2024, forecasted load flow information for the anticipated construction year 2028, and any additional future-date forecasted load flow information if available.

The information for existing transmission lines as well as information for the proposed NRS-KRS transmission line was provided by SVP and is included in Attachment A. The information for existing distribution lines was provided by SVP and is included in Attachment B.

## **4 – Calculation Summary**

Magnetic field profiles were calculated for each typical structure configuration.

### **4.1 – EMF Figure Development & Model Inputs**

The proposed transmission line route was divided into segments representing unique combinations of structure framing, existing power lines, future power lines, and relative distances between existing power lines and the proposed transmission line. These segments are defined in Attachment C. A cross-section figure was then created to represent the typical conditions of each segment and document the inputs used in the magnetic field strength calculation for each segment. Due to minor variations in the installed and proposed facilities within each segment, these cross-section figures and magnetic field strength calculation inputs were created so that the calculated magnetic field strength values would represent the highest expected magnetic field strength for all conditions represented in each segment.

The cross-section figures include the required structure configuration information to properly model the magnetic field strengths in the PLS-CADD modeling software. This information includes the relative conductor attachment dimensions, circuit phasing information, load flow data, and conductor type. Generally the proposed transmission line project will maintain existing power facilities in place. As such each cross-section figure was created to be representative of the existing conditions as well as the future proposed conditions of each segment. The difference in reported magnetic field strengths between the existing condition and future conditions is created by neglecting the contributions due to the proposed transmission line.

### **4.2 – Load Flow Data**

For existing circuits two different years of load flow data were requested: the current year 2024 and year 2028 for the anticipated construction of the proposed NRS-KRS transmission line. For each year, 100 percent of peak load and 80 percent of peak load amperages were requested for use in calculating the corresponding magnetic fields strengths. For the proposed NRS-KRS transmission line, the same data was requested for 2028. EMF calculations were performed for both the existing load data for 2024 and for the anticipated future load data for 2028 including the proposed NRS-KRS transmission line loading. Generally the full reported loading per load case of a given circuit was applied when that given circuit was present in a segment. Additionally loads and relative phase configurations of different circuits were oriented to avoid interference between the calculated magnetic fields of each circuit which would result in a reduction of the reported magnetic field strength. Phase angles were set up to match the standard SVP phasing.

## **5 – Results**

The PLS-CADD modeling software calculates magnetic field strength following the methodology described in *EPRI AC Transmission Line Reference Book*. The results of the EMF study have been organized into tables and figures for inclusion in the MND. The figures are numbered based on the corresponding segment number. The magnetic field strength tables can be found in Attachment D and the transmission line figures can be found in Attachment E. Magnetic field strength values reported as calculated 1 meter above ground. These values are provided up to 60 feet from the proposed NRS-KRS transmission line centerline.

## **6 – References**

1. *EPRI AC Transmission Line Reference Book*

## **Attachment A: Transmission Line Information Summary Sheets**

Overhead Lines					
Existing Information, 2024			Future Information, 2028		
Conductor Type	Peak Load (Amps)	Normal Load (Amps)	Conductor Type	Peak Load (Amps)	Normal Load (Amps)
-	-	-	715KCM 24/7 ACCR "STILT", Bundled	1207	965.6
715KCM 24/7 ACCR "STILT", Bundled	242	193.6	715KCM 24/7 ACCR "STILT", Bundled	242	193.6
715KCM 24/7 ACCR "STILT", Bundled	578	462.4	715KCM 24/7 ACCR "STILT", Bundled	578	462.4

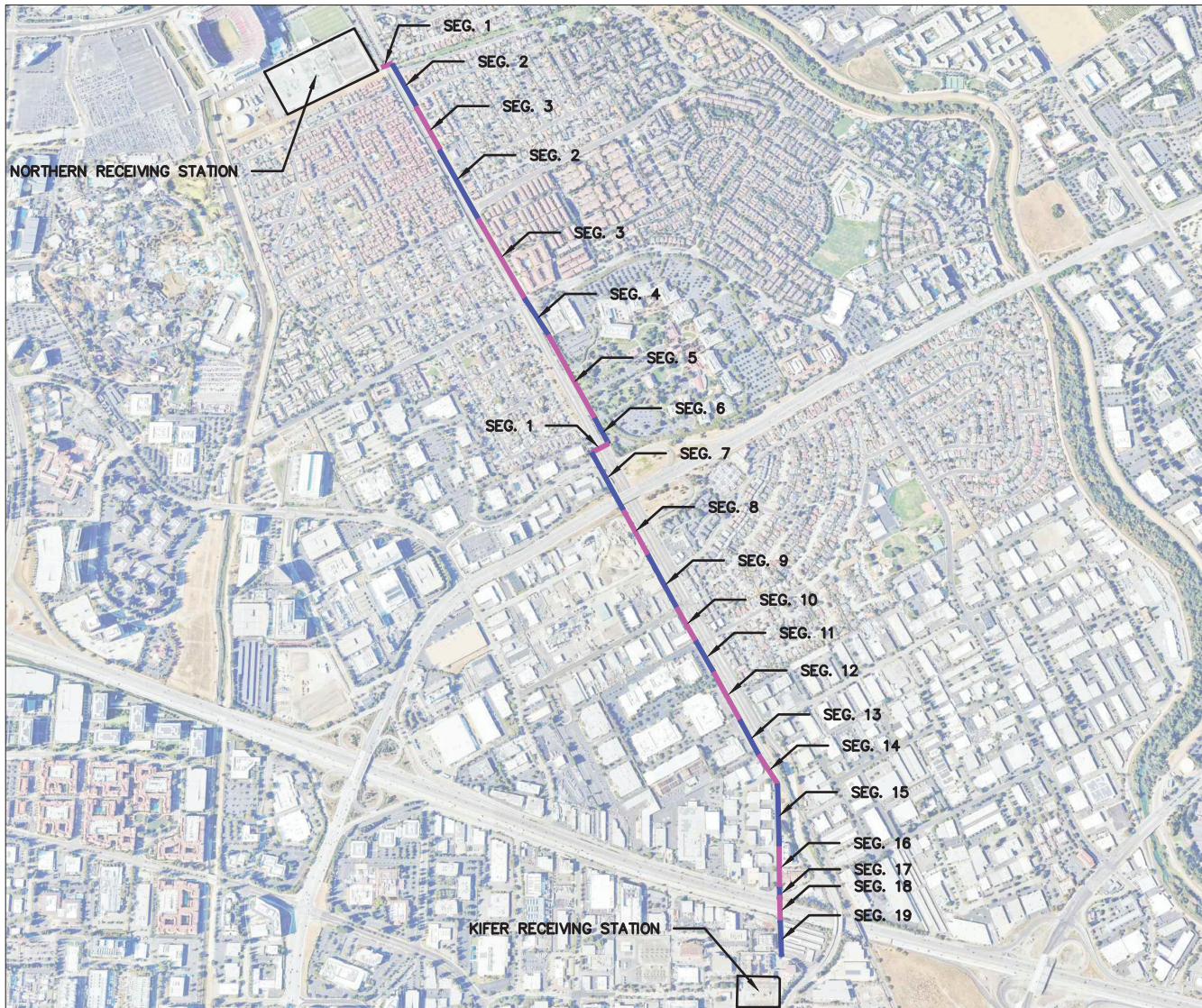
**Attachment B: Distribution Line Information Summary Sheets**



Existing Information, 2024			Future Information, 2028		
Conductor Type	Peak Load (Amps)	Normal Load (Amps)	Conductor Type	Peak Load (Amps)	Normal Load (Amps)
WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	50	40	WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	50	40
WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	241	192.8	WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	241	192.8
WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	69	55.2	WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	69	55.2
WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	111	88.8	WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	111	88.8
WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	219	175.2	WIRE, BARE, AL, 397 MCM, 19 STR., 0.724IN O.D., CODE - CANNA	219	175.2

Underground Lines					
Existing Information, 2024			Future Information, 2028		
Conductor Type	Peak Load (Amps)	Normal Load (Amps)	Conductor Type	Peak Load (Amps)	Normal Load (Amps)
WIRE, UG, 3/C, AL, EPR 1/0 TRIPLEXED, 1/0 FILLED STRAND 220 MIL EPR (133%) FULL NEUTRAL STRAND JACKETED CABLE	50	40	WIRE, UG, 3/C, AL, EPR 1/0 TRIPLEXED, 1/0 FILLED STRAND 220 MIL EPR (133%) FULL NEUTRAL STRAND JACKETED CABLE	50	40
WIRE, UG, 3/C, AL, 750 MCM TRIPLEXED	241	192.8	WIRE, UG, 3/C, AL, 750 MCM TRIPLEXED	241	192.8
WIRE, UG, 3/C, AL, 750 MCM TRIPLEXED	69	55.2	WIRE, UG, 3/C, AL, 750 MCM TRIPLEXED	69	55.2
WIRE, UG, 3/C, AL, EPR 1/0 TRIPLEXED, 1/0 FILLED STRAND 220 MIL EPR (133%) FULL NEUTRAL STRAND JACKETED CABLE	210	168	WIRE, UG, 3/C, AL, EPR 1/0 TRIPLEXED, 1/0 FILLED STRAND 220 MIL EPR (133%) FULL NEUTRAL STRAND JACKETED CABLE	210	168
WIRE, 1100 KCMIL TRIPLEXED, CLASS A, COMPACT ROUND ALUMINUM CONDUCTOR (61 STRAND), ETHYLENE PROPYLENE RUBBER (EPR) INSULATED, JACKETED CONCENTRIC NEUTRAL CABLE	121	96.8	WIRE, 1100 KCMIL TRIPLEXED, CLASS A, COMPACT ROUND ALUMINUM CONDUCTOR (61 STRAND), ETHYLENE PROPYLENE RUBBER (EPR) INSULATED, JACKETED CONCENTRIC NEUTRAL CABLE	121	96.8
WIRE, 1100 KCMIL TRIPLEXED, CLASS A, COMPACT ROUND ALUMINUM CONDUCTOR (61 STRAND), ETHYLENE PROPYLENE RUBBER (EPR) INSULATED, JACKETED CONCENTRIC NEUTRAL CABLE	0	0	WIRE, 1100 KCMIL TRIPLEXED, CLASS A, COMPACT ROUND ALUMINUM CONDUCTOR (61 STRAND), ETHYLENE PROPYLENE RUBBER (EPR) INSULATED, JACKETED CONCENTRIC NEUTRAL CABLE	0	0
WIRE, UG, 3/C, AL, 750 MCM TRIPLEXED	111	88.8	WIRE, UG, 3/C, AL, 750 MCM TRIPLEXED	111	88.8
WIRE, 1100 KCMIL TRIPLEXED, CLASS A, COMPACT ROUND ALUMINUM CONDUCTOR (61 STRAND), ETHYLENE PROPYLENE RUBBER (EPR) INSULATED, JACKETED CONCENTRIC NEUTRAL CABLE	77	61.6	WIRE, 1100 KCMIL TRIPLEXED, CLASS A, COMPACT ROUND ALUMINUM CONDUCTOR (61 STRAND), ETHYLENE PROPYLENE RUBBER (EPR) INSULATED, JACKETED CONCENTRIC NEUTRAL CABLE	77	61.6
WIRE, UG, 3/C, AL, 1000 MCM TRIPLEXED	165	132	WIRE, UG, 3/C, AL, 1000 MCM TRIPLEXED	165	132
WIRE, UG, 3/C, AL, 1000 MCM TRIPLEXED	219	175.2	WIRE, UG, 3/C, AL, 1000 MCM TRIPLEXED	219	175.2
WIRE, UG, 3/C, AL, 1000 MCM TRIPLEXED	56	44.8	WIRE, UG, 3/C, AL, 1000 MCM TRIPLEXED	56	44.8
WIRE, 1100 KCMIL TRIPLEXED, CLASS A, COMPACT ROUND ALUMINUM CONDUCTOR (61 STRAND), ETHYLENE PROPYLENE RUBBER (EPR) INSULATED, JACKETED CONCENTRIC NEUTRAL CABLE	259	207.2	WIRE, 1100 KCMIL TRIPLEXED, CLASS A, COMPACT ROUND ALUMINUM CONDUCTOR (61 STRAND), ETHYLENE PROPYLENE RUBBER (EPR) INSULATED, JACKETED CONCENTRIC NEUTRAL CABLE	259	207.2

## **Attachment C: EMF Segment Map**



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CITY OF SANTA CLARA

**NRS-KRS 115 kV TRANSMISSION LINE**

EMF SEGMENTS

DWG. NAME: EMF SEGMENT MAP

REV NO: A

## **Attachment D: EMF Calculation Tables**

Table 1: Estimated Magnetic Field Data

Segment Number: 1

Configuration Description: Single circuit 115 kV transmission line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-1	See Figure-1	See Figure-1	See Figure-1
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.0	0.0	16.0	20.0
-50	0.0	0.0	19.4	24.3
-40	0.0	0.0	23.3	29.2
-30	0.0	0.0	27.4	34.2
-20	0.0	0.0	31.1	38.8
-10	0.0	0.0	33.7	42.2
0	0.0	0.0	34.7	43.4
10	0.0	0.0	33.7	42.2
20	0.0	0.0	31.1	38.8
30	0.0	0.0	27.4	34.2
40	0.0	0.0	23.3	29.2
50	0.0	0.0	19.4	24.3
60	0.0	0.0	16.0	20.0

**Notes:**

1. See Figure-1 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.



Table 2: Estimated Magnetic Field Data

Segment Number: 2

Configuration Description: Single circuit 115 kV transmission line with adjacent 12 kV overhead distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-2	See Figure-2	See Figure-2	See Figure-2
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	6.4	8.0	14.3	17.9
-50	9.2	11.5	19.4	24.2
-40	11.8	14.8	26.5	33.1
-30	11.8	14.8	31.3	39.1
-20	9.2	11.5	31.7	39.7
-10	6.4	8.0	31.3	39.2
0	4.4	5.5	31.1	38.9
10	3.1	3.9	30.4	38.0
20	2.3	2.9	28.6	35.7
30	1.7	2.2	25.8	32.2
40	1.3	1.7	22.5	28.1
50	1.0	1.3	19.2	24.0
60	0.8	1.0	16.1	20.1

**Notes:**

1. See Figure-2 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 3: Estimated Magnetic Field Data

Segment Number: 3

Configuration Description: Single circuit 115 kV transmission line with adjacent 12 kV underground distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-3	See Figure-3	See Figure-3	See Figure-3
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.9	1.1	14.2	17.7
-50	2.6	3.3	17.9	22.3
-40	10.5	13.2	22.6	28.3
-30	4.6	5.8	20.3	25.4
-20	1.3	1.7	24.8	31.1
-10	0.6	0.7	27.2	34.0
0	0.3	0.4	28.5	35.6
10	0.2	0.2	28.5	35.6
20	0.1	0.1	27.1	33.9
30	0.1	0.1	24.6	30.8
40	0.1	0.1	21.6	27.0
50	0.0	0.1	18.5	23.1
60	0.0	0.0	15.5	19.4

**Notes:**

1. See Figure-3 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 4: Estimated Magnetic Field Data

Segment Number: 4

Configuration Description: Single circuit 115 kV transmission line with four adjacent 12 kV underground distribution lines.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-4	See Figure-4	See Figure-4	See Figure-4
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.4	0.5	13.5	16.8
-50	0.7	0.9	16.6	20.7
-40	1.2	1.5	20.5	25.6
-30	2.6	3.2	25.6	32.0
-20	7.4	9.3	33.6	42.0
-10	18.4	22.9	18.3	22.9
0	14.0	17.5	18.5	23.1
10	6.4	8.0	36.5	45.7
20	2.3	2.9	33.7	42.1
30	1.1	1.4	29.9	37.4
40	0.7	0.8	25.9	32.4
50	0.4	0.5	21.9	27.4
60	0.3	0.4	18.2	22.8

**Notes:**

1. See Figure-4 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.



Table 5: Estimated Magnetic Field Data

Segment Number: 5

Configuration Description: Single circuit 115 kV transmission line with underbuilt 60 kV transmission line and one adjacent 12 kV underground distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-5	See Figure-5	See Figure-5	See Figure-5
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	1.8	2.3	11.9	14.8
-50	2.4	3.0	14.2	17.8
-40	3.3	4.1	17.0	21.2
-30	4.6	5.7	20.2	25.2
-20	6.4	8.0	24.0	29.9
-10	8.8	11.0	27.6	34.5
0	6.9	8.6	27.5	34.4
10	9.2	11.5	30.1	37.6
20	8.0	9.9	27.9	34.9
30	6.3	7.8	24.7	30.9
40	4.7	5.9	21.3	26.6
50	3.5	4.4	18.2	22.7
60	2.6	3.2	15.4	19.2

**Notes:**

1. See Figure-5 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 6: Estimated Magnetic Field Data

Segment Number: 6

Configuration Description: Single circuit 115 kV transmission line with underbuilt 60 kV transmission line and one adjacent 12 kV underground distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-6	See Figure-6	See Figure-6	See Figure-6
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	1.8	2.3	11.9	14.9
-50	2.4	3.1	14.2	17.8
-40	3.3	4.2	17.0	21.3
-30	4.6	5.8	20.3	25.4
-20	6.6	8.3	24.2	30.3
-10	9.6	11.9	28.0	35.0
0	6.4	8.0	26.8	33.5
10	9.5	11.9	30.3	37.8
20	8.1	10.1	28.0	35.0
30	6.3	7.9	24.7	30.9
40	4.7	5.9	21.3	26.7
50	3.5	4.4	18.2	22.7
60	2.6	3.2	15.4	19.2

**Notes:**

1. See Figure-6 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 7: Estimated Magnetic Field Data

Segment Number: 7

Configuration Description: Single circuit 115 kV transmission line with underbuilt 60 kV transmission line and one adjacent 12 kV underground distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-7	See Figure-7	See Figure-7	See Figure-7
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	8.4	10.5	32.8	41.0
-50	10.7	13.4	41.6	52.0
-40	13.7	17.2	52.3	65.4
-30	17.6	22.0	64.1	80.1
-20	22.7	28.3	75.4	94.3
-10	20.0	25.0	75.1	93.9
0	27.7	34.6	82.3	102.9
10	28.0	35.0	76.6	95.7
20	25.7	32.1	66.7	83.3
30	22.0	27.5	55.3	69.1
40	17.9	22.4	44.5	55.6
50	14.3	17.8	35.2	44.0
60	11.2	14.0	27.7	34.6

**Notes:**

1. See Figure-7 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 8: Estimated Magnetic Field Data

Segment Number: 8

Configuration Description: Single circuit 115 kV transmission line with underbuilt 60 kV transmission line and underbuilt 12 kV overhead distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-8	See Figure-8	See Figure-8	See Figure-8
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	7.8	9.8	22.5	28.1
-50	10.0	12.5	27.1	33.9
-40	12.7	15.9	32.3	40.4
-30	15.6	19.6	37.6	47.0
-20	18.3	22.9	42.0	52.6
-10	19.6	24.5	44.1	55.1
0	18.6	23.2	42.5	53.1
10	15.7	19.7	38.0	47.4
20	12.6	15.7	32.6	40.8
30	9.9	12.4	27.6	34.4
40	7.7	9.7	23.0	28.7
50	6.0	7.5	19.0	23.7
60	4.7	5.9	15.6	19.5

**Notes:**

1. See Figure-8 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 9: Estimated Magnetic Field Data

Segment Number: 9

Configuration Description: Single circuit 115 kV transmission line with underbuilt 60 kV transmission line and underbuilt 12 kV overhead distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-9	See Figure-9	See Figure-9	See Figure-9
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	8.3	10.4	21.4	26.8
-50	11.0	13.7	26.1	32.6
-40	14.3	17.9	31.6	39.5
-30	18.3	22.8	37.6	47.1
-20	22.2	27.7	43.3	54.2
-10	24.4	30.5	46.5	58.1
0	23.2	29.0	44.7	55.9
10	19.3	24.1	39.1	48.9
20	15.2	18.9	33.0	41.2
30	11.7	14.7	27.5	34.3
40	9.0	11.2	22.7	28.3
50	6.9	8.6	18.6	23.3
60	5.3	6.6	15.3	19.1

**Notes:**

1. See Figure-9 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 10: Estimated Magnetic Field Data

Segment Number: 10

Configuration Description: Single circuit 115 kV transmission line with underbuilt 12 kV overhead distribution line.

Current (A)	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
	See Figure-10	See Figure-10	See Figure-10	See Figure-10
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.6	0.7	22.8	28.5
-50	0.7	0.9	28.5	35.7
-40	1.0	1.2	35.1	43.9
-30	1.3	1.7	41.9	52.4
-20	1.8	2.2	47.6	59.4
-10	2.2	2.8	50.5	63.1
0	2.5	3.1	49.9	62.4
10	2.2	2.8	45.9	57.4
20	1.8	2.2	39.6	49.5
30	1.3	1.7	32.6	40.7
40	1.0	1.2	26.2	32.7
50	0.7	0.9	20.7	25.9
60	0.6	0.7	16.4	20.5

**Notes:**

1. See Figure-10 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 11: Estimated Magnetic Field Data

Segment Number: 11

Configuration Description: Single circuit 115 kV transmission line with adjacent 12 kV underground distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-11	See Figure-11	See Figure-11	See Figure-11
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.1	0.1	23.2	29.0
-50	0.1	0.1	29.1	36.4
-40	0.2	0.2	35.9	44.8
-30	0.3	0.4	42.7	53.4
-20	1.1	1.4	48.1	60.2
-10	3.6	4.5	55.3	69.1
0	1.1	1.4	49.8	62.3
10	0.3	0.4	45.3	56.6
20	0.2	0.2	38.7	48.4
30	0.1	0.1	31.8	39.7
40	0.1	0.1	25.5	31.8
50	0.0	0.0	20.2	25.3
60	0.0	0.0	16.0	20.0

**Notes:**

1. See Figure-11 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 12: Estimated Magnetic Field Data

Segment Number: 12

Configuration Description: Single circuit 115 kV transmission line with two adjacent 12 kV underground distribution lines.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-12	See Figure-12	See Figure-12	See Figure-12
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.2	0.2	15.7	19.6
-50	0.3	0.3	18.5	23.1
-40	0.5	0.6	21.4	26.7
-30	0.9	1.2	24.3	30.4
-20	2.5	3.2	27.1	33.9
-10	7.1	8.9	22.8	28.5
0	8.4	10.6	25.2	31.5
10	2.2	2.8	26.1	32.7
20	0.9	1.1	22.8	28.5
30	0.4	0.5	19.7	24.7
40	0.3	0.3	16.8	21.0
50	0.2	0.2	14.2	17.7
60	0.1	0.1	11.8	14.8

**Notes:**

1. See Figure-12 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.



Table 13: Estimated Magnetic Field Data

Segment Number: 13

Configuration Description: Single circuit 115 kV transmission line with adjacent 12 kV underground distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-13	See Figure-13	See Figure-13	See Figure-13
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.0	0.1	15.6	19.5
-50	0.1	0.1	18.3	22.9
-40	0.1	0.1	21.0	26.3
-30	0.2	0.3	23.6	29.4
-20	0.5	0.6	25.6	32.0
-10	2.0	2.5	25.9	32.4
0	2.6	3.3	24.9	31.1
10	0.6	0.8	24.7	30.9
20	0.2	0.3	22.2	27.7
30	0.1	0.2	19.4	24.3
40	0.1	0.1	16.7	20.9
50	0.0	0.1	14.1	17.6
60	0.0	0.0	11.8	14.7

**Notes:**

1. See Figure-13 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 14: Estimated Magnetic Field Data

Segment Number: 14

Configuration Description: Single circuit 115 kV transmission line with two adjacent 12 kV underground distribution lines.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-14	See Figure-14	See Figure-14	See Figure-14
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.2	0.2	15.1	18.9
-50	0.3	0.3	17.7	22.2
-40	0.4	0.5	20.4	25.5
-30	0.8	1.0	23.0	28.8
-20	2.1	2.6	25.6	32.0
-10	8.2	10.2	24.9	31.1
0	9.8	12.3	23.9	29.9
10	2.4	3.0	25.1	31.3
20	0.9	1.2	21.8	27.3
30	0.5	0.6	18.9	23.7
40	0.3	0.3	16.2	20.3
50	0.2	0.2	13.7	17.1
60	0.1	0.1	11.5	14.4

**Notes:**

1. See Figure-14 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 15: Estimated Magnetic Field Data

Segment Number: 15

Configuration Description: Single circuit 115 kV transmission line with adjacent 12 kV underground distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-15	See Figure-15	See Figure-15	See Figure-15
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.0	0.0	11.1	13.9
-50	0.0	0.0	13.2	16.5
-40	0.1	0.1	15.4	19.3
-30	0.1	0.1	17.8	22.2
-20	0.1	0.1	20.0	25.1
-10	0.2	0.2	21.9	27.4
0	0.2	0.3	23.2	29.0
10	0.5	0.6	23.7	29.6
20	1.0	1.3	23.2	29.0
30	3.2	4.0	21.2	26.6
40	10.6	13.2	12.2	15.2
50	3.2	4.0	19.7	24.7
60	1.0	1.3	15.4	19.3

**Notes:**

1. See Figure-15 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 16: Estimated Magnetic Field Data

Segment Number: 16

Configuration Description: Single circuit 115 kV transmission line with adjacent 12 kV underground distribution line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-16	See Figure-16	See Figure-16	See Figure-16
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.1	0.1	11.5	14.4
-50	0.2	0.2	13.7	17.2
-40	0.3	0.4	16.3	20.3
-30	0.6	0.8	19.1	23.9
-20	1.5	1.9	22.4	28.0
-10	5.8	7.2	25.1	31.4
0	7.7	9.6	20.5	25.7
10	1.9	2.4	25.8	32.3
20	0.7	0.9	24.5	30.6
30	0.4	0.4	22.5	28.2
40	0.2	0.3	20.2	25.2
50	0.1	0.2	17.6	22.0
60	0.1	0.1	15.1	18.8

**Notes:**

1. See Figure-16 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 17: Estimated Magnetic Field Data

Segment Number: 17

Configuration Description: Single circuit 115 kV transmission line with two adjacent 12 kV underground distribution lines.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-17	See Figure-17	See Figure-17	See Figure-17
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	0.0	0.0	11.1	13.9
-50	0.1	0.1	13.2	16.5
-40	0.1	0.1	15.4	19.3
-30	0.1	0.1	17.8	22.3
-20	0.1	0.2	20.1	25.1
-10	0.2	0.3	22.0	27.5
0	0.3	0.4	23.3	29.1
10	0.6	0.8	23.8	29.7
20	1.3	1.7	23.5	29.3
30	4.2	5.2	21.4	26.8
40	14.2	17.7	10.6	13.3
50	4.3	5.4	20.8	26.0
60	1.4	1.7	15.8	19.7

**Notes:**

1. See Figure-17 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 18: Estimated Magnetic Field Data

Segment Number: 18

Configuration Description: Single circuit 115 kV transmission line with underbuilt 60 kV transmission line.

	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
Current (A)	See Figure-18	See Figure-18	See Figure-18	See Figure-18
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	3.4	4.2	15.6	19.4
-50	4.5	5.6	18.7	23.4
-40	6.0	7.4	22.4	28.1
-30	7.8	9.8	26.6	33.2
-20	9.9	12.4	30.9	38.6
-10	11.8	14.8	34.4	43.0
0	12.6	15.7	35.9	44.8
10	11.8	14.8	34.4	43.0
20	9.9	12.4	30.9	38.6
30	7.8	9.8	26.6	33.2
40	6.0	7.4	22.4	28.1
50	4.5	5.6	18.7	23.4
60	3.4	4.2	15.6	19.4

**Notes:**

1. See Figure-18 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

Table 19: Estimated Magnetic Field Data

Segment Number: 19

Configuration Description: Single circuit 115 kV transmission line with underbuilt 60 kV transmission line and three adjacent 12 kV underground distribution lines.

Current (A)	Existing 2024		Future 2028	
	Normal Load (A)	Peak Load (A)	Normal Load (A)	Peak Load (A)
	See Figure-19	See Figure-19	See Figure-19	See Figure-19
Distance from Centerline (ft)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)	Magnetic Field (mG)
-60	2.5	3.1	12.2	15.2
-50	3.3	4.1	14.6	18.2
-40	4.4	5.5	17.5	21.8
-30	5.9	7.4	20.8	26.0
-20	7.8	9.8	24.6	30.7
-10	9.9	12.4	28.4	35.5
0	11.6	14.5	31.2	39.0
10	12.0	15.0	31.9	39.8
20	10.9	13.6	30.2	37.7
30	7.6	9.6	25.6	32.0
40	21.4	26.8	13.1	16.3
50	12.5	15.6	26.2	32.8
60	5.3	6.6	18.0	22.5

**Notes:**

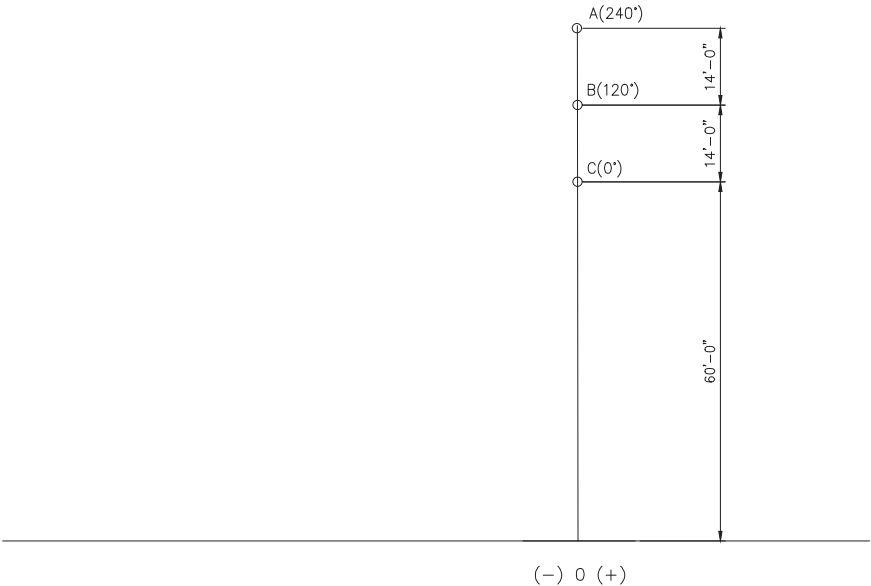
1. See Figure-19 for conductor elevation and relative positioning to the proposed NRS-KRS transmission line.
2. "Peak Load" is defined as 100% of the estimated peak load as reported by SVP under typical system operations. "Normal Load" is defined as 80% of the estimated peak load.
3. The Magnetic Field Values are the estimated resultant RMS magnetic field at the specified distance from the centerline of the proposed NRS-KRS transmission line at a height of one meter above the ground. Magnetic Field Values are calculated using PLS-CADD's EMF calculator.
4. Negative values of the Distance from Centerline represent the distance to the left of the centerline when looking down the line towards the Kifer Receiving Station.
5. Magnetic Field Values are based on available information including load data, utility record data, site conditions, survey data, and proposed future configurations of new and existing power facilities. In some cases model configurations were created to be representative of multiple similar proposed installed configurations. In these cases, input values were selected so that the reported Magnetic Field Values would represent the highest expected field strength for the represented proposed installed configurations.

## **Attachment E: EMF Figures**



NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stillt", Bundled	
2024	Peak (A)
	-
	Normal (A)
2028	-
	Peak (A)
	1207
	Normal (A)
	965.6

115 kV  
NRS-KRS

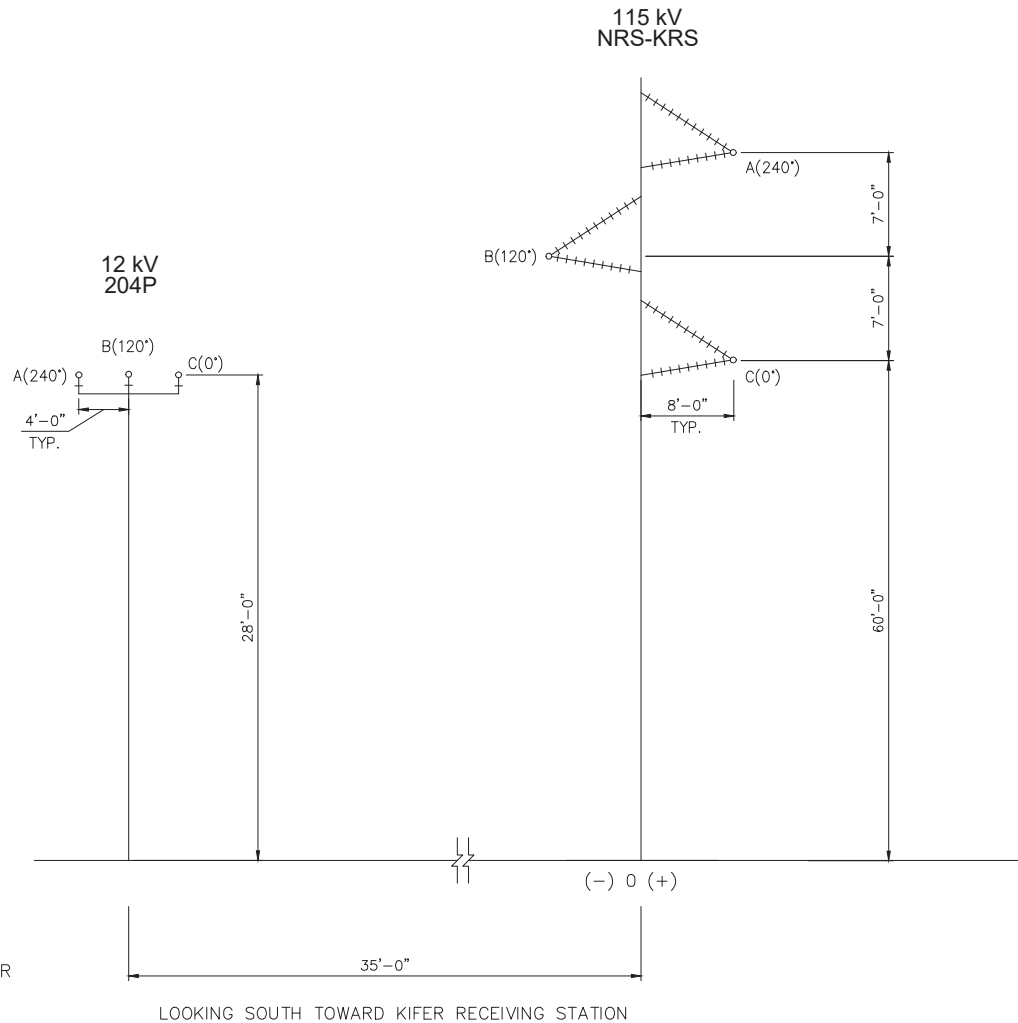


LOOKING SOUTH TOWARD KIFER RECEIVING STATION

NOTES:

1. THE DIMENSIONED HEIGHTS ABOVE GROUND ARE THE HEIGHTS ABOVE GROUND THAT ARE USED IN THE MAGNETIC FIELD STRENGTH CALCULATIONS. THESE DIMENSIONED HEIGHTS ARE REPRESENTATIVE OF THE MINIMUM EXISTING OR PROPOSED CONDUCTOR CLEARANCE IN THE SPECIFIED SEGMENT.
2. BUNDLED ACCR "STILT" CONDUCTOR HAS TWO SUB-CONDUCTORS SPACED VERTICALLY 12" APART. THE FINAL HEIGHT ABOVE GROUND FOR THIS CONDUCTOR IS 0'-6" LESS THAN THE DIMENSIONED HEIGHT.

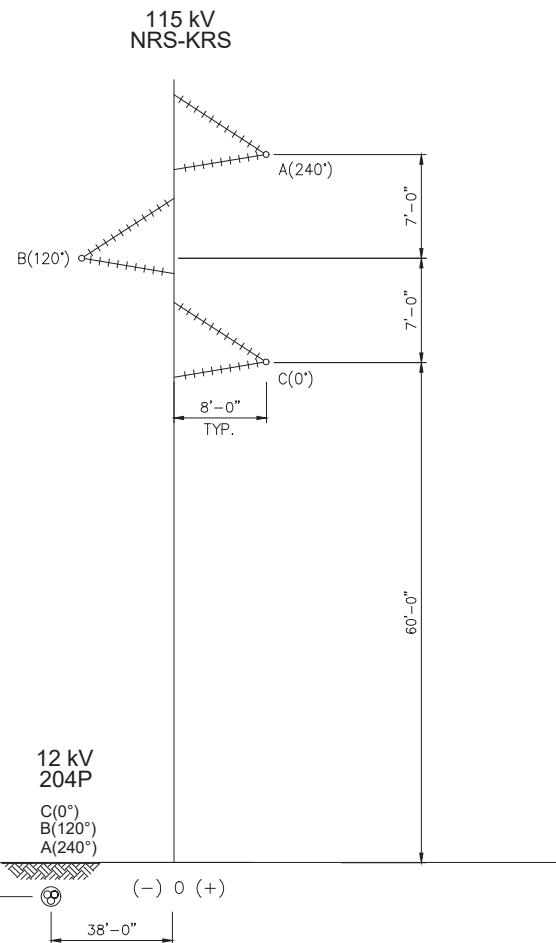
NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A) -
	Normal (A) -
2028	Peak (A) 1207
	Normal (A) 965.6
204P, 12 kV Distribution	
397.5 kcmil 19/0 AAC "Canna"	
2024	Peak (A) 219
	Normal (A) 175.2
2028	Peak (A) 219
	Normal (A) 175.2



#### NOTES:

1. THE DIMENSIONED HEIGHTS ABOVE GROUND ARE THE HEIGHTS ABOVE GROUND THAT ARE USED IN THE MAGNETIC FIELD STRENGTH CALCULATIONS. THESE DIMENSIONED HEIGHTS ARE REPRESENTATIVE OF THE MINIMUM EXISTING OR PROPOSED CONDUCTOR CLEARANCE IN THE SPECIFIED SEGMENT.
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NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A)
	-
2028	Peak (A)
	1207
2024	Normal (A)
	965.6
204P, 12 kV Distribution	
1000 MCM 3/C UG AL Triplexed	
2024	Peak (A)
	219
2028	Peak (A)
	219
2024	Normal (A)
	175.2
2028	Normal (A)
	175.2



- NOTES:
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LOOKING SOUTH TOWARD KIFER RECEIVING STATION

**NRS-KRS, 115 kV Transmission**  
715 kcmil 24/7 ACCR "Stillt", Bundled

2024	Peak (A) -
	Normal (A) -
2028	Peak (A) 1207
	Normal (A) 965.6

**104P, 12 kV Distribution**  
1100 kcmil UG AL EPR Triplexed

2024	Peak (A) 121
	Normal (A) 96.8
2028	Peak (A) 121
	Normal (A) 96.8

**202P, 12 kV Distribution**  
1100 kcmil UG AL EPR Triplexed

2024	Peak (A) 77
	Normal (A) 61.6
2028	Peak (A) 77
	Normal (A) 61.6

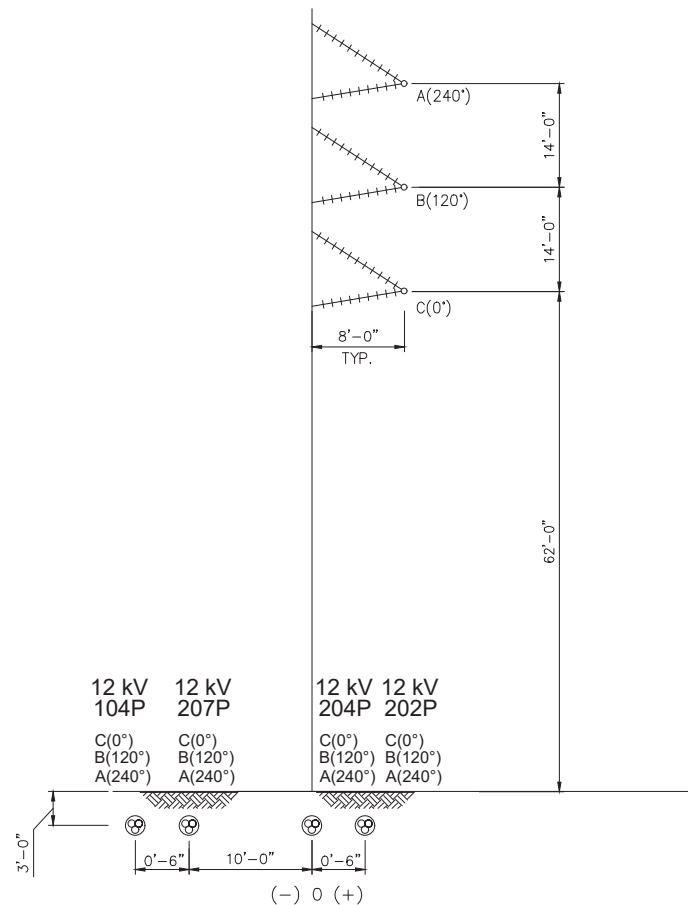
**204P, 12 kV Distribution**  
1000 MCM 3/C UG AL Triplexed

2024	Peak (A) 219
	Normal (A) 175.2
2028	Peak (A) 219
	Normal (A) 175.2

**207P, 12 kV Distribution**  
1100 kcmil UG AL EPR Triplexed

2024	Peak (A) 259
	Normal (A) 207.2
2028	Peak (A) 259
	Normal (A) 207.2

**115 kV  
NRS-KRS**



**NOTES:**

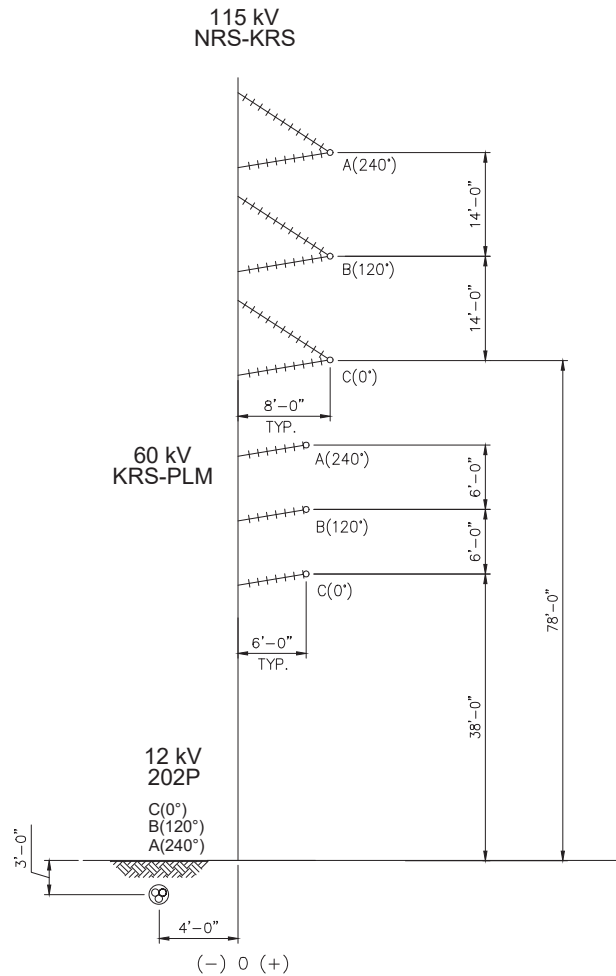
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LOOKING SOUTH TOWARD KIFER RECEIVING STATION

NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A) -
	Normal (A) -
2028	Peak (A) 1207
	Normal (A) 965.6

KRS-PLM, 60 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A) 242
	Normal (A) 193.6
2028	Peak (A) 242
	Normal (A) 193.6

202P, 12 kV Distribution	
1100 kcmil UG AL EPR Triplexed	
2024	Peak (A) 77
	Normal (A) 61.6
2028	Peak (A) 77
	Normal (A) 61.6



#### NOTES:

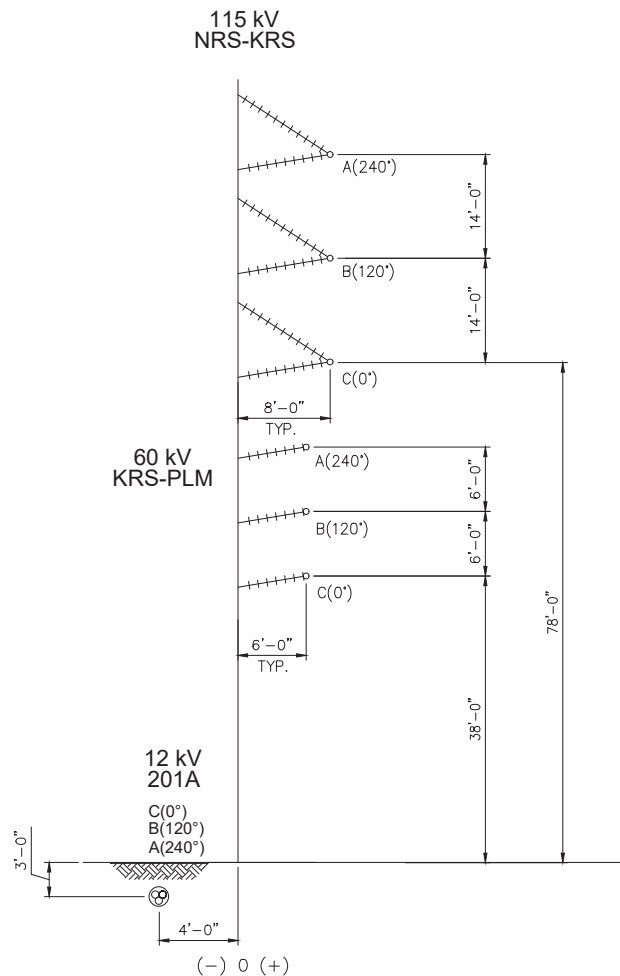
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LOOKING SOUTH TOWARD KIFER RECEIVING STATION

NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Still", Bundled	
2024	Peak (A)
	-
2028	Peak (A)
	1207
2028	Normal (A)
	965.6

KRS-PLM, 60 kV Transmission	
715 kcmil 24/7 ACCR "Still", Bundled	
2024	Peak (A)
	242
2028	Peak (A)
	242
2028	Normal (A)
	193.6

201A, 12 kV Distribution	
750 MCM 3/C UG AL Triplexed	
2024	Peak (A)
	111
2028	Peak (A)
	111
2028	Normal (A)
	88.8



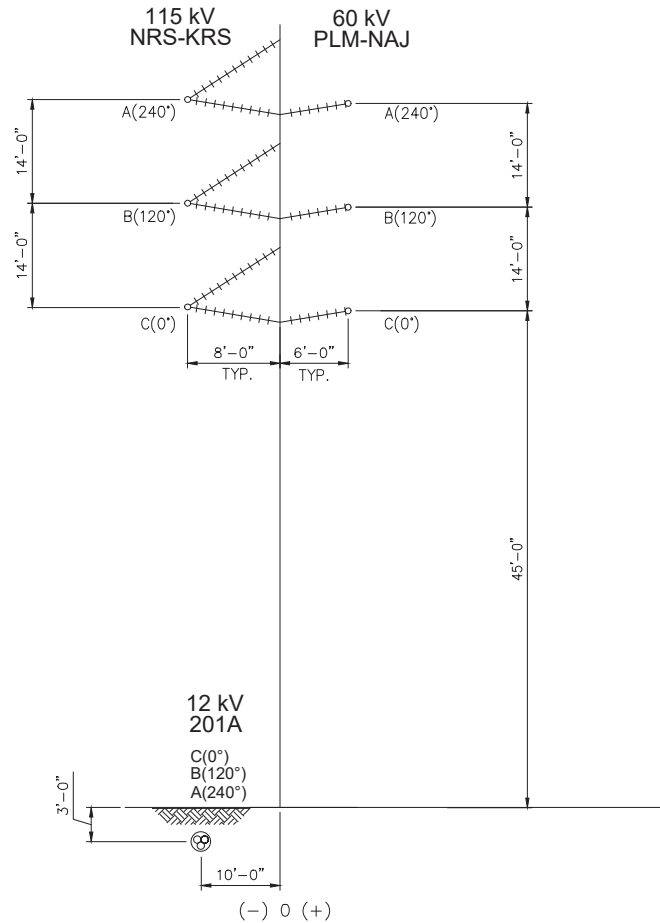
- NOTES:
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  2. BUNDLED ACCR "STILT" CONDUCTOR HAS TWO SUB-CONDUCTORS SPACED VERTICALLY 12" APART. THE FINAL HEIGHT ABOVE GROUND FOR THIS CONDUCTOR IS 0'-6" LESS THAN THE DIMENSIONED HEIGHT.

LOOKING SOUTH TOWARD KIFER RECEIVING STATION

NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Still", Bundled	
2024	Peak (A) - Normal (A) -
2028	Peak (A) 1207 Normal (A) 965.6

PLM-NAJ, 60 kV Transmission	
715 kcmil 24/7 ACCR "Still", Bundled	
2024	Peak (A) 578 Normal (A) 462.4
2028	Peak (A) 578 Normal (A) 462.4

201A, 12 kV Distribution	
750 MCM 3/C UG AL Triplexed	
2024	Peak (A) 111 Normal (A) 88.8
2028	Peak (A) 111 Normal (A) 88.8



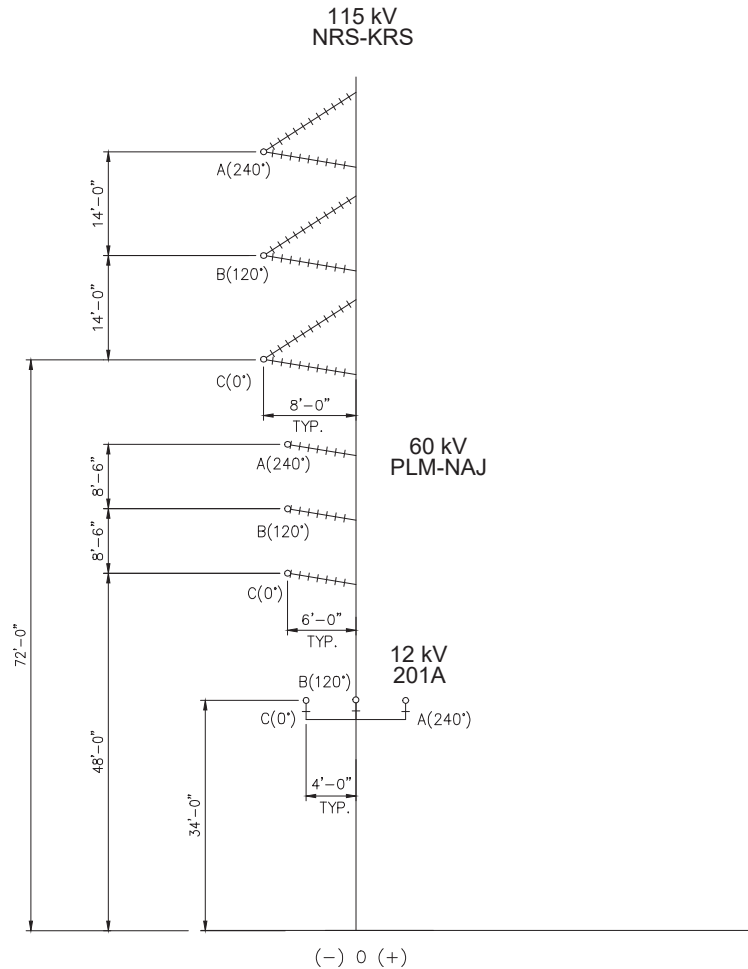
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LOOKING SOUTH TOWARD KIFER RECEIVING STATION

NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stillt", Bundled	
2024	Peak (A) - Normal (A) -
2028	Peak (A) 1207 Normal (A) 965.6

PLM-NAJ, 60 kV Transmission	
715 kcmil 24/7 ACCR "Stillt", Bundled	
2024	Peak (A) 578 Normal (A) 462.4
2028	Peak (A) 578 Normal (A) 462.4

201A, 12 kV Distribution	
397.5 kcmil 19/0 AAC "Canna"	
2024	Peak (A) 111 Normal (A) 88.8
2028	Peak (A) 111 Normal (A) 88.8



NOTES:

1. THE DIMENSIONED HEIGHTS ABOVE GROUND ARE THE HEIGHTS ABOVE GROUND THAT ARE USED IN THE MAGNETIC FIELD STRENGTH CALCULATIONS. THESE DIMENSIONED HEIGHTS ARE REPRESENTATIVE OF THE MINIMUM EXISTING OR PROPOSED CONDUCTOR CLEARANCE IN THE SPECIFIED SEGMENT.
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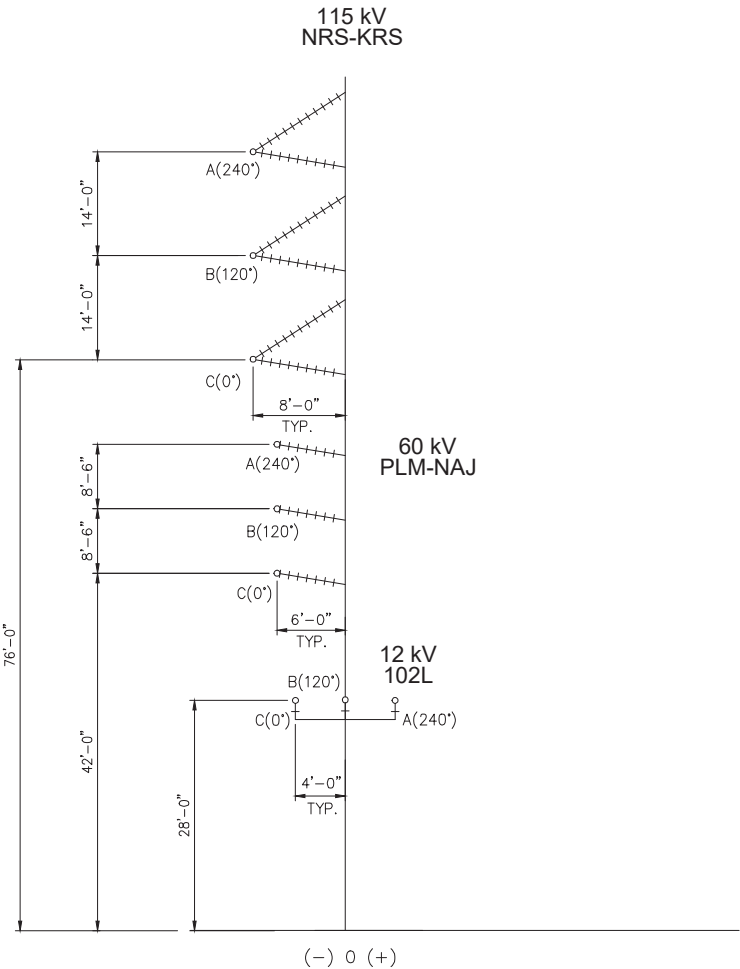
LOOKING SOUTH TOWARD KIFER RECEIVING STATION



NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A) - Normal (A) -
2028	Peak (A) 1207 Normal (A) 965.6

PLM-NAJ, 60 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A) 578 Normal (A) 462.4
2028	Peak (A) 578 Normal (A) 462.4

102L, 12 kV Distribution	
397.5 kcmil 19/0 AAC "Canna"	
2024	Peak (A) 69 Normal (A) 55.2
2028	Peak (A) 69 Normal (A) 55.2

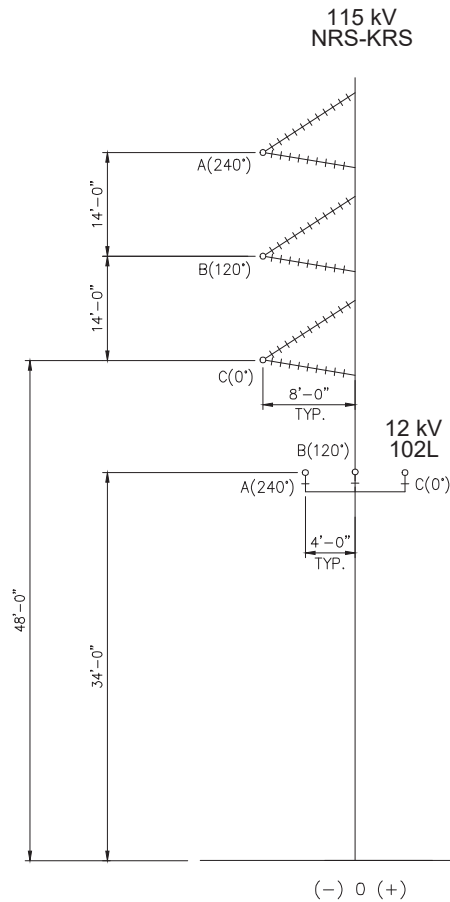


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LOOKING SOUTH TOWARD KIFER RECEIVING STATION

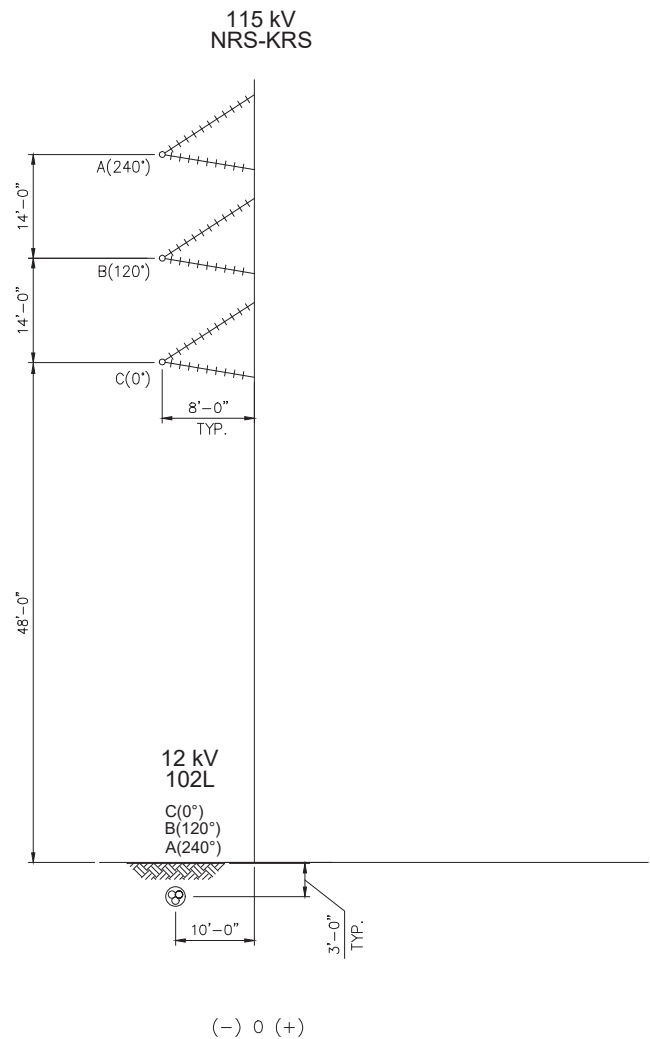
NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stillt", Bundled	
2024	Peak (A) - Normal (A) -
2028	Peak (A) 1207 Normal (A) 965.6
102L, 12 kV Distribution	
397.5 kcmil 19/0 AAC "Canna"	
2024	Peak (A) 69 Normal (A) 55.2
2028	Peak (A) 69 Normal (A) 55.2



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NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A) - Normal (A) -
2028	Peak (A) 1207 Normal (A) 965.6
102L, 12 kV Distribution	
750 MCM 3/C UG AL Triplexed	
2024	Peak (A) 69 Normal (A) 55.2
2028	Peak (A) 69 Normal (A) 55.2



LOOKING SOUTH TOWARD KIFER RECEIVING STATION

- NOTES:
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**NRS-KRS, 115 kV Transmission**  
715 kcmil 24/7 ACCR "Stilt", Bundled

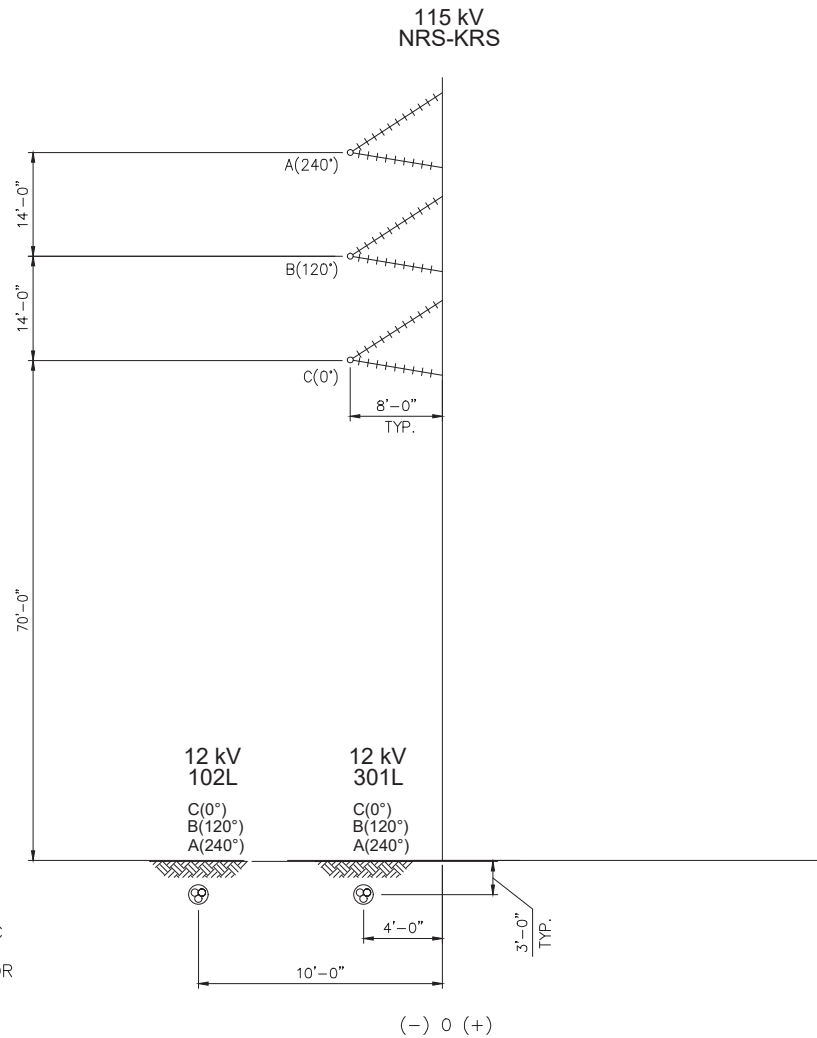
2024	Peak (A) - Normal (A) -
2028	Peak (A) 1207 Normal (A) 965.6

**102L, 12 kV Distribution**  
750 MCM 3/C UG AL Triplexed

2024	Peak (A) 69 Normal (A) 55.2
2028	Peak (A) 69 Normal (A) 55.2

**301L, 12 kV Distribution**  
1000 MCM 3/C UG AL Triplexed

2024	Peak (A) 201 Normal (A) 160.8
2028	Peak (A) 201 Normal (A) 160.8

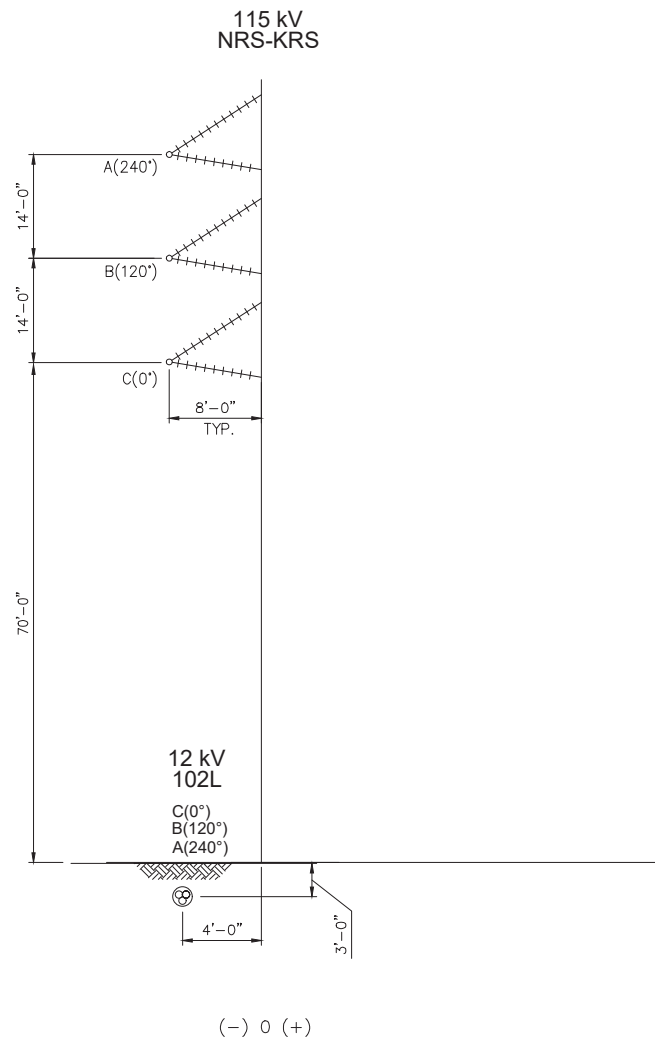


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LOOKING SOUTH TOWARD KIFER RECEIVING STATION

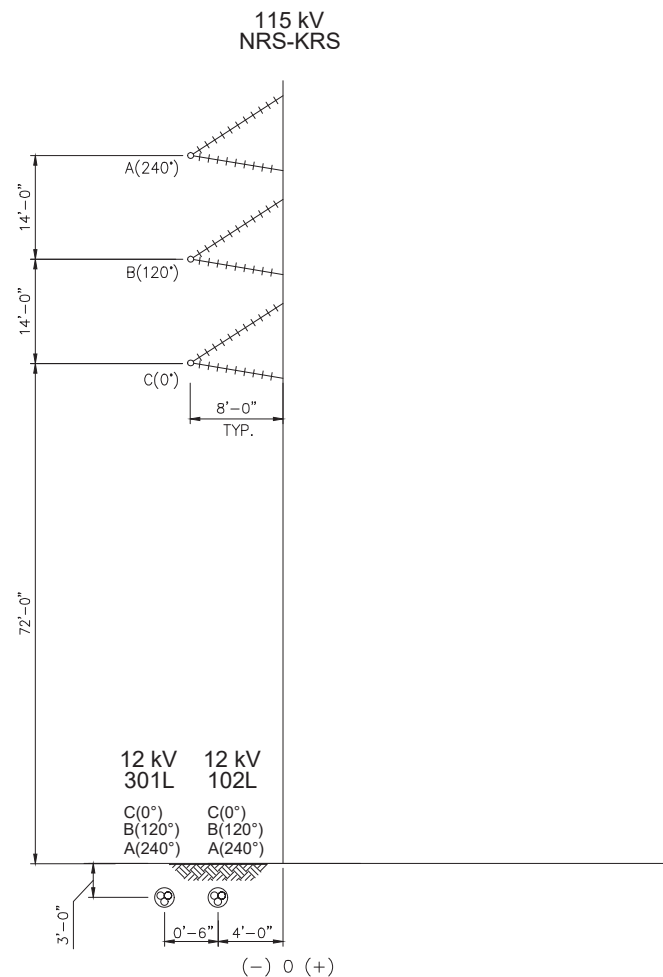
NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A)
	-
2028	Peak (A)
	1207
2028	Normal (A)
	965.6
102L, 12 kV Distribution	
750 MCM 3/C UG AL Triplexed	
2024	Peak (A)
	69
2028	Peak (A)
	69
2028	Normal (A)
	55.2



- NOTES:
1. THE DIMENSIONED HEIGHTS ABOVE GROUND ARE THE HEIGHTS ABOVE GROUND THAT ARE USED IN THE MAGNETIC FIELD STRENGTH CALCULATIONS. THESE DIMENSIONED HEIGHTS ARE REPRESENTATIVE OF THE MINIMUM EXISTING OR PROPOSED CONDUCTOR CLEARANCE IN THE SPECIFIED SEGMENT.
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LOOKING SOUTH TOWARD KIFER RECEIVING STATION

NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Still", Bundled	
2024	Peak (A) - Normal (A) -
2028	Peak (A) 1207 Normal (A) 965.6
102L, 12 kV Distribution	
750 MCM 3/C UG AL Triplexed	
2024	Peak (A) 69 Normal (A) 55.2
2028	Peak (A) 69 Normal (A) 55.2
301L, 12 kV Distribution	
1000 MCM 3/C UG AL Triplexed	
2024	Peak (A) 201 Normal (A) 160.8
2028	Peak (A) 201 Normal (A) 160.8



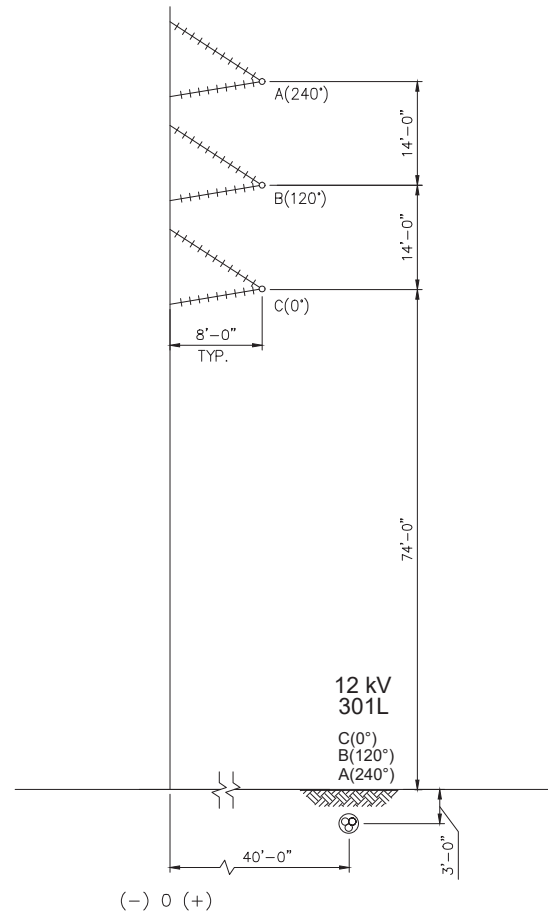
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LOOKING SOUTH TOWARD KIFER RECEIVING STATION

NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A)
	-
2028	Normal (A)
	-
2024	Peak (A)
	1207
2028	Normal (A)
	965.6
301L, 12 kV Distribution	
1000 MCM 3/C UG AL Triplexed	
2024	Peak (A)
	201
2028	Normal (A)
	160.8
2024	Peak (A)
	201
2028	Normal (A)
	160.8

115 kV  
NRS-KRS



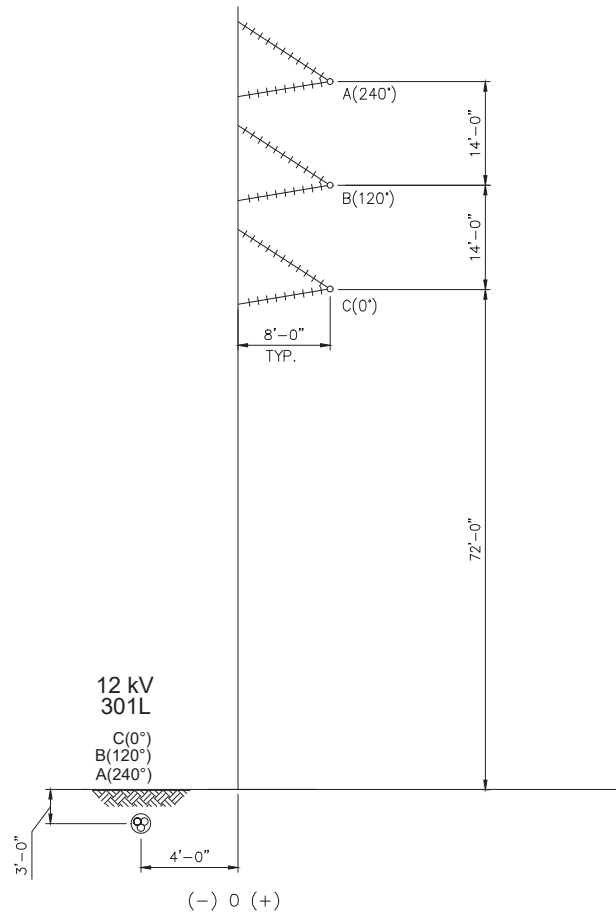
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LOOKING SOUTH TOWARD KIFER RECEIVING STATION

NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A)
	-
2028	Normal (A)
	-
2024	Peak (A)
	1207
2028	Normal (A)
	965.6
301L, 12 kV Distribution	
1000 MCM 3/C UG AL Triplexed	
2024	Peak (A)
	201
2028	Normal (A)
	160.8
2024	Peak (A)
	201
2028	Normal (A)
	160.8

115 kV  
NRS-KRS



LOOKING SOUTH TOWARD KIFER RECEIVING STATION

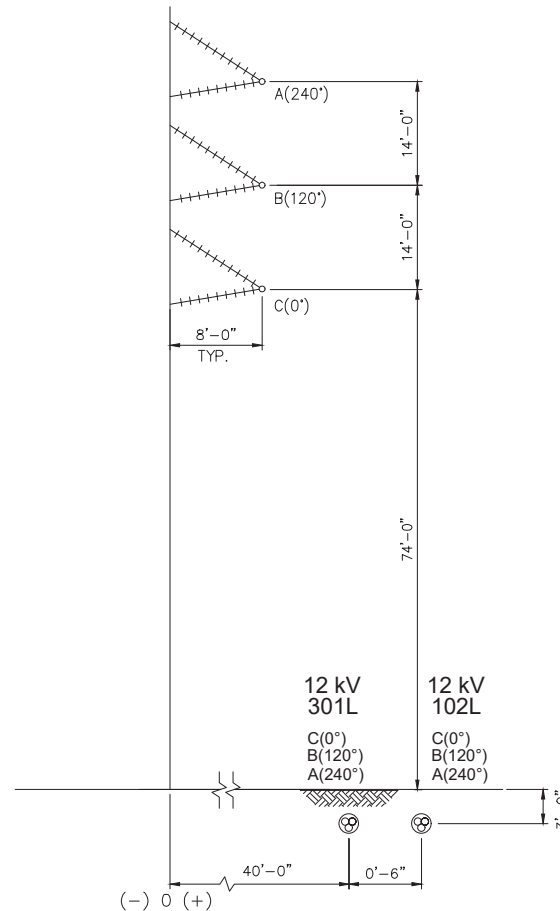
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NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A) - Normal (A) -
2028	Peak (A) 1207 Normal (A) 965.6
301L, 12 kV Distribution	
1000 MCM 3/C UG AL Triplexed	
2024	Peak (A) 201 Normal (A) 160.8
2028	Peak (A) 201 Normal (A) 160.8
102L, 12 kV Distribution	
750 MCM 3/C UG AL Triplexed	
2024	Peak (A) 69 Normal (A) 55.2
2028	Peak (A) 69 Normal (A) 55.2

115 kV  
NRS-KRS



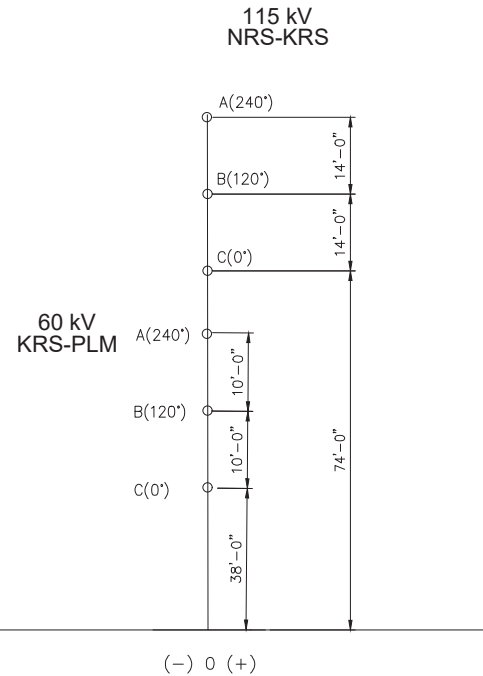
LOOKING SOUTH TOWARD KIFER RECEIVING STATION

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NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A) -
	Normal (A) -
2028	Peak (A) 1207
	Normal (A) 965.6

KRS-PLM, 60 kV Transmission	
715 kcmil 24/7 ACCR "Stilt", Bundled	
2024	Peak (A) 242
	Normal (A) 193.6
2028	Peak (A) 242
	Normal (A) 193.6



LOOKING SOUTH TOWARD KIFER RECEIVING STATION

NOTES:

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2. BUNDLED ACCR "STILT" CONDUCTOR HAS TWO SUB-CONDUCTORS SPACED VERTICALLY 12" APART. THE FINAL HEIGHT ABOVE GROUND FOR THIS CONDUCTOR IS 0'-6" LESS THAN THE DIMENSIONED HEIGHT.

NRS-KRS, 115 kV Transmission	
715 kcmil 24/7 ACCR "Still", Bundled	
2024	Peak (A) -
	Normal (A) -
2028	Peak (A) 1207
	Normal (A) 965.6

101L, 12 kV Distribution	
750 MCM 3/C UG AL Triplexed	
2024	Peak (A) 241
	Normal (A) 192.8
2028	Peak (A) 241
	Normal (A) 192.8

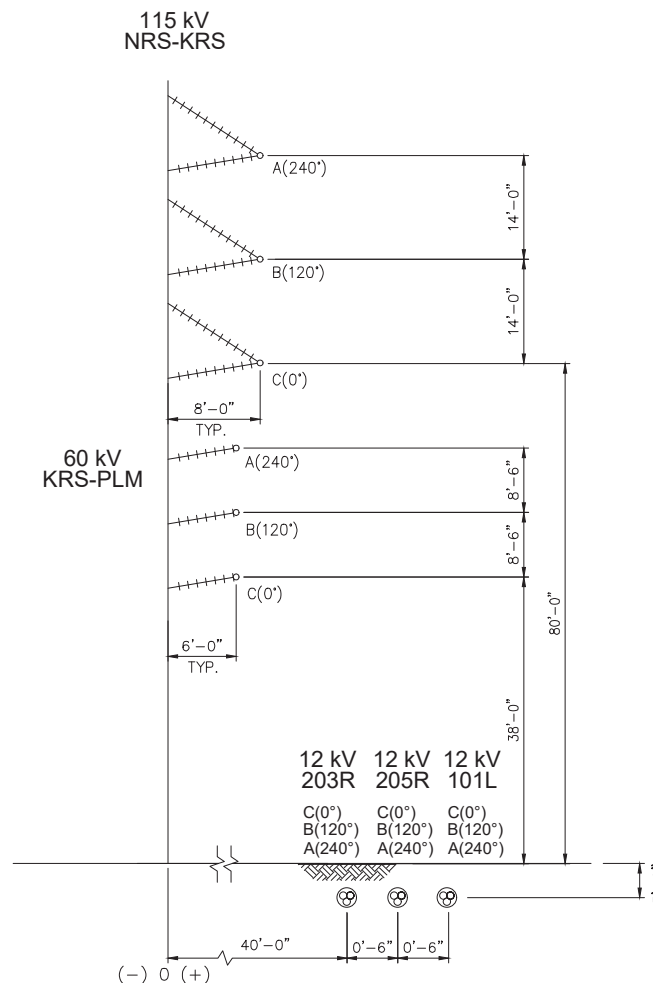
KRS-PLM, 60 kV Transmission	
715 kcmil 24/7 ACCR "Still", Bundled	
2024	Peak (A) 242
	Normal (A) 193.6
2028	Peak (A) 242
	Normal (A) 193.6

203R, 12 kV Distribution	
1000 MCM 3/C UG AL Triplexed	
2024	Peak (A) 165
	Normal (A) 132
2028	Peak (A) 165
	Normal (A) 132

205R, 12 kV Distribution	
1000 MCM 3/C UG AL Triplexed	
2024	Peak (A) 56
	Normal (A) 44.8
2028	Peak (A) 56
	Normal (A) 44.8

#### NOTES:

1. THE DIMENSIONED HEIGHTS ABOVE GROUND ARE THE HEIGHTS ABOVE GROUND THAT ARE USED IN THE MAGNETIC FIELD STRENGTH CALCULATIONS. THESE DIMENSIONED HEIGHTS ARE REPRESENTATIVE OF THE MINIMUM EXISTING OR PROPOSED CONDUCTOR CLEARANCE IN THE SPECIFIED SEGMENT.
2. BUNDLED ACCR "STILT" CONDUCTOR HAS TWO SUB-CONDUCTORS SPACED VERTICALLY 12" APART. THE FINAL HEIGHT ABOVE GROUND FOR THIS CONDUCTOR IS 0'-6" LESS THAN THE DIMENSIONED HEIGHT.



LOOKING SOUTH TOWARD KIFER RECEIVING STATION