APPENDIX N

POWER THE SOUTH BAY PROJECT

AMENDED ELECTRIC AND MAGNETIC FIELDS MANAGEMENT PLAN

POWER THE SOUTH BAY PROJECT
AMENDED ELECTRIC AND MAGNETIC FIELDS MANAGEMENT PLAN

1. PROJECT OVERVIEW

The Power the South Bay Project (Project) was approved by the California Independent System Operator (CAISO) to ensure the reliability of the CAISO-controlled grid. This would be accomplished through the construction of a new alternating current (AC) transmission line connecting two existing substations in the South Bay Area. The Project is being developed by LS Power Grid California, LLC (LSPGC), a regulated public utility in California, established to develop, own, and operate transmission projects.

Project Summary

The Project is located in the Cities of Fremont, Milpitas, San José, and Santa Clara, California as shown in **Appendix 1,** *Project Map*. The Project includes the following key elements:

- An approximately 12-mile Newark to NRS 230 kV AC transmission line, partially overhead and underground, connecting the existing Pacific Gas and Electric Company (PG&E) Newark substation to the existing Silicon Valley Power (SVP) Northern Receiving Station (NRS); and

- Modifications to PG&E's Newark and SVP's NRS substations to accommodate connection of the new Newark to Albrae and Baylands to NRS 230 kV transmission lines. These modifications would be completed by PG&E and SVP, respectively, but are included in this Proposed Project description as they are part of the overall transmission upgrade project.

Project Segments

In this Field Management Plan, the Project is divided into three transmission line segments. The segment locations are depicted in **Appendix 1** and described below.

Segment A

The overhead portion of the proposed Newark to NRS 230 kV transmission line leaving the Newark substation (Segment A) would be approximately 0.2 miles, entirely on PG&E's Newark substation property in the City of Fremont. Segment A will be constructed in areas that prohibit public access, and therefore mitigation measures for Segment A have not been evaluated in this report. The location of Segment A is shown in **Appendix 1**. Surrounding land uses are industrial along with the Newark substation. There are no schools, hospitals, or licensed daycare facilities identified within 150 feet[1] of the easement for this segment. Due to the fact that the entirety of

[1] 150 feet is the easement setback for schools recommended in the California Department of Education's (CDE) Criteria for Siting New Schools Adjacent to Overhead Electric Power Lines Rated 50 kV and Above for 220-230 kV lines.

Segment A is proposed to be located on PG&E property, modeling was not performed and therefore a typical cross section is not included.

Segment B

The underground portions of the proposed Newark to NRS 230 kV transmission line (Segment B) are located within the Cities of Fremont, Milpitas, San José, and Santa Clara, and consist of a total of approximately 10 miles, comprising two separate sections. These two sections of Segment B have the same geometry and ampacity, and therefore, would create the same magnitude of electromagnetic fields. Segment B is proposed to be located predominantly within existing public rights-of-way (ROWs).

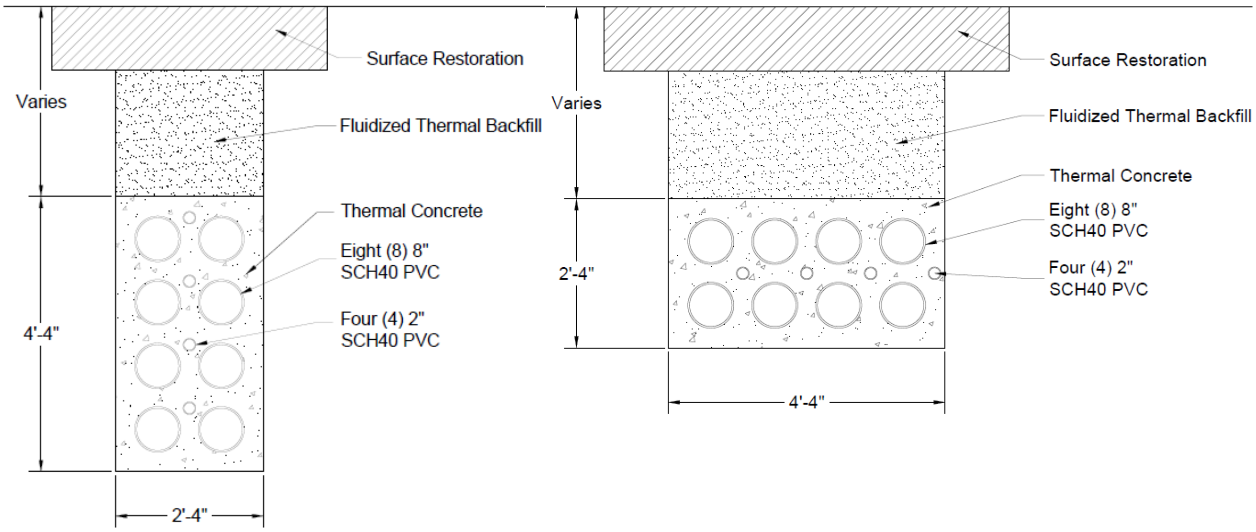
The northern section of Segment B would extend from Weber Road, along Boyce Road, Cushing Parkway, Fremont Boulevard, and McCarthy Boulevard and end at a new transition structure on Santa Clara Valley Water District (SCVWD) property near the San José Santa Clara Regional Wastewater Facility (RWF) south of McCarthy Boulevard.

The southern section of Segment B would begin at a new transition structure on RWF property near Los Esteros Road and continue within Los Esteros Road, Disk Drive and Nortech Parkway until leaving the public road ROW onto private and public property, including an underground crossing of the Guadalupe River, would then re-enter public roads at Gold Street, and then proceed into Lafayette Street until reaching the existing NRS substation. The locations of the Segment B sections are shown in **Appendix 1**.

Surrounding land uses consist of commercial, industrial (light and heavy), undeveloped land, and the RWF. There are no schools, hospitals, or licensed daycare facilities identified within 37.5 feet[2] of the easement for this this segment. **Figure 1,** *Segment B Typical Cross Sections***,** depicts the proposed typical cross sections for Segment B's underground 230 kV transmission line. The vertical configuration (left) would generally be the default configuration for Segment B. The horizontal configuration (right) will be used as conditions warrant, such as to cross over or under existing utilities.

[2] 37.5 feet is the easement setback for schools recommended in the California Department of Education's (CDE) Criteria for Siting New Schools Adjacent to Underground Electric Power Lines Rated 50 kV and Above for 220-230 kV lines.

Figure 1 – Segment B Typical Cross Sections

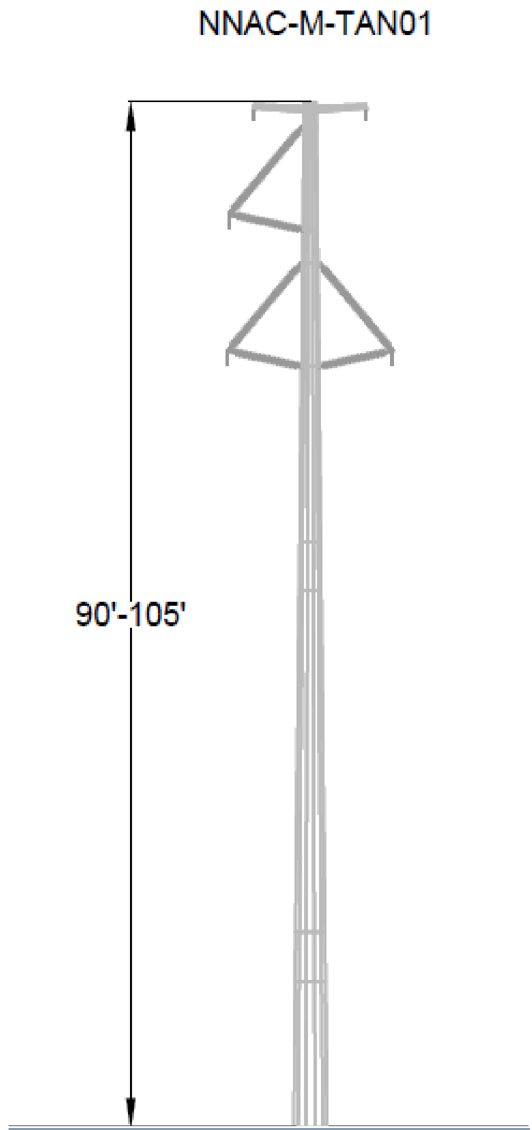


Segment C

The second overhead portion of the proposed Newark to NRS 230 kV transmission line (Segment C) is located within the cities of Milpitas and San José on SCVWD and RWF property. Segment C would traverse approximately two miles from near McCarthy Boulevard to near Los Esteros Road. The location of Segment C is shown in **Appendix 1**. Surrounding land uses consist of undeveloped land and the RWF. There are no schools, hospitals, or licensed daycare facilities identified within 150 feet[3] of the easement for this segment. **Figure 2,** *Segment C Typical Tangent Structure Cross Section***,** depicts the proposed typical cross sections for Segment C's overhead 230 kV tangent structures.

[3] 150 feet is the easement setback for schools recommended in the California Department of Education's (CDE) Criteria for Siting New Schools Adjacent to Overhead Electric Power Lines Rated 50 kV and Above for 220-230 kV [AC] lines.

Figure 2 – Segment C Typical Tangent Structure Cross Section



2. MAGNETIC FIELD MANAGEMENT DESIGN GUIDELINES

The Project requires permitting under General Order 131-D; therefore this detailed Field Management Plan will be developed.[4] LSPGC will apply guidelines to the design of electrical facilities of the Project in accordance with CPUC Decisions 93-11-013 and 06-01-042. The applicable design guidelines mandated by the CPUC are:

A) No-cost and low-cost magnetic field reduction measures will be considered on new and upgraded projects.

B) Low-cost measures, in aggregate, will:

   a. Cost less than 4% of the total project cost.

   b. Achieve a 15% or greater magnetic field reduction at the utility ROW.

C) The Commission [CPUC] has exclusive jurisdiction over issues related to EMF exposure from regulated utility facilities.

D) Parties generally agree on the following group prioritization for land use categories in determining how mitigation costs will be applied:

   1. Schools, hospitals, and licensed day care
   2. Residential
   3. Commercial/industrial
   4. Recreational
   5. Agricultural
   6. Undeveloped land

E) Low-cost EMF mitigation is not necessary in agricultural and undeveloped land except for permanently occupied residences, schools or hospitals located on these lands.

F) Although equal mitigation for an entire class is a desirable goal, the Commission will not limit the spending of EMF mitigation to zero on the basis that not all class members can benefit.

G) The following magnetic field reduction methods may be considered for new and upgraded electrical facilities:

   1. Increasing the distance from electrical facilities by:
      - Increasing structure height or trench depth.
      - Locating power lines closer to the centerline of the corridor.
   2. Reducing conductor (phase) spacing.

[4] This Field Management Plan also complies with General Order 131-E; see footnote 1 of the First Amended Application.

3. Phasing circuits to reduce magnetic fields.

H) Non-routine mitigation measures, or other mitigation measures that are based on numeric values of EMF exposure, will not be considered.

I) The guidelines "should not compromise safety, reliability, or the requirements of [CPUC] General Orders (GO) 95 and 128."

J) Without exception, design and construction of electric power system facilities must comply with all applicable federal and state regulations, applicable safety codes, and each electric utility's construction standards.

The CPUC has asserted that there is no significant scientifically verifiable relationship between EMF exposure and negative health consequences and that state and federal public health regulatory agencies have determined that setting numeric exposure limits is not appropriate.

Consistent with the CPUC's EMF policy, this Field Management Plan deals solely with magnetic fields. Also, minimizing the magnetic field strength is only one of many factors to consider in planning and designing a transmission system. EMF reduction must be balanced with many other concerns such as safety, environmental concerns, reliability, insulation and electrical clearance requirements, aesthetics, cost, operations, and maintenance.

3. TRANSMISSION LINE FIELD MANAGEMENT PLAN

In accordance with CPUC Decision 06-01-042, 2-dimensional magnetic field modeling is used to compare differences between alternative EMF mitigation measures. Magnetic field levels were calculated in CYMCAP[5] for underground segments and PLS-CADD[6] for overhead segments at 3 feet above the ground at various distances from the centerline. To determine the effectiveness of the potential mitigation measures, calculated values for each potential mitigation measure were compared to the level calculated without the potential mitigation measure. For Segment B, the effectiveness of mitigation measures was calculated at 3 feet above the ground at the centerline of the transmission line because Segment B allows for public access to the right of way within public road rights of way. Feasibility and incremental cost were then considered for each potential mitigation measure as summarized in **Table 1** below.

Table 1 - Reduction Measures Adopted or Rejected

<table>
<tr><th>Project Segment</th><th>Location (Street, Area)</th><th>Adjacent Land Use</th><th>Reduction Measure Considered</th><th>Measure Adopted? (Yes/No)</th><th>Estimated Cost to Adopt</th></tr>
<tr><td></td><td></td><td>Per §2-D</td><td>Per § 2-G</td><td></td><td></td></tr>
<tr><td rowspan="2">B</td><td>See Appendix 1</td><td>Residential
Commercial
Industrial
Recreational
Undeveloped</td><td>Underground Installation</td><td>Yes</td><td>>4%</td></tr>
<tr><td colspan="5">The CPUC has previously stated in D.06-01-042 that, “placing a transmission line underground should normally provide sufficient mitigation.” The incremental cost for placing these segments underground is significantly greater than the 4% threshold for low-cost mitigation measures. However, the suburban and urban nature of the adjacent land uses led to the decision in this case to propose all of Segment B to be underground, thereby providing significant magnetic field level mitigation compared to a similar overhead transmission line.</td></tr>
<tr><td rowspan="2">C</td><td>See Appendix 1</td><td>Industrial
Undeveloped</td><td>Underground Installation</td><td>No</td><td>>4%</td></tr>
<tr><td colspan="5">Segment C would span over the drying beds of the San José/Santa Clara Regional Wastewater Facility. Underground installation through the levees and under the pools of the drying beads is not feasible without a significant cost increase. Additionally, Segment C the San José/Santa Clara Regional Wastewater Facility excludes public access and consists of undeveloped land.</td></tr>
</table>

[5] CYMCAP version 8.2 rev. 3 developed by Cyme International (c) 1990-2023

[6] PLS-CADD version 19.0 developed by Power Line Systems © 2021 Calculations based on the EPRI Red Book methods

<table>
<tr><th>Project Segment</th><th>Location (Street, Area)</th><th>Adjacent Land Use</th><th>Reduction Measure Considered</th><th>Measure Adopted? (Yes/No)</th><th>Estimated Cost to Adopt</th></tr>
<tr><td rowspan="2">B</td><td>See Appendix 1</td><td>Commercial
Industrial
Recreational
Undeveloped</td><td>Increase Trench Depth</td><td>No</td><td>>4%</td></tr>
<tr><td colspan="5">The proposed minimum trench depth is 3 feet to the top of the duct bank. Increasing trench depth for Segment B was rejected due to the incremental cost of the additional trenching. The minimum trench depth increase required to decrease the magnetic field level by 15% for Segment B is approximately 9 inches (0.75 feet) for the horizontal duct bank and approximately 6 inches (0.5 feet) for the vertical duct bank. This increase in trench depth is estimated to increase the Segment B construction costs by approximately 7.4% and 7% respectively. Trenching to a greater depth would also extend construction time and increase construction-related traffic and disruption to local neighborhoods.

Further, because of the crowded utility environment below city streets, the duct bank may be up to approximately ten feet below the road surface in limited areas to avoid existing utilities. This will have a secondary benefit of decreasing magnetic field strength at the surface in these areas.</td></tr>
<tr><td rowspan="2">C</td><td>See Appendix 1</td><td>Industrial
Undeveloped</td><td>Increase Structure Height</td><td>No</td><td>N/A</td></tr>
<tr><td colspan="5">Segment C is located within the San José/Santa Clara Regional Wastewater Facility, which excludes public access. The undeveloped land use along Segment C does not warrant low-cost mitigation measures and is not evaluated further herein.</td></tr>
<tr><td rowspan="2">B</td><td>See Appendix 1</td><td>Residential
Commercial
Industrial
Recreational
Undeveloped</td><td>Locate transmission line closer to the center of the right of way where possible</td><td>Yes</td><td>No cost</td></tr>
<tr><td colspan="5">Segment B will be located close to the center of the right of way when possible. In many cases, locating near the center of the right of way will not be possible due to clearance requirements with existing utilities given the sometimes busy utility environment below the city streets.</td></tr>
<tr><td rowspan="2">C</td><td>See Appendix 1</td><td>Industrial
Undeveloped</td><td>Locate transmission line closer to the center of the right of way where possible</td><td>Yes</td><td>No cost</td></tr>
<tr><td colspan="5">Segment C would be located at or near the center of the designated overhead right of way.</td></tr>
</table>

<table>
<tr><th>Project Segment</th><th>Location (Street, Area)</th><th>Adjacent Land Use</th><th>Reduction Measure Considered</th><th>Measure Adopted? (Yes/No)</th><th>Estimated Cost to Adopt</th></tr>
<tr><td rowspan="2">B</td><td>See Appendix 1</td><td>Residential
Commercial
Industrial
Recreational
Undeveloped</td><td>Reduce Conductor Spacing</td><td>Yes</td><td>No cost</td></tr>
<tr><td colspan="5">The spacing between conductors inside the duct bank has been minimized to optimize for EMF levels as well as duct bank size efficiency. Further spacing reduction is not practical due to mutual heating, which would limit the cable capacity to below the CAISO-defined reliability need requirements.</td></tr>
<tr><td rowspan="2">C</td><td>See Appendix 1</td><td>Industrial
Undeveloped</td><td>Reduce Conductor Spacing</td><td>Yes</td><td>No cost</td></tr>
<tr><td colspan="5">Based upon the preliminary design, the Segment C tangent structure’s conductors have been designed in a delta configuration which reduces magnetic field strengths compared to a horizontal and vertical conductor configuration.</td></tr>
<tr><td rowspan="2">B</td><td>See Appendix 1</td><td>Residential
Commercial
Industrial
Recreational
Undeveloped</td><td>Phasing circuits to reduce magnetic fields</td><td>Yes</td><td>No Cost</td></tr>
<tr><td colspan="5">Segment B is a single AC circuit proposed to have two conductors per phase, allowing for phasing optimization to reduce magnetic fields. LSPGC proposes to phase the sub-conductors to reduce magnetic fields to the extent practical considering project constraints.</td></tr>
<tr><td rowspan="2">C</td><td>See Appendix 1</td><td>Industrial
Undeveloped</td><td>Phasing circuits to reduce magnetic fields</td><td>No</td><td>N/A</td></tr>
<tr><td colspan="5">Segment C is a single AC circuit proposed which does not allow for phasing optimization to reduce magnetic fields (i.e., there will be one conductor bundle per phase).</td></tr>
</table>

Magnetic Field Reduction Measures Considered

Segment A

Segment A would be located within the PG&E owned Newark substation property which prohibits public access. There are no high priority land use categories or sensitive receptors in the vicinity of Segment A. For this reason, low-cost mitigation measures for Segment A would not be required.

Segment B

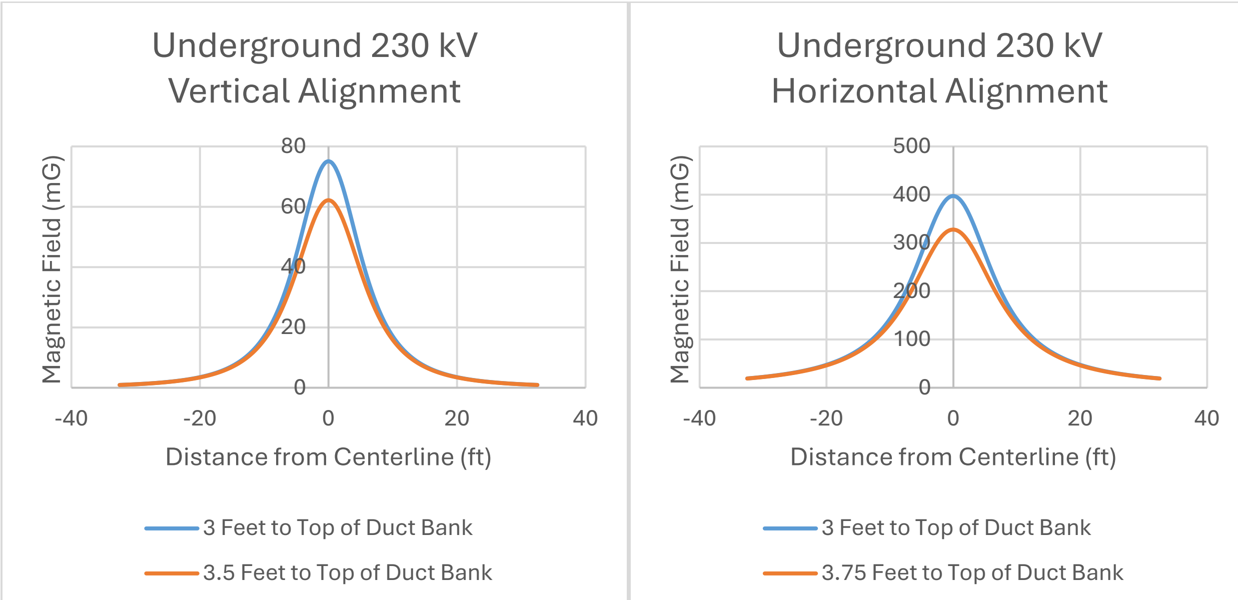
Segment B would be located underground, almost exclusively within existing public roadways. The CPUC has previously stated in D.06-01-042 that, "placing a transmission line underground should normally provide sufficient mitigation"; the incremental cost for placing this segment underground is significantly greater than the 4% threshold for low-cost mitigation measures. However, the suburban and urban nature of the adjacent land uses led to the decision, in this case, to propose all of Segment B to be underground, thereby providing significant magnetic field level mitigation compared to a similar overhead transmission line.

Notwithstanding this, LSPGC evaluated the following no-cost and low-cost mitigation measures to further reduce magnetic field strength:

Increasing Trench Depth

The standard minimum trench depth for the Power the South Bay project is 3 feet below expected post construction grade. Increasing trench depth was considered as a potential mitigation measure for Segment B. **Figure 3,** *Comparison of Segment B Magnetic Field Strength Based on Trench Depth* provides the magnetic field strength values for Segment B at the standard 3-foot depth and at the increased depth required for a 15% reduction in magnetic field strength. These values were calculated with optimal phasing within the duct bank and with the receptor 3 feet above the ground surface.

Figure 3 – Comparison of Segment B Magnetic Field Strength Based on Trench Depth[7]



The minimum trench depth increase required to decrease the magnetic field level by 15% for Segment B is approximately 9 inches (0.75 feet) for the horizontal duct bank and approximately 6 inches (0.5 feet) for the vertical duct bank. This increase in trench depth is estimated to increase the Segment B construction costs by approximately 7.4% and 7% respectively. Trenching to a greater depth would also extend construction time and could increase construction-related traffic and disruption to local neighborhoods. For these reasons, LSPGC does not propose increasing trench depth within Segment B as a low-cost measure for reducing magnetic fields.

Notwithstanding this, in street sections with a large number of existing utilities, limited portions of the Segment B trench are expected to be installed lower than the minimum 3 feet to meet utility clearance requirements which would further reduce magnetic fields.

Locating Power Lines Closer to the Centerline of the Corridor

The Segment B transmission line will be located close to the center of the right of way when possible. Because of the crowded utility environment under city streets, the duct bank may need to be closer to the edge of the right of way to avoid conflicts with or substantial relocations of existing utilities. LSPGC will locate transmission lines close to the centerline of the ROW to the extent practicable while also considering other design constraints.

LSPGC will work with the relevant parties to ensure each segment is centered in the existing roadway to the extent practicable while maintaining required existing utility clearances.

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[7] See Appendix 2 Table 2 and Table 3 for the tabular data used to produce this figure

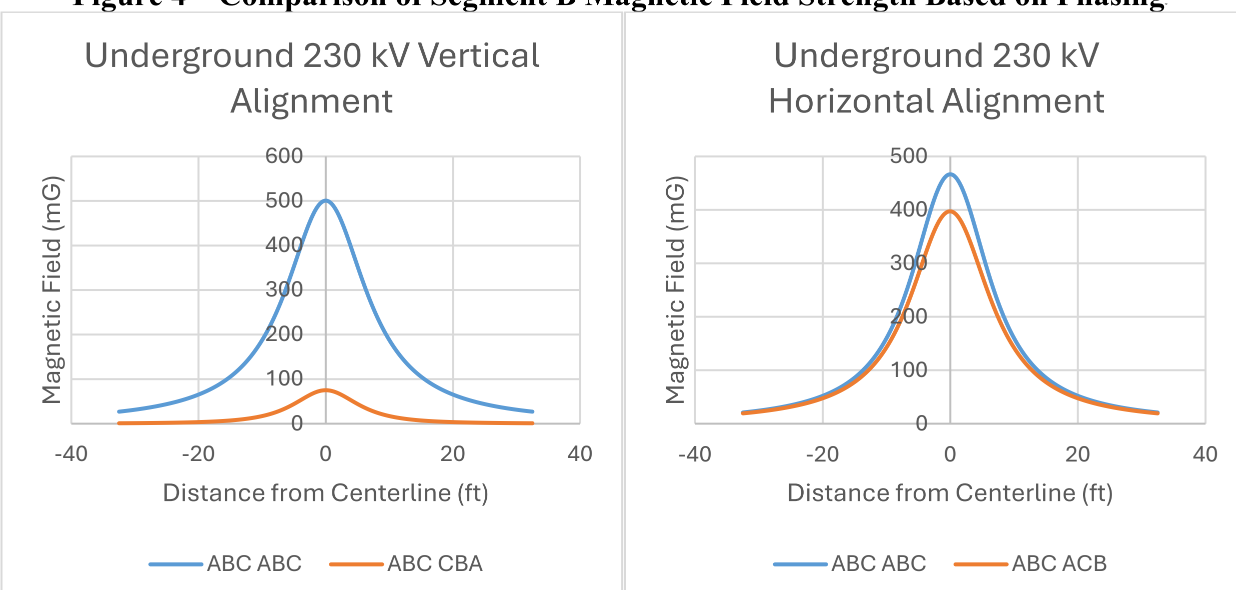
Reducing Conductor (Phase) Spacing

The spacing between conductors inside the duct bank for Segment B has been minimized to optimize for EMF levels as well as duct bank size efficiency. Further spacing reduction is not practical due to mutual heating, which limits the cable capacity to below the CAISO-identified reliability need requirements. Therefore, LSPGC has already optimized conductor phase spacing for the underground portion of Segment B.

Phasing Circuits to Reduce Magnetic Fields

Segment B is proposed to be a single circuit line with two sub-conductors per phase. This allows for phasing optimization to reduce the EMF levels at the surface. Adjusting the phase configuration of the sub-conductors to reduce magnetic field strength was considered as a potential mitigation measure for Segment B. **Figure 4,** *Comparison of Segment B Magnetic Field Strength Based on Phasing* provides the magnetic field strength values for Segment B with standard phasing and with the optimal phasing for a reduction in magnetic field strength. These values were calculated with the standard trench depth of 3 feet and with the receptor 3 feet above the ground surface.

Figure 4 – Comparison of Segment B Magnetic Field Strength Based on Phasing[8]



A standard phasing for an AC transmission line with two sub-conductors per phase would be ABCABC. Based on LSPGC's CYMCAP modeling, the optimal phasing configuration to reduce magnetic field strength is ABCCBA for the vertical duct bank alignment and ABCACB for the horizontal duct bank alignment. These phasing changes result in a reduction in magnetic field strength at the centerline of 85% and 15%, respectively. LSPGC will adopt the optimal phasing configuration where practicable considering project constraints.

[8] See Appendix 2 Table 4 and Table 5 for the tabular data used to produce this figure

Segment C

Segment C would be located wholly within the RWF and SCVWD property, both of which prohibit public access. Segment C would be located across undeveloped land with no permanently occupied residences, schools, or hospitals. Moreover, there are no high priority land use categories in the vicinity of Segment C. The CPUC has previously stated in D.06-01-042 that, "low-cost EMF mitigation is not necessary in agricultural and undeveloped land except for permanently occupied residences, schools, or hospitals located on these lands." For this reason, low-cost mitigation measures for Segment C would not be required.

Notwithstanding this, LSPGC evaluated the following no-cost mitigation measures to reduce magnetic field strength:

Locating Power Lines Closer to the Centerline of the Corridor

Segment C will be located at or near the center of its corridor.

Reducing Conductor (Phase) Spacing

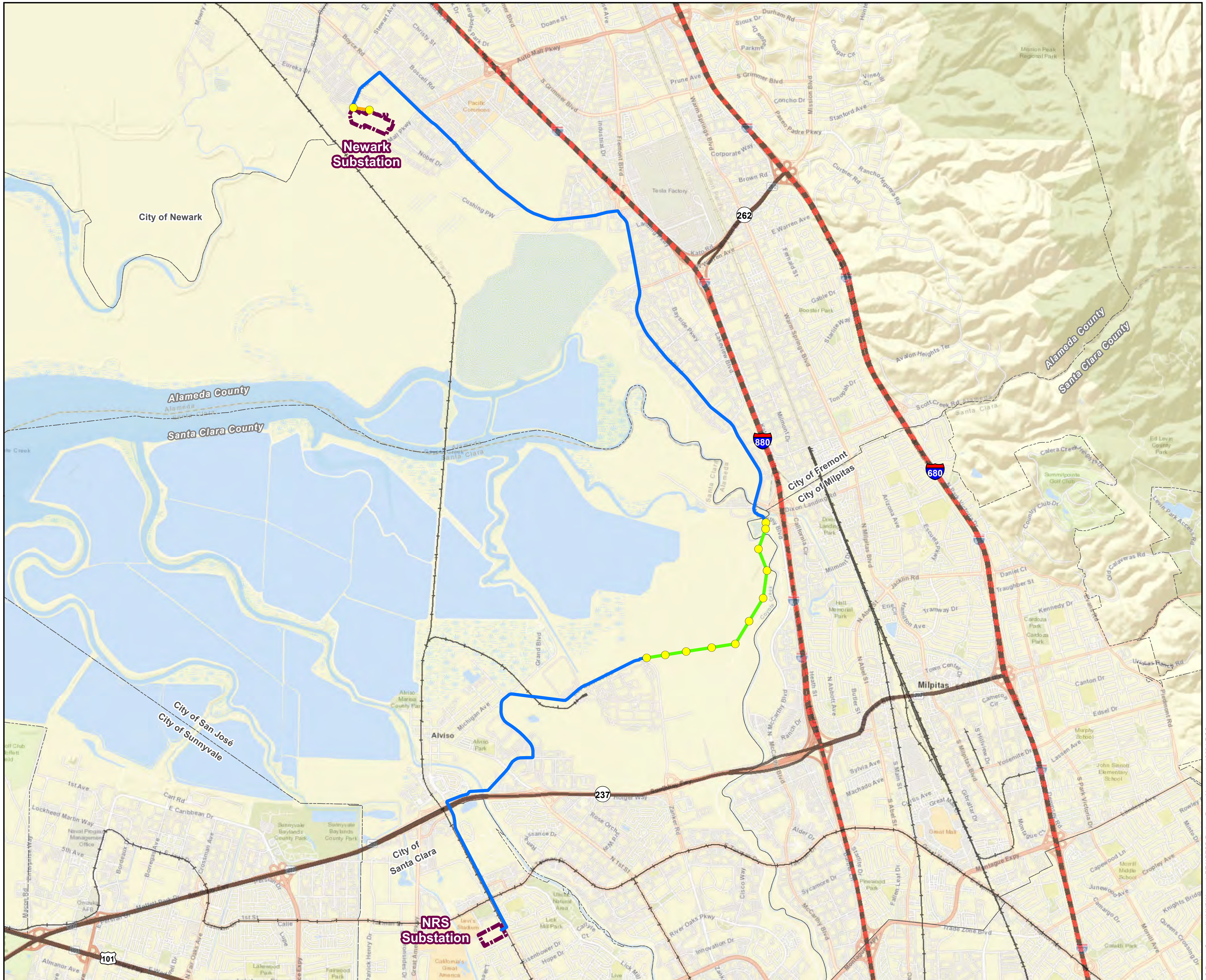
Conductor spacing depends on a variety of factors including voltage, structure type, and conductor configuration. A delta configuration is proposed for the tangent structures present in Segment C. The delta configuration minimizes the spacing between each phase of conductor when compared to a standard vertical or horizontal configuration. LSPGC will implement the delta configuration for tangent structures where practicable along Segment C.

Phasing Circuits to Reduce Magnetic Fields

Segment C proposes to utilize double bundled conductors to reduce the effects of corona discharge. Because the two conductors of each phase are bundled together, it is not possible to adjust the phasing of this segment to reduce magnetic fields.

Appendix 1 – Project Route Map

POWER THE SOUTH BAY PROJECT
Updated Project Route Map
Alameda Co. and Santa Clara Co., CA



LEGEND

Proposed Project Components

- Overhead Transmission Structure
- Segment A
- Segment B
- Segment C
- Existing Substation Boundary

General Features

- Municipal Boundary
- Interstate
- US Route or State Highway
- Railroad

0 0.5 1 1.5 2
Miles

Sources: LSPGC 2023; Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Sources: Esri, USGS, NOAA, National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Appendix 2 – Magnetic Field Value Tables from Figures 3 and 4

Table 2 – Segment B - 230 kV AC Underground Transmission Line Magnetic Field Values by Depth for Horizontal Duct Bank

	Magnetic Field Level 3 Feet Above Ground Vertical Duct Bank (milliGauss)		
Distance from Centerline (feet)	3 Feet to Top of Duct Bank	3.5 Feet to Top of Duct Bank	Percent Reduction
-32.5	0.9304	0.9205	1%
-32	0.9722	0.9615	1%
-31.5	1.0165	1.005	1%
-31	1.0635	1.0511	1%
-30.5	1.1134	1.1	1%
-30	1.1663	1.1519	1%
-29.5	1.2227	1.207	1%
-29	1.2826	1.2657	1%
-28.5	1.3465	1.3282	1%
-28	1.4146	1.3947	1%
-27.5	1.4872	1.4656	1%
-27	1.5648	1.5413	2%
-26.5	1.6478	1.6222	2%
-26	1.7366	1.7087	2%
-25.5	1.8318	1.8013	2%
-25	1.9339	1.9005	2%
-24.5	2.0435	2.0069	2%
-24	2.1613	2.1212	2%
-23.5	2.2881	2.244	2%
-23	2.4247	2.3761	2%
-22.5	2.572	2.5185	2%
-22	2.7312	2.672	2%
-21.5	2.9033	2.8378	2%
-21	3.0896	3.0171	2%
-20.5	3.2916	3.2111	2%
-20	3.511	3.4214	3%
-19.5	3.7494	3.6496	3%
-19	4.009	3.8975	3%
-18.5	4.292	4.1673	3%
-18	4.601	4.4611	3%
-17.5	4.9388	4.7816	3%
-17	5.3087	5.1316	3%
-16.5	5.7143	5.5144	3%

	Magnetic Field Level 3 Feet Above Ground Vertical Duct Bank (milliGauss)		
Distance from Centerline (feet)	3 Feet to Top of Duct Bank	3.5 Feet to Top of Duct Bank	Percent Reduction
-16	6.1597	5.9336	4%
-15.5	6.6496	6.3932	4%
-15	7.1893	6.8977	4%
-14.5	7.7845	7.4523	4%
-14	8.442	8.0626	4%
-13.5	9.1693	8.7348	5%
-13	9.9748	9.4761	5%
-12.5	10.8681	10.2942	5%
-12	11.8596	11.1977	6%
-11.5	12.9613	12.196	6%
-11	14.1863	13.2995	6%
-10.5	15.5489	14.5192	7%
-10	17.065	15.867	7%
-9.5	18.7514	17.3551	7%
-9	20.6258	18.996	8%
-8.5	22.7066	20.8021	8%
-8	25.0118	22.7848	9%
-7.5	27.5583	24.9536	9%
-7	30.36	27.3151	10%
-6.5	33.4263	29.8713	11%
-6	36.7592	32.6175	11%
-5.5	40.35	35.5404	12%
-5	44.1755	38.6153	13%
-4.5	48.1939	41.8038	13%
-4	52.3402	45.0511	14%
-3.5	56.524	48.2855	15%
-3	60.6278	51.4186	15%
-2.5	64.5094	54.3473	16%
-2	68.0085	56.9594	16%
-1.5	70.9578	59.141	17%
-1	73.1995	60.7872	17%
-0.5	74.6026	61.8124	17%
0	75.0805	62.1607	17%
0.5	74.6026	61.8124	17%
1	73.1995	60.7872	17%
1.5	70.9578	59.141	17%
2	68.0085	56.9594	16%

	Magnetic Field Level 3 Feet Above Ground Vertical Duct Bank (milliGauss)		
Distance from Centerline (feet)	3 Feet to Top of Duct Bank	3.5 Feet to Top of Duct Bank	Percent Reduction
2.5	64.5094	54.3473	16%
3	60.6278	51.4186	15%
3.5	56.524	48.2855	15%
4	52.3402	45.0511	14%
4.5	48.1939	41.8038	13%
5	44.1757	38.6155	13%
5.5	40.35	35.5404	12%
6	36.7592	32.6175	11%
6.5	33.4263	29.8713	11%
7	30.36	27.3151	10%
7.5	27.5583	24.9536	9%
8	25.0118	22.7848	9%
8.5	22.7066	20.8021	8%
9	20.6258	18.996	8%
9.5	18.7514	17.3551	7%
10	17.065	15.867	7%
10.5	15.5489	14.5192	7%
11	14.1863	13.2995	6%
11.5	12.9613	12.196	6%
12	11.8596	11.1977	6%
12.5	10.8681	10.2942	5%
13	9.9748	9.4761	5%
13.5	9.1693	8.7348	5%
14	8.442	8.0626	4%
14.5	7.7845	7.4523	4%
15	7.1893	6.8978	4%
15.5	6.6496	6.3932	4%
16	6.1597	5.9336	4%
16.5	5.7143	5.5144	3%
17	5.3087	5.1316	3%
17.5	4.9388	4.7816	3%
18	4.601	4.4611	3%
18.5	4.292	4.1673	3%
19	4.009	3.8975	3%
19.5	3.7494	3.6496	3%
20	3.511	3.4214	3%
20.5	3.2916	3.2111	2%

	Magnetic Field Level 3 Feet Above Ground Vertical Duct Bank (milliGauss)		
Distance from Centerline (feet)	3 Feet to Top of Duct Bank	3.5 Feet to Top of Duct Bank	Percent Reduction
21	3.0896	3.0171	2%
21.5	2.9033	2.8378	2%
22	2.7312	2.672	2%
22.5	2.572	2.5185	2%
23	2.4247	2.3761	2%
23.5	2.2881	2.244	2%
24	2.1613	2.1212	2%
24.5	2.0435	2.0069	2%
25	1.9339	1.9005	2%
25.5	1.8318	1.8013	2%
26	1.7366	1.7087	2%
26.5	1.6478	1.6222	2%
27	1.5648	1.5413	2%
27.5	1.4872	1.4656	1%
28	1.4146	1.3947	1%
28.5	1.3465	1.3282	1%
29	1.2826	1.2657	1%
29.5	1.2227	1.207	1%
30	1.1663	1.1519	1%
30.5	1.1134	1.1	1%
31	1.0635	1.0511	1%
31.5	1.0165	1.005	1%
32	0.9722	0.9615	1%
32.5	0.9304	0.9205	1%

Table 3 – Segment B - 230 kV AC Underground Transmission Line Magnetic Field Values by Depth for Horizontal Duct Bank

	Magnetic Field Level 3 Feet Above Ground Horizontal Duct Bank (milliGauss)		
Distance from Centerline (feet)	3 Feet to Top of Duct Bank	3.75 Feet to Top of Duct Bank	Percent Reduction
-32.5	19.2793	19.0816	1%
-32	19.8594	19.6497	1%
-31.5	20.4657	20.2431	1%
-31	21.0997	20.8631	1%
-30.5	21.7631	21.5114	1%
-30	22.4576	22.1898	1%
-29.5	23.1854	22.8999	1%
-29	23.9484	23.6439	1%
-28.5	24.7489	24.4238	1%
-28	25.5893	25.2419	1%
-27.5	26.4724	26.1007	1%
-27	27.4009	27.0028	1%
-26.5	28.378	27.9511	2%
-26	29.4069	28.9486	2%
-25.5	30.4914	29.9989	2%
-25	31.6354	31.1054	2%
-24.5	32.8432	32.2722	2%
-24	34.1194	33.5034	2%
-23.5	35.4692	34.8038	2%
-23	36.898	36.1783	2%
-22.5	38.4121	37.6325	2%
-22	40.018	39.1722	2%
-21.5	41.7229	40.8041	2%
-21	43.5349	42.5352	2%
-20.5	45.4627	44.3731	2%
-20	47.5158	46.3264	3%
-19.5	49.7047	48.4043	3%
-19	52.0412	50.6167	3%
-18.5	54.5379	52.9748	3%
-18	57.2088	55.4904	3%
-17.5	60.0695	58.1768	3%
-17	63.1369	61.0483	3%
-16.5	66.4301	64.1206	3%
-16	69.9696	67.4107	4%
-15.5	73.7785	70.9374	4%

	Magnetic Field Level 3 Feet Above Ground Horizontal Duct Bank (milliGauss)		
Distance from Centerline (feet)	3 Feet to Top of Duct Bank	3.75 Feet to Top of Duct Bank	Percent Reduction
-15	77.882	74.7208	4%
-14.5	82.3082	78.7832	4%
-14	87.0871	83.148	5%
-13.5	92.2525	87.8409	5%
-13	97.8411	92.8894	5%
-12.5	103.8927	98.3228	5%
-12	110.4507	104.1717	6%
-11.5	117.5612	110.4682	6%
-11	125.2737	117.2451	6%
-10.5	133.6397	124.5349	7%
-10	142.7123	132.3695	7%
-9.5	152.5444	140.778	8%
-9	163.1866	149.785	8%
-8.5	174.6844	159.4082	9%
-8	187.0737	169.6549	9%
-7.5	200.3753	180.5184	10%
-7	214.5881	191.973	11%
-6.5	229.6801	203.9691	11%
-6	245.5794	216.4275	12%
-5.5	262.1625	229.2343	13%
-5	279.2455	242.2365	13%
-4.5	296.5768	255.2409	14%
-4	313.8298	268.011	15%
-3.5	330.6135	280.2769	15%
-3	346.481	291.7415	16%
-2.5	360.9529	302.0947	16%
-2	373.5469	311.0305	17%
-1.5	383.8117	318.2665	17%
-1	391.3602	323.5618	17%
-0.5	395.8973	326.7338	17%
0	397.2411	327.671	18%
0.5	395.3361	326.3404	17%
1	390.2584	322.7905	17%
1.5	382.2118	317.1482	17%
2	371.514	309.61	17%
2.5	358.5732	300.4282	16%
3	343.8553	289.8929	16%

	Magnetic Field Level 3 Feet Above Ground Horizontal Duct Bank (milliGauss)		
Distance from Centerline (feet)	3 Feet to Top of Duct Bank	3.75 Feet to Top of Duct Bank	Percent Reduction
3.5	327.8477	278.3127	15%
4	311.025	265.9955	14%
4.5	293.821	253.2317	14%
5	276.6092	240.2824	13%
5.5	259.6928	227.3705	12%
6	243.3077	214.6807	12%
6.5	227.6208	202.355	11%
7	212.7427	190.4989	10%
7.5	198.7367	179.1848	10%
8	185.6288	168.4577	9%
8.5	173.417	158.3398	9%
9	162.079	148.8361	8%
9.5	151.579	139.9381	8%
10	141.8721	131.628	7%
10.5	132.9091	123.8814	7%
11	124.6384	116.6696	6%
11.5	117.0086	109.9618	6%
12	109.9695	103.726	6%
12.5	103.4734	97.9304	5%
13	97.475	92.5437	5%
13.5	91.9325	87.5359	5%
14	86.8068	82.8787	5%
14.5	82.0623	78.5452	4%
15	77.666	74.5103	4%
15.5	73.588	70.7505	4%
16	69.8014	67.2448	4%
16.5	66.2813	63.9729	3%
17	63.005	60.9168	3%
17.5	59.9523	58.0594	3%
18	57.1045	55.3854	3%
18.5	54.4448	52.8807	3%
19	51.9581	50.5323	3%
19.5	49.6303	48.3284	3%
20	47.449	46.2581	3%
20.5	45.4026	44.3115	2%
21	43.4808	42.4795	2%
21.5	41.6741	40.7538	2%

	Magnetic Field Level 3 Feet Above Ground Horizontal Duct Bank (milliGauss)		
Distance from Centerline (feet)	3 Feet to Top of Duct Bank	3.75 Feet to Top of Duct Bank	Percent Reduction
22	39.9739	39.1266	2%
22.5	38.3722	37.5911	2%
23	36.8618	36.1407	2%
23.5	35.4363	34.7695	2%
24	34.0895	33.4722	2%
24.5	32.8159	32.2437	2%
25	31.6105	31.0793	2%
25.5	30.4687	29.975	2%
26	29.3861	28.9267	2%
26.5	28.3589	27.931	2%
27	27.3834	26.9843	1%
27.5	26.4563	26.0837	1%
28	25.5746	25.2262	1%
28.5	24.7353	24.4094	1%
29	23.9358	23.6306	1%
29.5	23.1738	22.8876	1%
30	22.4469	22.1784	1%
30.5	21.7531	21.5009	1%
31	21.0905	20.8533	1%
31.5	20.4571	20.234	1%
32	19.8515	19.6413	1%
32.5	19.2719	19.0738	1%

Table 4 – Segment B - 230 kV AC Underground Transmission Line Magnetic Field Values by Phasing Configuration for Vertical Duct Bank

	Magnetic Field Level 3 Feet Above Ground Vertical Duck Bank (milliGauss)		
Distance from Centerline (feet)	ABC ABC	ABC CBA	Percent Reduction
-32.5	26.9473	0.9304	97%
-32	27.7486	0.9722	96%
-31.5	28.5855	1.0165	96%
-31	29.46	1.0635	96%
-30.5	30.3743	1.1134	96%
-30	31.3309	1.1663	96%
-29.5	32.3323	1.2227	96%
-29	33.3813	1.2826	96%
-28.5	34.4809	1.3465	96%
-28	35.6344	1.4146	96%
-27.5	36.8451	1.4872	96%
-27	38.1168	1.5648	96%
-26.5	39.4536	1.6478	96%
-26	40.8597	1.7366	96%
-25.5	42.3401	1.8318	96%
-25	43.8996	1.9339	96%
-24.5	45.5441	2.0435	96%
-24	47.2793	2.1613	95%
-23.5	49.1119	2.2881	95%
-23	51.049	2.4247	95%
-22.5	53.0982	2.572	95%
-22	55.2681	2.7312	95%
-21.5	57.5678	2.9033	95%
-21	60.0073	3.0896	95%
-20.5	62.5975	3.2916	95%
-20	65.3505	3.511	95%
-19.5	68.2792	3.7494	95%
-19	71.3979	4.009	94%
-18.5	74.7224	4.292	94%
-18	78.2698	4.601	94%
-17.5	82.0587	4.9388	94%
-17	86.1099	5.3087	94%
-16.5	90.4458	5.7143	94%
-16	95.0912	6.1597	94%
-15.5	100.073	6.6496	93%

	Magnetic Field Level 3 Feet Above Ground Vertical Duck Bank (milliGauss)		
Distance from Centerline (feet)	ABC ABC	ABC CBA	Percent Reduction
-15	105.4209	7.1893	93%
-14.5	111.1675	7.7845	93%
-14	117.3472	8.442	93%
-13.5	123.9988	9.1693	93%
-13	131.1635	9.9748	92%
-12.5	138.8862	10.8681	92%
-12	147.2147	11.8596	92%
-11.5	156.2	12.9613	92%
-11	165.8956	14.1863	91%
-10.5	176.357	15.5489	91%
-10	187.6409	17.065	91%
-9.5	199.8032	18.7514	91%
-9	212.8971	20.6258	90%
-8.5	226.97	22.7066	90%
-8	242.0596	25.0118	90%
-7.5	258.1882	27.5583	89%
-7	275.3563	30.36	89%
-6.5	293.5336	33.4263	89%
-6	312.6498	36.7592	88%
-5.5	332.5825	40.35	88%
-5	353.1457	44.1755	87%
-4.5	374.0796	48.1939	87%
-4	395.0362	52.3402	87%
-3.5	415.584	56.524	86%
-3	435.2068	60.6278	86%
-2.5	453.3208	64.5094	86%
-2	469.3037	68.0085	86%
-1.5	482.5363	70.9578	85%
-1	492.4543	73.1995	85%
-0.5	498.6031	74.6026	85%
0	500.6869	75.0805	85%
0.5	498.6031	74.6026	85%
1	492.4543	73.1995	85%
1.5	482.5363	70.9578	85%
2	469.3037	68.0085	86%
2.5	453.3208	64.5094	86%
3	435.2068	60.6278	86%

	Magnetic Field Level 3 Feet Above Ground Vertical Duck Bank (milliGauss)		
Distance from Centerline (feet)	ABC ABC	ABC CBA	Percent Reduction
3.5	415.584	56.524	86%
4	395.0362	52.3402	87%
4.5	374.0796	48.1939	87%
5	353.1471	44.1757	87%
5.5	332.5825	40.35	88%
6	312.6498	36.7592	88%
6.5	293.5336	33.4263	89%
7	275.3563	30.36	89%
7.5	258.1882	27.5583	89%
8	242.0596	25.0118	90%
8.5	226.97	22.7066	90%
9	212.8971	20.6258	90%
9.5	199.8032	18.7514	91%
10	187.6409	17.065	91%
10.5	176.357	15.5489	91%
11	165.8956	14.1863	91%
11.5	156.2	12.9613	92%
12	147.2147	11.8596	92%
12.5	138.8862	10.8681	92%
13	131.1635	9.9748	92%
13.5	123.9988	9.1693	93%
14	117.3472	8.442	93%
14.5	111.1675	7.7845	93%
15	105.4212	7.1893	93%
15.5	100.073	6.6496	93%
16	95.0912	6.1597	94%
16.5	90.4458	5.7143	94%
17	86.1099	5.3087	94%
17.5	82.0587	4.9388	94%
18	78.2698	4.601	94%
18.5	74.7224	4.292	94%
19	71.3979	4.009	94%
19.5	68.2792	3.7494	95%
20	65.3505	3.511	95%
20.5	62.5975	3.2916	95%
21	60.0073	3.0896	95%
21.5	57.5678	2.9033	95%

	Magnetic Field Level 3 Feet Above Ground Vertical Duck Bank (milliGauss)		
Distance from Centerline (feet)	ABC ABC	ABC CBA	Percent Reduction
22	55.2681	2.7312	95%
22.5	53.0982	2.572	95%
23	51.049	2.4247	95%
23.5	49.1119	2.2881	95%
24	47.2793	2.1613	95%
24.5	45.5441	2.0435	96%
25	43.8996	1.9339	96%
25.5	42.3401	1.8318	96%
26	40.8597	1.7366	96%
26.5	39.4536	1.6478	96%
27	38.1168	1.5648	96%
27.5	36.8451	1.4872	96%
28	35.6344	1.4146	96%
28.5	34.4809	1.3465	96%
29	33.3813	1.2826	96%
29.5	32.3323	1.2227	96%
30	31.3309	1.1663	96%
30.5	30.3743	1.1134	96%
31	29.46	1.0635	96%
31.5	28.5855	1.0165	96%
32	27.7486	0.9722	96%
32.5	26.9473	0.9304	97%

Table 5 – Segment B - 230 kV AC Underground Transmission Line Magnetic Field Values by Phasing Configuration for Horizontal Duct Bank

	Magnetic Field Level 3 Feet Above Ground Horizontal Duck Bank (milliGauss)		
Distance from Centerline (feet)	ABC ABC	ABC ACB	Percent Reduction
-32.5	20.9486	19.2793	8%
-32	21.5827	19.8594	8%
-31.5	22.2456	20.4657	8%
-31	22.939	21.0997	8%
-30.5	23.6649	21.7631	8%
-30	24.4251	22.4576	8%
-29.5	25.222	23.1854	8%
-29	26.0578	23.9484	8%
-28.5	26.9351	24.7489	8%
-28	27.8566	25.5893	8%
-27.5	28.8252	26.4724	8%
-27	29.8442	27.4009	8%
-26.5	30.9171	28.378	8%
-26	32.0475	29.4069	8%
-25.5	33.2396	30.4914	8%
-25	34.4979	31.6354	8%
-24.5	35.8272	32.8432	8%
-24	37.2328	34.1194	8%
-23.5	38.7203	35.4692	8%
-23	40.2962	36.898	8%
-22.5	41.9672	38.4121	8%
-22	43.7411	40.018	9%
-21.5	45.6259	41.7229	9%
-21	47.6309	43.5349	9%
-20.5	49.766	45.4627	9%
-20	52.0421	47.5158	9%
-19.5	54.4714	49.7047	9%
-19	57.0672	52.0412	9%
-18.5	59.8442	54.5379	9%
-18	62.8186	57.2088	9%
-17.5	66.0085	60.0695	9%
-17	69.4336	63.1369	9%
-16.5	73.116	66.4301	9%
-16	77.0801	69.9696	9%
-15.5	81.3526	73.7785	9%

	Magnetic Field Level 3 Feet Above Ground Horizontal Duck Bank (milliGauss)		
Distance from Centerline (feet)	ABC ABC	ABC ACB	Percent Reduction
-15	85.9636	77.882	9%
-14.5	90.9461	82.3082	9%
-14	96.3361	87.0871	10%
-13.5	102.1738	92.2525	10%
-13	108.5035	97.8411	10%
-12.5	115.3733	103.8927	10%
-12	122.8358	110.4507	10%
-11.5	130.948	117.5612	10%
-11	139.7708	125.2737	10%
-10.5	149.3687	133.6397	11%
-10	159.8089	142.7123	11%
-9.5	171.1595	152.5444	11%
-9	183.4871	163.1866	11%
-8.5	196.8538	174.6844	11%
-8	211.3114	187.0737	11%
-7.5	226.8961	200.3753	12%
-7	243.6188	214.5881	12%
-6.5	261.4559	229.6801	12%
-6	280.3358	245.5794	12%
-5.5	300.1266	262.1625	13%
-5	320.6217	279.2455	13%
-4.5	341.5307	296.5768	13%
-4	362.4677	313.8298	13%
-3.5	382.9612	330.6135	14%
-3	402.4624	346.481	14%
-2.5	420.372	360.9529	14%
-2	436.0772	373.5469	14%
-1.5	448.9957	383.8117	15%
-1	458.6207	391.3602	15%
-0.5	464.5606	395.8973	15%
0	466.5686	397.2411	15%
0.5	464.5606	395.3361	15%
1	458.6207	390.2584	15%
1.5	448.9957	382.2118	15%
2	436.0772	371.514	15%
2.5	420.372	358.5732	15%
3	402.4624	343.8553	15%

	Magnetic Field Level 3 Feet Above Ground Horizontal Duck Bank (milliGauss)		
Distance from Centerline (feet)	ABC ABC	ABC ACB	Percent Reduction
3.5	382.9612	327.8477	14%
4	362.4677	311.025	14%
4.5	341.5307	293.821	14%
5	320.623	276.6092	14%
5.5	300.1266	259.6928	13%
6	280.3358	243.3077	13%
6.5	261.4559	227.6208	13%
7	243.6188	212.7427	13%
7.5	226.8961	198.7367	12%
8	211.3114	185.6288	12%
8.5	196.8538	173.417	12%
9	183.4871	162.079	12%
9.5	171.1595	151.579	11%
10	159.8089	141.8721	11%
10.5	149.3687	132.9091	11%
11	139.7708	124.6384	11%
11.5	130.948	117.0086	11%
12	122.8358	109.9695	10%
12.5	115.3733	103.4734	10%
13	108.5035	97.475	10%
13.5	102.1738	91.9325	10%
14	96.3361	86.8068	10%
14.5	90.9461	82.0623	10%
15	85.9639	77.666	10%
15.5	81.3526	73.588	10%
16	77.0801	69.8014	9%
16.5	73.116	66.2813	9%
17	69.4336	63.005	9%
17.5	66.0085	59.9523	9%
18	62.8186	57.1045	9%
18.5	59.8442	54.4448	9%
19	57.0672	51.9581	9%
19.5	54.4714	49.6303	9%
20	52.0421	47.449	9%
20.5	49.766	45.4026	9%
21	47.6309	43.4808	9%
21.5	45.6259	41.6741	9%

	Magnetic Field Level 3 Feet Above Ground Horizontal Duck Bank (milliGauss)		
Distance from Centerline (feet)	ABC ABC	ABC ACB	Percent Reduction
22	43.7411	39.9739	9%
22.5	41.9672	38.3722	9%
23	40.2962	36.8618	9%
23.5	38.7203	35.4363	8%
24	37.2328	34.0895	8%
24.5	35.8272	32.8159	8%
25	34.4979	31.6105	8%
25.5	33.2396	30.4687	8%
26	32.0475	29.3861	8%
26.5	30.9171	28.3589	8%
27	29.8442	27.3834	8%
27.5	28.8252	26.4563	8%
28	27.8566	25.5746	8%
28.5	26.9351	24.7353	8%
29	26.0578	23.9358	8%
29.5	25.222	23.1738	8%
30	24.4251	22.4469	8%
30.5	23.6649	21.7531	8%
31	22.939	21.0905	8%
31.5	22.2456	20.4571	8%
32	21.5827	19.8515	8%
32.5	20.9486	19.2719	8%