PSEG LONG ISLAND LLC

On Behalf of and as Agent for the

LONG ISLAND LIGHTING COMPANY d/b/a LIPA

Southampton to Deerfield Transmission Project

APPENDIX D — EMF STUDY

Electric and Magnetic Field (EMF) Modeling Analysis for the Southampton to Deerfield Transmission Project

Prepared for
Burns & McDonnell
9400 Ward Parkway
Kansas City, MO 64114

PSEG Long Island

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GRADIENT

www.gradientcorp.com
One Beacon Street, 17th Floor
Boston, MA 02108
617-395-5000

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Abbreviations

A	Amperes
BPA	Bonneville Power Administration
EMF	Electric and Magnetic Field
G	Gauss
GCC	Ground Continuity Conductor
HDPE	High-Density Polyethylene
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEEE	Institute of Electrical and Electronics Engineers
kcmil	Kilo Circular Mil
kV/m	Kilovolts Per Meter
MF	Magnetic Field
mG	Milligauss
NYSPSC	New York State Public Service Commission
ROW	Right-of-Way
US	United States

1 Introduction and Summary

PSEG Long Island, as agent of and acting on behalf of Long Island Lighting Company d/b/a LIPA, proposes to construct, operate, and maintain a new 138 kilovolt (kV) underground transmission line in Suffolk County, New York. The Southampton to Deerfield Transmission Project will involve the construction of a new underground transmission line between the Southampton Substation and the Deerfield Substation in the Town of Southampton and Village of Southampton, New York, that will be operated at 69 kV but built to 138 kV design standards for future operation at 138 kV. The proposed underground 138 kV transmission line is to be constructed primarily within municipal public roadways for a total distance of approximately 4.5 miles wholly within the Town of Southampton.

Burns & McDonnell requested that Gradient perform an independent assessment of the electric and magnetic field (EMF) impacts associated with the Southampton to Deerfield Transmission Project. For this EMF assessment, magnetic field (MF) impacts were modeled 1 meter above the ground surface for several representative underground line cross sections that included:

- the typical direct-buried conduits in trefoil configuration,
- the splice vault entry/exit configuration,
- direct-buried conduits in horizontal configuration,
- direct-buried conduits in vertical configuration,
- direct-buried cables in trefoil configuration for use inside the substations, and
- the typical direct-buried conduits in trefoil configuration in proximity to the existing 69-886 underground transmission line.

Per New York State Public Service Commission (NYSPSC) Article VII requirements, all MF modeling was performed for winter-normal conductor ratings. Underground lines produce no aboveground electric fields, so these new 138 kV conductors will not produce any aboveground electric fields and no electric field modeling was performed.

As described in this report and shown in Table 1.1, our calculations demonstrate that modeled post-Project MF values for each representative cross section at lateral distances out to 25 feet on either side of the conductor centerline, which are selected to represent right-of-way (ROW) edges, comply with the NYSPSC edge-of-ROW MF interim standard of 200 milligauss (mG). Even the highest modeled MF levels directly above the conductor centerlines are well below the health-based guideline issued by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) for allowable public exposure to MFs (2,000 mG; ICNIRP, 2010).

Table 1.1 Summary of Modeled Magnetic Fields 1 Meter Above Ground Surface for Project Underground Transmission Line Cross Sections

Representative Line Section	Max. Magnetic Field (mG), Directly Above Centerline	Magnetic Field (mG), -25 ft from Centerline	Magnetic Field (mG), +25 ft from Centerline
Typical Direct-Buried Conduits in Trefoil Configuration	47.7	4.6	4.7
Splice Vault Entry/Exit Configuration	232.8	24.0	24.0
Direct-Buried Conduits in Horizontal Configuration	102.5	8.9	9.2
Direct-Buried Conduits in Vertical Configuration	81.4	8.9	8.9
Direct-Buried Cables in Trefoil Configuration (Inside Substations)	24.3	2.4	2.5
Typical Direct-Buried Conduits in Trefoil Configuration in Proximity to Existing 69-886 Underground Transmission Line	118.3	11.0	15.4

Notes:
ft = Feet; mG = Milligauss.

Section 2 of this report describes the nature of EMFs, provides values for EMF levels from common sources, and provides background on the NYSPSC edge-of-ROW MF interim standard. Section 3 outlines the MF modeling procedures for calculating MFs as a function of lateral distance from an electric transmission (or distribution line) and provides graphical results for the modeled cross sections. Section 4 summarizes the conclusions, and the Reference list provides the sources cited in this report.

2 Nature of Electric and Magnetic Fields

All matter contains electrically charged particles. Most objects are electrically neutral because positive and negative charges are present in equal numbers. When the balance of electric charges is altered, we experience electrical effects. Common examples are the static electricity attraction between a comb and our hair, or a static electricity spark after walking on a synthetic rug in the wintertime. Electrical effects occur both in nature and through our society's use of electric power (generation, transmission, and consumption).

2.1 Units for EMFs Are Kilovolts Per Meter (kV/m) and Milligauss (mG).

The electrical tension on utility power lines is expressed in volts or kilovolts (1 kV = 1,000 V). Voltage is the "pressure" of the electricity and can be envisioned as analogous to the pressure of water in a plumbing system. The existence of a voltage difference between overhead power lines and ground results in an "electric field," usually expressed in units of kilovolts per meter (kV/m). The size of the electric field depends on the line voltage, the separation between lines and the ground surface, and other factors.

Power lines also carry an electric current that creates a "magnetic field." The units for electric current are amperes (A), which is a measure of the "flow" of electricity. Electric current is analogous to the flow of water in a plumbing system. The MF produced by an electric current is usually expressed in units of gauss (G) or mG (1 G = 1,000 mG).[1] The size of the MF depends on the electric current in the line conductors, the distance to the current-carrying conductor, and other factors.

2.2 There Are Many Natural and Manmade Sources of EMFs.

Everyone experiences a variety of natural and man-made EMFs. EMF levels can be steady or slowly varying (often called "direct current," or "DC fields"); or EMF levels can vary in time (often called "alternating current" or "AC fields"). When the time variation corresponds to that of standard North American power line currents (*i.e.*, 60 cycles per second), the fields are called "60-Hz AC," or power-frequency EMF. Man-made MFs are common in everyday life. For example, many childhood toys contain magnets. Such permanent magnets generate strong, steady (DC) MFs. Typical toy magnets (*e.g.*, "refrigerator door" magnets) have fields of 100,000-500,000 mG. On a larger scale, earth's core also creates a steady DC MFs that can be easily demonstrated with a compass needle. The size of Earth's MF in New York City is about 510 mG.

2.3 Power-Frequency EMFs Are Found Near Electric Lines and Appliances.

In North America, electric power transmission lines, distribution lines, and electric wiring in buildings carry AC currents and voltages that change size and direction at a frequency of 60 Hz. These 60-Hz currents and voltages create 60-Hz AC EMFs nearby. The size of the MF is proportional to the line current, while the size of the electric field is proportional to the line voltage. The EMFs associated with electrical wires and electrical equipment decrease rapidly with increasing distance away from the electrical wires and/or

[1] Another unit for magnetic field levels is the microtesla (μT) (1 μT = 10 mG; and 1 Tesla = 10,000 G).

equipment. Specifically, EMFs from three-phased, balanced conductors decrease in proportion to the square of the distance from the conductors (IEEE 1127, 2014).

When EMF derives from different wires or conductors that are in close proximity, or adjacent to one another, the level of the net EMF produced will be somewhere in the range between the sum of EMF from the individual sources and the difference of the EMF from the individual sources. EMF may partially add, or partially cancel, but generally, because adjacent phase conductors are often carrying current in opposite directions for typical 3-phase lines, the EMF produced tends to cancel.

EMFs in the home arise from electric appliances, indoor wiring, grounding currents on pipes and ground wires, and outdoor distribution or transmission circuits. Inside residences, typical baseline 60-Hz MF (away from appliances) range from 0.5-5.0 mG.

Higher 60-Hz MF levels are found near operating appliances. For example, can openers, mixers, blenders, refrigerators, fluorescent lamps, electric ranges, clothes washers, toasters, portable heaters, vacuum cleaners, electric tools, and many other appliances generate MF levels in the range of 40-300 mG at distances of 1 foot (NIEHS, 2002). MF levels from personal care appliances held within half a foot (*e.g.*, shavers, hair dryers, massagers) can produce average fields of 600-700 mG. At school and in the workplace, lights, motors, copy machines, vending machines, video-display terminals, pencil sharpeners, electric tools, electric heaters, and building wiring are all sources of 60-Hz MF.

2.4 New York State Public Service Commission (NYSPSC) Standards

The NYSPSC has an edge-of-ROW MF interim standard of 200 mG. As defined, this interim standard is to be applied to MFs at 1 meter above the ground surface for loading conditions corresponding to winter-normal conductor ratings. The rationale for this interim standard is discussed in NYSPSC's "Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities," which was issued on September 11, 1990 (NYSPSC, 1990). This interim standard is not health-based and is ten times lower than the health-based guideline issued by the ICNIRP for allowable public exposure to MFs (2,000 mG; ICNIRP, 2010). It is based on modeled average edge-of-ROW MFs for a large sample of 345 kV transmission lines in New York State for assumed loading conditions at the winter-normal conductor ratings (NYSPSC, 1990). NYSPSC's Interim Policy Statement provides guidance for applying the interim standard when there is no defined ROW edge, stating that the standard is applicable to MF levels 75 feet from the centerline of 345 kV circuits, 60 feet from the centerline of 230 kV circuits, and 50 feet from the centerline of transmission circuits operating at a lower voltage. NYSPSC also has both on-ROW and edge-of-ROW standards for electric fields, although they are not relevant to this Project, given the absence of aboveground electric fields from underground transmission lines.

3 EMF Modeling

3.1 Software Program Used for Modeling MFs for Underground Line Cross Sections

The "EMF and Corona Effects Analysis" calculation program, designed by the Bonneville Power Administration (BPA) of the United States (US) Department of Energy, was used to calculate aboveground MFs from the proposed underground transmission line. This program operates using Maxwell's equations, which accurately apply the laws of physics as related to electricity and magnetism (EPRI, 1982, 1993). Modeled fields using this program are both precise and accurate for the input data used. The results of the model have been checked against results from other software (*e.g.*, Southern California Edison's FIELDS program), confirming that the implementation of the laws of physics in this program is consistent. Underground lines produce no aboveground electric fields, so these new 138 kV conductors will not produce any aboveground electric fields and no electric field modeling was performed.

3.2 Conductor Rating Information

Per Article VII requirements, all MF modeling was conducted for winter-normal conductor ratings. Table 3.1 summarizes winter-normal conductor ratings for the Project line and for the existing 69 kV underground transmission line (69-886) that is expected to be in proximity to the Project line for a very limited portion of the proposed route (discussed more in Section 3.3).

Table 3.1 Winter-Normal Conductor Ratings for the Project Underground Transmission Line and the Existing 69-886 Underground Transmission Line

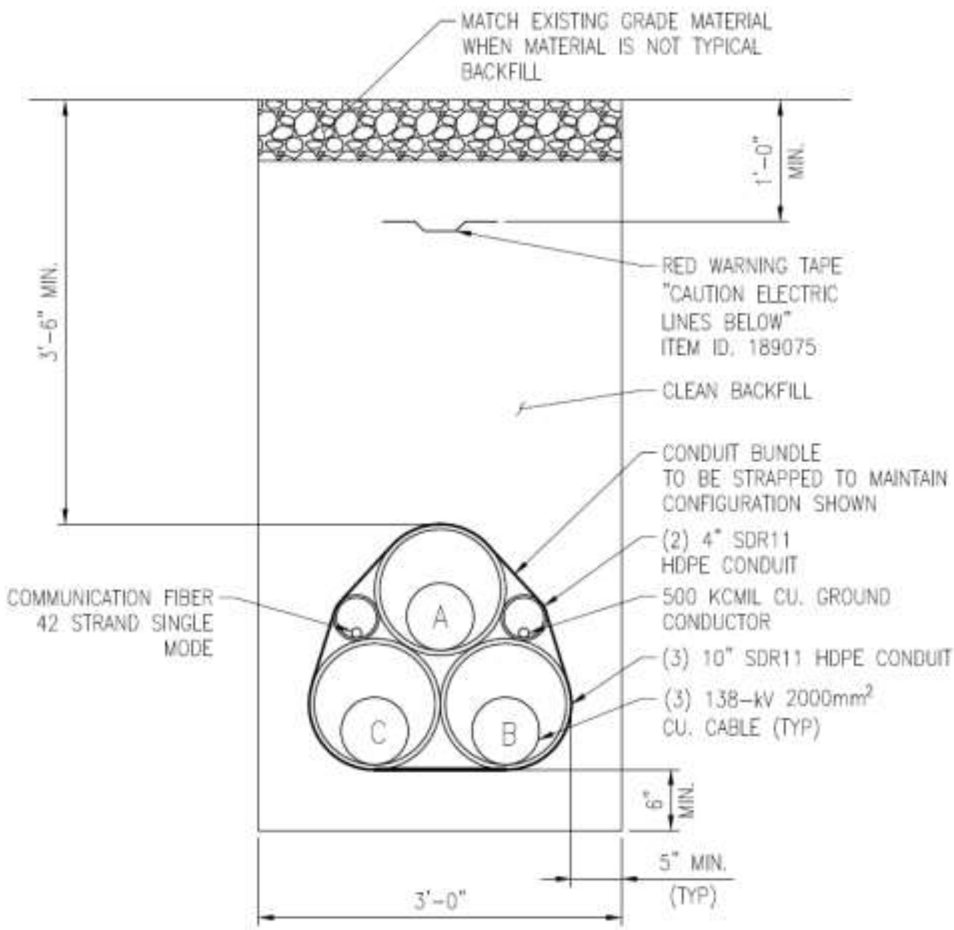
Line	Winter-Normal Conductor Rating (A)[a]
Project Line	607[b]
Existing 69-886 Line	1,098

Notes:
A = Ampere.
(a) The direction of current flow is assumed to be the same for both transmission lines, *i.e.*, away from the Southampton Substation.
(b) The winter-normal conductor rating for the Project line is based on it being operated at 138 kV, which is its eventual operating voltage.

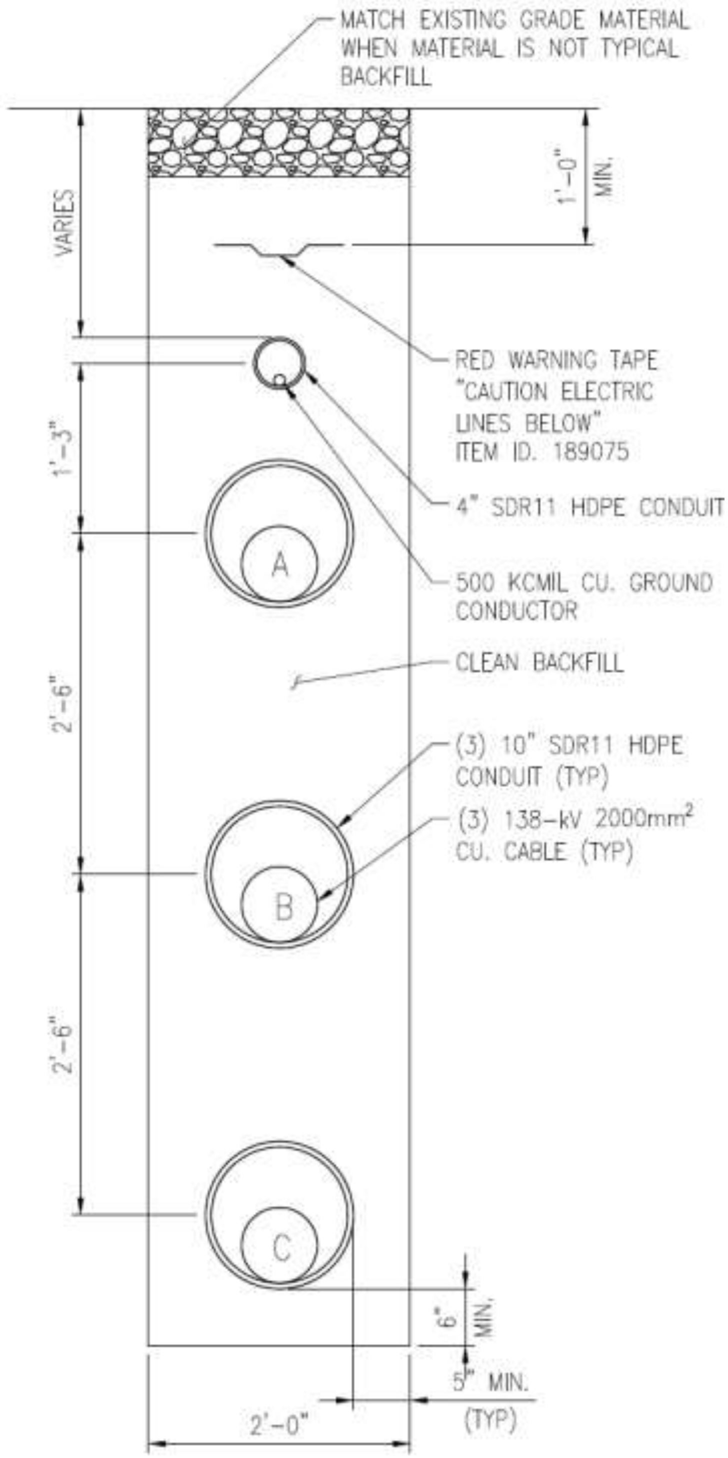
3.3 Modeled Project Cross Sections

MF modeling was conducted for six cross sections selected to represent possible underground line installation cases with differing conductor configurations:

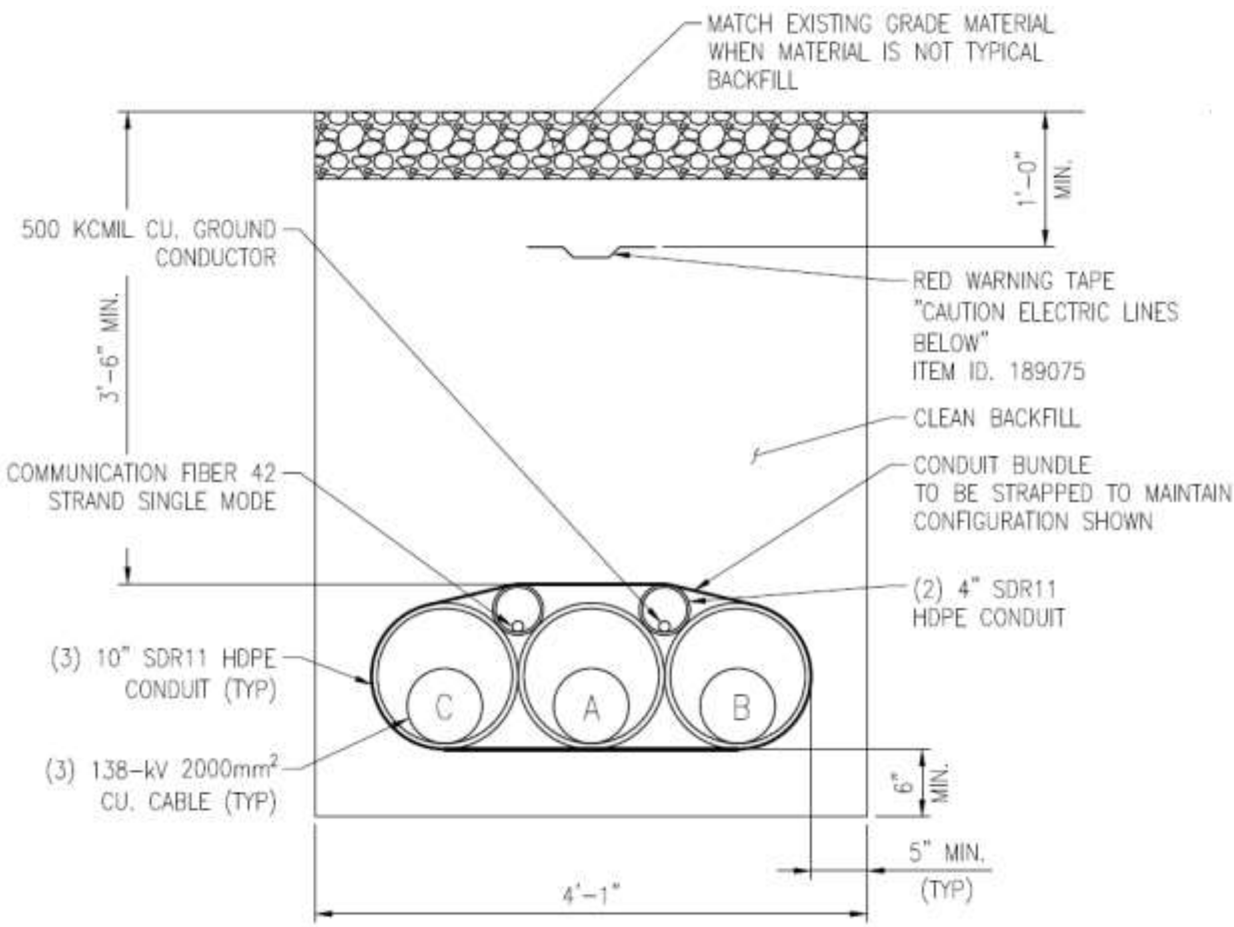
1. Typical direct-buried conduits in trefoil configuration, as shown in Figure 3.1a. This trefoil conductor configuration is to be the default conductor configuration for the typical line sections.
2. Splice vault entry/exit configuration, as shown in Figure 3.1b. This "vertical" conductor configuration is to be used for splice vaults that are expected to be placed approximately every 2,000 feet along the Project route.
3. Direct-buried conduits in horizontal configuration, as shown in Figure 3.1c. This "flat" conductor configuration is to be used as necessary for crossing above other buried utilities.
4. Direct-buried conduits in vertical configuration, as shown in Figure 3.1d. This vertical conductor configuration is to be used as necessary for addressing spatial limitations for the typical direct-buried conduits in trefoil configuration.
5. Direct-buried cables in trefoil configuration, as shown in Figure 3.1e, that will be used inside the substations.
6. The typical direct-buried conduits in trefoil configuration in proximity to the existing 69-886 underground transmission line. It is our understanding the Project line will be in proximity to the existing 69-886 underground transmission line for a very limited portion of the proposed Project route (approximately 0.1 km along North Sea Road after the two underground lines exit the Southampton Substation and prior to the Project route turning east onto Willow Street). Based on information provided by Burns & McDonnell, we have conservatively assumed the minimum 3.5 foot separation distance between the centerlines of the two underground transmission lines, with the 69-886 underground transmission line assumed to similarly consist of direct-buried conduits in trefoil configuration as the Project line.



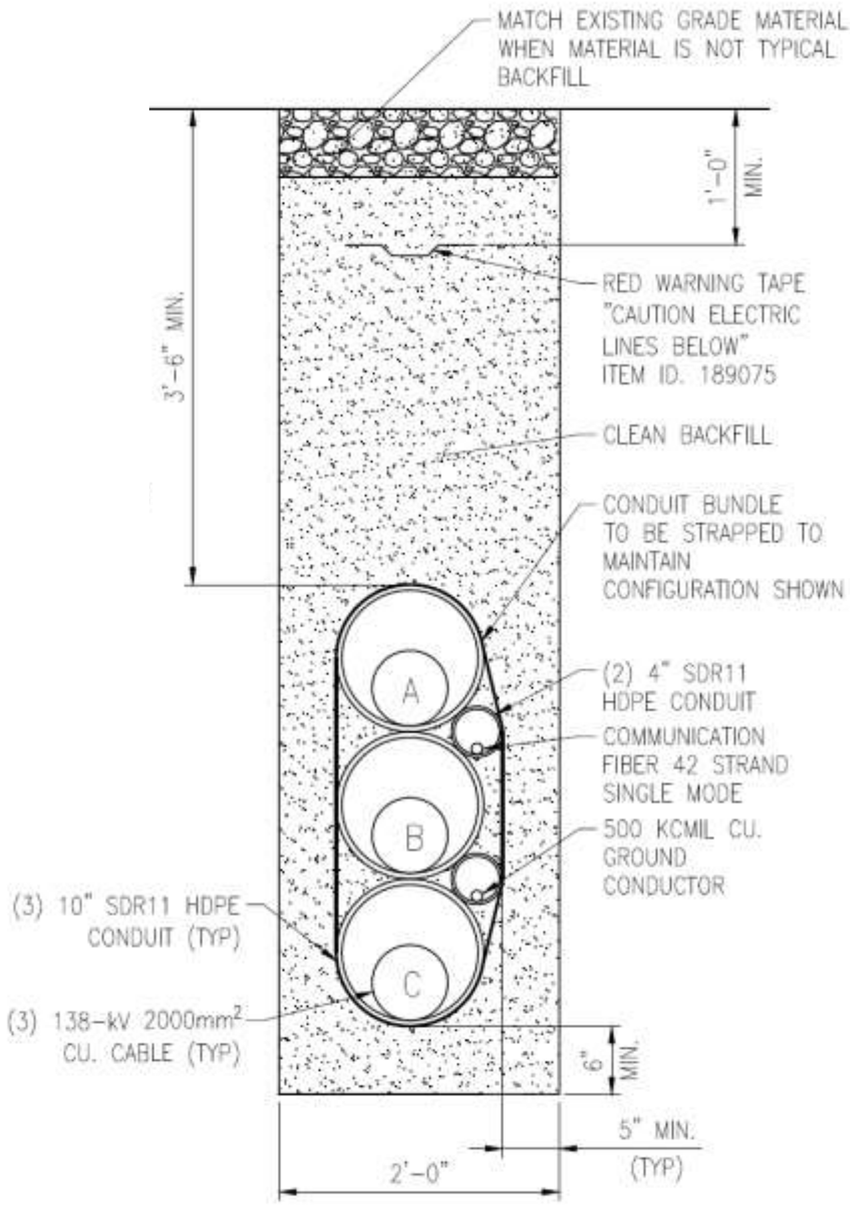
(a) Typical Direct-Buried Conduits in Trefoil Configuration



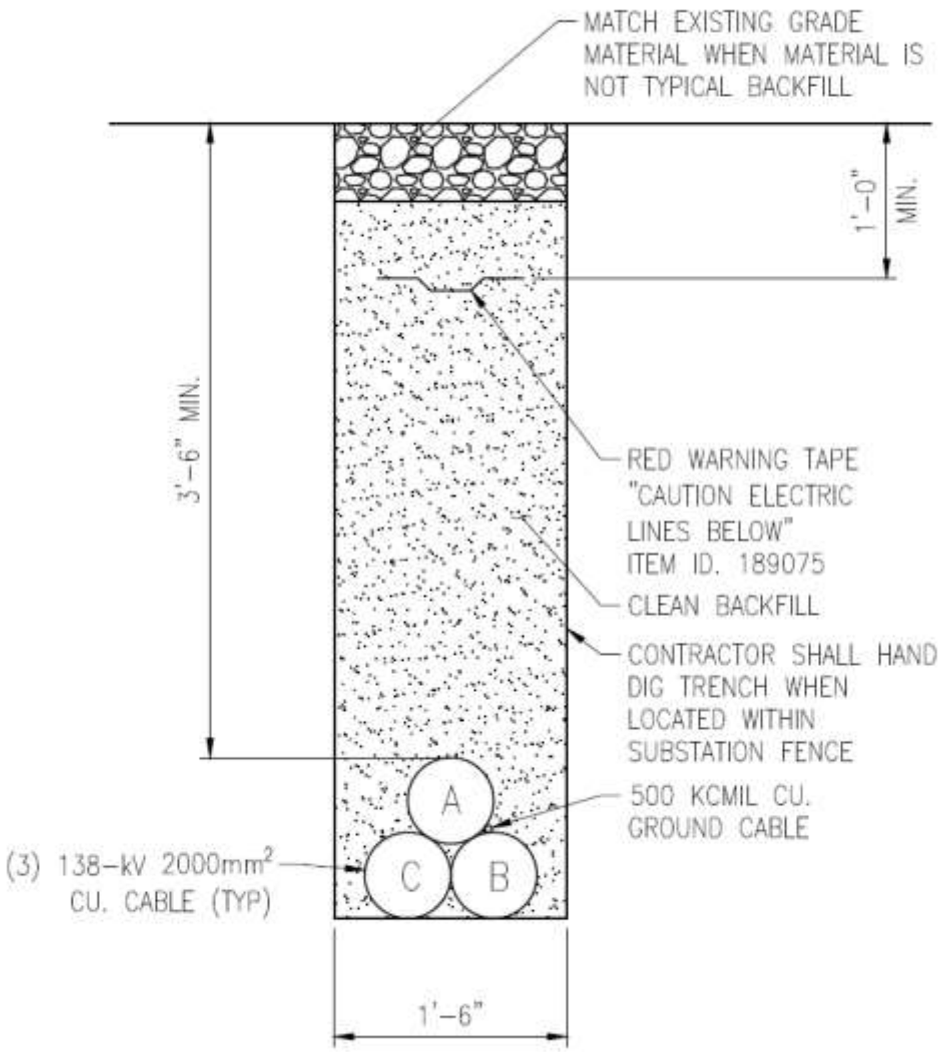
(b) Splice Vault Entry/Exit Configuration



(c) Direct-Buried Conduits in Horizontal Configuration



(d) Direct-Buried Conduits in Vertical Configuration



(e) Direct-Buried Cables in Trefoil Configuration (Inside Substations)

Figure 3.1 Cross-Sectional Views for Representative Project 138 kV Underground Transmission Line Sections.
As provided by Burns & McDonnell. Assumed conductor phasing is indicated. Each phase conductor was assumed to lie in the bottom of 10-inch SDR11 high-density polyethylene (HDPE) conduits, except for within the substations, where the cables will be directly buried (Figure 3.1e).

For each cross-sectional view shown in Figure 3.1, aboveground MFs were modeled as a function of horizontal distance, perpendicular to the direction of current flow. MF levels were calculated out to 100 feet on either side of the conductor centerline, with MF levels at ±25 feet selected to represent edge-of-ROW MF levels. Per standard industry practices (IEEE 644, 1995a; IEEE 1308, 1995b), MF levels were modeled at a height of 1 meter above the ground surface. For all but the direct-buried cables in trefoil configuration that will be used inside the substations, each phase conductor was assumed to lie in the bottom of the 10-inch SDR11 high-density polyethylene (HDPE) conduits, and Burns & McDonnell provided horizontal and vertical conductor coordinates that were calculated based on dimensions shown in Figure 3.1 and conductor specifications (see Appendix A). Based on minimum cover depths, burial depths to the centers of the uppermost phase conductors ranged from approximately 38.2 inches (for the splice vault entry/exit configuration) to 55.7 inches (for the direct-buried conduits in vertical configuration) across the representative cross sections.

For the existing 69-886 underground transmission line, the phase conductors were assumed to be installed in conduits with the same spacing, burial depths, and trefoil configuration as the Project transmission line. The same conductor phasing arrangement as the Project transmission line was also assumed. Burns & McDonnell provided a specification sheet for the existing 69-886 underground transmission line cables that listed a conductor diameter of 1.78 inches and a cable diameter of 4.17 inches As discussed previously, a 3.5-foot separation distance between the centerlines of the two underground transmission lines was assumed. Given the lack of available information on the induced voltage and current on any ground continuity conductor (GCC) present with the 69-886 phase conductors, it was conservatively assumed that there was no GCC present. This is a conservative assumption because any induced currents on ground conductors would be expected to produce MFs that would tend to oppose (partially cancel) the MFs arising from the phase conductor currents (Roldán-Blay and Roldán-Porta, 2020; Lunca *et al*., 2023).

3.4 Induced Currents on Project Ground Continuity Conductor (GCC)

As shown in Figure 3.1, a GCC will travel within a 4-inch SDR11 HDPE conduit in close proximity to the Project phase conductors for the direct-buried conduit installation cases, and a GCC will also be direct-buried adjacent to the phase conductor cables for the direct-buried cable installation case to be used inside the substations. Burns & McDonnell provided information indicating that the GCC is to be a 500-kilo circular mil (kcmil) copper cable, with a conductor diameter of 0.789 inches. Given the close proximity to the Project phase conductors, there will be an induced current on the GCC, and thus there will be a MF contribution from the GCC. Burns & McDonnell provided the voltage, magnitude, and phase angle of the induced current on the GCC for the representative cross sections (Table 3.2), and the GCC was modeled as an additional conductor along with the Project phase conductors.

Table 3.2 Summary of Induced Current Properties for the Project Ground Continuity Conductor (GCC)

Representative Cross Section	Voltage (V/2000 ft)	Current (A)	Current Phase Angle (Degrees)[a]
Typical Direct-Buried Conduits in Trefoil Configuration[b]	19.27	1.28	163.34
Splice Vault Entry/Exit Configuration	37.69	2.50	-168.70
Direct-Buried Conduits in Horizontal Configuration	21.66	1.44	31.83
Direct-Buried Conduits in Vertical Configuration	22.01	1.46	41.40
Direct-Buried Cables in Trefoil Configuration (Inside Substations)	20.63	1.37	152.76

Notes:
A = Ampere; V = Volt.
(a) This is relative to the A-phase of the Project phase conductors, which was assumed to be equal to 0 degrees.
(b) Also used for the Project GCC for the typical direct-buried conduits in trefoil configuration in proximity to the existing 69-886 underground transmission line.

3.5 EMF Modeling Results

Results of the MF modeling for each representative cross section are summarized in Figures 3.2-3.7. As shown in each of the figures, for assumed line loadings equal to winter-normal conductor ratings, modeled MFs are below the NYSPSC edge-of-ROW MF interim standard of 200 mG at the assumed ROW edges ±25 feet from the centerline of the Project underground conductors for each of the representative cross sections. Modeled MF levels above the NYSPSC edge-of-ROW MF interim standard are only found directly above the conductor centerline for the splice vault entry/exit configuration, and these maximum modeled MF values remain well below the health-based guideline issued by the ICNIRP for allowable public exposure to MFs (2,000 mG; ICNIRP, 2010). They drop below the 200 mG NYSPSC edge-of-ROW MF interim standard within 4 feet of the conductor centerline. Each of the plots show that modeled MFs drop off rapidly with increasing lateral distance from the Project conductors.

For the very limited portion of the proposed Project route where the Project underground transmission line may be in proximity to the existing 69-886 underground transmission line, Figure 3.7 shows that the interaction between the MFs from the two transmission lines will result in increased MF levels as compared to the Project transmission line by itself (Figure 3.2). However, even for the conservative assumption that the circuit centerlines are within 3.5 feet of each other, all modeled MFs remain below the 200 mG NYSPSC edge-of-ROW MF interim standard.

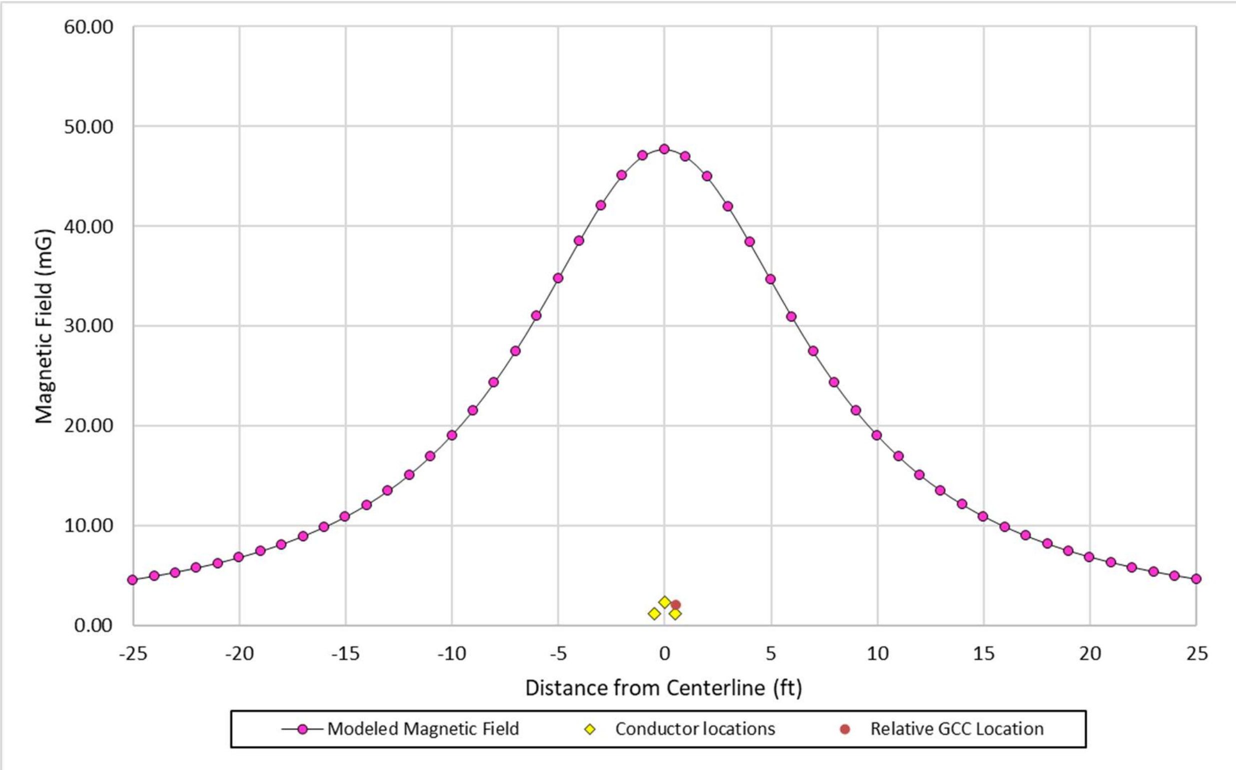


Figure 3.2 Magnetic Field Modeling Results for Typical Direct-Buried Conduits in Trefoil Configuration

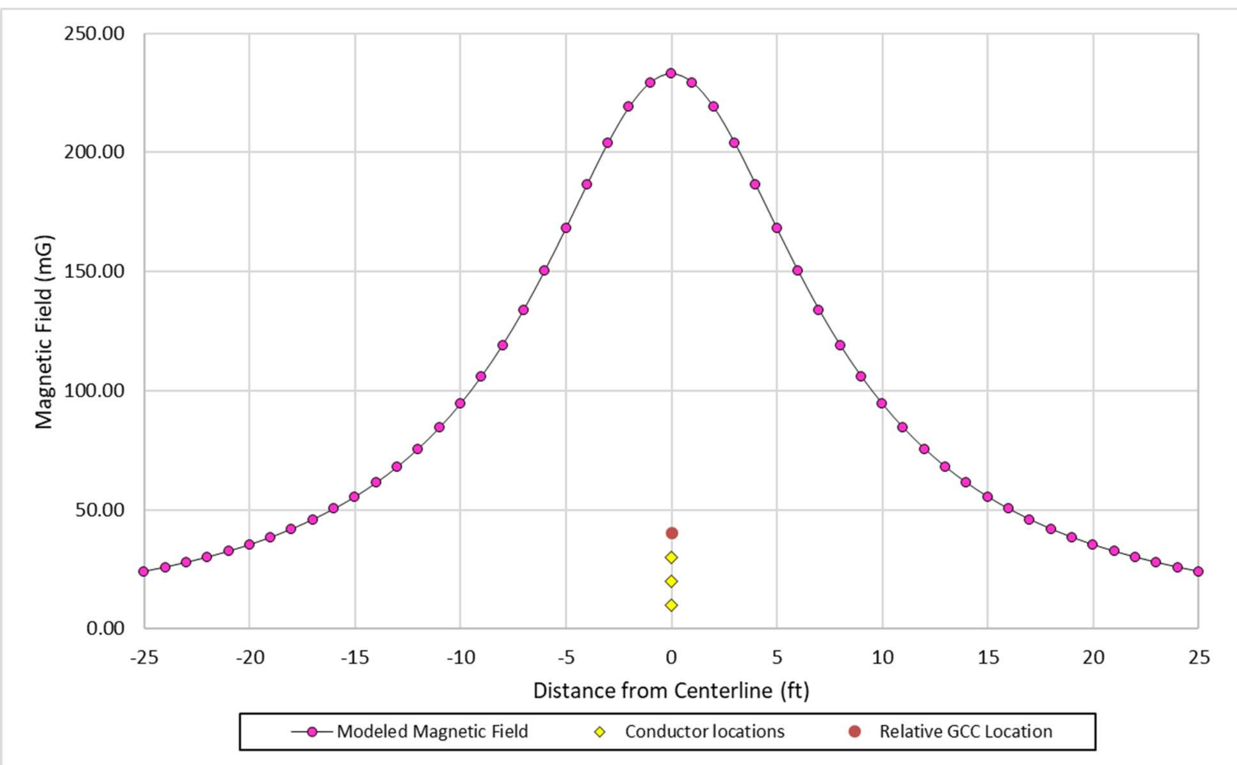


Figure 3.3 Magnetic Field Modeling Results for Splice Vault Entry/Exit Configuration

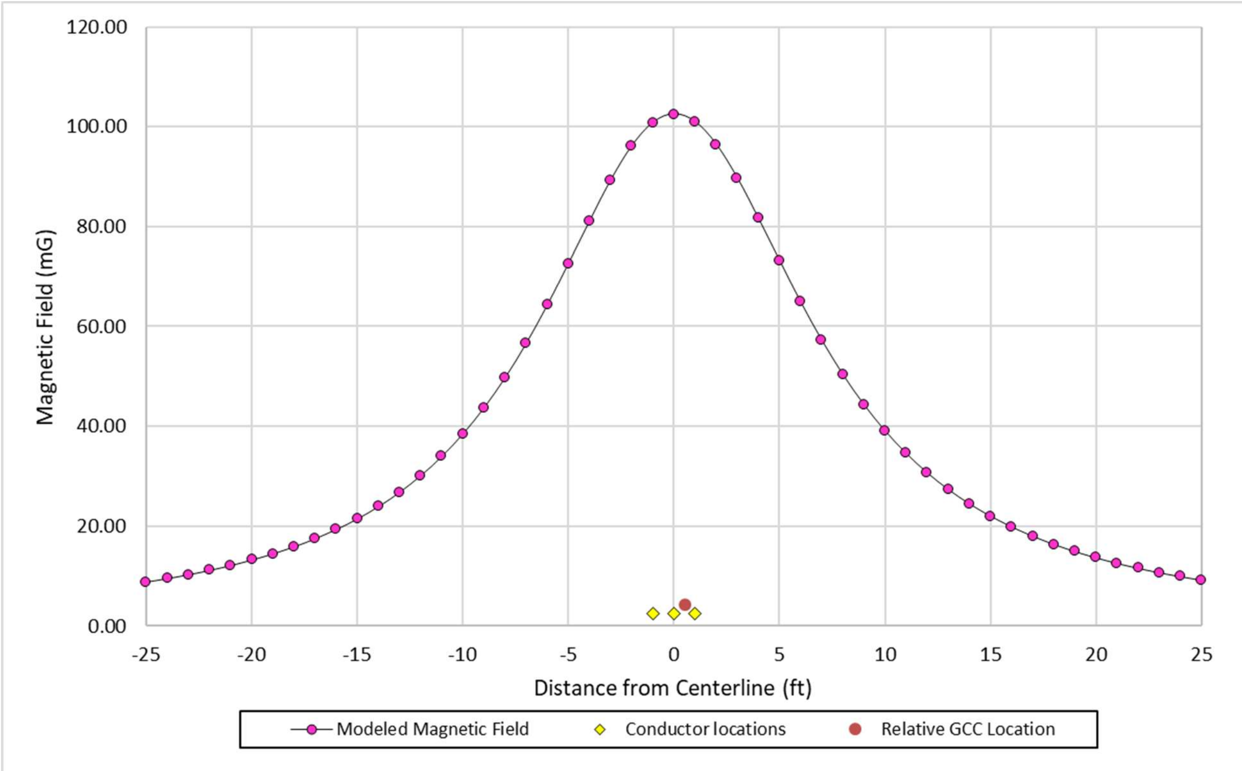


Figure 3.4 Magnetic Field Modeling Results for Direct-Buried Conduits in Horizontal Configuration

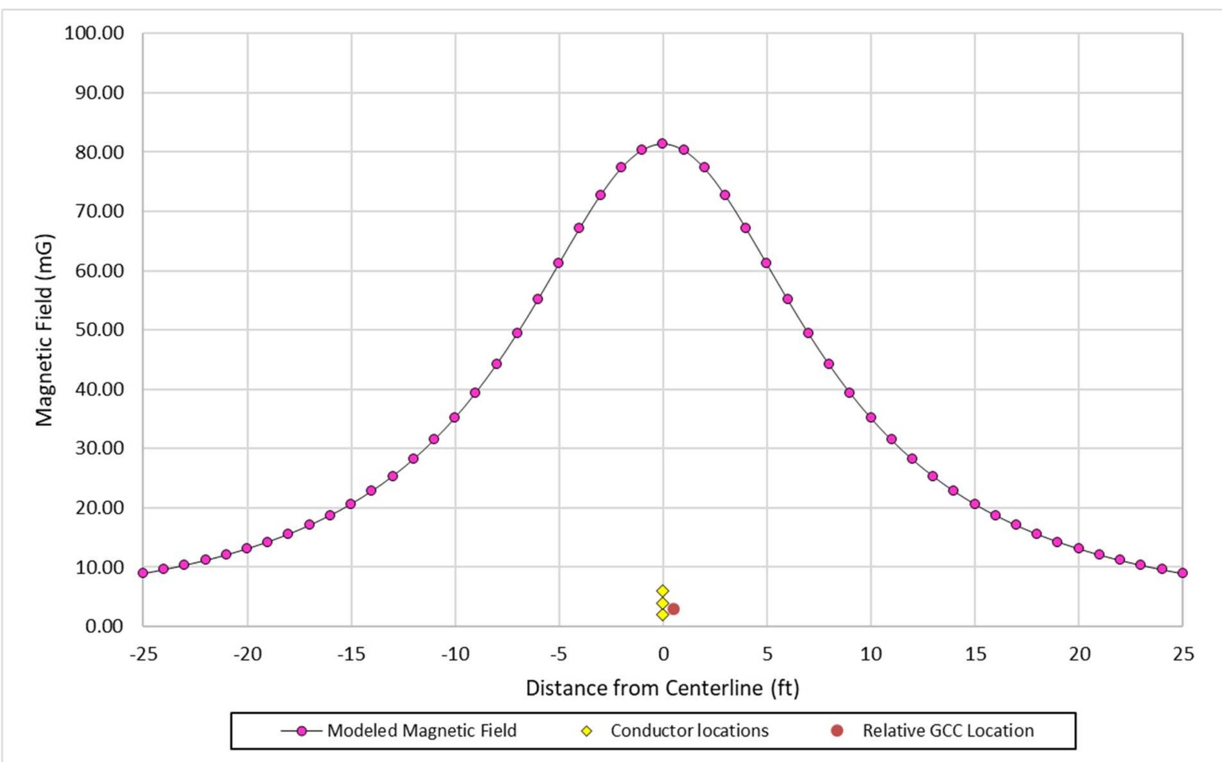


Figure 3.5 Magnetic Field Modeling Results for Direct-Buried Conduits in Vertical Configuration

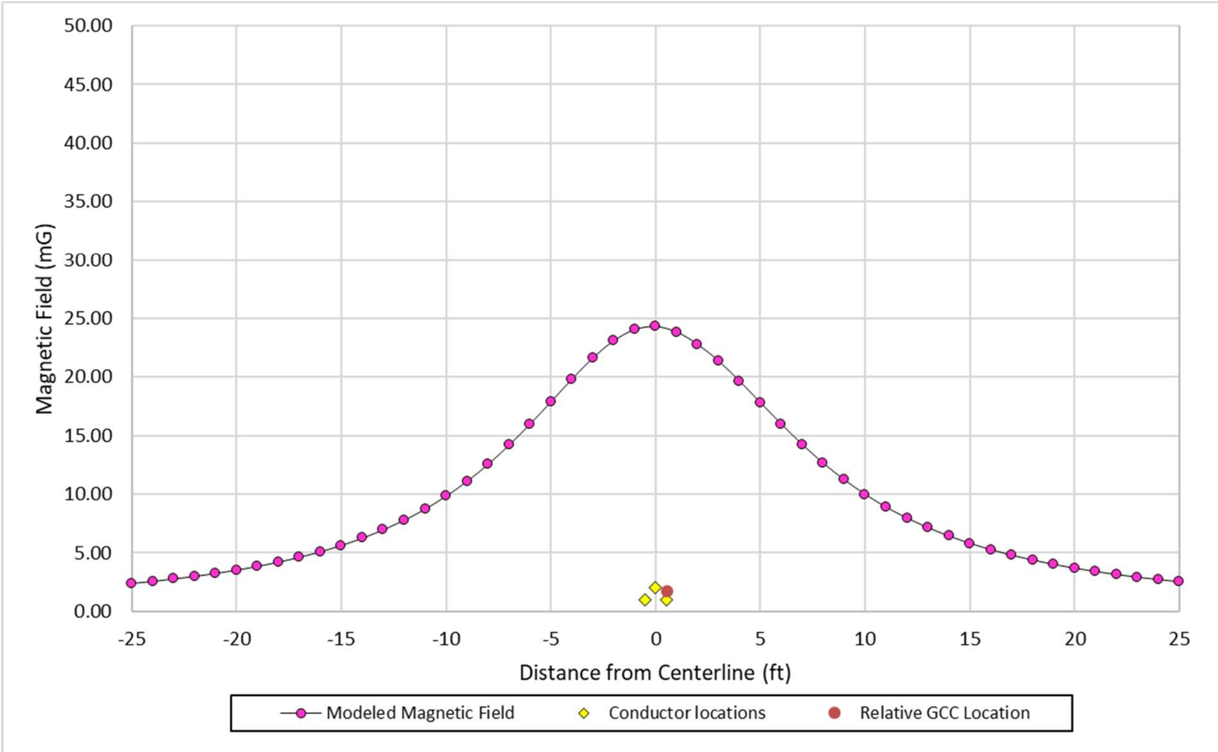


Figure 3.6 Magnetic Field Modeling Results for Direct-Buried Cables in Trefoil Configuration (Inside Substations)

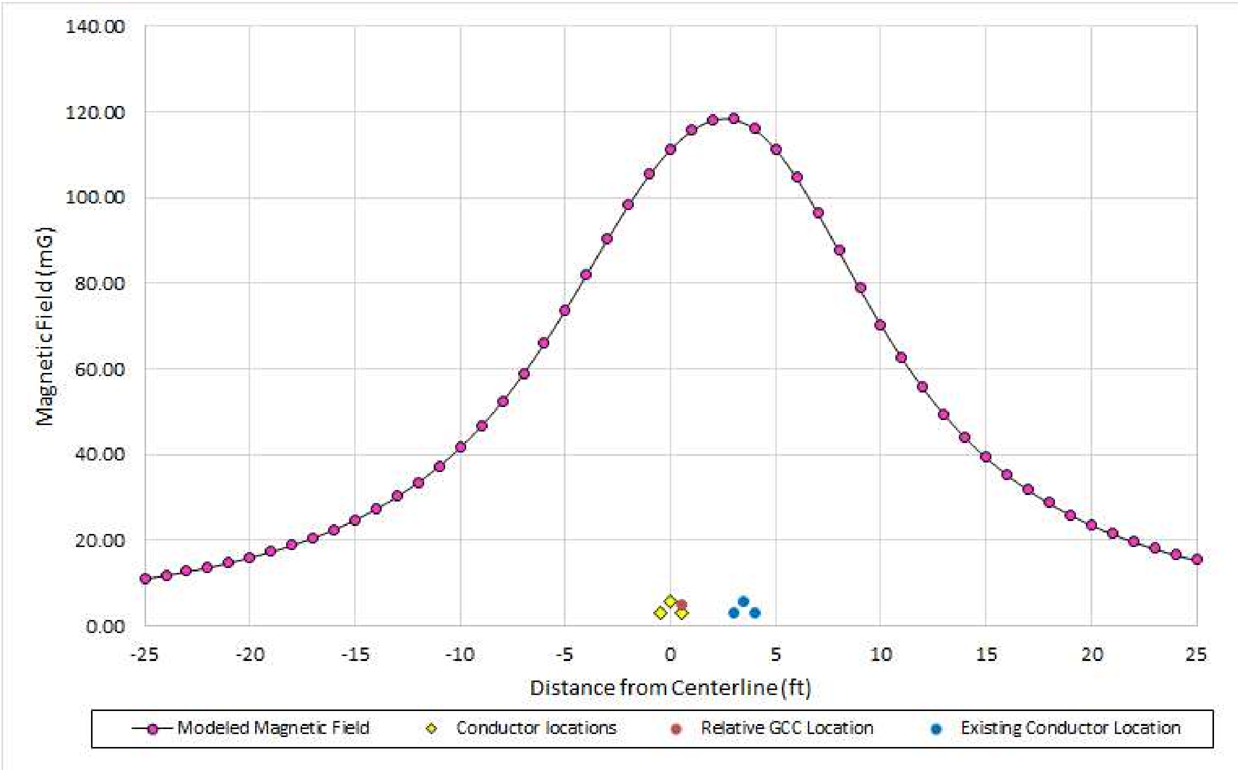


Figure 3.7 Magnetic Field Modeling Results for the Typical Direct-Buried Conduits in Trefoil Configuration in Proximity to the Existing 69-886 Southampton to Bridgehampton Underground Transmission Line

4 Conclusions

Gradient calculated MF values at 1 meter above the ground surface for six representative cross sections of the proposed 138 kV underground transmission line to be constructed between the Southampton Substation and the Deerfield Substation in Southampton, New York. We modeled MF levels for electric current loading levels equal to the winter-normal ratings for the phase conductors. Underground lines produce no aboveground electric fields, so these new 138 kV conductors will not produce any aboveground electric fields and no electric field modeling was performed. At distances of ±25 feet from the underground conductor centerlines selected to represent ROW edges, all of the post-Project modeled MF values for each of the representative cross sections fall below the New York State interim standard of 200 mG for MFs at ROW edges.

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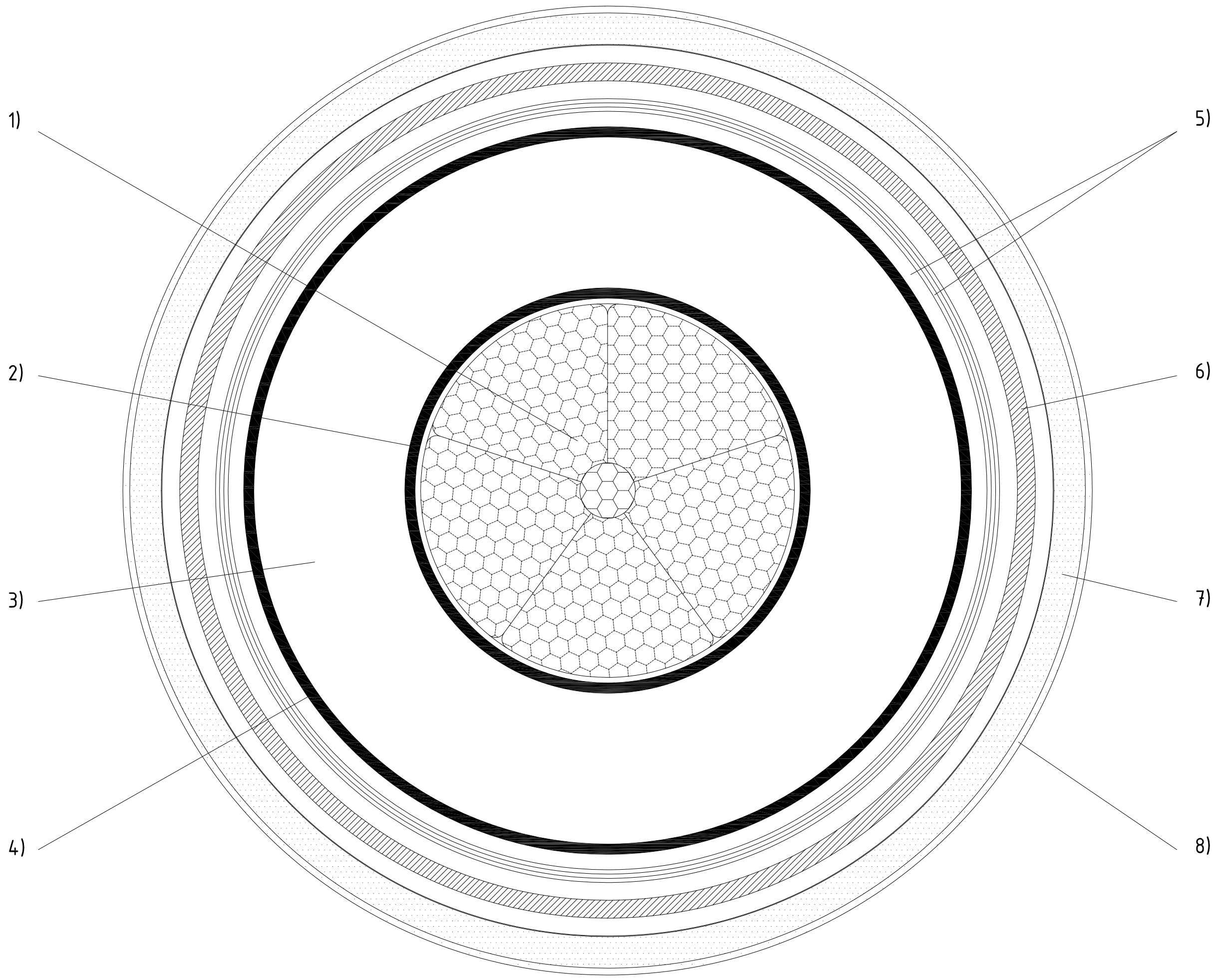
Appendix A

Taihan 138 kV 2000 SQMM Cable Specifications

CROSS SECTION OF 138kV CU 1Cx2000SQMM XLPE INSULATED CABLE

5-segmental compacted copper conductor, XLPE insulation, corrugated aluminum sheath and HDPE outer jacket with semi-con. PE

RATED VOLTAGE : 138KV	CONDUCTOR SIZE : 2000SQMM	BASIC STANDARD : AEIC CS9 & Tender Spec.



ITEM	DESCRIPTION	MATERIAL	THICKNESS NOMINAL (mil)	OUTER DIAMETER APPROX. (inch)
1)	CONDUCTOR	ANNEALED COPPER WIRES	-	2.15
2)	CONDUCTOR SCREEN	SEMI-CONDUCTIVE TAPE & SEMI-CONDUCTIVE COMPOUND	59.1	2.33
3)	INSULATION	CROSS-LINKED POLYETHYLENE (XLPE)	min. ave. 850	4.06
4)	INSULATION SCREEN	SEMI-CONDUCTIVE COMPOUND	59.1	4.18
5)	WATERBLOCKING LAYER	SEMI-CONDUCTIVE SWELLING TAPES & SEMI-CONDUCTIVE SWELLING COPPER WOVEN FABRIC TAPE	19.7 each	-
6)	METALLIC SHEATH	CORRUGATED SEAMLESS ALUMINUM (ANNULAR RING TYPE)	102.4	5.11
7)	JACKET	BLACK HDPE	181.1	5.48
8)	SEMI-CONDUCTIVE LAYER	SEMI-CONDUCTIVE PE	39.4	5.56

CABLE CHARACTERISTICS		
	▶ Weight of cable : Approx. 20.80 lb/ft	▶ Max. allowable pulling tension : 32,000 lbs
	▶ Min. bending radius : 8 feet	▶ Max. allowable sidewall pressure : 2000 lbs/ft
	▶ Fault duty : 80kA for 35cycle	▶ Charging current : 2.29 A/1000ft
	▶ Positive/negative sequence impedance : 0.0050 + j0.0535 ohm/1000ft	
	▶ Zero sequence impedance : 0.0474 + j0.213 ohm/1000ft	
	▶ Max. D.C. resistance of conductor at 20°C : 0.00274ohm/1000ft	

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Attachment 2

Required Technical Information

1. Cable Electrical Characteristics

a) nominal phase to phase rated voltage **138kV**
b) maximum phase to phase rated voltage **145kV**
c) 15 minute emergency rated voltage **138kV**
d) Basic Impulse Level **650kV**
e) Symmetrical and asymmetrical fault current magnitude/ duration rating, for conductor and metallic shield/sheath
- **refer to the technical information.**

f) Cable ampacities per section 6.0
- **refer to the technical information.**

g) Graph of sheath voltage in Volts vs. distance in feet over an 1800 foot length of cable for open, closed, and cross bonded cable sheaths
- **refer to the technical information.**

2. Cable Thermal Characteristics

a) normal conductor maximum operating temperature **90℃**
b) emergency conductor maximum operating temperature **105℃**
c) normal jacket maximum operating temperature **approx.80℃**
d) emergency jacket maximum operating temperature **approx.95℃**
e) jacket maximum operating temperature during defined fault conditions **200℃**

3. Cable Mechanical Characteristics

a) effective bending stiffness (EI) **2.40E+07kN.mm²**
b) effective axial stiffness (EA) **5.88E+04kN**
c) limiting value of pulling tension force **32,000lbs**
d) limiting value of sidewall force during installation **2,000lbs/ft**
e) minimum bending radius, with limiting pulling tension force **8ft**
f) minimum bending radius, without pulling tension force **8ft**

4. Conductor

a) material **Copper**
b) cross-sectional area **2000SQ**
c) construction, including reinforcing layer, if applicable **Segmental compacted**
d) number and diameter of strands **312**

e) strand sealant material (if required by Purchaser) **N/A**
f) conductor outside diameter (mean value and tolerances) **2.15”±0.04”**
g) conductor reinforcement outside diameter, if applicable (mean value and tolerances) **2.20”±0.04”**

h) dc resistance at 20 °C **0.00274ohm/1000feet**
i) ac resistance at 20 °C **0.00434ohm/1000feet**
j) effective bending stiffness (EI) **2.40E+07kN.mm^2**
k) effective axial stiffness (EA) **5.88E+04kN**
l) limiting value of pulling tension force **32,000lbs**

5. Conductor Shield

a) material description, including compound supplier’s data sheet Super smooth
b) thickness **59.0mil**
c) external diameter **2326.8mil**
d) maximum protrusion/irregularity size **3.0mils**
e) maximum void size **2.0mils**
f) description of screen mesh size prior to extruder head **40mesh**

6. Insulation

a) material description, including compound supplier’s data sheet Super clean
b) thickness **850mil**
c) description of methodology for establishing insulation thickness **Triple extrusion**
d) external diameter **4059.0mil**
e) electrical stress at outside of conductor shield **123.7V/mil**
f) electrical stress at outside of insulation **70.9V/mil**
g) mean stress in insulation **92.5V/mil**
h) maximum contaminant size **5.0mils**
i) maximum amber/gel/agglomerate size **10.0mils**
j) maximum void size **2.0mils**
k) maximum eccentricity **10%**
l) coefficient of thermal expansion at 20 C (C-1) **$1.1x10^{-3}$**
m) coefficient of thermal expansion at 105 C (C-1) **$1.1x10^{-3}$**
n) maximum allowable insulation thickness deformation due to lateral pressure at bends, at 90 C (percent) **5%**
o) maximum allowable lateral pressure, to not exceed stated insulation deformation limit at 90 C (bar)
p) maximum allowable insulation thickness deformation due to lateral pressure at bends, at 105 C (percent) **5%**
q) maximum allowable lateral pressure, to not exceed stated insulation deformation limit at 105 C (bar)
r) description of screen mesh size prior to extruder head **300mesh**

s) dielectric constant at 20 C

t) dissipation factor at 20 C, (%) **0.1**

u) electrical tree initiation stress (see Appendix D) **7620 V/mil**

7. Extruded Insulation Shield

a) material description, including compound supplier's data **Super smooth sheet**

b) thickness **59.0mil**

c) external diameter **4177.2mil**

d) maximum protrusion/irregularity size **3.0mils**

e) maximum void size **2.0mils**

f) description of screen mesh size prior to extruder head **40mesh**

8. Semi-conducting Tape Shield (if applicable) **N/A**

a) material description, including supplier and product designation

b) thickness

c) external diameter

9. Semi-conducting Cushioning Bedding under Metallic Shield/Sheath (if applicable) **N/A**

a) material description, including supplier and product designation

b) expansion allowance for underlying core from ambient to 105 C

c) thickness

d) external diameter

10. Semi-conducting Longitudinal Water blocking Layer

a) material description, including supplier and product designation **Semicon W/B tape + Semicon copper woven tape**

b) thickness **19.6mil**

c) external diameter **4452.7mil**

11. Metallic Shield (as applicable)

a) material **Aluminum**

b) description and dimensions **Extruded**

c) corrugation profile (if applicable) **Annular**

d) lay direction **N/A**

e) lay angle **N/A**

f) thickness **102.4mil**

g) external diameter **5114.2mil**

12. Jacket

a) description of separator tape or adhesive under jacket **Flooding comp**
b) description of semi-conducting coating **Semicon PE**
c) thickness **181.1/39.3mil**
d) external diameter **5562.9mil**
e) maximum allowable jacket thickness deformation due to lateral pressure at bends, at 95 C jacket temperature (percent)
f) maximum allowable lateral pressure, to not exceed stated jacket deformation limit at 95 C jacket temperature (bar)
g) DC withstand voltage for production test **24kV**
h) DC withstand voltage after installation **10kV**

13. Verification of 40 Year Design Life

-Refer to the attached document1

a) description of design, testing and statistical analysis methodology used to verify minimum 40 year design life and limiting design stress for cable insulation
b) description of design, testing and statistical analysis methodology used to verify minimum 40 year design life and limiting fatigue strain for continuous metallic sheath
c) description of design, testing and statistical analysis methodology used to verify minimum 40 year design life for jacket

14. Cable Insulation Extrusion Quality Assurance

-Refer to the attached document2

description of systems used in cable factory to assure quality of incoming insulation and semi-conducting compounds
a) description of systems used in cable factory to inspect/reject insulation compounds immediately prior to extrusion
b) description of systems used in cable factory to detect insulation contaminants during extrusion and description of spatial resolution
d) description of systems used in cable factory to detect smoothness and protrusions/irregularities at the extruded shield/insulation interfaces, during extrusion
e) description of systems used in the cable factory to monitor concentricity and thickness of extruded layers during extrusion

15. Cable Core Degassing

a) describe methods used to ensure that cable core is adequately degassed prior to application of outer concentric layers and production testing **TGA test**
b) temperature during degassing **Approx.80℃**
c) duration of degassing **3 days**
d) required percent weight loss of cross-linking byproducts, at end of degassing period **0.85wt% (Typical value)**

Appendix B

Tabular Summaries of Modeled Magnetic Field Results 1 Meter Above Ground Surface for Each Representative Cross Section

List of Tables

Table B.1 Summary of Modeled Magnetic Fields for Typical Direct-Buried Conduits in Trefoil Configuration

Distance from Centerline (ft)	Magnetic Field (mG)
-100	0.34
-99	0.34
-98	0.35
-97	0.36
-96	0.36
-95	0.37
-94	0.38
-93	0.39
-92	0.39
-91	0.40
-90	0.41
-89	0.42
-88	0.43
-87	0.44
-86	0.45
-85	0.46
-84	0.47
-83	0.48
-82	0.49
-81	0.50
-80	0.51
-79	0.53
-78	0.54
-77	0.55
-76	0.57
-75	0.58
-74	0.60
-73	0.61
-72	0.63
-71	0.64
-70	0.66
-69	0.68
-68	0.70
-67	0.72
-66	0.74
-65	0.76
-64	0.79
-63	0.81
-62	0.84
-61	0.86
-60	0.89
-59	0.92
-58	0.95

Distance from Centerline (ft)	Magnetic Field (mG)
-57	0.98
-56	1.01
-55	1.05
-54	1.09
-53	1.13
-52	1.17
-51	1.21
-50	1.26
-49	1.31
-48	1.36
-47	1.42
-46	1.48
-45	1.54
-44	1.61
-43	1.68
-42	1.76
-41	1.84
-40	1.93
-39	2.02
-38	2.12
-37	2.23
-36	2.35
-35	2.48
-34	2.61
-33	2.76
-32	2.93
-31	3.11
-30	3.30
-29	3.51
-28	3.75
-27	4.00
-26	4.29
-25	4.60
-24	4.95
-23	5.34
-22	5.77
-21	6.26
-20	6.81
-19	7.43
-18	8.13
-17	8.93
-16	9.84
-15	10.89
-14	12.09
-13	13.48
-12	15.08

Distance from Centerline (ft)	Magnetic Field (mG)
-11	16.93
-10	19.07
-9	21.53
-8	24.34
-7	27.50
-6	30.99
-5	34.72
-4	38.51
-3	42.07
-2	45.05
-1	47.04
0	47.73
1	47.00
2	44.98
3	41.99
4	38.42
5	34.64
6	30.93
7	27.46
8	24.31
9	21.52
10	19.08
11	16.95
12	15.12
13	13.52
14	12.14
15	10.95
16	9.91
17	9.00
18	8.20
19	7.50
20	6.88
21	6.33
22	5.85
23	5.41
24	5.02
25	4.67
26	4.36
27	4.07
28	3.81
29	3.58
30	3.37
31	3.17
32	2.99
33	2.83
34	2.68

Distance from Centerline (ft)	Magnetic Field (mG)
35	2.54
36	2.41
37	2.29
38	2.18
39	2.08
40	1.98
41	1.89
42	1.81
43	1.73
44	1.66
45	1.59
46	1.53
47	1.47
48	1.41
49	1.36
50	1.31
51	1.26
52	1.21
53	1.17
54	1.13
55	1.09
56	1.06
57	1.02
58	0.99
59	0.96
60	0.93
61	0.90
62	0.87
63	0.85
64	0.82
65	0.80
66	0.78
67	0.76
68	0.74
69	0.72
70	0.70
71	0.68
72	0.66
73	0.64
74	0.63
75	0.61
76	0.60
77	0.58
78	0.57
79	0.56
80	0.54

Distance from Centerline (ft)	Magnetic Field (mG)
81	0.53
82	0.52
83	0.51
84	0.50
85	0.49
86	0.48
87	0.47
88	0.46
89	0.45
90	0.44
91	0.43
92	0.42
93	0.41
94	0.40
95	0.40
96	0.39
97	0.38
98	0.37
99	0.37
100	0.36

Notes:
ft = Feet; mG = Milligauss.

Table B.2 Summary of Modeled Magnetic Fields for Splice Vault Entry/Exit Configuration

Distance from Centerline (ft)	Magnetic Field (mG)
-100	1.70
-99	1.73
-98	1.77
-97	1.80
-96	1.84
-95	1.88
-94	1.92
-93	1.96
-92	2.00
-91	2.04
-90	2.09
-89	2.14
-88	2.18
-87	2.23
-86	2.29
-85	2.34
-84	2.39
-83	2.45
-82	2.51
-81	2.57
-80	2.64
-79	2.70
-78	2.77
-77	2.84
-76	2.92
-75	2.99
-74	3.07
-73	3.16
-72	3.24
-71	3.33
-70	3.43
-69	3.52
-68	3.63
-67	3.73
-66	3.85
-65	3.96
-64	4.08
-63	4.21
-62	4.35
-61	4.49
-60	4.63
-59	4.79
-58	4.95

Distance from Centerline (ft)	Magnetic Field (mG)
-57	5.12
-56	5.30
-55	5.49
-54	5.69
-53	5.90
-52	6.12
-51	6.35
-50	6.60
-49	6.86
-48	7.14
-47	7.44
-46	7.75
-45	8.08
-44	8.44
-43	8.82
-42	9.22
-41	9.66
-40	10.12
-39	10.62
-38	11.15
-37	11.73
-36	12.35
-35	13.01
-34	13.74
-33	14.52
-32	15.37
-31	16.30
-30	17.31
-29	18.41
-28	19.62
-27	20.95
-26	22.41
-25	24.02
-24	25.80
-23	27.78
-22	29.99
-21	32.45
-20	35.21
-19	38.31
-18	41.80
-17	45.75
-16	50.24
-15	55.35
-14	61.18
-13	67.85
-12	75.50

Distance from Centerline (ft)	Magnetic Field (mG)
-11	84.28
-10	94.36
-9	105.90
-8	119.04
-7	133.86
-6	150.29
-5	168.01
-4	186.30
-3	203.89
-2	218.91
-1	229.18
0	232.84
1	229.18
2	218.91
3	203.89
4	186.30
5	168.01
6	150.29
7	133.86
8	119.04
9	105.90
10	94.36
11	84.28
12	75.50
13	67.85
14	61.18
15	55.35
16	50.24
17	45.75
18	41.80
19	38.31
20	35.21
21	32.45
22	29.99
23	27.78
24	25.80
25	24.02
26	22.41
27	20.95
28	19.62
29	18.41
30	17.31
31	16.30
32	15.37
33	14.52
34	13.74

Distance from Centerline (ft)	Magnetic Field (mG)
35	13.01
36	12.35
37	11.73
38	11.15
39	10.62
40	10.12
41	9.66
42	9.22
43	8.82
44	8.44
45	8.08
46	7.75
47	7.44
48	7.14
49	6.86
50	6.60
51	6.35
52	6.12
53	5.90
54	5.69
55	5.49
56	5.30
57	5.12
58	4.95
59	4.79
60	4.63
61	4.49
62	4.35
63	4.21
64	4.08
65	3.96
66	3.85
67	3.73
68	3.63
69	3.52
70	3.43
71	3.33
72	3.24
73	3.16
74	3.07
75	2.99
76	2.92
77	2.84
78	2.77
79	2.70
80	2.64

Distance from Centerline (ft)	Magnetic Field (mG)
81	2.57
82	2.51
83	2.45
84	2.39
85	2.34
86	2.29
87	2.23
88	2.18
89	2.14
90	2.09
91	2.04
92	2.00
93	1.96
94	1.92
95	1.88
96	1.84
97	1.80
98	1.77
99	1.73
100	1.70

Notes:
ft = Feet; mG = Milligauss.

Table B.3 Summary of Modeled Magnetic Fields for Direct-Buried Conduits in Horizontal Configuration

Distance from Centerline (ft)	Magnetic Field (mG)
-100	0.57
-99	0.58
-98	0.59
-97	0.61
-96	0.62
-95	0.63
-94	0.65
-93	0.66
-92	0.68
-91	0.69
-90	0.71
-89	0.72
-88	0.74
-87	0.76
-86	0.78
-85	0.80
-84	0.81
-83	0.83
-82	0.86
-81	0.88
-80	0.90
-79	0.92
-78	0.95
-77	0.97
-76	1.00
-75	1.03
-74	1.05
-73	1.08
-72	1.12
-71	1.15
-70	1.18
-69	1.22
-68	1.25
-67	1.29
-66	1.33
-65	1.37
-64	1.42
-63	1.46
-62	1.51
-61	1.56
-60	1.61
-59	1.67
-58	1.73

Distance from Centerline (ft)	Magnetic Field (mG)
-57	1.79
-56	1.85
-55	1.92
-54	1.99
-53	2.07
-52	2.15
-51	2.23
-50	2.32
-49	2.42
-48	2.52
-47	2.63
-46	2.74
-45	2.86
-44	2.99
-43	3.13
-42	3.28
-41	3.44
-40	3.61
-39	3.79
-38	3.99
-37	4.20
-36	4.43
-35	4.68
-34	4.95
-33	5.24
-32	5.56
-31	5.91
-30	6.29
-29	6.71
-28	7.17
-27	7.68
-26	8.24
-25	8.86
-24	9.55
-23	10.32
-22	11.18
-21	12.15
-20	13.25
-19	14.49
-18	15.91
-17	17.52
-16	19.37
-15	21.50
-14	23.96
-13	26.81
-12	30.13

Distance from Centerline (ft)	Magnetic Field (mG)
-11	34.00
-10	38.50
-9	43.73
-8	49.76
-7	56.63
-6	64.31
-5	72.61
-4	81.15
-3	89.29
-2	96.16
-1	100.83
0	102.53
1	100.98
2	96.46
3	89.71
4	81.66
5	73.18
6	64.92
7	57.26
8	50.39
9	44.36
10	39.12
11	34.60
12	30.72
13	27.38
14	24.50
15	22.02
16	19.87
17	18.00
18	16.37
19	14.94
20	13.68
21	12.57
22	11.59
23	10.71
24	9.92
25	9.22
26	8.59
27	8.02
28	7.50
29	7.03
30	6.60
31	6.21
32	5.86
33	5.53
34	5.23

Distance from Centerline (ft)	Magnetic Field (mG)
35	4.95
36	4.70
37	4.46
38	4.24
39	4.04
40	3.85
41	3.67
42	3.51
43	3.35
44	3.21
45	3.08
46	2.95
47	2.83
48	2.72
49	2.61
50	2.52
51	2.42
52	2.33
53	2.25
54	2.17
55	2.10
56	2.03
57	1.96
58	1.89
59	1.83
60	1.77
61	1.72
62	1.67
63	1.62
64	1.57
65	1.52
66	1.48
67	1.44
68	1.40
69	1.36
70	1.32
71	1.29
72	1.25
73	1.22
74	1.19
75	1.16
76	1.13
77	1.10
78	1.07
79	1.05
80	1.02

Distance from Centerline (ft)	Magnetic Field (mG)
81	1.00
82	0.98
83	0.95
84	0.93
85	0.91
86	0.89
87	0.87
88	0.85
89	0.83
90	0.82
91	0.80
92	0.78
93	0.77
94	0.75
95	0.74
96	0.72
97	0.71
98	0.69
99	0.68
100	0.67

Notes:
ft = Feet; mG = Milligauss.

Table B.4 Summary of Modeled Magnetic Fields for Direct-Buried Conduits in Vertical Configuration

Distance from Centerline (ft)	Magnetic Field (mG)
-100	0.63
-99	0.64
-98	0.65
-97	0.67
-96	0.68
-95	0.69
-94	0.71
-93	0.72
-92	0.74
-91	0.76
-90	0.77
-89	0.79
-88	0.81
-87	0.82
-86	0.84
-85	0.86
-84	0.88
-83	0.90
-82	0.93
-81	0.95
-80	0.97
-79	1.00
-78	1.02
-77	1.05
-76	1.08
-75	1.10
-74	1.13
-73	1.16
-72	1.20
-71	1.23
-70	1.26
-69	1.30
-68	1.34
-67	1.38
-66	1.42
-65	1.46
-64	1.51
-63	1.55
-62	1.60
-61	1.65
-60	1.71
-59	1.76
-58	1.82

Distance from Centerline (ft)	Magnetic Field (mG)
-57	1.89
-56	1.95
-55	2.02
-54	2.10
-53	2.17
-52	2.26
-51	2.34
-50	2.43
-49	2.53
-48	2.63
-47	2.74
-46	2.86
-45	2.98
-44	3.11
-43	3.25
-42	3.40
-41	3.56
-40	3.73
-39	3.92
-38	4.12
-37	4.33
-36	4.56
-35	4.81
-34	5.07
-33	5.37
-32	5.68
-31	6.03
-30	6.40
-29	6.81
-28	7.26
-27	7.76
-26	8.30
-25	8.90
-24	9.57
-23	10.31
-22	11.13
-21	12.05
-20	13.09
-19	14.25
-18	15.56
-17	17.04
-16	18.73
-15	20.65
-14	22.83
-13	25.33
-12	28.19

Distance from Centerline (ft)	Magnetic Field (mG)
-11	31.46
-10	35.19
-9	39.43
-8	44.19
-7	49.47
-6	55.19
-5	61.20
-4	67.19
-3	72.75
-2	77.33
-1	80.38
0	81.45
1	80.38
2	77.33
3	72.75
4	67.19
5	61.19
6	55.19
7	49.46
8	44.18
9	39.42
10	35.19
11	31.46
12	28.19
13	25.33
14	22.83
15	20.65
16	18.73
17	17.04
18	15.56
19	14.25
20	13.09
21	12.05
22	11.13
23	10.31
24	9.57
25	8.90
26	8.30
27	7.76
28	7.26
29	6.81
30	6.40
31	6.03
32	5.68
33	5.37
34	5.07

Distance from Centerline (ft)	Magnetic Field (mG)
35	4.81
36	4.56
37	4.33
38	4.12
39	3.92
40	3.73
41	3.56
42	3.40
43	3.25
44	3.11
45	2.98
46	2.86
47	2.74
48	2.63
49	2.53
50	2.43
51	2.34
52	2.26
53	2.17
54	2.10
55	2.02
56	1.95
57	1.89
58	1.82
59	1.76
60	1.71
61	1.65
62	1.60
63	1.55
64	1.51
65	1.46
66	1.42
67	1.38
68	1.34
69	1.30
70	1.26
71	1.23
72	1.20
73	1.16
74	1.13
75	1.10
76	1.08
77	1.05
78	1.02
79	1.00
80	0.97

Distance from Centerline (ft)	Magnetic Field (mG)
81	0.95
82	0.93
83	0.90
84	0.88
85	0.86
86	0.84
87	0.83
88	0.81
89	0.79
90	0.77
91	0.76
92	0.74
93	0.72
94	0.71
95	0.69
96	0.68
97	0.67
98	0.65
99	0.64
100	0.63

Notes:
ft = Feet; mG = Milligauss.

Table B.5 Summary of Modeled Magnetic Fields for Direct-Buried Cables in Trefoil Configuration (Inside Substations)

Distance from Centerline (ft)	Magnetic Field (mG)
-100	0.19
-99	0.19
-98	0.19
-97	0.20
-96	0.20
-95	0.20
-94	0.21
-93	0.21
-92	0.22
-91	0.22
-90	0.23
-89	0.23
-88	0.23
-87	0.24
-86	0.24
-85	0.25
-84	0.26
-83	0.26
-82	0.27
-81	0.27
-80	0.28
-79	0.29
-78	0.29
-77	0.30
-76	0.31
-75	0.31
-74	0.32
-73	0.33
-72	0.34
-71	0.35
-70	0.36
-69	0.37
-68	0.38
-67	0.39
-66	0.40
-65	0.41
-64	0.42
-63	0.43
-62	0.45
-61	0.46
-60	0.48
-59	0.49
-58	0.51

Distance from Centerline (ft)	Magnetic Field (mG)
-57	0.52
-56	0.54
-55	0.56
-54	0.58
-53	0.60
-52	0.62
-51	0.64
-50	0.67
-49	0.69
-48	0.72
-47	0.75
-46	0.78
-45	0.81
-44	0.85
-43	0.88
-42	0.92
-41	0.97
-40	1.01
-39	1.06
-38	1.11
-37	1.17
-36	1.23
-35	1.30
-34	1.37
-33	1.45
-32	1.53
-31	1.62
-30	1.72
-29	1.83
-28	1.95
-27	2.09
-26	2.23
-25	2.39
-24	2.57
-23	2.77
-22	3.00
-21	3.25
-20	3.53
-19	3.85
-18	4.21
-17	4.63
-16	5.10
-15	5.64
-14	6.26
-13	6.97
-12	7.80

Distance from Centerline (ft)	Magnetic Field (mG)
-11	8.75
-10	9.86
-9	11.13
-8	12.57
-7	14.21
-6	16.00
-5	17.91
-4	19.84
-3	21.64
-2	23.12
-1	24.06
0	24.32
1	23.85
2	22.80
3	21.38
4	19.66
5	17.82
6	15.98
7	14.24
8	12.66
9	11.24
10	10.00
11	8.91
12	7.97
13	7.15
14	6.43
15	5.81
16	5.27
17	4.80
18	4.39
19	4.02
20	3.70
21	3.41
22	3.16
23	2.93
24	2.72
25	2.54
26	2.37
27	2.22
28	2.09
29	1.96
30	1.85
31	1.75
32	1.65
33	1.56
34	1.48

Distance from Centerline (ft)	Magnetic Field (mG)
35	1.41
36	1.34
37	1.28
38	1.22
39	1.16
40	1.11
41	1.06
42	1.02
43	0.98
44	0.94
45	0.90
46	0.87
47	0.83
48	0.80
49	0.78
50	0.75
51	0.72
52	0.70
53	0.67
54	0.65
55	0.63
56	0.61
57	0.59
58	0.58
59	0.56
60	0.54
61	0.53
62	0.51
63	0.50
64	0.48
65	0.47
66	0.46
67	0.45
68	0.44
69	0.42
70	0.41
71	0.40
72	0.39
73	0.39
74	0.38
75	0.37
76	0.36
77	0.35
78	0.34
79	0.34
80	0.33

Distance from Centerline (ft)	Magnetic Field (mG)
81	0.32
82	0.32
83	0.31
84	0.30
85	0.30
86	0.29
87	0.29
88	0.28
89	0.27
90	0.27
91	0.26
92	0.26
93	0.26
94	0.25
95	0.25
96	0.24
97	0.24
98	0.23
99	0.23
100	0.23

Notes:
ft = Feet; mG = Milligauss.

Table B.6 Summary of Modeled Magnetic Fields for the Typical Direct-Buried Conduits in Trefoil Configuration in Proximity to the Existing 69-886 Southampton to Bridgehampton Underground Transmission Line

Distance from Centerline (ft)	Magnetic Field (mG)
-100	0.85
-99	0.87
-98	0.89
-97	0.91
-96	0.92
-95	0.94
-94	0.96
-93	0.98
-92	1.00
-91	1.02
-90	1.05
-89	1.07
-88	1.09
-87	1.12
-86	1.14
-85	1.17
-84	1.19
-83	1.22
-82	1.25
-81	1.28
-80	1.31
-79	1.34
-78	1.37
-77	1.41
-76	1.44
-75	1.48
-74	1.52
-73	1.56
-72	1.60
-71	1.64
-70	1.69
-69	1.73
-68	1.78
-67	1.83
-66	1.89
-65	1.94
-64	2.00
-63	2.06
-62	2.12
-61	2.19

Distance from Centerline (ft)	Magnetic Field (mG)
-60	2.26
-59	2.33
-58	2.41
-57	2.49
-56	2.57
-55	2.66
-54	2.75
-53	2.85
-52	2.96
-51	3.06
-50	3.18
-49	3.30
-48	3.43
-47	3.57
-46	3.71
-45	3.87
-44	4.03
-43	4.21
-42	4.39
-41	4.59
-40	4.80
-39	5.03
-38	5.27
-37	5.53
-36	5.82
-35	6.12
-34	6.45
-33	6.80
-32	7.18
-31	7.60
-30	8.05
-29	8.55
-28	9.09
-27	9.68
-26	10.33
-25	11.04
-24	11.83
-23	12.70
-22	13.68
-21	14.76
-20	15.97
-19	17.33
-18	18.85
-17	20.58
-16	22.53
-15	24.76

Distance from Centerline (ft)	Magnetic Field (mG)
-14	27.29
-13	30.19
-12	33.52
-11	37.33
-10	41.70
-9	46.71
-8	52.41
-7	58.85
-6	66.00
-5	73.79
-4	81.99
-3	90.30
-2	98.26
-1	105.41
0	111.32
1	115.65
2	118.08
3	118.29
4	116.04
5	111.35
6	104.60
7	96.46
8	87.64
9	78.79
10	70.35
11	62.59
12	55.63
13	49.47
14	44.07
15	39.37
16	35.29
17	31.73
18	28.64
19	25.94
20	23.58
21	21.50
22	19.68
23	18.06
24	16.63
25	15.35
26	14.22
27	13.19
28	12.28
29	11.45
30	10.70
31	10.02

Distance from Centerline (ft)	Magnetic Field (mG)
32	9.40
33	8.84
34	8.33
35	7.86
36	7.42
37	7.02
38	6.66
39	6.32
40	6.00
41	5.71
42	5.44
43	5.19
44	4.95
45	4.73
46	4.53
47	4.33
48	4.15
49	3.98
50	3.82
51	3.67
52	3.53
53	3.40
54	3.27
55	3.16
56	3.04
57	2.94
58	2.84
59	2.74
60	2.65
61	2.56
62	2.48
63	2.40
64	2.33
65	2.25
66	2.19
67	2.12
68	2.06
69	2.00
70	1.94
71	1.89
72	1.84
73	1.79
74	1.74
75	1.69
76	1.65
77	1.61

Distance from Centerline (ft)	Magnetic Field (mG)
78	1.57
79	1.53
80	1.49
81	1.45
82	1.42
83	1.38
84	1.35
85	1.32
86	1.29
87	1.26
88	1.23
89	1.20
90	1.18
91	1.15
92	1.13
93	1.10
94	1.08
95	1.06
96	1.04
97	1.01
98	0.99
99	0.97
100	0.96

Notes:
ft = Feet; mG = Milligauss.