# Appendix E

# Byron Solar Responses to Data Requests

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COMMERCE DEPARTMENT

# Energy Environmental Review and Analysis

## Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

| | | | |
|---|---|---|---|
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 1 | Please Respond By: | June 15, 2022 |

*Note:* Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Project Size

Please provide the results of a glare analysis using the Solar Glare Hazard Analysis Tool developed by Sandia Laboratories https://share-ng.sandia.gov/glare-tools/ and licensed to Forge Solar.

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Department of Commerce Note:

Byron Solar provided a Glare Study as requested. Due to the size of the study, the summary is included as Appendix F of this document.

*Suzanne Steinhauer* *May 25, 2022*

*Environmental Review Manager* *Date*

*MN Department of Commerce*

# Byron Solar, LLC

## Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

| | | | |
|---|---|---|---|
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 2 | Date of Response | June 15, 2022 |
| ☒ Public | | ☐ Nonpublic | |

*Note:* Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Stat. § 13.02, subd. 12.

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Question(s):

Project Schedule

Site changes necessitated by red route

Describe and illustrate anticipated changes to the proposed solar generating facility site layout shown in the Byron Solar's August 30, 2021, Joint Permit Application that would result if the red route (alternative route) is selected to connect the solar generating facility to the Byron Substation.

Response:

If the red, alternative route is selected, it will necessitate several changes to Byron Solar's proposed site layout as shown in Maps 3 and 4 of the Joint Permit Application. First, the alternative substation location is currently designed to have a solar panels and trackers through that parcel. To create space for the alternative substation, one block of trackers, representing approximately 4 MWs DC of panels will need to be relocated. Byron Solar would likely move those trackers to the northwest of the alternate substation. These changes are reflected in the map included as Attachment 2.

Second, the collection system would need to be reengineered to bring power from the inverters south to the alternate substation location. The average distance between solar PV blocks, and thus inverters, and the alternate substation location is greater than the distance from inverters to the Applicant's proposed substation location. Relocating from the proposed to the alternate substation location would result in additional collection line length, previously estimated at approximately 3.5 miles of additional length.

To estimate the additional collection line length and line losses, EDF Renewables utilized two separate modeling software programs. The first, PVsyst, is an industry standard software program used to produce energy production estimates based on set inputs such as location, spacing, and equipment type. The second is EDF's internal and proprietary Autolayout tool, which arranges solar panels and inverters into a simple site layout given set parameters and land constraints. The software program also estimates the

quantity of key equipment required to construct the project, including the number of modules and length of cabling. The Autolayout software program estimates AC collection line length based on the number of AC circuits and the distance of the solar PV blocks to the collector substation.

EDF Renewable's solar engineering team re-ran PVsyst and the Autolayout tool with the alternate substation location, the relocated 4MW DC block, and calculated the estimated collection line length and line losses. All other inputs and assumptions were held constant from the original modeling work, which informed our August 30, 2021 Joint Permit Application. The Autolayout program calculated the alternate substation location would require 18,707 additional feet of AC collection to connect the project inverters to the alternate substation. PVsyst calculated that the additional length of collection would increase AC line loss by 0.07%.

While EDF's proprietary Autolayout program creates simple solar layouts and estimates key equipment quantities needed for construction, it does not produce detailed visual layouts of the collection system. For its Joint Permit Application, Byron Solar engaged a third party consultant to design a visual layout of the collection system. Time did not allow for similar third party design to accompany this response.

Finally, Byron Solar would expect that some modifications to stormwater infrastructure and access roads would be required. Those changes were not incorporated into the map included as Attachment 2, nor have they been reviewed by Byron Solar's engineering consultants at this time.

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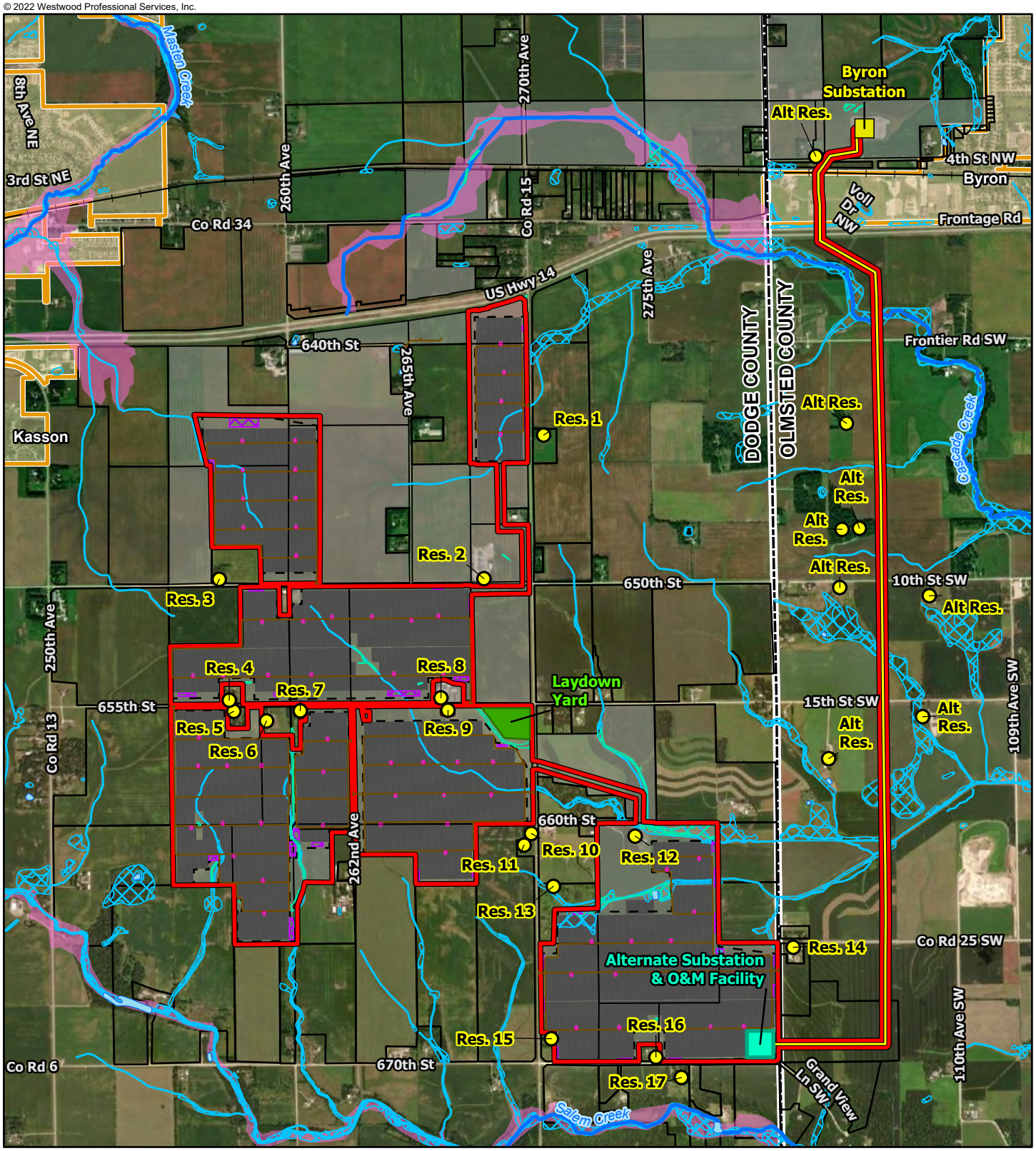
*Name of Responder*: Scott Wentzell *Date* June 15, 2022
*Title:* Project Development Manager




Data Source(s): Westwood (2022); US Census Bureau (2019); Dodge County GIS (2020); Olmsted County GIS (2020); Ventyx (2021); Esri World Imagery Basemap (Accessed 2022).

N

Feet

0 3,000

## Legend

- Project Area Boundary
- Alternate Transmission Line Route
- Adjacent Residence
- Existing Substation
- Alternate Substation & O&M Facility
- Laydown Yard
- Solar Array
- Proposed Fence
- Power Pole
- Proposed Access Road
- Stormwater Pond
- NHD Waterbody
- NHD Flowline
- FEMA Flood Zone
- NWI Wetland
- Participating Parcel
- Non-Participating Parcel
- Railroad
- Municipal Boundary
- County Boundary

# Byron Solar Project

Dodge and Olmsted Counties, Minnesota

## Alternative Transmission Route Layout

MAP 1

Westwood

Phone (952) 937-5150
Fax (952) 937-5822
Toll Free (888) 937-5150

12701 Whitewater Drive, Suite #300
Minnetonka, MN 55343
westwoodps.com

Westwood Professional Services, Inc.

N:\0028109.00\GIS\ArcPro\Byron Solar Site Permit Maps\Byron Solar Site Permit Maps.aprx
Byron_Map01_AlternativeTransmissionRouteLayout_ - Alt TLine Route Map01 Layout Map | 6/15/2022 9:51 AM

# Byron Solar, LLC

## Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

| | | | |
|---|---|---|---|
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 3 | Date of Response | June 15, 2022 |
| ☒ Public | | ☐ Nonpublic | |

*Note:* Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Stat. § 13.02, subd. 12.

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Question(s):

Project schedule

Discuss any anticipated changes from the schedule shown in Table 1 of Byron Solar's August 30, 2021, Joint Permit Application.

Response:

The delays in the permit schedule, with an anticipated final permit decision in March of 2023, creates uncertainty regarding Byron Solar's ability to maintain the originally proposed project schedule. As stated in the Joint Permit Application, Byron Solar planned to commence construction in late 2023, with operations commencing prior to the end of 2024. However, final design, engineering, and equipment procurement cannot commence until the final permit decision has been issued. If the project is unable to start construction in the fall of 2023, it likely would not do so until fall of 2024. The threat of Anti-Dumping Tariffs/Countervailing Duties or other regulatory actions introduce additional uncertainty.

The schedule shown in Table 1 of Byron Solar's August 30, 2021, Joint Permit Application has been amended below to show Byron Solar's anticipated schedule.

**Table 1: Project Schedule**

| Activity | Description | Timeline |
|---|---|---|
| Interconnection Request | Approval from the Midcontinent Independent System Operator (MISO) to connect the project to the grid. | Request made in Q2 2018. The Applicant expects to sign Generator Interconnection Agreements (GIA) with MISO between Q4 2021 and Q2 2022. |

**Table 1: Project Schedule**

| Activity | Description | Timeline |
|---|---|---|
| Land Acquisition | Acquire leases, easements, and purchase agreements necessary for development of the Project. | Began Solar Facility land campaign in Q3 2018 and HVTL land campaign in Q2 2020. The Project currently has executed agreements for the land needed to construct both the Solar Facility and HVTL along the Blue Route. No agreements have been executed along the Red Route. |
| Field Surveys | Field surveys conducted within the Solar Facility and HVTL route for wetlands, native prairies, and cultural resources. | Field surveys initiated in Q4 2020 and completed in Q2 2021. |
| Site Permit, Route Permit, and Certificate of Need (CN) | CN, Site Permit and Route Permit issuance for the Project. | Anticipated ~~Q2/Q3 2022~~. Q1/Q2 2023 |
| Other Permits | Acquisition of all federal, state, local, and tribal government permits and approvals necessary for construction and operation of the Project. | The Applicant is working with applicable regulatory authorities to obtain the necessary permits/approvals by the end of the ~~Q3 2022.~~ Q3 2023 |
| Equipment and Contractor Acquisition | Procurement of project equipment including, but not limited to, panels, trackers, inverters, transformers, and steel monopoles. Final contractor selections will be made contingent on the Joint Site and Route Permit Application being approved by the Commission. | ~~Between Q3/Q4 2022.~~ Approximately Q2/Q3 2023 |
| Construction | The Applicant will oversee the primary contractors performing construction of the Project. These construction activities will include access road building, solar array assembly, electrical, transmission, and communications installation work. The Applicant anticipates beginning construction of the Project soon after being granted a CN, Site Permit, and Route Permit by the MPUC and fulfilling necessary | ~~Begin Q1 2023 and end Q4 2024.~~ Begin as early as Q4 2023 but more likely that construction begins Q3/Q4 2024. Construction will last for approximately 12 months. |

**Table 1: Project Schedule**

| Activity | Description | Timeline |
|---|---|---|
| | pre-construction compliance requirements. | |
| Testing and Commissioning | Testing and commissioning of project related equipment. | End of construction and prior to the start of commercial operation – Q3/Q4 2024 or Q3/Q4 2025 |
| Operation | Commercial operation of the solar facility and transmission line following construction and testing/commissioning activities are completed. | Q4 2024 or Q4 2025 |
| Project Extension or Decommissioning | | 2060 or later. |

Name of Responder:

Scott Wentzell
*Project Development Manager*

*Date: June 15, 2022*

# Byron Solar, LLC

## Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

| | | | |
|---|---|---|---|
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 4 | Date of Response | June 15, 2022 |
| ☒ Public | | ☐ Nonpublic | |

*Note:* Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Stat. § 13.02, subd. 12.

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Question(s):

Greenhouse Gas and Climate Resilience

Consistent with the guidance provided by the Minnesota Environmental Quality Board, EERA requests information from Byron Solar on greenhouse gas (GHG) emissions and climate resilience. Please provide:

a. An estimate of GHG emissions due to construction. Please fill in the attached spreadsheet with information about the type of equipment used, how long it would be used, and how much fuel it used when operating (see attached).

b. Please expand on the discussion of the potential impacts of a warmer, wetter, more energetic climate on the project in Section 6.8 of the *Joint Permit Application*. Could solar panels blow off? Could large rains inundate inverters and cause them to fail? What does Byron Solar consider in its equipment selection and engineering to avoid or minimize impacts to the project from more frequent severe weather events?

Response:

a. See Attachment 4a.

b.

- The system as designed is rated for sustained wind speeds up to 110 miles per hour (with ability to withstand higher gusts) and snow loading up to 50 pounds per square foot.
- According to MN DNR, the highest recorded 5-second wind speed in Rochester, MN was 64 MPH recorded in May of 1988.[1] Byron Solar is rated for winds nearly twice this speed. While Climate Change will likely increase the frequency and severity of extreme weather events, Byron Solar is designed with this uncertainty in mind.

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[1] https://files.dnr.state.mn.us/natural_resources/climate/summaries_and_publications/2005_Annual_LCD_RST_page_3.pdf

- The site will be designed according to local hydrology and topography. The existing drain tile system will be augmented as necessary to provide sufficient drainage, and grading may be used to improve drainage where necessary. The inverters will be installed either on a concrete slab or elevated piers and will be off the ground.
- Hydrology studies show maximum water depth and flow rate based off of 100-year flood events, and care is taken to site inverters in locations that are not at risk of any flooding even in these extreme events.
- Hail – Although the final panel manufacture has not yet been selected, reputable panel manufacturers generally rate panels to withstand the National Weather Service definition of 'severe' hail, which corresponds with hailstones up to one inch in diameter and 50 mph winds. Some manufacturers offer panels with even higher hail ratings. Panels can also be stowed in a nearly vertical position during hail events by re-orienting the trackers, which limits direct impacts between hailstones and the panels.
- Tempered, laminated glass prevents even cracked glass from escaping the enclosure and damaged panels can be replaced.
- During the project siting process, EDF screens locations through a risk assessment tool provided by a reinsurance company. This is used to identify favorable locations as well as the probability of certain extreme events such as hailstorms, flash flooding, wildfires or tornadoes occurring. These results inform the design and engineering of the plant, as well as equipment selection decisions. For instance, the size, depth, and strength of the foundation piles are engineered to meet the extreme conditions identified (in this case, extreme winds).

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Name of Responder:

Scott Wentzell *Date: June 15, 2022*
Project Development Manager

**Byron Solar GHG Calc**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Equipment Fuel Consumption Estimate** | **From Joint SPA/RPA - Section 6.2.12.1 Roadways** | Traffic during construction of the solar facility is estimated to average 50-100 pickup trucks, cars, and/or other types of employee vehicles onsite for the 12-18 month duration of construction | | | | | |
| Byron Solar | | Approximately 10-20 semi-trucks per day will be used for delivery of facility components. Semi-truck delivery will vary per day depending on time of construction and delivery timeline of equipment. | | | | | |
| Dodge and Olmsted counties, MN | | After construction is complete, traffic impacts during the operational phase of the Project are expected to be negligible. A small maintenance crew driving through the area in pickup trucks on a regular basis will monitor and maintain the facilities as needed; traffic function in the Project Area will not be impacted as a result | | | | | |
| | | Joint SPA/RPA does not estimate construction traffic for HVTL | | | | | |
| 26-May-22 | **From Joint SPA/RPA - Section 5.3.1.1 Construction and Construction Mgmt** | Typical onsite construction staff levels will depend on the number of concurrent tasks being performed and the phasing of the Project. The Project will create approximately 293 jobs during the construction and installation phases, and up to 4 full time jobs during the operations phase. | | | | | |
| | | | | | | | |
| **Construction Phase** | **Equipment Type** | **No. of Equipment** | **Days** | **Duration (hours/day)** | **Fuel Consumption (gal/hour)** | **Est. Total Gallons** | **Notes/Assumptions** |
| **Diesel** | | | | | | | |
| | Bulldozer | 2 | 40 | 8 | 7.6 | 4,864 | Caterpillar D6T Medium Load |
| | Grader/scraper | 2 | 240 | 8 | 5.6 | 21,504 | Caterpillar 14M Medium Load |
| | Backhoe | 2 | 200 | 8 | 3.1 | 9,920 | Caterpillar 422F2 Low Load |
| | Vibratory compactor | 4 | 124 | 8 | 5 | 19,840 | Caterpillar CS56/CP56 High Load |
| | Dump Truck | 2 | 60 | 8 | 10 | 9,600 | Tandem Axle 10-14 CY |
| | Excavator | 4 | 160 | 8 | 8.1 | 41,472 | Caterpillar 336D Medium Load |
| | Concrete truck and boom | 6 | 30 | 8 | 12 | 17,280 | Primarily Substation |
| | High-reach bucket truck | 0 | 0 | 0 | 0 | | |
| | Semi truck/trailer | 2 | 80 | 8 | 10 | 12,800 | 2 For Construction Support |
| | Skid steer | 4 | 124 | 8 | 3.3 | 13,094 | Caterpillar 299D Medium Load |
| | Fork lift (all terrain) | 8 | 154 | 8 | 2.9 | 28,582 | JLG 1255 Medium Load |
| | Pile driver | 7 | 124 | 8 | 7.1 | 49,302 | Vermeer PD10 Medium/High Load |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Diesel** | | | | | | | |
| | Truck-mounted auger/drill | 0 | 0 | 0 | 0 | | |
| | Medium duty crane | 2 | 30 | 4 | 18.8 | 4,512 | 120T RT Telescopic Crane |
| | Watering truck | 4 | 200 | 9 | 11 | 79,200 | |
| | **Total Gallons Diesel - Construction** | | | | | **311,971** | |
| Gasoline | | | | | | | |
| | Generator | 10 | 124 | 8 | 1 | 9,920 | Honda EB10000 Half Load Average |
| | Light-duty pickup truck (on-site) | 15 | 220 | 8 | 3.6 | 95,040 | |
| | ATVs | 42 | 124 | 8 | 0.4 | 16,666 | Club Car 4 Seater ATV |
| | Construction contractor vehicles (commute to/from site) | 204 | 160 | 0.5 | 2.5 | 40,800 | Assume bulk of the workforce lives in Rochester. 15 minute one way drive, 30 min round trip. 75% carpool and weighted average for duration |
| | **Total Gallons Gasoline - Construction** | | | | | 162,426 | |

| Operation Phase | Equipment Type | No. of Equipment | Days/ Year | Duration (hours/day) | Fuel Consumption (gal/hour) | Est. Total Gallons | Notes/Assumptions |
|---|---|---|---|---|---|---|---|
| **GAS** | | | | | | | |
| | Light-duty pickup truck - 4 full time staff | 4 | 180 | 0.5 | 2.5 | 900 | 4 Solar Technicians performing operations and maintenance. Commute to/from site and travel within the site |
| | ATV (on-site) - 4 full time staff | 2 | 48 | 8 | 0.4 | 307 | Inverter Checks Twice/Yr. Assume 48 Inverters and maintenance checks at 2/day (48 days) for 1 Crew of 2. 2nd Crew of 2 will perform Tracker Maintenance in the same duration of 48 days at 5 trackers/day. |
| | O&M contractor vehicles (commute to/from site) | 1 | 12 | 0.5 | 2.5 | 15 | 2 HV Technicians assumed from Rochester, MN, 30mn round trip. |
| | O&M contractor vehicles (on-site) | 1 | 12 | 8 | | | 1 HV Contractor performing monthly checks on Substation. 1 full 8hr day for Monthly Maintenance. Vehicle is parked at Substation and not used for maintenance checks. |
| | **TOTAL (per year)** | | | | | **1,222** | |

| **Construction Period** | | | **Operation (Annual)** | | | **Conversion Factors** | |
|---|---|---|---|---|---|---|---|
| | Gallons | **Total KG** | | **Gallons** | **Total KG** | | |
| Total Diesel | 311,971 | 3,178,987 | Total Diesle | 0 | 0 | Diesel – KG CO2/ Gallon | 10.19 |
| Total Gas | 162,426 | 1,429,345 | Total Gas | 1222 | 10,753.6 | Gasoline KG CO2/ Gallon | 8.8 |
| **Total- KG CO2** | | 4,608,332 | **Total- KG CO2** | | 10,753.6 | KG to Ton | 0.00110231 |
| | | | | | | | |
| **Construction - Total – Tons CO2** | | 5,080 | **Operations Annual Tons CO2** | | 11.85 | | |

# Byron Solar, LLC

## Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

| | | | |
|---|---|---|---|
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 5 | Date of Response | August 1, 2022 |
| ☒ Public | | ☐ Nonpublic | |

*Note:* Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

EMF Estimates.

Please model electric and magnetic fields at varying distances from the center of the proposed transmission line using the structure types that Byron Solar is considering. For examples of the information requested, please see:

- Route Permit for a 345 kV Transmission Line: Plum Creek Wind Farm, LLC at Section 6.2.2 (Tables 6.2.2-1 and 6.2.2-2; Figures 6.2.2-1 and 6.2.2-2) (eDocket ID: 201911-157483-05 and Appendix G (eDocket ID: 201911-157483-02 ); or
- Frazee to Erie 115 kV Route Permit Application (Tables 6-1 and 6-3 , Figures 6-2, 6-3, 6-4, and 6-5) (eDocket ID: 20206-164183-02 )

Response:

See Attachment 5, Electromagnetic Field Calculations.

*Name of Responder*: Scott Wentzell *Date:* August 1, 2022
*Title:* Project Development Manager

| | | |
|---|---|---|
| EDF renewables | CALCULATIONS | "Engineering with Distinction" ECI ELECTRICAL CONSULTANTS, INC. |
| Title:<br>Byron Solar – EMF Calculations | | Issue Date: 07/29/2022<br>Previous Date: 08/17/2021 |

# ELECTROMAGNETIC FIELD CALCULATIONS

## Byron Solar Project
## 345 kV Overhead Transmission Line
## Dodge and Olmsted Counties, Minnesota

EDF Renewables

Revision B

| | | |
|---|---|---|
| EDF renewables | CALCULATIONS | "Engineering with Distinction" ECI ELECTRICAL CONSULTANTS, INC. |
| Title:<br>Byron Solar – EMF Calculations | | Issue Date: 07/29/2022<br>Previous Date: 08/17/2021 |

## Table of Contents



**QA/QC Review and Sign-Off:**

| *Task* | *Responsible Individual* | | *Date* |
|---|---|---|---|
| *Prepared* | *Kurtis Johnson* | *Kurtis Johnson* | *07/29/2022* |
| *Reviewed* | *Darrin Evans* | *Darrin Evans* | *07/29/2022* |
| *Issued* | *Darrin Evans* | *Darrin Evans* | *07/29/2022* |

| | | |
|---|---|---|
| EDF renewables | CALCULATIONS | "Engineering with Distinction" ECI ELECTRICAL CONSULTANTS, INC. |
| Title:<br>Byron Solar – EMF Calculations | | Issue Date: 07/29/2022<br>Previous Date: 08/17/2021 |

## 1.0 PROJECT SUMMARY

### 1.1 Project Description

This project consists of a 3-mile 345 kV single circuit transmission line that will serve as a connection between the interconnect substation and the collector substation. The transmission line supports a generation load of 200 MW.

## 2.0 BACKGROUND

### 2.1 Methodology

Electricity in overhead transmission lines produce electric fields and magnetic fields, called electromagnetic fields (EMF). These fields can be calculated in PLS-CADD and are based on the EPRI Red Book methodology (EPRI, 1982). The 3D EMF calculation within PLS-CADD was performed at the low point of the span with the electromagnetic fields calculated in 5-ft intervals, starting from the center of the right-of-way and ending at the edge of the right-of-way (75 ft each direction).

### 2.2 Inputs

The following parameters were used to calculate electromagnetic fields along the transmission line:

- Height above ground at which EMF is calculated = 3.28 ft
- Maximum offset distance at which EMF is calculated = 75 ft
- Increment at which to report EMF = 5 ft
- Overvoltage percentage = 5%
- Location along span to report EMF calculations = Low Point
- Maximum current (for calculating magnetic field) = 372 A
- Wire temperature = 120°F

### 2.3 Exposure Standards

Minnesota restricts the maximum level for electric fields to 8 kV/m within the right-of-way, as measured one meter above ground level. Minnesota does not have a standard for magnetic fields.

## 3.0 RESULTS

### 3.1 Summary

A summary of the 3D EMF calculation report is provided in Appendix A, and a more detailed output from PLS-CADD is provided in Appendix B. From the report, the largest electric field and magnetic field along the Byron transmission line is 4.8 kV/m (span 17-18) and 56 mG (span 10-11), respectively. Both values are acceptable, as the electric field is below the 8 kV/m limit, and there are no standards in Minnesota that restrict the magnetic field.

| Electric Field Strength (kV/m) Distance from Centerline (ft) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Collector to STR 1** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 1.11 | 1.49 | 2.01 | 2.63 | 3.20 | 3.36 | 3.17 | 2.77 | 2.21 | 1.62 | 1.25 | 1.43 | 1.95 | 2.47 | 2.86 | 3.06 | 2.97 | 2.50 | 1.94 | 1.47 | 1.10 |
| **STR 1 to STR 2** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.96 | 1.27 | 1.67 | 2.15 | 2.63 | 2.91 | 2.90 | 2.77 | 2.56 | 2.33 | 2.20 | 2.22 | 2.35 | 2.51 | 2.61 | 2.60 | 2.34 | 1.90 | 1.46 | 1.11 | 0.85 |
| **STR 2 to STR 3** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.94 | 1.22 | 1.56 | 1.96 | 2.34 | 2.56 | 2.56 | 2.48 | 2.33 | 2.14 | 1.99 | 1.90 | 1.90 | 1.92 | 1.94 | 1.91 | 1.71 | 1.42 | 1.14 | 0.91 | 0.74 |
| **STR 3 to STR 4** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.38 | 0.47 | 0.61 | 0.79 | 1.07 | 1.46 | 1.71 | 1.98 | 2.27 | 2.53 | 2.72 | 2.82 | 2.81 | 2.68 | 2.46 | 2.18 | 1.59 | 1.09 | 0.74 | 0.52 | 0.39 |
| **STR 4 to STR 5** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.10 | 0.25 | 0.48 | 0.85 | 1.39 | 2.09 | 2.48 | 2.85 | 3.17 | 3.38 | 3.45 | 3.38 | 3.17 | 2.85 | 2.48 | 2.10 | 1.39 | 0.85 | 0.49 | 0.25 | 0.10 |
| **STR 5 to STR 6** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.39 | 0.47 | 0.60 | 0.79 | 1.08 | 1.53 | 1.83 | 2.19 | 2.59 | 2.98 | 3.31 | 3.49 | 3.48 | 3.29 | 2.97 | 2.57 | 1.77 | 1.14 | 0.73 | 0.48 | 0.34 |
| **STR 6 to STR 7** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.80 | 1.13 | 1.62 | 2.34 | 3.32 | 4.29 | 4.55 | 4.53 | 4.21 | 3.73 | 3.40 | 3.44 | 3.69 | 3.87 | 3.82 | 3.56 | 2.71 | 1.91 | 1.35 | 0.98 | 0.74 |
| **STR 7 to STR 8** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.85 | 1.07 | 1.35 | 1.65 | 1.93 | 2.09 | 2.09 | 2.04 | 1.95 | 1.86 | 1.80 | 1.79 | 1.81 | 1.85 | 1.87 | 1.84 | 1.67 | 1.40 | 1.13 | 0.89 | 0.71 |
| **STR 8 to STR 9** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 1.61 | 1.64 | 1.67 | 1.72 | 1.78 | 1.84 | 1.88 | 1.91 | 1.94 | 1.98 | 2.00 | 2.03 | 2.05 | 2.06 | 2.07 | 2.07 | 2.05 | 2.01 | 1.95 | 1.89 | 1.83 |
| **STR 9 to STR 10** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.87 | 1.11 | 1.42 | 1.77 | 2.10 | 2.28 | 2.29 | 2.22 | 2.11 | 1.98 | 1.87 | 1.82 | 1.81 | 1.82 | 1.82 | 1.79 | 1.61 | 1.35 | 1.08 | 0.86 | 0.69 |
| **STR 10 to STR 11** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.89 | 1.25 | 1.77 | 2.54 | 3.55 | 4.50 | 4.73 | 4.66 | 4.27 | 3.72 | 3.31 | 3.31 | 3.60 | 3.84 | 3.85 | 3.61 | 2.77 | 1.98 | 1.43 | 1.08 | 0.84 |
| **STR 11 to STR 12** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.90 | 1.25 | 1.76 | 2.47 | 3.35 | 4.13 | 4.30 | 4.21 | 3.88 | 3.41 | 3.05 | 3.01 | 3.21 | 3.40 | 3.43 | 3.26 | 2.59 | 1.90 | 1.40 | 1.06 | 0.83 |
| **STR 12 to STR 13** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.77 | 1.06 | 1.50 | 2.14 | 2.98 | 3.81 | 4.05 | 4.05 | 3.82 | 3.48 | 3.31 | 3.50 | 3.86 | 4.11 | 4.09 | 3.82 | 2.90 | 2.02 | 1.39 | 0.99 | 0.73 |
| **STR 13 to STR 14** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.85 | 1.14 | 1.54 | 2.06 | 2.66 | 3.13 | 3.22 | 3.16 | 2.99 | 2.77 | 2.64 | 2.68 | 2.83 | 2.96 | 2.98 | 2.87 | 2.38 | 1.80 | 1.32 | 0.98 | 0.75 |
| **STR 14 to STR 15** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.88 | 1.19 | 1.63 | 2.20 | 2.86 | 3.38 | 3.47 | 3.39 | 3.17 | 2.88 | 2.67 | 2.64 | 2.74 | 2.85 | 2.86 | 2.75 | 2.27 | 1.73 | 1.29 | 0.97 | 0.75 |
| **STR 15 to STR 16** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.80 | 1.11 | 1.59 | 2.29 | 3.21 | 4.10 | 4.33 | 4.31 | 4.01 | 3.58 | 3.26 | 3.24 | 3.42 | 3.57 | 3.53 | 3.31 | 2.58 | 1.86 | 1.33 | 0.97 | 0.74 |
| **STR 16 to STR 17** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.47 | 0.59 | 0.76 | 0.99 | 1.29 | 1.70 | 1.98 | 2.33 | 2.73 | 3.15 | 3.51 | 3.71 | 3.71 | 3.50 | 3.14 | 2.69 | 1.82 | 1.17 | 0.77 | 0.55 | 0.43 |
| **STR 17 to STR 18** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.06 | 0.13 | 0.35 | 0.75 | 1.41 | 2.41 | 3.01 | 3.64 | 4.20 | 4.60 | 4.74 | 4.58 | 4.16 | 3.59 | 2.96 | 2.36 | 1.38 | 0.73 | 0.34 | 0.11 | 0.04 |
| **STR 18 to STR 19** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.55 | 0.70 | 0.90 | 1.16 | 1.48 | 1.82 | 2.01 | 2.24 | 2.54 | 2.90 | 3.29 | 3.60 | 3.75 | 3.70 | 3.47 | 3.11 | 2.27 | 1.54 | 1.03 | 0.70 | 0.50 |
| **STR 19 to STR 20** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.87 | 1.10 | 1.38 | 1.68 | 1.95 | 2.10 | 2.11 | 2.07 | 2.00 | 1.93 | 1.90 | 1.93 | 2.00 | 2.09 | 2.18 | 2.22 | 2.16 | 1.95 | 1.67 | 1.38 | 1.13 |
| **STR 20 to STR 21** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.30 | 0.38 | 0.47 | 0.58 | 0.69 | 0.79 | 0.84 | 0.88 | 0.92 | 0.94 | 0.96 | 0.97 | 0.97 | 0.96 | 0.94 | 0.92 | 0.84 | 0.76 | 0.66 | 0.57 | 0.48 |
| **STR 21 to STR 22** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.48 | 0.56 | 0.71 | 0.96 | 1.34 | 1.82 | 2.08 | 2.34 | 2.58 | 2.77 | 2.89 | 2.92 | 2.86 | 2.72 | 2.52 | 2.27 | 1.74 | 1.28 | 0.92 | 0.69 | 0.54 |
| **STR 22 to POI** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 0.42 | 0.52 | 0.63 | 0.78 | 0.96 | 1.26 | 1.47 | 1.73 | 2.02 | 2.32 | 2.60 | 2.81 | 2.91 | 2.89 | 2.76 | 2.56 | 2.02 | 1.48 | 1.05 | 0.73 | 0.51 |

| Magnetic Field Strength (mG) Distance from Centerline (ft) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Collector to STR 1** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 12.62 | 15.55 | 19.32 | 24.12 | 29.72 | 35.28 | 37.66 | 39.55 | 40.85 | 41.51 | 41.56 | 40.97 | 39.76 | 37.96 | 35.68 | 33.07 | 27.45 | 22.18 | 17.79 | 14.31 | 11.64 |
| **STR 1 to STR 2** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 10.80 | 13.12 | 16.09 | 19.82 | 24.17 | 28.78 | 30.87 | 32.64 | 33.95 | 34.68 | 34.88 | 34.53 | 33.59 | 32.12 | 30.27 | 28.15 | 23.63 | 19.39 | 15.82 | 12.95 | 10.68 |
| **STR 2 to STR 3** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 9.51 | 11.49 | 13.97 | 17.01 | 20.51 | 24.16 | 25.84 | 27.27 | 28.33 | 28.98 | 29.17 | 28.89 | 28.17 | 27.07 | 25.67 | 24.06 | 20.59 | 17.24 | 14.31 | 11.86 | 9.88 |
| **STR 3 to STR 4** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 7.84 | 9.32 | 11.13 | 13.34 | 15.93 | 18.80 | 20.24 | 21.58 | 22.73 | 23.60 | 24.08 | 24.13 | 23.72 | 22.92 | 21.80 | 20.47 | 17.54 | 14.72 | 12.27 | 10.24 | 8.59 |
| **STR 4 to STR 5** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 9.24 | 10.95 | 13.07 | 15.67 | 18.72 | 22.05 | 23.64 | 25.08 | 26.22 | 26.95 | 27.18 | 26.88 | 26.09 | 24.90 | 23.44 | 21.83 | 18.54 | 15.55 | 13.00 | 10.90 | 9.19 |
| **STR 5 to STR 6** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 8.61 | 10.39 | 12.64 | 15.49 | 18.99 | 23.04 | 25.12 | 27.11 | 28.84 | 30.13 | 30.81 | 30.74 | 29.93 | 28.48 | 26.58 | 24.46 | 20.20 | 16.41 | 13.33 | 10.91 | 9.02 |
| **STR 6 to STR 7** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 10.76 | 13.54 | 17.37 | 22.66 | 29.85 | 38.77 | 43.36 | 47.47 | 50.66 | 52.57 | 53.05 | 52.11 | 49.84 | 46.50 | 42.44 | 38.02 | 29.59 | 22.72 | 17.59 | 13.84 | 11.07 |
| **STR 7 to STR 8** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 8.60 | 10.25 | 12.28 | 14.70 | 17.44 | 20.24 | 21.53 | 22.63 | 23.49 | 24.04 | 24.25 | 24.14 | 23.67 | 22.91 | 21.88 | 20.67 | 17.96 | 15.25 | 12.80 | 10.72 | 9.01 |
| **STR 8 to STR 9** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 51.16 | 52.18 | 53.33 | 54.27 | 54.66 | 55.50 | 55.70 | 55.71 | 55.82 | 56.05 | 55.68 | 55.72 | 55.63 | 55.22 | 54.84 | 54.38 | 53.38 | 52.29 | 51.33 | 50.47 | 49.81 |
| **STR 9 to STR 10** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 9.29 | 11.20 | 13.52 | 16.21 | 19.12 | 21.90 | 23.06 | 23.96 | 24.55 | 24.77 | 25.03 | 24.96 | 24.49 | 23.66 | 22.60 | 21.33 | 18.48 | 15.63 | 13.06 | 10.91 | 9.13 |
| **STR 10 to STR 11** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 11.37 | 14.28 | 18.32 | 23.96 | 31.65 | 41.03 | 45.79 | 50.01 | 53.22 | 55.11 | 55.62 | 54.76 | 52.61 | 49.35 | 45.28 | 40.79 | 31.92 | 24.56 | 19.01 | 14.93 | 11.94 |
| **STR 11 to STR 12** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 11.23 | 14.02 | 17.81 | 22.93 | 29.74 | 37.88 | 41.93 | 45.50 | 48.22 | 49.84 | 50.26 | 49.49 | 47.63 | 44.84 | 41.37 | 37.61 | 30.04 | 23.52 | 18.44 | 14.62 | 11.75 |
| **STR 12 to STR 13** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 10.42 | 12.97 | 16.45 | 21.24 | 27.72 | 35.79 | 40.09 | 44.08 | 47.40 | 49.70 | 50.76 | 50.46 | 48.79 | 45.92 | 42.18 | 37.96 | 29.61 | 22.71 | 17.53 | 13.74 | 10.96 |
| **STR 13 to STR 14** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 9.95 | 12.21 | 15.17 | 19.04 | 23.89 | 29.42 | 32.16 | 34.63 | 36.62 | 37.95 | 38.50 | 38.22 | 37.15 | 35.37 | 33.06 | 30.42 | 24.92 | 19.97 | 15.94 | 12.81 | 10.41 |
| **STR 14 to STR 15** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 10.10 | 12.46 | 15.57 | 19.66 | 24.82 | 30.68 | 33.54 | 36.07 | 38.05 | 39.29 | 39.70 | 39.27 | 38.03 | 36.12 | 33.70 | 30.98 | 25.37 | 20.34 | 16.25 | 13.07 | 10.63 |
| **STR 15 to STR 16** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 10.96 | 13.69 | 17.34 | 22.43 | 29.19 | 37.31 | 41.35 | 44.88 | 47.50 | 48.97 | 49.18 | 48.13 | 45.95 | 42.88 | 39.21 | 35.27 | 27.68 | 21.46 | 16.75 | 13.26 | 10.67 |
| **STR 16 to STR 17** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 8.54 | 10.33 | 12.63 | 15.55 | 19.21 | 23.54 | 25.83 | 28.07 | 30.10 | 31.70 | 32.65 | 32.79 | 32.07 | 30.61 | 28.59 | 26.28 | 21.61 | 17.48 | 14.12 | 11.47 | 9.42 |
| **STR 17 to STR 18** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 10.18 | 12.32 | 15.07 | 18.60 | 23.03 | 28.29 | 31.05 | 33.67 | 35.86 | 37.30 | 37.73 | 37.05 | 35.41 | 33.08 | 30.38 | 27.59 | 22.39 | 18.04 | 14.64 | 12.00 | 9.93 |
| **STR 18 to STR 19** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 9.24 | 11.21 | 13.72 | 16.91 | 20.86 | 25.44 | 27.82 | 30.10 | 32.12 | 33.71 | 34.63 | 34.67 | 33.84 | 32.23 | 30.06 | 27.62 | 22.55 | 18.07 | 14.51 | 11.76 | 9.64 |
| **STR 19 to STR 20** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 7.23 | 8.83 | 10.90 | 13.43 | 16.35 | 19.37 | 20.76 | 21.97 | 22.93 | 23.60 | 23.95 | 23.98 | 23.73 | 23.25 | 22.59 | 21.79 | 19.97 | 18.02 | 16.09 | 14.26 | 12.59 |
| **STR 20 to STR 21** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 3.42 | 3.86 | 4.30 | 4.77 | 5.41 | 6.08 | 6.43 | 6.79 | 7.13 | 7.46 | 7.77 | 8.04 | 8.30 | 8.56 | 8.81 | 9.03 | 9.42 | 9.76 | 10.04 | 10.33 | 10.65 |
| **STR 21 to STR 22** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 12.30 | 12.51 | 13.28 | 14.75 | 16.88 | 19.42 | 20.74 | 22.04 | 23.32 | 24.45 | 25.34 | 26.09 | 26.52 | 26.75 | 26.75 | 26.47 | 25.46 | 23.72 | 21.64 | 19.68 | 18.24 |
| **STR 22 to POI** | | | | | | | | | | | | | | | | | | | | |
| -75 | -65 | -55 | -45 | -35 | -25 | -20 | -15 | -10 | -5 | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 45 | 55 | 65 | 75 |
| 7.24 | 8.54 | 10.15 | 12.14 | 14.52 | 17.27 | 18.71 | 20.09 | 21.32 | 22.32 | 23.17 | 23.62 | 23.69 | 23.28 | 22.49 | 21.46 | 18.97 | 16.36 | 13.95 | 11.84 | 10.07 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

3D EMF Calculation Notes:
1) Calculations based on the EPRI Red Book methods (3rd Edition, 2005 - 7.4 Calculation of Magnetic Fields and Appendices 7.1 Calculation of Field Ellipse Parameters and 7.6 Electric Field Calculations for 3D Geometry).
2) All wire positions are modeled at the specified weather case and wind direction. Height above ground determined by the modeled ground TIN.
3) Only the effects of wires are being analyzed. The effects of structures are not included unless enabled as noted below.
4) Ground return is being ignored for magnetic field calculations.

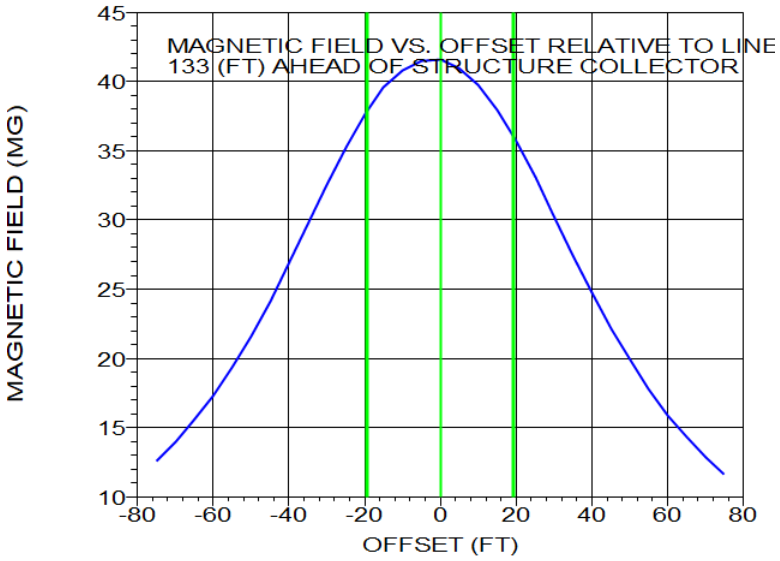
| | |
|---|---|
| Meter height above ground: | 3.28 (ft) |
| Maximum wire distance: | 500.00 (ft) |
| Maximum cable segment size: | 9.80 (ft) |
| Cross section offset +/-: | 75.00 (ft) |
| Result interval: | 5.00 (ft) |
| Overvoltage Percentage: | 5% |
| Electric field limit: | 8.00 (kV/m) |
| Magnetic field limit: | 0.00 (mG) |
| Contour Map Spacing: | 15 (ft) |
| Analyzing spans between these structures: | COLLECTOR - POI |

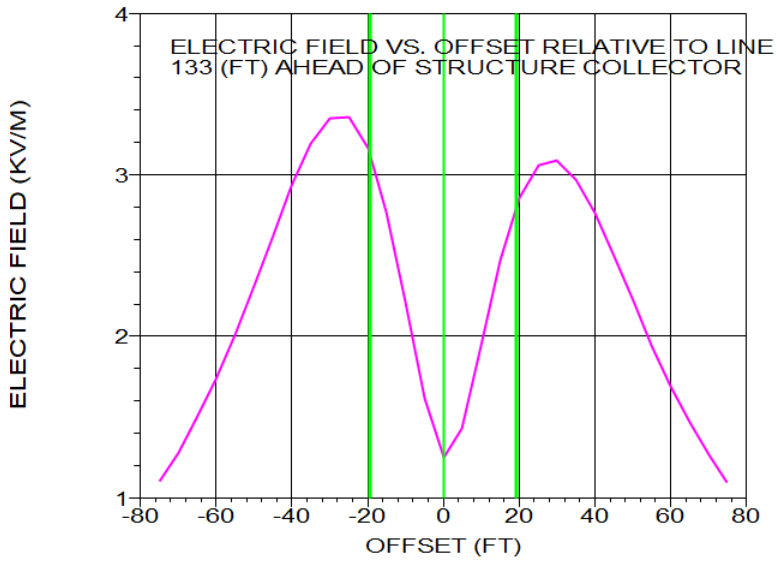
**Section Data for 3D EMF Results:**

| Section Number | Section Note | Voltage Ph-Ph (kV) | Current (Amps) | Cable Filename | Cable Description | Conductors Per Phase | Bundle Diameter (in) | Cable Radius (in) | Weather Case | Condition | Wind Dir. | WC Temperature (deg F) | Effective Radius (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.0 | 0.0 | dno-10926.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 2 | | 0.0 | 0.0 | dno-10926_7000cat.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 3 | | 0.0 | 0.0 | dno-10926_6500cat.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 4 | | 0.0 | 0.0 | dno-10926_3500cat.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 5 | | 0.0 | 0.0 | dno-10926_7000cat.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 6 | | 0.0 | 0.0 | dno-10926_6000cat.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 7 | | 0.0 | 0.0 | dno-10926_7000cat.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 8 | | 0.0 | 0.0 | dno-10926_1750cat.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 9 | | 0.0 | 0.0 | dno-10926.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 10 | | 0.0 | 0.0 | dno-10926_1750cat.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 11 | | 0.0 | 0.0 | dno-10926_1750cat.wir | AFL OPGW DNO-10926 CC-68/494 | 1 | 0.000 | 0.247 | 120°F | Max Sag FE | Left | 120.000 | 0.247 |
| 12 | | 13.0 | 0.0 | raven_acsr.wir | 1 /O AWG 6/1 Strands RAVEN ACSR - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.199 | 120°F | Max Sag FE | Left | 120.000 | 0.199 |
| 13 | | 0.0 | 0.0 | 3-8_ehs.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 14 | | 13.0 | 0.0 | raven_acsr.wir | 1 /O AWG 6/1 Strands RAVEN ACSR - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.199 | 120°F | Max Sag FE | Left | 120.000 | 0.199 |
| 15 | | 0.0 | 0.0 | 3-8_ehs.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 16 | | 0.0 | 0.0 | 3-8_ehs.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 17 | | 0.0 | 0.0 | 3-8_ehs.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 18 | | 0.0 | 0.0 | 3-8_ehs_7000cat.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 19 | | 0.0 | 0.0 | 3-8_ehs_6500cat.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 20 | | 0.0 | 0.0 | 3-8_ehs_3500cat.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 21 | | 0.0 | 0.0 | 3-8_ehs_7000cat.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 22 | | 0.0 | 0.0 | 3-8_ehs_6000cat.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 23 | | 0.0 | 0.0 | 3-8_ehs_7000cat.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 24 | | 0.0 | 0.0 | 3-8_ehs_1750cat.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 25 | | 0.0 | 0.0 | 3-8_ehs.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 26 | | 0.0 | 0.0 | 3-8_ehs_1750cat.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 27 | | 0.0 | 0.0 | 3-8_ehs_1750cat.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 28 | | 0.0 | 0.0 | 3-8_ehs.wir | 3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.180 | 120°F | Max Sag FE | Left | 120.000 | 0.180 |
| 29 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 30 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 31 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 32 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 33 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 34 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 35 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 36 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 37 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 38 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 39 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 40 | | 144.9 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 0.554 |
| 41 | | 13.0 | 372.0 | raven_acsr.wir | 1 /O AWG 6/1 Strands RAVEN ACSR - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.199 | 120°F | Max Sag FE | Left | 120.000 | 0.199 |
| 42 | | 362.3 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 2 | 18.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 3.158 |
| 43 | | 144.9 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 0.554 |
| 44 | | 144.9 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 0.554 |
| 45 | | 144.9 | 372.0 | drake_acsr.wir | 795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data | 1 | 0.000 | 0.554 | 120°F | Max Sag FE | Left | 120.000 | 0.554 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures COLLECTOR and 1



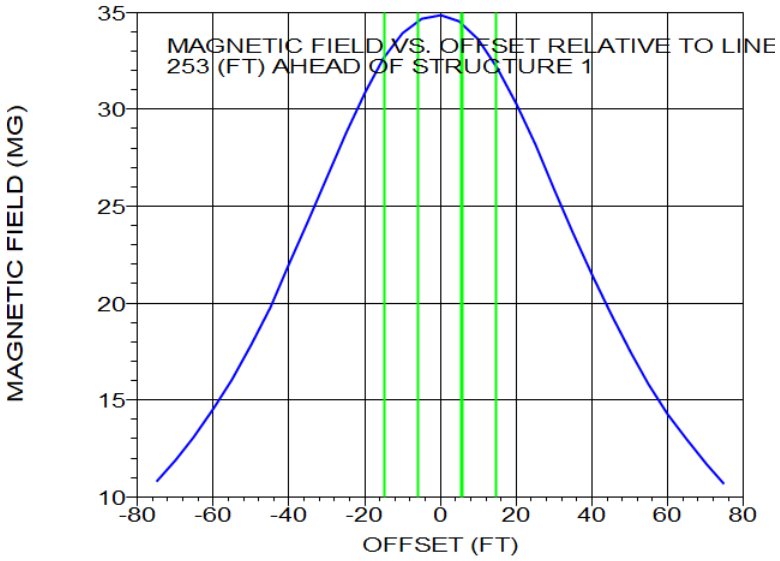



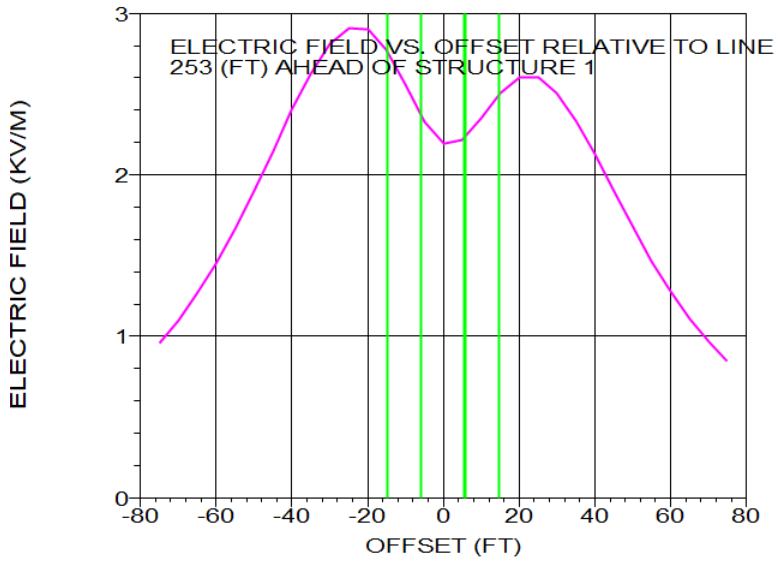

**3D EMF Point Results Span from COLLECTOR to 1:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2964494.5 | 703606.0 | 1285.2 | 4.131 | 11.929 | 70.9 | 12.623 | 27.8 | 1.005 | 0.307 | 1.062 | 73.9 | 1.106 | 1.5 | -0.368 | 1.470 | -76.0 | 1.515 |
| 2964499.5 | 703606.1 | 1285.0 | 4.468 | 13.257 | 71.4 | 13.990 | 26.7 | 1.113 | 0.378 | 1.228 | 72.9 | 1.285 | 1.5 | -0.446 | 1.630 | -74.7 | 1.690 |
| 2964504.5 | 703606.2 | 1284.8 | 4.828 | 14.778 | 71.9 | 15.547 | 25.6 | 1.237 | 0.464 | 1.420 | 71.9 | 1.494 | 1.5 | -0.536 | 1.804 | -73.5 | 1.882 |
| 2964509.5 | 703606.3 | 1284.6 | 5.205 | 16.518 | 72.5 | 17.319 | 24.3 | 1.378 | 0.566 | 1.641 | 71.0 | 1.736 | 1.4 | -0.638 | 1.988 | -72.2 | 2.088 |
| 2964514.5 | 703606.4 | 1284.4 | 5.587 | 18.499 | 73.2 | 19.324 | 22.9 | 1.538 | 0.686 | 1.890 | 70.0 | 2.011 | 1.4 | -0.750 | 2.175 | -71.0 | 2.301 |
| 2964519.5 | 703606.5 | 1284.2 | 5.962 | 20.756 | 74.0 | 21.595 | 21.4 | 1.718 | 0.823 | 2.162 | 69.2 | 2.313 | 1.4 | -0.876 | 2.375 | -69.7 | 2.532 |
| 2964524.5 | 703606.6 | 1284.0 | 6.296 | 23.283 | 74.9 | 24.119 | 19.7 | 1.919 | 0.971 | 2.444 | 68.3 | 2.630 | 1.4 | -1.007 | 2.557 | -68.5 | 2.748 |
| 2964529.5 | 703606.7 | 1283.8 | 6.547 | 26.049 | 75.9 | 26.860 | 17.8 | 2.137 | 1.122 | 2.714 | 67.5 | 2.937 | 1.5 | -1.127 | 2.683 | -67.2 | 2.910 |
| 2964534.5 | 703606.8 | 1283.7 | 6.655 | 28.966 | 77.1 | 29.721 | 15.9 | 2.365 | 1.260 | 2.936 | 66.8 | 3.195 | 1.6 | -1.215 | 2.696 | -65.7 | 2.957 |
| 2964539.5 | 703606.9 | 1283.5 | 6.562 | 31.916 | 78.4 | 32.583 | 13.8 | 2.593 | 1.364 | 3.063 | 66.0 | 3.353 | 2.0 | -1.258 | 2.562 | -63.8 | 2.854 |
| 2964544.5 | 703607.0 | 1283.3 | 6.212 | 34.729 | 79.9 | 35.280 | 11.7 | 2.808 | 1.416 | 3.043 | 65.1 | 3.357 | 2.7 | -1.245 | 2.243 | -61.0 | 2.566 |
| 2964549.5 | 703607.1 | 1283.1 | 5.582 | 37.246 | 81.5 | 37.662 | 9.7 | 2.997 | 1.404 | 2.836 | 63.7 | 3.165 | 4.1 | -1.191 | 1.743 | -55.7 | 2.110 |
| 2964554.5 | 703607.2 | 1282.9 | 4.682 | 39.275 | 83.2 | 39.553 | 7.8 | 3.148 | 1.337 | 2.425 | 61.1 | 2.769 | 7.0 | -1.107 | 1.055 | -43.6 | 1.529 |
| 2964559.5 | 703607.3 | 1282.8 | 3.600 | 40.686 | 84.9 | 40.845 | 6.3 | 3.250 | 1.241 | 1.833 | 55.9 | 2.213 | 13.3 | -1.026 | 0.224 | -12.3 | 1.050 |
| 2964564.5 | 703607.4 | 1282.6 | 2.562 | 41.434 | 86.5 | 41.514 | 5.3 | 3.304 | 1.156 | 1.132 | 44.4 | 1.618 | 28.2 | -0.986 | -0.673 | 34.3 | 1.194 |
| 2964569.5 | 703607.5 | 1282.5 | 2.086 | 41.503 | 87.1 | 41.555 | 5.0 | 3.307 | 1.113 | 0.578 | 27.4 | 1.254 | 50.8 | -1.006 | -1.558 | 57.1 | 1.854 |
| 2964574.5 | 703607.6 | 1282.3 | 2.589 | 40.889 | 86.4 | 40.971 | 5.5 | 3.260 | 1.125 | 0.886 | 38.2 | 1.432 | 26.1 | -1.081 | -2.351 | 65.3 | 2.587 |
| 2964579.5 | 703607.7 | 1282.1 | 3.556 | 39.602 | 84.9 | 39.761 | 6.7 | 3.164 | 1.179 | 1.549 | 52.7 | 1.947 | 8.7 | -1.180 | -2.976 | 68.4 | 3.201 |
| 2964584.5 | 703607.8 | 1282.0 | 4.499 | 37.693 | 83.2 | 37.961 | 8.3 | 3.021 | 1.244 | 2.134 | 59.8 | 2.470 | 2.7 | -1.262 | -3.375 | 69.5 | 3.603 |
| 2964589.5 | 703607.9 | 1281.8 | 5.234 | 35.296 | 81.6 | 35.682 | 10.1 | 2.839 | 1.288 | 2.551 | 63.2 | 2.858 | 0.8 | -1.300 | -3.539 | 69.8 | 3.770 |
| 2964594.5 | 703608.0 | 1281.6 | 5.711 | 32.568 | 80.1 | 33.065 | 12.1 | 2.631 | 1.290 | 2.778 | 65.1 | 3.063 | 0.3 | -1.278 | -3.497 | 69.9 | 3.723 |
| 2964599.5 | 703608.1 | 1281.5 | 5.940 | 29.690 | 78.7 | 30.278 | 14.1 | 2.409 | 1.241 | 2.829 | 66.3 | 3.090 | 0.2 | -1.204 | -3.304 | 70.0 | 3.516 |
| 2964604.5 | 703608.2 | 1281.3 | 5.958 | 26.800 | 77.5 | 27.454 | 16.1 | 2.185 | 1.150 | 2.742 | 67.2 | 2.973 | 0.2 | -1.085 | -3.002 | 70.1 | 3.192 |
| 2964609.5 | 703608.3 | 1281.2 | 5.819 | 24.030 | 76.4 | 24.725 | 18.0 | 1.968 | 1.030 | 2.561 | 68.1 | 2.760 | 0.2 | -0.944 | -2.647 | 70.4 | 2.810 |
| 2964614.5 | 703608.4 | 1281.0 | 5.577 | 21.466 | 75.4 | 22.179 | 19.7 | 1.765 | 0.898 | 2.329 | 68.9 | 2.496 | 0.3 | -0.799 | -2.282 | 70.7 | 2.418 |
| 2964619.5 | 703608.5 | 1280.9 | 5.274 | 19.149 | 74.6 | 19.862 | 21.4 | 1.581 | 0.767 | 2.079 | 69.8 | 2.216 | 0.3 | -0.663 | -1.935 | 71.1 | 2.045 |
| 2964624.5 | 703608.6 | 1280.7 | 4.943 | 17.087 | 73.9 | 17.788 | 22.9 | 1.416 | 0.644 | 1.833 | 70.6 | 1.943 | 0.4 | -0.541 | -1.621 | 71.5 | 1.708 |
| 2964629.5 | 703608.7 | 1280.5 | 4.600 | 15.255 | 73.2 | 15.933 | 24.3 | 1.268 | 0.535 | 1.604 | 71.6 | 1.691 | 0.5 | -0.428 | -1.316 | 72.0 | 1.384 |
| 2964634.5 | 703608.8 | 1280.3 | 4.268 | 13.655 | 72.6 | 14.306 | 25.6 | 1.138 | 0.441 | 1.397 | 72.5 | 1.465 | 0.5 | -0.337 | -1.060 | 72.4 | 1.112 |
| 2964639.5 | 703608.9 | 1280.1 | 3.954 | 12.262 | 72.1 | 12.883 | 26.7 | 1.025 | 0.361 | 1.215 | 73.5 | 1.268 | 0.5 | -0.265 | -0.850 | 72.7 | 0.890 |
| 2964644.5 | 703609.1 | 1279.9 | 3.663 | 11.049 | 71.7 | 11.641 | 27.8 | 0.926 | 0.294 | 1.057 | 74.5 | 1.097 | 0.5 | -0.210 | -0.683 | 72.9 | 0.714 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 1 and 2



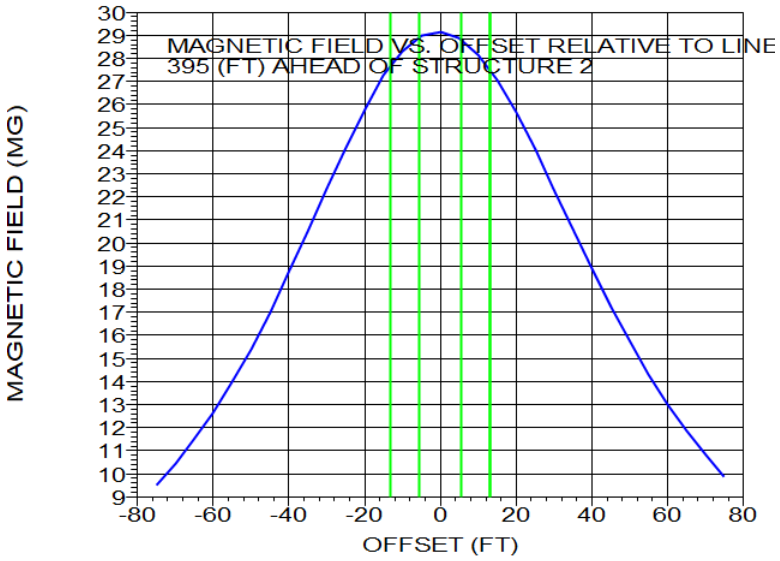



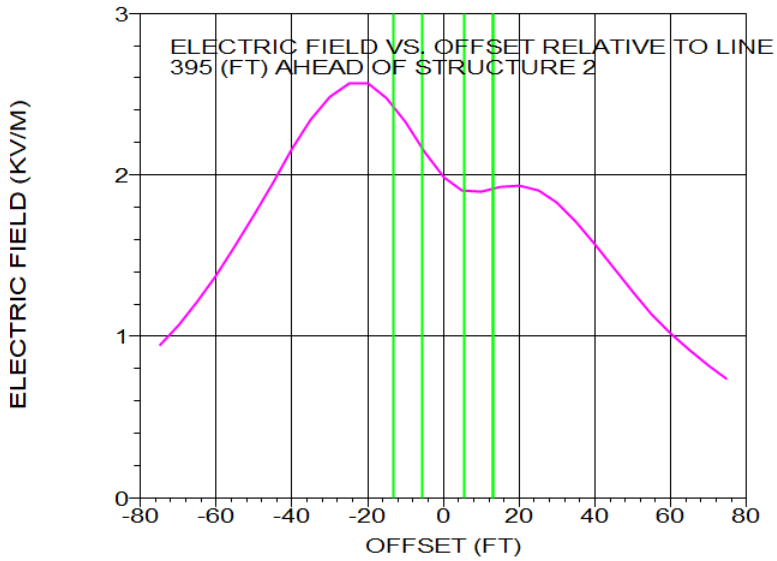

**3D EMF Point Results Span from 1 to 2:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2964486.3 | 704006.4 | 1283.8 | 6.440 | 8.674 | 53.4 | 10.803 | 53.1 | 0.860 | 0.301 | 0.911 | 71.7 | 0.959 | 2.7 | -0.399 | 1.052 | -69.2 | 1.125 |
| 2964491.3 | 704006.5 | 1283.7 | 7.006 | 9.609 | 53.9 | 11.892 | 52.3 | 0.946 | 0.376 | 1.035 | 70.1 | 1.101 | 2.7 | -0.489 | 1.187 | -67.6 | 1.283 |
| 2964496.3 | 704006.6 | 1283.6 | 7.626 | 10.678 | 54.5 | 13.122 | 51.4 | 1.044 | 0.466 | 1.177 | 68.4 | 1.265 | 2.7 | -0.594 | 1.334 | -66.0 | 1.460 |
| 2964501.3 | 704006.8 | 1283.6 | 8.302 | 11.900 | 55.1 | 14.510 | 50.5 | 1.155 | 0.574 | 1.336 | 66.8 | 1.454 | 2.6 | -0.717 | 1.493 | -64.4 | 1.656 |
| 2964506.3 | 704006.9 | 1283.5 | 9.042 | 13.306 | 55.8 | 16.087 | 49.5 | 1.280 | 0.702 | 1.511 | 65.1 | 1.666 | 2.7 | -0.870 | 1.689 | -62.7 | 1.900 |
| 2964511.3 | 704007.0 | 1283.5 | 9.831 | 14.905 | 56.6 | 17.856 | 48.5 | 1.421 | 0.852 | 1.698 | 63.4 | 1.900 | 2.7 | -1.048 | 1.896 | -61.1 | 2.167 |
| 2964516.3 | 704007.1 | 1283.5 | 10.657 | 16.705 | 57.5 | 19.815 | 47.5 | 1.577 | 1.024 | 1.889 | 61.6 | 2.149 | 2.9 | -1.249 | 2.103 | -59.3 | 2.446 |
| 2964521.3 | 704007.2 | 1283.4 | 11.483 | 18.683 | 58.4 | 21.930 | 46.5 | 1.745 | 1.213 | 2.069 | 59.6 | 2.399 | 3.1 | -1.456 | 2.268 | -57.3 | 2.695 |
| 2964526.3 | 704007.3 | 1283.4 | 12.281 | 20.815 | 59.5 | 24.167 | 45.5 | 1.923 | 1.414 | 2.216 | 57.5 | 2.628 | 3.4 | -1.665 | 2.379 | -55.0 | 2.904 |
| 2964531.3 | 704007.4 | 1283.3 | 13.021 | 23.068 | 60.6 | 26.489 | 44.6 | 2.108 | 1.614 | 2.299 | 54.9 | 2.809 | 4.1 | -1.884 | 2.434 | -52.2 | 3.078 |
| 2964536.3 | 704007.5 | 1283.3 | 13.648 | 25.335 | 61.7 | 28.777 | 43.7 | 2.290 | 1.801 | 2.283 | 51.7 | 2.908 | 5.2 | -2.089 | 2.376 | -48.7 | 3.164 |
| 2964541.3 | 704007.6 | 1283.3 | 14.111 | 27.454 | 62.8 | 30.868 | 43.1 | 2.456 | 1.958 | 2.136 | 47.5 | 2.898 | 7.0 | -2.247 | 2.153 | -43.8 | 3.112 |
| 2964546.3 | 704007.7 | 1283.2 | 14.399 | 29.293 | 63.8 | 32.640 | 42.7 | 2.597 | 2.074 | 1.838 | 41.6 | 2.771 | 9.8 | -2.356 | 1.762 | -36.8 | 2.942 |
| 2964551.3 | 704007.8 | 1283.2 | 14.521 | 30.686 | 64.7 | 33.948 | 42.7 | 2.701 | 2.142 | 1.398 | 33.1 | 2.558 | 14.0 | -2.404 | 1.209 | -26.7 | 2.690 |
| 2964556.3 | 704007.9 | 1283.1 | 14.515 | 31.498 | 65.3 | 34.682 | 43.0 | 2.760 | 2.163 | 0.868 | 21.9 | 2.331 | 18.7 | -2.384 | 0.535 | -12.7 | 2.443 |
| 2964561.3 | 704008.0 | 1283.0 | 14.459 | 31.746 | 65.5 | 34.884 | 43.8 | 2.776 | 2.144 | 0.473 | 12.5 | 2.196 | 21.8 | -2.343 | -0.175 | 4.3 | 2.350 |
| 2964566.3 | 704008.1 | 1283.0 | 14.379 | 31.392 | 65.4 | 34.529 | 45.0 | 2.748 | 2.087 | 0.744 | 19.6 | 2.215 | 19.9 | -2.277 | -0.867 | 20.8 | 2.436 |
| 2964571.2 | 704008.2 | 1283.0 | 14.255 | 30.414 | 64.9 | 33.589 | 46.6 | 2.673 | 1.991 | 1.253 | 32.2 | 2.352 | 14.9 | -2.158 | -1.468 | 34.2 | 2.610 |
| 2964576.2 | 704008.3 | 1282.9 | 14.053 | 28.885 | 64.1 | 32.122 | 48.6 | 2.556 | 1.856 | 1.690 | 42.3 | 2.510 | 10.3 | -1.984 | -1.911 | 43.9 | 2.755 |
| 2964581.2 | 704008.4 | 1282.8 | 13.744 | 26.967 | 63.0 | 30.267 | 50.9 | 2.409 | 1.684 | 1.989 | 49.8 | 2.606 | 7.3 | -1.775 | -2.180 | 50.8 | 2.811 |
| 2964586.2 | 704008.5 | 1282.8 | 13.303 | 24.807 | 61.8 | 28.149 | 53.4 | 2.240 | 1.482 | 2.141 | 55.3 | 2.604 | 5.4 | -1.542 | -2.282 | 56.0 | 2.754 |
| 2964591.2 | 704008.6 | 1282.7 | 12.732 | 22.552 | 60.6 | 25.898 | 56.0 | 2.061 | 1.263 | 2.165 | 59.7 | 2.506 | 4.4 | -1.298 | -2.247 | 60.0 | 2.595 |
| 2964596.2 | 704008.7 | 1282.6 | 12.057 | 20.326 | 59.3 | 23.633 | 58.6 | 1.881 | 1.042 | 2.091 | 63.5 | 2.336 | 3.9 | -1.059 | -2.117 | 63.4 | 2.367 |
| 2964601.2 | 704008.8 | 1282.6 | 11.314 | 18.217 | 58.2 | 21.445 | 61.2 | 1.707 | 0.832 | 1.954 | 66.9 | 2.123 | 3.6 | -0.838 | -1.929 | 66.5 | 2.103 |
| 2964606.2 | 704008.9 | 1282.5 | 10.538 | 16.278 | 57.1 | 19.391 | 63.6 | 1.543 | 0.643 | 1.783 | 70.2 | 1.895 | 3.4 | -0.643 | -1.715 | 69.4 | 1.831 |
| 2964611.2 | 704009.0 | 1282.4 | 9.764 | 14.533 | 56.1 | 17.508 | 66.0 | 1.393 | 0.480 | 1.601 | 73.3 | 1.671 | 3.4 | -0.479 | -1.499 | 72.3 | 1.573 |
| 2964616.2 | 704009.1 | 1282.4 | 9.019 | 12.991 | 55.2 | 15.815 | 68.1 | 1.259 | 0.344 | 1.421 | 76.4 | 1.462 | 3.4 | -0.348 | -1.308 | 75.1 | 1.353 |
| 2964621.2 | 704009.2 | 1282.4 | 8.312 | 11.634 | 54.5 | 14.298 | 70.2 | 1.138 | 0.233 | 1.254 | 79.5 | 1.275 | 3.4 | -0.243 | -1.132 | 77.9 | 1.158 |
| 2964626.2 | 704009.3 | 1282.3 | 7.650 | 10.442 | 53.8 | 12.945 | 72.0 | 1.030 | 0.145 | 1.101 | 82.5 | 1.111 | 3.3 | -0.159 | -0.973 | 80.7 | 0.986 |
| 2964631.2 | 704009.4 | 1282.3 | 7.037 | 9.399 | 53.2 | 11.742 | 73.8 | 0.934 | 0.077 | 0.966 | 85.4 | 0.969 | 3.3 | -0.094 | -0.829 | 83.5 | 0.835 |
| 2964636.2 | 704009.5 | 1282.2 | 6.476 | 8.487 | 52.7 | 10.675 | 75.3 | 0.850 | 0.032 | 0.847 | 87.8 | 0.848 | 3.2 | -0.046 | -0.703 | 86.3 | 0.704 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 2 and 3



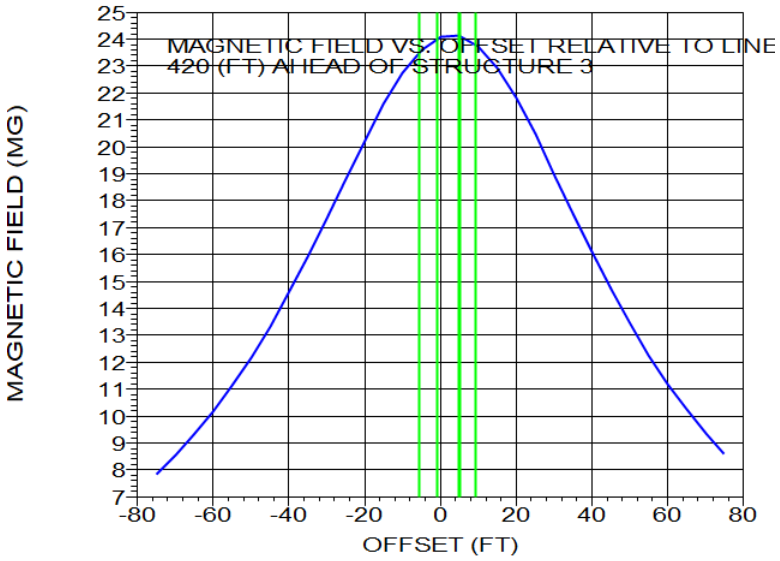



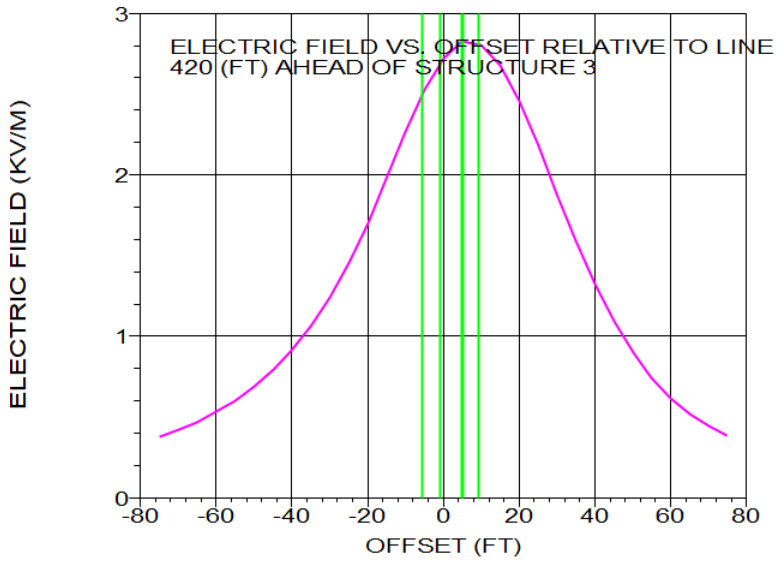

**3D EMF Point Results Span from 2 to 3:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2964471.2 | 704735.8 | 1274.1 | 6.179 | 7.232 | 49.5 | 9.512 | 42.0 | 0.757 | 0.418 | 0.843 | 63.6 | 0.941 | 1.7 | -0.438 | 0.903 | -64.2 | 1.004 |
| 2964476.2 | 704735.9 | 1274.0 | 6.722 | 7.992 | 49.9 | 10.443 | 41.9 | 0.831 | 0.495 | 0.947 | 62.4 | 1.069 | 1.8 | -0.517 | 1.001 | -62.7 | 1.127 |
| 2964481.2 | 704736.0 | 1274.0 | 7.321 | 8.854 | 50.4 | 11.489 | 41.7 | 0.914 | 0.585 | 1.064 | 61.2 | 1.215 | 1.8 | -0.609 | 1.108 | -61.2 | 1.265 |
| 2964486.2 | 704736.1 | 1273.9 | 7.977 | 9.832 | 50.9 | 12.661 | 41.6 | 1.008 | 0.690 | 1.193 | 60.0 | 1.379 | 1.9 | -0.717 | 1.226 | -59.7 | 1.420 |
| 2964491.2 | 704736.2 | 1273.9 | 8.692 | 10.938 | 51.5 | 13.971 | 41.5 | 1.112 | 0.811 | 1.332 | 58.7 | 1.560 | 2.0 | -0.841 | 1.351 | -58.1 | 1.591 |
| 2964496.2 | 704736.3 | 1273.9 | 9.461 | 12.179 | 52.2 | 15.422 | 41.5 | 1.227 | 0.949 | 1.477 | 57.3 | 1.755 | 2.1 | -0.980 | 1.476 | -56.4 | 1.772 |
| 2964501.2 | 704736.4 | 1273.8 | 10.274 | 13.556 | 52.8 | 17.010 | 41.5 | 1.354 | 1.101 | 1.620 | 55.8 | 1.959 | 2.4 | -1.131 | 1.589 | -54.6 | 1.951 |
| 2964506.2 | 704736.5 | 1273.7 | 11.114 | 15.059 | 53.6 | 18.717 | 41.6 | 1.489 | 1.266 | 1.749 | 54.1 | 2.159 | 2.7 | -1.288 | 1.676 | -52.5 | 2.114 |
| 2964511.2 | 704736.6 | 1273.7 | 11.960 | 16.667 | 54.3 | 20.514 | 41.7 | 1.632 | 1.436 | 1.848 | 52.1 | 2.340 | 3.2 | -1.447 | 1.722 | -50.0 | 2.249 |
| 2964516.2 | 704736.7 | 1273.6 | 12.782 | 18.338 | 55.1 | 22.353 | 42.1 | 1.779 | 1.605 | 1.894 | 49.7 | 2.483 | 3.9 | -1.602 | 1.710 | -46.9 | 2.343 |
| 2964521.2 | 704736.8 | 1273.6 | 13.543 | 20.007 | 55.9 | 24.160 | 42.6 | 1.923 | 1.759 | 1.865 | 46.7 | 2.563 | 4.9 | -1.743 | 1.617 | -42.9 | 2.378 |
| 2964526.2 | 704736.9 | 1273.6 | 14.203 | 21.581 | 56.6 | 25.835 | 43.3 | 2.056 | 1.886 | 1.737 | 42.6 | 2.564 | 6.4 | -1.855 | 1.420 | -37.4 | 2.337 |
| 2964531.2 | 704737.0 | 1273.5 | 14.728 | 22.947 | 57.3 | 27.267 | 44.4 | 2.170 | 1.976 | 1.498 | 37.2 | 2.480 | 8.6 | -1.924 | 1.107 | -29.9 | 2.219 |
| 2964536.2 | 704737.1 | 1273.4 | 15.092 | 23.980 | 57.8 | 28.334 | 45.7 | 2.255 | 2.018 | 1.154 | 29.8 | 2.325 | 11.4 | -1.929 | 0.680 | -19.4 | 2.045 |
| 2964541.2 | 704737.2 | 1273.4 | 15.304 | 24.612 | 58.1 | 28.982 | 47.5 | 2.306 | 2.010 | 0.738 | 20.2 | 2.141 | 14.5 | -1.883 | 0.183 | -5.6 | 1.892 |
| 2964546.2 | 704737.3 | 1273.3 | 15.376 | 24.787 | 58.2 | 29.168 | 49.6 | 2.321 | 1.951 | 0.369 | 10.7 | 1.986 | 16.9 | -1.790 | -0.337 | 10.7 | 1.822 |
| 2964551.2 | 704737.4 | 1273.2 | 15.320 | 24.492 | 58.0 | 28.889 | 52.1 | 2.299 | 1.844 | 0.472 | 14.3 | 1.904 | 16.9 | -1.655 | -0.829 | 26.6 | 1.851 |
| 2964556.2 | 704737.5 | 1273.2 | 15.142 | 23.754 | 57.5 | 28.170 | 54.9 | 2.242 | 1.694 | 0.853 | 26.7 | 1.897 | 14.4 | -1.482 | -1.245 | 40.0 | 1.936 |
| 2964561.2 | 704737.7 | 1273.1 | 14.841 | 22.638 | 56.8 | 27.069 | 57.9 | 2.154 | 1.507 | 1.196 | 38.4 | 1.924 | 11.2 | -1.281 | -1.552 | 50.5 | 2.013 |
| 2964566.2 | 704737.8 | 1273.0 | 14.415 | 21.237 | 55.8 | 25.667 | 61.1 | 2.043 | 1.293 | 1.441 | 48.1 | 1.936 | 8.6 | -1.060 | -1.738 | 58.6 | 2.036 |
| 2964571.2 | 704737.9 | 1272.9 | 13.870 | 19.658 | 54.8 | 24.059 | 64.2 | 1.915 | 1.064 | 1.581 | 56.1 | 1.905 | 6.8 | -0.834 | -1.807 | 65.2 | 1.991 |
| 2964576.2 | 704738.0 | 1272.9 | 13.222 | 18.001 | 53.7 | 22.336 | 67.2 | 1.777 | 0.834 | 1.624 | 62.8 | 1.826 | 5.7 | -0.616 | -1.783 | 70.9 | 1.886 |
| 2964581.2 | 704738.1 | 1272.8 | 12.499 | 16.357 | 52.6 | 20.586 | 70.0 | 1.638 | 0.616 | 1.593 | 68.9 | 1.707 | 5.1 | -0.419 | -1.693 | 76.1 | 1.744 |
| 2964586.2 | 704738.2 | 1272.8 | 11.729 | 14.786 | 51.6 | 18.873 | 72.4 | 1.502 | 0.419 | 1.509 | 74.5 | 1.567 | 4.8 | -0.248 | -1.568 | 81.0 | 1.588 |
| 2964591.2 | 704738.3 | 1272.7 | 10.938 | 13.322 | 50.6 | 17.237 | 74.3 | 1.372 | 0.251 | 1.396 | 79.8 | 1.418 | 4.7 | -0.107 | -1.421 | 85.7 | 1.425 |
| 2964596.2 | 704738.4 | 1272.7 | 10.154 | 11.989 | 49.7 | 15.711 | 75.8 | 1.250 | 0.117 | 1.268 | 84.7 | 1.273 | 4.6 | 0.006 | -1.274 | -89.7 | 1.274 |
| 2964601.2 | 704738.5 | 1272.6 | 9.394 | 10.789 | 49.0 | 14.306 | 76.7 | 1.138 | 0.052 | 1.138 | 87.4 | 1.139 | 4.5 | 0.093 | -1.134 | -85.3 | 1.138 |
| 2964606.2 | 704738.6 | 1272.6 | 8.670 | 9.719 | 48.3 | 13.024 | 77.3 | 1.036 | 0.107 | 1.012 | 84.0 | 1.018 | 4.3 | 0.157 | -1.002 | -81.1 | 1.014 |
| 2964611.2 | 704738.7 | 1272.6 | 7.989 | 8.768 | 47.7 | 11.862 | 77.4 | 0.944 | 0.166 | 0.896 | 79.5 | 0.911 | 4.2 | 0.203 | -0.881 | -77.0 | 0.904 |
| 2964616.2 | 704738.8 | 1272.6 | 7.357 | 7.928 | 47.1 | 10.816 | 77.3 | 0.861 | 0.210 | 0.791 | 75.1 | 0.818 | 3.9 | 0.233 | -0.773 | -73.3 | 0.807 |
| 2964621.2 | 704738.9 | 1272.5 | 6.774 | 7.187 | 46.7 | 9.876 | 76.9 | 0.786 | 0.240 | 0.697 | 71.0 | 0.737 | 3.7 | 0.251 | -0.678 | -69.7 | 0.723 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 3 and 4



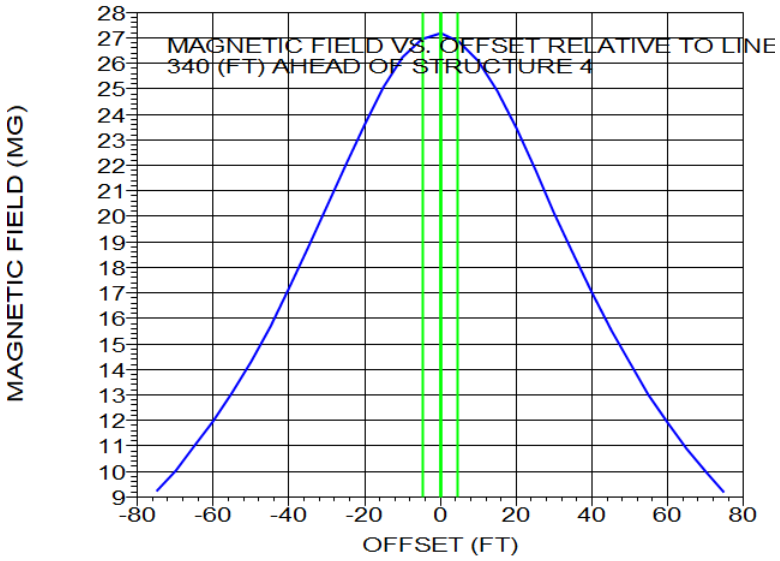



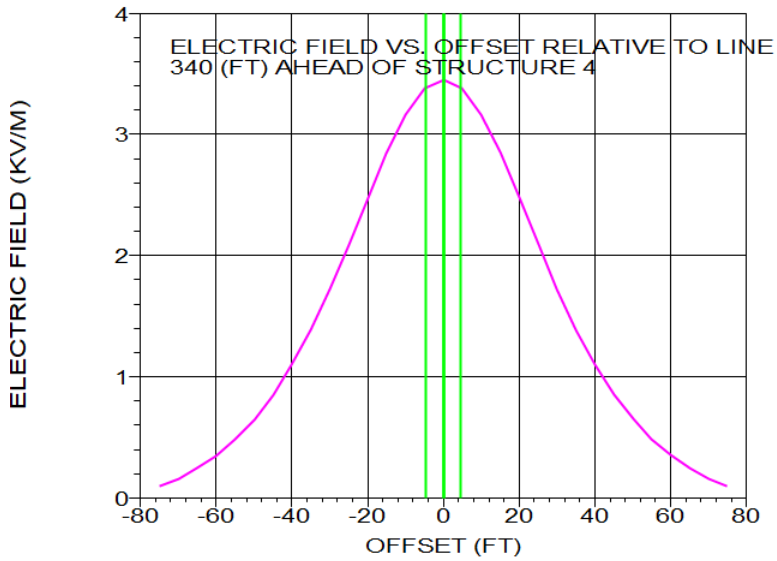

**3D EMF Point Results Span from 3 to 4:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2964457.3 | 705410.3 | 1262.4 | 6.601 | 4.234 | 32.7 | 7.842 | 51.0 | 0.624 | 0.167 | 0.337 | 63.6 | 0.376 | 6.1 | -0.163 | 0.328 | -63.5 | 0.366 |
| 2964462.3 | 705410.4 | 1262.5 | 7.153 | 4.664 | 33.1 | 8.539 | 51.5 | 0.680 | 0.222 | 0.356 | 58.1 | 0.419 | 6.4 | -0.218 | 0.348 | -58.0 | 0.411 |
| 2964467.3 | 705410.6 | 1262.5 | 7.761 | 5.151 | 33.6 | 9.315 | 52.0 | 0.741 | 0.289 | 0.372 | 52.2 | 0.471 | 6.8 | -0.284 | 0.366 | -52.2 | 0.463 |
| 2964472.3 | 705410.7 | 1262.5 | 8.429 | 5.701 | 34.1 | 10.176 | 52.5 | 0.810 | 0.369 | 0.383 | 46.0 | 0.532 | 7.2 | -0.363 | 0.377 | -46.1 | 0.523 |
| 2964477.3 | 705410.8 | 1262.5 | 9.159 | 6.323 | 34.6 | 11.129 | 52.9 | 0.886 | 0.467 | 0.385 | 39.5 | 0.605 | 7.6 | -0.458 | 0.378 | -39.6 | 0.594 |
| 2964482.3 | 705410.9 | 1262.5 | 9.954 | 7.022 | 35.2 | 12.182 | 53.1 | 0.969 | 0.582 | 0.372 | 32.6 | 0.691 | 8.1 | -0.570 | 0.366 | -32.7 | 0.678 |
| 2964487.3 | 705411.0 | 1262.5 | 10.814 | 7.803 | 35.8 | 13.336 | 53.3 | 1.061 | 0.717 | 0.340 | 25.4 | 0.793 | 8.5 | -0.701 | 0.334 | -25.5 | 0.777 |
| 2964492.3 | 705411.1 | 1262.5 | 11.736 | 8.667 | 36.4 | 14.589 | 53.2 | 1.161 | 0.872 | 0.282 | 17.9 | 0.916 | 8.9 | -0.852 | 0.274 | -17.8 | 0.896 |
| 2964497.3 | 705411.2 | 1262.5 | 12.712 | 9.606 | 37.1 | 15.933 | 52.9 | 1.268 | 1.046 | 0.195 | 10.6 | 1.065 | 9.2 | -1.022 | 0.178 | -9.9 | 1.038 |
| 2964502.3 | 705411.3 | 1262.5 | 13.729 | 10.608 | 37.7 | 17.350 | 52.2 | 1.381 | 1.238 | 0.117 | 5.4 | 1.243 | 9.3 | -1.211 | 0.037 | -1.7 | 1.211 |
| 2964507.3 | 705411.4 | 1262.5 | 14.764 | 11.643 | 38.3 | 18.803 | 51.2 | 1.496 | 1.439 | 0.226 | 8.9 | 1.457 | 9.2 | -1.411 | -0.159 | 6.4 | 1.420 |
| 2964512.3 | 705411.5 | 1262.5 | 15.785 | 12.665 | 38.7 | 20.237 | 49.8 | 1.610 | 1.640 | 0.466 | 15.9 | 1.705 | 8.6 | -1.612 | -0.409 | 14.3 | 1.663 |
| 2964517.3 | 705411.6 | 1262.5 | 16.745 | 13.609 | 39.1 | 21.578 | 48.1 | 1.717 | 1.826 | 0.767 | 22.8 | 1.981 | 7.9 | -1.799 | -0.710 | 21.5 | 1.934 |
| 2964522.3 | 705411.7 | 1262.5 | 17.591 | 14.398 | 39.3 | 22.732 | 46.1 | 1.809 | 1.980 | 1.099 | 29.0 | 2.265 | 6.9 | -1.956 | -1.040 | 28.0 | 2.215 |
| 2964527.3 | 705411.8 | 1262.5 | 18.258 | 14.952 | 39.3 | 23.599 | 43.9 | 1.878 | 2.082 | 1.429 | 34.5 | 2.526 | 5.9 | -2.061 | -1.369 | 33.6 | 2.475 |
| 2964532.3 | 705411.9 | 1262.5 | 18.678 | 15.196 | 39.1 | 24.079 | 41.7 | 1.916 | 2.115 | 1.716 | 39.1 | 2.723 | 5.0 | -2.094 | -1.654 | 38.3 | 2.668 |
| 2964537.3 | 705412.0 | 1262.5 | 18.812 | 15.105 | 38.8 | 24.125 | 39.6 | 1.920 | 2.069 | 1.922 | 42.9 | 2.824 | 4.2 | -2.052 | -1.863 | 42.2 | 2.771 |
| 2964542.3 | 705412.1 | 1262.5 | 18.635 | 14.682 | 38.2 | 23.724 | 37.6 | 1.888 | 1.945 | 2.024 | 46.1 | 2.807 | 3.6 | -1.933 | -1.971 | 45.6 | 2.761 |
| 2964547.3 | 705412.2 | 1262.5 | 18.163 | 13.980 | 37.6 | 22.920 | 35.8 | 1.824 | 1.756 | 2.021 | 49.0 | 2.677 | 3.3 | -1.750 | -1.974 | 48.5 | 2.638 |
| 2964552.3 | 705412.3 | 1262.6 | 17.442 | 13.077 | 36.9 | 21.800 | 34.3 | 1.735 | 1.524 | 1.927 | 51.7 | 2.457 | 3.2 | -1.522 | -1.889 | 51.1 | 2.426 |
| 2964557.2 | 705412.4 | 1262.6 | 16.537 | 12.061 | 36.1 | 20.468 | 33.1 | 1.629 | 1.273 | 1.772 | 54.3 | 2.181 | 3.3 | -1.274 | -1.741 | 53.8 | 2.158 |
| 2964562.2 | 705412.5 | 1262.6 | 15.516 | 11.007 | 35.4 | 19.023 | 32.2 | 1.514 | 1.023 | 1.582 | 57.1 | 1.884 | 3.6 | -1.026 | -1.557 | 56.6 | 1.864 |
| 2964567.2 | 705412.6 | 1262.5 | 14.432 | 9.968 | 34.6 | 17.540 | 31.5 | 1.396 | 0.790 | 1.383 | 60.3 | 1.592 | 4.0 | -0.789 | -1.353 | 59.8 | 1.566 |
| 2964572.2 | 705412.7 | 1262.5 | 13.348 | 8.990 | 34.0 | 16.093 | 30.9 | 1.281 | 0.584 | 1.190 | 63.9 | 1.326 | 4.6 | -0.580 | -1.157 | 63.4 | 1.294 |
| 2964577.2 | 705412.8 | 1262.5 | 12.296 | 8.093 | 33.4 | 14.720 | 30.6 | 1.171 | 0.409 | 1.014 | 68.0 | 1.093 | 5.3 | -0.404 | -0.979 | 67.6 | 1.060 |
| 2964582.2 | 705412.9 | 1262.5 | 11.299 | 7.283 | 32.8 | 13.443 | 30.4 | 1.070 | 0.265 | 0.859 | 72.9 | 0.898 | 6.1 | -0.260 | -0.823 | 72.5 | 0.863 |
| 2964587.2 | 705413.0 | 1262.5 | 10.368 | 6.561 | 32.3 | 12.269 | 30.3 | 0.976 | 0.151 | 0.724 | 78.2 | 0.740 | 6.9 | -0.145 | -0.689 | 78.1 | 0.705 |
| 2964592.2 | 705413.1 | 1262.5 | 9.511 | 5.922 | 31.9 | 11.204 | 30.3 | 0.892 | 0.068 | 0.610 | 83.6 | 0.614 | 7.6 | -0.056 | -0.578 | 84.5 | 0.581 |
| 2964597.2 | 705413.2 | 1262.4 | 8.726 | 5.357 | 31.5 | 10.239 | 30.4 | 0.815 | 0.047 | 0.515 | 84.8 | 0.517 | 8.1 | 0.013 | -0.484 | -88.5 | 0.484 |
| 2964602.2 | 705413.3 | 1262.4 | 8.012 | 4.859 | 31.2 | 9.370 | 30.5 | 0.746 | 0.084 | 0.435 | 79.1 | 0.443 | 8.4 | 0.064 | -0.407 | -81.0 | 0.412 |
| 2964607.2 | 705413.4 | 1262.4 | 7.364 | 4.420 | 31.0 | 8.589 | 30.7 | 0.684 | 0.119 | 0.368 | 72.1 | 0.387 | 8.3 | 0.102 | -0.343 | -73.4 | 0.358 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 4 and 5



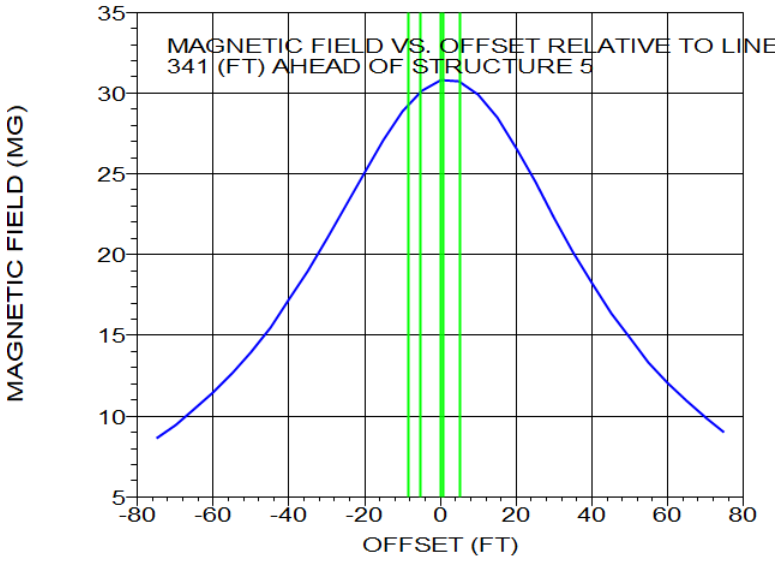



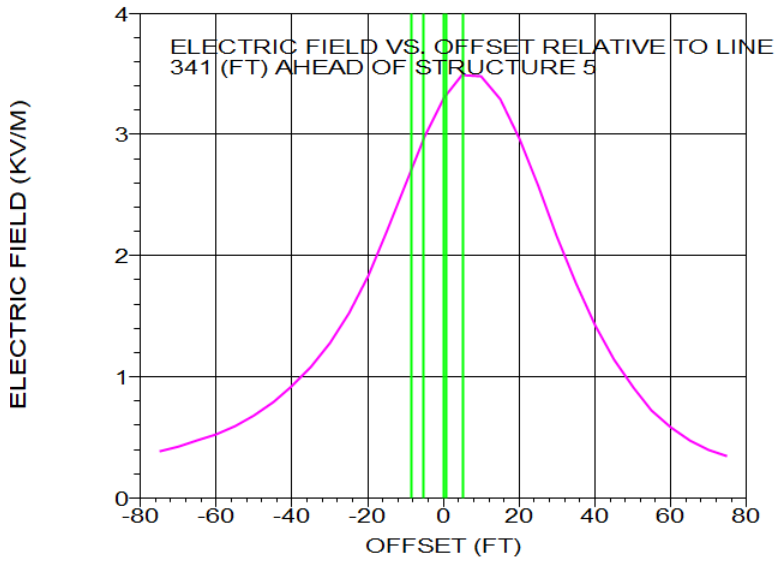

**3D EMF Point Results Span from 4 to 5:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2964422.1 | 706028.8 | 1260.0 | 7.639 | 5.192 | 34.2 | 9.236 | 10.4 | 0.735 | 0.082 | 0.052 | 32.1 | 0.097 | 1.4 | -0.104 | -0.061 | 30.4 | 0.121 |
| 2964427.1 | 706029.3 | 1259.9 | 8.274 | 5.704 | 34.6 | 10.049 | 10.4 | 0.800 | 0.135 | 0.088 | 33.1 | 0.162 | 1.4 | -0.164 | -0.102 | 32.0 | 0.193 |
| 2964432.1 | 706029.7 | 1259.9 | 8.972 | 6.281 | 35.0 | 10.952 | 10.3 | 0.872 | 0.202 | 0.138 | 34.2 | 0.245 | 1.4 | -0.237 | -0.156 | 33.4 | 0.284 |
| 2964437.1 | 706030.1 | 1259.8 | 9.740 | 6.933 | 35.4 | 11.955 | 10.3 | 0.951 | 0.286 | 0.203 | 35.3 | 0.350 | 1.5 | -0.327 | -0.226 | 34.7 | 0.397 |
| 2964442.1 | 706030.6 | 1259.8 | 10.586 | 7.672 | 35.9 | 13.074 | 10.1 | 1.040 | 0.388 | 0.287 | 36.5 | 0.483 | 1.6 | -0.439 | -0.319 | 36.0 | 0.543 |
| 2964447.0 | 706031.0 | 1259.8 | 11.510 | 8.503 | 36.5 | 14.310 | 9.9 | 1.139 | 0.512 | 0.397 | 37.8 | 0.648 | 1.6 | -0.575 | -0.439 | 37.3 | 0.723 |
| 2964452.0 | 706031.4 | 1259.8 | 12.511 | 9.430 | 37.0 | 15.667 | 9.6 | 1.247 | 0.660 | 0.536 | 39.1 | 0.850 | 1.7 | -0.738 | -0.591 | 38.7 | 0.945 |
| 2964457.0 | 706031.9 | 1259.8 | 13.584 | 10.456 | 37.6 | 17.142 | 9.1 | 1.364 | 0.834 | 0.711 | 40.4 | 1.096 | 1.7 | -0.928 | -0.781 | 40.1 | 1.213 |
| 2964462.0 | 706032.3 | 1259.8 | 14.719 | 11.573 | 38.2 | 18.724 | 8.6 | 1.490 | 1.034 | 0.924 | 41.8 | 1.387 | 1.8 | -1.147 | -1.014 | 41.5 | 1.531 |
| 2964467.0 | 706032.7 | 1259.8 | 15.894 | 12.765 | 38.8 | 20.385 | 7.8 | 1.622 | 1.256 | 1.177 | 43.1 | 1.721 | 1.7 | -1.391 | -1.290 | 42.9 | 1.897 |
| 2964472.0 | 706033.2 | 1259.8 | 17.051 | 13.972 | 39.3 | 22.045 | 6.9 | 1.754 | 1.495 | 1.463 | 44.4 | 2.092 | 1.6 | -1.630 | -1.582 | 44.1 | 2.272 |
| 2964476.9 | 706033.6 | 1259.7 | 18.151 | 15.149 | 39.8 | 23.643 | 5.7 | 1.881 | 1.736 | 1.769 | 45.5 | 2.478 | 1.4 | -1.864 | -1.883 | 45.3 | 2.649 |
| 2964481.9 | 706034.0 | 1259.7 | 19.127 | 16.217 | 40.3 | 25.076 | 4.4 | 1.996 | 1.962 | 2.067 | 46.5 | 2.850 | 1.2 | -2.073 | -2.168 | 46.3 | 2.999 |
| 2964486.9 | 706034.5 | 1259.6 | 19.896 | 17.077 | 40.6 | 26.220 | 3.0 | 2.087 | 2.149 | 2.324 | 47.2 | 3.165 | 1.0 | -2.235 | -2.399 | 47.0 | 3.279 |
| 2964491.9 | 706034.9 | 1259.6 | 20.380 | 17.635 | 40.9 | 26.951 | 1.4 | 2.145 | 2.274 | 2.499 | 47.7 | 3.379 | 0.8 | -2.328 | -2.541 | 47.5 | 3.446 |
| 2964496.9 | 706035.4 | 1259.5 | 20.521 | 17.816 | 41.0 | 27.176 | 0.2 | 2.163 | 2.317 | 2.562 | 47.9 | 3.454 | 0.7 | -2.336 | -2.565 | 47.7 | 3.469 |
| 2964501.8 | 706035.8 | 1259.5 | 20.307 | 17.606 | 40.9 | 26.876 | 1.7 | 2.139 | 2.273 | 2.501 | 47.7 | 3.379 | 0.7 | -2.264 | -2.473 | 47.5 | 3.352 |
| 2964506.8 | 706036.2 | 1259.5 | 19.761 | 17.031 | 40.8 | 26.087 | 3.3 | 2.076 | 2.148 | 2.327 | 47.3 | 3.167 | 0.9 | -2.118 | -2.278 | 47.1 | 3.110 |
| 2964511.8 | 706036.7 | 1259.4 | 18.942 | 16.161 | 40.5 | 24.900 | 4.7 | 1.981 | 1.960 | 2.072 | 46.6 | 2.852 | 1.1 | -1.914 | -2.008 | 46.4 | 2.774 |
| 2964516.8 | 706037.1 | 1259.4 | 17.931 | 15.094 | 40.1 | 23.438 | 5.9 | 1.865 | 1.734 | 1.775 | 45.7 | 2.481 | 1.2 | -1.677 | -1.702 | 45.4 | 2.390 |
| 2964521.8 | 706037.5 | 1259.3 | 16.808 | 13.925 | 39.6 | 21.827 | 6.9 | 1.737 | 1.492 | 1.470 | 44.6 | 2.095 | 1.3 | -1.430 | -1.396 | 44.3 | 1.999 |
| 2964526.7 | 706038.0 | 1259.3 | 15.641 | 12.734 | 39.1 | 20.169 | 7.8 | 1.605 | 1.254 | 1.184 | 43.4 | 1.725 | 1.4 | -1.191 | -1.113 | 43.1 | 1.630 |
| 2964531.7 | 706038.4 | 1259.3 | 14.485 | 11.578 | 38.6 | 18.544 | 8.4 | 1.476 | 1.032 | 0.932 | 42.1 | 1.390 | 1.4 | -0.975 | -0.870 | 41.8 | 1.307 |
| 2964536.7 | 706038.8 | 1259.3 | 13.371 | 10.492 | 38.1 | 16.996 | 8.9 | 1.353 | 0.832 | 0.718 | 40.8 | 1.099 | 1.4 | -0.785 | -0.668 | 40.4 | 1.031 |
| 2964541.7 | 706039.3 | 1259.3 | 12.317 | 9.492 | 37.6 | 15.550 | 9.3 | 1.237 | 0.658 | 0.544 | 39.6 | 0.854 | 1.3 | -0.621 | -0.504 | 39.1 | 0.800 |
| 2964546.7 | 706039.7 | 1259.2 | 11.333 | 8.583 | 37.1 | 14.216 | 9.5 | 1.131 | 0.510 | 0.404 | 38.4 | 0.650 | 1.2 | -0.482 | -0.374 | 37.8 | 0.610 |
| 2964551.7 | 706040.1 | 1259.2 | 10.425 | 7.767 | 36.7 | 13.000 | 9.6 | 1.034 | 0.386 | 0.294 | 37.3 | 0.485 | 1.1 | -0.366 | -0.272 | 36.6 | 0.456 |
| 2964556.6 | 706040.6 | 1259.2 | 9.592 | 7.038 | 36.3 | 11.897 | 9.6 | 0.947 | 0.283 | 0.208 | 36.3 | 0.352 | 0.9 | -0.272 | -0.193 | 35.4 | 0.333 |
| 2964561.6 | 706041.0 | 1259.2 | 8.831 | 6.389 | 35.9 | 10.900 | 9.5 | 0.867 | 0.200 | 0.142 | 35.5 | 0.245 | 0.7 | -0.195 | -0.133 | 34.3 | 0.236 |
| 2964566.6 | 706041.4 | 1259.2 | 8.138 | 5.812 | 35.5 | 10.001 | 9.4 | 0.796 | 0.133 | 0.092 | 34.9 | 0.162 | 0.4 | -0.133 | -0.087 | 33.3 | 0.159 |
| 2964571.6 | 706041.9 | 1259.1 | 7.509 | 5.301 | 35.2 | 9.192 | 9.3 | 0.731 | 0.079 | 0.055 | 34.8 | 0.096 | 0.4 | -0.084 | -0.053 | 32.3 | 0.100 |

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 5 and 6



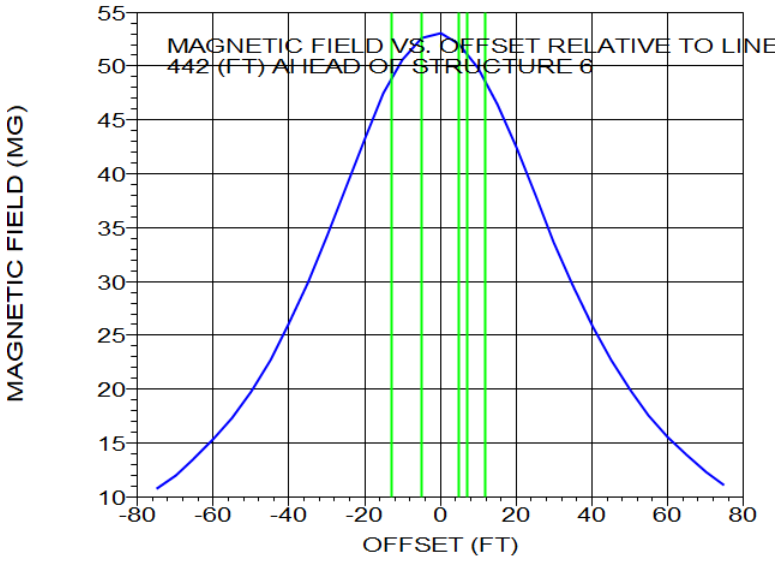



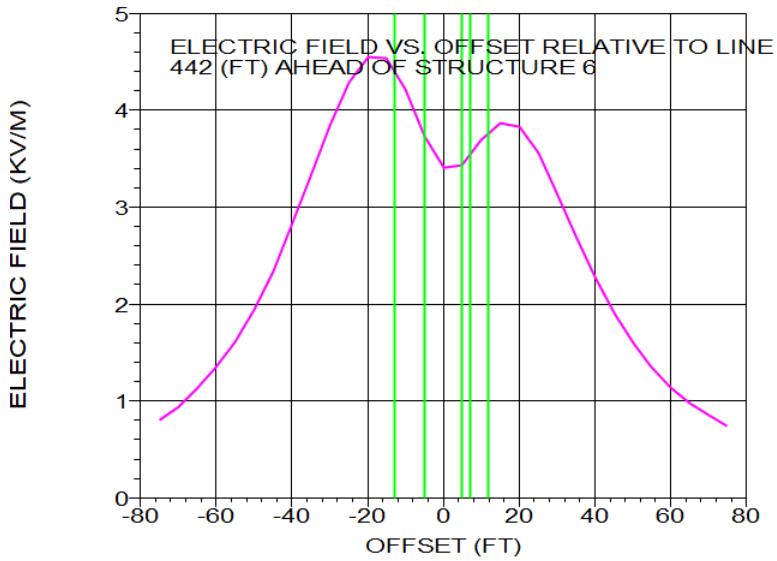

**3D EMF Point Results Span from 5 to 6:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2964385.2 | 706709.8 | 1264.1 | 7.534 | 4.168 | 29.0 | 8.610 | 44.7 | 0.685 | 0.035 | 0.385 | 84.7 | 0.387 | 7.6 | 0.052 | 0.400 | 82.6 | 0.403 |
| 2964390.2 | 706709.9 | 1264.1 | 8.236 | 4.626 | 29.3 | 9.446 | 45.2 | 0.752 | 0.043 | 0.423 | 84.2 | 0.425 | 8.4 | 0.004 | 0.433 | 89.5 | 0.433 |
| 2964395.2 | 706710.0 | 1264.0 | 9.019 | 5.154 | 29.7 | 10.388 | 45.9 | 0.827 | 0.092 | 0.462 | 78.7 | 0.471 | 9.2 | -0.059 | 0.467 | -82.8 | 0.471 |
| 2964400.2 | 706710.1 | 1264.0 | 9.892 | 5.765 | 30.2 | 11.449 | 46.5 | 0.911 | 0.165 | 0.501 | 71.8 | 0.528 | 10.0 | -0.140 | 0.499 | -74.4 | 0.519 |
| 2964405.2 | 706710.3 | 1264.0 | 10.862 | 6.471 | 30.8 | 12.643 | 47.2 | 1.006 | 0.261 | 0.537 | 64.1 | 0.597 | 10.7 | -0.243 | 0.527 | -65.2 | 0.580 |
| 2964410.2 | 706710.4 | 1264.0 | 11.938 | 7.289 | 31.4 | 13.988 | 47.9 | 1.113 | 0.383 | 0.566 | 55.9 | 0.683 | 11.4 | -0.374 | 0.546 | -55.6 | 0.661 |
| 2964415.2 | 706710.5 | 1264.0 | 13.123 | 8.232 | 32.1 | 15.492 | 48.5 | 1.233 | 0.537 | 0.580 | 47.2 | 0.790 | 12.0 | -0.537 | 0.547 | -45.5 | 0.766 |
| 2964420.2 | 706710.6 | 1263.9 | 14.415 | 9.312 | 32.9 | 17.161 | 49.0 | 1.366 | 0.724 | 0.569 | 38.2 | 0.921 | 12.6 | -0.736 | 0.519 | -35.2 | 0.900 |
| 2964425.1 | 706710.7 | 1263.9 | 15.803 | 10.530 | 33.7 | 18.990 | 49.3 | 1.511 | 0.950 | 0.521 | 28.8 | 1.083 | 13.0 | -0.971 | 0.445 | -24.6 | 1.068 |
| 2964430.1 | 706710.8 | 1263.9 | 17.270 | 11.882 | 34.5 | 20.963 | 49.3 | 1.668 | 1.211 | 0.423 | 19.3 | 1.283 | 13.3 | -1.242 | 0.310 | -14.0 | 1.280 |
| 2964435.1 | 706710.9 | 1263.9 | 18.784 | 13.337 | 35.4 | 23.037 | 48.8 | 1.833 | 1.503 | 0.280 | 10.5 | 1.529 | 13.2 | -1.543 | 0.093 | -3.5 | 1.546 |
| 2964440.1 | 706711.0 | 1263.8 | 20.280 | 14.827 | 36.2 | 25.123 | 47.7 | 1.999 | 1.814 | 0.246 | 7.7 | 1.831 | 12.6 | -1.850 | -0.218 | 6.7 | 1.863 |
| 2964445.1 | 706711.1 | 1263.8 | 21.692 | 16.257 | 36.8 | 27.108 | 46.1 | 2.157 | 2.122 | 0.537 | 14.2 | 2.189 | 11.3 | -2.145 | -0.622 | 16.2 | 2.233 |
| 2964450.1 | 706711.3 | 1263.8 | 22.926 | 17.492 | 37.3 | 28.837 | 43.9 | 2.295 | 2.396 | 0.974 | 22.1 | 2.587 | 9.7 | -2.398 | -1.095 | 24.5 | 2.636 |
| 2964455.1 | 706711.4 | 1263.7 | 23.873 | 18.385 | 37.6 | 30.131 | 41.3 | 2.398 | 2.602 | 1.455 | 29.2 | 2.982 | 7.9 | -2.583 | -1.586 | 31.6 | 3.031 |
| 2964460.1 | 706711.5 | 1263.7 | 24.413 | 18.790 | 37.6 | 30.807 | 38.5 | 2.452 | 2.705 | 1.899 | 35.1 | 3.305 | 6.1 | -2.662 | -2.025 | 37.3 | 3.344 |
| 2964465.1 | 706711.6 | 1263.7 | 24.456 | 18.629 | 37.3 | 30.743 | 35.8 | 2.446 | 2.682 | 2.227 | 39.7 | 3.486 | 4.7 | -2.615 | -2.335 | 41.8 | 3.506 |
| 2964470.1 | 706711.7 | 1263.6 | 23.970 | 17.918 | 36.8 | 29.927 | 33.2 | 2.382 | 2.531 | 2.390 | 43.4 | 3.481 | 3.6 | -2.441 | -2.470 | 45.3 | 3.473 |
| 2964475.1 | 706711.8 | 1263.6 | 23.010 | 16.773 | 36.1 | 28.475 | 30.9 | 2.266 | 2.276 | 2.380 | 46.3 | 3.294 | 2.8 | -2.168 | -2.429 | 48.3 | 3.256 |
| 2964480.1 | 706711.9 | 1263.6 | 21.695 | 15.361 | 35.3 | 26.582 | 29.0 | 2.115 | 1.956 | 2.234 | 48.8 | 2.969 | 2.4 | -1.837 | -2.254 | 50.8 | 2.908 |
| 2964485.1 | 706712.0 | 1263.5 | 20.165 | 13.848 | 34.5 | 24.462 | 27.5 | 1.947 | 1.613 | 2.003 | 51.1 | 2.572 | 2.3 | -1.494 | -2.003 | 53.3 | 2.499 |
| 2964490.1 | 706712.1 | 1263.5 | 18.560 | 12.366 | 33.7 | 22.302 | 26.4 | 1.775 | 1.282 | 1.737 | 53.6 | 2.159 | 2.5 | -1.178 | -1.738 | 55.9 | 2.100 |
| 2964495.1 | 706712.2 | 1263.5 | 16.957 | 10.977 | 32.9 | 20.200 | 25.5 | 1.607 | 0.982 | 1.473 | 56.3 | 1.770 | 2.9 | -0.893 | -1.474 | 58.8 | 1.724 |
| 2964500.1 | 706712.4 | 1263.5 | 15.417 | 9.719 | 32.2 | 18.225 | 24.9 | 1.450 | 0.726 | 1.230 | 59.5 | 1.428 | 3.5 | -0.648 | -1.230 | 62.2 | 1.390 |
| 2964505.1 | 706712.5 | 1263.4 | 13.973 | 8.602 | 31.6 | 16.409 | 24.6 | 1.306 | 0.514 | 1.019 | 63.3 | 1.142 | 4.3 | -0.442 | -1.008 | 66.3 | 1.101 |
| 2964510.1 | 706712.6 | 1263.4 | 12.654 | 7.631 | 31.1 | 14.777 | 24.4 | 1.176 | 0.344 | 0.841 | 67.8 | 0.909 | 5.1 | -0.280 | -0.824 | 71.2 | 0.870 |
| 2964515.1 | 706712.7 | 1263.4 | 11.466 | 6.793 | 30.6 | 13.327 | 24.3 | 1.061 | 0.211 | 0.694 | 73.1 | 0.725 | 6.1 | -0.156 | -0.676 | 77.0 | 0.694 |
| 2964520.1 | 706712.8 | 1263.4 | 10.403 | 6.072 | 30.3 | 12.046 | 24.4 | 0.959 | 0.111 | 0.573 | 79.1 | 0.584 | 7.1 | -0.062 | -0.559 | 83.6 | 0.562 |
| 2964525.1 | 706712.9 | 1263.3 | 9.452 | 5.450 | 30.0 | 10.911 | 24.5 | 0.868 | 0.045 | 0.475 | 84.6 | 0.477 | 8.0 | 0.008 | -0.463 | -89.0 | 0.463 |
| 2964530.1 | 706713.0 | 1263.3 | 8.604 | 4.913 | 29.7 | 9.908 | 24.7 | 0.788 | 0.049 | 0.395 | 82.9 | 0.398 | 8.6 | 0.061 | -0.386 | -81.0 | 0.390 |
| 2964535.1 | 706713.1 | 1263.3 | 7.849 | 4.448 | 29.5 | 9.022 | 24.9 | 0.718 | 0.085 | 0.330 | 75.6 | 0.341 | 8.9 | 0.099 | -0.323 | -72.9 | 0.338 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 6 and 7



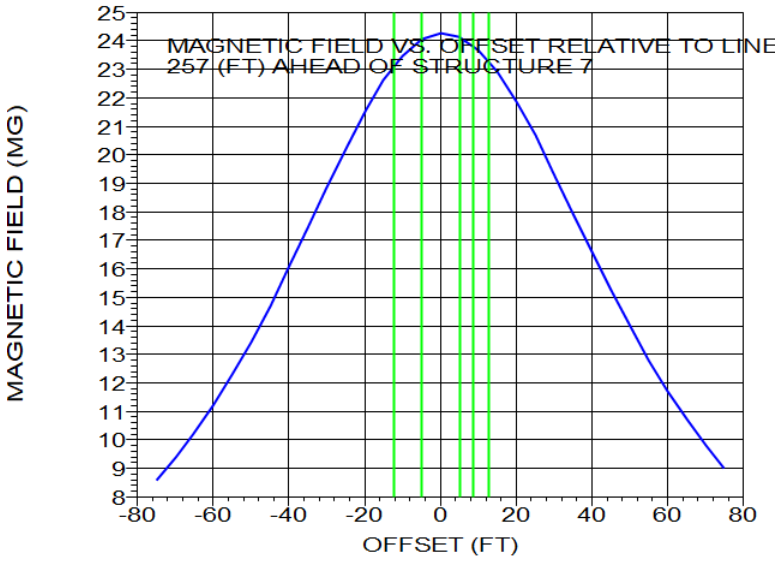



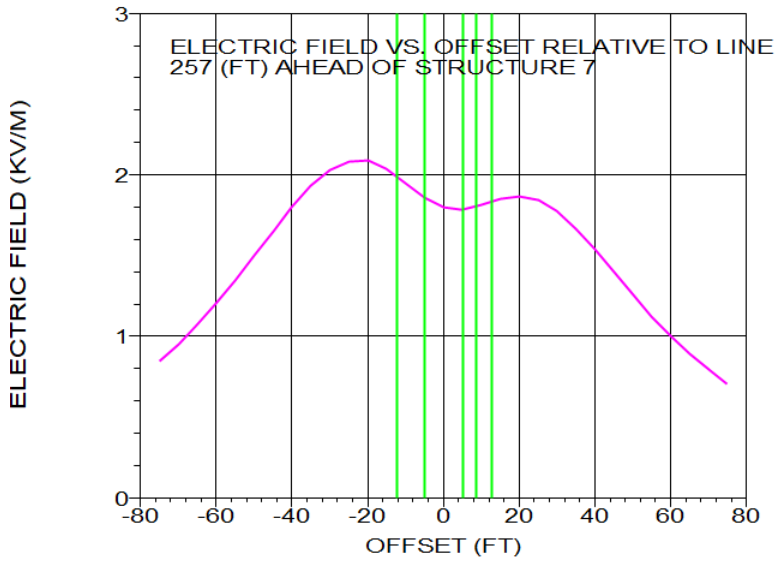

**3D EMF Point Results Span from 6 to 7:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2964893.6 | 707182.7 | 1262.1 | 7.277 | 7.930 | 47.5 | 10.763 | 49.1 | 0.857 | 0.175 | 0.783 | 77.4 | 0.802 | 2.1 | -0.152 | 0.675 | -77.3 | 0.692 |
| 2964893.6 | 707177.7 | 1262.2 | 8.070 | 8.935 | 47.9 | 12.040 | 48.6 | 0.958 | 0.243 | 0.915 | 75.1 | 0.947 | 2.2 | -0.216 | 0.816 | -75.2 | 0.844 |
| 2964893.5 | 707172.7 | 1262.4 | 8.982 | 10.126 | 48.4 | 13.536 | 48.1 | 1.077 | 0.332 | 1.075 | 72.9 | 1.125 | 2.2 | -0.301 | 0.991 | -73.1 | 1.035 |
| 2964893.5 | 707167.7 | 1262.5 | 10.030 | 11.549 | 49.0 | 15.296 | 47.5 | 1.217 | 0.446 | 1.269 | 70.6 | 1.345 | 2.2 | -0.415 | 1.207 | -71.0 | 1.277 |
| 2964893.4 | 707162.7 | 1262.6 | 11.227 | 13.248 | 49.7 | 17.365 | 46.8 | 1.382 | 0.594 | 1.503 | 68.4 | 1.616 | 2.2 | -0.562 | 1.460 | -68.9 | 1.564 |
| 2964893.4 | 707157.7 | 1262.7 | 12.586 | 15.282 | 50.5 | 19.798 | 46.2 | 1.575 | 0.783 | 1.783 | 66.3 | 1.947 | 2.2 | -0.746 | 1.751 | -66.9 | 1.903 |
| 2964893.3 | 707152.7 | 1262.7 | 14.124 | 17.726 | 51.5 | 22.664 | 45.5 | 1.804 | 1.021 | 2.110 | 64.2 | 2.344 | 2.2 | -0.982 | 2.097 | -64.9 | 2.315 |
| 2964893.3 | 707147.7 | 1262.8 | 15.826 | 20.637 | 52.5 | 26.007 | 44.9 | 2.070 | 1.315 | 2.481 | 62.1 | 2.808 | 2.2 | -1.271 | 2.483 | -62.9 | 2.790 |
| 2964893.3 | 707142.7 | 1262.8 | 17.661 | 24.068 | 53.7 | 29.853 | 44.2 | 2.376 | 1.665 | 2.873 | 59.9 | 3.321 | 2.3 | -1.618 | 2.900 | -60.8 | 3.320 |
| 2964893.2 | 707137.7 | 1262.8 | 19.550 | 28.013 | 55.1 | 34.161 | 43.7 | 2.718 | 2.059 | 3.242 | 57.6 | 3.841 | 2.6 | -2.013 | 3.303 | -58.6 | 3.868 |
| 2964893.2 | 707132.7 | 1262.9 | 21.352 | 32.359 | 56.6 | 38.768 | 43.3 | 3.085 | 2.470 | 3.506 | 54.8 | 4.288 | 3.2 | -2.431 | 3.611 | -56.0 | 4.353 |
| 2964893.1 | 707127.7 | 1262.9 | 22.873 | 36.830 | 58.2 | 43.355 | 43.1 | 3.450 | 2.849 | 3.551 | 51.3 | 4.553 | 4.6 | -2.823 | 3.706 | -52.7 | 4.658 |
| 2964893.1 | 707122.7 | 1263.0 | 23.932 | 40.998 | 59.7 | 47.472 | 43.3 | 3.778 | 3.143 | 3.266 | 46.1 | 4.533 | 7.1 | -3.136 | 3.468 | -47.9 | 4.676 |
| 2964893.0 | 707117.7 | 1263.0 | 24.454 | 44.369 | 61.1 | 50.662 | 43.9 | 4.032 | 3.313 | 2.599 | 38.1 | 4.211 | 11.8 | -3.339 | 2.828 | -40.3 | 4.375 |
| 2964893.0 | 707112.7 | 1263.1 | 24.527 | 46.502 | 62.2 | 52.574 | 45.2 | 4.184 | 3.354 | 1.641 | 26.1 | 3.734 | 19.4 | -3.418 | 1.806 | -27.8 | 3.866 |
| 2964892.9 | 707107.7 | 1263.1 | 24.358 | 47.126 | 62.7 | 53.049 | 47.3 | 4.222 | 3.288 | 0.879 | 15.0 | 3.403 | 26.2 | -3.383 | 0.536 | -9.0 | 3.425 |
| 2964892.9 | 707102.7 | 1263.2 | 24.124 | 46.188 | 62.4 | 52.109 | 50.1 | 4.147 | 3.131 | 1.411 | 24.3 | 3.435 | 24.0 | -3.249 | -0.765 | 13.2 | 3.338 |
| 2964892.9 | 707097.8 | 1263.2 | 23.813 | 43.777 | 61.5 | 49.835 | 53.7 | 3.966 | 2.884 | 2.299 | 38.6 | 3.688 | 16.7 | -3.000 | -1.867 | 31.9 | 3.534 |
| 2964892.8 | 707092.8 | 1263.2 | 23.296 | 40.246 | 59.9 | 46.502 | 57.8 | 3.701 | 2.543 | 2.918 | 48.9 | 3.870 | 11.3 | -2.653 | -2.624 | 44.7 | 3.731 |
| 2964892.8 | 707087.8 | 1263.3 | 22.426 | 36.027 | 58.1 | 42.436 | 62.2 | 3.377 | 2.124 | 3.180 | 56.3 | 3.824 | 8.4 | -2.219 | -2.989 | 53.4 | 3.723 |
| 2964892.7 | 707082.8 | 1263.3 | 21.169 | 31.580 | 56.2 | 38.019 | 66.8 | 3.025 | 1.668 | 3.140 | 62.0 | 3.555 | 7.1 | -1.734 | -3.007 | 60.0 | 3.472 |
| 2964892.7 | 707077.8 | 1263.3 | 19.637 | 27.334 | 54.3 | 33.656 | 71.3 | 2.678 | 1.227 | 2.903 | 67.1 | 3.152 | 6.6 | -1.267 | -2.812 | 65.7 | 3.084 |
| 2964892.6 | 707072.8 | 1263.3 | 17.967 | 23.510 | 52.6 | 29.589 | 75.7 | 2.355 | 0.837 | 2.573 | 72.0 | 2.706 | 6.5 | -0.855 | -2.509 | 71.2 | 2.651 |
| 2964892.6 | 707067.8 | 1263.2 | 16.274 | 20.185 | 51.1 | 25.928 | 79.7 | 2.063 | 0.519 | 2.221 | 76.8 | 2.281 | 6.5 | -0.514 | -2.163 | 76.6 | 2.223 |
| 2964892.5 | 707062.8 | 1263.2 | 14.651 | 17.367 | 49.8 | 22.721 | 83.4 | 1.808 | 0.277 | 1.888 | 81.7 | 1.909 | 6.5 | -0.249 | -1.829 | 82.2 | 1.846 |
| 2964892.5 | 707057.8 | 1263.2 | 13.151 | 15.007 | 48.8 | 19.954 | 86.8 | 1.588 | 0.121 | 1.593 | 85.7 | 1.598 | 6.5 | -0.055 | -1.533 | 88.0 | 1.534 |
| 2964892.5 | 707052.8 | 1263.2 | 11.800 | 13.046 | 47.9 | 17.591 | 89.8 | 1.400 | 0.110 | 1.341 | 85.3 | 1.346 | 6.3 | 0.083 | -1.291 | -86.3 | 1.293 |
| 2964892.4 | 707047.8 | 1263.2 | 10.593 | 11.408 | 47.1 | 15.568 | 92.5 | 1.239 | 0.174 | 1.130 | 81.2 | 1.143 | 6.1 | 0.179 | -1.087 | -80.7 | 1.102 |
| 2964892.4 | 707042.8 | 1263.2 | 9.524 | 10.036 | 46.5 | 13.835 | 94.8 | 1.101 | 0.226 | 0.954 | 76.7 | 0.981 | 5.7 | 0.242 | -0.918 | -75.2 | 0.950 |
| 2964892.3 | 707037.8 | 1263.2 | 8.579 | 8.882 | 46.0 | 12.349 | 96.6 | 0.983 | 0.260 | 0.809 | 72.2 | 0.850 | 5.3 | 0.282 | -0.778 | -70.1 | 0.827 |
| 2964892.3 | 707032.8 | 1263.2 | 7.748 | 7.905 | 45.6 | 11.069 | 97.6 | 0.881 | 0.278 | 0.689 | 68.0 | 0.743 | 4.8 | 0.304 | -0.661 | -65.3 | 0.728 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 7 and 8



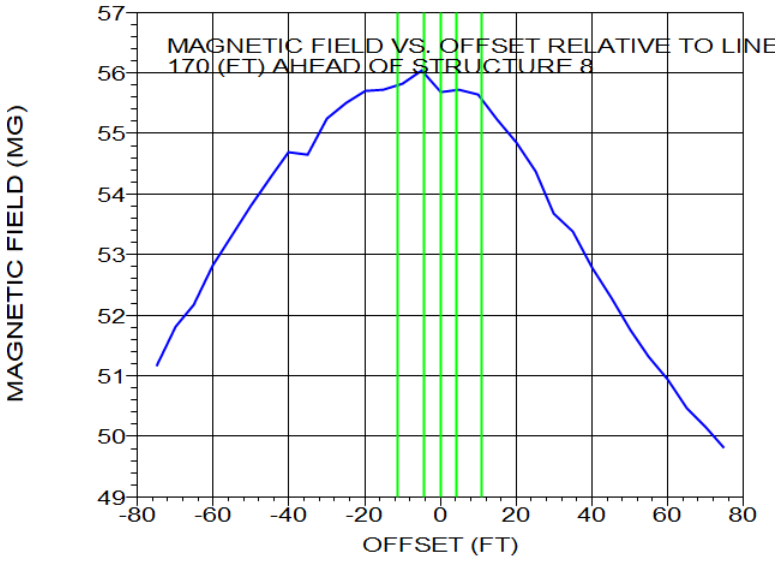



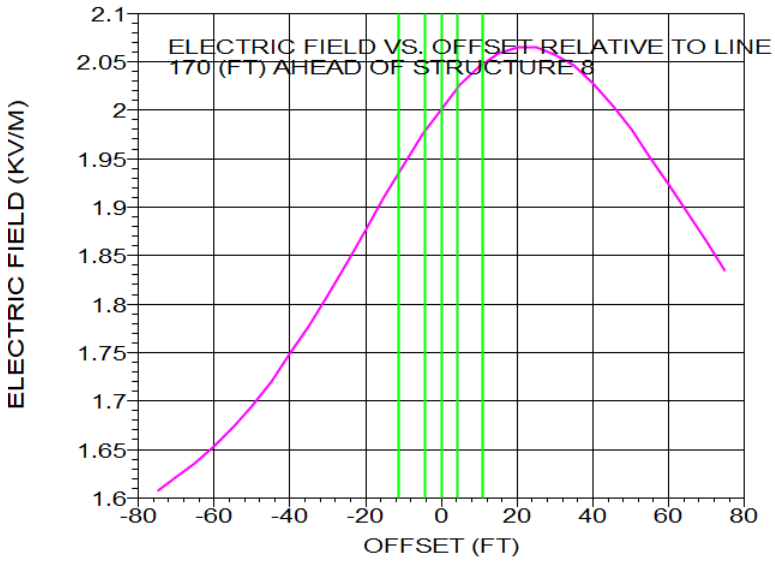

**3D EMF Point Results Span from 7 to 8:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2965517.4 | 707177.2 | 1253.4 | 5.528 | 6.586 | 50.0 | 8.598 | 55.1 | 0.684 | 0.348 | 0.770 | 65.7 | 0.845 | 1.8 | -0.350 | 0.806 | -66.5 | 0.879 |
| 2965517.4 | 707172.2 | 1253.4 | 5.978 | 7.229 | 50.4 | 9.381 | 54.7 | 0.746 | 0.415 | 0.857 | 64.2 | 0.952 | 1.8 | -0.415 | 0.889 | -65.0 | 0.981 |
| 2965517.3 | 707167.2 | 1253.4 | 6.469 | 7.950 | 50.9 | 10.250 | 54.3 | 0.816 | 0.493 | 0.952 | 62.6 | 1.072 | 1.8 | -0.490 | 0.979 | -63.4 | 1.095 |
| 2965517.3 | 707162.2 | 1253.4 | 7.000 | 8.760 | 51.4 | 11.213 | 53.9 | 0.892 | 0.584 | 1.054 | 61.0 | 1.205 | 1.9 | -0.579 | 1.077 | -61.7 | 1.223 |
| 2965517.2 | 707157.2 | 1253.4 | 7.572 | 9.664 | 51.9 | 12.277 | 53.5 | 0.977 | 0.688 | 1.159 | 59.3 | 1.348 | 2.0 | -0.683 | 1.181 | -60.0 | 1.364 |
| 2965517.2 | 707152.2 | 1253.4 | 8.179 | 10.665 | 52.5 | 13.440 | 53.2 | 1.070 | 0.805 | 1.265 | 57.5 | 1.500 | 2.2 | -0.799 | 1.285 | -58.1 | 1.513 |
| 2965517.1 | 707147.2 | 1253.4 | 8.814 | 11.763 | 53.2 | 14.698 | 52.9 | 1.170 | 0.935 | 1.363 | 55.6 | 1.653 | 2.4 | -0.929 | 1.381 | -56.1 | 1.664 |
| 2965517.1 | 707142.2 | 1253.4 | 9.464 | 12.948 | 53.8 | 16.038 | 52.7 | 1.276 | 1.075 | 1.445 | 53.3 | 1.801 | 2.8 | -1.068 | 1.459 | -53.8 | 1.808 |
| 2965517.0 | 707137.2 | 1253.4 | 10.115 | 14.202 | 54.5 | 17.436 | 52.6 | 1.387 | 1.221 | 1.496 | 50.8 | 1.931 | 3.3 | -1.213 | 1.507 | -51.2 | 1.935 |
| 2965517.0 | 707132.2 | 1253.4 | 10.744 | 15.492 | 55.3 | 18.853 | 52.6 | 1.500 | 1.367 | 1.501 | 47.7 | 2.030 | 4.0 | -1.359 | 1.508 | -48.0 | 2.030 |
| 2965517.0 | 707127.2 | 1253.4 | 11.328 | 16.770 | 56.0 | 20.238 | 52.8 | 1.610 | 1.504 | 1.444 | 43.8 | 2.085 | 5.1 | -1.496 | 1.446 | -44.0 | 2.081 |
| 2965516.9 | 707122.2 | 1253.4 | 11.845 | 17.973 | 56.6 | 21.525 | 53.2 | 1.713 | 1.624 | 1.312 | 38.9 | 2.088 | 6.6 | -1.617 | 1.306 | -38.9 | 2.079 |
| 2965516.9 | 707117.2 | 1253.4 | 12.270 | 19.020 | 57.2 | 22.634 | 53.8 | 1.801 | 1.717 | 1.097 | 32.6 | 2.038 | 8.6 | -1.705 | 1.078 | -32.3 | 2.018 |
| 2965516.8 | 707112.2 | 1253.3 | 12.587 | 19.830 | 57.6 | 23.487 | 54.7 | 1.869 | 1.777 | 0.808 | 24.5 | 1.952 | 11.1 | -1.750 | 0.766 | -23.6 | 1.911 |
| 2965516.8 | 707107.2 | 1253.3 | 12.799 | 20.348 | 57.8 | 24.039 | 56.0 | 1.913 | 1.798 | 0.477 | 14.9 | 1.860 | 13.5 | -1.757 | 0.395 | -12.7 | 1.801 |
| 2965516.7 | 707102.2 | 1253.3 | 12.906 | 20.534 | 57.9 | 24.253 | 57.6 | 1.930 | 1.778 | 0.264 | 8.4 | 1.798 | 14.8 | -1.725 | -0.003 | 0.1 | 1.725 |
| 2965516.7 | 707097.2 | 1253.3 | 12.918 | 20.387 | 57.6 | 24.135 | 59.5 | 1.921 | 1.718 | 0.486 | 15.8 | 1.786 | 14.5 | -1.668 | -0.397 | 13.4 | 1.715 |
| 2965516.6 | 707092.2 | 1253.3 | 12.824 | 19.900 | 57.2 | 23.674 | 61.7 | 1.884 | 1.619 | 0.818 | 26.8 | 1.814 | 12.6 | -1.573 | -0.754 | 25.6 | 1.745 |
| 2965516.6 | 707087.2 | 1253.3 | 12.623 | 19.113 | 56.6 | 22.905 | 64.1 | 1.823 | 1.486 | 1.105 | 36.6 | 1.852 | 10.3 | -1.445 | -1.046 | 35.9 | 1.784 |
| 2965516.6 | 707082.2 | 1253.3 | 12.314 | 18.087 | 55.8 | 21.881 | 66.8 | 1.741 | 1.326 | 1.316 | 44.8 | 1.868 | 8.3 | -1.291 | -1.255 | 44.2 | 1.800 |
| 2965516.5 | 707077.2 | 1253.3 | 11.903 | 16.899 | 54.8 | 20.671 | 69.6 | 1.645 | 1.148 | 1.441 | 51.5 | 1.843 | 6.8 | -1.119 | -1.379 | 51.0 | 1.776 |
| 2965516.5 | 707072.2 | 1253.3 | 11.404 | 15.623 | 53.9 | 19.343 | 72.5 | 1.539 | 0.964 | 1.489 | 57.1 | 1.774 | 5.9 | -0.940 | -1.425 | 56.6 | 1.707 |
| 2965516.4 | 707067.2 | 1253.3 | 10.836 | 14.326 | 52.9 | 17.963 | 75.3 | 1.429 | 0.782 | 1.474 | 62.0 | 1.668 | 5.2 | -0.764 | -1.408 | 61.5 | 1.602 |
| 2965516.4 | 707062.2 | 1253.3 | 10.223 | 13.059 | 51.9 | 16.584 | 78.0 | 1.320 | 0.612 | 1.413 | 66.6 | 1.539 | 4.9 | -0.599 | -1.347 | 66.0 | 1.474 |
| 2965516.3 | 707057.2 | 1253.3 | 9.587 | 11.858 | 51.0 | 15.249 | 80.6 | 1.213 | 0.460 | 1.322 | 70.8 | 1.399 | 4.7 | -0.451 | -1.256 | 70.2 | 1.335 |
| 2965516.3 | 707052.2 | 1253.3 | 8.948 | 10.745 | 50.2 | 13.983 | 83.1 | 1.113 | 0.327 | 1.216 | 74.9 | 1.259 | 4.5 | -0.323 | -1.151 | 74.3 | 1.195 |
| 2965516.2 | 707047.2 | 1253.3 | 8.322 | 9.729 | 49.5 | 12.803 | 85.3 | 1.019 | 0.217 | 1.104 | 78.9 | 1.125 | 4.5 | -0.215 | -1.040 | 78.3 | 1.062 |
| 2965516.2 | 707042.2 | 1253.3 | 7.721 | 8.812 | 48.8 | 11.716 | 87.3 | 0.932 | 0.127 | 0.994 | 82.7 | 1.002 | 4.4 | -0.127 | -0.931 | 82.2 | 0.940 |
| 2965516.2 | 707037.2 | 1253.3 | 7.152 | 7.990 | 48.2 | 10.724 | 89.1 | 0.853 | 0.060 | 0.889 | 86.1 | 0.891 | 4.3 | -0.057 | -0.829 | 86.1 | 0.830 |
| 2965516.1 | 707032.2 | 1253.3 | 6.620 | 7.258 | 47.6 | 9.823 | 90.6 | 0.782 | 0.035 | 0.793 | 87.5 | 0.793 | 4.2 | -0.001 | -0.734 | 89.9 | 0.734 |
| 2965516.1 | 707027.2 | 1253.3 | 6.126 | 6.606 | 47.2 | 9.009 | 91.8 | 0.717 | 0.062 | 0.705 | 85.0 | 0.708 | 4.0 | 0.041 | -0.648 | -86.4 | 0.650 |

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 8 and 9



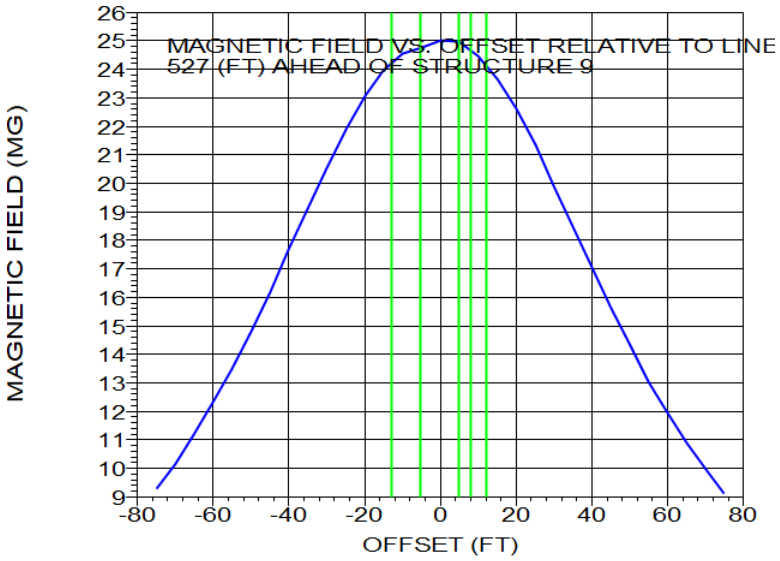



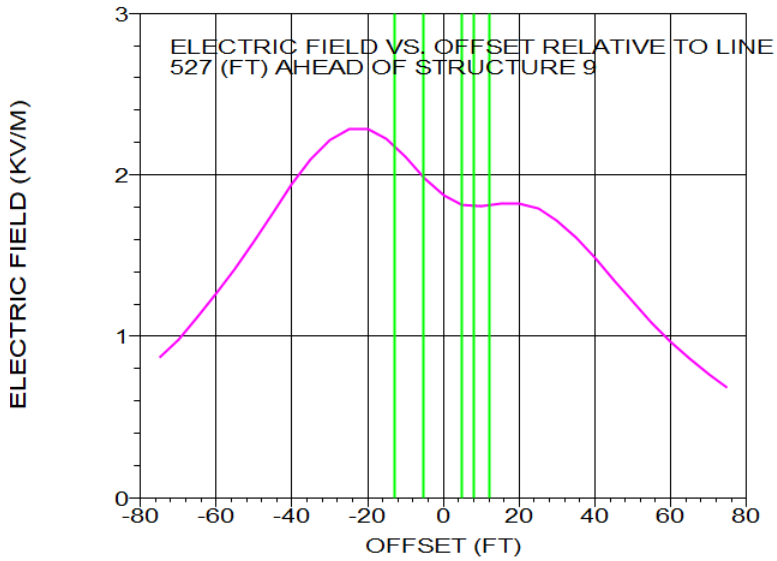

**3D EMF Point Results Span from 8 to 9:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2965991.9 | 707267.2 | 1247.2 | 41.008 | 30.591 | 36.7 | 51.161 | 7.7 | 4.071 | 1.255 | 1.004 | 38.7 | 1.607 | 2.1 | -0.548 | -0.128 | 13.1 | 0.562 |
| 2965996.9 | 707267.2 | 1247.2 | 41.418 | 31.132 | 36.9 | 51.814 | 8.2 | 4.123 | 1.276 | 1.000 | 38.1 | 1.622 | 2.4 | -0.589 | -0.150 | 14.3 | 0.608 |
| 2966001.9 | 707267.2 | 1247.2 | 41.583 | 31.512 | 37.2 | 52.175 | 8.8 | 4.152 | 1.299 | 0.995 | 37.5 | 1.636 | 2.6 | -0.584 | -0.135 | 13.0 | 0.600 |
| 2966006.9 | 707267.2 | 1247.3 | 41.950 | 32.110 | 37.4 | 52.828 | 9.3 | 4.204 | 1.322 | 0.993 | 36.9 | 1.654 | 2.9 | -0.635 | -0.161 | 14.2 | 0.655 |
| 2966011.9 | 707267.2 | 1247.4 | 42.176 | 32.637 | 37.7 | 53.329 | 9.9 | 4.244 | 1.347 | 0.992 | 36.4 | 1.673 | 3.1 | -0.662 | -0.168 | 14.2 | 0.682 |
| 2966016.9 | 707267.3 | 1247.4 | 42.371 | 33.187 | 38.1 | 53.821 | 10.4 | 4.283 | 1.373 | 0.994 | 35.9 | 1.695 | 3.3 | -0.691 | -0.175 | 14.2 | 0.713 |
| 2966021.9 | 707267.3 | 1247.5 | 42.508 | 33.735 | 38.4 | 54.268 | 11.0 | 4.318 | 1.400 | 0.999 | 35.5 | 1.720 | 3.5 | -0.716 | -0.179 | 14.0 | 0.738 |
| 2966026.9 | 707267.3 | 1247.5 | 42.609 | 34.298 | 38.8 | 54.698 | 11.5 | 4.353 | 1.427 | 1.009 | 35.3 | 1.748 | 3.6 | -0.744 | -0.185 | 14.0 | 0.766 |
| 2966031.9 | 707267.3 | 1247.4 | 42.340 | 34.568 | 39.2 | 54.659 | 11.9 | 4.350 | 1.453 | 1.022 | 35.1 | 1.777 | 3.3 | -0.692 | -0.137 | 11.2 | 0.705 |
| 2966036.9 | 707267.3 | 1247.6 | 42.524 | 35.272 | 39.7 | 55.249 | 12.3 | 4.397 | 1.479 | 1.043 | 35.2 | 1.810 | 3.4 | -0.764 | -0.176 | 13.0 | 0.784 |
| 2966041.9 | 707267.4 | 1247.7 | 42.442 | 35.756 | 40.1 | 55.496 | 12.6 | 4.416 | 1.503 | 1.068 | 35.4 | 1.843 | 3.3 | -0.782 | -0.182 | 13.1 | 0.803 |
| 2966046.9 | 707267.4 | 1247.7 | 42.324 | 36.212 | 40.5 | 55.702 | 12.8 | 4.433 | 1.523 | 1.097 | 35.8 | 1.877 | 3.1 | -0.803 | -0.195 | 13.6 | 0.827 |
| 2966051.9 | 707267.4 | 1247.7 | 42.070 | 36.527 | 41.0 | 55.714 | 13.0 | 4.434 | 1.540 | 1.131 | 36.3 | 1.911 | 2.8 | -0.801 | -0.196 | 13.7 | 0.824 |
| 2966056.9 | 707267.4 | 1247.8 | 41.892 | 36.887 | 41.4 | 55.818 | 13.0 | 4.442 | 1.552 | 1.170 | 37.0 | 1.943 | 2.5 | -0.828 | -0.225 | 15.2 | 0.858 |
| 2966061.9 | 707267.4 | 1248.0 | 41.823 | 37.312 | 41.7 | 56.048 | 13.0 | 4.460 | 1.560 | 1.211 | 37.8 | 1.975 | 2.3 | -0.894 | -0.290 | 18.0 | 0.940 |
| 2966066.9 | 707267.5 | 1248.0 | 41.351 | 37.284 | 42.0 | 55.678 | 12.9 | 4.431 | 1.562 | 1.252 | 38.7 | 2.002 | 1.9 | -0.858 | -0.283 | 18.3 | 0.904 |
| 2966071.9 | 707267.5 | 1248.1 | 41.206 | 37.512 | 42.3 | 55.723 | 12.7 | 4.434 | 1.560 | 1.293 | 39.7 | 2.026 | 1.7 | -0.915 | -0.357 | 21.3 | 0.982 |
| 2966076.9 | 707267.5 | 1248.3 | 41.001 | 37.605 | 42.5 | 55.634 | 12.5 | 4.427 | 1.552 | 1.332 | 40.6 | 2.045 | 1.5 | -0.957 | -0.426 | 24.0 | 1.047 |
| 2966081.9 | 707267.5 | 1248.3 | 40.607 | 37.427 | 42.7 | 55.224 | 12.3 | 4.395 | 1.539 | 1.367 | 41.6 | 2.058 | 1.2 | -0.946 | -0.456 | 25.7 | 1.050 |
| 2966086.9 | 707267.5 | 1248.4 | 40.271 | 37.228 | 42.8 | 54.843 | 12.0 | 4.364 | 1.521 | 1.396 | 42.6 | 2.065 | 0.9 | -0.948 | -0.500 | 27.8 | 1.072 |
| 2966091.9 | 707267.6 | 1248.5 | 39.915 | 36.934 | 42.8 | 54.381 | 11.7 | 4.328 | 1.499 | 1.419 | 43.4 | 2.065 | 0.8 | -0.939 | -0.538 | 29.8 | 1.082 |
| 2966096.9 | 707267.6 | 1248.4 | 39.423 | 36.436 | 42.7 | 53.682 | 11.4 | 4.272 | 1.474 | 1.435 | 44.2 | 2.058 | 0.6 | -0.887 | -0.536 | 31.1 | 1.037 |
| 2966101.9 | 707267.6 | 1248.6 | 39.243 | 36.192 | 42.7 | 53.384 | 11.0 | 4.248 | 1.447 | 1.446 | 45.0 | 2.046 | 0.6 | -0.914 | -0.611 | 33.7 | 1.099 |
| 2966106.9 | 707267.6 | 1248.6 | 38.875 | 35.717 | 42.6 | 52.792 | 10.7 | 4.201 | 1.418 | 1.450 | 45.6 | 2.028 | 0.5 | -0.884 | -0.629 | 35.4 | 1.085 |
| 2966111.9 | 707267.6 | 1248.7 | 38.591 | 35.290 | 42.4 | 52.294 | 10.3 | 4.161 | 1.388 | 1.448 | 46.2 | 2.006 | 0.5 | -0.870 | -0.662 | 37.3 | 1.093 |
| 2966116.9 | 707267.7 | 1248.7 | 38.284 | 34.819 | 42.3 | 51.750 | 9.9 | 4.118 | 1.358 | 1.441 | 46.7 | 1.980 | 0.6 | -0.845 | -0.682 | 38.9 | 1.086 |
| 2966121.9 | 707267.7 | 1248.8 | 38.071 | 34.425 | 42.1 | 51.327 | 9.6 | 4.084 | 1.328 | 1.431 | 47.1 | 1.952 | 0.6 | -0.840 | -0.720 | 40.6 | 1.107 |
| 2966126.9 | 707267.7 | 1248.9 | 37.887 | 34.053 | 41.9 | 50.941 | 9.2 | 4.054 | 1.299 | 1.419 | 47.5 | 1.923 | 0.6 | -0.839 | -0.760 | 42.2 | 1.132 |
| 2966131.9 | 707267.7 | 1249.0 | 37.640 | 33.622 | 41.8 | 50.470 | 8.8 | 4.016 | 1.271 | 1.404 | 47.8 | 1.893 | 0.6 | -0.819 | -0.778 | 43.5 | 1.129 |
| 2966136.9 | 707267.7 | 1249.1 | 37.506 | 33.303 | 41.6 | 50.157 | 8.4 | 3.991 | 1.244 | 1.387 | 48.1 | 1.863 | 0.6 | -0.826 | -0.821 | 44.8 | 1.164 |
| 2966141.9 | 707267.8 | 1249.2 | 37.338 | 32.962 | 41.4 | 49.806 | 8.1 | 3.963 | 1.219 | 1.370 | 48.4 | 1.834 | 0.6 | -0.823 | -0.851 | 46.0 | 1.184 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 9 and 10



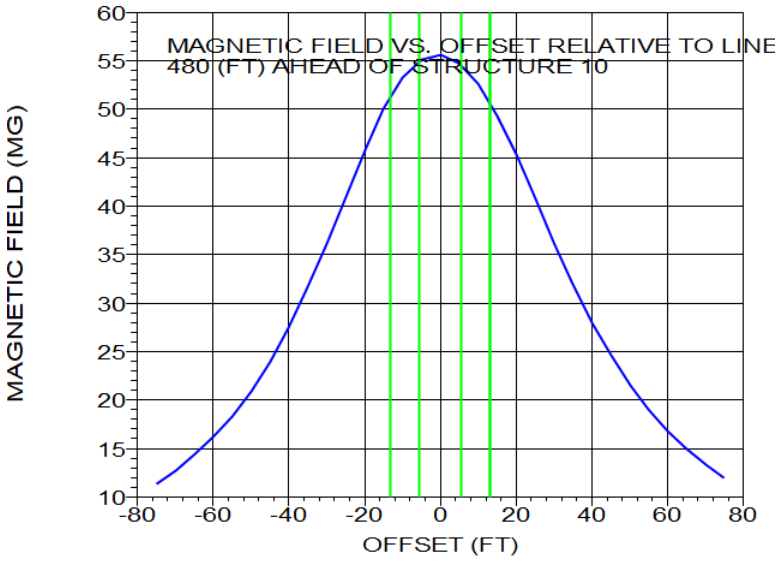



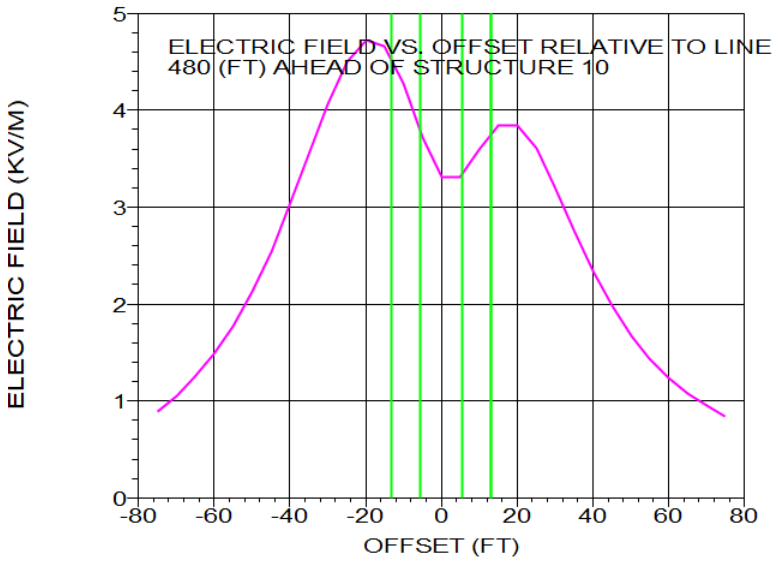

**3D EMF Point Results Span from 9 to 10:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2966594.2 | 707462.9 | 1255.9 | 6.140 | 6.971 | 48.6 | 9.289 | 50.7 | 0.739 | 0.350 | 0.793 | 66.2 | 0.867 | 2.9 | -0.561 | 1.400 | -68.2 | 1.508 |
| 2966594.1 | 707457.9 | 1256.0 | 6.674 | 7.696 | 49.1 | 10.187 | 50.4 | 0.811 | 0.421 | 0.888 | 64.6 | 0.983 | 3.0 | -0.693 | 1.593 | -66.5 | 1.737 |
| 2966594.1 | 707452.9 | 1256.1 | 7.264 | 8.521 | 49.6 | 11.197 | 50.0 | 0.891 | 0.504 | 0.993 | 63.1 | 1.114 | 3.1 | -0.852 | 1.809 | -64.8 | 1.999 |
| 2966594.0 | 707447.9 | 1256.2 | 7.911 | 9.460 | 50.1 | 12.331 | 49.7 | 0.981 | 0.601 | 1.108 | 61.5 | 1.261 | 3.2 | -1.040 | 2.048 | -63.1 | 2.297 |
| 2966594.0 | 707442.9 | 1256.0 | 8.567 | 10.465 | 50.7 | 13.524 | 49.4 | 1.076 | 0.714 | 1.229 | 59.9 | 1.421 | 3.2 | -1.196 | 2.194 | -61.4 | 2.499 |
| 2966593.9 | 707437.9 | 1255.7 | 9.255 | 11.571 | 51.3 | 14.817 | 49.2 | 1.179 | 0.841 | 1.353 | 58.1 | 1.593 | 3.3 | -1.356 | 2.316 | -59.7 | 2.684 |
| 2966593.9 | 707432.9 | 1255.5 | 9.968 | 12.779 | 52.0 | 16.207 | 49.1 | 1.290 | 0.983 | 1.473 | 56.3 | 1.770 | 3.4 | -1.520 | 2.413 | -57.8 | 2.852 |
| 2966593.9 | 707427.9 | 1255.2 | 10.680 | 14.063 | 52.8 | 17.659 | 49.1 | 1.405 | 1.136 | 1.576 | 54.2 | 1.943 | 3.7 | -1.670 | 2.454 | -55.8 | 2.969 |
| 2966593.8 | 707422.9 | 1254.9 | 11.362 | 15.382 | 53.5 | 19.123 | 49.2 | 1.522 | 1.295 | 1.649 | 51.9 | 2.097 | 4.1 | -1.789 | 2.415 | -53.5 | 3.005 |
| 2966593.8 | 707417.9 | 1254.6 | 11.993 | 16.699 | 54.3 | 20.559 | 49.4 | 1.636 | 1.453 | 1.674 | 49.0 | 2.216 | 4.7 | -1.876 | 2.296 | -50.7 | 2.965 |
| 2966593.7 | 707412.9 | 1254.3 | 12.542 | 17.949 | 55.1 | 21.897 | 49.9 | 1.742 | 1.599 | 1.630 | 45.5 | 2.284 | 5.5 | -1.919 | 2.087 | -47.4 | 2.835 |
| 2966593.7 | 707407.9 | 1254.0 | 12.981 | 19.055 | 55.7 | 23.057 | 50.6 | 1.835 | 1.724 | 1.502 | 41.1 | 2.287 | 6.7 | -1.909 | 1.788 | -43.1 | 2.616 |
| 2966593.7 | 707402.9 | 1253.7 | 13.294 | 19.935 | 56.3 | 23.961 | 51.5 | 1.907 | 1.817 | 1.282 | 35.2 | 2.224 | 8.2 | -1.841 | 1.413 | -37.5 | 2.321 |
| 2966593.6 | 707397.9 | 1253.4 | 13.471 | 20.518 | 56.7 | 24.545 | 52.8 | 1.953 | 1.871 | 0.974 | 27.5 | 2.109 | 9.9 | -1.717 | 0.992 | -30.0 | 1.983 |
| 2966593.6 | 707392.9 | 1253.1 | 13.517 | 20.755 | 56.9 | 24.769 | 54.4 | 1.971 | 1.881 | 0.606 | 17.8 | 1.976 | 11.3 | -1.544 | 0.566 | -20.1 | 1.645 |
| 2966593.5 | 707387.9 | 1253.2 | 13.626 | 21.000 | 57.0 | 25.033 | 56.1 | 1.992 | 1.848 | 0.292 | 9.0 | 1.871 | 13.9 | -1.594 | 0.200 | -7.2 | 1.607 |
| 2966593.5 | 707382.9 | 1253.4 | 13.635 | 20.909 | 56.9 | 24.962 | 58.2 | 1.986 | 1.772 | 0.400 | 12.7 | 1.817 | 15.2 | -1.623 | -0.211 | 7.4 | 1.637 |
| 2966593.4 | 707377.9 | 1253.6 | 13.514 | 20.421 | 56.5 | 24.488 | 60.6 | 1.949 | 1.657 | 0.730 | 23.8 | 1.811 | 14.4 | -1.581 | -0.625 | 21.6 | 1.700 |
| 2966593.4 | 707372.9 | 1253.7 | 13.268 | 19.588 | 55.9 | 23.659 | 63.3 | 1.883 | 1.508 | 1.025 | 34.2 | 1.824 | 12.5 | -1.476 | -0.990 | 33.8 | 1.777 |
| 2966593.4 | 707367.9 | 1253.9 | 12.929 | 18.536 | 55.1 | 22.599 | 66.2 | 1.798 | 1.334 | 1.244 | 43.0 | 1.824 | 10.6 | -1.352 | -1.298 | 43.8 | 1.875 |
| 2966593.3 | 707362.9 | 1254.0 | 12.481 | 17.298 | 54.2 | 21.331 | 69.2 | 1.697 | 1.146 | 1.375 | 50.2 | 1.790 | 9.0 | -1.190 | -1.517 | 51.9 | 1.928 |
| 2966593.3 | 707357.9 | 1254.1 | 11.931 | 15.949 | 53.2 | 19.918 | 72.3 | 1.585 | 0.953 | 1.427 | 56.3 | 1.716 | 7.9 | -0.996 | -1.633 | 58.6 | 1.912 |
| 2966593.2 | 707352.9 | 1254.2 | 11.325 | 14.597 | 52.2 | 18.476 | 75.3 | 1.470 | 0.766 | 1.416 | 61.6 | 1.610 | 7.2 | -0.807 | -1.686 | 64.4 | 1.869 |
| 2966593.2 | 707347.9 | 1254.4 | 10.680 | 13.287 | 51.2 | 17.047 | 78.1 | 1.357 | 0.594 | 1.359 | 66.4 | 1.483 | 6.8 | -0.625 | -1.688 | 69.7 | 1.800 |
| 2966593.2 | 707342.9 | 1254.4 | 9.992 | 12.019 | 50.3 | 15.630 | 80.7 | 1.244 | 0.441 | 1.273 | 70.9 | 1.347 | 6.5 | -0.442 | -1.609 | 74.6 | 1.668 |
| 2966593.1 | 707337.9 | 1254.4 | 9.305 | 10.849 | 49.4 | 14.293 | 83.0 | 1.137 | 0.309 | 1.171 | 75.2 | 1.211 | 6.2 | -0.281 | -1.500 | 79.4 | 1.526 |
| 2966593.1 | 707332.9 | 1254.5 | 8.642 | 9.793 | 48.6 | 13.061 | 84.9 | 1.039 | 0.201 | 1.064 | 79.3 | 1.083 | 6.1 | -0.147 | -1.389 | 84.0 | 1.396 |
| 2966593.0 | 707327.9 | 1254.6 | 8.009 | 8.845 | 47.8 | 11.933 | 86.3 | 0.950 | 0.115 | 0.958 | 83.1 | 0.965 | 6.0 | -0.036 | -1.274 | 88.4 | 1.275 |
| 2966593.0 | 707322.9 | 1254.6 | 7.415 | 8.000 | 47.2 | 10.908 | 87.3 | 0.868 | 0.058 | 0.858 | 86.2 | 0.860 | 5.8 | 0.053 | -1.164 | -87.4 | 1.165 |
| 2966592.9 | 707317.9 | 1254.6 | 6.853 | 7.242 | 46.6 | 9.971 | 87.9 | 0.793 | 0.050 | 0.766 | 86.2 | 0.767 | 5.6 | 0.123 | -1.042 | -83.2 | 1.050 |
| 2966592.9 | 707312.9 | 1254.6 | 6.337 | 6.574 | 46.1 | 9.131 | 88.0 | 0.727 | 0.078 | 0.682 | 83.5 | 0.686 | 5.3 | 0.176 | -0.937 | -79.3 | 0.954 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 10 and 11



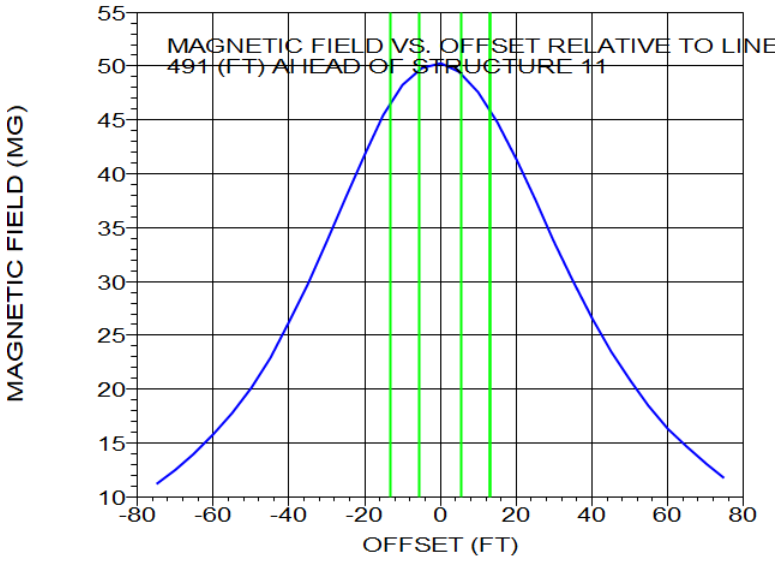



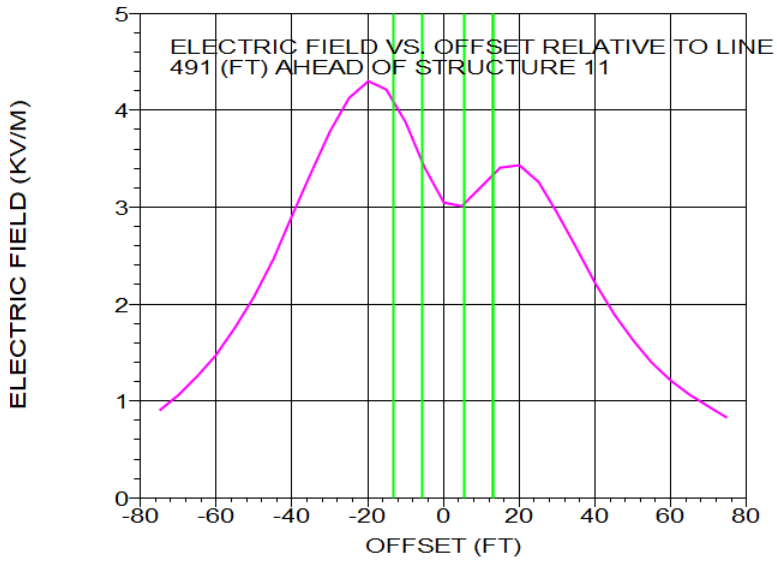

**3D EMF Point Results Span from 10 to 11:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2967383.1 | 707456.4 | 1254.7 | 7.410 | 8.625 | 49.3 | 11.371 | 39.8 | 0.905 | 0.299 | 0.841 | 70.4 | 0.893 | 2.0 | -0.289 | 0.890 | -72.0 | 0.935 |
| 2967383.0 | 707451.4 | 1254.7 | 8.205 | 9.709 | 49.8 | 12.712 | 39.4 | 1.012 | 0.379 | 0.981 | 68.9 | 1.052 | 2.0 | -0.371 | 1.029 | -70.2 | 1.094 |
| 2967383.0 | 707446.4 | 1254.7 | 9.118 | 10.992 | 50.3 | 14.282 | 38.9 | 1.137 | 0.480 | 1.150 | 67.3 | 1.247 | 1.9 | -0.475 | 1.197 | -68.4 | 1.288 |
| 2967383.0 | 707441.4 | 1254.7 | 10.172 | 12.524 | 50.9 | 16.134 | 38.4 | 1.284 | 0.608 | 1.354 | 65.8 | 1.484 | 1.9 | -0.609 | 1.408 | -66.6 | 1.534 |
| 2967382.9 | 707436.4 | 1254.6 | 11.382 | 14.357 | 51.6 | 18.321 | 37.8 | 1.458 | 0.768 | 1.600 | 64.3 | 1.774 | 1.9 | -0.777 | 1.660 | -64.9 | 1.833 |
| 2967382.9 | 707431.4 | 1254.6 | 12.768 | 16.555 | 52.4 | 20.907 | 37.3 | 1.664 | 0.969 | 1.891 | 62.9 | 2.125 | 1.9 | -0.988 | 1.959 | -63.2 | 2.194 |
| 2967382.8 | 707426.4 | 1254.6 | 14.340 | 19.191 | 53.2 | 23.957 | 36.8 | 1.906 | 1.216 | 2.232 | 61.4 | 2.542 | 2.0 | -1.247 | 2.305 | -61.6 | 2.621 |
| 2967382.8 | 707421.4 | 1254.6 | 16.095 | 22.334 | 54.2 | 27.529 | 36.2 | 2.191 | 1.514 | 2.615 | 59.9 | 3.021 | 2.1 | -1.559 | 2.690 | -59.9 | 3.109 |
| 2967382.7 | 707416.4 | 1254.6 | 17.998 | 26.028 | 55.3 | 31.645 | 35.8 | 2.518 | 1.860 | 3.018 | 58.3 | 3.545 | 2.3 | -1.921 | 3.088 | -58.1 | 3.637 |
| 2967382.7 | 707411.4 | 1254.6 | 19.937 | 30.213 | 56.6 | 36.198 | 35.4 | 2.881 | 2.241 | 3.392 | 56.6 | 4.065 | 2.7 | -2.290 | 3.402 | -56.1 | 4.101 |
| 2967382.7 | 707406.4 | 1254.5 | 21.779 | 34.771 | 57.9 | 41.028 | 35.3 | 3.265 | 2.623 | 3.653 | 54.3 | 4.497 | 3.4 | -2.648 | 3.575 | -53.5 | 4.449 |
| 2967382.6 | 707401.4 | 1254.4 | 23.326 | 39.402 | 59.4 | 45.788 | 35.4 | 3.644 | 2.958 | 3.689 | 51.3 | 4.729 | 4.9 | -2.950 | 3.498 | -49.9 | 4.575 |
| 2967382.6 | 707396.4 | 1254.4 | 24.385 | 43.657 | 60.8 | 50.006 | 35.9 | 3.979 | 3.197 | 3.389 | 46.7 | 4.659 | 7.5 | -3.148 | 3.066 | -44.2 | 4.394 |
| 2967382.5 | 707391.4 | 1254.3 | 24.878 | 47.043 | 62.1 | 53.216 | 37.0 | 4.235 | 3.307 | 2.705 | 39.3 | 4.272 | 12.3 | -3.218 | 2.240 | -34.8 | 3.921 |
| 2967382.5 | 707386.4 | 1254.3 | 24.906 | 49.160 | 63.1 | 55.109 | 38.7 | 4.385 | 3.294 | 1.723 | 27.6 | 3.717 | 19.9 | -3.167 | 1.084 | -18.9 | 3.348 |
| 2967382.5 | 707381.4 | 1254.2 | 24.716 | 49.827 | 63.6 | 55.620 | 41.2 | 4.426 | 3.185 | 0.897 | 15.7 | 3.309 | 27.3 | -3.037 | -0.236 | 4.5 | 3.047 |
| 2967382.4 | 707376.4 | 1254.2 | 24.510 | 48.968 | 63.4 | 54.760 | 44.6 | 4.358 | 3.000 | 1.395 | 24.9 | 3.309 | 24.5 | -2.837 | -1.521 | 28.2 | 3.219 |
| 2967382.4 | 707371.4 | 1254.2 | 24.319 | 46.653 | 62.5 | 52.611 | 48.9 | 4.187 | 2.734 | 2.335 | 40.5 | 3.595 | 16.2 | -2.557 | -2.566 | 45.1 | 3.622 |
| 2967382.3 | 707366.4 | 1254.1 | 23.991 | 43.127 | 60.9 | 49.351 | 53.7 | 3.927 | 2.373 | 3.017 | 51.8 | 3.839 | 10.5 | -2.187 | -3.236 | 56.0 | 3.906 |
| 2967382.3 | 707361.4 | 1254.1 | 23.337 | 38.805 | 59.0 | 45.282 | 59.0 | 3.603 | 1.928 | 3.328 | 59.9 | 3.846 | 7.7 | -1.741 | -3.502 | 63.6 | 3.911 |
| 2967382.2 | 707356.4 | 1254.1 | 22.273 | 34.175 | 56.9 | 40.792 | 64.4 | 3.246 | 1.440 | 3.308 | 66.5 | 3.608 | 6.7 | -1.260 | -3.433 | 69.8 | 3.657 |
| 2967382.2 | 707351.4 | 1254.0 | 20.844 | 29.648 | 54.9 | 36.242 | 69.6 | 2.884 | 0.966 | 3.067 | 72.5 | 3.215 | 6.5 | -0.796 | -3.134 | 75.7 | 3.233 |
| 2967382.2 | 707346.4 | 1254.0 | 19.186 | 25.509 | 53.1 | 31.919 | 74.3 | 2.540 | 0.554 | 2.714 | 78.5 | 2.770 | 6.6 | -0.395 | -2.719 | 81.7 | 2.747 |
| 2967382.1 | 707341.4 | 1253.9 | 17.458 | 21.902 | 51.4 | 28.008 | 78.3 | 2.229 | 0.241 | 2.333 | 84.1 | 2.346 | 6.7 | -0.084 | -2.293 | 87.9 | 2.294 |
| 2967382.1 | 707336.4 | 1253.8 | 15.766 | 18.836 | 50.1 | 24.563 | 81.4 | 1.955 | 0.150 | 1.972 | 85.6 | 1.978 | 6.7 | 0.138 | -1.902 | -85.9 | 1.907 |
| 2967382.0 | 707331.4 | 1253.7 | 14.177 | 16.263 | 48.9 | 21.575 | 83.3 | 1.717 | 0.273 | 1.652 | 80.6 | 1.674 | 6.4 | 0.284 | -1.564 | -79.7 | 1.590 |
| 2967382.0 | 707326.4 | 1253.7 | 12.724 | 14.116 | 48.0 | 19.005 | 84.1 | 1.512 | 0.378 | 1.380 | 74.7 | 1.431 | 6.0 | 0.372 | -1.282 | -73.8 | 1.335 |
| 2967382.0 | 707321.4 | 1253.6 | 11.421 | 12.327 | 47.2 | 16.804 | 84.0 | 1.337 | 0.444 | 1.153 | 68.9 | 1.235 | 5.5 | 0.418 | -1.054 | -68.4 | 1.134 |
| 2967381.9 | 707316.4 | 1253.6 | 10.272 | 10.838 | 46.5 | 14.932 | 83.3 | 1.188 | 0.479 | 0.966 | 63.6 | 1.078 | 5.0 | 0.444 | -0.887 | -63.4 | 0.992 |
| 2967381.9 | 707311.4 | 1253.6 | 9.255 | 9.583 | 46.0 | 13.323 | 82.2 | 1.060 | 0.491 | 0.812 | 58.9 | 0.949 | 4.5 | 0.451 | -0.750 | -59.0 | 0.875 |
| 2967381.8 | 707306.4 | 1253.6 | 8.356 | 8.522 | 45.6 | 11.935 | 81.1 | 0.950 | 0.487 | 0.687 | 54.6 | 0.842 | 4.0 | 0.445 | -0.637 | -55.1 | 0.777 |

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 11 and 12



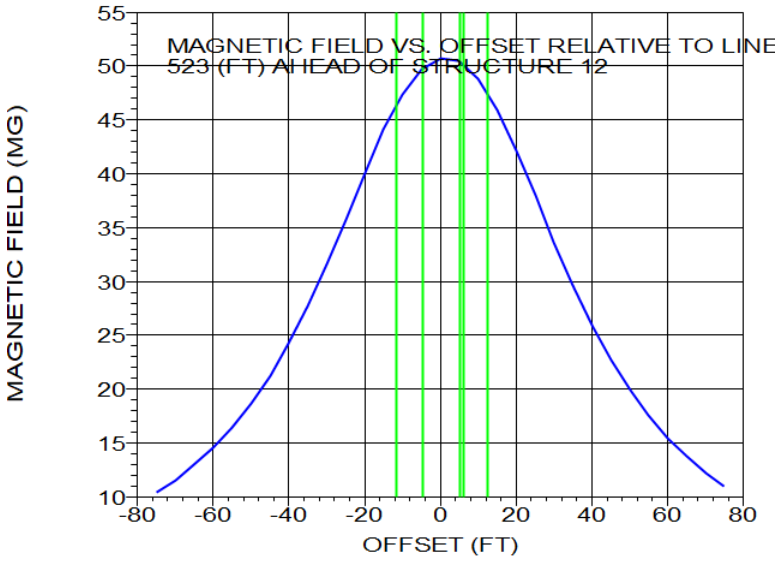



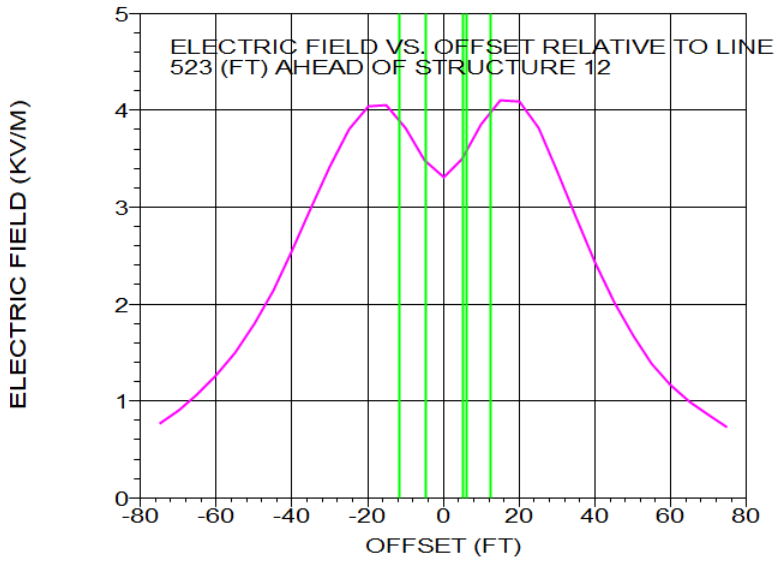

**3D EMF Point Results Span from 11 to 12:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2968292.8 | 707448.8 | 1246.0 | 7.316 | 8.523 | 49.4 | 11.232 | 39.9 | 0.894 | 0.316 | 0.847 | 69.6 | 0.904 | 2.4 | -0.405 | 1.051 | -68.9 | 1.126 |
| 2968292.7 | 707443.8 | 1245.9 | 8.077 | 9.567 | 49.8 | 12.520 | 39.5 | 0.996 | 0.397 | 0.984 | 68.1 | 1.061 | 2.4 | -0.494 | 1.183 | -67.3 | 1.282 |
| 2968292.7 | 707438.8 | 1245.7 | 8.945 | 10.795 | 50.4 | 14.020 | 39.1 | 1.116 | 0.497 | 1.147 | 66.6 | 1.251 | 2.3 | -0.602 | 1.339 | -65.8 | 1.468 |
| 2968292.6 | 707433.8 | 1245.6 | 9.933 | 12.245 | 51.0 | 15.767 | 38.6 | 1.255 | 0.623 | 1.342 | 65.1 | 1.480 | 2.2 | -0.732 | 1.519 | -64.3 | 1.686 |
| 2968292.6 | 707428.8 | 1245.4 | 11.054 | 13.959 | 51.6 | 17.805 | 38.2 | 1.417 | 0.779 | 1.574 | 63.7 | 1.756 | 2.1 | -0.888 | 1.722 | -62.7 | 1.938 |
| 2968292.6 | 707423.8 | 1245.3 | 12.318 | 15.984 | 52.4 | 20.180 | 37.7 | 1.606 | 0.971 | 1.844 | 62.2 | 2.084 | 2.1 | -1.071 | 1.948 | -61.2 | 2.223 |
| 2968292.5 | 707418.8 | 1245.1 | 13.726 | 18.370 | 53.2 | 22.931 | 37.3 | 1.825 | 1.204 | 2.151 | 60.8 | 2.465 | 2.1 | -1.283 | 2.189 | -59.6 | 2.538 |
| 2968292.5 | 707413.8 | 1245.0 | 15.278 | 21.175 | 54.2 | 26.112 | 36.9 | 2.078 | 1.479 | 2.488 | 59.3 | 2.895 | 2.2 | -1.540 | 2.463 | -58.0 | 2.904 |
| 2968292.4 | 707408.8 | 1245.0 | 16.951 | 24.437 | 55.3 | 29.740 | 36.6 | 2.367 | 1.793 | 2.829 | 57.6 | 3.350 | 2.4 | -1.848 | 2.758 | -56.2 | 3.320 |
| 2968292.4 | 707403.8 | 1244.9 | 18.648 | 28.094 | 56.4 | 33.720 | 36.4 | 2.683 | 2.131 | 3.130 | 55.8 | 3.787 | 2.9 | -2.173 | 2.994 | -54.0 | 3.699 |
| 2968292.3 | 707398.8 | 1244.9 | 20.249 | 32.012 | 57.7 | 37.879 | 36.4 | 3.014 | 2.464 | 3.318 | 53.4 | 4.133 | 3.7 | -2.485 | 3.095 | -51.2 | 3.969 |
| 2968292.3 | 707393.8 | 1244.8 | 21.598 | 35.938 | 59.0 | 41.929 | 36.6 | 3.337 | 2.754 | 3.301 | 50.2 | 4.299 | 5.2 | -2.747 | 2.972 | -47.3 | 4.047 |
| 2968292.3 | 707388.8 | 1244.8 | 22.554 | 39.513 | 60.3 | 45.497 | 37.3 | 3.621 | 2.960 | 2.999 | 45.4 | 4.214 | 7.8 | -2.921 | 2.550 | -41.1 | 3.878 |
| 2968292.2 | 707383.8 | 1244.7 | 23.060 | 42.347 | 61.4 | 48.219 | 38.4 | 3.837 | 3.058 | 2.380 | 37.9 | 3.875 | 12.3 | -2.988 | 1.805 | -31.1 | 3.491 |
| 2968292.2 | 707378.8 | 1244.7 | 23.184 | 44.120 | 62.3 | 49.840 | 40.2 | 3.966 | 3.049 | 1.520 | 26.5 | 3.407 | 19.1 | -2.952 | 0.795 | -15.1 | 3.057 |
| 2968292.1 | 707373.8 | 1244.6 | 23.084 | 44.645 | 62.7 | 50.260 | 42.7 | 4.000 | 2.950 | 0.778 | 14.8 | 3.051 | 25.2 | -2.829 | -0.345 | 6.9 | 2.850 |
| 2968292.1 | 707368.8 | 1244.6 | 22.900 | 43.875 | 62.4 | 49.492 | 46.0 | 3.938 | 2.774 | 1.165 | 22.8 | 3.009 | 23.2 | -2.633 | -1.441 | 28.7 | 3.002 |
| 2968292.1 | 707363.8 | 1244.5 | 22.660 | 41.893 | 61.6 | 47.629 | 50.0 | 3.790 | 2.523 | 1.984 | 38.2 | 3.210 | 16.0 | -2.366 | -2.329 | 44.5 | 3.320 |
| 2968292.0 | 707358.8 | 1244.5 | 22.272 | 38.913 | 60.2 | 44.836 | 54.5 | 3.568 | 2.192 | 2.604 | 49.9 | 3.404 | 10.5 | -2.027 | -2.903 | 55.1 | 3.541 |
| 2968292.0 | 707353.8 | 1244.4 | 21.617 | 35.270 | 58.5 | 41.367 | 59.4 | 3.292 | 1.794 | 2.921 | 58.4 | 3.428 | 7.6 | -1.631 | -3.141 | 62.6 | 3.539 |
| 2968291.9 | 707348.8 | 1244.4 | 20.680 | 31.411 | 56.6 | 37.607 | 64.4 | 2.993 | 1.363 | 2.960 | 65.3 | 3.259 | 6.5 | -1.233 | -3.144 | 68.6 | 3.377 |
| 2968291.9 | 707343.8 | 1244.4 | 19.457 | 27.582 | 54.8 | 33.754 | 69.2 | 2.686 | 0.941 | 2.798 | 71.4 | 2.952 | 6.3 | -0.842 | -2.956 | 74.1 | 3.073 |
| 2968291.8 | 707338.8 | 1244.4 | 18.041 | 24.014 | 53.1 | 30.036 | 73.6 | 2.390 | 0.568 | 2.524 | 77.3 | 2.587 | 6.5 | -0.491 | -2.659 | 79.5 | 2.704 |
| 2968291.8 | 707333.8 | 1244.4 | 16.540 | 20.833 | 51.6 | 26.600 | 77.3 | 2.117 | 0.273 | 2.207 | 82.9 | 2.224 | 6.7 | -0.200 | -2.324 | 85.1 | 2.333 |
| 2968291.8 | 707328.8 | 1244.4 | 15.045 | 18.073 | 50.2 | 23.516 | 80.2 | 1.871 | 0.131 | 1.893 | 86.0 | 1.898 | 6.9 | 0.023 | -1.995 | -89.3 | 1.995 |
| 2968291.7 | 707323.8 | 1244.4 | 13.618 | 15.717 | 49.1 | 20.796 | 82.1 | 1.655 | 0.219 | 1.607 | 82.2 | 1.622 | 6.9 | 0.184 | -1.695 | -83.8 | 1.705 |
| 2968291.7 | 707318.8 | 1244.5 | 12.302 | 13.730 | 48.1 | 18.435 | 82.9 | 1.467 | 0.323 | 1.357 | 76.6 | 1.395 | 6.8 | 0.296 | -1.447 | -78.4 | 1.477 |
| 2968291.6 | 707313.8 | 1244.5 | 11.106 | 12.054 | 47.3 | 16.390 | 83.0 | 1.304 | 0.393 | 1.144 | 71.0 | 1.210 | 6.5 | 0.371 | -1.239 | -73.3 | 1.293 |
| 2968291.6 | 707308.8 | 1244.6 | 10.028 | 10.635 | 46.7 | 14.617 | 82.4 | 1.163 | 0.434 | 0.966 | 65.8 | 1.059 | 6.1 | 0.415 | -1.061 | -68.6 | 1.140 |
| 2968291.6 | 707303.8 | 1244.6 | 9.065 | 9.432 | 46.1 | 13.081 | 81.5 | 1.041 | 0.452 | 0.818 | 61.1 | 0.935 | 5.6 | 0.438 | -0.912 | -64.4 | 1.012 |
| 2968291.5 | 707298.8 | 1244.7 | 8.208 | 8.407 | 45.7 | 11.750 | 80.4 | 0.935 | 0.455 | 0.695 | 56.8 | 0.831 | 5.1 | 0.445 | -0.787 | -60.5 | 0.904 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 12 and 13



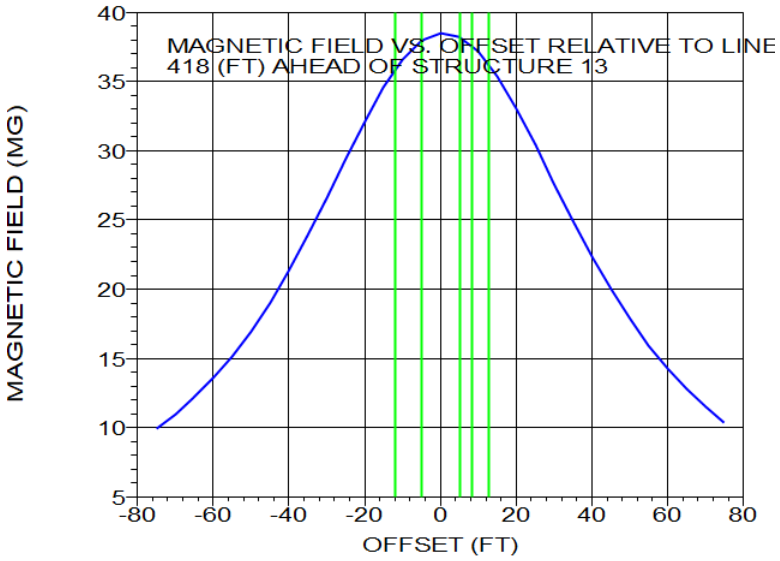



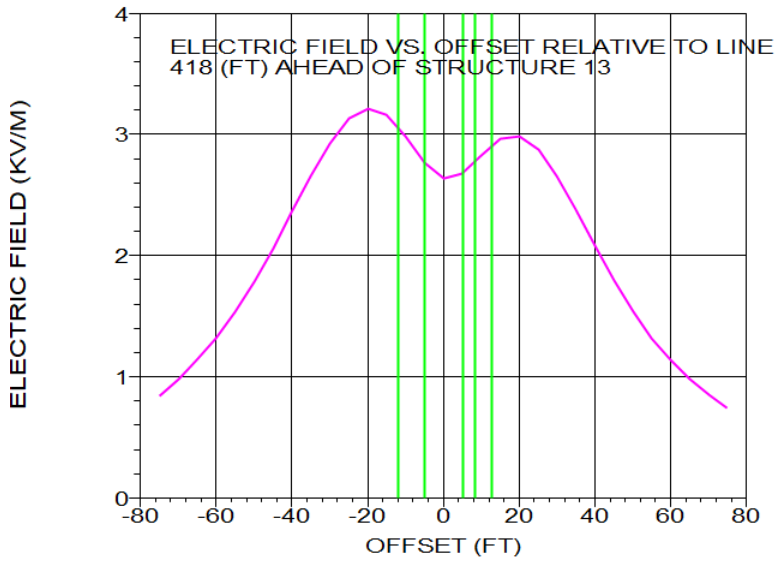

**3D EMF Point Results Span from 12 to 13:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2969269.8 | 707440.7 | 1238.8 | 6.973 | 7.747 | 48.0 | 10.423 | 58.6 | 0.829 | 0.124 | 0.760 | 80.8 | 0.770 | 2.7 | -0.111 | 0.742 | -81.5 | 0.750 |
| 2969269.8 | 707435.7 | 1238.8 | 7.692 | 8.684 | 48.5 | 11.601 | 58.0 | 0.923 | 0.183 | 0.884 | 78.3 | 0.903 | 2.7 | -0.167 | 0.858 | -79.0 | 0.874 |
| 2969269.8 | 707430.7 | 1238.8 | 8.512 | 9.789 | 49.0 | 12.972 | 57.5 | 1.032 | 0.260 | 1.032 | 75.9 | 1.064 | 2.7 | -0.239 | 0.998 | -76.5 | 1.027 |
| 2969269.7 | 707425.7 | 1238.8 | 9.445 | 11.099 | 49.6 | 14.574 | 56.8 | 1.160 | 0.360 | 1.209 | 73.4 | 1.262 | 2.7 | -0.333 | 1.166 | -74.1 | 1.212 |
| 2969269.7 | 707420.7 | 1238.8 | 10.504 | 12.660 | 50.3 | 16.451 | 56.1 | 1.309 | 0.490 | 1.421 | 71.0 | 1.503 | 2.6 | -0.454 | 1.367 | -71.6 | 1.440 |
| 2969269.6 | 707415.7 | 1238.8 | 11.703 | 14.526 | 51.1 | 18.654 | 55.2 | 1.484 | 0.656 | 1.670 | 68.6 | 1.795 | 2.6 | -0.611 | 1.609 | -69.2 | 1.721 |
| 2969269.6 | 707410.7 | 1238.8 | 13.049 | 16.761 | 52.1 | 21.242 | 54.3 | 1.690 | 0.866 | 1.958 | 66.1 | 2.142 | 2.6 | -0.815 | 1.899 | -66.8 | 2.067 |
| 2969269.5 | 707405.7 | 1238.9 | 14.531 | 19.419 | 53.2 | 24.254 | 53.3 | 1.930 | 1.127 | 2.279 | 63.7 | 2.542 | 2.7 | -1.069 | 2.226 | -64.4 | 2.469 |
| 2969269.5 | 707400.7 | 1238.9 | 16.117 | 22.547 | 54.4 | 27.715 | 52.3 | 2.205 | 1.438 | 2.612 | 61.2 | 2.982 | 2.8 | -1.376 | 2.571 | -61.8 | 2.916 |
| 2969269.5 | 707395.7 | 1238.9 | 17.742 | 26.148 | 55.8 | 31.599 | 51.2 | 2.515 | 1.794 | 2.918 | 58.4 | 3.426 | 3.2 | -1.731 | 2.896 | -59.1 | 3.373 |
| 2969269.4 | 707390.7 | 1239.0 | 19.298 | 30.146 | 57.4 | 35.794 | 50.2 | 2.848 | 2.173 | 3.129 | 55.2 | 3.809 | 3.9 | -2.113 | 3.130 | -56.0 | 3.777 |
| 2969269.4 | 707385.7 | 1239.0 | 20.652 | 34.356 | 59.0 | 40.085 | 49.3 | 3.190 | 2.540 | 3.148 | 51.1 | 4.045 | 5.4 | -2.497 | 3.187 | -51.9 | 4.048 |
| 2969269.3 | 707380.7 | 1239.0 | 21.653 | 38.399 | 60.6 | 44.084 | 48.6 | 3.508 | 2.849 | 2.878 | 45.3 | 4.050 | 8.2 | -2.820 | 2.934 | -46.1 | 4.069 |
| 2969269.3 | 707375.7 | 1239.1 | 22.260 | 41.852 | 62.0 | 47.404 | 48.2 | 3.772 | 3.068 | 2.268 | 36.5 | 3.816 | 13.2 | -3.054 | 2.313 | -37.1 | 3.831 |
| 2969269.3 | 707370.7 | 1239.1 | 22.554 | 44.291 | 63.0 | 49.703 | 48.4 | 3.955 | 3.185 | 1.397 | 23.7 | 3.478 | 20.7 | -3.188 | 1.341 | -22.8 | 3.459 |
| 2969269.2 | 707365.7 | 1239.1 | 22.699 | 45.399 | 63.4 | 50.757 | 49.2 | 4.039 | 3.207 | 0.830 | 14.5 | 3.313 | 25.8 | -3.226 | 0.136 | -2.4 | 3.229 |
| 2969269.2 | 707360.7 | 1239.1 | 22.803 | 45.016 | 63.1 | 50.463 | 50.6 | 4.016 | 3.140 | 1.534 | 26.0 | 3.495 | 21.8 | -3.169 | -1.107 | 19.3 | 3.357 |
| 2969269.1 | 707355.7 | 1239.1 | 22.801 | 43.132 | 62.1 | 48.787 | 52.7 | 3.882 | 2.972 | 2.456 | 39.6 | 3.856 | 14.6 | -2.996 | -2.163 | 35.8 | 3.695 |
| 2969269.1 | 707350.7 | 1239.2 | 22.524 | 40.017 | 60.6 | 45.920 | 55.3 | 3.654 | 2.691 | 3.100 | 49.0 | 4.105 | 9.7 | -2.713 | -2.882 | 46.7 | 3.958 |
| 2969269.0 | 707345.7 | 1239.2 | 21.827 | 36.092 | 58.8 | 42.179 | 58.2 | 3.356 | 2.308 | 3.374 | 55.6 | 4.088 | 7.1 | -2.335 | -3.223 | 54.1 | 3.980 |
| 2969269.0 | 707340.7 | 1239.2 | 20.689 | 31.827 | 57.0 | 37.960 | 61.3 | 3.021 | 1.866 | 3.328 | 60.7 | 3.816 | 5.9 | -1.896 | -3.233 | 59.6 | 3.748 |
| 2969269.0 | 707335.7 | 1239.2 | 19.220 | 27.646 | 55.2 | 33.671 | 64.4 | 2.679 | 1.420 | 3.072 | 65.2 | 3.384 | 5.5 | -1.449 | -3.020 | 64.4 | 3.350 |
| 2969268.9 | 707330.7 | 1239.2 | 17.580 | 23.824 | 53.6 | 29.608 | 67.4 | 2.356 | 1.016 | 2.713 | 69.5 | 2.897 | 5.5 | -1.040 | -2.693 | 68.9 | 2.887 |
| 2969268.9 | 707325.7 | 1239.3 | 15.911 | 20.482 | 52.2 | 25.936 | 70.2 | 2.064 | 0.677 | 2.333 | 73.8 | 2.429 | 5.6 | -0.694 | -2.335 | 73.5 | 2.436 |
| 2969268.8 | 707320.7 | 1239.3 | 14.309 | 17.636 | 50.9 | 22.711 | 72.9 | 1.807 | 0.412 | 1.974 | 78.2 | 2.017 | 5.8 | -0.418 | -1.995 | 78.2 | 2.039 |
| 2969268.8 | 707315.7 | 1239.3 | 12.827 | 15.245 | 49.9 | 19.923 | 75.3 | 1.585 | 0.216 | 1.658 | 82.6 | 1.672 | 6.0 | -0.207 | -1.693 | 83.0 | 1.705 |
| 2969268.8 | 707310.7 | 1239.4 | 11.486 | 13.246 | 49.1 | 17.532 | 77.5 | 1.395 | 0.095 | 1.389 | 86.1 | 1.393 | 6.1 | -0.050 | -1.431 | 88.0 | 1.432 |
| 2969268.7 | 707305.7 | 1239.4 | 10.290 | 11.577 | 48.4 | 15.489 | 79.5 | 1.233 | 0.092 | 1.165 | 85.5 | 1.169 | 6.0 | 0.063 | -1.211 | -87.0 | 1.213 |
| 2969268.7 | 707300.7 | 1239.4 | 9.233 | 10.179 | 47.8 | 13.742 | 81.4 | 1.094 | 0.144 | 0.980 | 81.7 | 0.991 | 5.8 | 0.141 | -1.028 | -82.2 | 1.037 |
| 2969268.6 | 707295.7 | 1239.5 | 8.303 | 9.004 | 47.3 | 12.247 | 83.0 | 0.975 | 0.184 | 0.828 | 77.5 | 0.848 | 5.6 | 0.195 | -0.876 | -77.5 | 0.897 |
| 2969268.6 | 707290.7 | 1239.5 | 7.485 | 8.009 | 46.9 | 10.962 | 84.6 | 0.872 | 0.210 | 0.703 | 73.4 | 0.734 | 5.3 | 0.229 | -0.748 | -73.0 | 0.782 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 13 and 14



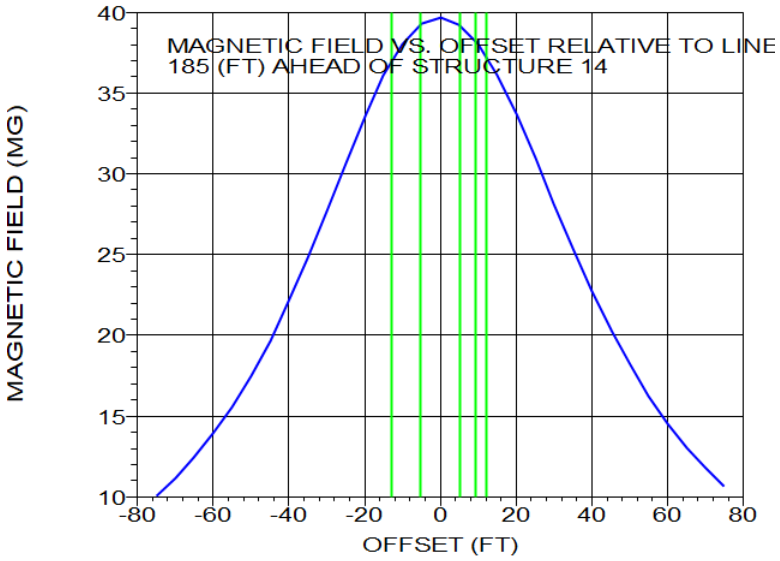



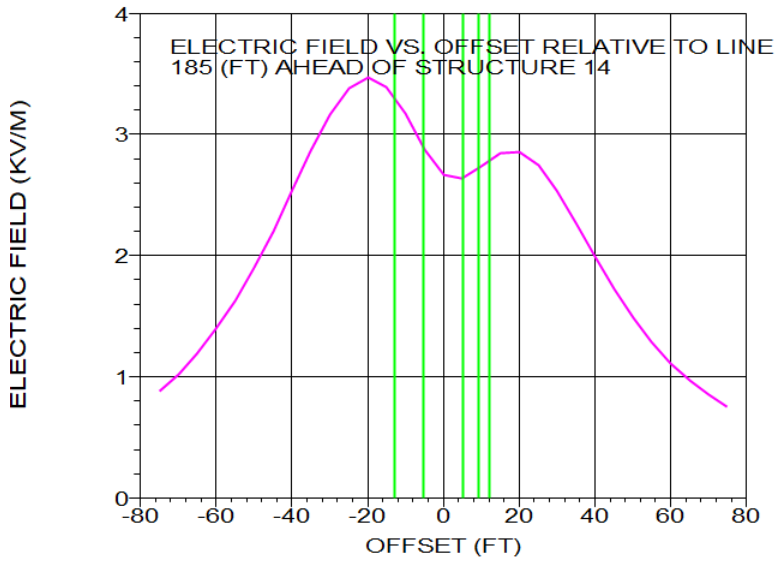

**3D EMF Point Results Span from 13 to 14:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2969637.7 | 707778.2 | 1232.6 | 6.574 | 7.473 | 48.7 | 9.953 | 53.4 | 0.792 | 0.256 | 0.805 | 72.4 | 0.845 | 2.2 | -0.277 | 0.795 | -70.8 | 0.841 |
| 2969642.7 | 707778.3 | 1232.6 | 7.203 | 8.318 | 49.1 | 11.003 | 53.0 | 0.876 | 0.326 | 0.921 | 70.5 | 0.977 | 2.2 | -0.346 | 0.907 | -69.1 | 0.971 |
| 2969647.7 | 707778.4 | 1232.6 | 7.908 | 9.300 | 49.6 | 12.208 | 52.6 | 0.971 | 0.413 | 1.057 | 68.7 | 1.135 | 2.2 | -0.432 | 1.041 | -67.5 | 1.127 |
| 2969652.7 | 707778.5 | 1232.6 | 8.697 | 10.443 | 50.2 | 13.590 | 52.2 | 1.081 | 0.520 | 1.213 | 66.8 | 1.320 | 2.2 | -0.538 | 1.196 | -65.8 | 1.311 |
| 2969657.7 | 707778.6 | 1232.6 | 9.574 | 11.773 | 50.9 | 15.174 | 51.8 | 1.208 | 0.651 | 1.391 | 64.9 | 1.536 | 2.2 | -0.667 | 1.371 | -64.1 | 1.525 |
| 2969662.7 | 707778.7 | 1232.6 | 10.542 | 13.317 | 51.6 | 16.985 | 51.3 | 1.352 | 0.809 | 1.590 | 63.0 | 1.784 | 2.2 | -0.824 | 1.567 | -62.3 | 1.770 |
| 2969667.7 | 707778.7 | 1232.6 | 11.595 | 15.103 | 52.5 | 19.040 | 50.9 | 1.515 | 0.997 | 1.804 | 61.1 | 2.061 | 2.3 | -1.009 | 1.777 | -60.4 | 2.043 |
| 2969672.7 | 707778.8 | 1232.6 | 12.718 | 17.146 | 53.4 | 21.348 | 50.4 | 1.699 | 1.215 | 2.022 | 59.0 | 2.359 | 2.5 | -1.224 | 1.990 | -58.4 | 2.336 |
| 2969677.7 | 707778.9 | 1232.6 | 13.882 | 19.444 | 54.5 | 23.891 | 50.0 | 1.901 | 1.459 | 2.222 | 56.7 | 2.658 | 2.8 | -1.465 | 2.184 | -56.1 | 2.630 |
| 2969682.7 | 707779.0 | 1232.6 | 15.039 | 21.961 | 55.6 | 26.617 | 49.6 | 2.118 | 1.719 | 2.371 | 54.1 | 2.929 | 3.4 | -1.722 | 2.326 | -53.5 | 2.894 |
| 2969687.7 | 707779.1 | 1232.6 | 16.124 | 24.613 | 56.8 | 29.424 | 49.4 | 2.342 | 1.980 | 2.425 | 50.8 | 3.130 | 4.4 | -1.979 | 2.371 | -50.1 | 3.088 |
| 2969692.7 | 707779.2 | 1232.6 | 17.067 | 27.260 | 57.9 | 32.162 | 49.3 | 2.559 | 2.218 | 2.331 | 46.4 | 3.217 | 6.0 | -2.217 | 2.269 | -45.7 | 3.172 |
| 2969697.7 | 707779.3 | 1232.6 | 17.808 | 29.702 | 59.1 | 34.632 | 49.6 | 2.756 | 2.410 | 2.049 | 40.4 | 3.163 | 8.6 | -2.412 | 1.975 | -39.3 | 3.118 |
| 2969702.7 | 707779.4 | 1232.6 | 18.319 | 31.711 | 60.0 | 36.622 | 50.2 | 2.914 | 2.539 | 1.570 | 31.7 | 2.986 | 12.6 | -2.546 | 1.469 | -30.0 | 2.940 |
| 2969707.7 | 707779.5 | 1232.6 | 18.617 | 33.065 | 60.6 | 37.946 | 51.2 | 3.020 | 2.597 | 0.956 | 20.2 | 2.767 | 17.6 | -2.605 | 0.778 | -16.6 | 2.718 |
| 2969712.7 | 707779.5 | 1232.6 | 18.751 | 33.619 | 60.8 | 38.495 | 52.8 | 3.063 | 2.582 | 0.537 | 11.8 | 2.638 | 20.8 | -2.590 | -0.022 | 0.5 | 2.590 |
| 2969717.7 | 707779.6 | 1232.6 | 18.754 | 33.304 | 60.6 | 38.221 | 54.8 | 3.042 | 2.496 | 0.965 | 21.1 | 2.676 | 19.1 | -2.504 | -0.826 | 18.3 | 2.636 |
| 2969722.7 | 707779.7 | 1232.6 | 18.616 | 32.148 | 59.9 | 37.149 | 57.4 | 2.956 | 2.339 | 1.588 | 34.2 | 2.827 | 14.5 | -2.345 | -1.524 | 33.0 | 2.796 |
| 2969727.7 | 707779.8 | 1232.6 | 18.293 | 30.276 | 58.9 | 35.373 | 60.3 | 2.815 | 2.114 | 2.074 | 44.5 | 2.961 | 10.4 | -2.115 | -2.035 | 43.9 | 2.935 |
| 2969732.7 | 707779.9 | 1232.6 | 17.745 | 27.897 | 57.5 | 33.063 | 63.6 | 2.631 | 1.832 | 2.355 | 52.1 | 2.984 | 7.8 | -1.831 | -2.327 | 51.8 | 2.961 |
| 2969737.7 | 707780.0 | 1232.6 | 16.968 | 25.253 | 56.1 | 30.424 | 67.0 | 2.421 | 1.516 | 2.440 | 58.1 | 2.873 | 6.3 | -1.517 | -2.418 | 57.9 | 2.854 |
| 2969742.7 | 707780.1 | 1232.6 | 15.999 | 22.558 | 54.7 | 27.655 | 70.4 | 2.201 | 1.195 | 2.370 | 63.2 | 2.654 | 5.6 | -1.197 | -2.354 | 63.0 | 2.641 |
| 2969747.7 | 707780.2 | 1232.6 | 14.902 | 19.975 | 53.3 | 24.921 | 73.7 | 1.983 | 0.893 | 2.201 | 67.9 | 2.375 | 5.3 | -0.897 | -2.189 | 67.7 | 2.366 |
| 2969752.7 | 707780.3 | 1232.6 | 13.747 | 17.605 | 52.0 | 22.336 | 76.9 | 1.777 | 0.627 | 1.982 | 72.4 | 2.079 | 5.3 | -0.633 | -1.973 | 72.2 | 2.072 |
| 2969757.7 | 707780.4 | 1232.6 | 12.594 | 15.492 | 50.9 | 19.965 | 79.9 | 1.589 | 0.406 | 1.748 | 76.9 | 1.795 | 5.3 | -0.413 | -1.742 | 76.7 | 1.790 |
| 2969762.7 | 707780.4 | 1232.6 | 11.484 | 13.643 | 49.9 | 17.833 | 82.7 | 1.419 | 0.233 | 1.522 | 81.3 | 1.540 | 5.3 | -0.237 | -1.518 | 81.1 | 1.536 |
| 2969767.7 | 707780.5 | 1232.6 | 10.443 | 12.042 | 49.1 | 15.940 | 85.2 | 1.268 | 0.107 | 1.316 | 85.3 | 1.320 | 5.3 | -0.102 | -1.312 | 85.6 | 1.316 |
| 2969772.7 | 707780.6 | 1232.6 | 9.486 | 10.665 | 48.3 | 14.273 | 87.5 | 1.136 | 0.064 | 1.133 | 86.8 | 1.135 | 5.3 | -0.000 | -1.130 | 90.0 | 1.130 |
| 2969777.7 | 707780.7 | 1232.6 | 8.615 | 9.482 | 47.7 | 12.812 | 89.6 | 1.020 | 0.108 | 0.975 | 83.7 | 0.981 | 5.1 | 0.073 | -0.972 | -85.7 | 0.975 |
| 2969782.7 | 707780.8 | 1232.6 | 7.831 | 8.466 | 47.2 | 11.532 | 91.5 | 0.918 | 0.153 | 0.839 | 79.7 | 0.853 | 4.9 | 0.124 | -0.837 | -81.6 | 0.846 |
| 2969787.7 | 707780.9 | 1232.6 | 7.126 | 7.590 | 46.8 | 10.411 | 93.2 | 0.828 | 0.185 | 0.724 | 75.7 | 0.747 | 4.7 | 0.158 | -0.721 | -77.6 | 0.738 |

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 14 and 15



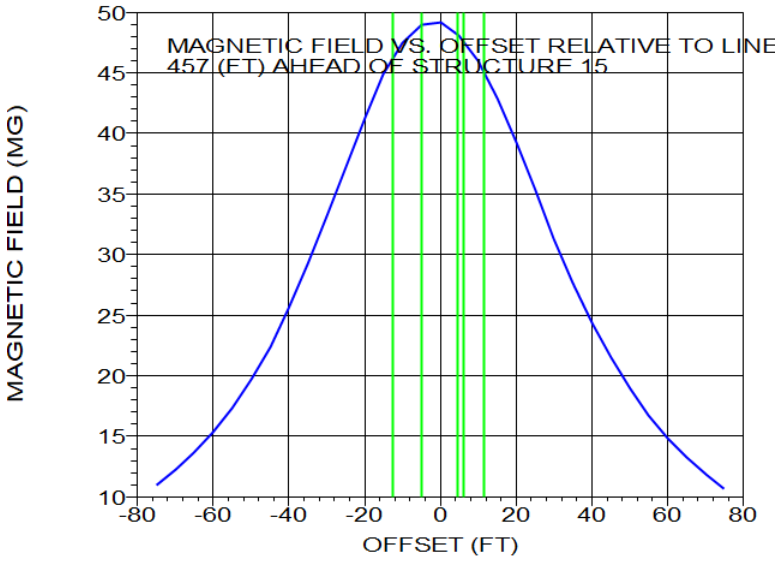



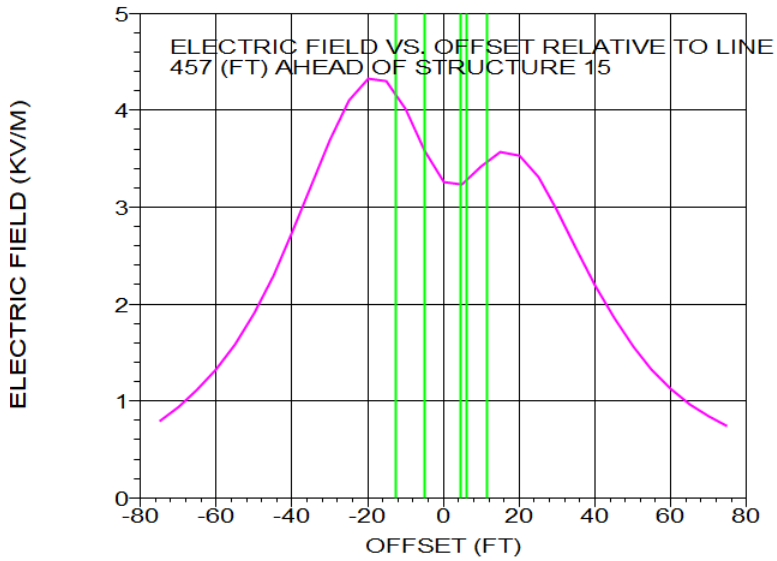

**3D EMF Point Results Span from 14 to 15:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2969630.3 | 708196.4 | 1234.6 | 6.622 | 7.624 | 49.0 | 10.099 | 46.0 | 0.804 | 0.297 | 0.828 | 70.3 | 0.880 | 1.5 | -0.309 | 0.706 | -66.4 | 0.770 |
| 2969635.3 | 708196.4 | 1234.7 | 7.282 | 8.503 | 49.4 | 11.195 | 45.6 | 0.891 | 0.373 | 0.952 | 68.6 | 1.023 | 1.5 | -0.376 | 0.825 | -65.5 | 0.907 |
| 2969640.3 | 708196.5 | 1234.7 | 8.025 | 9.525 | 49.9 | 12.455 | 45.2 | 0.991 | 0.467 | 1.097 | 66.9 | 1.193 | 1.5 | -0.460 | 0.967 | -64.6 | 1.070 |
| 2969645.3 | 708196.6 | 1234.8 | 8.860 | 10.716 | 50.4 | 13.905 | 44.8 | 1.107 | 0.583 | 1.266 | 65.3 | 1.393 | 1.4 | -0.565 | 1.138 | -63.6 | 1.271 |
| 2969650.3 | 708196.7 | 1234.9 | 9.795 | 12.105 | 51.0 | 15.572 | 44.5 | 1.239 | 0.724 | 1.459 | 63.6 | 1.628 | 1.4 | -0.696 | 1.339 | -62.5 | 1.509 |
| 2969655.3 | 708196.8 | 1235.0 | 10.834 | 13.721 | 51.7 | 17.483 | 44.1 | 1.391 | 0.893 | 1.676 | 61.9 | 1.899 | 1.4 | -0.857 | 1.570 | -61.4 | 1.789 |
| 2969660.3 | 708196.9 | 1235.0 | 11.972 | 15.593 | 52.5 | 19.659 | 43.8 | 1.564 | 1.094 | 1.913 | 60.2 | 2.204 | 1.5 | -1.051 | 1.830 | -60.1 | 2.110 |
| 2969665.3 | 708197.0 | 1235.1 | 13.196 | 17.739 | 53.4 | 22.109 | 43.5 | 1.759 | 1.327 | 2.156 | 58.4 | 2.532 | 1.6 | -1.279 | 2.110 | -58.8 | 2.467 |
| 2969670.3 | 708197.1 | 1235.2 | 14.475 | 20.157 | 54.3 | 24.815 | 43.3 | 1.975 | 1.585 | 2.384 | 56.4 | 2.863 | 1.8 | -1.539 | 2.389 | -57.2 | 2.842 |
| 2969675.3 | 708197.2 | 1235.2 | 15.750 | 22.798 | 55.4 | 27.710 | 43.2 | 2.205 | 1.858 | 2.558 | 54.0 | 3.162 | 2.3 | -1.816 | 2.625 | -55.3 | 3.192 |
| 2969680.3 | 708197.2 | 1235.3 | 16.947 | 25.571 | 56.5 | 30.677 | 43.3 | 2.441 | 2.125 | 2.630 | 51.1 | 3.381 | 3.1 | -2.094 | 2.772 | -52.9 | 3.474 |
| 2969685.3 | 708197.3 | 1235.4 | 17.980 | 28.313 | 57.6 | 33.540 | 43.7 | 2.669 | 2.361 | 2.542 | 47.1 | 3.470 | 4.4 | -2.348 | 2.772 | -49.7 | 3.633 |
| 2969690.3 | 708197.4 | 1235.4 | 18.771 | 30.805 | 58.6 | 36.073 | 44.4 | 2.871 | 2.541 | 2.250 | 41.5 | 3.394 | 6.8 | -2.553 | 2.569 | -45.2 | 3.622 |
| 2969695.3 | 708197.5 | 1235.5 | 19.281 | 32.802 | 59.6 | 38.049 | 45.5 | 3.028 | 2.644 | 1.746 | 33.4 | 3.169 | 10.7 | -2.686 | 2.135 | -38.5 | 3.432 |
| 2969700.3 | 708197.6 | 1235.5 | 19.528 | 34.090 | 60.2 | 39.287 | 47.1 | 3.126 | 2.666 | 1.090 | 22.2 | 2.881 | 16.0 | -2.740 | 1.488 | -28.5 | 3.118 |
| 2969705.3 | 708197.7 | 1235.6 | 19.574 | 34.541 | 60.5 | 39.702 | 49.3 | 3.159 | 2.610 | 0.562 | 12.1 | 2.670 | 20.8 | -2.719 | 0.699 | -14.4 | 2.808 |
| 2969710.3 | 708197.8 | 1235.7 | 19.471 | 34.098 | 60.3 | 39.266 | 52.1 | 3.125 | 2.482 | 0.889 | 19.7 | 2.637 | 20.9 | -2.624 | -0.133 | 2.9 | 2.627 |
| 2969715.3 | 708197.9 | 1235.8 | 19.232 | 32.811 | 59.6 | 38.032 | 55.3 | 3.026 | 2.288 | 1.508 | 33.4 | 2.740 | 16.9 | -2.455 | -0.894 | 20.0 | 2.612 |
| 2969720.3 | 708198.0 | 1235.8 | 18.829 | 30.824 | 58.6 | 36.120 | 59.1 | 2.874 | 2.032 | 1.995 | 44.5 | 2.848 | 12.8 | -2.217 | -1.496 | 34.0 | 2.674 |
| 2969725.3 | 708198.1 | 1235.9 | 18.225 | 28.349 | 57.3 | 33.702 | 63.1 | 2.682 | 1.729 | 2.278 | 52.8 | 2.860 | 10.0 | -1.923 | -1.893 | 44.5 | 2.698 |
| 2969730.3 | 708198.1 | 1236.0 | 17.410 | 25.624 | 55.8 | 30.979 | 67.2 | 2.465 | 1.401 | 2.365 | 59.4 | 2.748 | 8.3 | -1.594 | -2.088 | 52.6 | 2.627 |
| 2969735.3 | 708198.2 | 1236.0 | 16.415 | 22.867 | 54.3 | 28.149 | 71.3 | 2.240 | 1.076 | 2.300 | 64.9 | 2.539 | 7.5 | -1.258 | -2.120 | 59.3 | 2.465 |
| 2969740.3 | 708198.3 | 1236.1 | 15.297 | 20.236 | 52.9 | 25.367 | 75.2 | 2.019 | 0.776 | 2.138 | 70.0 | 2.274 | 7.2 | -0.939 | -2.036 | 65.2 | 2.242 |
| 2969745.3 | 708198.4 | 1236.2 | 14.121 | 17.827 | 51.6 | 22.742 | 78.9 | 1.810 | 0.519 | 1.927 | 74.9 | 1.995 | 7.2 | -0.654 | -1.884 | 70.9 | 1.995 |
| 2969750.3 | 708198.5 | 1236.3 | 12.945 | 15.683 | 50.5 | 20.336 | 82.1 | 1.618 | 0.311 | 1.701 | 79.7 | 1.729 | 7.2 | -0.413 | -1.702 | 76.4 | 1.751 |
| 2969755.3 | 708198.6 | 1236.3 | 11.811 | 13.810 | 49.5 | 18.172 | 84.9 | 1.446 | 0.158 | 1.483 | 83.9 | 1.491 | 7.2 | -0.217 | -1.513 | 81.8 | 1.529 |
| 2969760.3 | 708198.7 | 1236.4 | 10.745 | 12.190 | 48.6 | 16.250 | 87.1 | 1.293 | 0.092 | 1.283 | 85.9 | 1.286 | 7.1 | -0.064 | -1.332 | 87.3 | 1.334 |
| 2969765.3 | 708198.8 | 1236.5 | 9.763 | 10.798 | 47.9 | 14.557 | 88.7 | 1.158 | 0.129 | 1.106 | 83.4 | 1.113 | 6.9 | 0.053 | -1.167 | -87.4 | 1.168 |
| 2969770.3 | 708198.9 | 1236.5 | 8.869 | 9.602 | 47.3 | 13.071 | 89.7 | 1.040 | 0.180 | 0.952 | 79.3 | 0.969 | 6.7 | 0.139 | -1.020 | -82.2 | 1.030 |
| 2969775.3 | 708198.9 | 1236.6 | 8.061 | 8.576 | 46.8 | 11.770 | 90.1 | 0.937 | 0.218 | 0.821 | 75.1 | 0.849 | 6.3 | 0.201 | -0.892 | -77.3 | 0.914 |
| 2969780.3 | 708199.0 | 1236.7 | 7.336 | 7.693 | 46.4 | 10.630 | 90.1 | 0.846 | 0.243 | 0.709 | 71.1 | 0.749 | 5.9 | 0.244 | -0.780 | -72.7 | 0.817 |

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 15 and 16



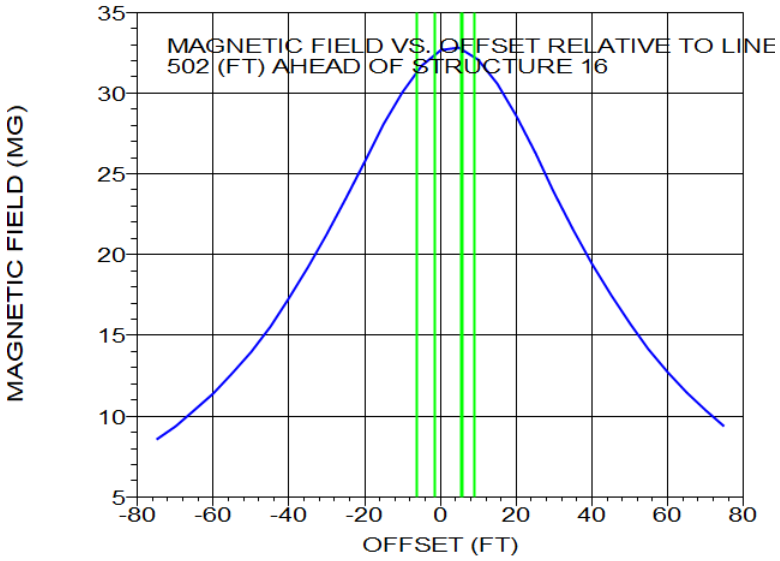



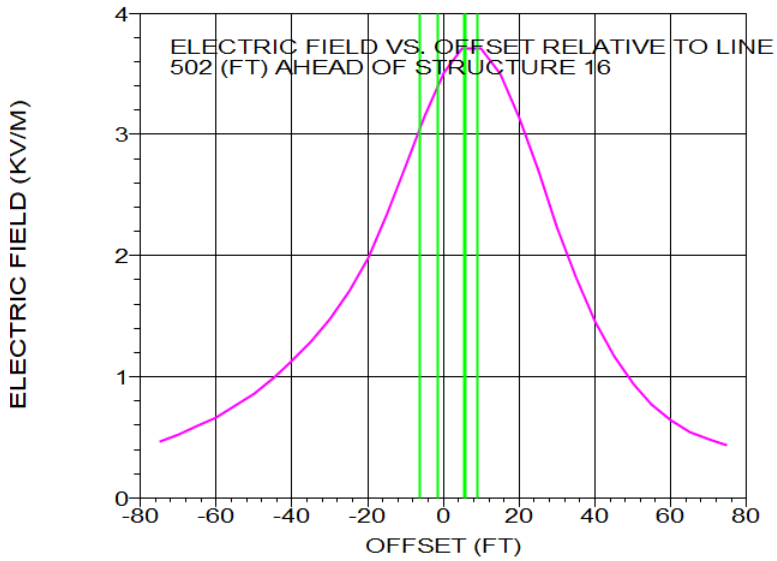

**3D EMF Point Results Span from 15 to 16:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2970153.7 | 708737.3 | 1247.0 | 7.461 | 8.026 | 47.1 | 10.959 | 50.4 | 0.872 | 0.169 | 0.777 | 77.7 | 0.795 | 3.4 | -0.153 | 0.912 | -80.5 | 0.925 |
| 2970153.7 | 708732.3 | 1246.9 | 8.251 | 9.014 | 47.5 | 12.220 | 49.9 | 0.972 | 0.237 | 0.907 | 75.4 | 0.938 | 3.3 | -0.229 | 1.048 | -77.7 | 1.073 |
| 2970153.7 | 708727.3 | 1246.8 | 9.151 | 10.179 | 48.0 | 13.688 | 49.4 | 1.089 | 0.325 | 1.064 | 73.0 | 1.113 | 3.3 | -0.327 | 1.209 | -74.9 | 1.253 |
| 2970153.7 | 708722.3 | 1246.8 | 10.137 | 11.503 | 48.6 | 15.332 | 49.3 | 1.220 | 0.436 | 1.254 | 70.8 | 1.328 | 3.2 | -0.444 | 1.402 | -72.4 | 1.471 |
| 2970153.7 | 708717.3 | 1246.7 | 11.301 | 13.151 | 49.3 | 17.340 | 48.7 | 1.380 | 0.582 | 1.481 | 68.6 | 1.591 | 3.2 | -0.601 | 1.627 | -69.7 | 1.735 |
| 2970153.7 | 708712.3 | 1246.6 | 12.616 | 15.117 | 50.2 | 19.690 | 48.1 | 1.567 | 0.767 | 1.750 | 66.3 | 1.911 | 3.1 | -0.796 | 1.887 | -67.1 | 2.048 |
| 2970153.7 | 708707.3 | 1246.5 | 14.085 | 17.455 | 51.1 | 22.429 | 47.5 | 1.785 | 1.000 | 2.062 | 64.1 | 2.292 | 3.0 | -1.035 | 2.181 | -64.6 | 2.414 |
| 2970153.7 | 708702.3 | 1246.5 | 15.694 | 20.216 | 52.2 | 25.593 | 46.8 | 2.037 | 1.285 | 2.410 | 61.9 | 2.731 | 3.0 | -1.322 | 2.496 | -62.1 | 2.824 |
| 2970153.7 | 708697.3 | 1246.4 | 17.406 | 23.433 | 53.4 | 29.190 | 46.3 | 2.323 | 1.621 | 2.772 | 59.7 | 3.211 | 3.2 | -1.655 | 2.813 | -59.5 | 3.264 |
| 2970153.7 | 708692.3 | 1246.3 | 19.134 | 27.074 | 54.8 | 33.152 | 45.8 | 2.638 | 1.997 | 3.105 | 57.3 | 3.691 | 3.5 | -2.020 | 3.081 | -56.7 | 3.684 |
| 2970153.7 | 708687.3 | 1246.3 | 20.745 | 31.007 | 56.2 | 37.306 | 45.4 | 2.969 | 2.385 | 3.331 | 54.4 | 4.097 | 4.2 | -2.386 | 3.219 | -53.5 | 4.007 |
| 2970153.7 | 708682.3 | 1246.2 | 22.072 | 34.967 | 57.7 | 41.350 | 45.3 | 3.291 | 2.742 | 3.352 | 50.7 | 4.330 | 5.6 | -2.709 | 3.130 | -49.1 | 4.139 |
| 2970153.7 | 708677.3 | 1246.1 | 22.969 | 38.561 | 59.2 | 44.884 | 45.6 | 3.572 | 3.019 | 3.070 | 45.5 | 4.305 | 8.2 | -2.945 | 2.727 | -42.8 | 4.014 |
| 2970153.6 | 708672.3 | 1246.1 | 23.385 | 41.349 | 60.5 | 47.503 | 46.3 | 3.780 | 3.183 | 2.444 | 37.5 | 4.012 | 12.5 | -3.065 | 1.980 | -32.9 | 3.648 |
| 2970153.6 | 708667.3 | 1246.0 | 23.420 | 43.007 | 61.4 | 48.970 | 47.7 | 3.897 | 3.226 | 1.553 | 25.7 | 3.581 | 18.9 | -3.081 | 0.959 | -17.3 | 3.226 |
| 2970153.6 | 708662.3 | 1246.0 | 23.238 | 43.340 | 61.8 | 49.177 | 49.7 | 3.913 | 3.165 | 0.788 | 14.0 | 3.262 | 24.0 | -3.007 | -0.200 | 3.8 | 3.014 |
| 2970153.6 | 708657.3 | 1246.0 | 22.953 | 42.300 | 61.5 | 48.126 | 52.4 | 3.830 | 3.013 | 1.192 | 21.6 | 3.240 | 21.6 | -2.844 | -1.315 | 24.8 | 3.133 |
| 2970153.6 | 708652.3 | 1246.0 | 22.559 | 40.034 | 60.6 | 45.953 | 55.7 | 3.657 | 2.774 | 2.003 | 35.8 | 3.422 | 15.0 | -2.596 | -2.211 | 40.4 | 3.410 |
| 2970153.6 | 708647.3 | 1245.9 | 21.957 | 36.831 | 59.2 | 42.879 | 59.5 | 3.412 | 2.450 | 2.592 | 46.6 | 3.567 | 9.9 | -2.268 | -2.783 | 50.8 | 3.590 |
| 2970153.6 | 708642.3 | 1245.9 | 21.058 | 33.078 | 57.5 | 39.212 | 63.6 | 3.120 | 2.061 | 2.870 | 54.3 | 3.533 | 7.1 | -1.881 | -3.019 | 58.1 | 3.557 |
| 2970153.6 | 708637.3 | 1245.8 | 19.854 | 29.156 | 55.7 | 35.274 | 67.8 | 2.807 | 1.642 | 2.878 | 60.3 | 3.313 | 5.7 | -1.466 | -2.973 | 63.8 | 3.315 |
| 2970153.6 | 708632.3 | 1245.8 | 18.414 | 25.369 | 54.0 | 31.347 | 72.0 | 2.495 | 1.233 | 2.702 | 65.5 | 2.970 | 5.1 | -1.059 | -2.727 | 68.8 | 2.925 |
| 2970153.6 | 708627.3 | 1245.7 | 16.870 | 21.944 | 52.4 | 27.679 | 76.0 | 2.203 | 0.869 | 2.429 | 70.3 | 2.580 | 4.8 | -0.707 | -2.399 | 73.6 | 2.501 |
| 2970153.6 | 708622.3 | 1245.6 | 15.324 | 18.955 | 51.0 | 24.374 | 79.7 | 1.940 | 0.565 | 2.125 | 75.1 | 2.198 | 4.8 | -0.423 | -2.056 | 78.4 | 2.099 |
| 2970153.6 | 708617.3 | 1245.6 | 13.844 | 16.401 | 49.8 | 21.462 | 83.1 | 1.708 | 0.326 | 1.828 | 79.9 | 1.857 | 4.8 | -0.206 | -1.734 | 83.2 | 1.746 |
| 2970153.6 | 708612.3 | 1245.5 | 12.471 | 14.244 | 48.8 | 18.932 | 86.2 | 1.507 | 0.150 | 1.559 | 84.5 | 1.566 | 4.8 | -0.048 | -1.450 | 88.1 | 1.451 |
| 2970153.6 | 708607.3 | 1245.4 | 11.224 | 12.432 | 47.9 | 16.749 | 89.1 | 1.333 | 0.061 | 1.324 | 87.3 | 1.325 | 4.6 | 0.062 | -1.208 | -87.1 | 1.210 |
| 2970153.6 | 708602.3 | 1245.4 | 10.115 | 10.917 | 47.2 | 14.883 | 91.6 | 1.184 | 0.112 | 1.124 | 84.3 | 1.129 | 4.5 | 0.137 | -1.024 | -82.4 | 1.033 |
| 2970153.6 | 708597.3 | 1245.4 | 9.074 | 9.663 | 46.8 | 13.256 | 92.9 | 1.055 | 0.167 | 0.956 | 80.1 | 0.971 | 4.3 | 0.181 | -0.871 | -78.3 | 0.890 |
| 2970153.6 | 708592.3 | 1245.3 | 8.197 | 8.587 | 46.3 | 11.871 | 94.7 | 0.945 | 0.206 | 0.816 | 75.8 | 0.842 | 4.1 | 0.212 | -0.743 | -74.1 | 0.773 |
| 2970153.6 | 708587.3 | 1245.3 | 7.421 | 7.671 | 46.0 | 10.673 | 96.4 | 0.849 | 0.231 | 0.699 | 71.7 | 0.736 | 3.8 | 0.230 | -0.637 | -70.1 | 0.677 |

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 16 and 17



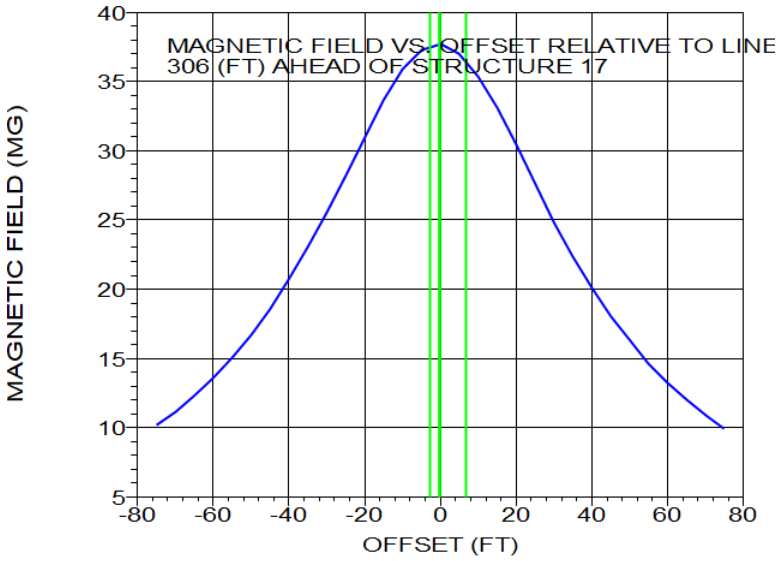



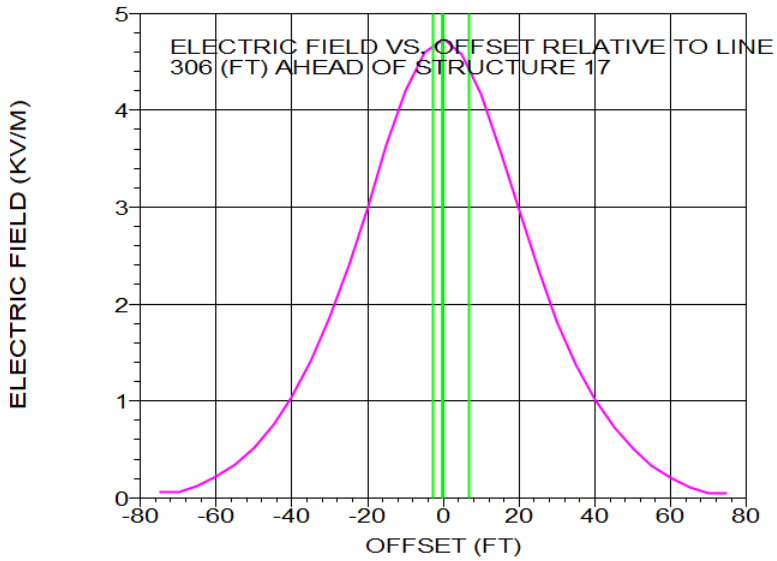

**3D EMF Point Results Span from 16 to 17:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2971151.4 | 708736.8 | 1242.9 | 7.123 | 4.719 | 33.5 | 8.544 | 59.2 | 0.680 | 0.115 | 0.450 | 75.6 | 0.465 | 5.5 | -0.142 | 0.450 | -72.5 | 0.472 |
| 2971151.4 | 708731.8 | 1242.8 | 7.781 | 5.246 | 34.0 | 9.384 | 60.0 | 0.747 | 0.169 | 0.494 | 71.1 | 0.522 | 5.8 | -0.198 | 0.494 | -68.1 | 0.533 |
| 2971151.4 | 708726.8 | 1242.8 | 8.515 | 5.854 | 34.5 | 10.333 | 60.8 | 0.822 | 0.236 | 0.540 | 66.4 | 0.589 | 6.1 | -0.268 | 0.537 | -63.5 | 0.601 |
| 2971151.4 | 708721.8 | 1242.8 | 9.335 | 6.558 | 35.1 | 11.408 | 61.6 | 0.908 | 0.321 | 0.585 | 61.2 | 0.668 | 6.5 | -0.355 | 0.580 | -58.5 | 0.680 |
| 2971151.4 | 708716.8 | 1242.8 | 10.249 | 7.372 | 35.7 | 12.625 | 62.5 | 1.005 | 0.427 | 0.628 | 55.8 | 0.759 | 6.9 | -0.462 | 0.618 | -53.2 | 0.771 |
| 2971151.4 | 708711.8 | 1242.7 | 11.266 | 8.315 | 36.4 | 14.002 | 63.3 | 1.114 | 0.557 | 0.662 | 49.9 | 0.865 | 7.5 | -0.593 | 0.646 | -47.4 | 0.877 |
| 2971151.4 | 708706.8 | 1242.7 | 12.389 | 9.400 | 37.2 | 15.551 | 63.9 | 1.238 | 0.716 | 0.679 | 43.5 | 0.987 | 8.2 | -0.751 | 0.655 | -41.1 | 0.996 |
| 2971151.4 | 708701.8 | 1242.7 | 13.618 | 10.641 | 38.0 | 17.283 | 64.2 | 1.375 | 0.907 | 0.669 | 36.4 | 1.127 | 9.0 | -0.936 | 0.632 | -34.0 | 1.130 |
| 2971151.4 | 708696.8 | 1242.6 | 14.956 | 12.048 | 38.9 | 19.205 | 64.1 | 1.528 | 1.131 | 0.617 | 28.6 | 1.288 | 10.1 | -1.155 | 0.567 | -26.2 | 1.286 |
| 2971151.4 | 708691.8 | 1242.6 | 16.388 | 13.610 | 39.7 | 21.302 | 63.5 | 1.695 | 1.388 | 0.506 | 20.0 | 1.477 | 11.2 | -1.403 | 0.436 | -17.3 | 1.469 |
| 2971151.4 | 708686.8 | 1242.6 | 17.888 | 15.295 | 40.5 | 23.535 | 62.2 | 1.873 | 1.670 | 0.335 | 11.3 | 1.704 | 12.2 | -1.674 | 0.219 | -7.5 | 1.688 |
| 2971151.4 | 708681.8 | 1242.6 | 19.417 | 17.035 | 41.3 | 25.831 | 60.3 | 2.056 | 1.967 | 0.254 | 7.3 | 1.984 | 12.5 | -1.954 | -0.102 | 3.0 | 1.957 |
| 2971151.4 | 708676.8 | 1242.5 | 20.914 | 18.720 | 41.8 | 28.068 | 57.7 | 2.234 | 2.258 | 0.570 | 14.2 | 2.329 | 11.9 | -2.224 | -0.530 | 13.4 | 2.287 |
| 2971151.4 | 708671.8 | 1242.5 | 22.306 | 20.205 | 42.2 | 30.097 | 54.6 | 2.395 | 2.513 | 1.071 | 23.1 | 2.732 | 10.5 | -2.468 | -1.048 | 23.0 | 2.681 |
| 2971151.4 | 708666.8 | 1242.5 | 23.473 | 21.300 | 42.2 | 31.696 | 51.3 | 2.522 | 2.697 | 1.627 | 31.1 | 3.150 | 8.7 | -2.645 | -1.605 | 31.3 | 3.094 |
| 2971151.4 | 708661.8 | 1242.5 | 24.279 | 21.826 | 42.0 | 32.647 | 47.9 | 2.598 | 2.774 | 2.144 | 37.7 | 3.506 | 7.0 | -2.718 | -2.121 | 38.0 | 3.447 |
| 2971151.4 | 708656.8 | 1242.5 | 24.599 | 21.675 | 41.4 | 32.786 | 44.8 | 2.609 | 2.716 | 2.529 | 43.0 | 3.712 | 5.5 | -2.660 | -2.505 | 43.3 | 3.654 |
| 2971151.4 | 708651.8 | 1242.5 | 24.364 | 20.856 | 40.6 | 32.072 | 42.0 | 2.552 | 2.523 | 2.720 | 47.2 | 3.710 | 4.5 | -2.470 | -2.698 | 47.5 | 3.658 |
| 2971151.4 | 708646.8 | 1242.5 | 23.597 | 19.503 | 39.6 | 30.613 | 39.6 | 2.436 | 2.219 | 2.709 | 50.7 | 3.501 | 3.9 | -2.172 | -2.691 | 51.1 | 3.458 |
| 2971151.4 | 708641.8 | 1242.5 | 22.374 | 17.793 | 38.5 | 28.586 | 37.7 | 2.275 | 1.848 | 2.535 | 53.9 | 3.137 | 3.7 | -1.793 | -2.501 | 54.4 | 3.077 |
| 2971151.4 | 708636.8 | 1242.5 | 20.876 | 15.965 | 37.4 | 26.281 | 36.2 | 2.091 | 1.459 | 2.263 | 57.2 | 2.693 | 3.8 | -1.405 | -2.221 | 57.7 | 2.628 |
| 2971151.4 | 708631.8 | 1242.5 | 19.259 | 14.184 | 36.4 | 23.918 | 35.1 | 1.903 | 1.092 | 1.954 | 60.8 | 2.239 | 4.4 | -1.053 | -1.923 | 61.3 | 2.192 |
| 2971151.4 | 708626.8 | 1242.5 | 17.614 | 12.525 | 35.4 | 21.613 | 34.4 | 1.720 | 0.770 | 1.649 | 65.0 | 1.820 | 5.1 | -0.744 | -1.628 | 65.4 | 1.790 |
| 2971151.4 | 708621.8 | 1242.5 | 16.021 | 11.034 | 34.6 | 19.453 | 33.9 | 1.548 | 0.503 | 1.372 | 69.9 | 1.461 | 6.1 | -0.486 | -1.359 | 70.3 | 1.444 |
| 2971151.4 | 708616.8 | 1242.5 | 14.524 | 9.725 | 33.8 | 17.480 | 33.6 | 1.391 | 0.291 | 1.132 | 75.6 | 1.169 | 7.2 | -0.281 | -1.126 | 76.0 | 1.161 |
| 2971151.4 | 708611.8 | 1242.5 | 13.147 | 8.588 | 33.2 | 15.703 | 33.5 | 1.250 | 0.136 | 0.931 | 81.7 | 0.941 | 8.2 | -0.123 | -0.930 | 82.5 | 0.938 |
| 2971151.4 | 708606.8 | 1242.4 | 11.895 | 7.608 | 32.6 | 14.120 | 33.5 | 1.124 | 0.070 | 0.765 | 84.8 | 0.768 | 9.0 | -0.005 | -0.765 | 89.6 | 0.765 |
| 2971151.4 | 708601.8 | 1242.4 | 10.763 | 6.762 | 32.1 | 12.711 | 33.6 | 1.011 | 0.119 | 0.630 | 79.3 | 0.641 | 9.2 | 0.078 | -0.624 | -82.9 | 0.629 |
| 2971151.4 | 708596.8 | 1242.3 | 9.753 | 6.036 | 31.8 | 11.470 | 33.8 | 0.913 | 0.175 | 0.520 | 71.4 | 0.549 | 9.0 | 0.134 | -0.512 | -75.3 | 0.529 |
| 2971151.4 | 708591.8 | 1242.3 | 8.855 | 5.412 | 31.4 | 10.377 | 34.0 | 0.826 | 0.216 | 0.431 | 63.4 | 0.482 | 8.3 | 0.170 | -0.421 | -68.1 | 0.454 |
| 2971151.4 | 708586.8 | 1242.2 | 8.056 | 4.873 | 31.2 | 9.415 | 34.3 | 0.749 | 0.242 | 0.359 | 56.0 | 0.433 | 7.4 | 0.190 | -0.349 | -61.4 | 0.397 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 17 and 18



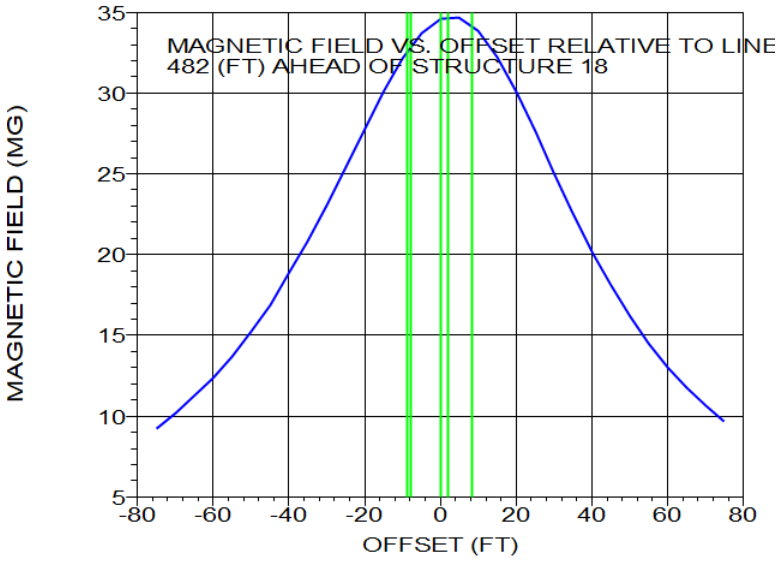



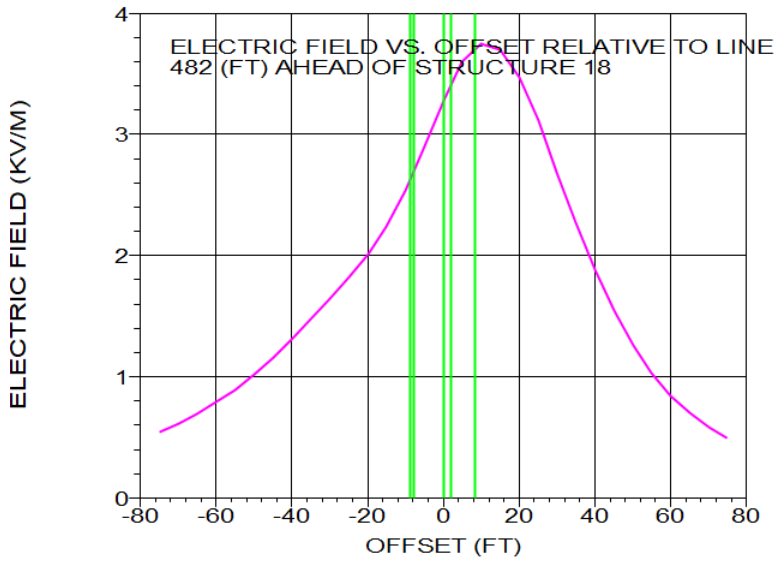

**3D EMF Point Results Span from 17 to 18:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2971867.2 | 708759.2 | 1254.9 | 8.443 | 5.682 | 33.9 | 10.177 | 11.2 | 0.810 | 0.038 | 0.043 | 48.3 | 0.057 | 39.7 | 0.015 | 0.044 | 71.0 | 0.047 |
| 2971867.6 | 708754.2 | 1254.8 | 9.228 | 6.313 | 34.4 | 11.181 | 11.3 | 0.890 | 0.058 | 0.029 | 26.6 | 0.065 | 41.5 | -0.046 | 0.011 | -13.3 | 0.047 |
| 2971868.0 | 708749.2 | 1254.8 | 10.108 | 7.039 | 34.9 | 12.318 | 11.4 | 0.980 | 0.116 | 0.046 | 21.5 | 0.125 | 14.4 | -0.125 | -0.037 | 16.4 | 0.131 |
| 2971868.3 | 708744.2 | 1254.8 | 11.094 | 7.878 | 35.4 | 13.607 | 11.5 | 1.083 | 0.198 | 0.096 | 25.8 | 0.220 | 7.3 | -0.227 | -0.104 | 24.6 | 0.249 |
| 2971868.7 | 708739.2 | 1254.7 | 12.199 | 8.849 | 36.0 | 15.071 | 11.5 | 1.199 | 0.306 | 0.172 | 29.4 | 0.351 | 4.9 | -0.355 | -0.197 | 29.0 | 0.406 |
| 2971869.1 | 708734.3 | 1254.7 | 13.434 | 9.973 | 36.6 | 16.731 | 11.4 | 1.331 | 0.443 | 0.281 | 32.4 | 0.525 | 3.9 | -0.517 | -0.324 | 32.1 | 0.610 |
| 2971869.5 | 708729.3 | 1254.7 | 14.801 | 11.264 | 37.3 | 18.600 | 11.1 | 1.480 | 0.616 | 0.430 | 34.9 | 0.751 | 3.4 | -0.712 | -0.494 | 34.7 | 0.866 |
| 2971869.8 | 708724.3 | 1254.6 | 16.308 | 12.742 | 38.0 | 20.696 | 10.8 | 1.647 | 0.830 | 0.631 | 37.3 | 1.043 | 3.1 | -0.946 | -0.715 | 37.1 | 1.186 |
| 2971870.2 | 708719.3 | 1254.5 | 17.955 | 14.417 | 38.8 | 23.027 | 10.2 | 1.832 | 1.089 | 0.897 | 39.5 | 1.411 | 2.9 | -1.221 | -1.001 | 39.3 | 1.579 |
| 2971870.6 | 708714.3 | 1254.4 | 19.725 | 16.282 | 39.5 | 25.576 | 9.4 | 2.035 | 1.395 | 1.238 | 41.6 | 1.865 | 2.7 | -1.537 | -1.357 | 41.4 | 2.051 |
| 2971870.9 | 708709.3 | 1254.4 | 21.575 | 18.298 | 40.3 | 28.289 | 8.4 | 2.251 | 1.743 | 1.657 | 43.6 | 2.406 | 2.5 | -1.886 | -1.784 | 43.4 | 2.596 |
| 2971871.3 | 708704.3 | 1254.3 | 23.429 | 20.380 | 41.0 | 31.053 | 7.1 | 2.471 | 2.118 | 2.142 | 45.3 | 3.013 | 2.2 | -2.249 | -2.263 | 45.2 | 3.191 |
| 2971871.7 | 708699.4 | 1254.2 | 25.162 | 22.375 | 41.6 | 33.671 | 5.5 | 2.679 | 2.491 | 2.653 | 46.8 | 3.640 | 1.9 | -2.598 | -2.753 | 46.7 | 3.786 |
| 2971872.1 | 708694.4 | 1254.2 | 26.595 | 24.061 | 42.1 | 35.864 | 3.7 | 2.854 | 2.816 | 3.121 | 47.9 | 4.204 | 1.5 | -2.885 | -3.182 | 47.8 | 4.295 |
| 2971872.4 | 708689.4 | 1254.1 | 27.523 | 25.181 | 42.5 | 37.304 | 1.8 | 2.969 | 3.039 | 3.453 | 48.6 | 4.600 | 1.2 | -3.059 | -3.458 | 48.5 | 4.616 |
| 2971872.8 | 708684.4 | 1254.1 | 27.783 | 25.527 | 42.6 | 37.730 | 0.3 | 3.002 | 3.115 | 3.566 | 48.9 | 4.735 | 1.1 | -3.079 | -3.509 | 48.7 | 4.668 |
| 2971873.2 | 708679.4 | 1254.0 | 27.324 | 25.028 | 42.5 | 37.054 | 2.3 | 2.949 | 3.025 | 3.432 | 48.6 | 4.575 | 1.2 | -2.937 | -3.316 | 48.5 | 4.430 |
| 2971873.6 | 708674.4 | 1253.9 | 26.227 | 23.787 | 42.2 | 35.407 | 4.2 | 2.818 | 2.791 | 3.085 | 47.9 | 4.160 | 1.4 | -2.660 | -2.927 | 47.7 | 3.955 |
| 2971873.9 | 708669.4 | 1253.9 | 24.674 | 22.032 | 41.8 | 33.079 | 5.9 | 2.632 | 2.461 | 2.611 | 46.7 | 3.588 | 1.7 | -2.299 | -2.429 | 46.6 | 3.344 |
| 2971874.3 | 708664.5 | 1253.8 | 22.861 | 20.007 | 41.2 | 30.380 | 7.4 | 2.418 | 2.087 | 2.101 | 45.2 | 2.961 | 1.9 | -1.903 | -1.908 | 45.1 | 2.695 |
| 2971874.7 | 708659.5 | 1253.7 | 20.970 | 17.936 | 40.5 | 27.594 | 8.5 | 2.196 | 1.713 | 1.622 | 43.4 | 2.359 | 2.0 | -1.524 | -1.437 | 43.3 | 2.094 |
| 2971875.0 | 708654.5 | 1253.6 | 19.113 | 15.955 | 39.9 | 24.898 | 9.4 | 1.981 | 1.369 | 1.209 | 41.5 | 1.826 | 2.1 | -1.186 | -1.045 | 41.4 | 1.580 |
| 2971875.4 | 708649.5 | 1253.6 | 17.359 | 14.138 | 39.2 | 22.388 | 10.1 | 1.782 | 1.067 | 0.875 | 39.4 | 1.379 | 2.2 | -0.900 | -0.736 | 39.3 | 1.163 |
| 2971875.8 | 708644.5 | 1253.5 | 15.729 | 12.506 | 38.5 | 20.095 | 10.5 | 1.599 | 0.811 | 0.614 | 37.1 | 1.017 | 2.2 | -0.659 | -0.498 | 37.1 | 0.826 |
| 2971876.2 | 708639.5 | 1253.4 | 14.248 | 11.072 | 37.8 | 18.044 | 10.7 | 1.436 | 0.600 | 0.417 | 34.8 | 0.731 | 2.3 | -0.468 | -0.325 | 34.8 | 0.570 |
| 2971876.5 | 708634.5 | 1253.3 | 12.925 | 9.831 | 37.3 | 16.239 | 10.7 | 1.292 | 0.430 | 0.271 | 32.2 | 0.509 | 2.5 | -0.326 | -0.206 | 32.3 | 0.386 |
| 2971876.9 | 708629.6 | 1253.2 | 11.739 | 8.755 | 36.7 | 14.644 | 10.7 | 1.165 | 0.295 | 0.165 | 29.2 | 0.338 | 3.0 | -0.218 | -0.123 | 29.4 | 0.250 |
| 2971877.3 | 708624.6 | 1253.2 | 10.678 | 7.822 | 36.2 | 13.237 | 10.5 | 1.053 | 0.189 | 0.089 | 25.1 | 0.209 | 4.5 | -0.136 | -0.065 | 25.4 | 0.150 |
| 2971877.6 | 708619.6 | 1253.1 | 9.731 | 7.013 | 35.8 | 11.995 | 10.3 | 0.955 | 0.107 | 0.036 | 18.7 | 0.113 | 9.3 | -0.074 | -0.025 | 18.4 | 0.078 |
| 2971878.0 | 708614.6 | 1253.0 | 8.885 | 6.311 | 35.4 | 10.898 | 10.1 | 0.867 | 0.046 | 0.017 | 20.3 | 0.049 | 36.9 | -0.028 | 0.002 | -4.5 | 0.028 |
| 2971878.4 | 708609.6 | 1253.0 | 8.129 | 5.699 | 35.0 | 9.928 | 9.8 | 0.790 | 0.021 | 0.036 | 59.5 | 0.042 | 35.1 | 0.005 | 0.020 | 75.2 | 0.020 |

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 18 and 19



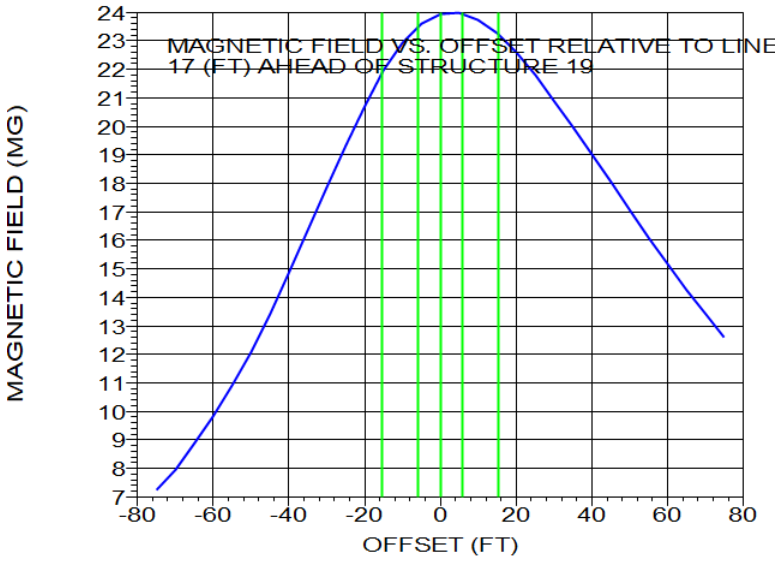



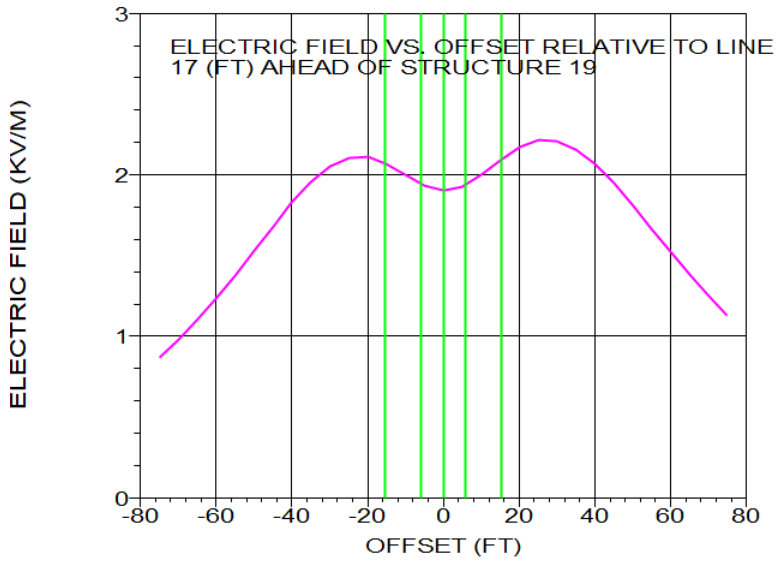

**3D EMF Point Results Span from 18 to 19:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2972908.2 | 708807.0 | 1262.3 | 7.484 | 5.422 | 35.9 | 9.242 | 65.4 | 0.735 | 0.034 | 0.547 | 86.4 | 0.548 | 6.1 | -0.009 | 0.563 | -89.0 | 0.563 |
| 2972908.3 | 708802.0 | 1262.2 | 8.178 | 6.033 | 36.4 | 10.162 | 66.4 | 0.809 | 0.068 | 0.612 | 83.7 | 0.616 | 6.5 | -0.067 | 0.624 | -83.9 | 0.628 |
| 2972908.4 | 708797.0 | 1262.2 | 8.953 | 6.740 | 37.0 | 11.206 | 67.5 | 0.892 | 0.126 | 0.684 | 79.5 | 0.695 | 6.9 | -0.142 | 0.692 | -78.4 | 0.706 |
| 2972908.4 | 708792.0 | 1262.1 | 9.813 | 7.558 | 37.6 | 12.386 | 68.7 | 0.986 | 0.205 | 0.761 | 74.9 | 0.788 | 7.3 | -0.236 | 0.760 | -72.7 | 0.796 |
| 2972908.5 | 708787.0 | 1262.1 | 10.765 | 8.505 | 38.3 | 13.719 | 69.9 | 1.092 | 0.306 | 0.842 | 70.0 | 0.896 | 7.7 | -0.355 | 0.827 | -66.8 | 0.900 |
| 2972908.6 | 708782.0 | 1262.0 | 11.814 | 9.602 | 39.1 | 15.224 | 71.0 | 1.211 | 0.435 | 0.922 | 64.7 | 1.020 | 8.2 | -0.502 | 0.888 | -60.5 | 1.020 |
| 2972908.6 | 708777.0 | 1262.0 | 12.961 | 10.867 | 40.0 | 16.914 | 72.0 | 1.346 | 0.595 | 0.995 | 59.1 | 1.159 | 8.8 | -0.682 | 0.934 | -53.9 | 1.156 |
| 2972908.7 | 708772.0 | 1261.9 | 14.201 | 12.315 | 40.9 | 18.797 | 72.5 | 1.496 | 0.790 | 1.048 | 53.0 | 1.313 | 9.6 | -0.896 | 0.951 | -46.7 | 1.306 |
| 2972908.8 | 708767.0 | 1261.8 | 15.517 | 13.946 | 41.9 | 20.863 | 72.5 | 1.660 | 1.021 | 1.065 | 46.2 | 1.476 | 10.6 | -1.141 | 0.915 | -38.7 | 1.462 |
| 2972908.8 | 708762.0 | 1261.8 | 16.890 | 15.749 | 43.0 | 23.093 | 71.7 | 1.838 | 1.288 | 1.024 | 38.5 | 1.645 | 12.0 | -1.415 | 0.807 | -29.7 | 1.629 |
| 2972908.9 | 708757.0 | 1261.7 | 18.287 | 17.683 | 44.0 | 25.438 | 69.9 | 2.024 | 1.583 | 0.900 | 29.6 | 1.821 | 13.7 | -1.707 | 0.601 | -19.4 | 1.810 |
| 2972909.0 | 708752.0 | 1261.6 | 19.669 | 19.669 | 45.0 | 27.816 | 67.3 | 2.214 | 1.895 | 0.676 | 19.6 | 2.012 | 15.3 | -2.006 | 0.274 | -7.8 | 2.025 |
| 2972909.0 | 708747.0 | 1261.5 | 20.982 | 21.580 | 45.8 | 30.099 | 64.0 | 2.395 | 2.204 | 0.408 | 10.5 | 2.242 | 16.0 | -2.289 | -0.181 | 4.5 | 2.296 |
| 2972909.1 | 708742.0 | 1261.4 | 22.162 | 23.246 | 46.4 | 32.118 | 60.3 | 2.556 | 2.487 | 0.508 | 11.5 | 2.538 | 15.1 | -2.532 | -0.750 | 16.5 | 2.641 |
| 2972909.2 | 708737.0 | 1261.4 | 23.151 | 24.502 | 46.6 | 33.709 | 56.5 | 2.682 | 2.712 | 1.036 | 20.9 | 2.903 | 12.7 | -2.729 | -1.387 | 26.9 | 3.061 |
| 2972909.2 | 708732.0 | 1261.3 | 23.825 | 25.128 | 46.5 | 34.627 | 52.8 | 2.756 | 2.847 | 1.643 | 30.0 | 3.287 | 9.8 | -2.826 | -2.009 | 35.4 | 3.468 |
| 2972909.3 | 708727.0 | 1261.3 | 24.053 | 24.970 | 46.1 | 34.671 | 49.5 | 2.759 | 2.864 | 2.180 | 37.3 | 3.599 | 7.0 | -2.778 | -2.498 | 42.0 | 3.736 |
| 2972909.3 | 708722.0 | 1261.2 | 23.791 | 24.066 | 45.3 | 33.840 | 46.5 | 2.693 | 2.751 | 2.551 | 42.8 | 3.752 | 5.0 | -2.607 | -2.785 | 46.9 | 3.815 |
| 2972909.4 | 708717.0 | 1261.1 | 23.038 | 22.545 | 44.4 | 32.234 | 44.0 | 2.565 | 2.521 | 2.713 | 47.1 | 3.704 | 3.6 | -2.331 | -2.848 | 50.7 | 3.681 |
| 2972909.5 | 708712.0 | 1261.0 | 21.874 | 20.625 | 43.3 | 30.064 | 42.0 | 2.392 | 2.207 | 2.678 | 50.5 | 3.470 | 2.8 | -1.989 | -2.719 | 53.8 | 3.369 |
| 2972909.5 | 708707.0 | 1260.9 | 20.451 | 18.558 | 42.2 | 27.616 | 40.4 | 2.198 | 1.851 | 2.498 | 53.5 | 3.109 | 2.4 | -1.646 | -2.487 | 56.5 | 2.982 |
| 2972909.6 | 708702.0 | 1260.9 | 18.882 | 16.501 | 41.1 | 25.076 | 39.2 | 1.995 | 1.495 | 2.236 | 56.2 | 2.690 | 2.3 | -1.315 | -2.196 | 59.1 | 2.559 |
| 2972909.7 | 708697.0 | 1260.8 | 17.238 | 14.534 | 40.1 | 22.547 | 38.4 | 1.794 | 1.166 | 1.945 | 59.1 | 2.267 | 2.3 | -0.988 | -1.840 | 61.8 | 2.089 |
| 2972909.7 | 708692.0 | 1260.6 | 15.647 | 12.766 | 39.2 | 20.194 | 37.8 | 1.607 | 0.879 | 1.660 | 62.1 | 1.879 | 2.4 | -0.716 | -1.508 | 64.6 | 1.669 |
| 2972909.8 | 708687.0 | 1260.5 | 14.164 | 11.218 | 38.4 | 18.068 | 37.4 | 1.438 | 0.640 | 1.402 | 65.5 | 1.542 | 2.6 | -0.501 | -1.221 | 67.7 | 1.320 |
| 2972909.9 | 708682.0 | 1260.4 | 12.807 | 9.880 | 37.6 | 16.175 | 37.1 | 1.287 | 0.448 | 1.177 | 69.2 | 1.260 | 2.9 | -0.339 | -0.983 | 71.0 | 1.039 |
| 2972909.9 | 708677.0 | 1260.2 | 11.585 | 8.732 | 37.0 | 14.508 | 37.0 | 1.154 | 0.296 | 0.987 | 73.3 | 1.030 | 3.1 | -0.219 | -0.790 | 74.5 | 0.819 |
| 2972910.0 | 708672.0 | 1260.1 | 10.492 | 7.750 | 36.5 | 13.044 | 37.0 | 1.038 | 0.178 | 0.828 | 77.9 | 0.846 | 3.3 | -0.133 | -0.635 | 78.2 | 0.649 |
| 2972910.1 | 708667.0 | 1260.0 | 9.517 | 6.907 | 36.0 | 11.759 | 37.0 | 0.936 | 0.089 | 0.696 | 82.7 | 0.701 | 3.4 | -0.072 | -0.509 | 81.9 | 0.514 |
| 2972910.1 | 708662.0 | 1259.8 | 8.649 | 6.182 | 35.6 | 10.631 | 37.1 | 0.846 | 0.027 | 0.587 | 87.4 | 0.587 | 3.5 | -0.031 | -0.406 | 85.6 | 0.408 |
| 2972910.2 | 708657.0 | 1259.7 | 7.879 | 5.559 | 35.2 | 9.643 | 37.2 | 0.767 | 0.037 | 0.497 | 85.8 | 0.498 | 3.4 | -0.004 | -0.325 | 89.2 | 0.325 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 19 and 20



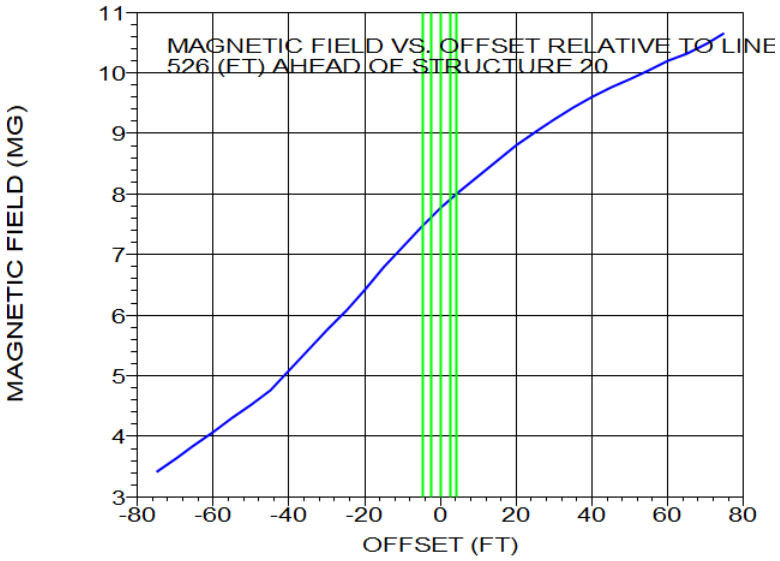



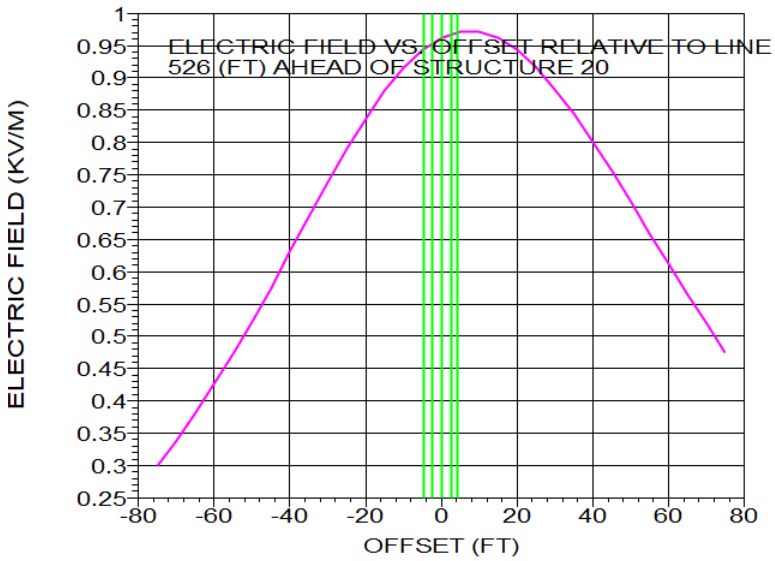

**3D EMF Point Results Span from 19 to 20:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2973412.7 | 708792.6 | 1264.0 | 2.070 | 6.928 | 73.4 | 7.231 | 23.4 | 0.575 | 0.256 | 0.832 | 72.9 | 0.871 | 3.5 | -0.140 | 1.018 | -82.2 | 1.028 |
| 2973410.0 | 708788.4 | 1264.0 | 2.564 | 7.553 | 71.2 | 7.977 | 25.6 | 0.635 | 0.328 | 0.923 | 70.5 | 0.979 | 3.3 | -0.221 | 1.115 | -78.8 | 1.136 |
| 2973407.4 | 708784.2 | 1264.0 | 3.099 | 8.270 | 69.5 | 8.832 | 27.6 | 0.703 | 0.410 | 1.021 | 68.1 | 1.100 | 3.2 | -0.316 | 1.221 | -75.5 | 1.261 |
| 2973404.7 | 708779.9 | 1264.1 | 3.675 | 9.089 | 68.0 | 9.803 | 29.2 | 0.780 | 0.505 | 1.126 | 65.9 | 1.234 | 3.1 | -0.424 | 1.336 | -72.4 | 1.401 |
| 2973402.1 | 708775.7 | 1264.1 | 4.293 | 10.015 | 66.8 | 10.897 | 30.5 | 0.867 | 0.612 | 1.234 | 63.6 | 1.378 | 3.1 | -0.548 | 1.455 | -69.4 | 1.554 |
| 2973399.4 | 708771.4 | 1264.1 | 4.951 | 11.048 | 65.9 | 12.107 | 31.6 | 0.963 | 0.733 | 1.342 | 61.4 | 1.529 | 3.1 | -0.682 | 1.564 | -66.4 | 1.706 |
| 2973396.8 | 708767.2 | 1264.1 | 5.646 | 12.187 | 65.1 | 13.432 | 32.5 | 1.069 | 0.865 | 1.441 | 59.0 | 1.681 | 3.3 | -0.826 | 1.660 | -63.5 | 1.854 |
| 2973394.2 | 708762.9 | 1264.1 | 6.372 | 13.420 | 64.6 | 14.856 | 33.3 | 1.182 | 1.007 | 1.523 | 56.5 | 1.826 | 3.5 | -0.979 | 1.735 | -60.6 | 1.992 |
| 2973391.5 | 708758.7 | 1264.1 | 7.120 | 14.718 | 64.2 | 16.350 | 34.0 | 1.301 | 1.155 | 1.574 | 53.7 | 1.953 | 4.0 | -1.134 | 1.771 | -57.4 | 2.103 |
| 2973388.9 | 708754.5 | 1264.1 | 7.877 | 16.043 | 63.8 | 17.873 | 34.8 | 1.422 | 1.303 | 1.581 | 50.5 | 2.049 | 4.7 | -1.289 | 1.758 | -53.8 | 2.180 |
| 2973386.2 | 708750.2 | 1264.1 | 8.627 | 17.338 | 63.5 | 19.365 | 35.8 | 1.541 | 1.446 | 1.528 | 46.6 | 2.103 | 5.7 | -1.436 | 1.681 | -49.5 | 2.211 |
| 2973383.6 | 708746.0 | 1264.0 | 9.354 | 18.530 | 63.2 | 20.757 | 37.1 | 1.652 | 1.576 | 1.402 | 41.7 | 2.110 | 7.2 | -1.568 | 1.528 | -44.3 | 2.189 |
| 2973380.9 | 708741.7 | 1264.0 | 10.044 | 19.536 | 62.8 | 21.967 | 38.8 | 1.748 | 1.688 | 1.199 | 35.4 | 2.070 | 9.1 | -1.676 | 1.290 | -37.6 | 2.115 |
| 2973378.3 | 708737.5 | 1264.0 | 10.689 | 20.287 | 62.2 | 22.931 | 41.0 | 1.825 | 1.777 | 0.922 | 27.4 | 2.002 | 11.5 | -1.760 | 0.975 | -29.0 | 2.011 |
| 2973375.6 | 708733.2 | 1264.0 | 11.284 | 20.726 | 61.4 | 23.598 | 43.9 | 1.878 | 1.840 | 0.596 | 18.0 | 1.934 | 13.8 | -1.815 | 0.597 | -18.2 | 1.911 |
| 2973373.0 | 708729.0 | 1264.0 | 11.828 | 20.821 | 60.4 | 23.946 | 47.6 | 1.906 | 1.876 | 0.310 | 9.4 | 1.902 | 15.0 | -1.843 | 0.182 | -5.6 | 1.852 |
| 2973370.4 | 708724.8 | 1264.0 | 12.312 | 20.576 | 59.1 | 23.978 | 52.0 | 1.908 | 1.884 | 0.398 | 11.9 | 1.925 | 14.4 | -1.842 | -0.241 | 7.5 | 1.857 |
| 2973367.7 | 708720.5 | 1263.9 | 12.725 | 20.033 | 57.6 | 23.733 | 57.1 | 1.889 | 1.861 | 0.729 | 21.4 | 1.999 | 12.4 | -1.816 | -0.642 | 19.5 | 1.926 |
| 2973365.1 | 708716.3 | 1263.9 | 13.043 | 19.248 | 55.9 | 23.251 | 63.0 | 1.850 | 1.809 | 1.054 | 30.2 | 2.093 | 9.9 | -1.760 | -0.992 | 29.4 | 2.020 |
| 2973362.4 | 708712.0 | 1263.9 | 13.243 | 18.295 | 54.1 | 22.585 | 69.2 | 1.797 | 1.727 | 1.322 | 37.4 | 2.175 | 7.7 | -1.675 | -1.272 | 37.2 | 2.103 |
| 2973359.8 | 708707.8 | 1263.9 | 13.308 | 17.254 | 52.4 | 21.790 | 75.6 | 1.734 | 1.619 | 1.516 | 43.1 | 2.218 | 6.0 | -1.564 | -1.473 | 43.3 | 2.149 |
| 2973357.1 | 708703.5 | 1263.9 | 13.231 | 16.188 | 50.7 | 20.907 | 81.4 | 1.664 | 1.491 | 1.635 | 47.6 | 2.212 | 4.8 | -1.434 | -1.596 | 48.1 | 2.145 |
| 2973354.5 | 708699.3 | 1263.9 | 13.018 | 15.143 | 49.3 | 19.970 | 85.8 | 1.589 | 1.350 | 1.685 | 51.3 | 2.159 | 3.9 | -1.289 | -1.647 | 51.9 | 2.092 |
| 2973351.8 | 708695.0 | 1263.9 | 12.688 | 14.144 | 48.1 | 19.001 | 87.5 | 1.512 | 1.203 | 1.681 | 54.4 | 2.067 | 3.4 | -1.138 | -1.640 | 55.2 | 1.997 |
| 2973349.2 | 708690.8 | 1263.9 | 12.265 | 13.207 | 47.1 | 18.023 | 86.2 | 1.434 | 1.057 | 1.635 | 57.1 | 1.947 | 3.0 | -0.990 | -1.592 | 58.1 | 1.875 |
| 2973346.6 | 708686.6 | 1263.9 | 11.774 | 12.331 | 46.3 | 17.049 | 83.6 | 1.357 | 0.917 | 1.561 | 59.6 | 1.810 | 2.7 | -0.848 | -1.516 | 60.8 | 1.737 |
| 2973343.9 | 708682.3 | 1263.8 | 11.239 | 11.516 | 45.7 | 16.091 | 80.8 | 1.281 | 0.787 | 1.469 | 61.8 | 1.666 | 2.5 | -0.717 | -1.423 | 63.3 | 1.593 |
| 2973341.3 | 708678.1 | 1263.8 | 10.681 | 10.757 | 45.2 | 15.159 | 78.1 | 1.206 | 0.668 | 1.368 | 64.0 | 1.522 | 2.4 | -0.598 | -1.322 | 65.7 | 1.451 |
| 2973338.6 | 708673.8 | 1263.8 | 10.117 | 10.051 | 44.8 | 14.261 | 75.9 | 1.135 | 0.562 | 1.264 | 66.0 | 1.383 | 2.3 | -0.492 | -1.217 | 68.0 | 1.313 |
| 2973336.0 | 708669.6 | 1263.8 | 9.555 | 9.391 | 44.5 | 13.398 | 73.9 | 1.066 | 0.468 | 1.162 | 68.1 | 1.253 | 2.2 | -0.396 | -1.108 | 70.3 | 1.177 |
| 2973333.3 | 708665.3 | 1263.8 | 9.015 | 8.783 | 44.3 | 12.586 | 72.3 | 1.002 | 0.386 | 1.063 | 70.0 | 1.131 | 2.2 | -0.318 | -1.016 | 72.6 | 1.065 |

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 20 and 21



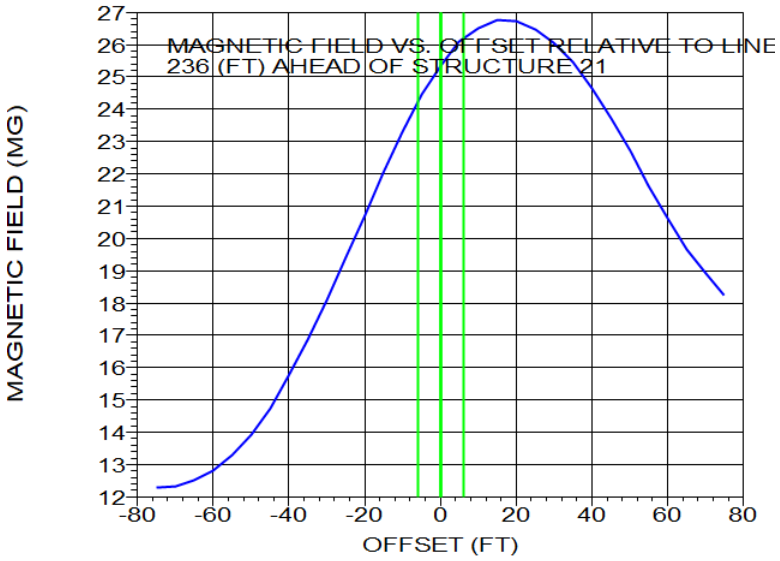



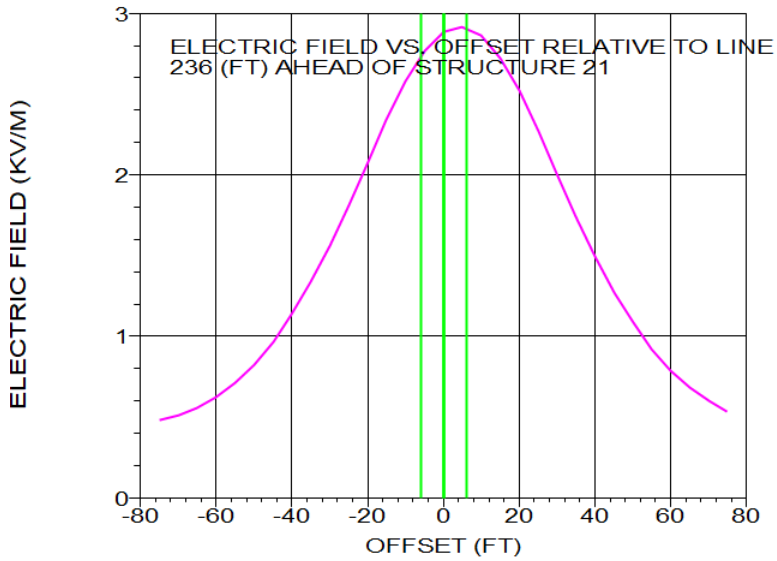

**3D EMF Point Results Span from 20 to 21:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2974124.9 | 708671.5 | 1243.3 | 2.833 | 1.918 | 34.1 | 3.421 | 31.6 | 0.272 | 0.264 | 0.143 | 28.4 | 0.300 | 7.0 | -1.019 | -0.559 | 28.8 | 1.162 |
| 2974125.0 | 708666.5 | 1242.4 | 3.020 | 2.035 | 34.0 | 3.642 | 31.1 | 0.290 | 0.295 | 0.167 | 29.6 | 0.339 | 6.2 | -1.059 | -0.613 | 30.1 | 1.224 |
| 2974125.0 | 708661.5 | 1241.1 | 3.201 | 2.148 | 33.9 | 3.855 | 30.6 | 0.307 | 0.327 | 0.194 | 30.7 | 0.381 | 5.2 | -1.058 | -0.646 | 31.4 | 1.240 |
| 2974125.1 | 708656.5 | 1239.9 | 3.390 | 2.264 | 33.7 | 4.076 | 30.1 | 0.324 | 0.362 | 0.224 | 31.8 | 0.426 | 4.4 | -1.037 | -0.665 | 32.7 | 1.232 |
| 2974125.2 | 708651.5 | 1238.6 | 3.581 | 2.381 | 33.6 | 4.300 | 29.6 | 0.342 | 0.398 | 0.257 | 32.8 | 0.473 | 3.5 | -0.986 | -0.664 | 34.0 | 1.188 |
| 2974125.3 | 708646.5 | 1237.3 | 3.775 | 2.500 | 33.5 | 4.528 | 29.1 | 0.360 | 0.435 | 0.292 | 33.9 | 0.524 | 2.8 | -0.907 | -0.640 | 35.2 | 1.110 |
| 2974125.4 | 708641.5 | 1236.0 | 3.980 | 2.624 | 33.4 | 4.767 | 28.5 | 0.379 | 0.472 | 0.330 | 34.9 | 0.576 | 2.1 | -0.813 | -0.600 | 36.4 | 1.011 |
| 2974125.5 | 708636.5 | 1235.7 | 4.245 | 2.790 | 33.3 | 5.080 | 27.9 | 0.404 | 0.511 | 0.370 | 35.9 | 0.631 | 1.8 | -0.820 | -0.626 | 37.3 | 1.032 |
| 2974125.6 | 708631.5 | 1235.4 | 4.525 | 2.964 | 33.2 | 5.410 | 27.4 | 0.430 | 0.548 | 0.412 | 36.9 | 0.686 | 1.5 | -0.831 | -0.653 | 38.2 | 1.056 |
| 2974125.7 | 708626.5 | 1235.1 | 4.811 | 3.140 | 33.1 | 5.746 | 26.7 | 0.457 | 0.584 | 0.454 | 37.9 | 0.739 | 1.3 | -0.832 | -0.673 | 38.9 | 1.070 |
| 2974125.7 | 708621.5 | 1234.7 | 5.100 | 3.314 | 33.0 | 6.082 | 26.1 | 0.484 | 0.616 | 0.495 | 38.8 | 0.791 | 1.1 | -0.820 | -0.680 | 39.7 | 1.065 |
| 2974125.8 | 708616.6 | 1234.5 | 5.400 | 3.491 | 32.9 | 6.430 | 25.5 | 0.512 | 0.646 | 0.534 | 39.6 | 0.838 | 0.9 | -0.820 | -0.695 | 40.3 | 1.075 |
| 2974125.9 | 708611.6 | 1234.4 | 5.708 | 3.669 | 32.7 | 6.786 | 24.9 | 0.540 | 0.670 | 0.571 | 40.4 | 0.881 | 0.8 | -0.830 | -0.716 | 40.8 | 1.096 |
| 2974126.0 | 708606.6 | 1234.2 | 6.007 | 3.834 | 32.5 | 7.127 | 24.3 | 0.567 | 0.690 | 0.603 | 41.2 | 0.916 | 0.6 | -0.822 | -0.721 | 41.3 | 1.093 |
| 2974126.1 | 708601.6 | 1234.1 | 6.305 | 3.991 | 32.3 | 7.462 | 23.8 | 0.594 | 0.703 | 0.630 | 41.9 | 0.944 | 0.5 | -0.816 | -0.726 | 41.6 | 1.092 |
| 2974126.2 | 708596.6 | 1233.9 | 6.584 | 4.127 | 32.1 | 7.770 | 23.2 | 0.618 | 0.709 | 0.651 | 42.6 | 0.963 | 0.3 | -0.788 | -0.707 | 41.9 | 1.059 |
| 2974126.3 | 708591.6 | 1233.6 | 6.834 | 4.235 | 31.8 | 8.040 | 22.7 | 0.640 | 0.708 | 0.665 | 43.2 | 0.972 | 0.2 | -0.727 | -0.656 | 42.1 | 0.979 |
| 2974126.3 | 708586.6 | 1233.4 | 7.081 | 4.332 | 31.5 | 8.301 | 22.3 | 0.661 | 0.701 | 0.672 | 43.8 | 0.971 | 0.1 | -0.684 | -0.618 | 42.1 | 0.921 |
| 2974126.4 | 708581.6 | 1233.4 | 7.331 | 4.422 | 31.1 | 8.562 | 21.8 | 0.681 | 0.687 | 0.672 | 44.3 | 0.961 | 0.1 | -0.668 | -0.604 | 42.1 | 0.900 |
| 2974126.5 | 708576.6 | 1233.4 | 7.575 | 4.496 | 30.7 | 8.808 | 21.4 | 0.701 | 0.668 | 0.666 | 44.9 | 0.943 | 0.1 | -0.663 | -0.598 | 42.0 | 0.893 |
| 2974126.6 | 708571.6 | 1233.4 | 7.801 | 4.547 | 30.2 | 9.029 | 21.0 | 0.719 | 0.643 | 0.653 | 45.4 | 0.916 | 0.2 | -0.654 | -0.587 | 41.9 | 0.879 |
| 2974126.7 | 708566.6 | 1233.5 | 8.016 | 4.580 | 29.7 | 9.232 | 20.7 | 0.735 | 0.613 | 0.635 | 46.0 | 0.883 | 0.2 | -0.648 | -0.579 | 41.8 | 0.869 |
| 2974126.8 | 708561.6 | 1233.6 | 8.226 | 4.597 | 29.2 | 9.423 | 20.5 | 0.750 | 0.580 | 0.613 | 46.6 | 0.844 | 0.2 | -0.651 | -0.580 | 41.7 | 0.872 |
| 2974126.9 | 708556.6 | 1233.7 | 8.424 | 4.594 | 28.6 | 9.595 | 20.2 | 0.764 | 0.545 | 0.588 | 47.2 | 0.801 | 0.3 | -0.650 | -0.577 | 41.6 | 0.869 |
| 2974126.9 | 708551.6 | 1233.9 | 8.618 | 4.575 | 28.0 | 9.757 | 20.1 | 0.776 | 0.507 | 0.560 | 47.9 | 0.755 | 0.3 | -0.653 | -0.578 | 41.5 | 0.872 |
| 2974127.0 | 708546.6 | 1234.1 | 8.799 | 4.536 | 27.3 | 9.899 | 20.0 | 0.788 | 0.468 | 0.531 | 48.6 | 0.708 | 0.4 | -0.644 | -0.567 | 41.4 | 0.858 |
| 2974127.1 | 708541.6 | 1234.2 | 8.980 | 4.482 | 26.5 | 10.036 | 19.9 | 0.799 | 0.429 | 0.501 | 49.5 | 0.660 | 0.4 | -0.636 | -0.558 | 41.3 | 0.846 |
| 2974127.2 | 708536.6 | 1234.5 | 9.181 | 4.424 | 25.7 | 10.191 | 19.9 | 0.811 | 0.389 | 0.472 | 50.5 | 0.612 | 0.6 | -0.641 | -0.565 | 41.4 | 0.855 |
| 2974127.3 | 708531.6 | 1234.7 | 9.369 | 4.345 | 24.9 | 10.328 | 20.0 | 0.822 | 0.350 | 0.443 | 51.7 | 0.565 | 0.8 | -0.626 | -0.551 | 41.4 | 0.835 |
| 2974127.4 | 708526.6 | 1235.0 | 9.576 | 4.260 | 24.0 | 10.481 | 20.1 | 0.834 | 0.312 | 0.415 | 53.1 | 0.519 | 1.1 | -0.615 | -0.543 | 41.4 | 0.820 |
| 2974127.5 | 708521.6 | 1235.2 | 9.803 | 4.167 | 23.0 | 10.652 | 20.2 | 0.848 | 0.274 | 0.389 | 54.9 | 0.476 | 1.5 | -0.603 | -0.536 | 41.6 | 0.807 |

# APPENDIX B
# PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 21 and 22



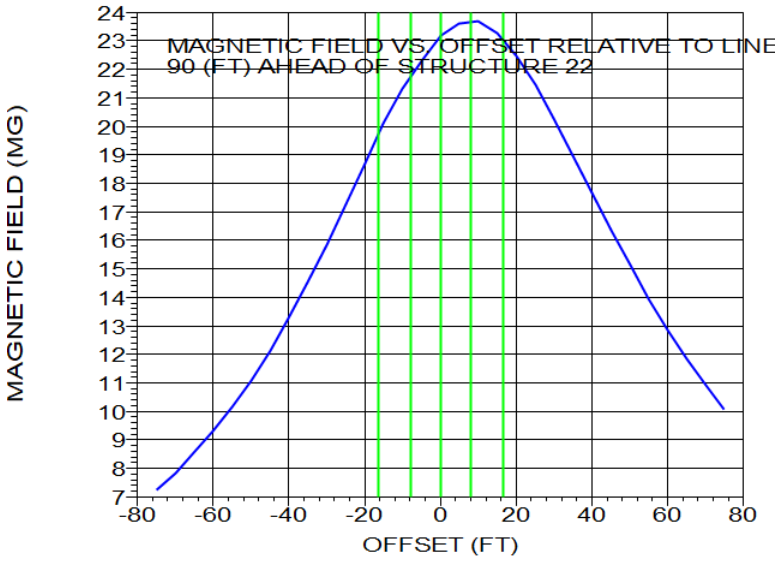



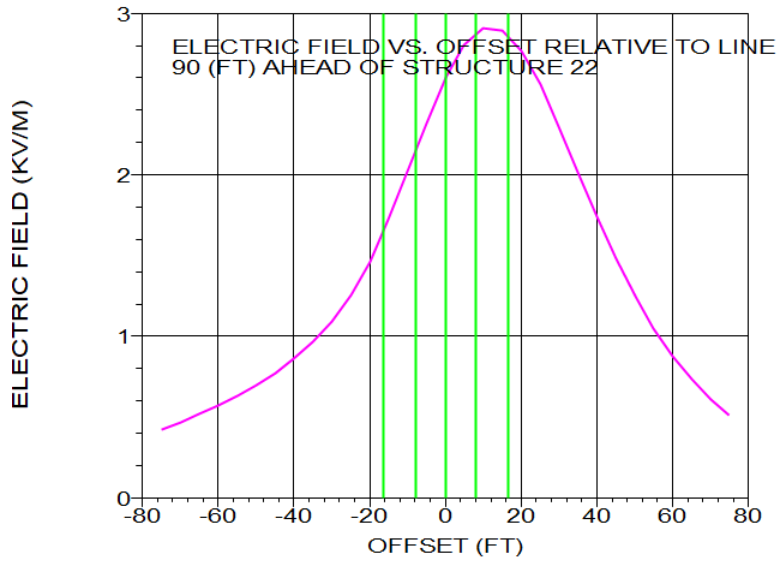

**3D EMF Point Results Span from 21 to 22:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2974307.9 | 708362.0 | 1240.4 | 10.139 | 6.954 | 34.4 | 12.295 | 49.1 | 0.978 | 0.450 | 0.166 | 20.2 | 0.479 | 4.5 | -0.512 | 0.190 | -20.4 | 0.546 |
| 2974302.9 | 708362.0 | 1240.5 | 10.099 | 7.098 | 35.1 | 12.343 | 53.5 | 0.982 | 0.496 | 0.129 | 14.6 | 0.512 | 4.4 | -0.543 | 0.159 | -16.3 | 0.565 |
| 2974297.9 | 708362.0 | 1240.8 | 10.147 | 7.318 | 35.8 | 12.511 | 58.4 | 0.996 | 0.553 | 0.083 | 8.5 | 0.559 | 4.3 | -0.594 | 0.120 | -11.4 | 0.606 |
| 2974292.9 | 708362.0 | 1240.8 | 10.302 | 7.619 | 36.5 | 12.813 | 63.4 | 1.020 | 0.623 | 0.032 | 2.9 | 0.624 | 3.9 | -0.637 | 0.068 | -6.1 | 0.641 |
| 2974287.9 | 708362.0 | 1240.9 | 10.544 | 8.079 | 37.5 | 13.283 | 68.7 | 1.057 | 0.708 | 0.058 | 4.7 | 0.710 | 3.3 | -0.710 | 0.007 | -0.6 | 0.710 |
| 2974282.9 | 708362.0 | 1241.1 | 10.863 | 8.718 | 38.7 | 13.928 | 74.3 | 1.108 | 0.810 | 0.144 | 10.1 | 0.823 | 2.7 | -0.813 | -0.069 | 4.8 | 0.816 |
| 2974277.9 | 708362.0 | 1241.3 | 11.250 | 9.541 | 40.3 | 14.751 | 80.1 | 1.174 | 0.930 | 0.252 | 15.2 | 0.964 | 2.2 | -0.956 | -0.167 | 9.9 | 0.970 |
| 2974272.9 | 708362.0 | 1241.5 | 11.722 | 10.509 | 41.9 | 15.743 | 85.7 | 1.253 | 1.067 | 0.384 | 19.8 | 1.134 | 2.0 | -1.129 | -0.294 | 14.6 | 1.167 |
| 2974267.9 | 708362.0 | 1241.7 | 12.300 | 11.554 | 43.2 | 16.875 | 90.7 | 1.343 | 1.221 | 0.542 | 24.0 | 1.336 | 1.8 | -1.316 | -0.447 | 18.8 | 1.390 |
| 2974262.9 | 708362.0 | 1241.7 | 13.007 | 12.566 | 44.0 | 18.085 | 94.7 | 1.439 | 1.386 | 0.726 | 27.6 | 1.565 | 1.6 | -1.471 | -0.605 | 22.3 | 1.590 |
| 2974257.9 | 708362.0 | 1241.7 | 13.875 | 13.583 | 44.4 | 19.417 | 97.9 | 1.545 | 1.559 | 0.933 | 30.9 | 1.817 | 1.5 | -1.648 | -0.786 | 25.5 | 1.826 |
| 2974252.9 | 708362.0 | 1241.8 | 14.847 | 14.481 | 44.3 | 20.740 | 95.4 | 1.650 | 1.732 | 1.154 | 33.7 | 2.081 | 1.4 | -1.833 | -0.985 | 28.3 | 2.081 |
| 2974247.9 | 708362.0 | 1241.8 | 15.932 | 15.233 | 43.7 | 22.042 | 90.8 | 1.754 | 1.895 | 1.375 | 36.0 | 2.342 | 1.3 | -2.003 | -1.183 | 30.6 | 2.327 |
| 2974242.9 | 708362.0 | 1241.9 | 17.108 | 15.841 | 42.8 | 23.315 | 85.7 | 1.855 | 2.037 | 1.581 | 37.8 | 2.579 | 1.4 | -2.191 | -1.393 | 32.4 | 2.596 |
| 2974237.9 | 708362.0 | 1242.0 | 18.297 | 16.214 | 41.5 | 24.447 | 80.4 | 1.945 | 2.146 | 1.748 | 39.2 | 2.768 | 1.6 | -2.326 | -1.553 | 33.7 | 2.797 |
| 2974232.9 | 708362.0 | 1241.9 | 19.402 | 16.305 | 40.0 | 25.344 | 75.1 | 2.017 | 2.209 | 1.857 | 40.0 | 2.886 | 1.9 | -2.364 | -1.614 | 34.3 | 2.863 |
| 2974227.9 | 708362.0 | 1242.0 | 20.435 | 16.216 | 38.4 | 26.087 | 70.1 | 2.076 | 2.221 | 1.894 | 40.5 | 2.919 | 2.3 | -2.416 | -1.660 | 34.5 | 2.931 |
| 2974222.9 | 708362.0 | 1242.0 | 21.252 | 15.867 | 36.7 | 26.522 | 65.6 | 2.111 | 2.179 | 1.855 | 40.4 | 2.862 | 2.8 | -2.365 | -1.592 | 34.0 | 2.851 |
| 2974217.9 | 708362.0 | 1242.1 | 21.895 | 15.367 | 35.1 | 26.750 | 61.6 | 2.129 | 2.089 | 1.746 | 39.9 | 2.722 | 3.4 | -2.308 | -1.495 | 32.9 | 2.750 |
| 2974212.9 | 708362.0 | 1242.1 | 22.320 | 14.735 | 33.4 | 26.745 | 58.2 | 2.128 | 1.959 | 1.582 | 38.9 | 2.518 | 4.1 | -2.219 | -1.352 | 31.4 | 2.598 |
| 2974207.9 | 708362.0 | 1242.1 | 22.471 | 13.998 | 31.9 | 26.474 | 55.5 | 2.107 | 1.801 | 1.382 | 37.5 | 2.271 | 4.7 | -2.058 | -1.144 | 29.1 | 2.355 |
| 2974202.9 | 708362.0 | 1242.1 | 22.437 | 13.237 | 30.5 | 26.051 | 53.3 | 2.073 | 1.630 | 1.168 | 35.6 | 2.006 | 5.5 | -1.898 | -0.938 | 26.3 | 2.117 |
| 2974197.9 | 708362.0 | 1242.1 | 22.191 | 12.475 | 29.3 | 25.457 | 51.6 | 2.026 | 1.457 | 0.956 | 33.3 | 1.743 | 6.2 | -1.708 | -0.720 | 22.9 | 1.853 |
| 2974192.9 | 708362.0 | 1241.9 | 21.689 | 11.736 | 28.4 | 24.661 | 50.7 | 1.962 | 1.290 | 0.758 | 30.4 | 1.496 | 6.6 | -1.454 | -0.484 | 18.4 | 1.532 |
| 2974187.9 | 708362.0 | 1241.5 | 20.991 | 11.053 | 27.8 | 23.723 | 50.3 | 1.888 | 1.135 | 0.580 | 27.1 | 1.275 | 6.6 | -1.172 | -0.266 | 12.8 | 1.202 |
| 2974182.9 | 708362.0 | 1241.0 | 20.156 | 10.440 | 27.4 | 22.700 | 50.3 | 1.806 | 0.996 | 0.426 | 23.2 | 1.083 | 5.9 | -0.888 | -0.090 | 5.8 | 0.893 |
| 2974177.9 | 708362.0 | 1240.4 | 19.246 | 9.895 | 27.2 | 21.640 | 50.6 | 1.722 | 0.874 | 0.297 | 18.8 | 0.923 | 4.5 | -0.625 | 0.035 | -3.2 | 0.626 |
| 2974172.9 | 708362.0 | 1239.7 | 18.339 | 9.411 | 27.2 | 20.613 | 51.0 | 1.640 | 0.768 | 0.190 | 13.9 | 0.791 | 2.6 | -0.408 | 0.104 | -14.3 | 0.421 |
| 2974167.9 | 708362.0 | 1239.2 | 17.508 | 8.977 | 27.1 | 19.675 | 51.2 | 1.566 | 0.677 | 0.105 | 8.8 | 0.685 | 0.6 | -0.254 | 0.128 | -26.7 | 0.284 |
| 2974162.9 | 708362.0 | 1238.9 | 16.835 | 8.586 | 27.0 | 18.898 | 51.0 | 1.504 | 0.600 | 0.037 | 3.5 | 0.601 | 0.8 | -0.179 | 0.122 | -34.2 | 0.217 |
| 2974157.9 | 708362.0 | 1238.9 | 16.281 | 8.231 | 26.8 | 18.243 | 50.5 | 1.452 | 0.535 | 0.019 | 2.0 | 0.535 | 1.4 | -0.154 | 0.108 | -35.2 | 0.188 |

APPENDIX B
PLS-CADD 3D EMF CALCULATION REPORT

Wire low point cross section results between structures 22 and POI




**3D EMF Point Results Span from 22 to POI:**

| Measurement | | | B | | | | | H | EF | | | | | Space Potential | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X (ft) | Y (ft) | Z (ft) | Real (mG) | Imaginary (mG) | Angle (deg) | Magnitude (mG) | Polarization Axial Ratio % | Magnitude (A/m) | Real (kV/m) | Imaginary (kV/m) | Angle (deg) | Magnitude (kV/m) | Polarization Axial Ratio % | Real (kV) | Imaginary (kV) | Angle (deg) | Magnitude (kV) |
| 2974307.9 | 708258.5 | 1244.3 | 4.690 | 5.510 | 49.6 | 7.236 | 58.5 | 0.576 | 0.162 | 0.391 | 67.5 | 0.423 | 5.9 | -0.118 | 0.407 | -73.8 | 0.424 |
| 2974302.9 | 708258.5 | 1244.3 | 5.043 | 6.016 | 50.0 | 7.850 | 59.6 | 0.625 | 0.210 | 0.419 | 63.4 | 0.468 | 6.4 | -0.169 | 0.431 | -68.6 | 0.462 |
| 2974297.9 | 708258.5 | 1244.3 | 5.432 | 6.585 | 50.5 | 8.536 | 60.3 | 0.679 | 0.267 | 0.444 | 59.0 | 0.518 | 7.1 | -0.230 | 0.451 | -63.0 | 0.507 |
| 2974292.9 | 708258.5 | 1244.3 | 5.860 | 7.224 | 50.9 | 9.302 | 60.7 | 0.740 | 0.336 | 0.464 | 54.1 | 0.573 | 7.8 | -0.304 | 0.467 | -56.9 | 0.557 |
| 2974287.9 | 708258.5 | 1244.3 | 6.329 | 7.941 | 51.4 | 10.154 | 60.8 | 0.808 | 0.419 | 0.476 | 48.7 | 0.634 | 8.7 | -0.392 | 0.472 | -50.3 | 0.614 |
| 2974282.9 | 708258.5 | 1244.3 | 6.839 | 8.741 | 52.0 | 11.098 | 60.5 | 0.883 | 0.516 | 0.475 | 42.6 | 0.701 | 9.6 | -0.493 | 0.461 | -43.1 | 0.675 |
| 2974277.9 | 708258.5 | 1244.3 | 7.390 | 9.630 | 52.5 | 12.139 | 59.7 | 0.966 | 0.630 | 0.453 | 35.7 | 0.776 | 10.6 | -0.609 | 0.427 | -35.0 | 0.743 |
| 2974272.9 | 708258.5 | 1244.3 | 7.984 | 10.611 | 53.0 | 13.280 | 58.7 | 1.057 | 0.761 | 0.404 | 27.9 | 0.861 | 11.6 | -0.740 | 0.363 | -26.1 | 0.825 |
| 2974267.9 | 708258.5 | 1244.3 | 8.621 | 11.684 | 53.6 | 14.521 | 57.2 | 1.156 | 0.908 | 0.320 | 19.4 | 0.963 | 12.4 | -0.890 | 0.262 | -16.4 | 0.927 |
| 2974262.9 | 708258.5 | 1244.3 | 9.306 | 12.847 | 54.1 | 15.863 | 55.5 | 1.262 | 1.071 | 0.208 | 11.0 | 1.091 | 12.9 | -1.065 | 0.113 | -6.1 | 1.071 |
| 2974257.9 | 708258.5 | 1244.3 | 10.026 | 14.066 | 54.5 | 17.273 | 53.6 | 1.375 | 1.244 | 0.165 | 7.5 | 1.255 | 12.7 | -1.254 | -0.096 | 4.4 | 1.258 |
| 2974252.9 | 708258.5 | 1244.3 | 10.773 | 15.301 | 54.9 | 18.713 | 51.5 | 1.489 | 1.423 | 0.354 | 14.0 | 1.466 | 11.6 | -1.452 | -0.370 | 14.3 | 1.498 |
| 2974247.9 | 708258.5 | 1244.3 | 11.511 | 16.462 | 55.0 | 20.087 | 49.4 | 1.598 | 1.596 | 0.653 | 22.2 | 1.725 | 9.9 | -1.620 | -0.695 | 23.2 | 1.763 |
| 2974242.9 | 708258.5 | 1244.2 | 12.216 | 17.470 | 55.0 | 21.318 | 47.3 | 1.696 | 1.753 | 1.002 | 29.8 | 2.019 | 7.9 | -1.745 | -1.041 | 30.8 | 2.032 |
| 2974237.9 | 708258.5 | 1244.1 | 12.854 | 18.243 | 54.8 | 22.317 | 45.3 | 1.776 | 1.878 | 1.367 | 36.0 | 2.323 | 6.0 | -1.815 | -1.369 | 37.0 | 2.273 |
| 2974232.9 | 708258.5 | 1244.2 | 13.471 | 18.845 | 54.4 | 23.165 | 43.4 | 1.843 | 1.958 | 1.710 | 41.1 | 2.600 | 4.7 | -1.930 | -1.733 | 41.9 | 2.594 |
| 2974227.9 | 708258.5 | 1244.2 | 13.931 | 19.076 | 53.9 | 23.621 | 41.6 | 1.880 | 1.979 | 1.988 | 45.1 | 2.805 | 3.6 | -1.964 | -2.019 | 45.8 | 2.817 |
| 2974222.9 | 708258.5 | 1244.3 | 14.183 | 18.973 | 53.2 | 23.689 | 39.8 | 1.885 | 1.933 | 2.171 | 48.3 | 2.907 | 2.8 | -1.950 | -2.226 | 48.8 | 2.959 |
| 2974217.9 | 708258.5 | 1244.2 | 14.201 | 18.440 | 52.4 | 23.275 | 38.5 | 1.852 | 1.826 | 2.240 | 50.8 | 2.890 | 2.2 | -1.827 | -2.274 | 51.2 | 2.917 |
| 2974212.9 | 708258.5 | 1244.2 | 13.992 | 17.603 | 51.5 | 22.487 | 37.2 | 1.789 | 1.668 | 2.204 | 52.9 | 2.764 | 1.8 | -1.640 | -2.197 | 53.3 | 2.742 |
| 2974207.9 | 708258.5 | 1244.2 | 13.617 | 16.592 | 50.6 | 21.464 | 36.1 | 1.708 | 1.478 | 2.085 | 54.7 | 2.556 | 1.7 | -1.447 | -2.067 | 55.0 | 2.523 |
| 2974202.9 | 708258.5 | 1244.2 | 13.093 | 15.464 | 49.7 | 20.263 | 35.1 | 1.612 | 1.274 | 1.910 | 56.3 | 2.296 | 1.7 | -1.243 | -1.886 | 56.6 | 2.259 |
| 2974197.9 | 708258.5 | 1244.2 | 12.467 | 14.294 | 48.9 | 18.967 | 34.2 | 1.509 | 1.073 | 1.707 | 57.8 | 2.017 | 1.8 | -1.043 | -1.680 | 58.2 | 1.978 |
| 2974192.9 | 708258.5 | 1244.2 | 11.783 | 13.141 | 48.1 | 17.650 | 33.3 | 1.405 | 0.886 | 1.498 | 59.4 | 1.740 | 2.0 | -0.861 | -1.477 | 59.8 | 1.710 |
| 2974187.9 | 708258.5 | 1244.2 | 11.079 | 12.041 | 47.4 | 16.362 | 32.4 | 1.302 | 0.719 | 1.297 | 61.0 | 1.483 | 2.2 | -0.703 | -1.291 | 61.4 | 1.470 |
| 2974182.9 | 708258.5 | 1244.3 | 10.374 | 11.012 | 46.7 | 15.129 | 31.6 | 1.204 | 0.574 | 1.112 | 62.7 | 1.251 | 2.5 | -0.567 | -1.122 | 63.2 | 1.257 |
| 2974177.9 | 708258.5 | 1244.3 | 9.673 | 10.052 | 46.1 | 13.951 | 30.8 | 1.110 | 0.452 | 0.948 | 64.5 | 1.050 | 2.8 | -0.440 | -0.953 | 65.2 | 1.050 |
| 2974172.9 | 708258.5 | 1244.3 | 8.999 | 9.173 | 45.5 | 12.850 | 30.1 | 1.023 | 0.351 | 0.805 | 66.4 | 0.878 | 3.0 | -0.332 | -0.800 | 67.5 | 0.866 |
| 2974167.9 | 708258.5 | 1244.2 | 8.362 | 8.377 | 45.1 | 11.836 | 29.4 | 0.942 | 0.268 | 0.682 | 68.5 | 0.733 | 3.3 | -0.243 | -0.667 | 70.0 | 0.710 |
| 2974162.9 | 708258.5 | 1244.3 | 7.774 | 7.667 | 44.6 | 10.919 | 28.7 | 0.869 | 0.201 | 0.577 | 70.8 | 0.612 | 3.6 | -0.175 | -0.567 | 72.9 | 0.594 |
| 2974157.9 | 708258.5 | 1244.2 | 7.219 | 7.022 | 44.2 | 10.071 | 28.0 | 0.801 | 0.147 | 0.489 | 73.3 | 0.511 | 3.9 | -0.115 | -0.471 | 76.2 | 0.485 |

# Byron Solar, LLC

## Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

| | | | |
|---|---|---|---|
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 6 | Date of Response | July 28, 2022 |
| ☒ Public | | ☐ Nonpublic | |

*Note:* Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Stat. § 13.02, subd. 12.

Question(s):

Collection System.

a. Clarify whether collector lines will be underground or overhead. The application (at p. 28) states that collector lines will deliver power from the panels to inverters trough underground cabling installed in accordance with the AIMP. However, the AIMP (at p. 4) references cabling "via above-ground means and belowground trenches" and (at p. 21) discusses trenches "if the collection lines are buried".

b. Provide the anticipated length (in feet or miles) of collection lines.

c. If overhead collector lines are anticipated, please provide a description of the installation process and dimensions and illustrations of a typical overhead collector structure and foundation.

Response:

a. The reference to aboveground was intended to acknowledge that there will be some conductor that is aboveground as it transitions from above- to belowground from the trackers, modules and inverters. The aboveground connections are generally direct current (DC) whereas belowground collection is generally alternating current (AC). The intent is to bury all AC collection unless there is an engineering or site limitation such as shallow bedrock.

b. The total length of collection lines calculated from the Project Layout (application Map 3) dated February 14, 2022, is approximately 35.3 miles.

c. N/A - overhead collector lines are not anticipated.

*Name of Responder*: Scott Wentzell *Date:* July 28, 2022

*Title:* Project Development Manager

# Byron Solar, LLC

## Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

| | | | |
|---|---|---|---|
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 7 | Date of Response | July 28, 2022 |
| ☒ Public | | ☐ Nonpublic | |

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Question(s):

Weather Stations:

The application (at pp. 27 and 32) mentions "several weather stations" as associated facilities, but there is no further discussion of the weather stations in the application. Appendix D (at p. 3) mentions weather stations of up to 20 feet but does not discuss them further.

Please provide a brief description of the role of the weather stations in the operation of the facility, the approximate number of weather stations anticipated, general installation procedures (approximate size, foundation, fencing, etc.), and whether they would be located within the fenced area or in other nearby areas.

Response:

Weather stations, sometimes referred to as meteorological stations, play an important role in the operation of a solar PV project. The energy produced by a solar PV project is highly dependent on the local weather conditions, including cloud cover, precipitation, ambient temperature and irradiance, among other factors. The role of a weather station is to validate the performance of the solar project and help predict/forecast the power output of the facility. Most common uses for weather stations include performance testing of the facility during commissioning, validation of performance by an Independent Engineer as required by investors, and monitoring the facility throughout its operational life. The primary measurement is irradiance, which is a measurement of the sunlight by a system of pyranometers mounted on the tracker in the same plane as the solar modules and mounted in a fixed horizontal position. To validate bifacial systems, a rear plane of array sensor is also used in conjunction with an albedometer, which measures the reflectiveness, or albedo, of the ground. Temperature sensors are mounted on the rear side of solar modules to measure the PV module temperature since temperature is negatively correlated to module performance. In addition, an all-in-one sensor is used for wind speed, precipitation, air pressure, ambient temperature, and humidity.

Byron Solar will incorporate up to five weather stations scattered evenly throughout the Project. All weather stations will be located within the fenced area of the Project and generally collocated with the inverter skids. Weather stations require a small footprint and are mounted on a permanent tower approximately 15-20 feet high. The foundations are typically a driven steel pile or a small concrete pad.

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*Name of Responder*: Scott Wentzell *Date:* July 28, 2022
*Title:* Project Development Manager

# Byron Solar, LLC

## Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

| | | | |
|---|---|---|---|
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 8 | Date of Response | July 28, 2022 |
| ☒ Public | | ☐ Nonpublic | |

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Question(s):

Impervious Surface Area:

The application, at p. 103 anticipates the creation of approximately 226.7 acres of impervious surface from access roads, inverter skids, and about half the solar array area. This calculation appears inconsistent with the approximate acreage for various solar facility components shown in Table 8 of the application, which anticipates the solar array area as approximately 1,271 acres, half of which would be approximately 636 acres. Please review and explain:

- Any changes to the calculation of impervious area from the 226.7 acres shown on p. 103. If provide a breakdown of the composition of the acreage of impervious surface (e.g. access roads, inverter skids, substation, etc.).
- the rationale for estimating approximately one-half the array area as impervious.
- If the O&M facility and the project substation are not included in a revised estimate of impervious surfaces, please explain why not.

Response:

The "solar array area" of 1,271 acres captures area between the solar panels as well as the solar panels. The solar panel surface area used to calculate the impervious surface is 395 acres. The application calculation was based on approximately 45 acres for access roads and inverters and approximately 187.7 acres for solar panels, for a total of 226.7 acres. The O&M and substation add approximately 6.05 acres to the total. Consequently, the total impervious surface with the substation and O&M added is approximately 232.8 acres.

Westwood used the MPCA's solar panel calculator to estimate impervious from the solar panel array. The modeling analysis considers different ratios of impervious to pervious area and different soil types. The analysis quantified the runoff reduction achieved from redirecting runoff from impervious to pervious surfaces. Inputs to the calculator include soil type, amount of impervious and pervious surface area, and the runoff depth from the solar panel https://stormwater.pca.state.mn.us/index.php?title=File:Solar_panel_calculator_feb_2021.xlsx. Using this calculator, an estimate of 181.7 acres of impervious surface attributed to the solar panels was calculated.

The O&M and substation have been added. The revised estimate of impervious surface is 232.8 acres.

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*Name of Responder*: Scott Wentzell *Date:* July 28, 2022
*Title:* Project Development Manager

# Byron Solar, LLC

## Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review

In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties

| | | | |
|---|---|---|---|
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 9 | Date of Response | July 28, 2022 |
| ☒ Public | | ☐ Nonpublic | |

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Question(s):

Karst Features.

The permit application states that three karst point features identified as sinkholes in the DNR Karst Database were inspected during the geotechnical evaluation, and significant depressions were not observed. The application indicates (at p. 132) that plans to bridge these karst features in a way that allows for panel installation. Please discuss how the project design and construction will bridge karst features in the project area. and Byron Solar will ensure that construction and operation of the project do not create downward migration of unwanted materials into the groundwater.

Response:

Byron Solar will conduct further geotechnical and karst studies to better understand the extent and nature of the karst features. Byron Solar will use the further investigation when determining whether it is cost effect to remediate the feature or remove it from the Project.

If it is determined that remediation is possible/preferable, Byron Solar will:

- Close the feature using grouting or implementation of reverse graded filters or an inverse aggregate graded filter. Each solution would be custom engineered and field fitted for each feature identified.
- Grade the area around the remediated feature to prevent surface ponding and water infiltration to limit future subsidence of the feature. Other stormwater features, such as drain tile may be implemented as well.
- Incorporate the Minnesota Pollution Control Agency's stormwater best management practices for use in karst settings.

Further investigation may indicate that the size, extent or nature of the karst feature is not conducive to

remediation. In this case, Byron Solar would exclude the karst feature and a 100-150-foot buffer around the feature from active construction.

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*Name of Responder*: Scott Wentzell *Date:* July 28, 2022
*Title:* Project Development Manager

| Byron Solar, LLC | | | |
|---|---|---|---|
| **Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review** | | | |
| In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties | | | |
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 10 | Date of Response | August 24, 2022 |
| ☒ Public | | ☐ Nonpublic | |

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Question(s):

Red Route Information

With the information available to Byron Solar at this time, please describe any reasonably foreseeable changes between the design and engineering, operations, and maintenance of the route proposed in the application (Blue Route) that should be considered if the Red Route (proposed in scoping) is selected. Examples of changes may include, but are not limited to, structure types, conductor types, spans between structures, ROW requirements, grading needs, EMF fields, etc.

Response:

Based on the limited information available for the Red Route, we believe that structure types, span lengths and general ROW requirements would be similar between the Red and Blue Routes. We would not expect substantial changes to how the transmission facilities would be operated or maintained.

The EMF profile of the Red Route would be different and EMF fields could be higher than the proposed Blue Route. The Red Route runs parallel to two existing transmission lines - one at 345kV and another at 138kV. The proximity to these two existing lines, particularly the higher voltage 345kV line, would result in additional magnetic field strength and induction current. Byron Solar is not able to quantify the impact of these changes at this time.

*Name of Responder*: Scott Wentzell *Date* August 24, 2022
*Title:* Project Development Manager

| Byron Solar, LLC | | | |
|---|---|---|---|
| **Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review** | | | |
| In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties | | | |
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 11 | Date of Response | August 24, 2022 |
| ☒ Public | | ☐ Nonpublic | |

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Question(s):

Transmission Structures

a. Please describe the approximate width and depth of the holes for direct embed structures.

b. Please clarify the potential impacts of the transmission facilities to groundwater resources. The discussion of construction of the concrete pier foundations on page 43 of the application indicates that drilled pier foundations may be up to 20 to 30 feet deep or more, while the discussion of impacts to groundwater on pages 102-103 of the application, Byron Solar indicates that the foundations for the transmission poles and substation are not expected to exceed the 5 to 12 foot depth of the piers for the PV arrays.

Response:

a. 20' direct embedment is typical for 345kV foundations. The exact depth of each structure will vary as a function of soil strength and soil properties. Hole width may vary between 4.5' to 6.5'.

b. The applicant does not anticipate impacts to groundwater resources associated with the transmission facilities. While there are no County Well Index (CWI) wells located within the narrow transmission line construction corridor, there are a number of CWI wells in proximity to the route. The following table lists the wells reviewed and the well log depth to static water level in each. As shown, the depth to static groundwater is over 200 feet deep in this area based on the CWI data, deeper than the anticipated depths of the transmission facility foundations. If a concrete pier foundation is required for a transmission structure, it would be embedded to a depth of approximately 30 feet. Only turning structures generally require a concrete pier foundation, and thus only a few such foundations are expected to be required. The remaining direct imbedded poles are expected to be installed at a depth of approximately 20 feet below grade.

| Well Log Number | Depth to Static Water Level (ft) |
|---|---|
| 689519 | 218 |
| 826020 | 210 |
| 618296 | 219 |
| 655827 | 230 |
| 188858 | 239 |
| 139590 | 255 |
| 599122 | 229 |
| Z644837 | 231 |
| 139591 | 270 |

*Name of Responder*: Scott Wentzell *Date* August 24, 2022
*Title:* Project Development Manager

| Byron Solar, LLC | | | |
|---|---|---|---|
| **Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review** | | | |
| In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties | | | |
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 12 | Date of Response | August 24, 2022 |
| ☒ Public | | ☐ Nonpublic | |

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Question(s):

Land Rights

a. If the Red Route (introduced during scoping) is selected, how will Byron Solar acquire the land rights necessary to construct and operate the route?

b. How will the approximately 250 acres under lease but not developed for the project (shown as "undeveloped" in Tables 3 and Table 8) be used?

c. Please clarify whether Byron Solar owns any of the land proposed to be used for the solar facility, or whether all the approximately 1801 acres within the proposed site is under a lease agreement.

Response:

a. If the Red Route were permitted by the Commission, Byron Solar would attempt to negotiate transmission easement agreements with the landowners along the permitted route. Byron Solar is currently attempting to contact the landowners within the Red Route right-of-way. At this time, we are not certain that there is sufficient interest from landowners to support a viable and connected pathway from the alternate project substation to the Byron Substation. If Byron Solar is unable to secure the necessary land rights, this route would not be viable.

b. Any acres that are not required to construct and operate the Byron Solar project will be removed from the final project boundary and Byron Solar will terminate its leasehold interests pursuant to legal agreement(s) with those landowners. It is expected that acreage that is not required to construct and operate Byron Solar will remain in agricultural production.

c. Byron Solar maintains an Option to Purchase for four to six acres of land where the proposed project substation will be built. All of the remaining property within the Project Area is subject to a lease or easement agreement.

*Name of Responder*: Scott Wentzell *Date* August 24, 2022
*Title:* Project Development Manager

| Byron Solar, LLC | | | |
|---|---|---|---|
| **Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review** | | | |
| In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties | | | |
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 13 | Date of Response | August 24, 2022 |
| ☒ Public | | ☐ Nonpublic | |

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Question(s):

Project Schedule

a. Please discuss any changes to the anticipated schedule described in the joint permit applications.

b. If the Red Route is selected, would that require changes to the proposed schedule?

c. Is Byron Solar considering phasing construction and operation of the project? If so, please provide a brief discussion of what circumstances would lead Byron Solar to consider phasing the construction (e.g., a delay in interconnection agreement, more than one power sales agreement, delays in acquiring all the panels or other project components).

Response:

a. Generally, Byron Solar's schedule has been delayed by one year. This delay is largely attributable to the longer-than-expected timeline for the Certificate of Need, Site and Route Permit processes. Currently, Byron Solar expects to reach commercial operations by the end of 2025. Table 1 from the Joint Permit Application has been updated accordingly below:

| Table 1: Project Schedule | | |
|---|---|---|
| Activity | Description | Timeline |
| Interconnection Request | Approval from the Midcontinent Independent System Operator (MISO) to connect the project to the grid. | Applicant has entered into a GIA for the first 100MW queue position J1124 and expects to enter into a GIA for the remaining 100MWs (J1534) in March 2023. |
| Land Acquisition | Acquire leases, easements, and purchase agreements necessary for development of the Project. | Began Solar Facility land campaign in Q3 2018 and HVTL land campaign in Q2 2020. The Project currently has executed |

| | | |
|---|---|---|
| | | agreements for the land needed to construct both the Solar Facility and HVTL. |
| Field Surveys | Field surveys conducted within the Solar Facility and HVTL route for wetlands, native prairies, and cultural resources. | Field surveys initiated in Q4 2020 and completed in Q2 2021. |
| Site Permit, Route Permit, and Certificate of Need (CN) | CN, Site Permit and Route Permit issuance for the Project. | Anticipated Q2 2023. |
| Other Permits | Acquisition of all federal, state, local, and tribal government permits and approvals necessary for construction and operation of the Project. | The Applicant is working with applicable regulatory authorities to obtain the necessary permits/approvals by the end of the Q3 2023. |
| Equipment and Contractor Acquisition | Procurement of project equipment including, but not limited to, panels, trackers, inverters, transformers, and steel monopoles. Final contractor selections will be made contingent on the Joint Site and Route Permit Application being approved by the Commission. | Between Q3/Q4 2023. |
| Construction | The Applicant will oversee the primary contractors performing construction of the Project. These construction activities will include access road building, solar array assembly, electrical, transmission, and communications installation work. The Applicant anticipates beginning construction of the Project soon after being granted a CN, Site Permit, and Route Permit by the MPUC and fulfilling necessary pre-construction compliance requirements. | Begin Q3/Q4 2024 and end Q3/Q4 2025. |
| Testing and Commissioning | Testing and commissioning of project related equipment. | End of construction and prior to the start of commercial operation – Q3/Q4 2025. |
| Operation | Commercial operation of the solar facility and transmission line following construction and testing/commissioning activities are completed. | Q4 2025. |
| Project Extension or Decommissioning | | 2061 or later. |

b. The schedule impacts of selecting the Red Route would be considerable, unpredictable and could put the project in-service at risk. Byron Solar has been unable to contact all the landowners within the Red Route and at this time we are uncertain if sufficient landowner interest is present to connect a viable transmission ROW along this route.
c. A phased construction approach is possible but not Byron Solar's current preference. As of now, Byron Solar expects that all 200MWs of the project's capacity will be constructed in sequence and achieve commercial operation simultaneously by the end of 2025. Below are several items that could delay the construction of part, but not all, of the facility:

    - Interconnection agreement delay - If the MISO study process is significantly delayed, a GIA may not be reached on J1534 prior to the date by which Byron Solar needs to procure

equipment to support a 2025 COD. In that case, Byron Solar may elect to move forward with construction on a 100MW first phase, with the balance of the project coming online once it is commercially feasible to do so.

- Interconnection upgrade delay - It is possible that large or time consuming upgrades are required prior to J1534 being able to deliver power to the grid. In that instance, Byron Solar may elect to construct the initial 100MWs for a 2025 COD, with the balance of the plant coming online once interconnection upgrades have been completed.
- Procurement delays/tariffs - There are considerable supply chain constraints across the solar industry currently. Byron Solar may elect to construct the project in two or more phases to accommodate supply chain shortages or as a result of tariffs or future tariffs on the importation of equipment.

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*Name of Responder*: Scott Wentzell *Date* August 24, 2022
*Title:* Project Development Manager

| Byron Solar, LLC | | | |
|---|---|---|---|
| **Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review** | | | |
| In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties | | | |
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 14 | Date of Response | August 24, 2022 |
| ☒ Public | | ☐ Nonpublic | |

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Question(s):

Project Costs

a. Capital Cost: Please provide any updates to the proposed project cost shown in Section 2.3 of the application, including cost estimates for the Red Route (citizen-proposed during scoping).

b. Operating Cost: The Joint Permit Application, at pp. 15 -16 estimates an annual operating cost of $3.2 million dollars to cover labor, materials, and property taxes.

   i. P. 71 of the Joint Permit Application indicates annual lease payments of $1 million at the outset with annual increases. Please clarify whether lease payments are included in the estimated $3.2 million operating costs identified on p. 15.

   ii. Please clarify whether the annual operating costs include the solar energy production taxes paid to counties and townships where the project is located.

   iii. P. 76 of the Joint permit application estimates that ~$400,000 to 450,000 to Dodge and Olmsted counties. Given that the solar generating facility is located entirely within Dodge County, please describe how that revenue will be divided between counties and townships

Response:

a. Byron Solar does not have updates to the proposed project costs at this time. The Red Route would create approximately an additional $3M or more in costs. The added costs are the result of an additional 1.5 miles of transmission lines and structures and a narrow and twisting ROW requiring expensive turning structures. The potential for karst could introduce additional and currently unknown costs.

| Table 5: Estimated Project Costs | Blue Route | Red Route |
|---|---|---|
| **HVTL** | | |
| Engineering, Procurement, Construction Contractor | $3.0 | $5.5 |
| Development Expense | $0.2 | $0.6 |
| Interconnection | N/A | N/A |
| Financing | N/A | N/A |
| Project Substation | N/A | N/A |
| **Subtotal** | **$3.2** | **$6.1** |

b. Operating Cost: The Joint Permit Application, at pp. 15 -16 estimates an annual operating cost of $3.2 million dollars to cover labor, materials, and property taxes.

i. Yes

ii. Yes

iii. The solar facility is located entirely within Dodge County and thus the entre production tax will be allocated to Dodge County. The $400,000-$450,000 estimate includes a nominal property tax payment for transmission infrastructure located in Olmsted County. Additionally, Canisteo Township will receive approximately $100,000-$125,000 annually in production-based property taxes

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*Name of Responder*: Scott Wentzell *Date* August 24, 2022

*Title:* Project Development Manager

| Byron Solar, LLC | | | |
|---|---|---|---|
| **Response to Energy Environmental Review and Analysis (EERA) Questions for Development of Environmental Review** | | | |
| In the Matter of the Application of Byron Solar, LLC for a Certificate of Need, Site, and Route Permits for the Byron Solar Project in Dodge and Olmsted Counties | | | |
| PUC Docket No. | IP-7041/GS-20-763, CN-20-764, TL-20-765 | Directed To: | Scott Wentzell |
| EERA Question No. | 15 | Date of Response | August 24, 2022 |
| ☒ Public | | ☐ Nonpublic | |

*Note:* Energy Environmental Review and Analysis staff intends to use information provided in this response to develop an environmental review document and is a public document. Responses to these questions will be considered to be public information unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Stat. § 13.02, subd. 12.

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Question(s):

Substations

a. Project Substation: The joint permit application provides a general description of the proposed project substation. Please provide a depiction (e.g. illustration or photo) of a substation of a similar size and construction as the project substation proposed by Byron Solar.

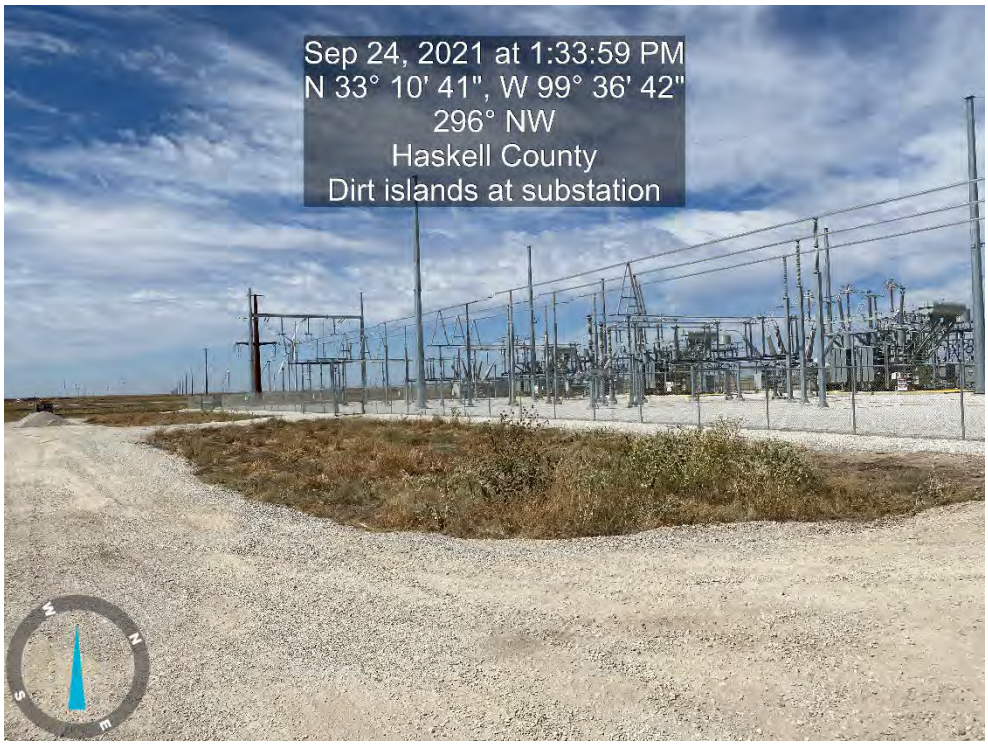
b. Byron Substation: Briefly describe the anticipated improvements at the Byron Substation necessary to accommodate the Byron Solar Project. Please indicate the entity (Byron Solar, SMMPA, or some other entity) responsible for construction of the necessary improvements and the operation, maintenance, and potential repair of improvements related to the Byron Solar project at the Byron Substation.

c. Circuit Breakers: Sulfur hexafluoride, a GHG, is sometimes used in circuit breakers. Does Byron Solar contemplate using sulfur hexafluoride circuit breakers in either the project substation or the improvements to the Byron Substation?

Responses

a. See the provided photos of a recent 345kV project substation that EDF Renewables constructed for a wind farm in Texas:


Sep 24, 2021 at 2:38:52 PM
N 33° 14' 48", W 99° 25' 15"
238° SW
Throckmorton
Final rock at substation


Sep 24, 2021 at 1:33:59 PM
N 33° 10' 41", W 99° 36' 42"
296° NW
Haskell County
Dirt islands at substation


b. The following improvements are anticipated to be needed at the Byron Substation:

SMMPA Scope (GIA)

- Adding Byron Solar's interconnection line will require installation of a new 345 kV circuit breaker. In addition to the new 345 kV circuit breaker, additional GOAB switches, dead-end structure, protection and control equipment, instrumentation, etc. will be required.
- SMMPA shall construct the 345 kV transmission line between the Point of Change of Ownership structure and the Point of Interconnection, terminal structures, and the communication circuit. All structures and foundations will be designed and constructed to the SMMPA's standards.
- SMMPA is responsible for procuring and installing the 345 kV transmission line protection equipment at the Byron Substation.

Xcel Scope (FCA)

- Xcel Energy is responsible for installing the metering at Byron Substation: One (1) meter will be installed inside the electrical equipment enclosure (EEE).
- Network Upgrades to be constructed by Xcel include the installation of one (1) RTU panel, a full set of Business Systems equipment, a new telephone circuit, relay settings and control testing
- Xcel Energy is responsible for operating and maintaining the Byron Substation.

c. Byron Solar expects that the project substation will require 2 high-voltage breakers containing sulfur hexafluoride. At a voltage of 345kV, there are limited and largely untested alternatives to sulfur hexafluoride. Ultimately, any breakers that are implemented will require approval from the interconnecting utility, MISO and from NERC.

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*Name of Responder*: Scott Wentzell *Date* August 24, 2022
*Title:* Project Development Manager

| Byron Solar, LLC | | | |
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Question(s):

Perimeter Fencing

a. What is the estimated length of the perimeter fencing?

b. Please confirm that the perimeter fencing will not use barbed wire. The description of the fencing at p. 132. of the application indicates a design option with a 6-foot chain link fence topped by 3-4 strands of smooth wire (no barbs)angled out and upward at a 45 degree angle or an 8-foot chain link fence. The "Typical Chain Link Security Fence Detail" illustration on sheet C.600 of the Preliminary Civil Site Plan in Appendix G of the application indicates a 6-foot chain link fence topped with barbed wire apron.

Response:

a. The linear distance of fencing shown on Map 3 (Project Layout) of the Site Permit Application is approximately 101,031 feet, or 19.1 miles.

b. The perimeter fencing will not use barbed wire.

*Name of Responder*: Scott Wentzell *Date* August 24, 2022
*Title:* Project Development Manager

| Byron Solar, LLC | | | |
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Question(s):

Erosion Management

Please respond to the Department of Natural Resources query about how the design of the project addresses the grass waterways created to manage erosion in the project area (eDocket ID: 20222-182833-01). DNR specifically requested clarification on whether these grassed waterways will be avoided, removed, or maintained to manage drainage on site during construction and operation to protect water quality.

Response:

Many of these drainage features were identified during field wetland delineations as jurisdictional wetlands/watercourses and will therefore be avoided by permanent impacts. Temporary impacts may occur to cross equipment or collection, where needed. Drainage features that are not jurisdictional wetlands will be removed and drain tile may be installed to manage erosion and flows during construction and operation. The project is designed with wet sedimentation ponds to protect water quality.

*Name of Responder*: Scott Wentzell *Date* August 24, 2022
*Title:* Project Development Manager