

CASE 13-T-0469

**DPS Staff Interrogatories DPS-001 to DPS-027 with
Central Hudson responses.**

**Submitted as an evidentiary exhibit to support the
Joint Proposal filed February 6, 2015.**

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-001 (MS)

Central Hudson Response No: CHGE-001 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Christopher Rottkamp (1, 3, 4, 8, 9, 13, 14, 19, and 20)
Jose Ruaya (5, 7, 10, 11, 16, 18)
John Hecklau (2, 6, 12, 15, 17, 21, 22, 23)
Lewis Fitzgerald (4)

Information Requested:

1. During clean up and restoration of the project will Central Hudson Gas and Electric Corporation (Central Hudson, CHGE, or Company) remove all used/discarded Company-related debris from the right-of-way (ROW)? If not, please explain why.
2. Provide the Company's plans for acquiring the Stormwater Pollution Prevention Plan (SWPPP)/State Pollutant Discharge Elimination System (SPEDES) approval for this project including anticipated filing time horizon.
3. Provide an assessment of the pros and cons of using, for crossing only (not access), the Rail Trail for construction and operation of the facility.
4. Provide all information relating to the use of the Con Edison right of way for construction including, but not limited to, permission, documentation of rights (easement or other approval), environmental assessments (e.g. wetland delineations), proposed access locations, and plans for

restoration of access road and existing features such as culverts.

5. Provide an analysis of the total amount (square footage) of agricultural land that is unusable for each guyed structure that is proposed to be located in agricultural land versus the area that could be utilized if concrete foundations were used.
6. The Application states, in some cases, that the Company will comply with the substantive provisions of these town code chapters/laws as they pertain to construction of the project. However, the Applicant does not specify exactly what part(s) of the codes/law apply to a specific construction practice or design. For each town code/law please identify exactly what portions of the code/law apply to the project and how the Company will or will not comply with such items.
7. Provide the shape files for the preferred proposed route.
8. Is the project ROW currently cleared to its full width?
9. How will driveways and residential areas (landscaping, lawns, etc.) be protected during construction?
10. There appears to be a gas pipeline at Plass Road. This pipeline is not shown on any project drawings. Supply an updated look-down sheet(s) showing its location on the project ROW.
11. Are there any underground cables or pipelines within the project ROW including off-ROW access roads? If so, provide "as-built drawings" or other design drawings identifying where they are located.
12. Are there any other invasive species surveys aside from the completed wetland forms? If so, please supply them.
13. Supply all notes of any meetings with the NYSDEC regarding invasive species.
14. Provide all e-mails, notes or correspondences related to the 8/7/13 field visit with the DEC regarding invasive species.

15. Section 4.5.1.2 states "Invasive species percent coverage and species vary greatly throughout the ROW, but were observed in at least 90% of the delineated wetlands or their immediate vicinity. Field surveys identified the following invasive species within the Project Area: purple loosestrife (*Lythrum salicaria*), reed canary-grass (*Phalaris arundinacea*), European common reed grass (*Phragmites australis*), multiflora rose, common buckthorn, honeysuckle, and privet (*Ligustrum obtusifolium*)." Please update the language and percentage to reflect the invasive species listed in "6 NYCRR Part 575", which is the most current DEC invasive species list.
16. According to Exhibit 8 to Central Hudson's Response to PSC's November 27, 2013 Deficiency Letter and Request for Information, ROW Cross Sections, the centerline, from Diddell Road to the Pleasant Valley Substation, is proposed to be 44 feet from the easterly edge of the ROW. The Company's optimal ROW width for a 115 kV line is 50 feet from centerline. Please explain whether the Company could construct the new centerline to be located 50 feet from the edge of the ROW through this section.
17. Provide a project ROW map locating each State wetland and protected stream, and list any invasive species occurring within each of those areas.
18. For general 115 kV construction does the Company use any of the following types of structures or foundations:
 - a. single poles for angle structures?
 - b. H-Frames for dead-end structures?
 - c. concrete foundations?
19. What is the planned use for the inactive substation site north of Croft Hill Road?
20. Section 4.4.5 discusses saturated soil conditions relative to agricultural soils. Define:
 - a. when the soil is too saturated to work on;
 - b. when or under what conditions "excavated soil" would not be suitable for backfill of a new pole; and,
 - c. how and where will unsuitable soil be disposed.
21. Section 4.4.4 states, "However, depth to bedrock is greater than 60 inches in most areas, which is sufficient to

accommodate Project construction." Why is this depth sufficient for project construction and what is the anticipated average depth of embedment of the structures for this project?

22. In the "Responses to Requests for Additional Information", responding to PSC Request #14, the Company supplied the original map under a different date. Please resubmit the map with the corrected elevation units.
23. Section 4.3.2 states, "Based upon aerial photo interpretation, approximately 1.7 miles of the proposed transmission line route crosses active agricultural land." How many miles of the project pass through agricultural lands that are located within agricultural districts?

Responses:

1. *During clean up and restoration of the project, Central Hudson will remove all unused/discarded company-related debris from the right-of-way. The only exception is that where noted (e.g., in the EM&CP) at certain locations (e.g., wetlands), the embedded portion of old removed poles may remain in the ground.*
2. *Central Hudson is in the process of finalizing its Stormwater Pollution Prevention Plan (SWPPP) and will distribute it to the parties as a supplement to this information request. Once finalized and distributed, the intent would be to obtain comments, if any, from the parties, particularly including the Department of Environmental Conservation (NYSDEC), for approval. Once approved, the SWPPP would be an exhibit to any Joint Proposal filed in this proceeding. After the Certificate is issued, Central Hudson would file a Notice of Intent with NYSDEC Staff.*
3. *Central Hudson has no plans to cross the Rail Trail during construction and operation of the facility. The Cons of crossing the Rail Trail exceed the Pros.*

Cons of Crossing Rail Trail include:

- *Safety - Crossing with vehicles and/or equipment creates potential for injury to pedestrians or bikers using the Rail Trail;*

- Potential for damage to the Trail's asphalt surface, shoulder or adjacent water line by construction equipment. Such damage could also create safety issues and/or repair expenses;
- Difficulty in protecting the Trail surface from equipment crossings, because such protection would likely create safety issues for pedestrians or bikers.
- Temporary closures of Trail crossing area whenever crossing with equipment or vehicles. This would likely create dissatisfaction with Trail users.

Pros of Crossing Rail Trail include:

- Gives Central Hudson flexibility to reach a variety of structures from two different access points (both Route 376 and Con Edison right-of-way "Access "K")

4. In terms of the use of the Con Edison right of way during construction, the following responses are provided:

Proposed Access Locations:

Central Hudson plans to use a Con Edison off right-of-way access road to access structures A32 through A47 (16 structures total). See Appendix A of the Application, Sheets 9, 10 and 13. The Con Edison road bisects the Central Hudson A-Line right-of-way near structure A43 as shown on Sheet 9 (Application Appendix A). Off right-of-way access to the Con Edison right-of-way is labeled as "Access K" and is shown in its entirety on drawing sheet 13 (Application Appendix A). Access to the Con Edison right-of-way is from Diddell Road.

Environmental Assessments:

Environmental assessments (such as wetland delineations) for the off right-of-way Con Edison right-of-way access road were conducted as part of the overall evaluation of the A and C line right-of-way and have been included as part of the filing. For example, see Sheet 13 (Application Appendix A) which identifies wetlands and any other environmental features. Additional assessment information can be found in Appendix H.

Plans for Restoration:

The existing Con-Edison right-of-way has an access road that would be followed. Should Central Hudson damage this access road or any features such as culverts, appropriate repairs would be made to restore the road to existing conditions.

Permission and Rights:

Central Hudson is in the process of securing the necessary permission and rights to utilize the existing road on Con Edison's Right of Way. Central Hudson's Real Property Services department has been in contact with Con Edison's Transmission Department and has requested an expedited review of our proposed crossing locations on their Right of Way. Once the review is complete, it is expected that Central Hudson will enter into a Temporary License Agreement with Con Edison to utilize their Right of Way.

5. Attached as **Exhibit A** to this Response is a table which identifies for each pole in agricultural land the following information: (i) existing configuration, including number of guys; (ii) proposed new configuration; (iii) benefit of the new configuration, including the square footage of unimpeded land now usable with the proposed new configuration; (iv) alternatives to Central Hudson's proposed configuration, along with the gains or disadvantages of such alternative; and (v) the cost of the alternative.
6. The text of Exhibit 7 specifies the particular sections of local codes for which Central Hudson is seeking a partial waiver. The Summary Table included at the outset of Exhibit 7 did not provide such specificity. The Summary Table has been revised and it is attached as **Exhibit B**. Assuming this level of specificity is adequate and no other changes are made, a revised Exhibit 7 will be included as an Exhibit to the Joint Proposal or otherwise filed as appropriate.
7. The requested shape files are attached as **Exhibit C** to this Response.
8. The project ROW is currently cleared to its full width.
9. Unloading/loading or use of equipment in driveways will be minimized to the greatest extent possible. However, if

necessary, we would use rubber matting to protect the driveway surface.

In any instances where construction work or right-of-way access needs to occur directly on landscaped residential areas such as lawns, low-impact tracked equipment will be utilized and full restoration would occur post-construction.

10. We understand that this question relates to Exhibits 8-04 and 8-05 attached to Central Hudson's January 13, 2014 filing. Revised Exhibits are attached as **Exhibit D** to this Response to show the referenced gas line (which is shown on the profile sheets contain in Appendix A to the Application, Sheet 1).
11. See **Exhibit E** to this Response. The EM&CP drawings contained in Appendix A to the Application have been revised to account for underground utilities and a CD with these updated drawings will be provided before May 9.
12. As indicated in response to PSC Request #15 in the Responses to Requests for Additional Information letter dated January 13, 2014, "[t]he invasive species inventory on the A and C Line ROW was conducted in association with wetland delineations and ecological community mapping efforts undertaken by EDR. Non-native invasive plant species, and their dominance within the community, were documented at wetland and upland sampling points (see data sheets in the Wetland Delineation Report included as Appendix H). General observations of invasive species occurrence were also documented elsewhere along the ROW." No additional surveys of invasive species occurrence on the A and C Line ROW were conducted.
13. Minutes from the May 14, 2013 meeting between NYSDEC and Central Hudson can be found in "Appendix M - Public Outreach Package." These minutes make reference to a discussion about invasive species.
14. The referenced 8/7/13 field visit was requested by the NYSDEC subsequent to the meeting held at NYSDEC's Region 3 office on May 14, 2013, to provide them an opportunity to see actual field conditions prior to formally commenting on our wetlands delineation, Blanding's Turtle study, and Long Range Vegetation Management Plan, (pre-filing). Central

Hudson personnel escorted NYSDEC staff on site, but it was not really a formal meeting, and therefore no formal meeting notes were produced. There is a sign-in sheet from the field visit which can be found in "Appendix M - Public Outreach Package." NYSDEC did provide a document (letter) dated August 21, 2013 which is their compilation of NYSDEC Staff comments related to the project. This document does reference expectations with regards to invasive species, and is also included in "Appendix M - Public Outreach Package."

15. Review of the current list of invasive species in "6 NYCRR Part 575", and vegetation data collected during the on-site wetland delineation, did not result in the identification of any new invasive species being present on the A and C Lines ROW. However, reed canary grass (*Phalaris arundinacea*), which was identified as an invasive species in the Application, is not included on the most current NYSDEC invasive species list. Review of the on-site data indicate that one or more currently listed invasive species were observed in approximately 94% of the delineated wetlands or the adjacent uplands. Field surveys identified the following currently-listed invasive species within the ROW: purple loosestrife (*Lythrum salicaria*), common reed grass (*Phragmites australis*), multiflora rose (*Rosa multiflora*), common buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* spp.), and border privet (*Ligustrum obtusifolium*).
16. While the centerline from Diddell Road to the Pleasant Valley Substation follows the existing centerline of the A line, Central Hudson could construct a new centerline so that it is 50 feet from the edge of the right-of-way through this section as opposed to the existing 44 feet. However, Central Hudson chose not to realign the centerline in this area for several reasons.

Installing the new structures on the existing centerline will maintain the current alignment that has been familiar with customers for over 60 years. Maintaining the structures on the same centerline will also ensure the structures maintain adequate distances from other facilities including adjacent transmission lines and underground gas facilities. Finally, maintaining the

existing centerline will improve efficiency during installation by simplifying wire installation.

17. The requested maps are attached as **Exhibit F**.
18. For general 115 kV construction, Central Hudson uses all of the structures identified in the IR.
19. There is no planned use for the inactive substation site north of Croft Hill Road. The previous substation was retired.
20.
 - a. The soil will be considered too saturated to work on if the equipment required for construction creates rutting in the agricultural field in excess of 4" deep.
 - b. Excavated soils would not be considered suitable for backfill of a new pole if:
 - o visual inspection showed an unusually high moisture content (mud or "soupy");
 - o if visual inspection showed a significant amount of large rocks that would potentially prohibit proper backfilling, compaction or settling around the structure;
 - o visual inspection showed a high content of organic matter that would prevent adequate compaction.
 - c. Unsuitable soil will be disposed of as follows, under the various circumstances:
 - o In non-agricultural areas or areas that are not maintained by landowners (such as lawns):

Unsuitable soils would either be used for backfill following removal of nearby existing poles, or spread on the right-of-way near the new structure. Spreading would not occur in wetlands and would be performed in such a manner as to maintain existing contours and drainage. Mounding soils against the base of the new structure may also occur.

- o In agricultural areas and in areas maintained by landowners (such as lawns):

Unsuitable soils would either be used for backfill following removal of nearby existing poles, or removed from the agricultural field or lawn. Unsuitable soils removed from the agricultural field or lawn area would either be disposed of elsewhere on the landowner's property in a designated upland location approved by the landowner, or removed from the site to a pre-approved location to-be-determined. Mounding soils against the base of the new structure may also occur.

21. The average depth of embedment of the new structures is anticipated to be approximately 10 feet. The statement in Section 4.4.4 of the Application that "depth to bedrock is greater than 60 inches in most areas" was included to indicate that shallow bedrock is not typical along the A and C Lines ROW. Therefore, special installation procedures or significant impacts to geological features are not anticipated. The auger used to excavate the pole holes will be able to drill through any bedrock encountered, and as indicated in the Application, blasting is not anticipated to be necessary. This supports the conclusion that geologic conditions on site can accommodate Project construction without requiring special installation techniques, or resulting in substantial impacts to geological resources.
22. The revised map with the correct elevations is attached as **Exhibit G**.
23. Based on aerial photo interpretation, approximately 1.4 miles of the proposed transmission line route passes through agricultural lands that are located within agricultural districts. This includes approximately 0.4 mile within Agricultural District 20 and 1.0 mile within Agricultural District 22.

**Exhibit A to CHGE-001 (DPS)
Case 13-T-0469**

| Pole # | Sheet # | Existing Configuration | Proposed New Configuration | Proposed Benefit or Loss | Potential Alternative Design | Benefit(s) Gained | Disadvantages | Estimated Cost Impact | Comments |
|--------|---------|--|--|--|---|---|--|-----------------------|---|
| C3 | 1 | Double pole H-Frame with 4 guys | Single pole structure with 1-guy | Benefit: Old structure occupied 560sf space; new footprint only occupies 30sf space; 530sf of additional unimpeded land (94.6% more space) | Concrete foundation design with no guys | Eliminating guys results in approximately 17.4 sf more unimpeded land than the proposed configuration | Short term construction impacts – more equipment including caisson drilling rig and concrete trucks. Increased cost. | \$40,000 | |
| C4 | 1 | Double pole H-Frame | Single pole structure | Benefit: Old structure occupied 21sf space; new footprint only occupies 1.8sf space; 19.2sf of additional unimpeded land (91.4% more space) | N/A | N/A | N/A | N/A | |
| C9 | 1 | Three pole swing angle structure with 4 guys | Two pole swing angle structure with 4 guys | Benefit: Old structure occupied 75sf space; new footprint only occupies 66sf space; 9sf of additional | Single pole structure with concrete foundation design and no guys | Eliminating guys results in approximately 62.4 sf more unimpeded land than the proposed configuration | Short term construction impacts – more equipment including caisson drilling rig and | \$80,000 | This angle structure exists due to the line angle of the ROW. Due to the increased loads resulting from the line angle, the |

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| Pole # | Sheet # | Existing Configuration | Proposed New Configuration | Proposed Benefit or Loss | Potential Alternative Design | Benefit(s) Gained | Disadvantages | Estimated Cost Impact | Comments |
|---------------|----------------|-------------------------------|-----------------------------------|--|-------------------------------------|--------------------------|----------------------------------|------------------------------|--|
| | | | | unimpeded land (12% more space) | | | concrete trucks. Increased cost. | | single pole concrete structure alternative may incur significantly higher costs compared to the proposed guyed structure. Existing structure configuration has been present since approximately 1948 |
| C10 | 1 | Double pole H-Frame | Single pole structure | Benefit: Old structure occupied 21sf space; new footprint only occupies 1.8sf space; 19.2sf of additional unimpeded land (91.4% more space) | N/A | N/A | N/A | N/A | |

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| Pole # | Sheet # | Existing Configuration | Proposed New Configuration | Proposed Benefit or Loss | Potential Alternative Design | Benefit(s) Gained | Disadvantages | Estimated Cost Impact | Comments |
|--------|---------|------------------------|----------------------------|--|------------------------------|-------------------|---------------|-----------------------|----------|
| C30 | 3 | Double pole H-Frame | Single pole structure | Benefit: Old structure occupied 21sf space; new footprint only occupies 1.8sf space; 19.2sf of additional unimpeded land (91.4% more space) | N/A | N/A | N/A | N/A | |
| C34 | 4 | Double pole H-Frame | Single pole structure | Benefit: Old structure occupied 21sf space; new footprint only occupies 1.8sf space; 19.2sf of additional unimpeded land (91.4% more space) | N/A | N/A | N/A | N/A | |

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| Pole # | Sheet # | Existing Configuration | Proposed New Configuration | Proposed Benefit or Loss | Potential Alternative Design | Benefit(s) Gained | Disadvantages | Estimated Cost Impact | Comments |
|---------------|----------------|-------------------------------|-----------------------------------|--|-------------------------------------|--------------------------|----------------------|------------------------------|-----------------|
| C35 | 4 | Double pole H-Frame | Single pole structure | Benefit: Old structure occupied 21sf space; new footprint only occupies 1.8sf space; 19.2sf of additional unimpeded land (91.4% more space) | N/A | N/A | N/A | N/A | |
| C36* | 4 | Double pole H-Frame | Single pole structure | Benefit: Old structure occupied 21sf space; new footprint only occupies 1.8sf space; 19.2sf of additional unimpeded land (91.4% more space) | N/A | N/A | N/A | N/A | |

**Exhibit A to CHGE-001 (DPS)
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| Pole # | Sheet # | Existing Configuration | Proposed New Configuration | Proposed Benefit or Loss | Potential Alternative Design | Benefit(s) Gained | Disadvantages | Estimated Cost Impact | Comments |
|--------|---------|-----------------------------------|----------------------------|--|------------------------------|-------------------|---------------|-----------------------|----------|
| C37 | 4 | Three pole structure with 10 guys | Single pole structure | Benefit: Old structure occupied 7380sf space; new footprint only occupies 1.8sf space; 7378.2sf of additional unimpeded land (99.9% more space) | N/A | N/A | N/A | N/A | |
| C38 | 4 | Double pole H-Frame | Single pole structure | Benefit: Old structure occupied 21sf space; new footprint only occupies 1.8sf space; 19.2sf of additional unimpeded land (91.4% more space) | N/A | N/A | N/A | N/A | |

**Exhibit A to CHGE-001 (DPS)
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| Pole # | Sheet # | Existing Configuration | Proposed New Configuration | Proposed Benefit or Loss | Potential Alternative Design | Benefit(s) Gained | Disadvantages | Estimated Cost Impact | Comments |
|---------------|----------------|-------------------------------|------------------------------------|---------------------------------|-------------------------------------|--|---|------------------------------|---|
| A9 | 7 | Double pole H-Frame | Reuse existing double pole H-Frame | N/A | Single pole structure | Benefit: Old structure occupied 21sf space; new footprint only occupies 1.8sf space; 19.2sf of additional unimpeded land (91.4% more space) | Short term construction impacts and increased cost. | \$30,000 | Meeting with Matt Brower on April 2013 resulted in his comment regarding possibility of reusing existing structures |

**Exhibit A to CHGE-001 (DPS)
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| Pole # | Sheet # | Existing Configuration | Proposed New Configuration | Proposed Benefit or Loss | Potential Alternative Design | Benefit(s) Gained | Disadvantages | Estimated Cost Impact | Comments |
|---------------|----------------|--|--|--|-------------------------------------|--|---|------------------------------|--|
| A10 | 7 | Three pole structure with 10-guy wires | Reuse existing three pole structure with x-braces and altered guy lead lengths. Use 6 guys in lieu of existing 10. | Benefit: Old structure occupied 7200 sf space; new footprint only occupies 1952sf space; 5248sf of additional unimpeded land (72.9% more space) | Single pole structure | Benefit: Old structure occupied 7200sf space; new footprint only occupies 1.8sf space; 7198.2sf of additional unimpeded land (99.9% more space) | Short term construction impacts and increased cost. | \$60,000 | Converting this existing deadend structure to a direct buried tangent will result in a very long run (approx. 2 miles) without a deadend. This would compromise the reliability of the line. It would be recommended that another structure (originally proposed as a tangent) be converted to a deadend to maintain line reliability. Additionally, it would be recommended that A8 be changed out to a single pole structure as opposed to |

**Exhibit A to CHGE-001 (DPS)
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| Pole # | Sheet # | Existing Configuration | Proposed New Configuration | Proposed Benefit or Loss | Potential Alternative Design | Benefit(s) Gained | Disadvantages | Estimated Cost Impact | Comments |
|--------|---------|------------------------|------------------------------------|--------------------------|------------------------------|--|---|-----------------------|--|
| | | | | | | | | | keeping the existing H-frame for lightning performance. Meeting with Matt Brower on April 2013 resulted in his comment regarding possibility of reusing existing structures. |
| A11 | 7 | Double pole H-Frame | Reuse existing double pole H-Frame | N/A | Single pole structure | Benefit: Old structure occupied 21sf space; new footprint only occupies 1.8sf space; 19.2sf of additional unimpeded land (91.4% more space) | Short term construction impacts and increased cost. | \$30,000 | Meeting with Matt Brower on April 2013 resulted in his comment regarding possibility of reusing existing structures. |

TOTAL SPACE GIVEN BACK WITH PROPOSED DESIGN= ~13,300 SF

**Exhibit B to CHGE-001 (DPS)
Case 13-T-0469**

**Table 7-1, Rev. May 2014
Project Compliance Summary**

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|---|--|-----------------------------|
| Town of Pleasant Valley | Chapter 39, Building Construction | Will Comply |
| | Chapter 46, Driveways and Highway Permits | Will Comply |
| | Chapter 48, Fire Prevention | Will Comply |
| | Chapter 50, Flood Damage Prevention | Will Comply Except as Noted |
| | Chapter 50, Article III §50-13(F) – Duties and Responsibilities of Local Administrator [re: stop-work orders] | Waiver Requested |
| | Chapter 53, Wetland, Water Body, and Watercourse Protection | Will Comply |
| | Chapter 57, Refuse Collection, Storage, and Disposal | Will Comply |
| | Chapter 60, Illicit Discharges, Activities and Connections | Will Comply |
| | Chapter 74, Stormwater Management and Erosion and Sedimentation Control | Will Comply |
| | Chapter 93, Vehicles and Traffic | Will Comply |
| | Chapter 98, Zoning | Will Comply Except as Noted |
| | Chapter 98, Article III §98-11 – General Regulations, Schedule of Permitted Uses [re: local site plan review requirements] | Waiver Requested |
| | Chapter 98, Article III §98-12 – General Regulations, Schedule of Area and Bulk Requirements [re: setbacks, height restrictions] | Waiver Requested |
| Chapter 98, Article IV §98-44 – Supplementary Regulations, Public Utility Facility [re: screening requirements] | Waiver Requested | |
| Town of LaGrange | Chapter 83, Building Construction Administration and Enforcement | Will Comply |
| | Chapter 103, Dumps and Dumping | Will Comply |

**Exhibit B to CHGE-001 (DPS)
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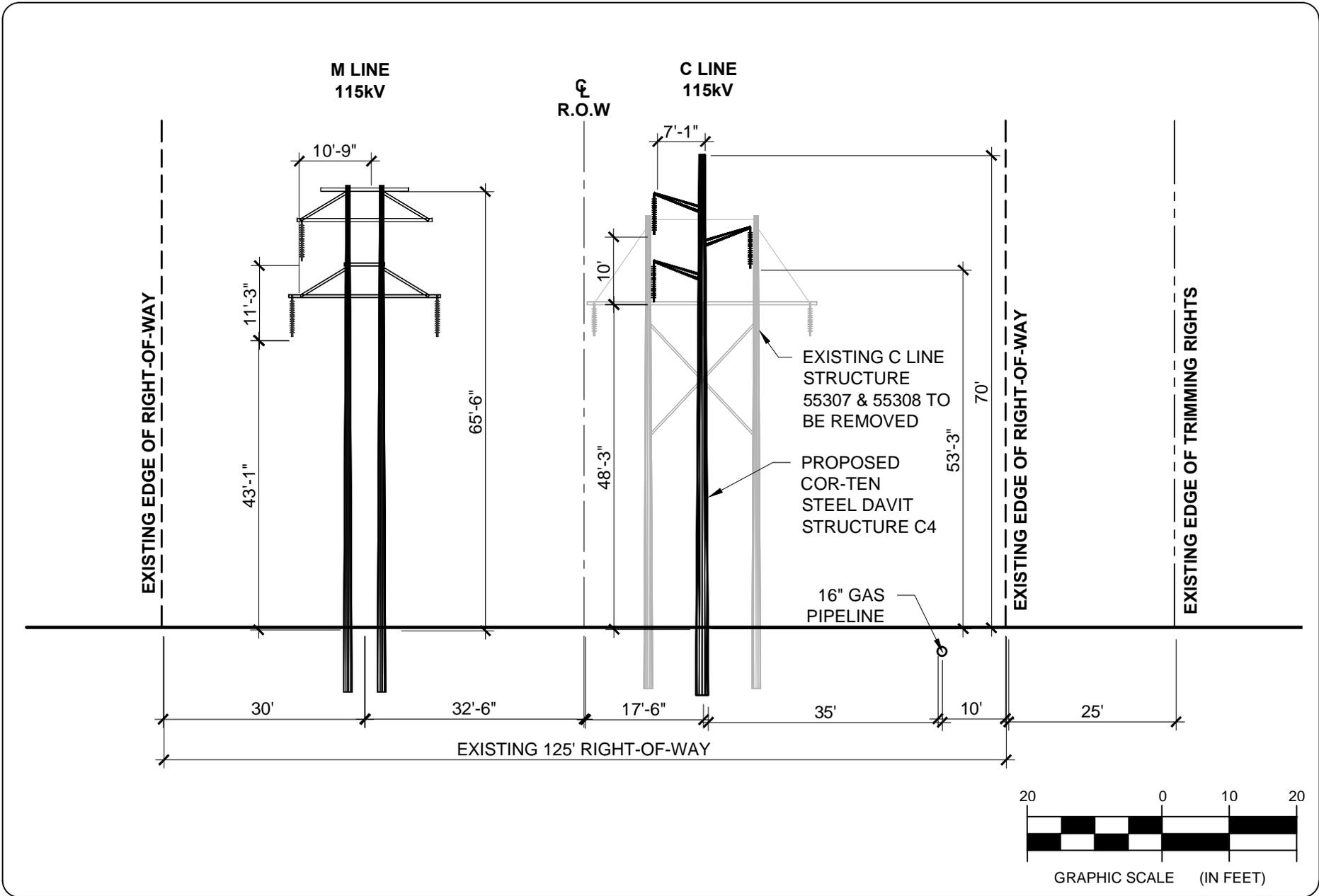
| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|---|--|-----------------------------|
| | Chapter 117, Electrical Inspection | Will Comply |
| | Chapter 120, Flood Damage Prevention | Will Comply Except as Noted |
| | Chapter 120, §120-14(F) – Duties and Responsibilities of Local Administrator [re: stop-work orders] | Waiver Requested |
| | Chapter 124, Freshwater Wetlands, Watercourses, and Water Bodies | Will Comply |
| | Chapter 140, Illicit Discharges to Storm Sewers | Will Comply |
| | Chapter 162, Noise | Will Comply Except as Noted |
| | Chapter 162, §162-5 – Prohibited Acts Enumerated [re: construction-related noise] | Waiver Requested |
| | Chapter 195, Solid Waste | Will Comply |
| | Chapter 197, Stormwater Management and Erosion and Sediment Control | Will Comply |
| | Chapter 199, Streets and Sidewalks | Will Comply |
| | Chapter 226, Vehicles and Traffic | Will Comply |
| | Chapter 240, Zoning | Will Comply Except as Noted |
| | Chapter 240, Article II §240-27 – Establishment and Designation of Districts, Schedule of Permitted Uses and Special Use Permits [re: local site plan review requirements] | Waiver Requested |
| | Chapter 240, Article II §240-28 – Establishment and Designation of Districts, Schedule of Bulk Regulations and Coverage Limitations [re: setbacks, height restrictions] | Waiver Requested |
| Chapter 240, Article III §240-31 – Special Zoning District Provisions, Preservation Overlay Zones [re: setbacks, height restrictions] | Waiver Requested | |
| Town of Wappinger | Chapter 80, Blasting | Will Comply |

**Exhibit B to CHGE-001 (DPS)
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| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|---|--|-----------------------------|
| | Chapter 85, Building Code Administration | Will Comply |
| | Chapter 117, Environmental Quality Review | Will Comply |
| | Chapter 133, Flood Damage Prevention | Will Comply Except as Noted |
| | Chapter 133, §133-13(F) – Duties and Responsibilities of Code Enforcement Officer and Zoning Administrator [re: stop-work orders] | Waiver Requested |
| | Chapter 137, Freshwater Wetland, Waterbody, and Watercourse Protection | Will Comply |
| | Chapter 166, Noise | Will Comply Except as Noted |
| | Chapter 166, §166-4 – Applicability [re: applicability to project construction, which is not otherwise exempt] | Waiver Requested |
| | Chapter 166, §166-13 – Application for Special Waiver [re: local waiver process requirements] | Waiver Requested |
| | Chapter 206, Soil Erosion and Sediment Control | Will Comply |
| | Chapter 210, Solid Waste | Will Comply |
| | Chapter 213, Stormwater Management | Will Comply |
| | Chapter 230, Vehicles and Traffic | Will Comply |
| | Chapter 240, Zoning | Will Comply Except as Noted |
| | Chapter 240, Article VI §240-37, Attachments 1 and 2– District Regulations, Schedule of Use Regulations [re: local site plan review and special permit requirements] | Waiver Requested |
| | Chapter 240, Article VI §240-37, Attachments 3 and 4 – District Regulations, Schedule of Dimensional Regulations [re: setbacks, height restrictions] | Waiver Requested |
| Chapter 240, Article VII §240-44, Special Permit Uses, General Standards [re: site plan and operational requirements] | Waiver Requested | |

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| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|---|--|-----------------------------|
| | Chapter 240, Article IX §240-86, Site Development Plans, Standards for Site Development Plan Approval [re: site plan approval requirements] | Waiver Requested |
| | Chapter 240, Article XI, Performance Standards [re: applicability of performance standards] | Waiver Requested |
| Town of East Fishkill | Chapter 80, Building Construction and Fire Prevention | Will Comply |
| | Chapter 108, Flood Damage Prevention | Will Comply Except as Noted |
| | Chapter 108, Article III §108-13(F), Duties and Responsibilities of Local Administrator [re: stop-work orders] | Waiver Requested |
| | Chapter 110, Freshwater Wetlands, Water Bodies, and Watercourses | Will Comply |
| | Chapter 127, Littering | Will Comply |
| | Chapter 154, Steep Slope Protection | Will Comply |
| | Chapter 156, Storm Sewers | Will Comply |
| | Chapter 157, Stormwater Management and Erosion and Sediment Control | Will Comply |
| | Chapter 177, Vehicles and Traffic | Will Comply |
| | Chapter 194, Zoning | Will Comply Except as Noted |
| | Chapter 194, Article V §194-16, Attachment 2–Schedules of Regulations, Schedule of Permitted Uses [re: prohibition of uses not specifically permitted] | Waiver Requested |
| Chapter 194, Article V §194-17, Attachment 3–Schedules of Regulations, Schedule of Bulk Regulations [re: setbacks, height restrictions] | Waiver Requested | |

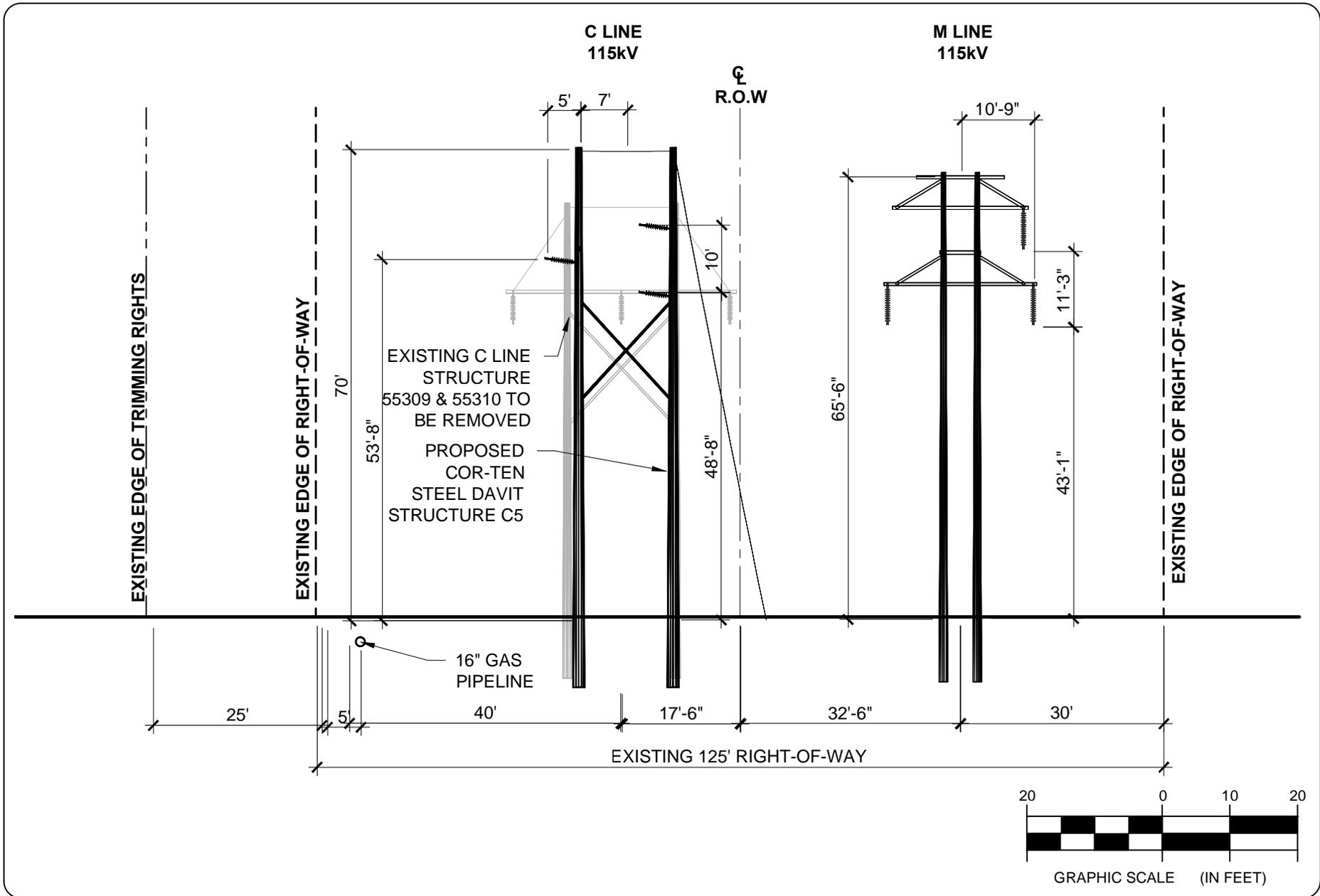


| | |
|---|-----------------------|
| PROJECT TITLE: A & C LINES 115kV ELECTRIC TRANSMISSION REBUILD | |
| DRAWING TITLE: R.O.W. CROSS SECTION AT PLASS ROAD INTERSECTION LOOKING NORTH | |
| DRAWN BY: ZTR | CHECKED BY: JH |

| | |
|---------------------------------|-----------------------|
| edr JOB NUMBER: 12077 | |
| DRAWING NUMBER: EX. 8-04 | |
| SCALE: 1" = 20' | DATE: 5/5/2014 |

Environmental Design & Research,
 Landscape Architecture, Engineering & Environmental Services, D.P.C.
 217 Montgomery Street, Suite 1600
 Syracuse, New York 13202
 P. 315.471.0688

\\roc-dc-01\jobs\12077 CHG&E A&C Lines Article VIII\Cad\Working Drawings\12077-C-LINE-ROW-CROSS-SECTIONS.dwg



PROJECT TITLE: **A & C LINES 115kV ELECTRIC TRANSMISSION REBUILD**

DRAWING TITLE: **R.O.W. CROSS SECTION AT PLASS ROAD INTERSECTION LOOKING SOUTH**

DRAWN BY: **ZTR** CHECKED BY: **JH**

edr JOB NUMBER: **12077**

DRAWING NUMBER: **EX. 8-05**

SCALE: **1" = 20'** DATE: **5/5/2014**

Environmental Design & Research,
 Landscape Architecture, Engineering & Environmental Services, D.P.C.

217 Montgomery Street, Suite 1600
 Syracuse, New York 13202

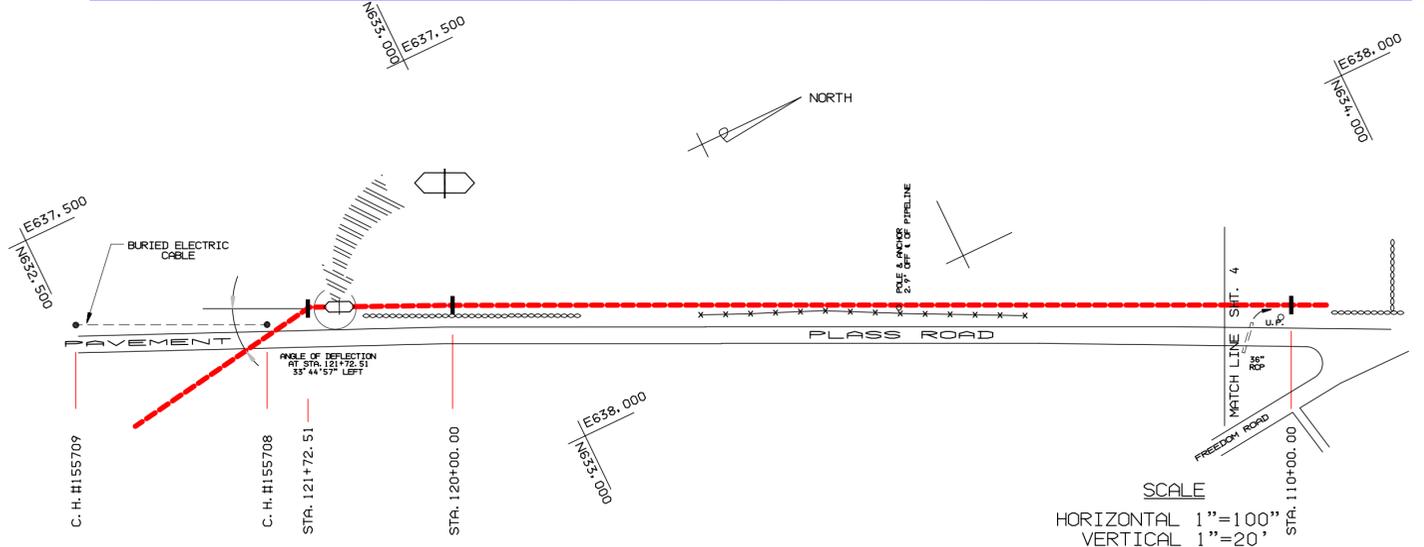
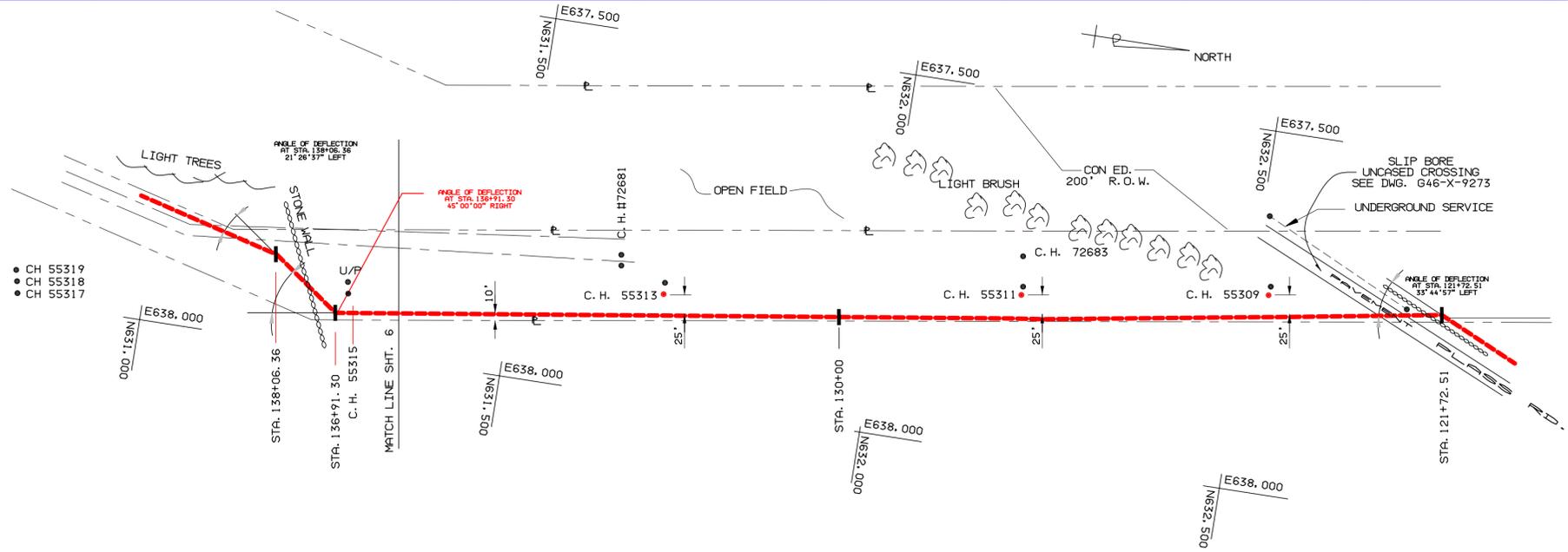
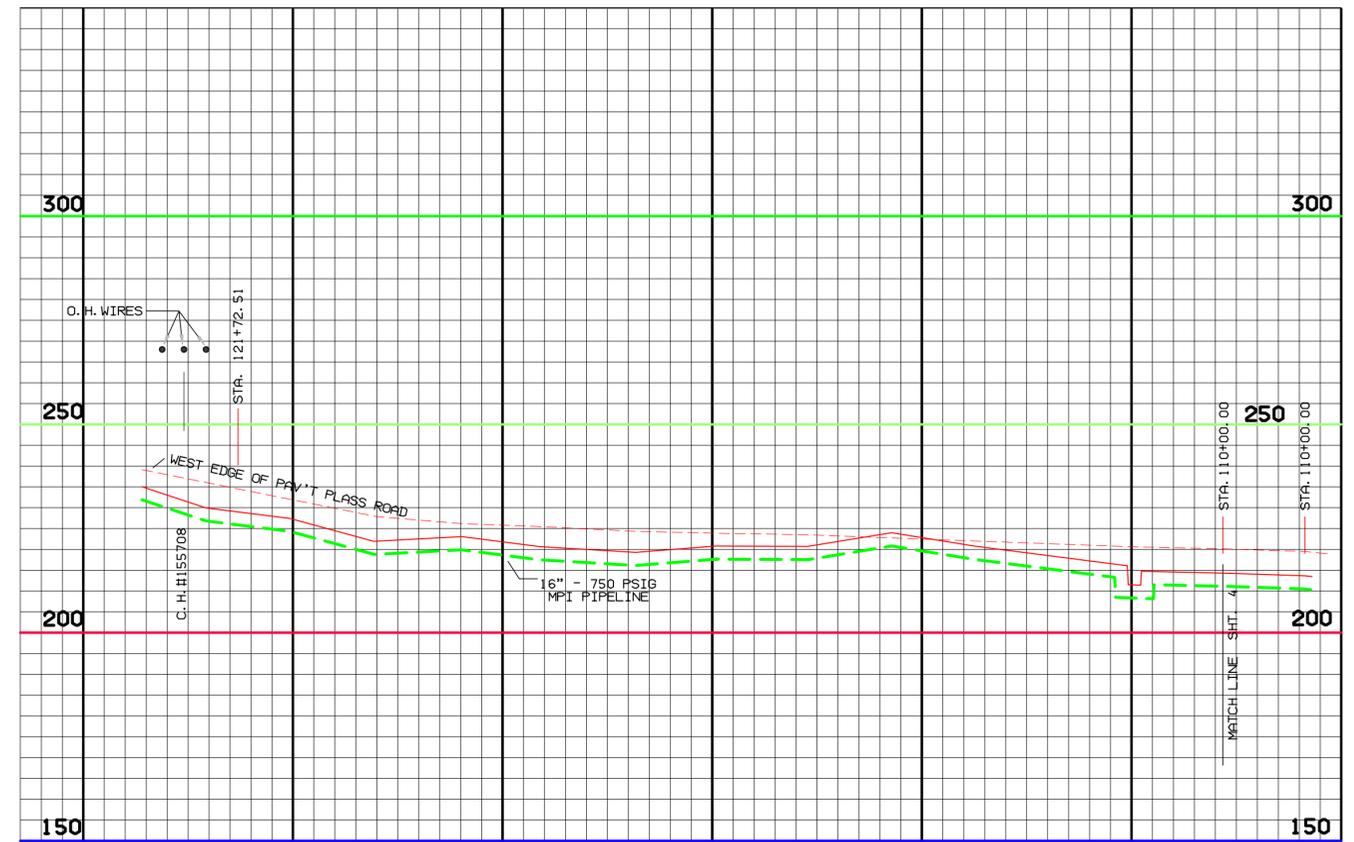
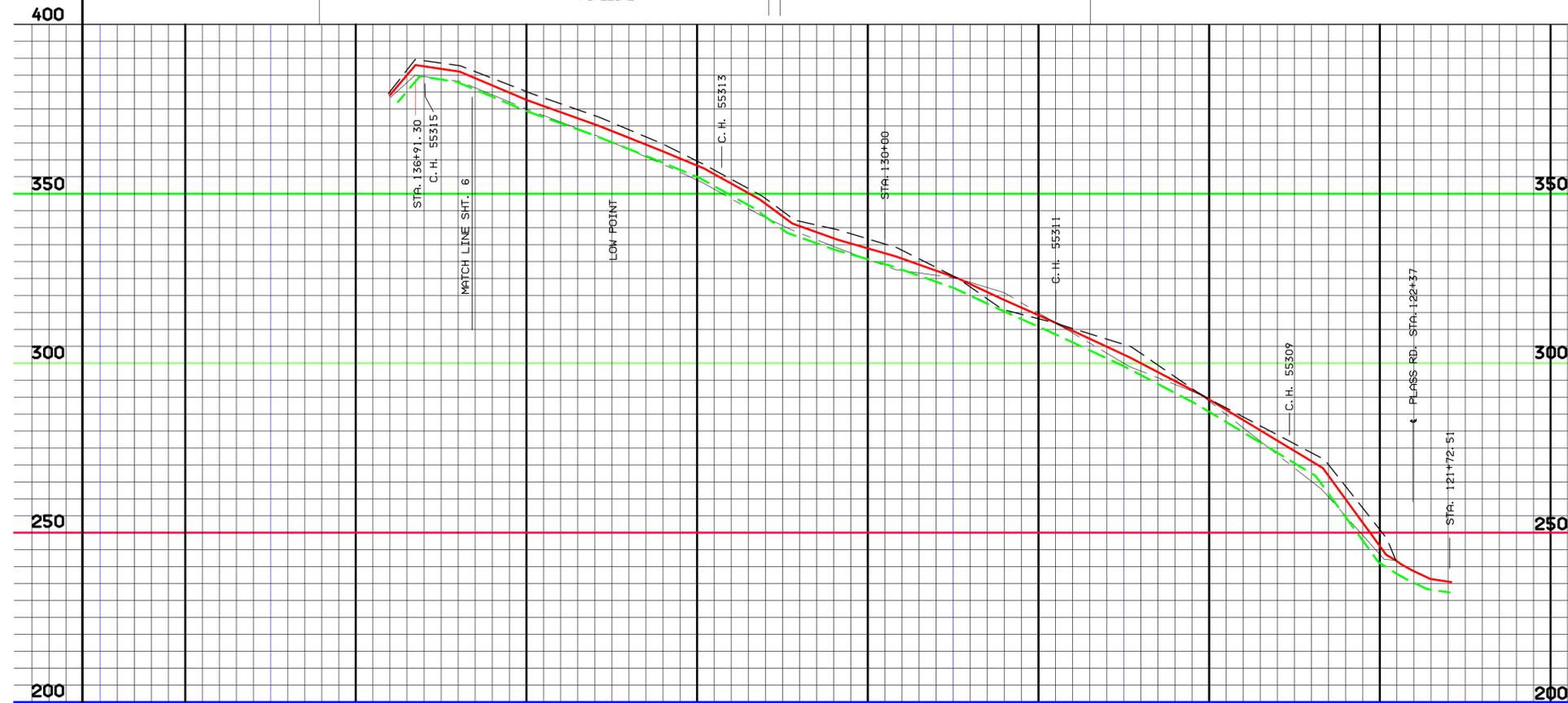
P. 315.471.0688

PROFILE LEGEND

- CENTERLINE
- 15FT. RIGHT OF CENTERLINE
- 15FT. LEFT OF CENTERLINE
- PIPELINE

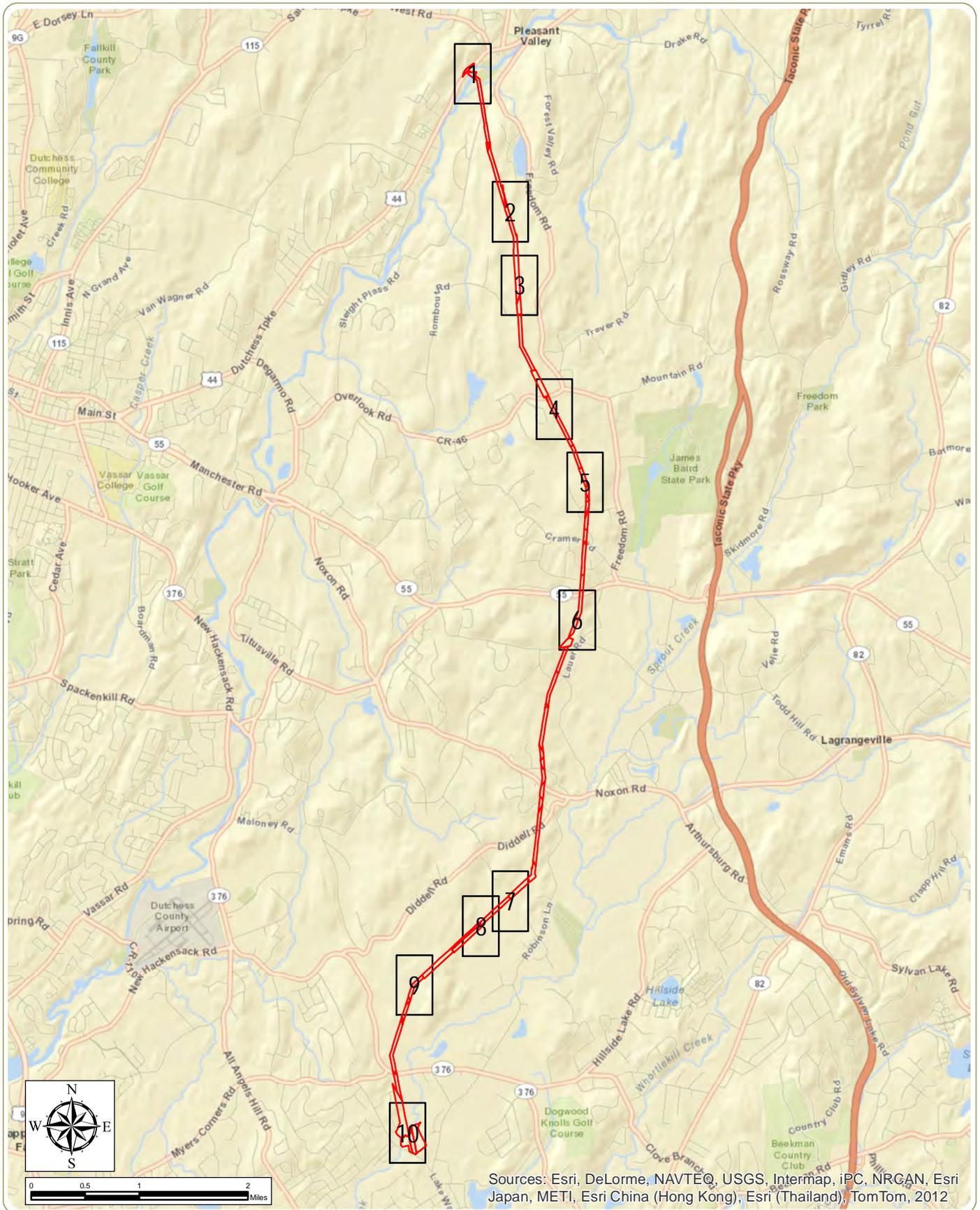
PLAN LEGEND

- MARKED STATION
- LINE VALVE
- WELD END INSULATOR



SCALE
HORIZONTAL 1"=100'
VERTICAL 1"=20'

| | | | |
|-------------------------------------|---|------------------|----------------|
| 8/21/92 WD 7874A DOM END LJS GHT | CENTRAL HUDSON GAS & ELEC. CORP. | | SCALE NOTED |
| | MPI GAS TRANSMISSION LINE | | DATE 4/26/91 |
| | PLAN & PROFILES | | REV. NO. 1 |
| | | | FILE NO. G46 P |
| W.O. NO. 7874A | CHECKED KER | PROJ. NO. 90-665 | CLEARED LJS |
| DRAWN SL/DOM | R/W JCM | SUPV. JHS | APPROVED GHT |
| | | | 9157 |
| | | | SH. NO. 5 OF 7 |



CHG&E A&C Lines Article VII
 Towns of Pleasant Valley, LaGrange, Wappinger,
 and East Fishkill, Dutchess County, New York
 Invasive Species Documented within
 State-Mapped Wetlands and Streams
 Sheet Index May 2014
 Notes: Basemap: ESRI Online Streets.

 Project Area

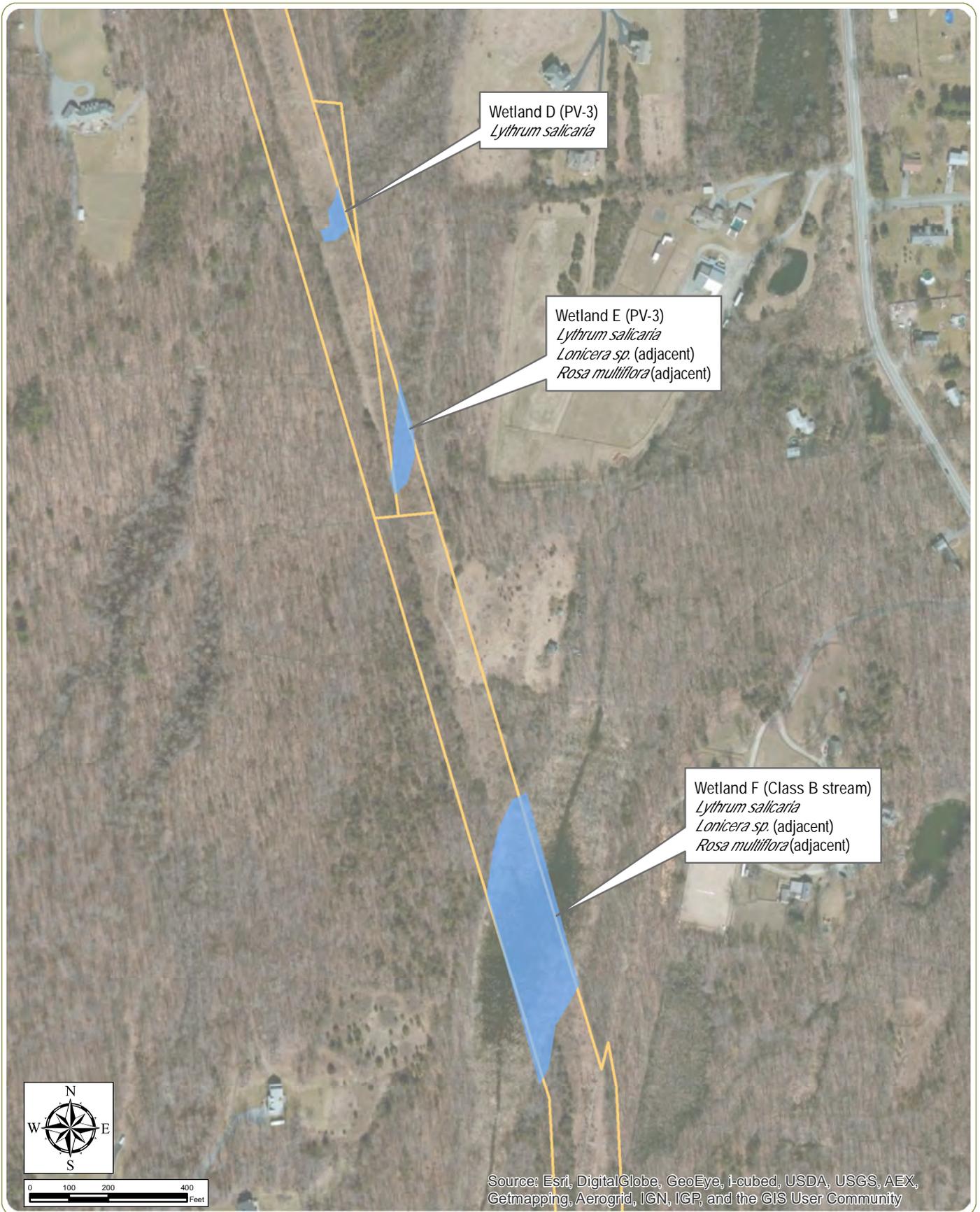


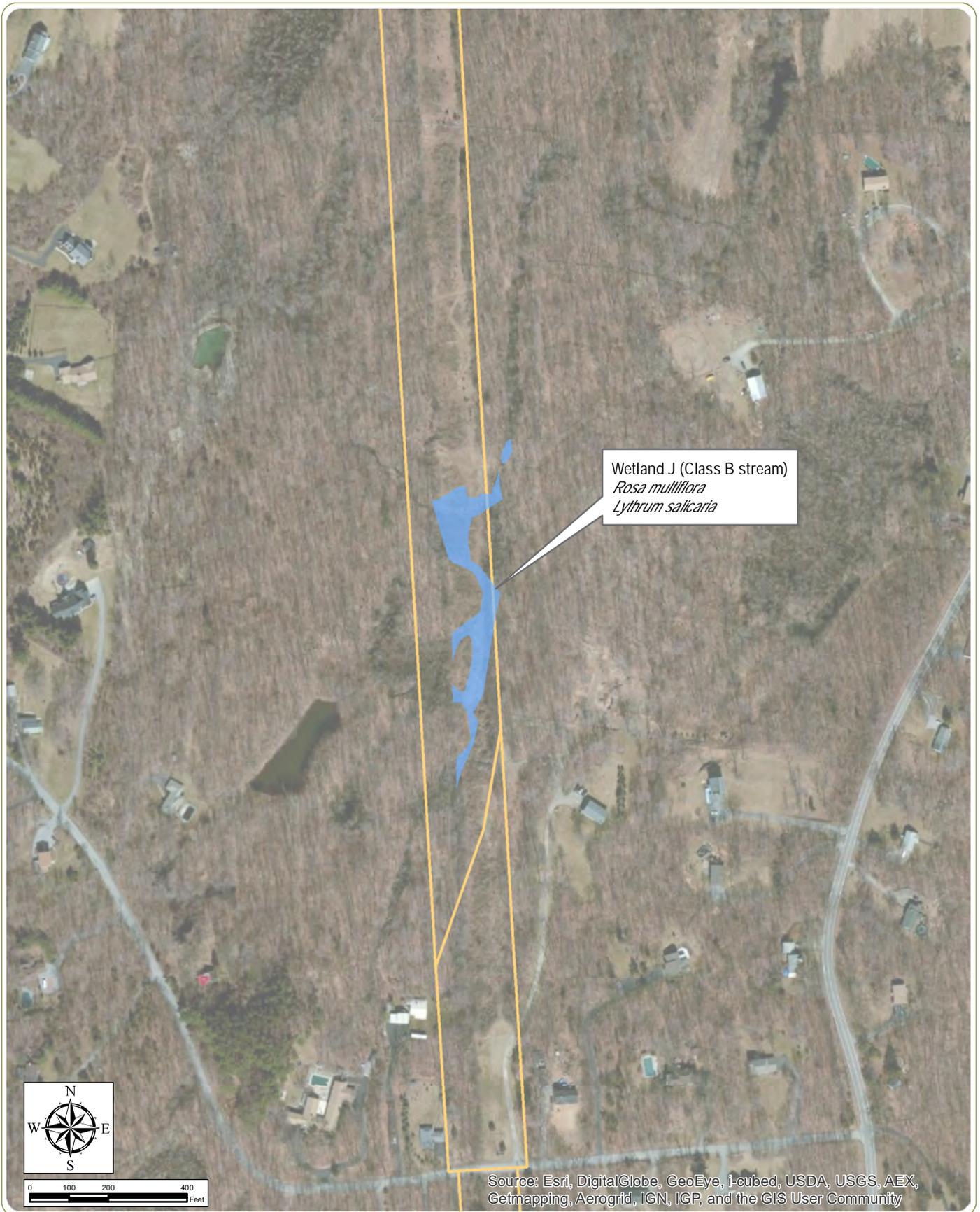


CHG&E A&C Lines Article VII
 Towns of Pleasant Valley, LaGrange, Wappinger,
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 Invasive Species Documented within
 State-Mapped Wetlands and Streams
 May 2014 Page 1 of 10
 Notes: Basemap: ESRI Online Imagery.

 State-Mapped Wetland or Stream
 Project Area







CHG&E A&C Lines Article VII
 Towns of Pleasant Valley, LaGrange, Wappinger,
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 State-Mapped Wetlands and Streams
 May 2014 Page 3 of 10
 Notes: Basemap: ESRI Online Imagery.

State-Mapped Wetland or Stream
 Project Area





CHG&E A&C Lines Article VII
 Towns of Pleasant Valley, LaGrange, Wappinger,
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 Invasive Species Documented within
 State-Mapped Wetlands and Streams
 May 2014 Page 4 of 10
 Notes: Basemap: ESRI Online Imagery.

 State-Mapped Wetland or Stream
 Project Area







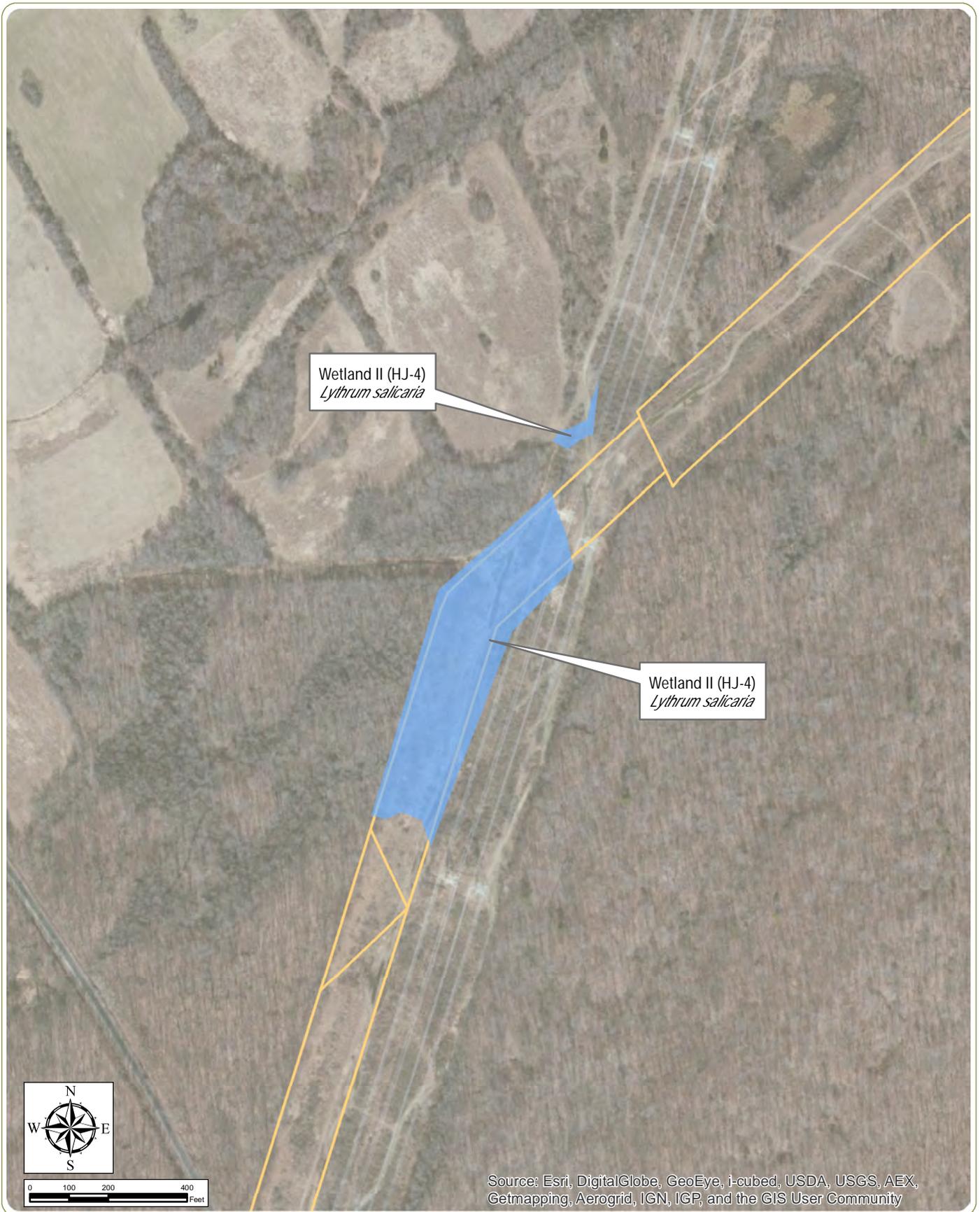


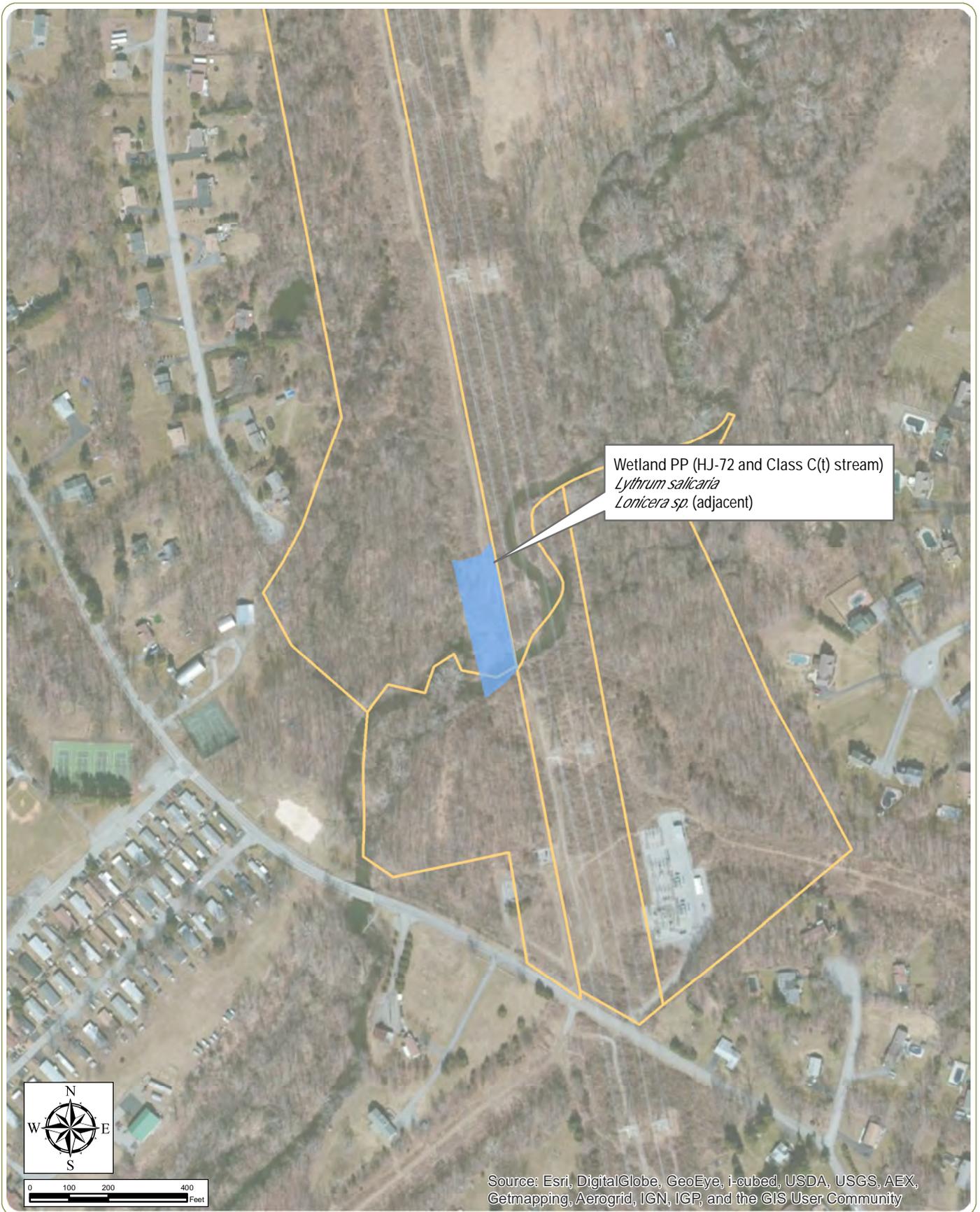
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 May 2014 Page 7 of 10
 Notes: Basemap: ESRI Online Imagery.

State-Mapped Wetland or Stream
 Project Area





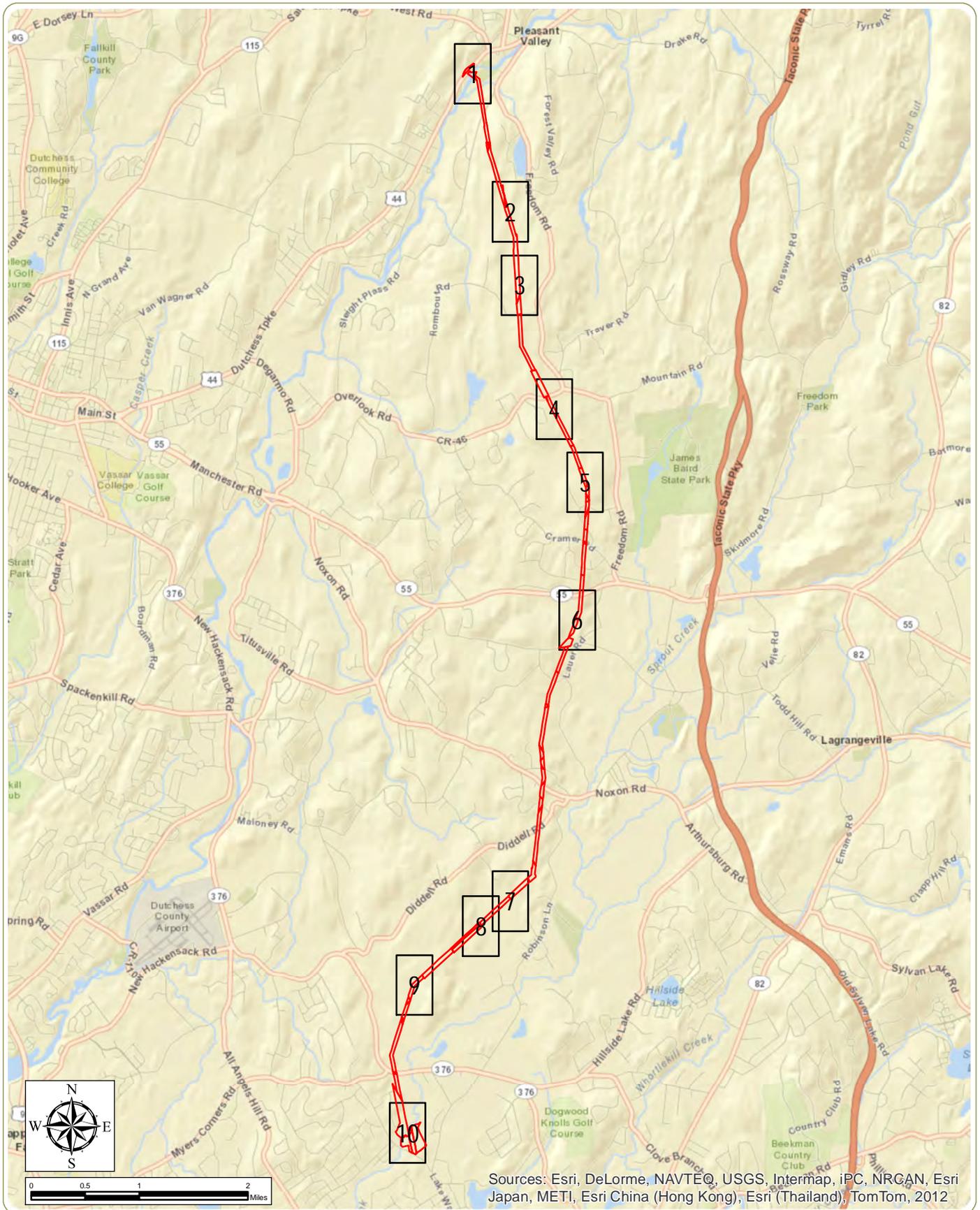




CHG&E A&C Lines Article VII
 Towns of Pleasant Valley, LaGrange, Wappinger,
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 Invasive Species Documented within
 State-Mapped Wetlands and Streams
 May 2014 Page 10 of 10
 Notes: Basemap: ESRI Online Imagery.

 State-Mapped Wetland or Stream
 Project Area



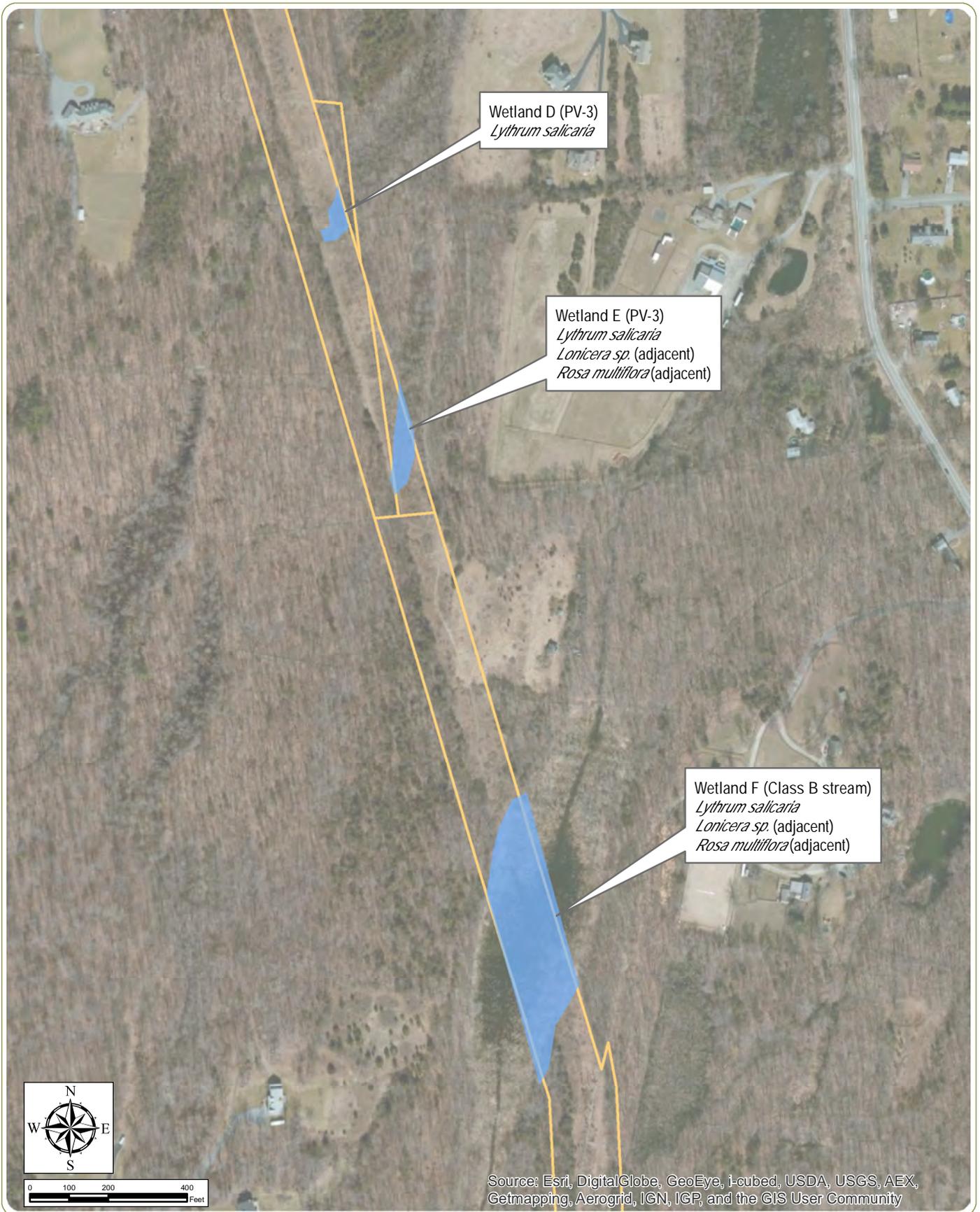


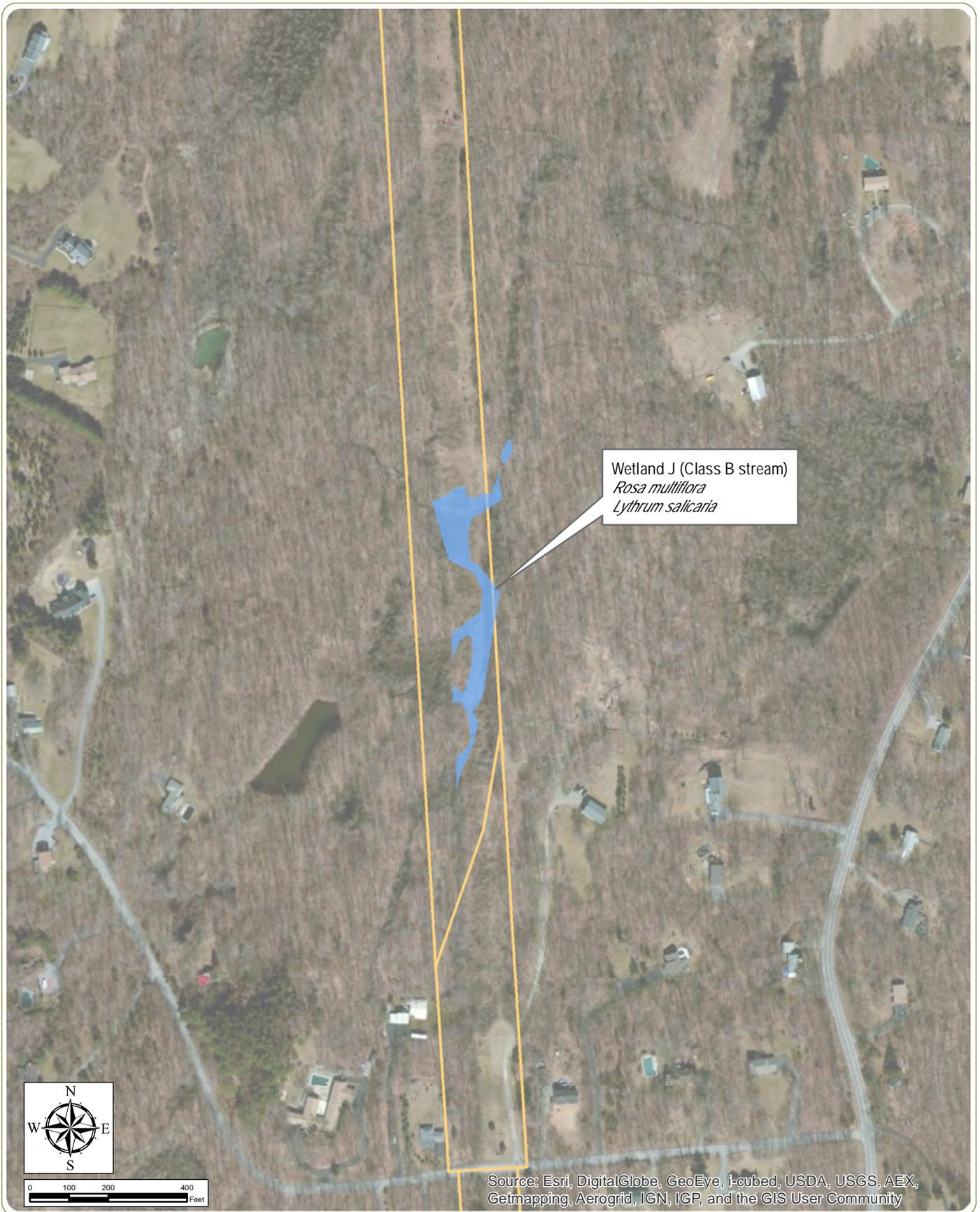
CHG&E A&C Lines Article VII
 Towns of Pleasant Valley, LaGrange, Wappinger,
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 State-Mapped Wetlands and Streams
 Sheet Index May 2014
 Notes: Basemap: ESRI Online Streets.

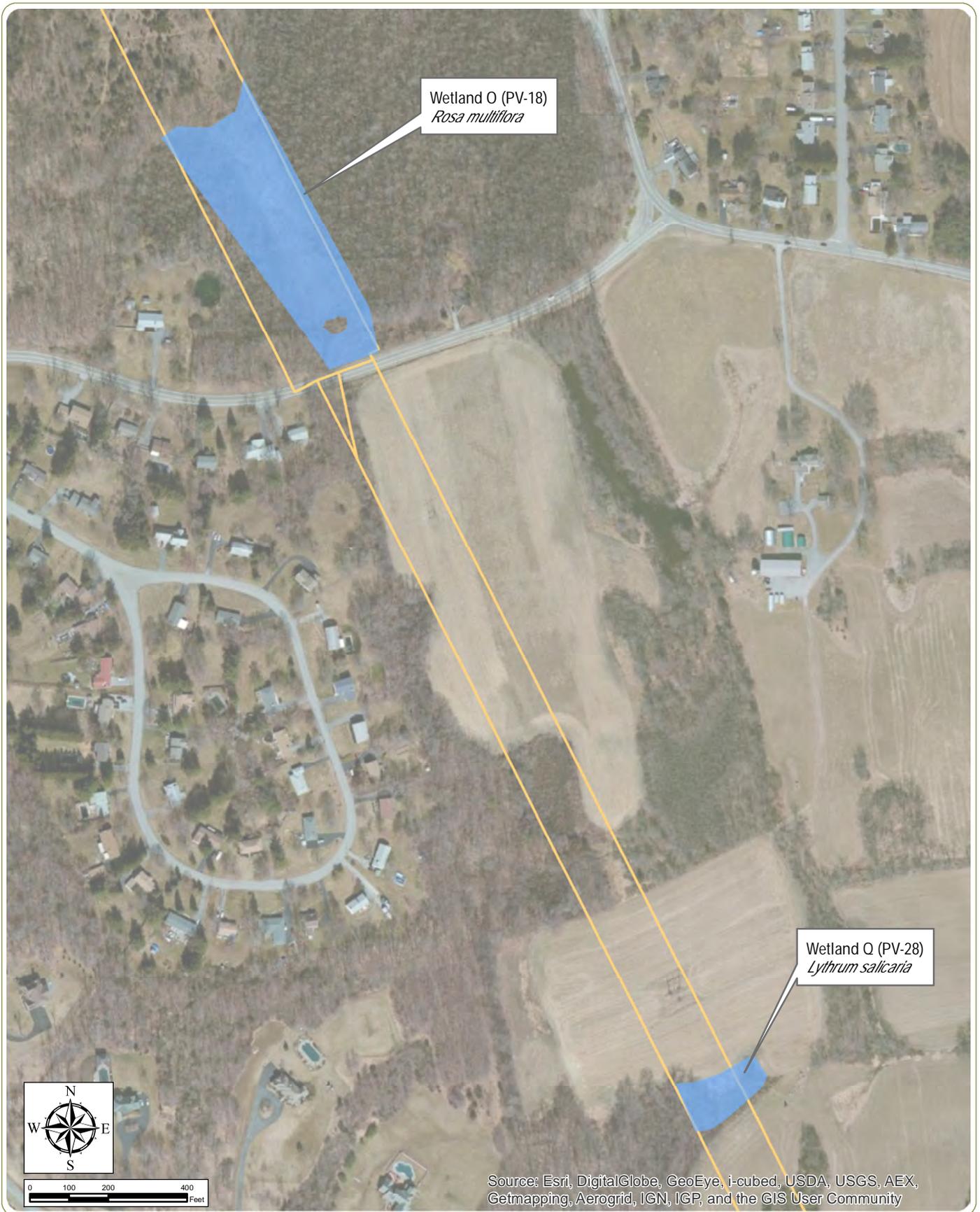
 Project Area











CHG&E A&C Lines Article VII
 Towns of Pleasant Valley, LaGrange, Wappinger,
 and East Fishkill, Dutchess County, New York
 Invasive Species Documented within
 State-Mapped Wetlands and Streams
 May 2014 Page 4 of 10
 Notes: Basemap: ESRI Online Imagery.

State-Mapped Wetland or Stream
 Project Area

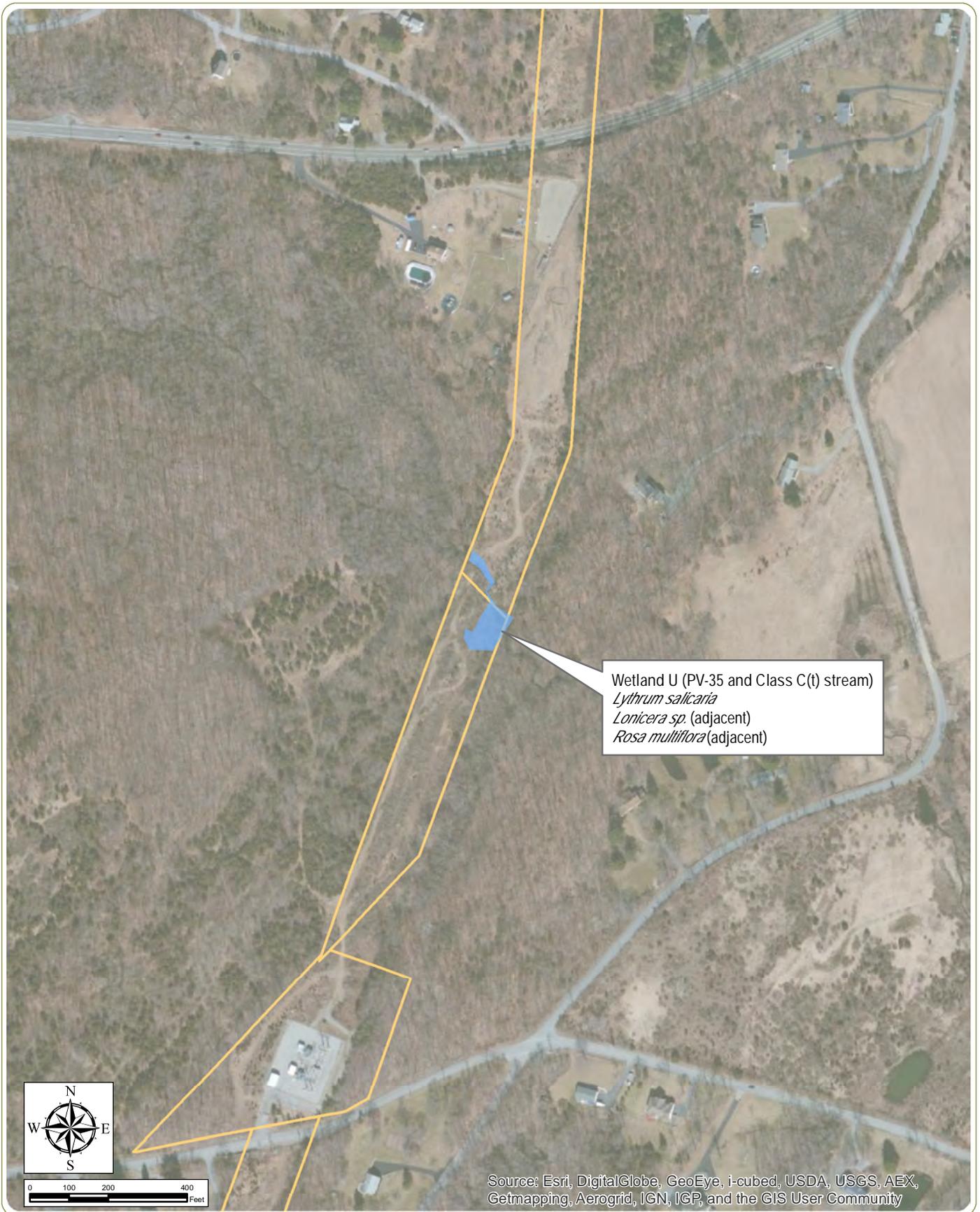


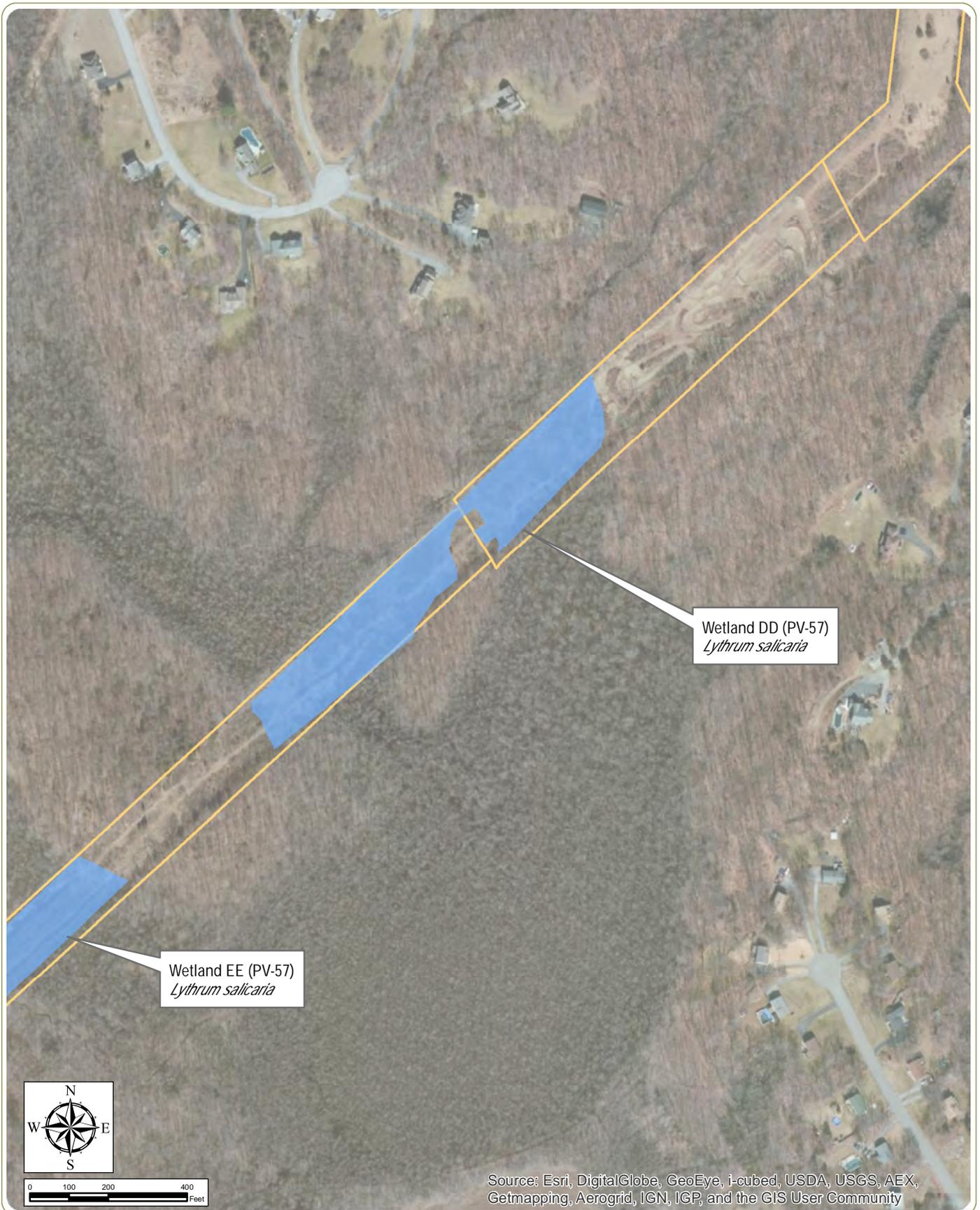


CHG&E A&C Lines Article VII
 Towns of Pleasant Valley, LaGrange, Wappinger,
 and East Fishkill, Dutchess County, New York
 Invasive Species Documented within
 State-Mapped Wetlands and Streams
 May 2014 Page 5 of 10
 Notes: Basemap: ESRI Online Imagery.

State-Mapped Wetland or Stream
 Project Area

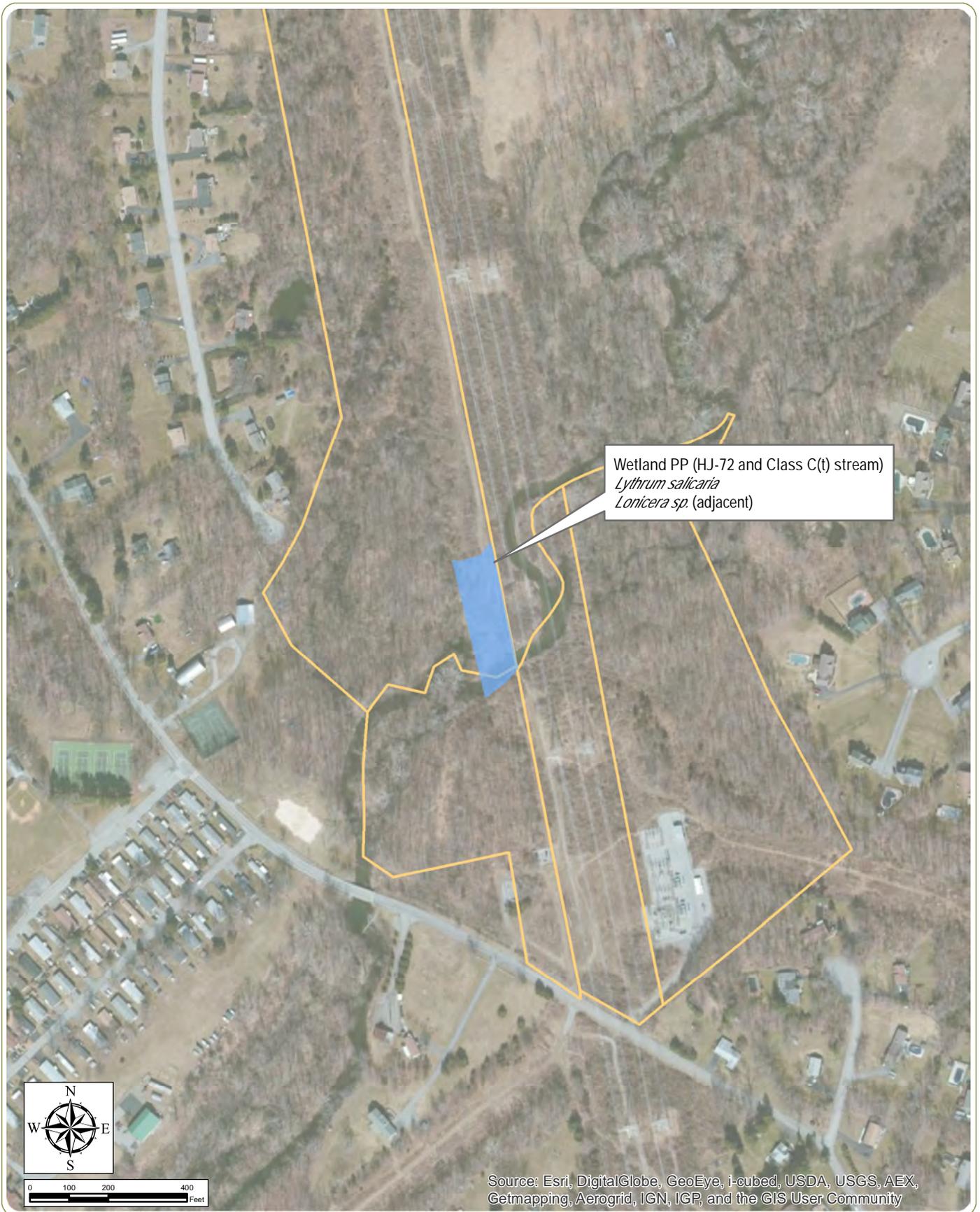








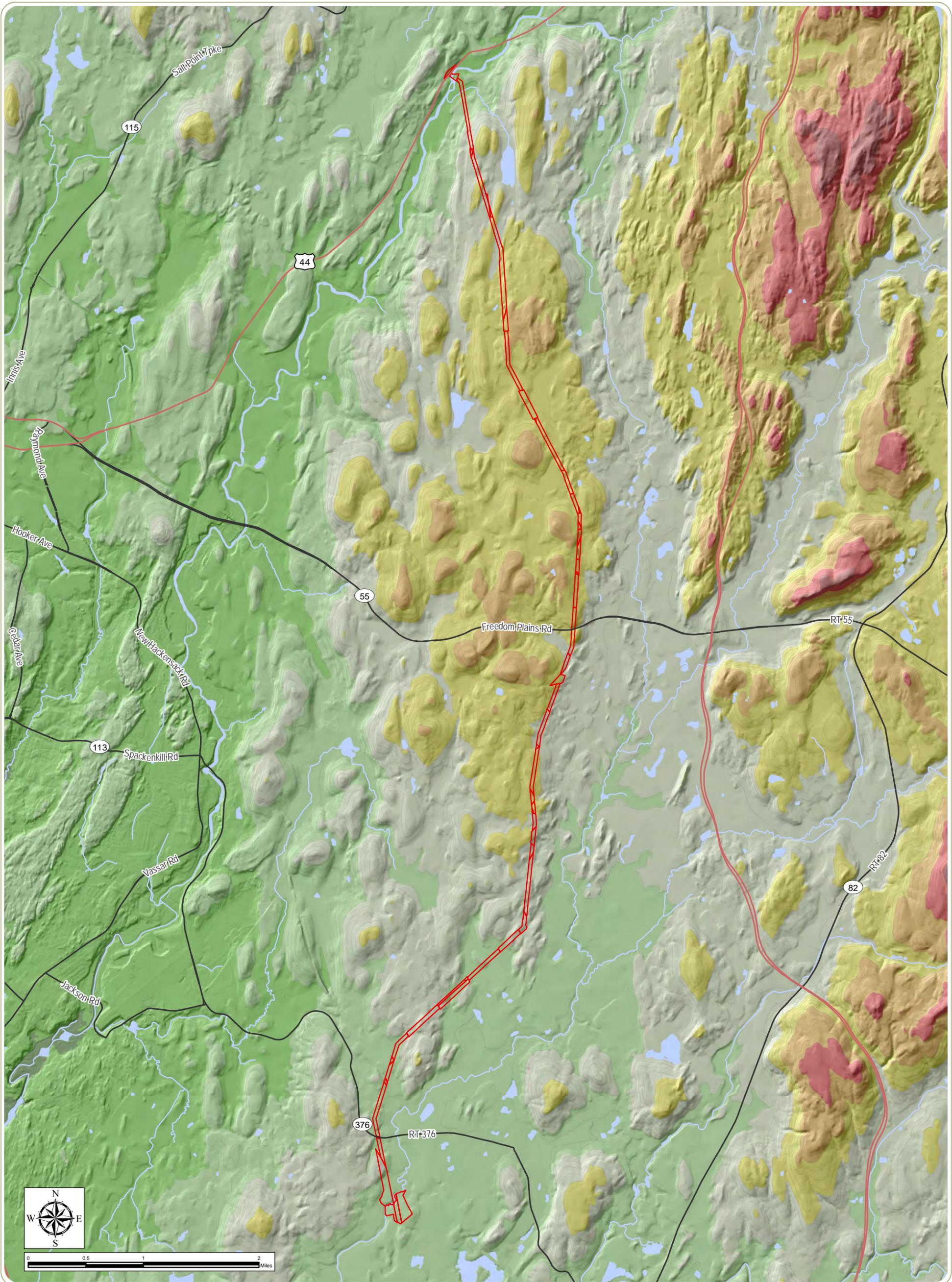




CHG&E A&C Lines Article VII
 Towns of Pleasant Valley, LaGrange, Wappinger,
 and East Fishkill, Dutchess County, New York
 Invasive Species Documented within
 State-Mapped Wetlands and Streams
 May 2014 Page 10 of 10
 Notes: Basemap: ESRI Online Imagery.

 State-Mapped Wetland or Stream
 Project Area

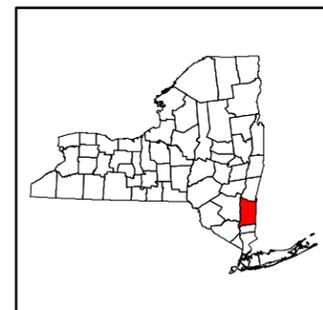




CHG&E A&C Lines Article VII Project
 Towns of Pleasant Valley, LaGrange, Wappinger, and East Fishkill,
 Dutchess County, New York
 Revised Figure 4-1: Project Area Topography

May 2014

Notes: Basemap: 1) USGS 10-meter Digital Elevation Model. 2) ESRI StreetMap, 2012.



www.edrcompanies.com

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-002 (MAS/RQ)

Central Hudson Response No: CHGE-002 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Jose Ruaya

Information Requested:

Provide the engineering drawings for the Consolidated Edison-owned lines and the Central Hudson Gas and Electric Corporation-owned A&C lines used to calculate the EMF levels that were provided in the Application for various portions of the right-of-way (ROW). The drawings should be to scale and include the dimensions of the structure and spacing of the conductors and ground wires.

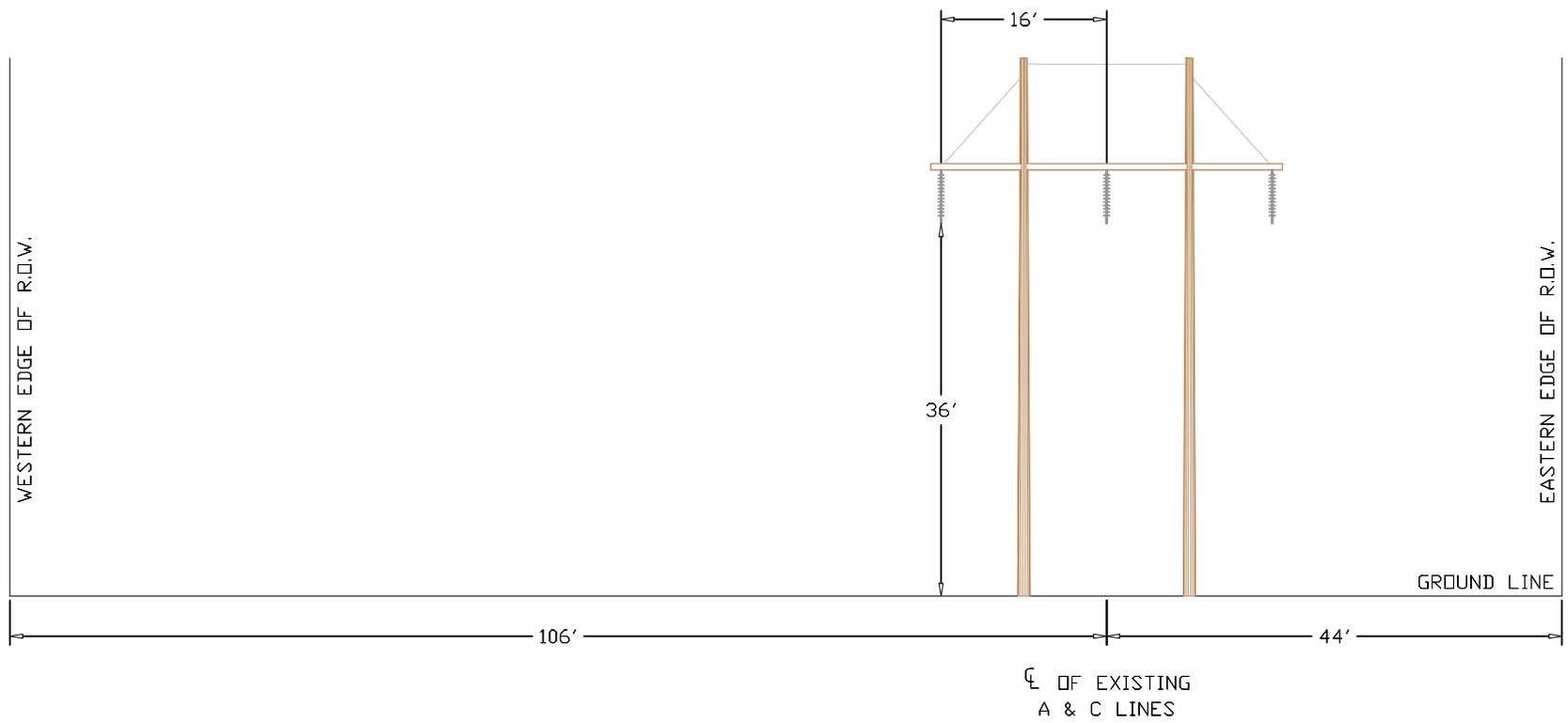
- a. Include a copy of the work papers and assumptions for each portion of the ROW studied. Include the phasing (A, B, C) of each bundle and conductor modeled.
- b. Provide EMF calculations (in 5 foot increments) to 1000 feet beyond the edge of the ROW for each section studied and include both a numerical chart and a graph.
- c. Provide a table showing the location of all houses within 1000 feet of the edge of the ROW. Include the nearest structure number and the distance from the edge of the ROW to the residence.

Responses:

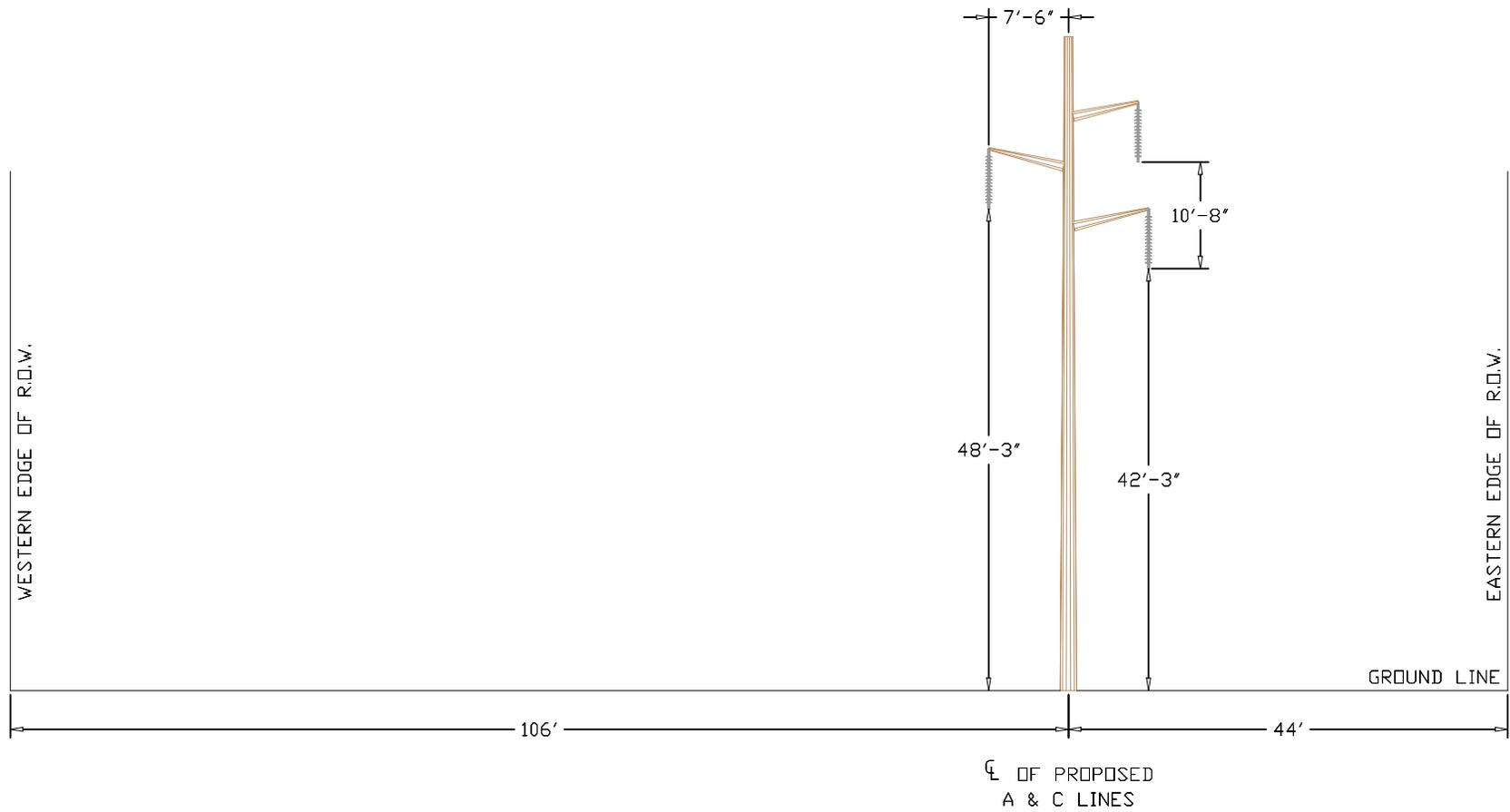
The drawings used to calculate the EMF levels are the cross-sections (8 sheets) attached as **Exhibit A** to this Response.

- a. The assumptions utilized for the EMF analysis are contained in the EMF report contained in Appendix K to the Application.
- b. See attached **Exhibit B** to this Response to show the calculations at 5 foot intervals for each of the areas of study in the EMF Report contained in the Application. A summary table showing the EMF calculations at both ROW edges, 1,000 feet from both edges of the ROW, and the centerlines of each transmission facility in the ROW, is attached as **Exhibit C**.
- c. A review of GIS mapping has identified 532 houses within 1,000 feet of the edge of the ROW. Central Hudson is in the process of preparing a table showing the specific distance from the edge of the ROW to each such house. This table will be provided in a supplemental response.

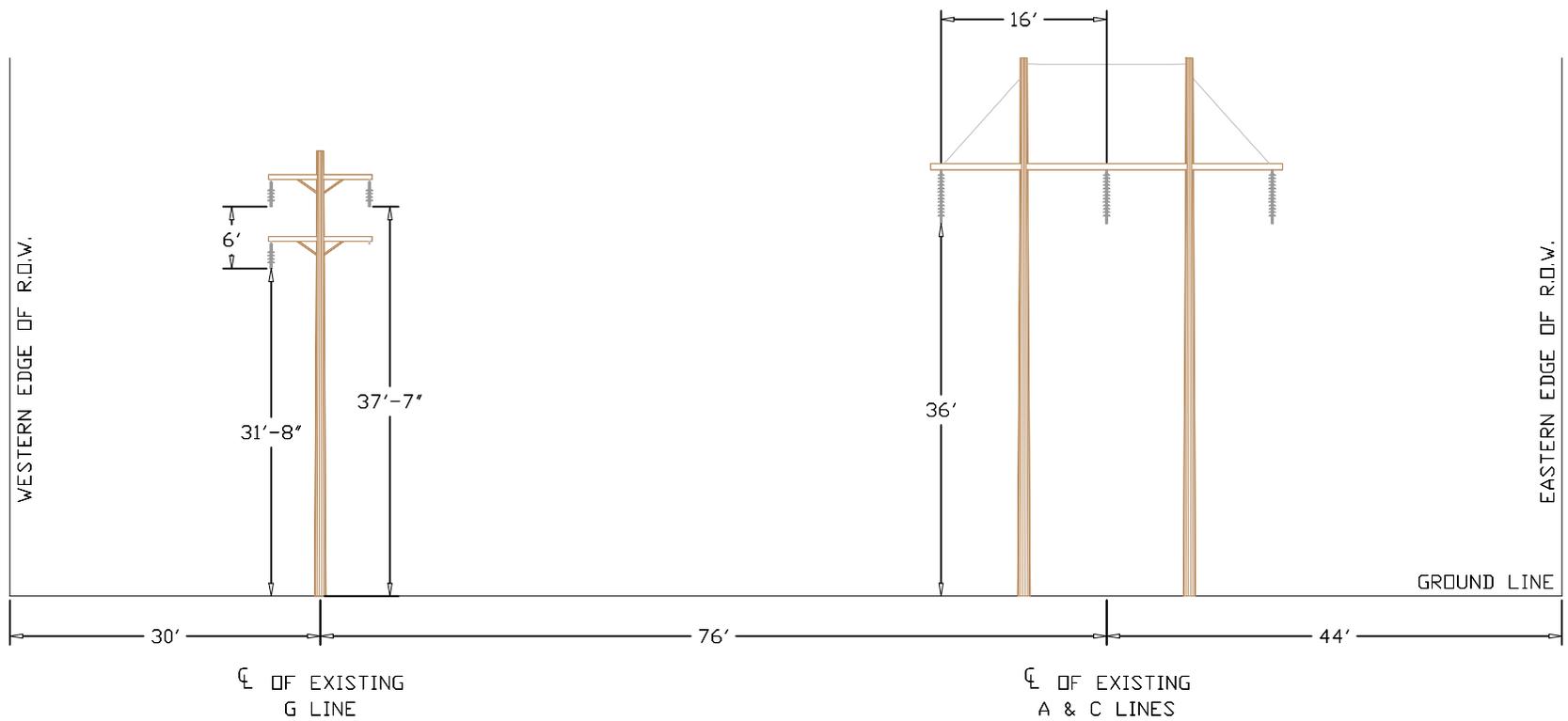
A & C 115KV LINES
EMF R.O.W. CROSS SECTIONS
SHEET 1 OF 8



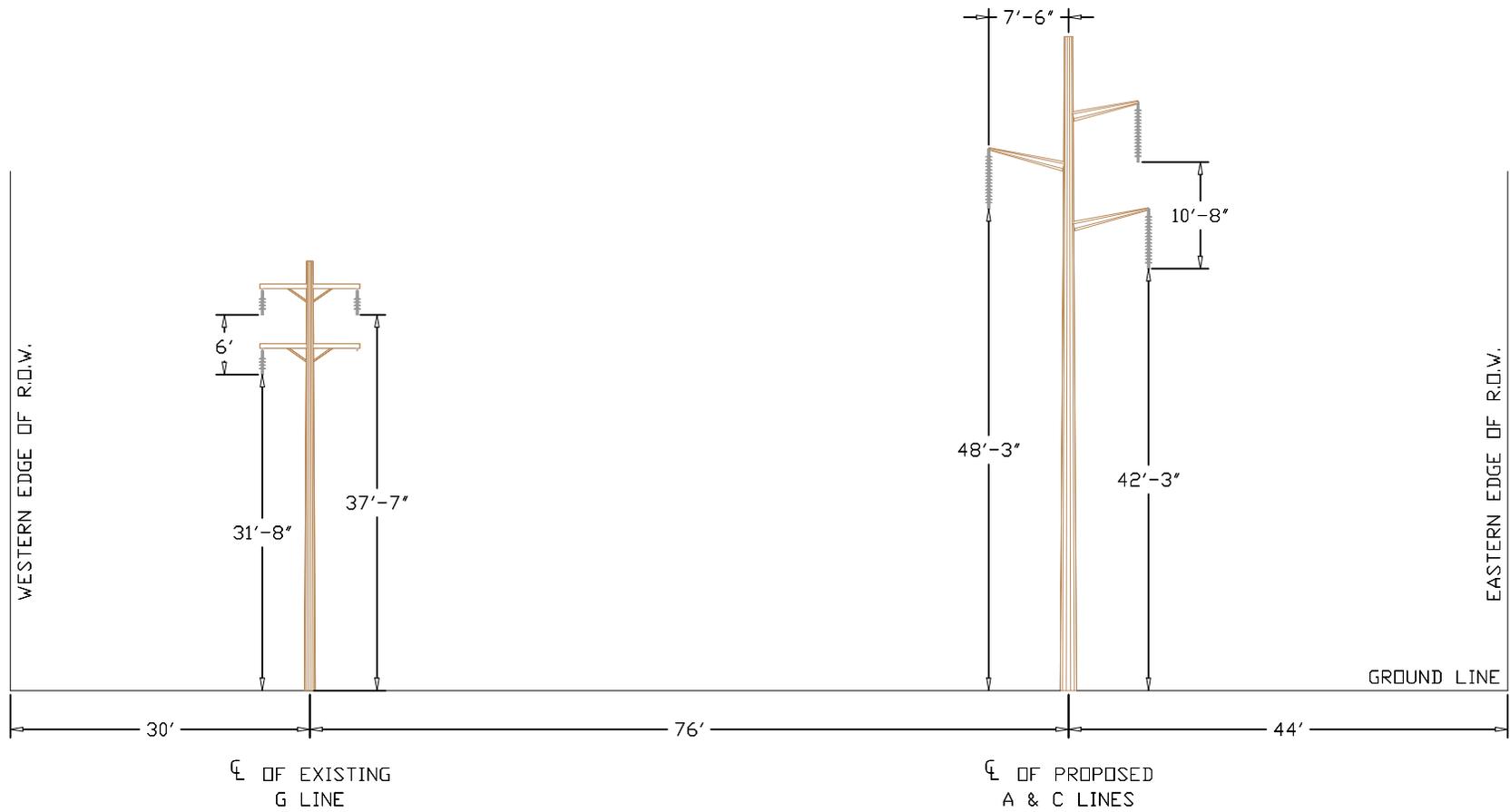
A & C 115KV LINES
EMF R.O.W. CROSS SECTIONS
SHEET 2 OF 8



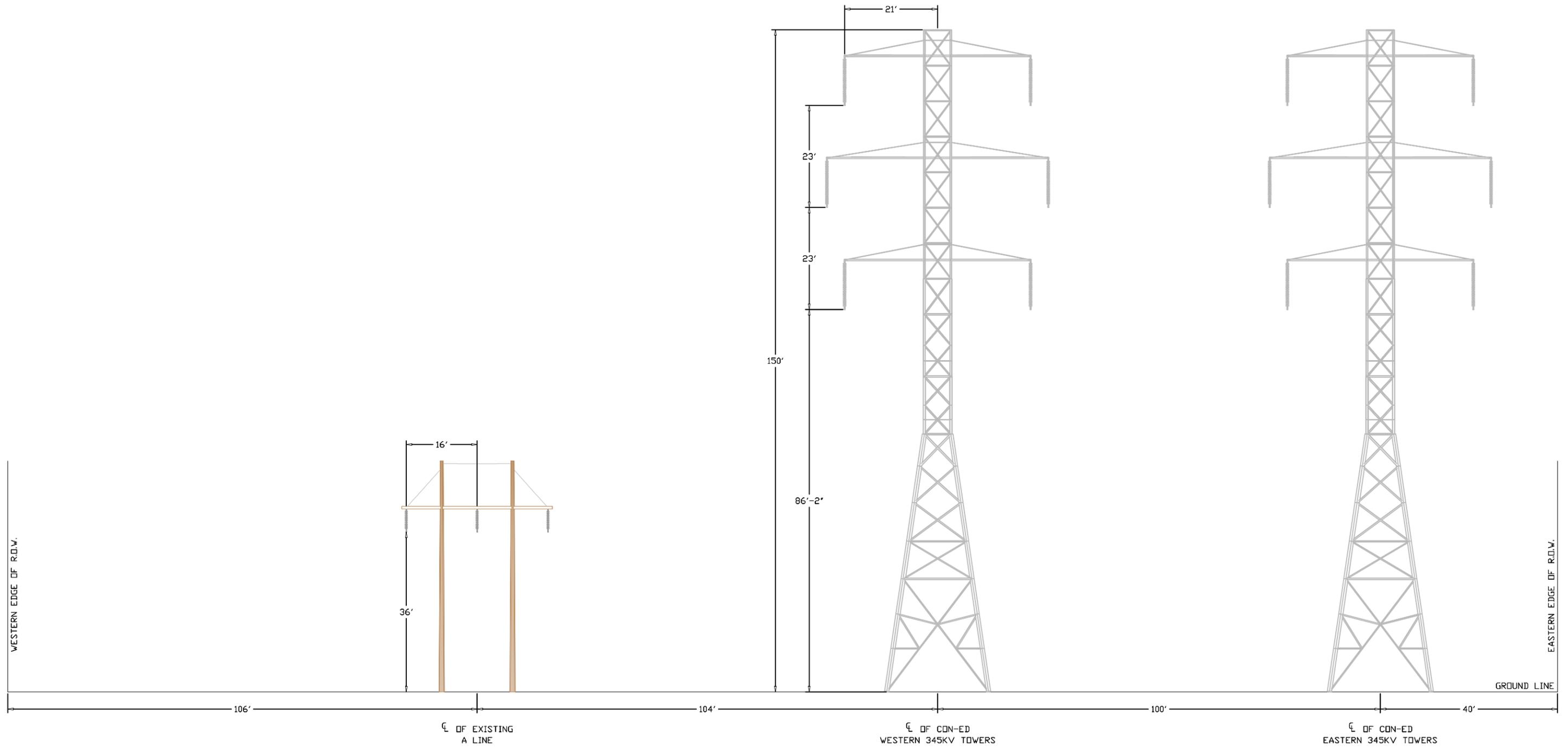
A & C 115KV LINES
EMF R.O.W. CROSS SECTIONS
SHEET 3 OF 8



A & C 115KV LINES
EMF R.O.W. CROSS SECTIONS
SHEET 4 OF 8

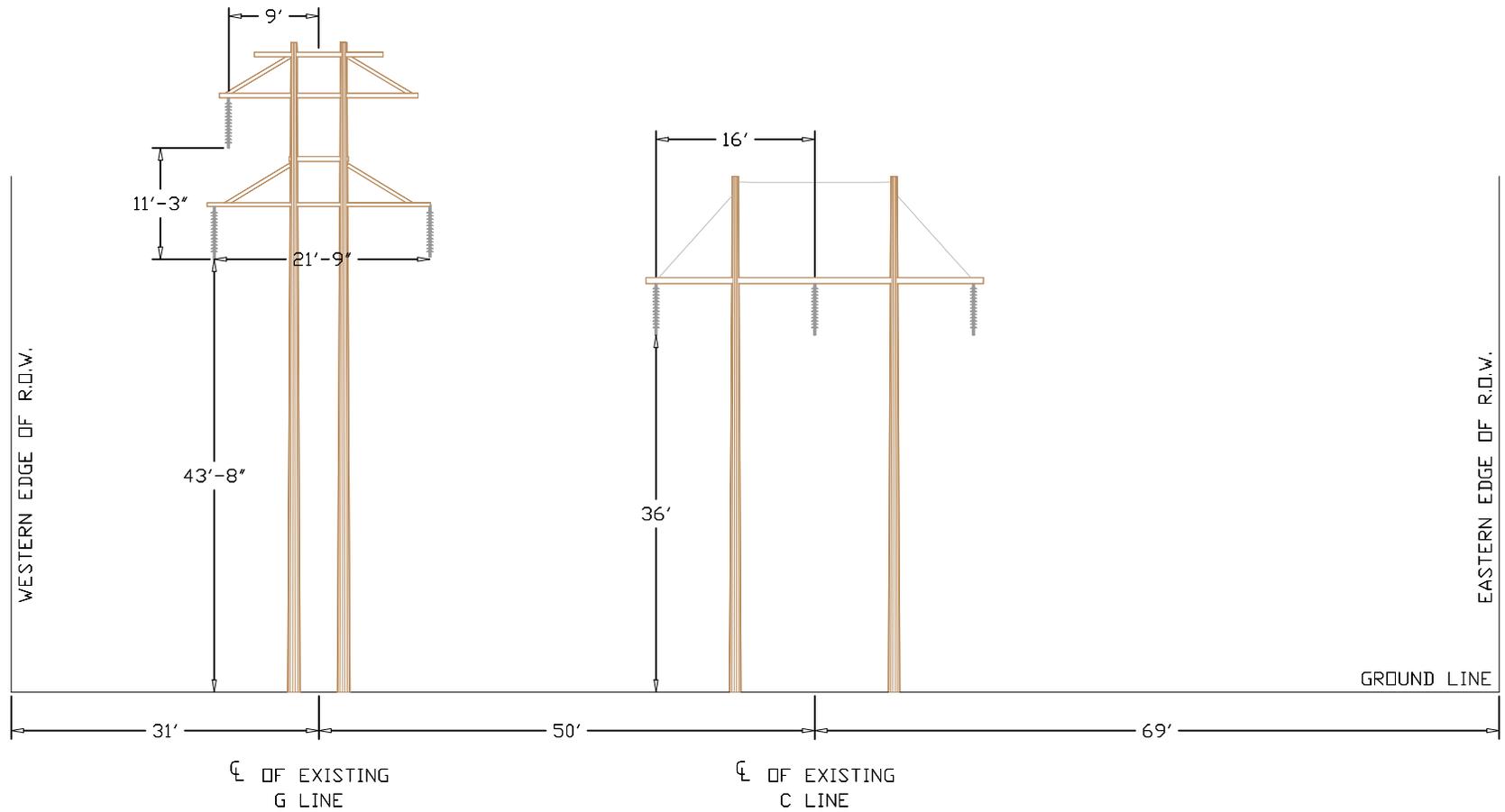


A & C 115KV LINES
EMF R.O.W. CROSS SECTIONS
SHEET 6 OF 8



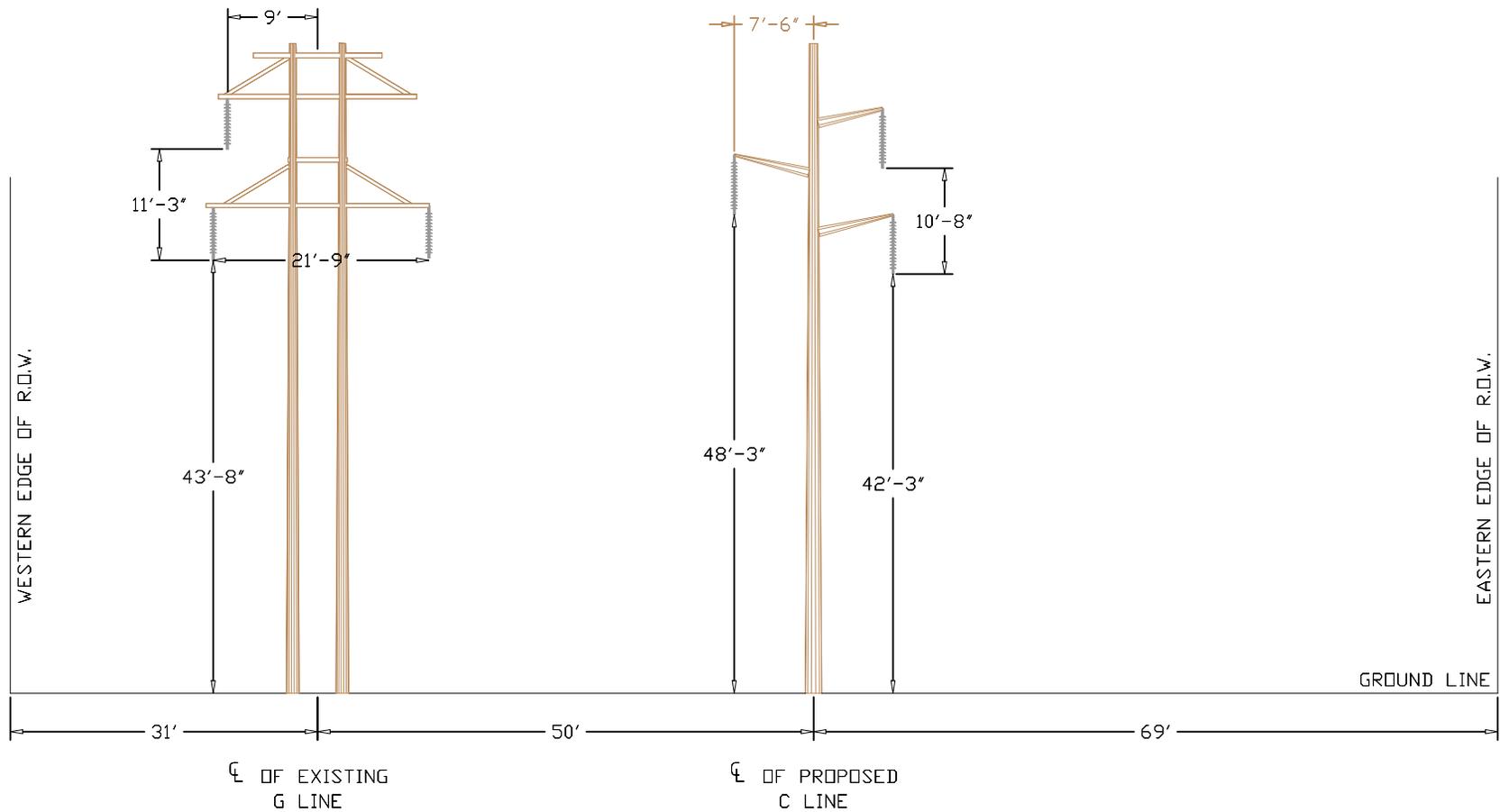
A & C 115KV LINES
EMF R.O.W. CROSS SECTIONS
SHEET 7 OF 8

"M" AND EXISTING "C" LINE SHARED R.O.W.



A & C 115KV LINES
EMF R.O.W. CROSS SECTIONS
SHEET 8 OF 8

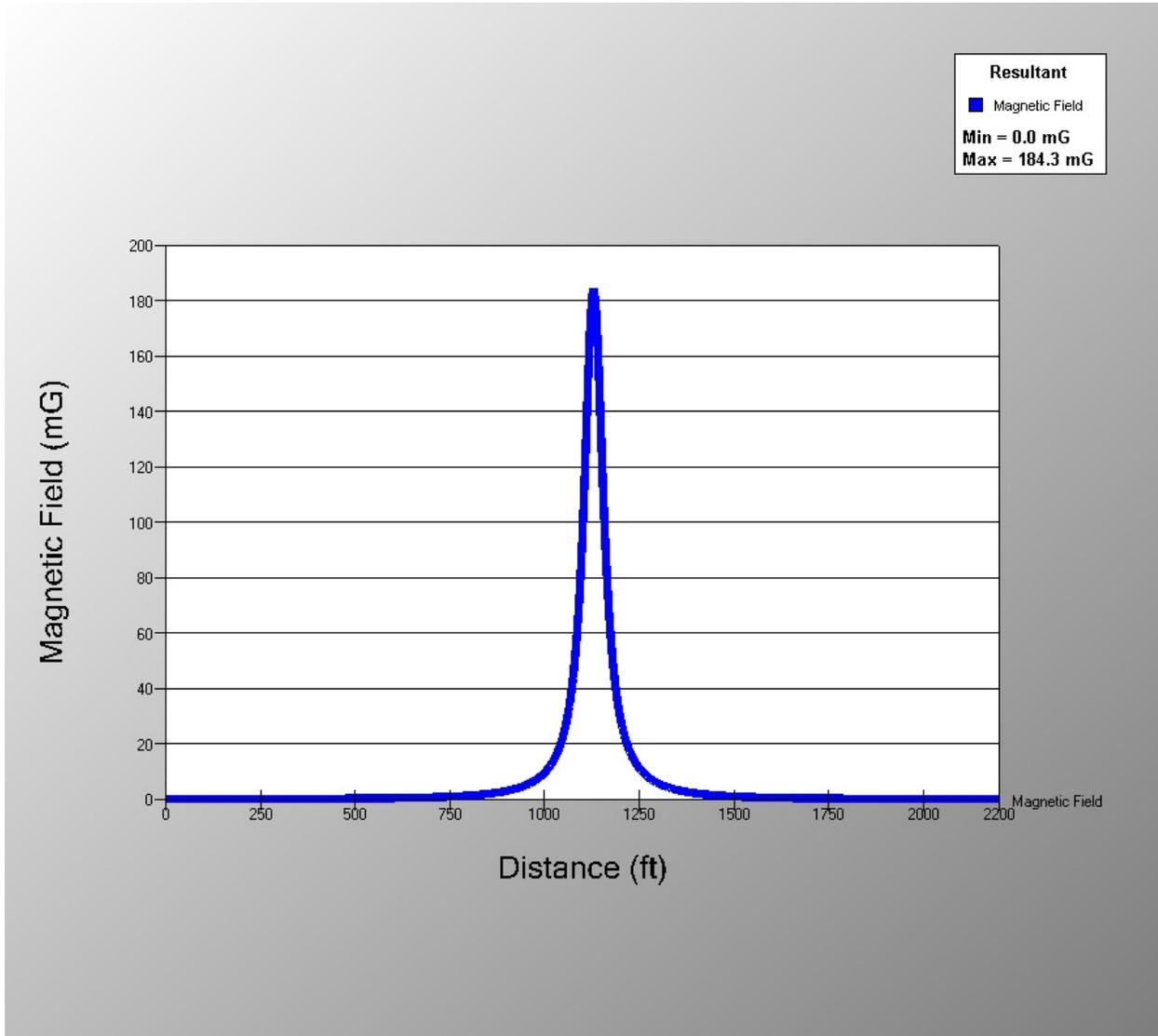
"M" AND PROPOSED "C" LINE SHARED R.O.W.



Attachment for DPS-002 (B)

Existing A&C Lines

Magnetic Field



| (ft) | (mG) |
|------|------|
| 0 | 0.05 |
| 5 | 0.05 |
| 10 | 0.05 |
| 15 | 0.05 |
| 20 | 0.05 |
| 25 | 0.05 |
| 30 | 0.05 |
| 35 | 0.05 |
| 40 | 0.05 |

| | |
|-----|------|
| 45 | 0.05 |
| 50 | 0.05 |
| 55 | 0.05 |
| 60 | 0.05 |
| 65 | 0.05 |
| 70 | 0.06 |
| 75 | 0.06 |
| 80 | 0.06 |
| 85 | 0.06 |
| 90 | 0.06 |
| 95 | 0.06 |
| 100 | 0.06 |
| 105 | 0.06 |
| 110 | 0.06 |
| 115 | 0.06 |
| 120 | 0.06 |
| 125 | 0.06 |
| 130 | 0.07 |
| 135 | 0.07 |
| 140 | 0.07 |
| 145 | 0.07 |
| 150 | 0.07 |
| 155 | 0.07 |
| 160 | 0.07 |
| 165 | 0.07 |
| 170 | 0.07 |
| 175 | 0.07 |
| 180 | 0.08 |
| 185 | 0.08 |
| 190 | 0.08 |
| 195 | 0.08 |
| 200 | 0.08 |
| 205 | 0.08 |
| 210 | 0.08 |
| 215 | 0.08 |
| 220 | 0.09 |
| 225 | 0.09 |
| 230 | 0.09 |
| 235 | 0.09 |
| 240 | 0.09 |
| 245 | 0.09 |
| 250 | 0.09 |
| 255 | 0.1 |
| 260 | 0.1 |
| 265 | 0.1 |
| 270 | 0.1 |
| 275 | 0.1 |
| 280 | 0.1 |

| | |
|-----|------|
| 285 | 0.11 |
| 290 | 0.11 |
| 295 | 0.11 |
| 300 | 0.11 |
| 305 | 0.11 |
| 310 | 0.11 |
| 315 | 0.12 |
| 320 | 0.12 |
| 325 | 0.12 |
| 330 | 0.12 |
| 335 | 0.13 |
| 340 | 0.13 |
| 345 | 0.13 |
| 350 | 0.13 |
| 355 | 0.13 |
| 360 | 0.14 |
| 365 | 0.14 |
| 370 | 0.14 |
| 375 | 0.14 |
| 380 | 0.15 |
| 385 | 0.15 |
| 390 | 0.15 |
| 395 | 0.16 |
| 400 | 0.16 |
| 405 | 0.16 |
| 410 | 0.17 |
| 415 | 0.17 |
| 420 | 0.17 |
| 425 | 0.18 |
| 430 | 0.18 |
| 435 | 0.18 |
| 440 | 0.19 |
| 445 | 0.19 |
| 450 | 0.19 |
| 455 | 0.2 |
| 460 | 0.2 |
| 465 | 0.21 |
| 470 | 0.21 |
| 475 | 0.21 |
| 480 | 0.22 |
| 485 | 0.22 |
| 490 | 0.23 |
| 495 | 0.23 |
| 500 | 0.24 |
| 505 | 0.24 |
| 510 | 0.25 |
| 515 | 0.26 |
| 520 | 0.26 |

| | |
|-----|------|
| 525 | 0.27 |
| 530 | 0.27 |
| 535 | 0.28 |
| 540 | 0.29 |
| 545 | 0.29 |
| 550 | 0.3 |
| 555 | 0.31 |
| 560 | 0.31 |
| 565 | 0.32 |
| 570 | 0.33 |
| 575 | 0.34 |
| 580 | 0.35 |
| 585 | 0.35 |
| 590 | 0.36 |
| 595 | 0.37 |
| 600 | 0.38 |
| 605 | 0.39 |
| 610 | 0.4 |
| 615 | 0.41 |
| 620 | 0.42 |
| 625 | 0.43 |
| 630 | 0.44 |
| 635 | 0.46 |
| 640 | 0.47 |
| 645 | 0.48 |
| 650 | 0.49 |
| 655 | 0.51 |
| 660 | 0.52 |
| 665 | 0.54 |
| 670 | 0.55 |
| 675 | 0.57 |
| 680 | 0.58 |
| 685 | 0.6 |
| 690 | 0.62 |
| 695 | 0.63 |
| 700 | 0.65 |
| 705 | 0.67 |
| 710 | 0.69 |
| 715 | 0.71 |
| 720 | 0.74 |
| 725 | 0.76 |
| 730 | 0.78 |
| 735 | 0.81 |
| 740 | 0.83 |
| 745 | 0.86 |
| 750 | 0.89 |
| 755 | 0.92 |
| 760 | 0.95 |

| | |
|------|------|
| 765 | 0.98 |
| 770 | 1.01 |
| 775 | 1.05 |
| 780 | 1.08 |
| 785 | 1.12 |
| 790 | 1.16 |
| 795 | 1.2 |
| 800 | 1.24 |
| 805 | 1.29 |
| 810 | 1.34 |
| 815 | 1.39 |
| 820 | 1.44 |
| 825 | 1.49 |
| 830 | 1.55 |
| 835 | 1.61 |
| 840 | 1.67 |
| 845 | 1.74 |
| 850 | 1.81 |
| 855 | 1.88 |
| 860 | 1.96 |
| 865 | 2.04 |
| 870 | 2.13 |
| 875 | 2.22 |
| 880 | 2.32 |
| 885 | 2.42 |
| 890 | 2.53 |
| 895 | 2.65 |
| 900 | 2.77 |
| 905 | 2.9 |
| 910 | 3.04 |
| 915 | 3.19 |
| 920 | 3.35 |
| 925 | 3.52 |
| 930 | 3.7 |
| 935 | 3.89 |
| 940 | 4.1 |
| 945 | 4.33 |
| 950 | 4.57 |
| 955 | 4.83 |
| 960 | 5.12 |
| 965 | 5.42 |
| 970 | 5.76 |
| 975 | 6.13 |
| 980 | 6.53 |
| 985 | 6.97 |
| 990 | 7.46 |
| 995 | 8 |
| 1000 | 8.6 |

| | |
|------|--------|
| 1005 | 9.27 |
| 1010 | 10.02 |
| 1015 | 10.86 |
| 1020 | 11.82 |
| 1025 | 12.91 |
| 1030 | 14.17 |
| 1035 | 15.61 |
| 1040 | 17.3 |
| 1045 | 19.28 |
| 1050 | 21.63 |
| 1055 | 24.44 |
| 1060 | 27.85 |
| 1065 | 32.03 |
| 1070 | 37.25 |
| 1075 | 43.86 |
| 1080 | 52.39 |
| 1085 | 63.61 |
| 1090 | 78.69 |
| 1095 | 99.32 |
| 1100 | 127.87 |
| 1105 | 166.87 |
| 1110 | 216.66 |
| 1115 | 270.24 |
| 1120 | 313.14 |
| 1125 | 337.35 |
| 1130 | 346.08 |
| 1135 | 342.42 |
| 1140 | 325.03 |
| 1145 | 289.45 |
| 1150 | 238.37 |
| 1155 | 185.66 |
| 1160 | 142.1 |
| 1165 | 109.64 |
| 1170 | 86.15 |
| 1175 | 69.1 |
| 1180 | 56.5 |
| 1185 | 47.01 |
| 1190 | 39.71 |
| 1195 | 33.98 |
| 1200 | 29.42 |
| 1205 | 25.72 |
| 1210 | 22.69 |
| 1215 | 20.17 |
| 1220 | 18.05 |
| 1225 | 16.26 |
| 1230 | 14.72 |
| 1235 | 13.39 |
| 1240 | 12.24 |

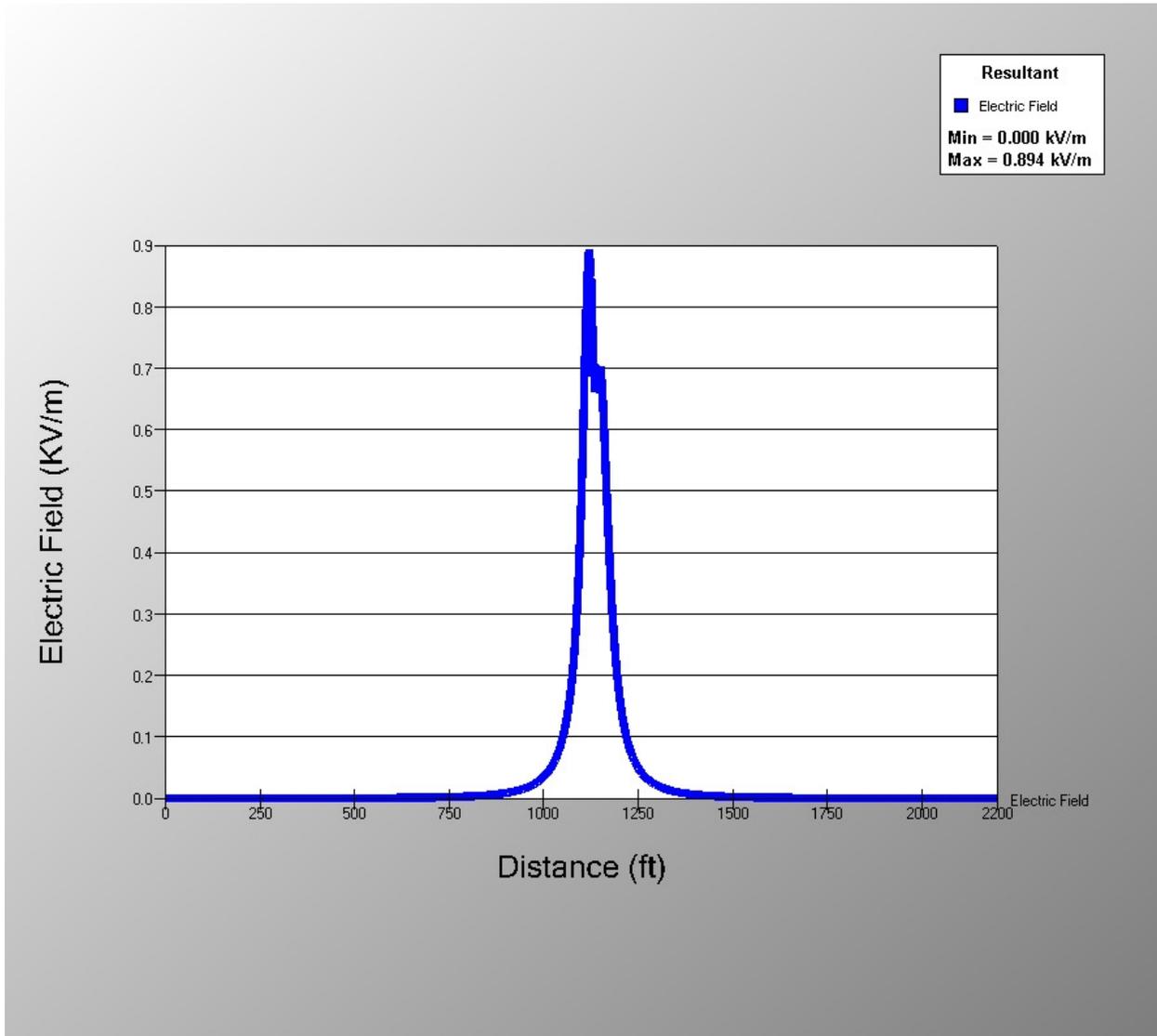
| | |
|------|-------|
| 1245 | 11.23 |
| 1250 | 10.34 |
| 1255 | 9.56 |
| 1260 | 8.86 |
| 1265 | 8.23 |
| 1270 | 7.67 |
| 1275 | 7.16 |
| 1280 | 6.7 |
| 1285 | 6.28 |
| 1290 | 5.9 |
| 1295 | 5.56 |
| 1300 | 5.24 |
| 1305 | 4.94 |
| 1310 | 4.67 |
| 1315 | 4.42 |
| 1320 | 4.19 |
| 1325 | 3.97 |
| 1330 | 3.77 |
| 1335 | 3.59 |
| 1340 | 3.41 |
| 1345 | 3.25 |
| 1350 | 3.1 |
| 1355 | 2.96 |
| 1360 | 2.82 |
| 1365 | 2.7 |
| 1370 | 2.58 |
| 1375 | 2.47 |
| 1380 | 2.36 |
| 1385 | 2.26 |
| 1390 | 2.17 |
| 1395 | 2.08 |
| 1400 | 1.99 |
| 1405 | 1.91 |
| 1410 | 1.84 |
| 1415 | 1.77 |
| 1420 | 1.7 |
| 1425 | 1.64 |
| 1430 | 1.57 |
| 1435 | 1.52 |
| 1440 | 1.46 |
| 1445 | 1.41 |
| 1450 | 1.36 |
| 1455 | 1.31 |
| 1460 | 1.26 |
| 1465 | 1.22 |
| 1470 | 1.18 |
| 1475 | 1.14 |
| 1480 | 1.1 |

| | |
|------|------|
| 1485 | 1.06 |
| 1490 | 1.03 |
| 1495 | 0.99 |
| 1500 | 0.96 |
| 1505 | 0.93 |
| 1510 | 0.9 |
| 1515 | 0.87 |
| 1520 | 0.84 |
| 1525 | 0.82 |
| 1530 | 0.79 |
| 1535 | 0.77 |
| 1540 | 0.75 |
| 1545 | 0.72 |
| 1550 | 0.7 |
| 1555 | 0.68 |
| 1560 | 0.66 |
| 1565 | 0.64 |
| 1570 | 0.62 |
| 1575 | 0.61 |
| 1580 | 0.59 |
| 1585 | 0.57 |
| 1590 | 0.56 |
| 1595 | 0.54 |
| 1600 | 0.53 |
| 1605 | 0.51 |
| 1610 | 0.5 |
| 1615 | 0.49 |
| 1620 | 0.47 |
| 1625 | 0.46 |
| 1630 | 0.45 |
| 1635 | 0.44 |
| 1640 | 0.43 |
| 1645 | 0.41 |
| 1650 | 0.4 |
| 1655 | 0.39 |
| 1660 | 0.38 |
| 1665 | 0.38 |
| 1670 | 0.37 |
| 1675 | 0.36 |
| 1680 | 0.35 |
| 1685 | 0.34 |
| 1690 | 0.33 |
| 1695 | 0.32 |
| 1700 | 0.32 |
| 1705 | 0.31 |
| 1710 | 0.3 |
| 1715 | 0.3 |
| 1720 | 0.29 |

| | |
|------|------|
| 1725 | 0.28 |
| 1730 | 0.28 |
| 1735 | 0.27 |
| 1740 | 0.26 |
| 1745 | 0.26 |
| 1750 | 0.25 |
| 1755 | 0.25 |
| 1760 | 0.24 |
| 1765 | 0.24 |
| 1770 | 0.23 |
| 1775 | 0.23 |
| 1780 | 0.22 |
| 1785 | 0.22 |
| 1790 | 0.21 |
| 1795 | 0.21 |
| 1800 | 0.2 |
| 1805 | 0.2 |
| 1810 | 0.2 |
| 1815 | 0.19 |
| 1820 | 0.19 |
| 1825 | 0.18 |
| 1830 | 0.18 |
| 1835 | 0.18 |
| 1840 | 0.17 |
| 1845 | 0.17 |
| 1850 | 0.17 |
| 1855 | 0.16 |
| 1860 | 0.16 |
| 1865 | 0.16 |
| 1870 | 0.15 |
| 1875 | 0.15 |
| 1880 | 0.15 |
| 1885 | 0.15 |
| 1890 | 0.14 |
| 1895 | 0.14 |
| 1900 | 0.14 |
| 1905 | 0.14 |
| 1910 | 0.13 |
| 1915 | 0.13 |
| 1920 | 0.13 |
| 1925 | 0.13 |
| 1930 | 0.12 |
| 1935 | 0.12 |
| 1940 | 0.12 |
| 1945 | 0.12 |
| 1950 | 0.12 |
| 1955 | 0.11 |
| 1960 | 0.11 |

| | |
|------|------|
| 1965 | 0.11 |
| 1970 | 0.11 |
| 1975 | 0.11 |
| 1980 | 0.1 |
| 1985 | 0.1 |
| 1990 | 0.1 |
| 1995 | 0.1 |
| 2000 | 0.1 |
| 2005 | 0.1 |
| 2010 | 0.09 |
| 2015 | 0.09 |
| 2020 | 0.09 |
| 2025 | 0.09 |
| 2030 | 0.09 |
| 2035 | 0.09 |
| 2040 | 0.09 |
| 2045 | 0.08 |
| 2050 | 0.08 |
| 2055 | 0.08 |
| 2060 | 0.08 |
| 2065 | 0.08 |
| 2070 | 0.08 |
| 2075 | 0.08 |
| 2080 | 0.08 |
| 2085 | 0.07 |
| 2090 | 0.07 |
| 2095 | 0.07 |
| 2100 | 0.07 |
| 2105 | 0.07 |
| 2110 | 0.07 |
| 2115 | 0.07 |
| 2120 | 0.07 |
| 2125 | 0.07 |
| 2130 | 0.07 |
| 2135 | 0.06 |
| 2140 | 0.06 |
| 2145 | 0.06 |
| 2150 | 0.06 |
| 2155 | 0.06 |
| 2160 | 0.06 |
| 2165 | 0.06 |
| 2170 | 0.06 |
| 2175 | 0.06 |
| 2180 | 0.06 |
| 2185 | 0.06 |
| 2190 | 0.06 |
| 2195 | 0.05 |
| 2200 | 0.05 |

E-FIELD



| (ft) | (KV/m) |
|------|--------|
| 0 | 0 |
| 5 | 0 |
| 10 | 0 |
| 15 | 0 |
| 20 | 0 |
| 25 | 0 |
| 30 | 0 |
| 35 | 0 |
| 40 | 0 |
| 45 | 0 |
| 50 | 0 |

| | |
|-----|---|
| 55 | 0 |
| 60 | 0 |
| 65 | 0 |
| 70 | 0 |
| 75 | 0 |
| 80 | 0 |
| 85 | 0 |
| 90 | 0 |
| 95 | 0 |
| 100 | 0 |
| 105 | 0 |
| 110 | 0 |
| 115 | 0 |
| 120 | 0 |
| 125 | 0 |
| 130 | 0 |
| 135 | 0 |
| 140 | 0 |
| 145 | 0 |
| 150 | 0 |
| 155 | 0 |
| 160 | 0 |
| 165 | 0 |
| 170 | 0 |
| 175 | 0 |
| 180 | 0 |
| 185 | 0 |
| 190 | 0 |
| 195 | 0 |
| 200 | 0 |
| 205 | 0 |
| 210 | 0 |
| 215 | 0 |
| 220 | 0 |
| 225 | 0 |
| 230 | 0 |
| 235 | 0 |
| 240 | 0 |
| 245 | 0 |
| 250 | 0 |
| 255 | 0 |
| 260 | 0 |

| | |
|-----|---|
| 265 | 0 |
| 270 | 0 |
| 275 | 0 |
| 280 | 0 |
| 285 | 0 |
| 290 | 0 |
| 295 | 0 |
| 300 | 0 |
| 305 | 0 |
| 310 | 0 |
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| 345 | 0 |
| 350 | 0 |
| 355 | 0 |
| 360 | 0 |
| 365 | 0 |
| 370 | 0 |
| 375 | 0 |
| 380 | 0 |
| 385 | 0 |
| 390 | 0 |
| 395 | 0 |
| 400 | 0 |
| 405 | 0 |
| 410 | 0 |
| 415 | 0 |
| 420 | 0 |
| 425 | 0 |
| 430 | 0 |
| 435 | 0 |
| 440 | 0 |
| 445 | 0 |
| 450 | 0 |
| 455 | 0 |
| 460 | 0 |
| 465 | 0 |
| 470 | 0 |

| | |
|-----|---|
| 475 | 0 |
| 480 | 0 |
| 485 | 0 |
| 490 | 0 |
| 495 | 0 |
| 500 | 0 |
| 505 | 0 |
| 510 | 0 |
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| 565 | 0 |
| 570 | 0 |
| 575 | 0 |
| 580 | 0 |
| 585 | 0 |
| 590 | 0 |
| 595 | 0 |
| 600 | 0 |
| 605 | 0 |
| 610 | 0 |
| 615 | 0 |
| 620 | 0 |
| 625 | 0 |
| 630 | 0 |
| 635 | 0 |
| 640 | 0 |
| 645 | 0 |
| 650 | 0 |
| 655 | 0 |
| 660 | 0 |
| 665 | 0 |
| 670 | 0 |
| 675 | 0 |
| 680 | 0 |

| | |
|-----|---|
| 685 | 0 |
| 690 | 0 |
| 695 | 0 |
| 700 | 0 |
| 705 | 0 |
| 710 | 0 |
| 715 | 0 |
| 720 | 0 |
| 725 | 0 |
| 730 | 0 |
| 735 | 0 |
| 740 | 0 |
| 745 | 0 |
| 750 | 0 |
| 755 | 0 |
| 760 | 0 |
| 765 | 0 |
| 770 | 0 |
| 775 | 0 |
| 780 | 0 |
| 785 | 0 |
| 790 | 0 |
| 795 | 0 |
| 800 | 0 |
| 805 | 0 |
| 810 | 0 |
| 815 | 0 |
| 820 | 0 |
| 825 | 0 |
| 830 | 0 |
| 835 | 0 |
| 840 | 0 |
| 845 | 0 |
| 850 | 0 |
| 855 | 0 |
| 860 | 0 |
| 865 | 0 |
| 870 | 0 |
| 875 | 0 |
| 880 | 0 |
| 885 | 0 |
| 890 | 0 |

| | |
|------|------|
| 895 | 0.01 |
| 900 | 0.01 |
| 905 | 0.01 |
| 910 | 0.01 |
| 915 | 0.01 |
| 920 | 0.01 |
| 925 | 0.01 |
| 930 | 0.01 |
| 935 | 0.01 |
| 940 | 0.01 |
| 945 | 0.01 |
| 950 | 0.01 |
| 955 | 0.01 |
| 960 | 0.01 |
| 965 | 0.01 |
| 970 | 0.02 |
| 975 | 0.02 |
| 980 | 0.02 |
| 985 | 0.02 |
| 990 | 0.02 |
| 995 | 0.03 |
| 1000 | 0.03 |
| 1005 | 0.03 |
| 1010 | 0.04 |
| 1015 | 0.04 |
| 1020 | 0.05 |
| 1025 | 0.05 |
| 1030 | 0.06 |
| 1035 | 0.07 |
| 1040 | 0.08 |
| 1045 | 0.1 |
| 1050 | 0.12 |
| 1055 | 0.14 |
| 1060 | 0.17 |
| 1065 | 0.21 |
| 1070 | 0.26 |
| 1075 | 0.32 |
| 1080 | 0.42 |
| 1085 | 0.54 |
| 1090 | 0.72 |
| 1095 | 0.96 |
| 1100 | 1.29 |

| | |
|------|------|
| 1105 | 1.7 |
| 1110 | 2.1 |
| 1115 | 2.26 |
| 1120 | 2 |
| 1125 | 1.6 |
| 1130 | 1.47 |
| 1135 | 1.52 |
| 1140 | 1.83 |
| 1145 | 2.2 |
| 1150 | 2.21 |
| 1155 | 1.87 |
| 1160 | 1.45 |
| 1165 | 1.08 |
| 1170 | 0.81 |
| 1175 | 0.61 |
| 1180 | 0.46 |
| 1185 | 0.36 |
| 1190 | 0.28 |
| 1195 | 0.23 |
| 1200 | 0.18 |
| 1205 | 0.15 |
| 1210 | 0.13 |
| 1215 | 0.11 |
| 1220 | 0.09 |
| 1225 | 0.08 |
| 1230 | 0.07 |
| 1235 | 0.06 |
| 1240 | 0.05 |
| 1245 | 0.04 |
| 1250 | 0.04 |
| 1255 | 0.03 |
| 1260 | 0.03 |
| 1265 | 0.03 |
| 1270 | 0.02 |
| 1275 | 0.02 |
| 1280 | 0.02 |
| 1285 | 0.02 |
| 1290 | 0.02 |
| 1295 | 0.02 |
| 1300 | 0.01 |
| 1305 | 0.01 |
| 1310 | 0.01 |

| | |
|------|------|
| 1315 | 0.01 |
| 1320 | 0.01 |
| 1325 | 0.01 |
| 1330 | 0.01 |
| 1335 | 0.01 |
| 1340 | 0.01 |
| 1345 | 0.01 |
| 1350 | 0.01 |
| 1355 | 0.01 |
| 1360 | 0.01 |
| 1365 | 0.01 |
| 1370 | 0 |
| 1375 | 0 |
| 1380 | 0 |
| 1385 | 0 |
| 1390 | 0 |
| 1395 | 0 |
| 1400 | 0 |
| 1405 | 0 |
| 1410 | 0 |
| 1415 | 0 |
| 1420 | 0 |
| 1425 | 0 |
| 1430 | 0 |
| 1435 | 0 |
| 1440 | 0 |
| 1445 | 0 |
| 1450 | 0 |
| 1455 | 0 |
| 1460 | 0 |
| 1465 | 0 |
| 1470 | 0 |
| 1475 | 0 |
| 1480 | 0 |
| 1485 | 0 |
| 1490 | 0 |
| 1495 | 0 |
| 1500 | 0 |
| 1505 | 0 |
| 1510 | 0 |
| 1515 | 0 |
| 1520 | 0 |

| | |
|------|---|
| 1525 | 0 |
| 1530 | 0 |
| 1535 | 0 |
| 1540 | 0 |
| 1545 | 0 |
| 1550 | 0 |
| 1555 | 0 |
| 1560 | 0 |
| 1565 | 0 |
| 1570 | 0 |
| 1575 | 0 |
| 1580 | 0 |
| 1585 | 0 |
| 1590 | 0 |
| 1595 | 0 |
| 1600 | 0 |
| 1605 | 0 |
| 1610 | 0 |
| 1615 | 0 |
| 1620 | 0 |
| 1625 | 0 |
| 1630 | 0 |
| 1635 | 0 |
| 1640 | 0 |
| 1645 | 0 |
| 1650 | 0 |
| 1655 | 0 |
| 1660 | 0 |
| 1665 | 0 |
| 1670 | 0 |
| 1675 | 0 |
| 1680 | 0 |
| 1685 | 0 |
| 1690 | 0 |
| 1695 | 0 |
| 1700 | 0 |
| 1705 | 0 |
| 1710 | 0 |
| 1715 | 0 |
| 1720 | 0 |
| 1725 | 0 |
| 1730 | 0 |

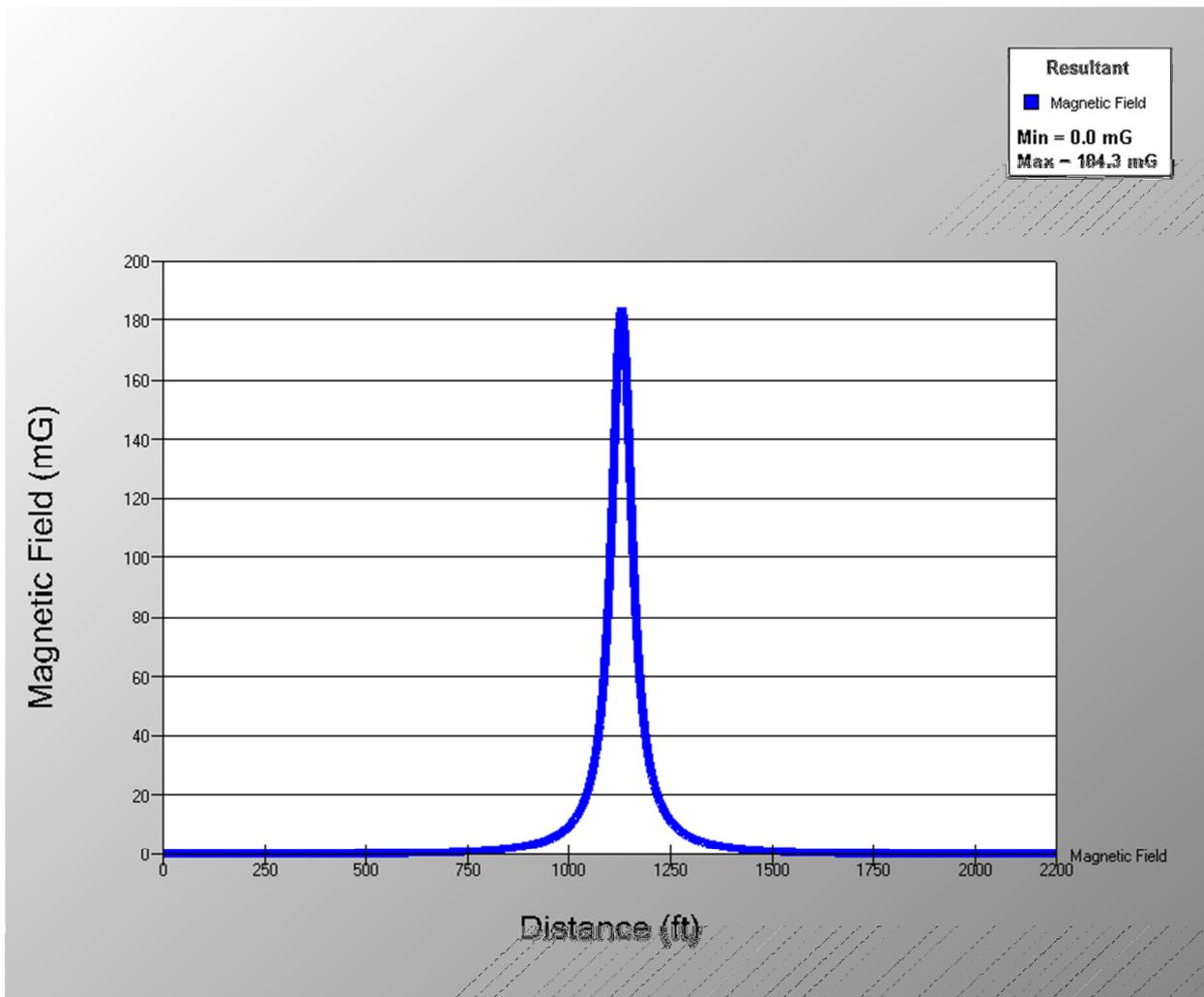
| | |
|------|---|
| 1735 | 0 |
| 1740 | 0 |
| 1745 | 0 |
| 1750 | 0 |
| 1755 | 0 |
| 1760 | 0 |
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| 1770 | 0 |
| 1775 | 0 |
| 1780 | 0 |
| 1785 | 0 |
| 1790 | 0 |
| 1795 | 0 |
| 1800 | 0 |
| 1805 | 0 |
| 1810 | 0 |
| 1815 | 0 |
| 1820 | 0 |
| 1825 | 0 |
| 1830 | 0 |
| 1835 | 0 |
| 1840 | 0 |
| 1845 | 0 |
| 1850 | 0 |
| 1855 | 0 |
| 1860 | 0 |
| 1865 | 0 |
| 1870 | 0 |
| 1875 | 0 |
| 1880 | 0 |
| 1885 | 0 |
| 1890 | 0 |
| 1895 | 0 |
| 1900 | 0 |
| 1905 | 0 |
| 1910 | 0 |
| 1915 | 0 |
| 1920 | 0 |
| 1925 | 0 |
| 1930 | 0 |
| 1935 | 0 |
| 1940 | 0 |

| | |
|------|---|
| 1945 | 0 |
| 1950 | 0 |
| 1955 | 0 |
| 1960 | 0 |
| 1965 | 0 |
| 1970 | 0 |
| 1975 | 0 |
| 1980 | 0 |
| 1985 | 0 |
| 1990 | 0 |
| 1995 | 0 |
| 2000 | 0 |
| 2005 | 0 |
| 2010 | 0 |
| 2015 | 0 |
| 2020 | 0 |
| 2025 | 0 |
| 2030 | 0 |
| 2035 | 0 |
| 2040 | 0 |
| 2045 | 0 |
| 2050 | 0 |
| 2055 | 0 |
| 2060 | 0 |
| 2065 | 0 |
| 2070 | 0 |
| 2075 | 0 |
| 2080 | 0 |
| 2085 | 0 |
| 2090 | 0 |
| 2095 | 0 |
| 2100 | 0 |
| 2105 | 0 |
| 2110 | 0 |
| 2115 | 0 |
| 2120 | 0 |
| 2125 | 0 |
| 2130 | 0 |
| 2135 | 0 |
| 2140 | 0 |
| 2145 | 0 |
| 2150 | 0 |

2155 0
2160 0
2165 0
2170 0
2175 0
2180 0
2185 0
2190 0
2195 0
2200 0

PROPOSED A&C LINES

MAG FIELD



(ft) (mG)

| | |
|-----|------|
| 0 | 0.04 |
| 5 | 0.05 |
| 10 | 0.05 |
| 15 | 0.05 |
| 20 | 0.05 |
| 25 | 0.05 |
| 30 | 0.05 |
| 35 | 0.05 |
| 40 | 0.05 |
| 45 | 0.05 |
| 50 | 0.05 |
| 55 | 0.05 |
| 60 | 0.05 |
| 65 | 0.05 |
| 70 | 0.05 |
| 75 | 0.05 |
| 80 | 0.06 |
| 85 | 0.06 |
| 90 | 0.06 |
| 95 | 0.06 |
| 100 | 0.06 |
| 105 | 0.06 |
| 110 | 0.06 |
| 115 | 0.06 |
| 120 | 0.06 |
| 125 | 0.06 |
| 130 | 0.06 |
| 135 | 0.07 |
| 140 | 0.07 |
| 145 | 0.07 |
| 150 | 0.07 |
| 155 | 0.07 |
| 160 | 0.07 |
| 165 | 0.07 |
| 170 | 0.07 |
| 175 | 0.07 |
| 180 | 0.07 |
| 185 | 0.08 |
| 190 | 0.08 |
| 195 | 0.08 |
| 200 | 0.08 |
| 205 | 0.08 |
| 210 | 0.08 |
| 215 | 0.08 |
| 220 | 0.08 |
| 225 | 0.09 |
| 230 | 0.09 |
| 235 | 0.09 |

| | |
|-----|------|
| 240 | 0.09 |
| 245 | 0.09 |
| 250 | 0.09 |
| 255 | 0.09 |
| 260 | 0.1 |
| 265 | 0.1 |
| 270 | 0.1 |
| 275 | 0.1 |
| 280 | 0.1 |
| 285 | 0.1 |
| 290 | 0.11 |
| 295 | 0.11 |
| 300 | 0.11 |
| 305 | 0.11 |
| 310 | 0.11 |
| 315 | 0.12 |
| 320 | 0.12 |
| 325 | 0.12 |
| 330 | 0.12 |
| 335 | 0.12 |
| 340 | 0.13 |
| 345 | 0.13 |
| 350 | 0.13 |
| 355 | 0.13 |
| 360 | 0.14 |
| 365 | 0.14 |
| 370 | 0.14 |
| 375 | 0.14 |
| 380 | 0.15 |
| 385 | 0.15 |
| 390 | 0.15 |
| 395 | 0.16 |
| 400 | 0.16 |
| 405 | 0.16 |
| 410 | 0.16 |
| 415 | 0.17 |
| 420 | 0.17 |
| 425 | 0.17 |
| 430 | 0.18 |
| 435 | 0.18 |
| 440 | 0.19 |
| 445 | 0.19 |
| 450 | 0.19 |
| 455 | 0.2 |
| 460 | 0.2 |
| 465 | 0.21 |
| 470 | 0.21 |
| 475 | 0.21 |

| | |
|-----|------|
| 480 | 0.22 |
| 485 | 0.22 |
| 490 | 0.23 |
| 495 | 0.23 |
| 500 | 0.24 |
| 505 | 0.24 |
| 510 | 0.25 |
| 515 | 0.26 |
| 520 | 0.26 |
| 525 | 0.27 |
| 530 | 0.27 |
| 535 | 0.28 |
| 540 | 0.29 |
| 545 | 0.29 |
| 550 | 0.3 |
| 555 | 0.31 |
| 560 | 0.32 |
| 565 | 0.32 |
| 570 | 0.33 |
| 575 | 0.34 |
| 580 | 0.35 |
| 585 | 0.36 |
| 590 | 0.37 |
| 595 | 0.38 |
| 600 | 0.38 |
| 605 | 0.39 |
| 610 | 0.4 |
| 615 | 0.42 |
| 620 | 0.43 |
| 625 | 0.44 |
| 630 | 0.45 |
| 635 | 0.46 |
| 640 | 0.47 |
| 645 | 0.49 |
| 650 | 0.5 |
| 655 | 0.52 |
| 660 | 0.53 |
| 665 | 0.55 |
| 670 | 0.56 |
| 675 | 0.58 |
| 680 | 0.59 |
| 685 | 0.61 |
| 690 | 0.63 |
| 695 | 0.65 |
| 700 | 0.67 |
| 705 | 0.69 |
| 710 | 0.71 |
| 715 | 0.73 |

| | |
|-----|------|
| 720 | 0.76 |
| 725 | 0.78 |
| 730 | 0.81 |
| 735 | 0.83 |
| 740 | 0.86 |
| 745 | 0.89 |
| 750 | 0.92 |
| 755 | 0.95 |
| 760 | 0.98 |
| 765 | 1.02 |
| 770 | 1.05 |
| 775 | 1.09 |
| 780 | 1.13 |
| 785 | 1.17 |
| 790 | 1.21 |
| 795 | 1.26 |
| 800 | 1.3 |
| 805 | 1.35 |
| 810 | 1.4 |
| 815 | 1.46 |
| 820 | 1.52 |
| 825 | 1.57 |
| 830 | 1.64 |
| 835 | 1.7 |
| 840 | 1.77 |
| 845 | 1.85 |
| 850 | 1.93 |
| 855 | 2.01 |
| 860 | 2.09 |
| 865 | 2.18 |
| 870 | 2.28 |
| 875 | 2.38 |
| 880 | 2.49 |
| 885 | 2.61 |
| 890 | 2.73 |
| 895 | 2.86 |
| 900 | 3 |
| 905 | 3.15 |
| 910 | 3.3 |
| 915 | 3.47 |
| 920 | 3.65 |
| 925 | 3.84 |
| 930 | 4.05 |
| 935 | 4.27 |
| 940 | 4.51 |
| 945 | 4.76 |
| 950 | 5.04 |
| 955 | 5.34 |

| | |
|------|--------|
| 960 | 5.66 |
| 965 | 6.01 |
| 970 | 6.4 |
| 975 | 6.82 |
| 980 | 7.27 |
| 985 | 7.77 |
| 990 | 8.32 |
| 995 | 8.93 |
| 1000 | 9.61 |
| 1005 | 10.36 |
| 1010 | 11.19 |
| 1015 | 12.13 |
| 1020 | 13.18 |
| 1025 | 14.37 |
| 1030 | 15.72 |
| 1035 | 17.27 |
| 1040 | 19.04 |
| 1045 | 21.09 |
| 1050 | 23.47 |
| 1055 | 26.26 |
| 1060 | 29.55 |
| 1065 | 33.45 |
| 1070 | 38.11 |
| 1075 | 43.73 |
| 1080 | 50.54 |
| 1085 | 58.83 |
| 1090 | 68.94 |
| 1095 | 81.23 |
| 1100 | 96.03 |
| 1105 | 113.38 |
| 1110 | 132.78 |
| 1115 | 152.65 |
| 1120 | 170.09 |
| 1125 | 181.52 |
| 1130 | 184.27 |
| 1135 | 177.98 |
| 1140 | 164.47 |
| 1145 | 146.7 |
| 1150 | 127.54 |
| 1155 | 109.17 |
| 1160 | 92.76 |
| 1165 | 78.73 |
| 1170 | 67.01 |
| 1175 | 57.34 |
| 1180 | 49.38 |
| 1185 | 42.83 |
| 1190 | 37.41 |
| 1195 | 32.89 |

| | |
|------|-------|
| 1200 | 29.1 |
| 1205 | 25.91 |
| 1210 | 23.19 |
| 1215 | 20.87 |
| 1220 | 18.87 |
| 1225 | 17.13 |
| 1230 | 15.62 |
| 1235 | 14.29 |
| 1240 | 13.12 |
| 1245 | 12.08 |
| 1250 | 11.16 |
| 1255 | 10.34 |
| 1260 | 9.6 |
| 1265 | 8.93 |
| 1270 | 8.33 |
| 1275 | 7.78 |
| 1280 | 7.28 |
| 1285 | 6.83 |
| 1290 | 6.41 |
| 1295 | 6.03 |
| 1300 | 5.68 |
| 1305 | 5.36 |
| 1310 | 5.06 |
| 1315 | 4.79 |
| 1320 | 4.53 |
| 1325 | 4.29 |
| 1330 | 4.07 |
| 1335 | 3.86 |
| 1340 | 3.67 |
| 1345 | 3.49 |
| 1350 | 3.32 |
| 1355 | 3.17 |
| 1360 | 3.02 |
| 1365 | 2.88 |
| 1370 | 2.75 |
| 1375 | 2.63 |
| 1380 | 2.51 |
| 1385 | 2.4 |
| 1390 | 2.3 |
| 1395 | 2.2 |
| 1400 | 2.11 |
| 1405 | 2.02 |
| 1410 | 1.94 |
| 1415 | 1.86 |
| 1420 | 1.79 |
| 1425 | 1.72 |
| 1430 | 1.65 |
| 1435 | 1.59 |

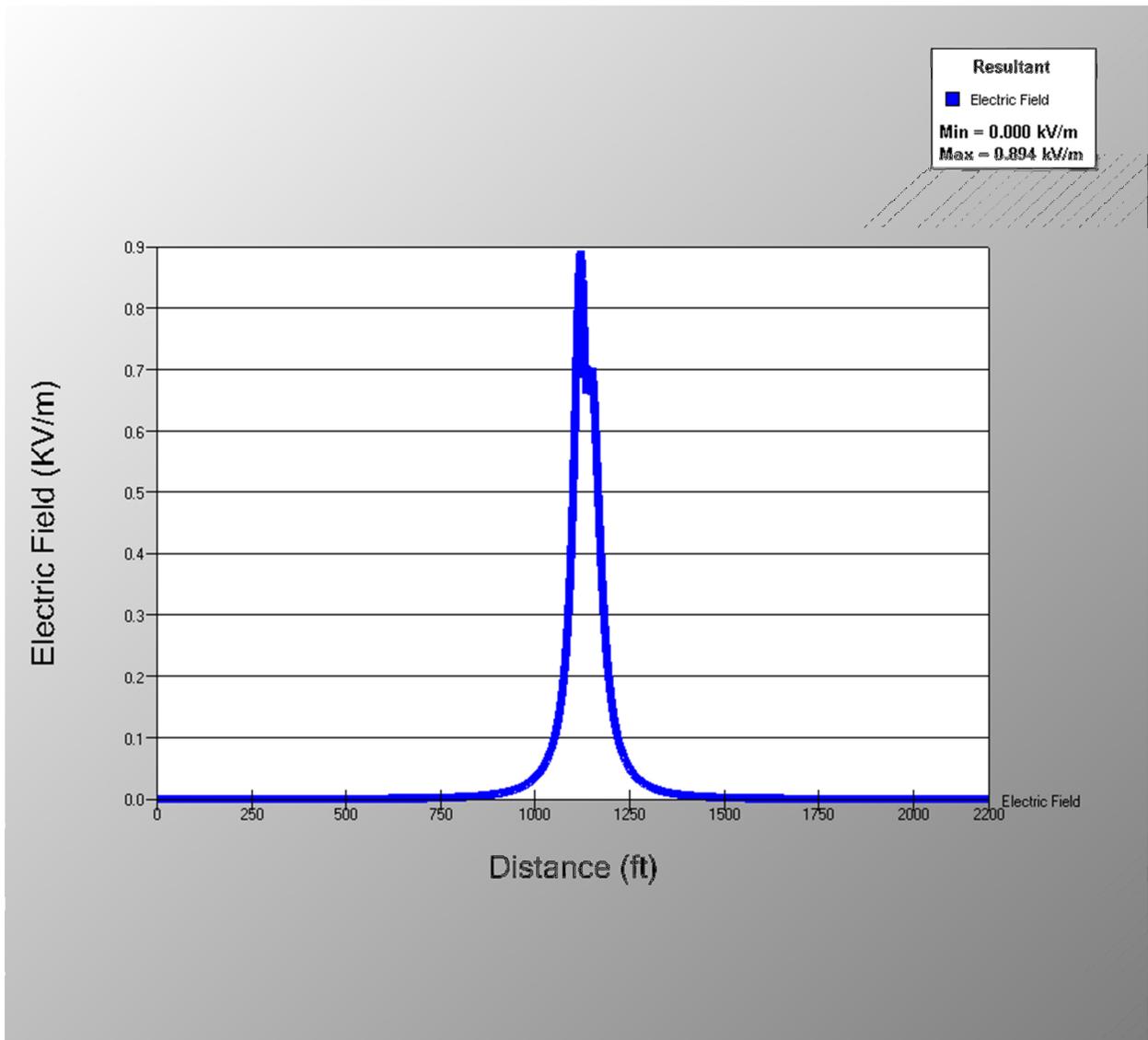
| | |
|------|------|
| 1440 | 1.53 |
| 1445 | 1.47 |
| 1450 | 1.42 |
| 1455 | 1.36 |
| 1460 | 1.31 |
| 1465 | 1.27 |
| 1470 | 1.22 |
| 1475 | 1.18 |
| 1480 | 1.14 |
| 1485 | 1.1 |
| 1490 | 1.06 |
| 1495 | 1.03 |
| 1500 | 0.99 |
| 1505 | 0.96 |
| 1510 | 0.93 |
| 1515 | 0.9 |
| 1520 | 0.87 |
| 1525 | 0.84 |
| 1530 | 0.81 |
| 1535 | 0.79 |
| 1540 | 0.76 |
| 1545 | 0.74 |
| 1550 | 0.72 |
| 1555 | 0.7 |
| 1560 | 0.68 |
| 1565 | 0.66 |
| 1570 | 0.64 |
| 1575 | 0.62 |
| 1580 | 0.6 |
| 1585 | 0.58 |
| 1590 | 0.57 |
| 1595 | 0.55 |
| 1600 | 0.53 |
| 1605 | 0.52 |
| 1610 | 0.51 |
| 1615 | 0.49 |
| 1620 | 0.48 |
| 1625 | 0.47 |
| 1630 | 0.45 |
| 1635 | 0.44 |
| 1640 | 0.43 |
| 1645 | 0.42 |
| 1650 | 0.41 |
| 1655 | 0.4 |
| 1660 | 0.39 |
| 1665 | 0.38 |
| 1670 | 0.37 |
| 1675 | 0.36 |

| | |
|------|------|
| 1680 | 0.35 |
| 1685 | 0.34 |
| 1690 | 0.33 |
| 1695 | 0.33 |
| 1700 | 0.32 |
| 1705 | 0.31 |
| 1710 | 0.3 |
| 1715 | 0.3 |
| 1720 | 0.29 |
| 1725 | 0.28 |
| 1730 | 0.28 |
| 1735 | 0.27 |
| 1740 | 0.26 |
| 1745 | 0.26 |
| 1750 | 0.25 |
| 1755 | 0.25 |
| 1760 | 0.24 |
| 1765 | 0.24 |
| 1770 | 0.23 |
| 1775 | 0.23 |
| 1780 | 0.22 |
| 1785 | 0.22 |
| 1790 | 0.21 |
| 1795 | 0.21 |
| 1800 | 0.2 |
| 1805 | 0.2 |
| 1810 | 0.19 |
| 1815 | 0.19 |
| 1820 | 0.19 |
| 1825 | 0.18 |
| 1830 | 0.18 |
| 1835 | 0.18 |
| 1840 | 0.17 |
| 1845 | 0.17 |
| 1850 | 0.17 |
| 1855 | 0.16 |
| 1860 | 0.16 |
| 1865 | 0.16 |
| 1870 | 0.15 |
| 1875 | 0.15 |
| 1880 | 0.15 |
| 1885 | 0.14 |
| 1890 | 0.14 |
| 1895 | 0.14 |
| 1900 | 0.14 |
| 1905 | 0.13 |
| 1910 | 0.13 |
| 1915 | 0.13 |

| | |
|------|------|
| 1920 | 0.13 |
| 1925 | 0.13 |
| 1930 | 0.12 |
| 1935 | 0.12 |
| 1940 | 0.12 |
| 1945 | 0.12 |
| 1950 | 0.11 |
| 1955 | 0.11 |
| 1960 | 0.11 |
| 1965 | 0.11 |
| 1970 | 0.11 |
| 1975 | 0.1 |
| 1980 | 0.1 |
| 1985 | 0.1 |
| 1990 | 0.1 |
| 1995 | 0.1 |
| 2000 | 0.1 |
| 2005 | 0.09 |
| 2010 | 0.09 |
| 2015 | 0.09 |
| 2020 | 0.09 |
| 2025 | 0.09 |
| 2030 | 0.09 |
| 2035 | 0.09 |
| 2040 | 0.08 |
| 2045 | 0.08 |
| 2050 | 0.08 |
| 2055 | 0.08 |
| 2060 | 0.08 |
| 2065 | 0.08 |
| 2070 | 0.08 |
| 2075 | 0.08 |
| 2080 | 0.07 |
| 2085 | 0.07 |
| 2090 | 0.07 |
| 2095 | 0.07 |
| 2100 | 0.07 |
| 2105 | 0.07 |
| 2110 | 0.07 |
| 2115 | 0.07 |
| 2120 | 0.07 |
| 2125 | 0.07 |
| 2130 | 0.06 |
| 2135 | 0.06 |
| 2140 | 0.06 |
| 2145 | 0.06 |
| 2150 | 0.06 |
| 2155 | 0.06 |

| | |
|------|------|
| 2160 | 0.06 |
| 2165 | 0.06 |
| 2170 | 0.06 |
| 2175 | 0.06 |
| 2180 | 0.06 |
| 2185 | 0.06 |
| 2190 | 0.05 |
| 2195 | 0.05 |
| 2200 | 0.05 |

E-FIELD



| | |
|------|--------|
| (ft) | (KV/m) |
| 0 | 0 |

| | |
|-----|---|
| 5 | 0 |
| 10 | 0 |
| 15 | 0 |
| 20 | 0 |
| 25 | 0 |
| 30 | 0 |
| 35 | 0 |
| 40 | 0 |
| 45 | 0 |
| 50 | 0 |
| 55 | 0 |
| 60 | 0 |
| 65 | 0 |
| 70 | 0 |
| 75 | 0 |
| 80 | 0 |
| 85 | 0 |
| 90 | 0 |
| 95 | 0 |
| 100 | 0 |
| 105 | 0 |
| 110 | 0 |
| 115 | 0 |
| 120 | 0 |
| 125 | 0 |
| 130 | 0 |
| 135 | 0 |
| 140 | 0 |
| 145 | 0 |
| 150 | 0 |
| 155 | 0 |
| 160 | 0 |
| 165 | 0 |
| 170 | 0 |
| 175 | 0 |
| 180 | 0 |
| 185 | 0 |
| 190 | 0 |
| 195 | 0 |
| 200 | 0 |
| 205 | 0 |
| 210 | 0 |

| | |
|-----|---|
| 215 | 0 |
| 220 | 0 |
| 225 | 0 |
| 230 | 0 |
| 235 | 0 |
| 240 | 0 |
| 245 | 0 |
| 250 | 0 |
| 255 | 0 |
| 260 | 0 |
| 265 | 0 |
| 270 | 0 |
| 275 | 0 |
| 280 | 0 |
| 285 | 0 |
| 290 | 0 |
| 295 | 0 |
| 300 | 0 |
| 305 | 0 |
| 310 | 0 |
| 315 | 0 |
| 320 | 0 |
| 325 | 0 |
| 330 | 0 |
| 335 | 0 |
| 340 | 0 |
| 345 | 0 |
| 350 | 0 |
| 355 | 0 |
| 360 | 0 |
| 365 | 0 |
| 370 | 0 |
| 375 | 0 |
| 380 | 0 |
| 385 | 0 |
| 390 | 0 |
| 395 | 0 |
| 400 | 0 |
| 405 | 0 |
| 410 | 0 |
| 415 | 0 |
| 420 | 0 |

| | |
|-----|---|
| 425 | 0 |
| 430 | 0 |
| 435 | 0 |
| 440 | 0 |
| 445 | 0 |
| 450 | 0 |
| 455 | 0 |
| 460 | 0 |
| 465 | 0 |
| 470 | 0 |
| 475 | 0 |
| 480 | 0 |
| 485 | 0 |
| 490 | 0 |
| 495 | 0 |
| 500 | 0 |
| 505 | 0 |
| 510 | 0 |
| 515 | 0 |
| 520 | 0 |
| 525 | 0 |
| 530 | 0 |
| 535 | 0 |
| 540 | 0 |
| 545 | 0 |
| 550 | 0 |
| 555 | 0 |
| 560 | 0 |
| 565 | 0 |
| 570 | 0 |
| 575 | 0 |
| 580 | 0 |
| 585 | 0 |
| 590 | 0 |
| 595 | 0 |
| 600 | 0 |
| 605 | 0 |
| 610 | 0 |
| 615 | 0 |
| 620 | 0 |
| 625 | 0 |
| 630 | 0 |

| | |
|-----|---|
| 635 | 0 |
| 640 | 0 |
| 645 | 0 |
| 650 | 0 |
| 655 | 0 |
| 660 | 0 |
| 665 | 0 |
| 670 | 0 |
| 675 | 0 |
| 680 | 0 |
| 685 | 0 |
| 690 | 0 |
| 695 | 0 |
| 700 | 0 |
| 705 | 0 |
| 710 | 0 |
| 715 | 0 |
| 720 | 0 |
| 725 | 0 |
| 730 | 0 |
| 735 | 0 |
| 740 | 0 |
| 745 | 0 |
| 750 | 0 |
| 755 | 0 |
| 760 | 0 |
| 765 | 0 |
| 770 | 0 |
| 775 | 0 |
| 780 | 0 |
| 785 | 0 |
| 790 | 0 |
| 795 | 0 |
| 800 | 0 |
| 805 | 0 |
| 810 | 0 |
| 815 | 0 |
| 820 | 0 |
| 825 | 0 |
| 830 | 0 |
| 835 | 0 |
| 840 | 0 |

| | |
|------|------|
| 845 | 0.01 |
| 850 | 0.01 |
| 855 | 0.01 |
| 860 | 0.01 |
| 865 | 0.01 |
| 870 | 0.01 |
| 875 | 0.01 |
| 880 | 0.01 |
| 885 | 0.01 |
| 890 | 0.01 |
| 895 | 0.01 |
| 900 | 0.01 |
| 905 | 0.01 |
| 910 | 0.01 |
| 915 | 0.01 |
| 920 | 0.01 |
| 925 | 0.01 |
| 930 | 0.01 |
| 935 | 0.01 |
| 940 | 0.01 |
| 945 | 0.02 |
| 950 | 0.02 |
| 955 | 0.02 |
| 960 | 0.02 |
| 965 | 0.02 |
| 970 | 0.02 |
| 975 | 0.02 |
| 980 | 0.03 |
| 985 | 0.03 |
| 990 | 0.03 |
| 995 | 0.03 |
| 1000 | 0.04 |
| 1005 | 0.04 |
| 1010 | 0.04 |
| 1015 | 0.05 |
| 1020 | 0.05 |
| 1025 | 0.06 |
| 1030 | 0.06 |
| 1035 | 0.07 |
| 1040 | 0.08 |
| 1045 | 0.09 |
| 1050 | 0.1 |

| | |
|------|------|
| 1055 | 0.11 |
| 1060 | 0.13 |
| 1065 | 0.15 |
| 1070 | 0.17 |
| 1075 | 0.2 |
| 1080 | 0.23 |
| 1085 | 0.27 |
| 1090 | 0.33 |
| 1095 | 0.4 |
| 1100 | 0.5 |
| 1105 | 0.61 |
| 1110 | 0.74 |
| 1115 | 0.85 |
| 1120 | 0.89 |
| 1125 | 0.85 |
| 1130 | 0.74 |
| 1135 | 0.66 |
| 1140 | 0.67 |
| 1145 | 0.7 |
| 1150 | 0.7 |
| 1155 | 0.66 |
| 1160 | 0.6 |
| 1165 | 0.52 |
| 1170 | 0.44 |
| 1175 | 0.38 |
| 1180 | 0.32 |
| 1185 | 0.27 |
| 1190 | 0.23 |
| 1195 | 0.19 |
| 1200 | 0.17 |
| 1205 | 0.14 |
| 1210 | 0.13 |
| 1215 | 0.11 |
| 1220 | 0.1 |
| 1225 | 0.09 |
| 1230 | 0.08 |
| 1235 | 0.07 |
| 1240 | 0.06 |
| 1245 | 0.05 |
| 1250 | 0.05 |
| 1255 | 0.04 |
| 1260 | 0.04 |

| | |
|------|------|
| 1265 | 0.04 |
| 1270 | 0.03 |
| 1275 | 0.03 |
| 1280 | 0.03 |
| 1285 | 0.03 |
| 1290 | 0.02 |
| 1295 | 0.02 |
| 1300 | 0.02 |
| 1305 | 0.02 |
| 1310 | 0.02 |
| 1315 | 0.02 |
| 1320 | 0.02 |
| 1325 | 0.01 |
| 1330 | 0.01 |
| 1335 | 0.01 |
| 1340 | 0.01 |
| 1345 | 0.01 |
| 1350 | 0.01 |
| 1355 | 0.01 |
| 1360 | 0.01 |
| 1365 | 0.01 |
| 1370 | 0.01 |
| 1375 | 0.01 |
| 1380 | 0.01 |
| 1385 | 0.01 |
| 1390 | 0.01 |
| 1395 | 0.01 |
| 1400 | 0.01 |
| 1405 | 0.01 |
| 1410 | 0.01 |
| 1415 | 0.01 |
| 1420 | 0.01 |
| 1425 | 0 |
| 1430 | 0 |
| 1435 | 0 |
| 1440 | 0 |
| 1445 | 0 |
| 1450 | 0 |
| 1455 | 0 |
| 1460 | 0 |
| 1465 | 0 |
| 1470 | 0 |

| | |
|------|---|
| 1475 | 0 |
| 1480 | 0 |
| 1485 | 0 |
| 1490 | 0 |
| 1495 | 0 |
| 1500 | 0 |
| 1505 | 0 |
| 1510 | 0 |
| 1515 | 0 |
| 1520 | 0 |
| 1525 | 0 |
| 1530 | 0 |
| 1535 | 0 |
| 1540 | 0 |
| 1545 | 0 |
| 1550 | 0 |
| 1555 | 0 |
| 1560 | 0 |
| 1565 | 0 |
| 1570 | 0 |
| 1575 | 0 |
| 1580 | 0 |
| 1585 | 0 |
| 1590 | 0 |
| 1595 | 0 |
| 1600 | 0 |
| 1605 | 0 |
| 1610 | 0 |
| 1615 | 0 |
| 1620 | 0 |
| 1625 | 0 |
| 1630 | 0 |
| 1635 | 0 |
| 1640 | 0 |
| 1645 | 0 |
| 1650 | 0 |
| 1655 | 0 |
| 1660 | 0 |
| 1665 | 0 |
| 1670 | 0 |
| 1675 | 0 |
| 1680 | 0 |

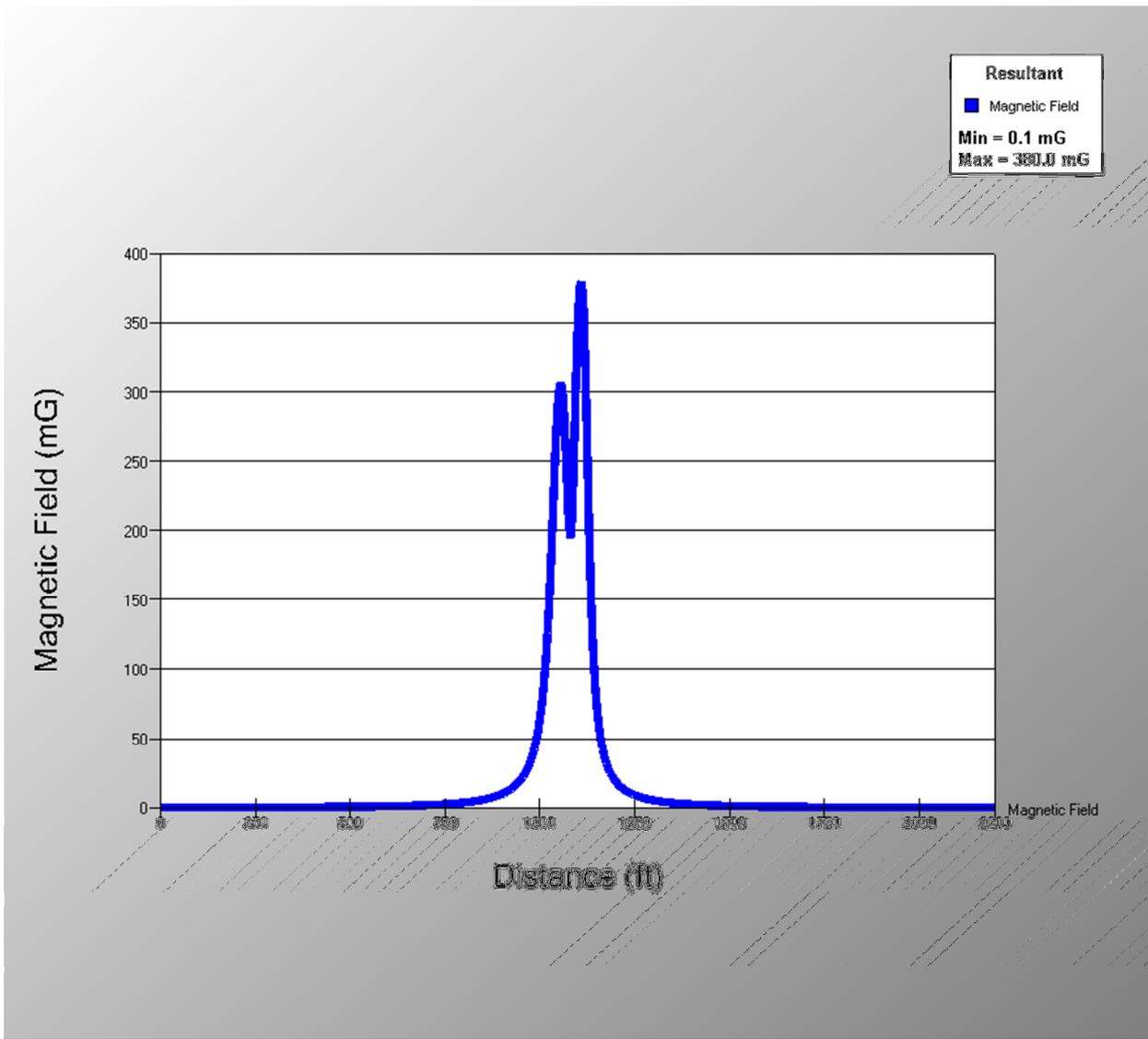
| | |
|------|---|
| 1685 | 0 |
| 1690 | 0 |
| 1695 | 0 |
| 1700 | 0 |
| 1705 | 0 |
| 1710 | 0 |
| 1715 | 0 |
| 1720 | 0 |
| 1725 | 0 |
| 1730 | 0 |
| 1735 | 0 |
| 1740 | 0 |
| 1745 | 0 |
| 1750 | 0 |
| 1755 | 0 |
| 1760 | 0 |
| 1765 | 0 |
| 1770 | 0 |
| 1775 | 0 |
| 1780 | 0 |
| 1785 | 0 |
| 1790 | 0 |
| 1795 | 0 |
| 1800 | 0 |
| 1805 | 0 |
| 1810 | 0 |
| 1815 | 0 |
| 1820 | 0 |
| 1825 | 0 |
| 1830 | 0 |
| 1835 | 0 |
| 1840 | 0 |
| 1845 | 0 |
| 1850 | 0 |
| 1855 | 0 |
| 1860 | 0 |
| 1865 | 0 |
| 1870 | 0 |
| 1875 | 0 |
| 1880 | 0 |
| 1885 | 0 |
| 1890 | 0 |

| | |
|------|---|
| 1895 | 0 |
| 1900 | 0 |
| 1905 | 0 |
| 1910 | 0 |
| 1915 | 0 |
| 1920 | 0 |
| 1925 | 0 |
| 1930 | 0 |
| 1935 | 0 |
| 1940 | 0 |
| 1945 | 0 |
| 1950 | 0 |
| 1955 | 0 |
| 1960 | 0 |
| 1965 | 0 |
| 1970 | 0 |
| 1975 | 0 |
| 1980 | 0 |
| 1985 | 0 |
| 1990 | 0 |
| 1995 | 0 |
| 2000 | 0 |
| 2005 | 0 |
| 2010 | 0 |
| 2015 | 0 |
| 2020 | 0 |
| 2025 | 0 |
| 2030 | 0 |
| 2035 | 0 |
| 2040 | 0 |
| 2045 | 0 |
| 2050 | 0 |
| 2055 | 0 |
| 2060 | 0 |
| 2065 | 0 |
| 2070 | 0 |
| 2075 | 0 |
| 2080 | 0 |
| 2085 | 0 |
| 2090 | 0 |
| 2095 | 0 |
| 2100 | 0 |

| | |
|------|---|
| 2105 | 0 |
| 2110 | 0 |
| 2115 | 0 |
| 2120 | 0 |
| 2125 | 0 |
| 2130 | 0 |
| 2135 | 0 |
| 2140 | 0 |
| 2145 | 0 |
| 2150 | 0 |
| 2155 | 0 |
| 2160 | 0 |
| 2165 | 0 |
| 2170 | 0 |
| 2175 | 0 |
| 2180 | 0 |
| 2185 | 0 |
| 2190 | 0 |
| 2195 | 0 |
| 2200 | 0 |

EXISTING C AND M LINES

MAG FIELD



| (ft) | (mG) |
|------|------|
| 0 | 0.1 |
| 5 | 0.1 |
| 10 | 0.1 |
| 15 | 0.1 |
| 20 | 0.1 |
| 25 | 0.11 |
| 30 | 0.11 |
| 35 | 0.11 |
| 40 | 0.11 |
| 45 | 0.11 |
| 50 | 0.11 |
| 55 | 0.11 |

| | |
|-----|------|
| 60 | 0.12 |
| 65 | 0.12 |
| 70 | 0.12 |
| 75 | 0.12 |
| 80 | 0.12 |
| 85 | 0.13 |
| 90 | 0.13 |
| 95 | 0.13 |
| 100 | 0.13 |
| 105 | 0.13 |
| 110 | 0.13 |
| 115 | 0.14 |
| 120 | 0.14 |
| 125 | 0.14 |
| 130 | 0.14 |
| 135 | 0.15 |
| 140 | 0.15 |
| 145 | 0.15 |
| 150 | 0.15 |
| 155 | 0.15 |
| 160 | 0.16 |
| 165 | 0.16 |
| 170 | 0.16 |
| 175 | 0.16 |
| 180 | 0.17 |
| 185 | 0.17 |
| 190 | 0.17 |
| 195 | 0.18 |
| 200 | 0.18 |
| 205 | 0.18 |
| 210 | 0.18 |
| 215 | 0.19 |
| 220 | 0.19 |
| 225 | 0.19 |
| 230 | 0.2 |
| 235 | 0.2 |
| 240 | 0.2 |
| 245 | 0.21 |
| 250 | 0.21 |
| 255 | 0.21 |
| 260 | 0.22 |
| 265 | 0.22 |

| | |
|-----|------|
| 270 | 0.23 |
| 275 | 0.23 |
| 280 | 0.23 |
| 285 | 0.24 |
| 290 | 0.24 |
| 295 | 0.25 |
| 300 | 0.25 |
| 305 | 0.26 |
| 310 | 0.26 |
| 315 | 0.27 |
| 320 | 0.27 |
| 325 | 0.28 |
| 330 | 0.28 |
| 335 | 0.29 |
| 340 | 0.29 |
| 345 | 0.3 |
| 350 | 0.3 |
| 355 | 0.31 |
| 360 | 0.32 |
| 365 | 0.32 |
| 370 | 0.33 |
| 375 | 0.34 |
| 380 | 0.34 |
| 385 | 0.35 |
| 390 | 0.36 |
| 395 | 0.36 |
| 400 | 0.37 |
| 405 | 0.38 |
| 410 | 0.39 |
| 415 | 0.39 |
| 420 | 0.4 |
| 425 | 0.41 |
| 430 | 0.42 |
| 435 | 0.43 |
| 440 | 0.44 |
| 445 | 0.45 |
| 450 | 0.46 |
| 455 | 0.47 |
| 460 | 0.48 |
| 465 | 0.49 |
| 470 | 0.5 |
| 475 | 0.51 |

| | |
|-----|------|
| 480 | 0.52 |
| 485 | 0.54 |
| 490 | 0.55 |
| 495 | 0.56 |
| 500 | 0.58 |
| 505 | 0.59 |
| 510 | 0.6 |
| 515 | 0.62 |
| 520 | 0.63 |
| 525 | 0.65 |
| 530 | 0.66 |
| 535 | 0.68 |
| 540 | 0.7 |
| 545 | 0.72 |
| 550 | 0.73 |
| 555 | 0.75 |
| 560 | 0.77 |
| 565 | 0.79 |
| 570 | 0.81 |
| 575 | 0.83 |
| 580 | 0.86 |
| 585 | 0.88 |
| 590 | 0.9 |
| 595 | 0.93 |
| 600 | 0.95 |
| 605 | 0.98 |
| 610 | 1.01 |
| 615 | 1.04 |
| 620 | 1.07 |
| 625 | 1.1 |
| 630 | 1.13 |
| 635 | 1.16 |
| 640 | 1.2 |
| 645 | 1.23 |
| 650 | 1.27 |
| 655 | 1.31 |
| 660 | 1.35 |
| 665 | 1.39 |
| 670 | 1.43 |
| 675 | 1.48 |
| 680 | 1.52 |
| 685 | 1.57 |

| | |
|-----|------|
| 690 | 1.62 |
| 695 | 1.68 |
| 700 | 1.73 |
| 705 | 1.79 |
| 710 | 1.85 |
| 715 | 1.92 |
| 720 | 1.98 |
| 725 | 2.05 |
| 730 | 2.12 |
| 735 | 2.2 |
| 740 | 2.28 |
| 745 | 2.36 |
| 750 | 2.45 |
| 755 | 2.54 |
| 760 | 2.64 |
| 765 | 2.74 |
| 770 | 2.84 |
| 775 | 2.95 |
| 780 | 3.07 |
| 785 | 3.2 |
| 790 | 3.33 |
| 795 | 3.46 |
| 800 | 3.61 |
| 805 | 3.76 |
| 810 | 3.93 |
| 815 | 4.1 |
| 820 | 4.28 |
| 825 | 4.48 |
| 830 | 4.68 |
| 835 | 4.9 |
| 840 | 5.14 |
| 845 | 5.39 |
| 850 | 5.66 |
| 855 | 5.94 |
| 860 | 6.25 |
| 865 | 6.58 |
| 870 | 6.94 |
| 875 | 7.32 |
| 880 | 7.74 |
| 885 | 8.19 |
| 890 | 8.67 |
| 895 | 9.2 |

| | |
|------|--------|
| 900 | 9.78 |
| 905 | 10.42 |
| 910 | 11.11 |
| 915 | 11.88 |
| 920 | 12.73 |
| 925 | 13.66 |
| 930 | 14.71 |
| 935 | 15.88 |
| 940 | 17.19 |
| 945 | 18.68 |
| 950 | 20.36 |
| 955 | 22.28 |
| 960 | 24.48 |
| 965 | 27.02 |
| 970 | 29.98 |
| 975 | 33.45 |
| 980 | 37.55 |
| 985 | 42.42 |
| 990 | 48.29 |
| 995 | 55.39 |
| 1000 | 64.09 |
| 1005 | 74.84 |
| 1010 | 88.2 |
| 1015 | 104.92 |
| 1020 | 125.83 |
| 1025 | 151.7 |
| 1030 | 182.8 |
| 1035 | 217.94 |
| 1040 | 253.35 |
| 1045 | 282.87 |
| 1050 | 301.11 |
| 1055 | 306.32 |
| 1060 | 298.4 |
| 1065 | 276.88 |
| 1070 | 244.29 |
| 1075 | 210.81 |
| 1080 | 193.92 |
| 1085 | 210.06 |
| 1090 | 256.34 |
| 1095 | 310.01 |
| 1100 | 352.3 |
| 1105 | 376.93 |

| | |
|------|--------|
| 1110 | 379.99 |
| 1115 | 359.33 |
| 1120 | 315.13 |
| 1125 | 255.18 |
| 1130 | 196.13 |
| 1135 | 148.86 |
| 1140 | 114.42 |
| 1145 | 89.91 |
| 1150 | 72.33 |
| 1155 | 59.46 |
| 1160 | 49.82 |
| 1165 | 42.44 |
| 1170 | 36.65 |
| 1175 | 32.04 |
| 1180 | 28.3 |
| 1185 | 25.22 |
| 1190 | 22.64 |
| 1195 | 20.47 |
| 1200 | 18.61 |
| 1205 | 17.01 |
| 1210 | 15.62 |
| 1215 | 14.4 |
| 1220 | 13.33 |
| 1225 | 12.38 |
| 1230 | 11.52 |
| 1235 | 10.76 |
| 1240 | 10.07 |
| 1245 | 9.45 |
| 1250 | 8.88 |
| 1255 | 8.36 |
| 1260 | 7.89 |
| 1265 | 7.45 |
| 1270 | 7.05 |
| 1275 | 6.68 |
| 1280 | 6.34 |
| 1285 | 6.02 |
| 1290 | 5.72 |
| 1295 | 5.45 |
| 1300 | 5.19 |
| 1305 | 4.95 |
| 1310 | 4.73 |
| 1315 | 4.51 |

| | |
|------|------|
| 1320 | 4.32 |
| 1325 | 4.13 |
| 1330 | 3.95 |
| 1335 | 3.79 |
| 1340 | 3.63 |
| 1345 | 3.48 |
| 1350 | 3.34 |
| 1355 | 3.21 |
| 1360 | 3.09 |
| 1365 | 2.97 |
| 1370 | 2.85 |
| 1375 | 2.75 |
| 1380 | 2.64 |
| 1385 | 2.55 |
| 1390 | 2.46 |
| 1395 | 2.37 |
| 1400 | 2.28 |
| 1405 | 2.2 |
| 1410 | 2.13 |
| 1415 | 2.05 |
| 1420 | 1.98 |
| 1425 | 1.92 |
| 1430 | 1.85 |
| 1435 | 1.79 |
| 1440 | 1.74 |
| 1445 | 1.68 |
| 1450 | 1.63 |
| 1455 | 1.57 |
| 1460 | 1.52 |
| 1465 | 1.48 |
| 1470 | 1.43 |
| 1475 | 1.39 |
| 1480 | 1.35 |
| 1485 | 1.31 |
| 1490 | 1.27 |
| 1495 | 1.23 |
| 1500 | 1.19 |
| 1505 | 1.16 |
| 1510 | 1.13 |
| 1515 | 1.1 |
| 1520 | 1.06 |
| 1525 | 1.03 |

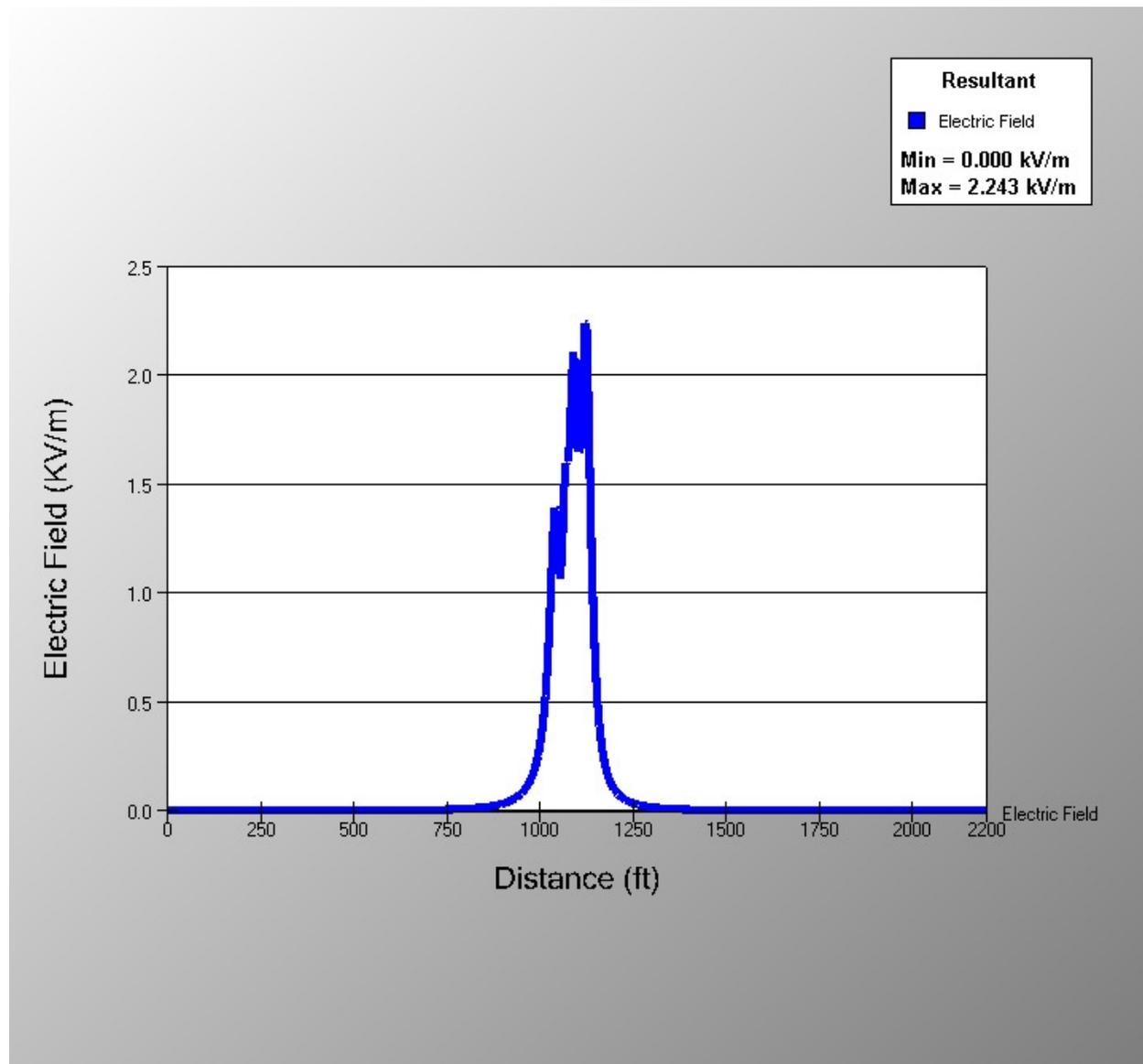
| | |
|------|------|
| 1530 | 1.01 |
| 1535 | 0.98 |
| 1540 | 0.95 |
| 1545 | 0.93 |
| 1550 | 0.9 |
| 1555 | 0.88 |
| 1560 | 0.85 |
| 1565 | 0.83 |
| 1570 | 0.81 |
| 1575 | 0.79 |
| 1580 | 0.77 |
| 1585 | 0.75 |
| 1590 | 0.73 |
| 1595 | 0.71 |
| 1600 | 0.7 |
| 1605 | 0.68 |
| 1610 | 0.66 |
| 1615 | 0.65 |
| 1620 | 0.63 |
| 1625 | 0.62 |
| 1630 | 0.6 |
| 1635 | 0.59 |
| 1640 | 0.57 |
| 1645 | 0.56 |
| 1650 | 0.55 |
| 1655 | 0.53 |
| 1660 | 0.52 |
| 1665 | 0.51 |
| 1670 | 0.5 |
| 1675 | 0.49 |
| 1680 | 0.48 |
| 1685 | 0.47 |
| 1690 | 0.46 |
| 1695 | 0.45 |
| 1700 | 0.44 |
| 1705 | 0.43 |
| 1710 | 0.42 |
| 1715 | 0.41 |
| 1720 | 0.4 |
| 1725 | 0.39 |
| 1730 | 0.39 |
| 1735 | 0.38 |

| | |
|------|------|
| 1740 | 0.37 |
| 1745 | 0.36 |
| 1750 | 0.35 |
| 1755 | 0.35 |
| 1760 | 0.34 |
| 1765 | 0.33 |
| 1770 | 0.33 |
| 1775 | 0.32 |
| 1780 | 0.31 |
| 1785 | 0.31 |
| 1790 | 0.3 |
| 1795 | 0.3 |
| 1800 | 0.29 |
| 1805 | 0.29 |
| 1810 | 0.28 |
| 1815 | 0.28 |
| 1820 | 0.27 |
| 1825 | 0.27 |
| 1830 | 0.26 |
| 1835 | 0.26 |
| 1840 | 0.25 |
| 1845 | 0.25 |
| 1850 | 0.24 |
| 1855 | 0.24 |
| 1860 | 0.23 |
| 1865 | 0.23 |
| 1870 | 0.23 |
| 1875 | 0.22 |
| 1880 | 0.22 |
| 1885 | 0.21 |
| 1890 | 0.21 |
| 1895 | 0.21 |
| 1900 | 0.2 |
| 1905 | 0.2 |
| 1910 | 0.2 |
| 1915 | 0.19 |
| 1920 | 0.19 |
| 1925 | 0.19 |
| 1930 | 0.18 |
| 1935 | 0.18 |
| 1940 | 0.18 |
| 1945 | 0.17 |

| | |
|------|------|
| 1950 | 0.17 |
| 1955 | 0.17 |
| 1960 | 0.17 |
| 1965 | 0.16 |
| 1970 | 0.16 |
| 1975 | 0.16 |
| 1980 | 0.16 |
| 1985 | 0.15 |
| 1990 | 0.15 |
| 1995 | 0.15 |
| 2000 | 0.15 |
| 2005 | 0.14 |
| 2010 | 0.14 |
| 2015 | 0.14 |
| 2020 | 0.14 |
| 2025 | 0.14 |
| 2030 | 0.13 |
| 2035 | 0.13 |
| 2040 | 0.13 |
| 2045 | 0.13 |
| 2050 | 0.13 |
| 2055 | 0.12 |
| 2060 | 0.12 |
| 2065 | 0.12 |
| 2070 | 0.12 |
| 2075 | 0.12 |
| 2080 | 0.12 |
| 2085 | 0.11 |
| 2090 | 0.11 |
| 2095 | 0.11 |
| 2100 | 0.11 |
| 2105 | 0.11 |
| 2110 | 0.11 |
| 2115 | 0.11 |
| 2120 | 0.1 |
| 2125 | 0.1 |
| 2130 | 0.1 |
| 2135 | 0.1 |
| 2140 | 0.1 |
| 2145 | 0.1 |
| 2150 | 0.1 |
| 2155 | 0.09 |

| | |
|------|------|
| 2160 | 0.09 |
| 2165 | 0.09 |
| 2170 | 0.09 |
| 2175 | 0.09 |
| 2180 | 0.09 |
| 2185 | 0.09 |
| 2190 | 0.09 |
| 2195 | 0.08 |
| 2200 | 0.08 |

E-FIELD



| (ft) | (KV/m) |
|------|--------|
| 0 | 0 |
| 5 | 0 |
| 10 | 0 |
| 15 | 0 |
| 20 | 0 |
| 25 | 0 |
| 30 | 0 |
| 35 | 0 |
| 40 | 0 |
| 45 | 0 |
| 50 | 0 |
| 55 | 0 |
| 60 | 0 |
| 65 | 0 |
| 70 | 0 |
| 75 | 0 |
| 80 | 0 |
| 85 | 0 |
| 90 | 0 |
| 95 | 0 |
| 100 | 0 |
| 105 | 0 |
| 110 | 0 |
| 115 | 0 |
| 120 | 0 |
| 125 | 0 |
| 130 | 0 |
| 135 | 0 |
| 140 | 0 |
| 145 | 0 |
| 150 | 0 |
| 155 | 0 |
| 160 | 0 |
| 165 | 0 |
| 170 | 0 |
| 175 | 0 |
| 180 | 0 |
| 185 | 0 |
| 190 | 0 |
| 195 | 0 |
| 200 | 0 |
| 205 | 0 |

| | |
|-----|---|
| 210 | 0 |
| 215 | 0 |
| 220 | 0 |
| 225 | 0 |
| 230 | 0 |
| 235 | 0 |
| 240 | 0 |
| 245 | 0 |
| 250 | 0 |
| 255 | 0 |
| 260 | 0 |
| 265 | 0 |
| 270 | 0 |
| 275 | 0 |
| 280 | 0 |
| 285 | 0 |
| 290 | 0 |
| 295 | 0 |
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| 305 | 0 |
| 310 | 0 |
| 315 | 0 |
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| 375 | 0 |
| 380 | 0 |
| 385 | 0 |
| 390 | 0 |
| 395 | 0 |
| 400 | 0 |
| 405 | 0 |
| 410 | 0 |
| 415 | 0 |
| 420 | 0 |

| | |
|-----|---|
| 425 | 0 |
| 430 | 0 |
| 435 | 0 |
| 440 | 0 |
| 445 | 0 |
| 450 | 0 |
| 455 | 0 |
| 460 | 0 |
| 465 | 0 |
| 470 | 0 |
| 475 | 0 |
| 480 | 0 |
| 485 | 0 |
| 490 | 0 |
| 495 | 0 |
| 500 | 0 |
| 505 | 0 |
| 510 | 0 |
| 515 | 0 |
| 520 | 0 |
| 525 | 0 |
| 530 | 0 |
| 535 | 0 |
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| 555 | 0 |
| 560 | 0 |
| 565 | 0 |
| 570 | 0 |
| 575 | 0 |
| 580 | 0 |
| 585 | 0 |
| 590 | 0 |
| 595 | 0 |
| 600 | 0 |
| 605 | 0 |
| 610 | 0 |
| 615 | 0 |
| 620 | 0 |
| 625 | 0 |
| 630 | 0 |
| 635 | 0 |

| | |
|-----|------|
| 640 | 0 |
| 645 | 0 |
| 650 | 0 |
| 655 | 0 |
| 660 | 0 |
| 665 | 0 |
| 670 | 0 |
| 675 | 0 |
| 680 | 0 |
| 685 | 0 |
| 690 | 0 |
| 695 | 0 |
| 700 | 0 |
| 705 | 0 |
| 710 | 0 |
| 715 | 0 |
| 720 | 0 |
| 725 | 0.01 |
| 730 | 0.01 |
| 735 | 0.01 |
| 740 | 0.01 |
| 745 | 0.01 |
| 750 | 0.01 |
| 755 | 0.01 |
| 760 | 0.01 |
| 765 | 0.01 |
| 770 | 0.01 |
| 775 | 0.01 |
| 780 | 0.01 |
| 785 | 0.01 |
| 790 | 0.01 |
| 795 | 0.01 |
| 800 | 0.01 |
| 805 | 0.01 |
| 810 | 0.01 |
| 815 | 0.01 |
| 820 | 0.01 |
| 825 | 0.01 |
| 830 | 0.01 |
| 835 | 0.01 |
| 840 | 0.02 |
| 845 | 0.02 |
| 850 | 0.02 |

| | |
|------|------|
| 855 | 0.02 |
| 860 | 0.02 |
| 865 | 0.02 |
| 870 | 0.02 |
| 875 | 0.02 |
| 880 | 0.03 |
| 885 | 0.03 |
| 890 | 0.03 |
| 895 | 0.03 |
| 900 | 0.03 |
| 905 | 0.04 |
| 910 | 0.04 |
| 915 | 0.04 |
| 920 | 0.05 |
| 925 | 0.05 |
| 930 | 0.05 |
| 935 | 0.06 |
| 940 | 0.07 |
| 945 | 0.07 |
| 950 | 0.08 |
| 955 | 0.09 |
| 960 | 0.1 |
| 965 | 0.11 |
| 970 | 0.13 |
| 975 | 0.14 |
| 980 | 0.16 |
| 985 | 0.19 |
| 990 | 0.22 |
| 995 | 0.25 |
| 1000 | 0.3 |
| 1005 | 0.36 |
| 1010 | 0.43 |
| 1015 | 0.53 |
| 1020 | 0.66 |
| 1025 | 0.82 |
| 1030 | 1.03 |
| 1035 | 1.24 |
| 1040 | 1.39 |
| 1045 | 1.38 |
| 1050 | 1.2 |
| 1055 | 1.06 |
| 1060 | 1.22 |
| 1065 | 1.47 |

| | |
|------|------|
| 1070 | 1.6 |
| 1075 | 1.6 |
| 1080 | 1.69 |
| 1085 | 1.94 |
| 1090 | 2.11 |
| 1095 | 1.96 |
| 1100 | 1.71 |
| 1105 | 1.65 |
| 1110 | 1.66 |
| 1115 | 1.91 |
| 1120 | 2.24 |
| 1125 | 2.24 |
| 1130 | 1.9 |
| 1135 | 1.48 |
| 1140 | 1.12 |
| 1145 | 0.84 |
| 1150 | 0.64 |
| 1155 | 0.5 |
| 1160 | 0.39 |
| 1165 | 0.31 |
| 1170 | 0.26 |
| 1175 | 0.21 |
| 1180 | 0.18 |
| 1185 | 0.15 |
| 1190 | 0.13 |
| 1195 | 0.11 |
| 1200 | 0.1 |
| 1205 | 0.09 |
| 1210 | 0.08 |
| 1215 | 0.07 |
| 1220 | 0.06 |
| 1225 | 0.06 |
| 1230 | 0.05 |
| 1235 | 0.05 |
| 1240 | 0.04 |
| 1245 | 0.04 |
| 1250 | 0.04 |
| 1255 | 0.03 |
| 1260 | 0.03 |
| 1265 | 0.03 |
| 1270 | 0.03 |
| 1275 | 0.02 |
| 1280 | 0.02 |

| | |
|------|------|
| 1285 | 0.02 |
| 1290 | 0.02 |
| 1295 | 0.02 |
| 1300 | 0.02 |
| 1305 | 0.02 |
| 1310 | 0.02 |
| 1315 | 0.01 |
| 1320 | 0.01 |
| 1325 | 0.01 |
| 1330 | 0.01 |
| 1335 | 0.01 |
| 1340 | 0.01 |
| 1345 | 0.01 |
| 1350 | 0.01 |
| 1355 | 0.01 |
| 1360 | 0.01 |
| 1365 | 0.01 |
| 1370 | 0.01 |
| 1375 | 0.01 |
| 1380 | 0.01 |
| 1385 | 0.01 |
| 1390 | 0.01 |
| 1395 | 0.01 |
| 1400 | 0.01 |
| 1405 | 0.01 |
| 1410 | 0.01 |
| 1415 | 0.01 |
| 1420 | 0.01 |
| 1425 | 0.01 |
| 1430 | 0 |
| 1435 | 0 |
| 1440 | 0 |
| 1445 | 0 |
| 1450 | 0 |
| 1455 | 0 |
| 1460 | 0 |
| 1465 | 0 |
| 1470 | 0 |
| 1475 | 0 |
| 1480 | 0 |
| 1485 | 0 |
| 1490 | 0 |
| 1495 | 0 |

| | |
|------|---|
| 1500 | 0 |
| 1505 | 0 |
| 1510 | 0 |
| 1515 | 0 |
| 1520 | 0 |
| 1525 | 0 |
| 1530 | 0 |
| 1535 | 0 |
| 1540 | 0 |
| 1545 | 0 |
| 1550 | 0 |
| 1555 | 0 |
| 1560 | 0 |
| 1565 | 0 |
| 1570 | 0 |
| 1575 | 0 |
| 1580 | 0 |
| 1585 | 0 |
| 1590 | 0 |
| 1595 | 0 |
| 1600 | 0 |
| 1605 | 0 |
| 1610 | 0 |
| 1615 | 0 |
| 1620 | 0 |
| 1625 | 0 |
| 1630 | 0 |
| 1635 | 0 |
| 1640 | 0 |
| 1645 | 0 |
| 1650 | 0 |
| 1655 | 0 |
| 1660 | 0 |
| 1665 | 0 |
| 1670 | 0 |
| 1675 | 0 |
| 1680 | 0 |
| 1685 | 0 |
| 1690 | 0 |
| 1695 | 0 |
| 1700 | 0 |
| 1705 | 0 |
| 1710 | 0 |

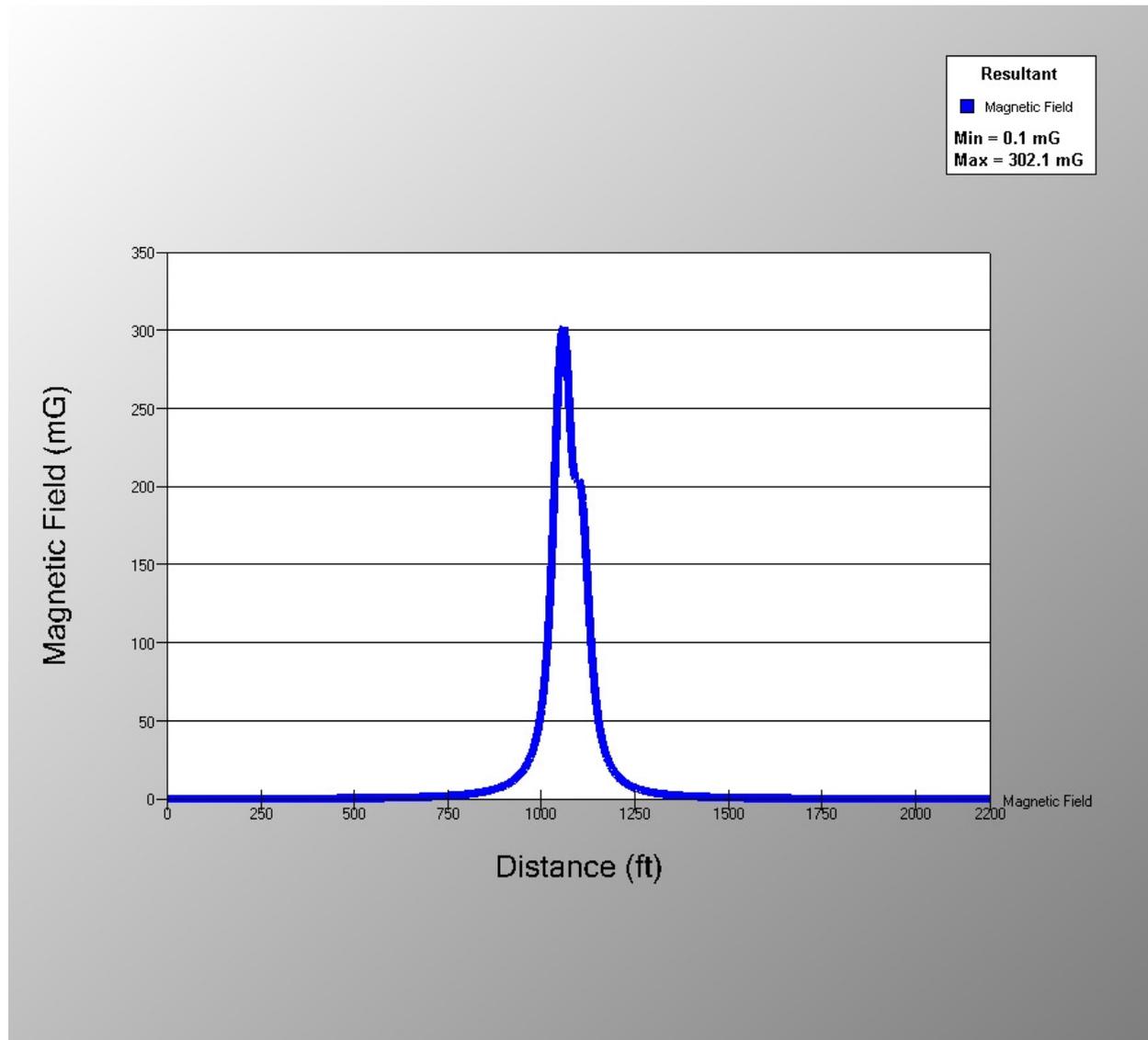
| | |
|------|---|
| 1715 | 0 |
| 1720 | 0 |
| 1725 | 0 |
| 1730 | 0 |
| 1735 | 0 |
| 1740 | 0 |
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| 1750 | 0 |
| 1755 | 0 |
| 1760 | 0 |
| 1765 | 0 |
| 1770 | 0 |
| 1775 | 0 |
| 1780 | 0 |
| 1785 | 0 |
| 1790 | 0 |
| 1795 | 0 |
| 1800 | 0 |
| 1805 | 0 |
| 1810 | 0 |
| 1815 | 0 |
| 1820 | 0 |
| 1825 | 0 |
| 1830 | 0 |
| 1835 | 0 |
| 1840 | 0 |
| 1845 | 0 |
| 1850 | 0 |
| 1855 | 0 |
| 1860 | 0 |
| 1865 | 0 |
| 1870 | 0 |
| 1875 | 0 |
| 1880 | 0 |
| 1885 | 0 |
| 1890 | 0 |
| 1895 | 0 |
| 1900 | 0 |
| 1905 | 0 |
| 1910 | 0 |
| 1915 | 0 |
| 1920 | 0 |
| 1925 | 0 |

| | |
|------|---|
| 1930 | 0 |
| 1935 | 0 |
| 1940 | 0 |
| 1945 | 0 |
| 1950 | 0 |
| 1955 | 0 |
| 1960 | 0 |
| 1965 | 0 |
| 1970 | 0 |
| 1975 | 0 |
| 1980 | 0 |
| 1985 | 0 |
| 1990 | 0 |
| 1995 | 0 |
| 2000 | 0 |
| 2005 | 0 |
| 2010 | 0 |
| 2015 | 0 |
| 2020 | 0 |
| 2025 | 0 |
| 2030 | 0 |
| 2035 | 0 |
| 2040 | 0 |
| 2045 | 0 |
| 2050 | 0 |
| 2055 | 0 |
| 2060 | 0 |
| 2065 | 0 |
| 2070 | 0 |
| 2075 | 0 |
| 2080 | 0 |
| 2085 | 0 |
| 2090 | 0 |
| 2095 | 0 |
| 2100 | 0 |
| 2105 | 0 |
| 2110 | 0 |
| 2115 | 0 |
| 2120 | 0 |
| 2125 | 0 |
| 2130 | 0 |
| 2135 | 0 |
| 2140 | 0 |

| | |
|------|---|
| 2145 | 0 |
| 2150 | 0 |
| 2155 | 0 |
| 2160 | 0 |
| 2165 | 0 |
| 2170 | 0 |
| 2175 | 0 |
| 2180 | 0 |
| 2185 | 0 |
| 2190 | 0 |
| 2195 | 0 |
| 2200 | 0 |

PROPOSED C AND M LINES

MAG FIELD



| (ft) | (mG) |
|------|------|
| 0 | 0.08 |
| 5 | 0.08 |
| 10 | 0.08 |
| 15 | 0.08 |
| 20 | 0.08 |
| 25 | 0.08 |
| 30 | 0.08 |
| 35 | 0.09 |
| 40 | 0.09 |
| 45 | 0.09 |

| | |
|-----|------|
| 50 | 0.09 |
| 55 | 0.09 |
| 60 | 0.09 |
| 65 | 0.09 |
| 70 | 0.09 |
| 75 | 0.1 |
| 80 | 0.1 |
| 85 | 0.1 |
| 90 | 0.1 |
| 95 | 0.1 |
| 100 | 0.1 |
| 105 | 0.1 |
| 110 | 0.11 |
| 115 | 0.11 |
| 120 | 0.11 |
| 125 | 0.11 |
| 130 | 0.11 |
| 135 | 0.11 |
| 140 | 0.12 |
| 145 | 0.12 |
| 150 | 0.12 |
| 155 | 0.12 |
| 160 | 0.12 |
| 165 | 0.13 |
| 170 | 0.13 |
| 175 | 0.13 |
| 180 | 0.13 |
| 185 | 0.13 |
| 190 | 0.14 |
| 195 | 0.14 |
| 200 | 0.14 |
| 205 | 0.14 |
| 210 | 0.15 |
| 215 | 0.15 |
| 220 | 0.15 |
| 225 | 0.15 |
| 230 | 0.16 |
| 235 | 0.16 |
| 240 | 0.16 |
| 245 | 0.16 |
| 250 | 0.17 |
| 255 | 0.17 |
| 260 | 0.17 |

| | |
|-----|------|
| 265 | 0.18 |
| 270 | 0.18 |
| 275 | 0.18 |
| 280 | 0.19 |
| 285 | 0.19 |
| 290 | 0.19 |
| 295 | 0.2 |
| 300 | 0.2 |
| 305 | 0.2 |
| 310 | 0.21 |
| 315 | 0.21 |
| 320 | 0.22 |
| 325 | 0.22 |
| 330 | 0.22 |
| 335 | 0.23 |
| 340 | 0.23 |
| 345 | 0.24 |
| 350 | 0.24 |
| 355 | 0.25 |
| 360 | 0.25 |
| 365 | 0.26 |
| 370 | 0.26 |
| 375 | 0.27 |
| 380 | 0.27 |
| 385 | 0.28 |
| 390 | 0.28 |
| 395 | 0.29 |
| 400 | 0.3 |
| 405 | 0.3 |
| 410 | 0.31 |
| 415 | 0.32 |
| 420 | 0.32 |
| 425 | 0.33 |
| 430 | 0.34 |
| 435 | 0.34 |
| 440 | 0.35 |
| 445 | 0.36 |
| 450 | 0.37 |
| 455 | 0.38 |
| 460 | 0.38 |
| 465 | 0.39 |
| 470 | 0.4 |
| 475 | 0.41 |

| | |
|-----|------|
| 480 | 0.42 |
| 485 | 0.43 |
| 490 | 0.44 |
| 495 | 0.45 |
| 500 | 0.46 |
| 505 | 0.47 |
| 510 | 0.49 |
| 515 | 0.5 |
| 520 | 0.51 |
| 525 | 0.52 |
| 530 | 0.54 |
| 535 | 0.55 |
| 540 | 0.56 |
| 545 | 0.58 |
| 550 | 0.59 |
| 555 | 0.61 |
| 560 | 0.62 |
| 565 | 0.64 |
| 570 | 0.66 |
| 575 | 0.68 |
| 580 | 0.69 |
| 585 | 0.71 |
| 590 | 0.73 |
| 595 | 0.75 |
| 600 | 0.77 |
| 605 | 0.8 |
| 610 | 0.82 |
| 615 | 0.84 |
| 620 | 0.87 |
| 625 | 0.89 |
| 630 | 0.92 |
| 635 | 0.95 |
| 640 | 0.98 |
| 645 | 1 |
| 650 | 1.04 |
| 655 | 1.07 |
| 660 | 1.1 |
| 665 | 1.14 |
| 670 | 1.17 |
| 675 | 1.21 |
| 680 | 1.25 |
| 685 | 1.29 |
| 690 | 1.33 |

| | |
|-----|------|
| 695 | 1.38 |
| 700 | 1.42 |
| 705 | 1.47 |
| 710 | 1.52 |
| 715 | 1.58 |
| 720 | 1.63 |
| 725 | 1.69 |
| 730 | 1.75 |
| 735 | 1.82 |
| 740 | 1.88 |
| 745 | 1.95 |
| 750 | 2.03 |
| 755 | 2.11 |
| 760 | 2.19 |
| 765 | 2.27 |
| 770 | 2.36 |
| 775 | 2.46 |
| 780 | 2.56 |
| 785 | 2.67 |
| 790 | 2.78 |
| 795 | 2.9 |
| 800 | 3.02 |
| 805 | 3.15 |
| 810 | 3.29 |
| 815 | 3.44 |
| 820 | 3.6 |
| 825 | 3.77 |
| 830 | 3.95 |
| 835 | 4.14 |
| 840 | 4.34 |
| 845 | 4.56 |
| 850 | 4.79 |
| 855 | 5.04 |
| 860 | 5.31 |
| 865 | 5.6 |
| 870 | 5.91 |
| 875 | 6.25 |
| 880 | 6.61 |
| 885 | 7.01 |
| 890 | 7.43 |
| 895 | 7.9 |
| 900 | 8.41 |
| 905 | 8.97 |

| | |
|------|--------|
| 910 | 9.59 |
| 915 | 10.27 |
| 920 | 11.02 |
| 925 | 11.85 |
| 930 | 12.79 |
| 935 | 13.83 |
| 940 | 15 |
| 945 | 16.33 |
| 950 | 17.84 |
| 955 | 19.56 |
| 960 | 21.54 |
| 965 | 23.84 |
| 970 | 26.51 |
| 975 | 29.65 |
| 980 | 33.37 |
| 985 | 37.81 |
| 990 | 43.16 |
| 995 | 49.66 |
| 1000 | 57.64 |
| 1005 | 67.54 |
| 1010 | 79.89 |
| 1015 | 95.39 |
| 1020 | 114.85 |
| 1025 | 139.05 |
| 1030 | 168.32 |
| 1035 | 201.77 |
| 1040 | 236.18 |
| 1045 | 266.36 |
| 1050 | 287.95 |
| 1055 | 299.85 |
| 1060 | 302.11 |
| 1065 | 293.58 |
| 1070 | 274.47 |
| 1075 | 249.81 |
| 1080 | 227.13 |
| 1085 | 211.76 |
| 1090 | 204.92 |
| 1095 | 204.11 |
| 1100 | 204.44 |
| 1105 | 200.84 |
| 1110 | 190.5 |
| 1115 | 173.69 |
| 1120 | 152.86 |

| | |
|------|--------|
| 1125 | 131 |
| 1130 | 110.44 |
| 1135 | 92.43 |
| 1140 | 77.31 |
| 1145 | 64.93 |
| 1150 | 54.89 |
| 1155 | 46.77 |
| 1160 | 40.18 |
| 1165 | 34.81 |
| 1170 | 30.41 |
| 1175 | 26.76 |
| 1180 | 23.71 |
| 1185 | 21.15 |
| 1190 | 18.98 |
| 1195 | 17.12 |
| 1200 | 15.52 |
| 1205 | 14.14 |
| 1210 | 12.93 |
| 1215 | 11.87 |
| 1220 | 10.94 |
| 1225 | 10.11 |
| 1230 | 9.37 |
| 1235 | 8.71 |
| 1240 | 8.12 |
| 1245 | 7.58 |
| 1250 | 7.1 |
| 1255 | 6.65 |
| 1260 | 6.25 |
| 1265 | 5.89 |
| 1270 | 5.55 |
| 1275 | 5.24 |
| 1280 | 4.95 |
| 1285 | 4.69 |
| 1290 | 4.45 |
| 1295 | 4.22 |
| 1300 | 4.01 |
| 1305 | 3.81 |
| 1310 | 3.63 |
| 1315 | 3.46 |
| 1320 | 3.3 |
| 1325 | 3.15 |
| 1330 | 3.01 |
| 1335 | 2.88 |

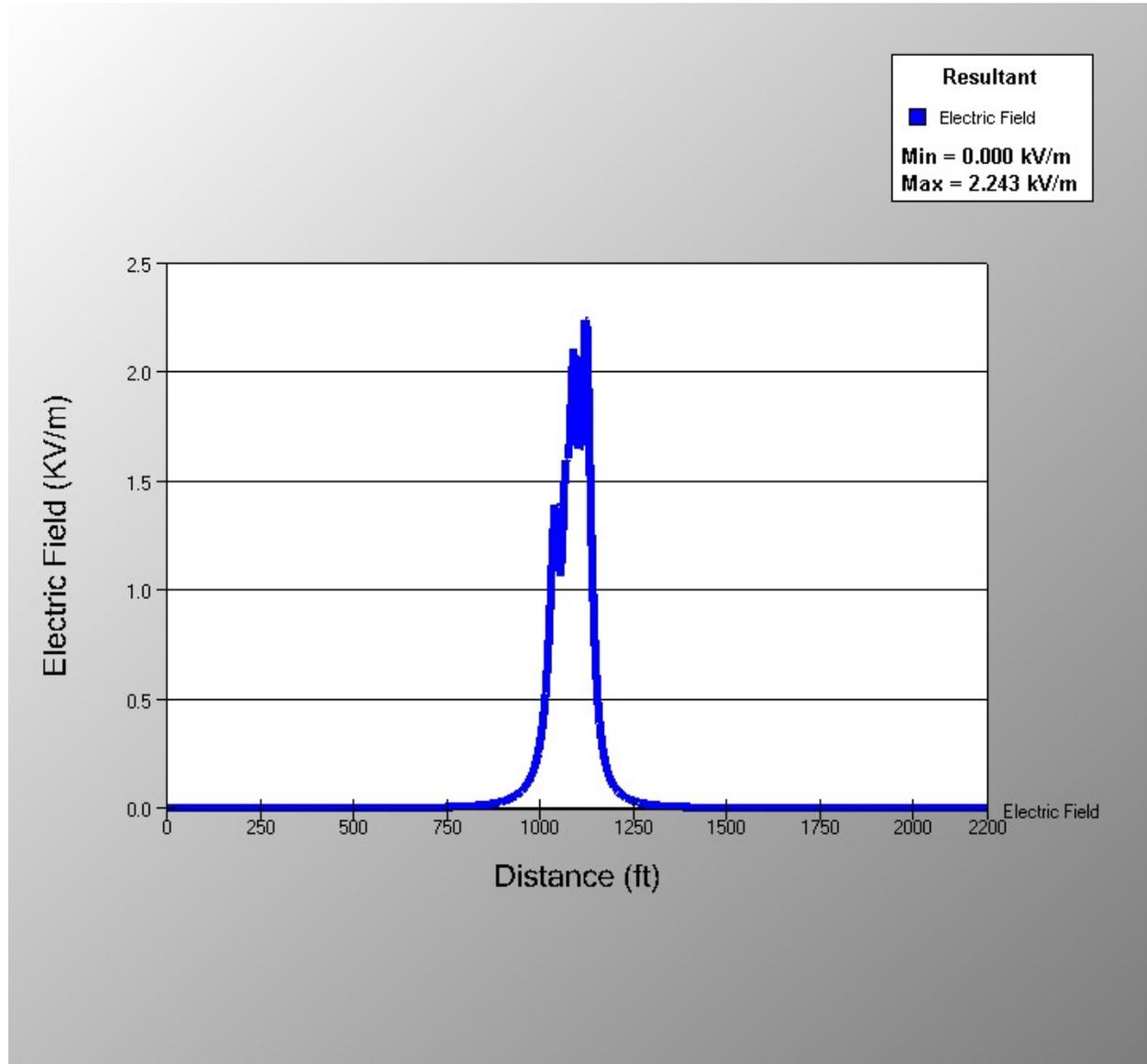
| | |
|------|------|
| 1340 | 2.75 |
| 1345 | 2.64 |
| 1350 | 2.53 |
| 1355 | 2.42 |
| 1360 | 2.33 |
| 1365 | 2.23 |
| 1370 | 2.14 |
| 1375 | 2.06 |
| 1380 | 1.98 |
| 1385 | 1.91 |
| 1390 | 1.84 |
| 1395 | 1.77 |
| 1400 | 1.7 |
| 1405 | 1.64 |
| 1410 | 1.58 |
| 1415 | 1.53 |
| 1420 | 1.48 |
| 1425 | 1.42 |
| 1430 | 1.38 |
| 1435 | 1.33 |
| 1440 | 1.29 |
| 1445 | 1.24 |
| 1450 | 1.2 |
| 1455 | 1.16 |
| 1460 | 1.13 |
| 1465 | 1.09 |
| 1470 | 1.06 |
| 1475 | 1.03 |
| 1480 | 0.99 |
| 1485 | 0.96 |
| 1490 | 0.94 |
| 1495 | 0.91 |
| 1500 | 0.88 |
| 1505 | 0.86 |
| 1510 | 0.83 |
| 1515 | 0.81 |
| 1520 | 0.78 |
| 1525 | 0.76 |
| 1530 | 0.74 |
| 1535 | 0.72 |
| 1540 | 0.7 |
| 1545 | 0.68 |
| 1550 | 0.66 |

| | |
|------|------|
| 1555 | 0.65 |
| 1560 | 0.63 |
| 1565 | 0.61 |
| 1570 | 0.6 |
| 1575 | 0.58 |
| 1580 | 0.57 |
| 1585 | 0.55 |
| 1590 | 0.54 |
| 1595 | 0.52 |
| 1600 | 0.51 |
| 1605 | 0.5 |
| 1610 | 0.49 |
| 1615 | 0.47 |
| 1620 | 0.46 |
| 1625 | 0.45 |
| 1630 | 0.44 |
| 1635 | 0.43 |
| 1640 | 0.42 |
| 1645 | 0.41 |
| 1650 | 0.4 |
| 1655 | 0.39 |
| 1660 | 0.38 |
| 1665 | 0.38 |
| 1670 | 0.37 |
| 1675 | 0.36 |
| 1680 | 0.35 |
| 1685 | 0.34 |
| 1690 | 0.34 |
| 1695 | 0.33 |
| 1700 | 0.32 |
| 1705 | 0.31 |
| 1710 | 0.31 |
| 1715 | 0.3 |
| 1720 | 0.3 |
| 1725 | 0.29 |
| 1730 | 0.28 |
| 1735 | 0.28 |
| 1740 | 0.27 |
| 1745 | 0.27 |
| 1750 | 0.26 |
| 1755 | 0.26 |
| 1760 | 0.25 |
| 1765 | 0.25 |

| | |
|------|------|
| 1770 | 0.24 |
| 1775 | 0.24 |
| 1780 | 0.23 |
| 1785 | 0.23 |
| 1790 | 0.22 |
| 1795 | 0.22 |
| 1800 | 0.21 |
| 1805 | 0.21 |
| 1810 | 0.21 |
| 1815 | 0.2 |
| 1820 | 0.2 |
| 1825 | 0.2 |
| 1830 | 0.19 |
| 1835 | 0.19 |
| 1840 | 0.18 |
| 1845 | 0.18 |
| 1850 | 0.18 |
| 1855 | 0.18 |
| 1860 | 0.17 |
| 1865 | 0.17 |
| 1870 | 0.17 |
| 1875 | 0.16 |
| 1880 | 0.16 |
| 1885 | 0.16 |
| 1890 | 0.16 |
| 1895 | 0.15 |
| 1900 | 0.15 |
| 1905 | 0.15 |
| 1910 | 0.14 |
| 1915 | 0.14 |
| 1920 | 0.14 |
| 1925 | 0.14 |
| 1930 | 0.14 |
| 1935 | 0.13 |
| 1940 | 0.13 |
| 1945 | 0.13 |
| 1950 | 0.13 |
| 1955 | 0.13 |
| 1960 | 0.12 |
| 1965 | 0.12 |
| 1970 | 0.12 |
| 1975 | 0.12 |
| 1980 | 0.12 |

| | |
|------|------|
| 1985 | 0.11 |
| 1990 | 0.11 |
| 1995 | 0.11 |
| 2000 | 0.11 |
| 2005 | 0.11 |
| 2010 | 0.11 |
| 2015 | 0.1 |
| 2020 | 0.1 |
| 2025 | 0.1 |
| 2030 | 0.1 |
| 2035 | 0.1 |
| 2040 | 0.1 |
| 2045 | 0.1 |
| 2050 | 0.09 |
| 2055 | 0.09 |
| 2060 | 0.09 |
| 2065 | 0.09 |
| 2070 | 0.09 |
| 2075 | 0.09 |
| 2080 | 0.09 |
| 2085 | 0.08 |
| 2090 | 0.08 |
| 2095 | 0.08 |
| 2100 | 0.08 |
| 2105 | 0.08 |
| 2110 | 0.08 |
| 2115 | 0.08 |
| 2120 | 0.08 |
| 2125 | 0.08 |
| 2130 | 0.07 |
| 2135 | 0.07 |
| 2140 | 0.07 |
| 2145 | 0.07 |
| 2150 | 0.07 |
| 2155 | 0.07 |
| 2160 | 0.07 |
| 2165 | 0.07 |
| 2170 | 0.07 |
| 2175 | 0.07 |
| 2180 | 0.07 |
| 2185 | 0.06 |
| 2190 | 0.06 |
| 2195 | 0.06 |

2200 0.06
E-FIELD



| (ft) | (KV/m) |
|------|--------|
| 0 | 0 |
| 5 | 0 |
| 10 | 0 |
| 15 | 0 |
| 20 | 0 |
| 25 | 0 |
| 30 | 0 |

| | |
|-----|---|
| 35 | 0 |
| 40 | 0 |
| 45 | 0 |
| 50 | 0 |
| 55 | 0 |
| 60 | 0 |
| 65 | 0 |
| 70 | 0 |
| 75 | 0 |
| 80 | 0 |
| 85 | 0 |
| 90 | 0 |
| 95 | 0 |
| 100 | 0 |
| 105 | 0 |
| 110 | 0 |
| 115 | 0 |
| 120 | 0 |
| 125 | 0 |
| 130 | 0 |
| 135 | 0 |
| 140 | 0 |
| 145 | 0 |
| 150 | 0 |
| 155 | 0 |
| 160 | 0 |
| 165 | 0 |
| 170 | 0 |
| 175 | 0 |
| 180 | 0 |
| 185 | 0 |
| 190 | 0 |
| 195 | 0 |
| 200 | 0 |
| 205 | 0 |
| 210 | 0 |
| 215 | 0 |
| 220 | 0 |
| 225 | 0 |
| 230 | 0 |
| 235 | 0 |
| 240 | 0 |
| 245 | 0 |

| | |
|-----|---|
| 250 | 0 |
| 255 | 0 |
| 260 | 0 |
| 265 | 0 |
| 270 | 0 |
| 275 | 0 |
| 280 | 0 |
| 285 | 0 |
| 290 | 0 |
| 295 | 0 |
| 300 | 0 |
| 305 | 0 |
| 310 | 0 |
| 315 | 0 |
| 320 | 0 |
| 325 | 0 |
| 330 | 0 |
| 335 | 0 |
| 340 | 0 |
| 345 | 0 |
| 350 | 0 |
| 355 | 0 |
| 360 | 0 |
| 365 | 0 |
| 370 | 0 |
| 375 | 0 |
| 380 | 0 |
| 385 | 0 |
| 390 | 0 |
| 395 | 0 |
| 400 | 0 |
| 405 | 0 |
| 410 | 0 |
| 415 | 0 |
| 420 | 0 |
| 425 | 0 |
| 430 | 0 |
| 435 | 0 |
| 440 | 0 |
| 445 | 0 |
| 450 | 0 |
| 455 | 0 |
| 460 | 0 |

| | |
|-----|---|
| 465 | 0 |
| 470 | 0 |
| 475 | 0 |
| 480 | 0 |
| 485 | 0 |
| 490 | 0 |
| 495 | 0 |
| 500 | 0 |
| 505 | 0 |
| 510 | 0 |
| 515 | 0 |
| 520 | 0 |
| 525 | 0 |
| 530 | 0 |
| 535 | 0 |
| 540 | 0 |
| 545 | 0 |
| 550 | 0 |
| 555 | 0 |
| 560 | 0 |
| 565 | 0 |
| 570 | 0 |
| 575 | 0 |
| 580 | 0 |
| 585 | 0 |
| 590 | 0 |
| 595 | 0 |
| 600 | 0 |
| 605 | 0 |
| 610 | 0 |
| 615 | 0 |
| 620 | 0 |
| 625 | 0 |
| 630 | 0 |
| 635 | 0 |
| 640 | 0 |
| 645 | 0 |
| 650 | 0 |
| 655 | 0 |
| 660 | 0 |
| 665 | 0 |
| 670 | 0 |
| 675 | 0 |

| | |
|-----|------|
| 680 | 0 |
| 685 | 0 |
| 690 | 0 |
| 695 | 0 |
| 700 | 0 |
| 705 | 0 |
| 710 | 0 |
| 715 | 0 |
| 720 | 0 |
| 725 | 0.01 |
| 730 | 0.01 |
| 735 | 0.01 |
| 740 | 0.01 |
| 745 | 0.01 |
| 750 | 0.01 |
| 755 | 0.01 |
| 760 | 0.01 |
| 765 | 0.01 |
| 770 | 0.01 |
| 775 | 0.01 |
| 780 | 0.01 |
| 785 | 0.01 |
| 790 | 0.01 |
| 795 | 0.01 |
| 800 | 0.01 |
| 805 | 0.01 |
| 810 | 0.01 |
| 815 | 0.01 |
| 820 | 0.01 |
| 825 | 0.01 |
| 830 | 0.01 |
| 835 | 0.01 |
| 840 | 0.02 |
| 845 | 0.02 |
| 850 | 0.02 |
| 855 | 0.02 |
| 860 | 0.02 |
| 865 | 0.02 |
| 870 | 0.02 |
| 875 | 0.02 |
| 880 | 0.03 |
| 885 | 0.03 |
| 890 | 0.03 |

| | |
|------|------|
| 895 | 0.03 |
| 900 | 0.03 |
| 905 | 0.04 |
| 910 | 0.04 |
| 915 | 0.04 |
| 920 | 0.05 |
| 925 | 0.05 |
| 930 | 0.05 |
| 935 | 0.06 |
| 940 | 0.07 |
| 945 | 0.07 |
| 950 | 0.08 |
| 955 | 0.09 |
| 960 | 0.1 |
| 965 | 0.11 |
| 970 | 0.13 |
| 975 | 0.14 |
| 980 | 0.16 |
| 985 | 0.19 |
| 990 | 0.22 |
| 995 | 0.25 |
| 1000 | 0.3 |
| 1005 | 0.36 |
| 1010 | 0.43 |
| 1015 | 0.53 |
| 1020 | 0.66 |
| 1025 | 0.82 |
| 1030 | 1.03 |
| 1035 | 1.24 |
| 1040 | 1.39 |
| 1045 | 1.38 |
| 1050 | 1.2 |
| 1055 | 1.06 |
| 1060 | 1.22 |
| 1065 | 1.47 |
| 1070 | 1.6 |
| 1075 | 1.6 |
| 1080 | 1.69 |
| 1085 | 1.94 |
| 1090 | 2.11 |
| 1095 | 1.96 |
| 1100 | 1.71 |
| 1105 | 1.65 |

| | |
|------|------|
| 1110 | 1.66 |
| 1115 | 1.91 |
| 1120 | 2.24 |
| 1125 | 2.24 |
| 1130 | 1.9 |
| 1135 | 1.48 |
| 1140 | 1.12 |
| 1145 | 0.84 |
| 1150 | 0.64 |
| 1155 | 0.5 |
| 1160 | 0.39 |
| 1165 | 0.31 |
| 1170 | 0.26 |
| 1175 | 0.21 |
| 1180 | 0.18 |
| 1185 | 0.15 |
| 1190 | 0.13 |
| 1195 | 0.11 |
| 1200 | 0.1 |
| 1205 | 0.09 |
| 1210 | 0.08 |
| 1215 | 0.07 |
| 1220 | 0.06 |
| 1225 | 0.06 |
| 1230 | 0.05 |
| 1235 | 0.05 |
| 1240 | 0.04 |
| 1245 | 0.04 |
| 1250 | 0.04 |
| 1255 | 0.03 |
| 1260 | 0.03 |
| 1265 | 0.03 |
| 1270 | 0.03 |
| 1275 | 0.02 |
| 1280 | 0.02 |
| 1285 | 0.02 |
| 1290 | 0.02 |
| 1295 | 0.02 |
| 1300 | 0.02 |
| 1305 | 0.02 |
| 1310 | 0.02 |
| 1315 | 0.01 |
| 1320 | 0.01 |

| | |
|------|------|
| 1325 | 0.01 |
| 1330 | 0.01 |
| 1335 | 0.01 |
| 1340 | 0.01 |
| 1345 | 0.01 |
| 1350 | 0.01 |
| 1355 | 0.01 |
| 1360 | 0.01 |
| 1365 | 0.01 |
| 1370 | 0.01 |
| 1375 | 0.01 |
| 1380 | 0.01 |
| 1385 | 0.01 |
| 1390 | 0.01 |
| 1395 | 0.01 |
| 1400 | 0.01 |
| 1405 | 0.01 |
| 1410 | 0.01 |
| 1415 | 0.01 |
| 1420 | 0.01 |
| 1425 | 0.01 |
| 1430 | 0 |
| 1435 | 0 |
| 1440 | 0 |
| 1445 | 0 |
| 1450 | 0 |
| 1455 | 0 |
| 1460 | 0 |
| 1465 | 0 |
| 1470 | 0 |
| 1475 | 0 |
| 1480 | 0 |
| 1485 | 0 |
| 1490 | 0 |
| 1495 | 0 |
| 1500 | 0 |
| 1505 | 0 |
| 1510 | 0 |
| 1515 | 0 |
| 1520 | 0 |
| 1525 | 0 |
| 1530 | 0 |
| 1535 | 0 |

| | |
|------|---|
| 1540 | 0 |
| 1545 | 0 |
| 1550 | 0 |
| 1555 | 0 |
| 1560 | 0 |
| 1565 | 0 |
| 1570 | 0 |
| 1575 | 0 |
| 1580 | 0 |
| 1585 | 0 |
| 1590 | 0 |
| 1595 | 0 |
| 1600 | 0 |
| 1605 | 0 |
| 1610 | 0 |
| 1615 | 0 |
| 1620 | 0 |
| 1625 | 0 |
| 1630 | 0 |
| 1635 | 0 |
| 1640 | 0 |
| 1645 | 0 |
| 1650 | 0 |
| 1655 | 0 |
| 1660 | 0 |
| 1665 | 0 |
| 1670 | 0 |
| 1675 | 0 |
| 1680 | 0 |
| 1685 | 0 |
| 1690 | 0 |
| 1695 | 0 |
| 1700 | 0 |
| 1705 | 0 |
| 1710 | 0 |
| 1715 | 0 |
| 1720 | 0 |
| 1725 | 0 |
| 1730 | 0 |
| 1735 | 0 |
| 1740 | 0 |
| 1745 | 0 |
| 1750 | 0 |

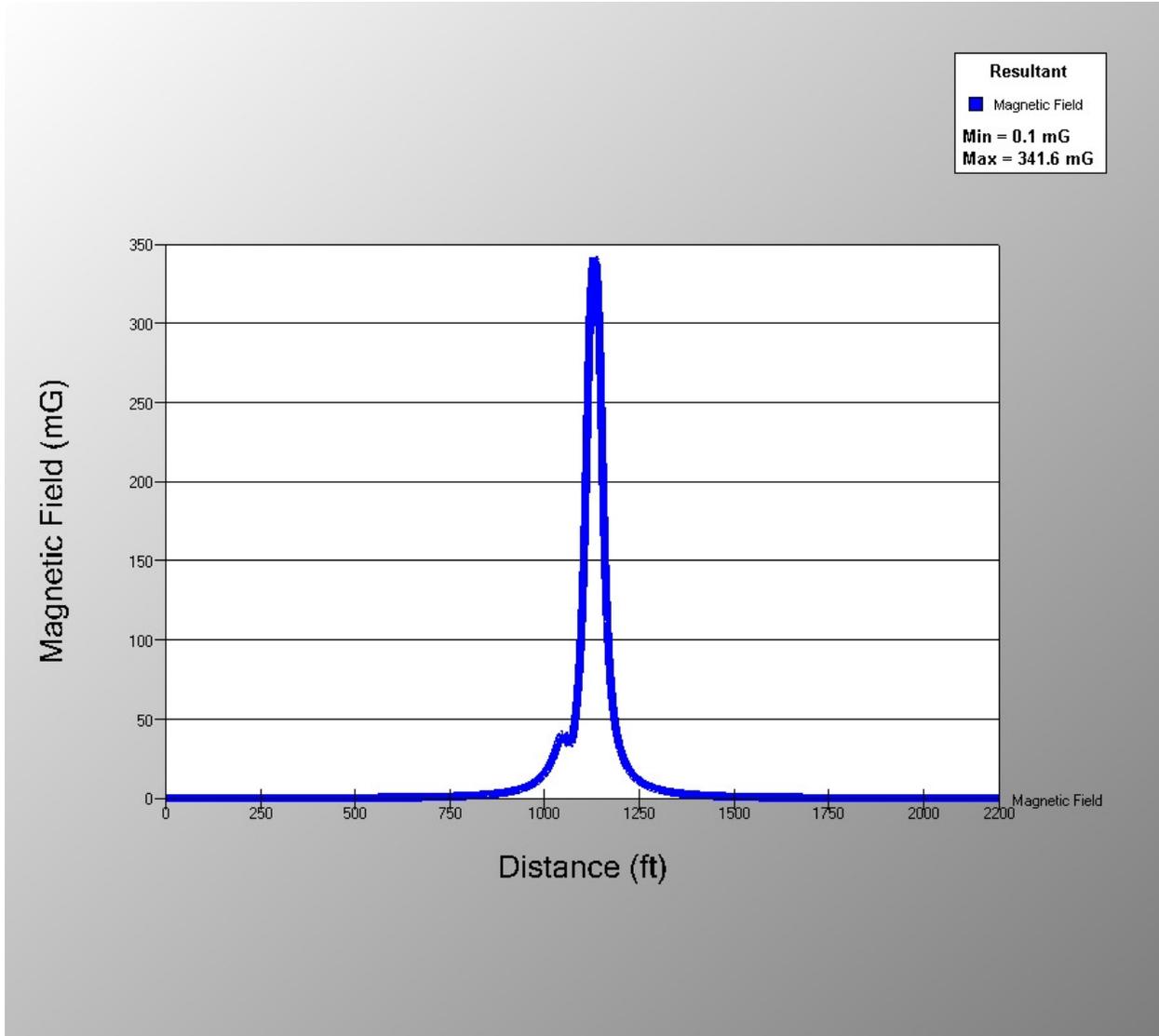
| | |
|------|---|
| 1755 | 0 |
| 1760 | 0 |
| 1765 | 0 |
| 1770 | 0 |
| 1775 | 0 |
| 1780 | 0 |
| 1785 | 0 |
| 1790 | 0 |
| 1795 | 0 |
| 1800 | 0 |
| 1805 | 0 |
| 1810 | 0 |
| 1815 | 0 |
| 1820 | 0 |
| 1825 | 0 |
| 1830 | 0 |
| 1835 | 0 |
| 1840 | 0 |
| 1845 | 0 |
| 1850 | 0 |
| 1855 | 0 |
| 1860 | 0 |
| 1865 | 0 |
| 1870 | 0 |
| 1875 | 0 |
| 1880 | 0 |
| 1885 | 0 |
| 1890 | 0 |
| 1895 | 0 |
| 1900 | 0 |
| 1905 | 0 |
| 1910 | 0 |
| 1915 | 0 |
| 1920 | 0 |
| 1925 | 0 |
| 1930 | 0 |
| 1935 | 0 |
| 1940 | 0 |
| 1945 | 0 |
| 1950 | 0 |
| 1955 | 0 |
| 1960 | 0 |
| 1965 | 0 |

| | |
|------|---|
| 1970 | 0 |
| 1975 | 0 |
| 1980 | 0 |
| 1985 | 0 |
| 1990 | 0 |
| 1995 | 0 |
| 2000 | 0 |
| 2005 | 0 |
| 2010 | 0 |
| 2015 | 0 |
| 2020 | 0 |
| 2025 | 0 |
| 2030 | 0 |
| 2035 | 0 |
| 2040 | 0 |
| 2045 | 0 |
| 2050 | 0 |
| 2055 | 0 |
| 2060 | 0 |
| 2065 | 0 |
| 2070 | 0 |
| 2075 | 0 |
| 2080 | 0 |
| 2085 | 0 |
| 2090 | 0 |
| 2095 | 0 |
| 2100 | 0 |
| 2105 | 0 |
| 2110 | 0 |
| 2115 | 0 |
| 2120 | 0 |
| 2125 | 0 |
| 2130 | 0 |
| 2135 | 0 |
| 2140 | 0 |
| 2145 | 0 |
| 2150 | 0 |
| 2155 | 0 |
| 2160 | 0 |
| 2165 | 0 |
| 2170 | 0 |
| 2175 | 0 |
| 2180 | 0 |

| | |
|------|---|
| 2185 | 0 |
| 2190 | 0 |
| 2195 | 0 |
| 2200 | 0 |

EXISTING A&C AND G LINES

MAG FIELD



| (ft) | (mG) |
|------|------|
| 0 | 0.05 |
| 5 | 0.05 |

| | |
|-----|------|
| 10 | 0.05 |
| 15 | 0.05 |
| 20 | 0.05 |
| 25 | 0.06 |
| 30 | 0.06 |
| 35 | 0.06 |
| 40 | 0.06 |
| 45 | 0.06 |
| 50 | 0.06 |
| 55 | 0.06 |
| 60 | 0.06 |
| 65 | 0.06 |
| 70 | 0.06 |
| 75 | 0.06 |
| 80 | 0.06 |
| 85 | 0.07 |
| 90 | 0.07 |
| 95 | 0.07 |
| 100 | 0.07 |
| 105 | 0.07 |
| 110 | 0.07 |
| 115 | 0.07 |
| 120 | 0.07 |
| 125 | 0.07 |
| 130 | 0.07 |
| 135 | 0.08 |
| 140 | 0.08 |
| 145 | 0.08 |
| 150 | 0.08 |
| 155 | 0.08 |
| 160 | 0.08 |
| 165 | 0.08 |
| 170 | 0.08 |
| 175 | 0.09 |
| 180 | 0.09 |
| 185 | 0.09 |
| 190 | 0.09 |
| 195 | 0.09 |
| 200 | 0.09 |
| 205 | 0.09 |
| 210 | 0.1 |
| 215 | 0.1 |
| 220 | 0.1 |

| | |
|-----|------|
| 225 | 0.1 |
| 230 | 0.1 |
| 235 | 0.1 |
| 240 | 0.1 |
| 245 | 0.11 |
| 250 | 0.11 |
| 255 | 0.11 |
| 260 | 0.11 |
| 265 | 0.11 |
| 270 | 0.12 |
| 275 | 0.12 |
| 280 | 0.12 |
| 285 | 0.12 |
| 290 | 0.12 |
| 295 | 0.13 |
| 300 | 0.13 |
| 305 | 0.13 |
| 310 | 0.13 |
| 315 | 0.13 |
| 320 | 0.14 |
| 325 | 0.14 |
| 330 | 0.14 |
| 335 | 0.14 |
| 340 | 0.15 |
| 345 | 0.15 |
| 350 | 0.15 |
| 355 | 0.16 |
| 360 | 0.16 |
| 365 | 0.16 |
| 370 | 0.16 |
| 375 | 0.17 |
| 380 | 0.17 |
| 385 | 0.17 |
| 390 | 0.18 |
| 395 | 0.18 |
| 400 | 0.19 |
| 405 | 0.19 |
| 410 | 0.19 |
| 415 | 0.2 |
| 420 | 0.2 |
| 425 | 0.2 |
| 430 | 0.21 |
| 435 | 0.21 |

| | |
|-----|------|
| 440 | 0.22 |
| 445 | 0.22 |
| 450 | 0.23 |
| 455 | 0.23 |
| 460 | 0.24 |
| 465 | 0.24 |
| 470 | 0.25 |
| 475 | 0.25 |
| 480 | 0.26 |
| 485 | 0.26 |
| 490 | 0.27 |
| 495 | 0.27 |
| 500 | 0.28 |
| 505 | 0.29 |
| 510 | 0.29 |
| 515 | 0.3 |
| 520 | 0.31 |
| 525 | 0.31 |
| 530 | 0.32 |
| 535 | 0.33 |
| 540 | 0.34 |
| 545 | 0.35 |
| 550 | 0.35 |
| 555 | 0.36 |
| 560 | 0.37 |
| 565 | 0.38 |
| 570 | 0.39 |
| 575 | 0.4 |
| 580 | 0.41 |
| 585 | 0.42 |
| 590 | 0.43 |
| 595 | 0.44 |
| 600 | 0.45 |
| 605 | 0.47 |
| 610 | 0.48 |
| 615 | 0.49 |
| 620 | 0.5 |
| 625 | 0.52 |
| 630 | 0.53 |
| 635 | 0.55 |
| 640 | 0.56 |
| 645 | 0.58 |
| 650 | 0.6 |

| | |
|-----|------|
| 655 | 0.61 |
| 660 | 0.63 |
| 665 | 0.65 |
| 670 | 0.67 |
| 675 | 0.69 |
| 680 | 0.71 |
| 685 | 0.73 |
| 690 | 0.75 |
| 695 | 0.78 |
| 700 | 0.8 |
| 705 | 0.83 |
| 710 | 0.85 |
| 715 | 0.88 |
| 720 | 0.91 |
| 725 | 0.94 |
| 730 | 0.97 |
| 735 | 1 |
| 740 | 1.04 |
| 745 | 1.07 |
| 750 | 1.11 |
| 755 | 1.15 |
| 760 | 1.19 |
| 765 | 1.23 |
| 770 | 1.28 |
| 775 | 1.32 |
| 780 | 1.37 |
| 785 | 1.42 |
| 790 | 1.48 |
| 795 | 1.53 |
| 800 | 1.59 |
| 805 | 1.66 |
| 810 | 1.72 |
| 815 | 1.79 |
| 820 | 1.87 |
| 825 | 1.95 |
| 830 | 2.03 |
| 835 | 2.11 |
| 840 | 2.21 |
| 845 | 2.3 |
| 850 | 2.41 |
| 855 | 2.52 |
| 860 | 2.63 |
| 865 | 2.76 |

| | |
|------|-------|
| 870 | 2.89 |
| 875 | 3.03 |
| 880 | 3.18 |
| 885 | 3.34 |
| 890 | 3.52 |
| 895 | 3.7 |
| 900 | 3.9 |
| 905 | 4.11 |
| 910 | 4.34 |
| 915 | 4.59 |
| 920 | 4.86 |
| 925 | 5.15 |
| 930 | 5.46 |
| 935 | 5.8 |
| 940 | 6.18 |
| 945 | 6.59 |
| 950 | 7.04 |
| 955 | 7.54 |
| 960 | 8.09 |
| 965 | 8.7 |
| 970 | 9.39 |
| 975 | 10.16 |
| 980 | 11.02 |
| 985 | 12 |
| 990 | 13.12 |
| 995 | 14.4 |
| 1000 | 15.87 |
| 1005 | 17.58 |
| 1010 | 19.57 |
| 1015 | 21.88 |
| 1020 | 24.56 |
| 1025 | 27.63 |
| 1030 | 31.06 |
| 1035 | 34.66 |
| 1040 | 38.02 |
| 1045 | 40.36 |
| 1050 | 40.73 |
| 1055 | 38.77 |
| 1060 | 35.54 |
| 1065 | 33.43 |
| 1070 | 34.73 |
| 1075 | 39.99 |
| 1080 | 48.62 |

| | |
|------|--------|
| 1085 | 60.36 |
| 1090 | 75.87 |
| 1095 | 96.69 |
| 1100 | 125.13 |
| 1105 | 163.73 |
| 1110 | 212.87 |
| 1115 | 265.73 |
| 1120 | 308.15 |
| 1125 | 332.31 |
| 1130 | 341.6 |
| 1135 | 339.18 |
| 1140 | 323.46 |
| 1145 | 289.52 |
| 1150 | 239.61 |
| 1155 | 187.51 |
| 1160 | 144.17 |
| 1165 | 111.72 |
| 1170 | 88.15 |
| 1175 | 70.98 |
| 1180 | 58.25 |
| 1185 | 48.63 |
| 1190 | 41.21 |
| 1195 | 35.38 |
| 1200 | 30.72 |
| 1205 | 26.93 |
| 1210 | 23.82 |
| 1215 | 21.22 |
| 1220 | 19.03 |
| 1225 | 17.17 |
| 1230 | 15.58 |
| 1235 | 14.2 |
| 1240 | 13 |
| 1245 | 11.94 |
| 1250 | 11.01 |
| 1255 | 10.19 |
| 1260 | 9.45 |
| 1265 | 8.79 |
| 1270 | 8.2 |
| 1275 | 7.66 |
| 1280 | 7.18 |
| 1285 | 6.73 |
| 1290 | 6.33 |
| 1295 | 5.96 |

| | |
|------|------|
| 1300 | 5.62 |
| 1305 | 5.31 |
| 1310 | 5.02 |
| 1315 | 4.75 |
| 1320 | 4.5 |
| 1325 | 4.27 |
| 1330 | 4.06 |
| 1335 | 3.86 |
| 1340 | 3.67 |
| 1345 | 3.5 |
| 1350 | 3.34 |
| 1355 | 3.18 |
| 1360 | 3.04 |
| 1365 | 2.91 |
| 1370 | 2.78 |
| 1375 | 2.66 |
| 1380 | 2.55 |
| 1385 | 2.44 |
| 1390 | 2.34 |
| 1395 | 2.24 |
| 1400 | 2.15 |
| 1405 | 2.07 |
| 1410 | 1.99 |
| 1415 | 1.91 |
| 1420 | 1.84 |
| 1425 | 1.77 |
| 1430 | 1.7 |
| 1435 | 1.64 |
| 1440 | 1.58 |
| 1445 | 1.52 |
| 1450 | 1.47 |
| 1455 | 1.41 |
| 1460 | 1.36 |
| 1465 | 1.32 |
| 1470 | 1.27 |
| 1475 | 1.23 |
| 1480 | 1.19 |
| 1485 | 1.15 |
| 1490 | 1.11 |
| 1495 | 1.07 |
| 1500 | 1.04 |
| 1505 | 1.01 |
| 1510 | 0.97 |

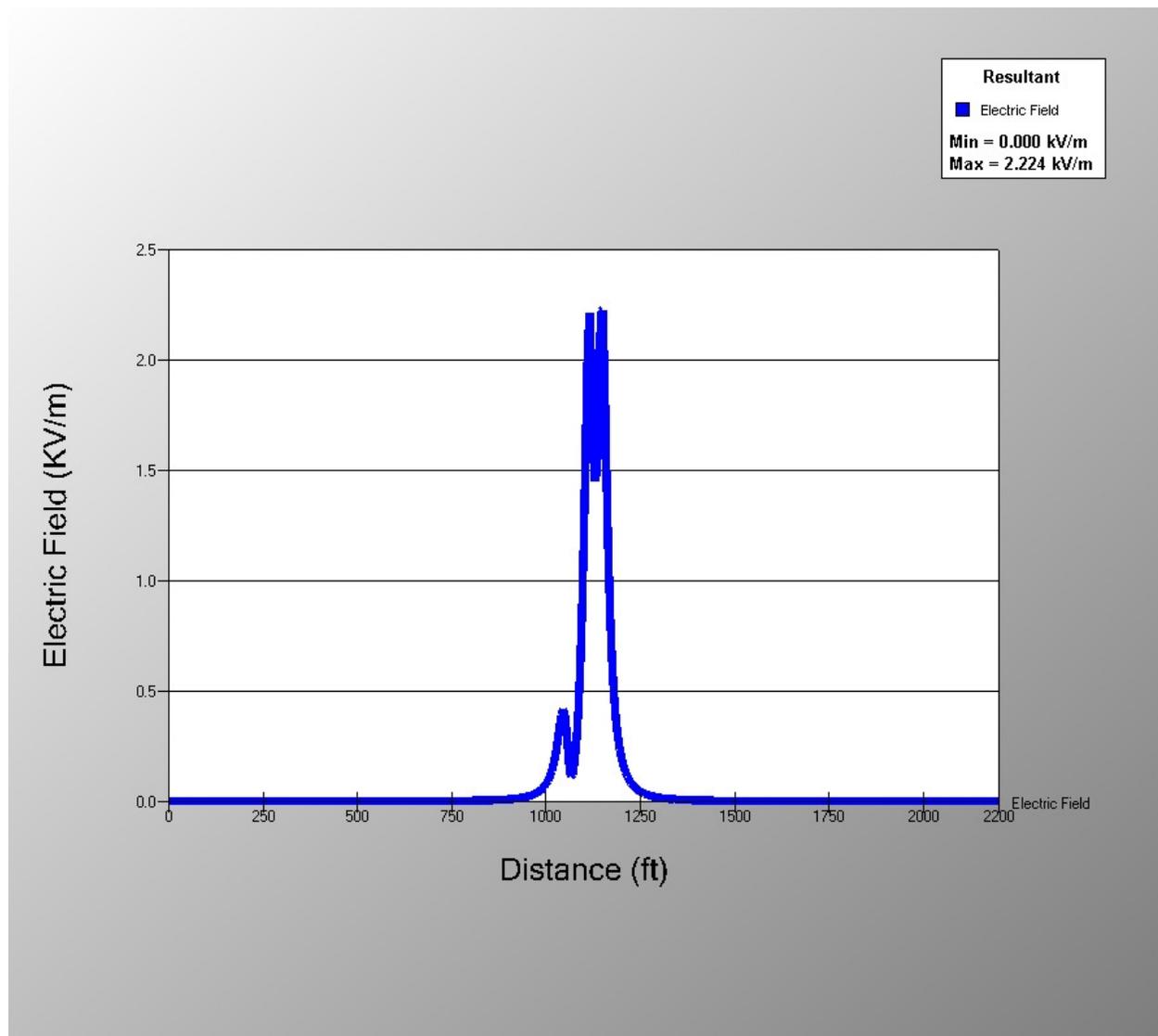
| | |
|------|------|
| 1515 | 0.94 |
| 1520 | 0.91 |
| 1525 | 0.89 |
| 1530 | 0.86 |
| 1535 | 0.83 |
| 1540 | 0.81 |
| 1545 | 0.78 |
| 1550 | 0.76 |
| 1555 | 0.74 |
| 1560 | 0.72 |
| 1565 | 0.7 |
| 1570 | 0.68 |
| 1575 | 0.66 |
| 1580 | 0.64 |
| 1585 | 0.62 |
| 1590 | 0.6 |
| 1595 | 0.59 |
| 1600 | 0.57 |
| 1605 | 0.56 |
| 1610 | 0.54 |
| 1615 | 0.53 |
| 1620 | 0.51 |
| 1625 | 0.5 |
| 1630 | 0.49 |
| 1635 | 0.47 |
| 1640 | 0.46 |
| 1645 | 0.45 |
| 1650 | 0.44 |
| 1655 | 0.43 |
| 1660 | 0.42 |
| 1665 | 0.41 |
| 1670 | 0.4 |
| 1675 | 0.39 |
| 1680 | 0.38 |
| 1685 | 0.37 |
| 1690 | 0.36 |
| 1695 | 0.35 |
| 1700 | 0.34 |
| 1705 | 0.34 |
| 1710 | 0.33 |
| 1715 | 0.32 |
| 1720 | 0.31 |
| 1725 | 0.31 |

| | |
|------|------|
| 1730 | 0.3 |
| 1735 | 0.29 |
| 1740 | 0.29 |
| 1745 | 0.28 |
| 1750 | 0.27 |
| 1755 | 0.27 |
| 1760 | 0.26 |
| 1765 | 0.26 |
| 1770 | 0.25 |
| 1775 | 0.25 |
| 1780 | 0.24 |
| 1785 | 0.24 |
| 1790 | 0.23 |
| 1795 | 0.23 |
| 1800 | 0.22 |
| 1805 | 0.22 |
| 1810 | 0.21 |
| 1815 | 0.21 |
| 1820 | 0.2 |
| 1825 | 0.2 |
| 1830 | 0.2 |
| 1835 | 0.19 |
| 1840 | 0.19 |
| 1845 | 0.19 |
| 1850 | 0.18 |
| 1855 | 0.18 |
| 1860 | 0.17 |
| 1865 | 0.17 |
| 1870 | 0.17 |
| 1875 | 0.16 |
| 1880 | 0.16 |
| 1885 | 0.16 |
| 1890 | 0.16 |
| 1895 | 0.15 |
| 1900 | 0.15 |
| 1905 | 0.15 |
| 1910 | 0.15 |
| 1915 | 0.14 |
| 1920 | 0.14 |
| 1925 | 0.14 |
| 1930 | 0.14 |
| 1935 | 0.13 |
| 1940 | 0.13 |

| | |
|------|------|
| 1945 | 0.13 |
| 1950 | 0.13 |
| 1955 | 0.12 |
| 1960 | 0.12 |
| 1965 | 0.12 |
| 1970 | 0.12 |
| 1975 | 0.12 |
| 1980 | 0.11 |
| 1985 | 0.11 |
| 1990 | 0.11 |
| 1995 | 0.11 |
| 2000 | 0.11 |
| 2005 | 0.1 |
| 2010 | 0.1 |
| 2015 | 0.1 |
| 2020 | 0.1 |
| 2025 | 0.1 |
| 2030 | 0.1 |
| 2035 | 0.1 |
| 2040 | 0.09 |
| 2045 | 0.09 |
| 2050 | 0.09 |
| 2055 | 0.09 |
| 2060 | 0.09 |
| 2065 | 0.09 |
| 2070 | 0.09 |
| 2075 | 0.08 |
| 2080 | 0.08 |
| 2085 | 0.08 |
| 2090 | 0.08 |
| 2095 | 0.08 |
| 2100 | 0.08 |
| 2105 | 0.08 |
| 2110 | 0.08 |
| 2115 | 0.07 |
| 2120 | 0.07 |
| 2125 | 0.07 |
| 2130 | 0.07 |
| 2135 | 0.07 |
| 2140 | 0.07 |
| 2145 | 0.07 |
| 2150 | 0.07 |
| 2155 | 0.07 |

| | |
|------|------|
| 2160 | 0.07 |
| 2165 | 0.06 |
| 2170 | 0.06 |
| 2175 | 0.06 |
| 2180 | 0.06 |
| 2185 | 0.06 |
| 2190 | 0.06 |
| 2195 | 0.06 |
| 2200 | 0.06 |

E-FIELD



| (ft) | (KV/m) |
|------|--------|
| 0 | 0 |
| 5 | 0 |
| 10 | 0 |
| 15 | 0 |
| 20 | 0 |
| 25 | 0 |
| 30 | 0 |
| 35 | 0 |
| 40 | 0 |
| 45 | 0 |
| 50 | 0 |
| 55 | 0 |
| 60 | 0 |
| 65 | 0 |
| 70 | 0 |
| 75 | 0 |
| 80 | 0 |
| 85 | 0 |
| 90 | 0 |
| 95 | 0 |
| 100 | 0 |
| 105 | 0 |
| 110 | 0 |
| 115 | 0 |
| 120 | 0 |
| 125 | 0 |
| 130 | 0 |
| 135 | 0 |
| 140 | 0 |
| 145 | 0 |
| 150 | 0 |
| 155 | 0 |
| 160 | 0 |
| 165 | 0 |
| 170 | 0 |
| 175 | 0 |
| 180 | 0 |
| 185 | 0 |
| 190 | 0 |
| 195 | 0 |
| 200 | 0 |
| 205 | 0 |

| | |
|-----|---|
| 210 | 0 |
| 215 | 0 |
| 220 | 0 |
| 225 | 0 |
| 230 | 0 |
| 235 | 0 |
| 240 | 0 |
| 245 | 0 |
| 250 | 0 |
| 255 | 0 |
| 260 | 0 |
| 265 | 0 |
| 270 | 0 |
| 275 | 0 |
| 280 | 0 |
| 285 | 0 |
| 290 | 0 |
| 295 | 0 |
| 300 | 0 |
| 305 | 0 |
| 310 | 0 |
| 315 | 0 |
| 320 | 0 |
| 325 | 0 |
| 330 | 0 |
| 335 | 0 |
| 340 | 0 |
| 345 | 0 |
| 350 | 0 |
| 355 | 0 |
| 360 | 0 |
| 365 | 0 |
| 370 | 0 |
| 375 | 0 |
| 380 | 0 |
| 385 | 0 |
| 390 | 0 |
| 395 | 0 |
| 400 | 0 |
| 405 | 0 |
| 410 | 0 |
| 415 | 0 |
| 420 | 0 |

| | |
|-----|---|
| 425 | 0 |
| 430 | 0 |
| 435 | 0 |
| 440 | 0 |
| 445 | 0 |
| 450 | 0 |
| 455 | 0 |
| 460 | 0 |
| 465 | 0 |
| 470 | 0 |
| 475 | 0 |
| 480 | 0 |
| 485 | 0 |
| 490 | 0 |
| 495 | 0 |
| 500 | 0 |
| 505 | 0 |
| 510 | 0 |
| 515 | 0 |
| 520 | 0 |
| 525 | 0 |
| 530 | 0 |
| 535 | 0 |
| 540 | 0 |
| 545 | 0 |
| 550 | 0 |
| 555 | 0 |
| 560 | 0 |
| 565 | 0 |
| 570 | 0 |
| 575 | 0 |
| 580 | 0 |
| 585 | 0 |
| 590 | 0 |
| 595 | 0 |
| 600 | 0 |
| 605 | 0 |
| 610 | 0 |
| 615 | 0 |
| 620 | 0 |
| 625 | 0 |
| 630 | 0 |
| 635 | 0 |

| | |
|-----|---|
| 640 | 0 |
| 645 | 0 |
| 650 | 0 |
| 655 | 0 |
| 660 | 0 |
| 665 | 0 |
| 670 | 0 |
| 675 | 0 |
| 680 | 0 |
| 685 | 0 |
| 690 | 0 |
| 695 | 0 |
| 700 | 0 |
| 705 | 0 |
| 710 | 0 |
| 715 | 0 |
| 720 | 0 |
| 725 | 0 |
| 730 | 0 |
| 735 | 0 |
| 740 | 0 |
| 745 | 0 |
| 750 | 0 |
| 755 | 0 |
| 760 | 0 |
| 765 | 0 |
| 770 | 0 |
| 775 | 0 |
| 780 | 0 |
| 785 | 0 |
| 790 | 0 |
| 795 | 0 |
| 800 | 0 |
| 805 | 0 |
| 810 | 0 |
| 815 | 0 |
| 820 | 0 |
| 825 | 0 |
| 830 | 0 |
| 835 | 0 |
| 840 | 0 |
| 845 | 0 |
| 850 | 0 |

| | |
|------|------|
| 855 | 0 |
| 860 | 0.01 |
| 865 | 0.01 |
| 870 | 0.01 |
| 875 | 0.01 |
| 880 | 0.01 |
| 885 | 0.01 |
| 890 | 0.01 |
| 895 | 0.01 |
| 900 | 0.01 |
| 905 | 0.01 |
| 910 | 0.01 |
| 915 | 0.01 |
| 920 | 0.01 |
| 925 | 0.01 |
| 930 | 0.01 |
| 935 | 0.02 |
| 940 | 0.02 |
| 945 | 0.02 |
| 950 | 0.02 |
| 955 | 0.02 |
| 960 | 0.03 |
| 965 | 0.03 |
| 970 | 0.03 |
| 975 | 0.04 |
| 980 | 0.04 |
| 985 | 0.05 |
| 990 | 0.06 |
| 995 | 0.07 |
| 1000 | 0.08 |
| 1005 | 0.09 |
| 1010 | 0.11 |
| 1015 | 0.14 |
| 1020 | 0.17 |
| 1025 | 0.21 |
| 1030 | 0.27 |
| 1035 | 0.33 |
| 1040 | 0.39 |
| 1045 | 0.42 |
| 1050 | 0.39 |
| 1055 | 0.3 |
| 1060 | 0.18 |
| 1065 | 0.11 |

| | |
|------|------|
| 1070 | 0.12 |
| 1075 | 0.18 |
| 1080 | 0.27 |
| 1085 | 0.4 |
| 1090 | 0.59 |
| 1095 | 0.86 |
| 1100 | 1.21 |
| 1105 | 1.64 |
| 1110 | 2.05 |
| 1115 | 2.21 |
| 1120 | 1.96 |
| 1125 | 1.57 |
| 1130 | 1.45 |
| 1135 | 1.51 |
| 1140 | 1.84 |
| 1145 | 2.22 |
| 1150 | 2.22 |
| 1155 | 1.89 |
| 1160 | 1.47 |
| 1165 | 1.1 |
| 1170 | 0.82 |
| 1175 | 0.62 |
| 1180 | 0.47 |
| 1185 | 0.37 |
| 1190 | 0.29 |
| 1195 | 0.24 |
| 1200 | 0.19 |
| 1205 | 0.16 |
| 1210 | 0.13 |
| 1215 | 0.11 |
| 1220 | 0.1 |
| 1225 | 0.08 |
| 1230 | 0.07 |
| 1235 | 0.06 |
| 1240 | 0.05 |
| 1245 | 0.05 |
| 1250 | 0.04 |
| 1255 | 0.04 |
| 1260 | 0.03 |
| 1265 | 0.03 |
| 1270 | 0.03 |
| 1275 | 0.03 |
| 1280 | 0.02 |

| | |
|------|------|
| 1285 | 0.02 |
| 1290 | 0.02 |
| 1295 | 0.02 |
| 1300 | 0.02 |
| 1305 | 0.01 |
| 1310 | 0.01 |
| 1315 | 0.01 |
| 1320 | 0.01 |
| 1325 | 0.01 |
| 1330 | 0.01 |
| 1335 | 0.01 |
| 1340 | 0.01 |
| 1345 | 0.01 |
| 1350 | 0.01 |
| 1355 | 0.01 |
| 1360 | 0.01 |
| 1365 | 0.01 |
| 1370 | 0.01 |
| 1375 | 0.01 |
| 1380 | 0.01 |
| 1385 | 0 |
| 1390 | 0 |
| 1395 | 0 |
| 1400 | 0 |
| 1405 | 0 |
| 1410 | 0 |
| 1415 | 0 |
| 1420 | 0 |
| 1425 | 0 |
| 1430 | 0 |
| 1435 | 0 |
| 1440 | 0 |
| 1445 | 0 |
| 1450 | 0 |
| 1455 | 0 |
| 1460 | 0 |
| 1465 | 0 |
| 1470 | 0 |
| 1475 | 0 |
| 1480 | 0 |
| 1485 | 0 |
| 1490 | 0 |
| 1495 | 0 |

| | |
|------|---|
| 1500 | 0 |
| 1505 | 0 |
| 1510 | 0 |
| 1515 | 0 |
| 1520 | 0 |
| 1525 | 0 |
| 1530 | 0 |
| 1535 | 0 |
| 1540 | 0 |
| 1545 | 0 |
| 1550 | 0 |
| 1555 | 0 |
| 1560 | 0 |
| 1565 | 0 |
| 1570 | 0 |
| 1575 | 0 |
| 1580 | 0 |
| 1585 | 0 |
| 1590 | 0 |
| 1595 | 0 |
| 1600 | 0 |
| 1605 | 0 |
| 1610 | 0 |
| 1615 | 0 |
| 1620 | 0 |
| 1625 | 0 |
| 1630 | 0 |
| 1635 | 0 |
| 1640 | 0 |
| 1645 | 0 |
| 1650 | 0 |
| 1655 | 0 |
| 1660 | 0 |
| 1665 | 0 |
| 1670 | 0 |
| 1675 | 0 |
| 1680 | 0 |
| 1685 | 0 |
| 1690 | 0 |
| 1695 | 0 |
| 1700 | 0 |
| 1705 | 0 |
| 1710 | 0 |

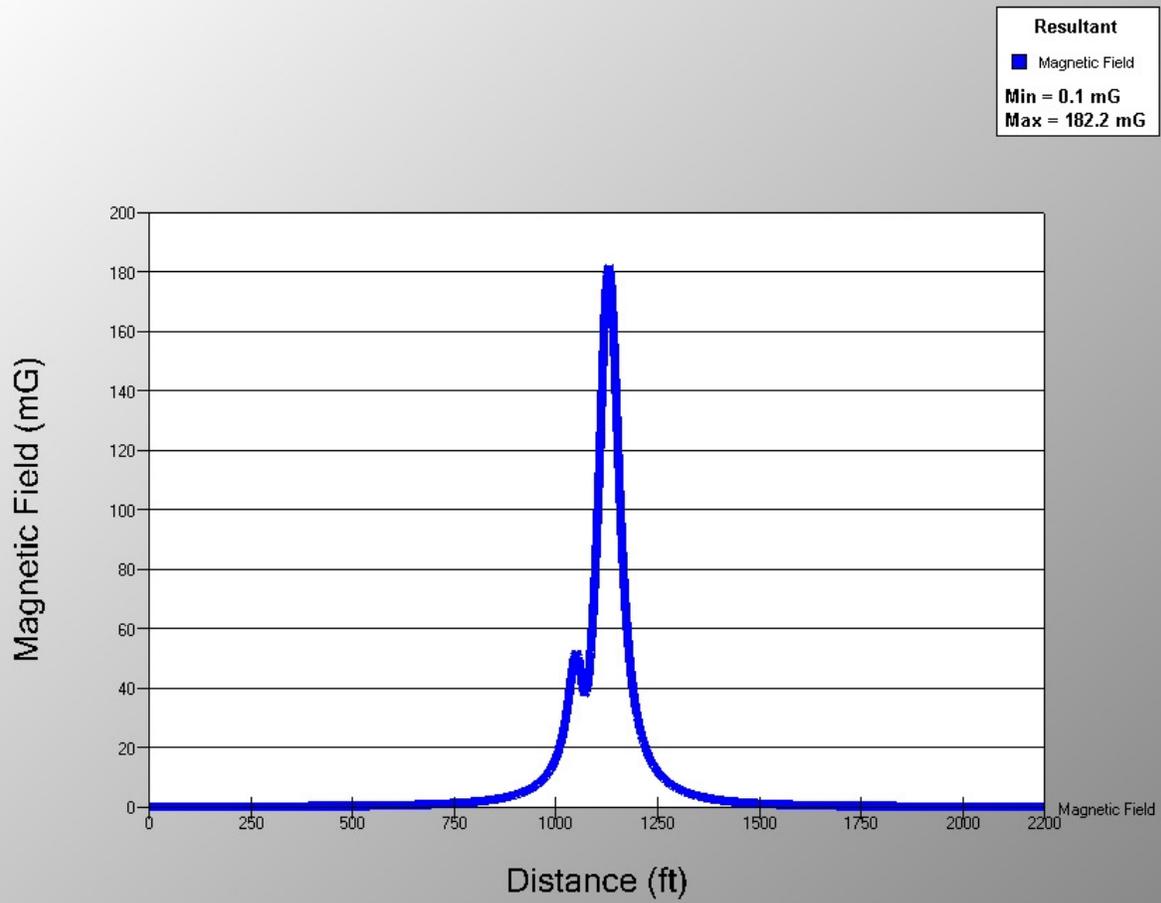
| | |
|------|---|
| 1715 | 0 |
| 1720 | 0 |
| 1725 | 0 |
| 1730 | 0 |
| 1735 | 0 |
| 1740 | 0 |
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| 1750 | 0 |
| 1755 | 0 |
| 1760 | 0 |
| 1765 | 0 |
| 1770 | 0 |
| 1775 | 0 |
| 1780 | 0 |
| 1785 | 0 |
| 1790 | 0 |
| 1795 | 0 |
| 1800 | 0 |
| 1805 | 0 |
| 1810 | 0 |
| 1815 | 0 |
| 1820 | 0 |
| 1825 | 0 |
| 1830 | 0 |
| 1835 | 0 |
| 1840 | 0 |
| 1845 | 0 |
| 1850 | 0 |
| 1855 | 0 |
| 1860 | 0 |
| 1865 | 0 |
| 1870 | 0 |
| 1875 | 0 |
| 1880 | 0 |
| 1885 | 0 |
| 1890 | 0 |
| 1895 | 0 |
| 1900 | 0 |
| 1905 | 0 |
| 1910 | 0 |
| 1915 | 0 |
| 1920 | 0 |
| 1925 | 0 |

| | |
|------|---|
| 1930 | 0 |
| 1935 | 0 |
| 1940 | 0 |
| 1945 | 0 |
| 1950 | 0 |
| 1955 | 0 |
| 1960 | 0 |
| 1965 | 0 |
| 1970 | 0 |
| 1975 | 0 |
| 1980 | 0 |
| 1985 | 0 |
| 1990 | 0 |
| 1995 | 0 |
| 2000 | 0 |
| 2005 | 0 |
| 2010 | 0 |
| 2015 | 0 |
| 2020 | 0 |
| 2025 | 0 |
| 2030 | 0 |
| 2035 | 0 |
| 2040 | 0 |
| 2045 | 0 |
| 2050 | 0 |
| 2055 | 0 |
| 2060 | 0 |
| 2065 | 0 |
| 2070 | 0 |
| 2075 | 0 |
| 2080 | 0 |
| 2085 | 0 |
| 2090 | 0 |
| 2095 | 0 |
| 2100 | 0 |
| 2105 | 0 |
| 2110 | 0 |
| 2115 | 0 |
| 2120 | 0 |
| 2125 | 0 |
| 2130 | 0 |
| 2135 | 0 |
| 2140 | 0 |

| | |
|------|---|
| 2145 | 0 |
| 2150 | 0 |
| 2155 | 0 |
| 2160 | 0 |
| 2165 | 0 |
| 2170 | 0 |
| 2175 | 0 |
| 2180 | 0 |
| 2185 | 0 |
| 2190 | 0 |
| 2195 | 0 |
| 2200 | 0 |

PROPOSED A&C AND G LINES

MAG FIELD



| (ft) | (mG) |
|------|------|
| 0 | 0.06 |
| 5 | 0.06 |
| 10 | 0.06 |
| 15 | 0.06 |
| 20 | 0.07 |
| 25 | 0.07 |
| 30 | 0.07 |
| 35 | 0.07 |
| 40 | 0.07 |
| 45 | 0.07 |
| 50 | 0.07 |

| | |
|-----|------|
| 55 | 0.07 |
| 60 | 0.07 |
| 65 | 0.07 |
| 70 | 0.08 |
| 75 | 0.08 |
| 80 | 0.08 |
| 85 | 0.08 |
| 90 | 0.08 |
| 95 | 0.08 |
| 100 | 0.08 |
| 105 | 0.08 |
| 110 | 0.08 |
| 115 | 0.09 |
| 120 | 0.09 |
| 125 | 0.09 |
| 130 | 0.09 |
| 135 | 0.09 |
| 140 | 0.09 |
| 145 | 0.09 |
| 150 | 0.09 |
| 155 | 0.1 |
| 160 | 0.1 |
| 165 | 0.1 |
| 170 | 0.1 |
| 175 | 0.1 |
| 180 | 0.1 |
| 185 | 0.1 |
| 190 | 0.11 |
| 195 | 0.11 |
| 200 | 0.11 |
| 205 | 0.11 |
| 210 | 0.11 |
| 215 | 0.12 |
| 220 | 0.12 |
| 225 | 0.12 |
| 230 | 0.12 |
| 235 | 0.12 |
| 240 | 0.12 |
| 245 | 0.13 |
| 250 | 0.13 |
| 255 | 0.13 |
| 260 | 0.13 |
| 265 | 0.14 |

| | |
|-----|------|
| 270 | 0.14 |
| 275 | 0.14 |
| 280 | 0.14 |
| 285 | 0.14 |
| 290 | 0.15 |
| 295 | 0.15 |
| 300 | 0.15 |
| 305 | 0.15 |
| 310 | 0.16 |
| 315 | 0.16 |
| 320 | 0.16 |
| 325 | 0.17 |
| 330 | 0.17 |
| 335 | 0.17 |
| 340 | 0.17 |
| 345 | 0.18 |
| 350 | 0.18 |
| 355 | 0.18 |
| 360 | 0.19 |
| 365 | 0.19 |
| 370 | 0.19 |
| 375 | 0.2 |
| 380 | 0.2 |
| 385 | 0.21 |
| 390 | 0.21 |
| 395 | 0.21 |
| 400 | 0.22 |
| 405 | 0.22 |
| 410 | 0.23 |
| 415 | 0.23 |
| 420 | 0.24 |
| 425 | 0.24 |
| 430 | 0.25 |
| 435 | 0.25 |
| 440 | 0.26 |
| 445 | 0.26 |
| 450 | 0.27 |
| 455 | 0.27 |
| 460 | 0.28 |
| 465 | 0.28 |
| 470 | 0.29 |
| 475 | 0.29 |
| 480 | 0.3 |

| | |
|-----|------|
| 485 | 0.31 |
| 490 | 0.31 |
| 495 | 0.32 |
| 500 | 0.33 |
| 505 | 0.33 |
| 510 | 0.34 |
| 515 | 0.35 |
| 520 | 0.36 |
| 525 | 0.37 |
| 530 | 0.37 |
| 535 | 0.38 |
| 540 | 0.39 |
| 545 | 0.4 |
| 550 | 0.41 |
| 555 | 0.42 |
| 560 | 0.43 |
| 565 | 0.44 |
| 570 | 0.45 |
| 575 | 0.46 |
| 580 | 0.47 |
| 585 | 0.48 |
| 590 | 0.5 |
| 595 | 0.51 |
| 600 | 0.52 |
| 605 | 0.53 |
| 610 | 0.55 |
| 615 | 0.56 |
| 620 | 0.58 |
| 625 | 0.59 |
| 630 | 0.61 |
| 635 | 0.62 |
| 640 | 0.64 |
| 645 | 0.66 |
| 650 | 0.68 |
| 655 | 0.7 |
| 660 | 0.71 |
| 665 | 0.73 |
| 670 | 0.76 |
| 675 | 0.78 |
| 680 | 0.8 |
| 685 | 0.82 |
| 690 | 0.85 |
| 695 | 0.87 |

| | |
|-----|------|
| 700 | 0.9 |
| 705 | 0.93 |
| 710 | 0.95 |
| 715 | 0.98 |
| 720 | 1.01 |
| 725 | 1.05 |
| 730 | 1.08 |
| 735 | 1.11 |
| 740 | 1.15 |
| 745 | 1.19 |
| 750 | 1.23 |
| 755 | 1.27 |
| 760 | 1.31 |
| 765 | 1.36 |
| 770 | 1.4 |
| 775 | 1.45 |
| 780 | 1.5 |
| 785 | 1.56 |
| 790 | 1.61 |
| 795 | 1.67 |
| 800 | 1.73 |
| 805 | 1.8 |
| 810 | 1.87 |
| 815 | 1.94 |
| 820 | 2.02 |
| 825 | 2.1 |
| 830 | 2.18 |
| 835 | 2.27 |
| 840 | 2.37 |
| 845 | 2.47 |
| 850 | 2.57 |
| 855 | 2.68 |
| 860 | 2.8 |
| 865 | 2.93 |
| 870 | 3.06 |
| 875 | 3.2 |
| 880 | 3.35 |
| 885 | 3.52 |
| 890 | 3.69 |
| 895 | 3.88 |
| 900 | 4.07 |
| 905 | 4.29 |
| 910 | 4.52 |

| | |
|------|--------|
| 915 | 4.77 |
| 920 | 5.04 |
| 925 | 5.33 |
| 930 | 5.64 |
| 935 | 5.99 |
| 940 | 6.36 |
| 945 | 6.78 |
| 950 | 7.23 |
| 955 | 7.74 |
| 960 | 8.3 |
| 965 | 8.92 |
| 970 | 9.62 |
| 975 | 10.41 |
| 980 | 11.3 |
| 985 | 12.33 |
| 990 | 13.51 |
| 995 | 14.89 |
| 1000 | 16.5 |
| 1005 | 18.41 |
| 1010 | 20.69 |
| 1015 | 23.44 |
| 1020 | 26.76 |
| 1025 | 30.77 |
| 1030 | 35.51 |
| 1035 | 40.86 |
| 1040 | 46.3 |
| 1045 | 50.66 |
| 1050 | 52.37 |
| 1055 | 50.45 |
| 1060 | 45.65 |
| 1065 | 40.37 |
| 1070 | 37.45 |
| 1075 | 38.66 |
| 1080 | 43.86 |
| 1085 | 52.11 |
| 1090 | 62.78 |
| 1095 | 75.77 |
| 1100 | 91.19 |
| 1105 | 109.07 |
| 1110 | 128.88 |
| 1115 | 149.1 |
| 1120 | 166.91 |
| 1125 | 178.83 |

| | |
|------|--------|
| 1130 | 182.24 |
| 1135 | 176.74 |
| 1140 | 164.05 |
| 1145 | 146.96 |
| 1150 | 128.32 |
| 1155 | 110.28 |
| 1160 | 94.06 |
| 1165 | 80.11 |
| 1170 | 68.41 |
| 1175 | 58.71 |
| 1180 | 50.7 |
| 1185 | 44.09 |
| 1190 | 38.6 |
| 1195 | 34.02 |
| 1200 | 30.17 |
| 1205 | 26.91 |
| 1210 | 24.14 |
| 1215 | 21.77 |
| 1220 | 19.72 |
| 1225 | 17.94 |
| 1230 | 16.38 |
| 1235 | 15.02 |
| 1240 | 13.81 |
| 1245 | 12.74 |
| 1250 | 11.79 |
| 1255 | 10.94 |
| 1260 | 10.17 |
| 1265 | 9.48 |
| 1270 | 8.86 |
| 1275 | 8.29 |
| 1280 | 7.77 |
| 1285 | 7.3 |
| 1290 | 6.87 |
| 1295 | 6.47 |
| 1300 | 6.1 |
| 1305 | 5.76 |
| 1310 | 5.45 |
| 1315 | 5.16 |
| 1320 | 4.89 |
| 1325 | 4.64 |
| 1330 | 4.41 |
| 1335 | 4.19 |
| 1340 | 3.99 |

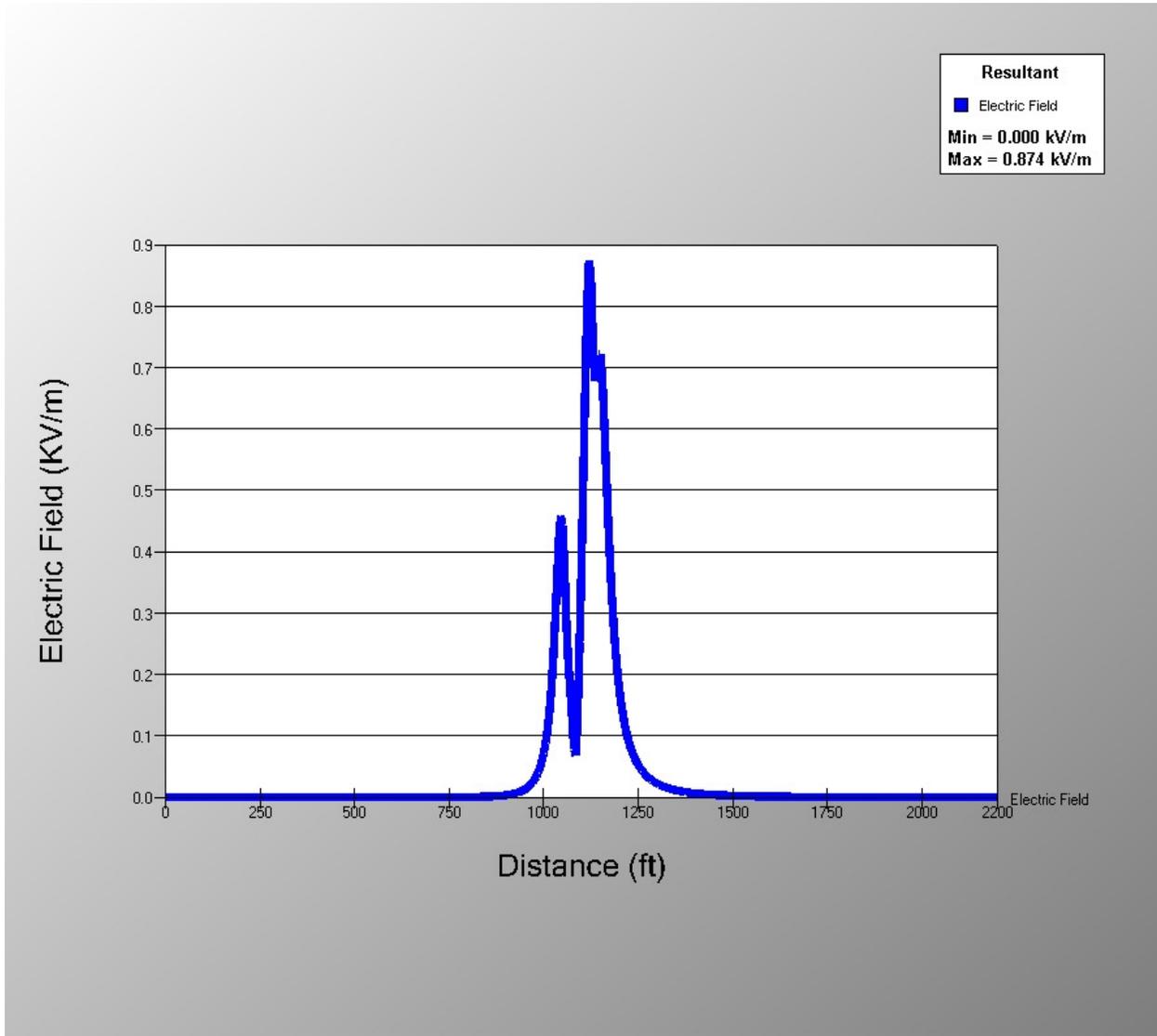
| | |
|------|------|
| 1345 | 3.8 |
| 1350 | 3.62 |
| 1355 | 3.46 |
| 1360 | 3.3 |
| 1365 | 3.15 |
| 1370 | 3.02 |
| 1375 | 2.89 |
| 1380 | 2.76 |
| 1385 | 2.65 |
| 1390 | 2.54 |
| 1395 | 2.43 |
| 1400 | 2.33 |
| 1405 | 2.24 |
| 1410 | 2.15 |
| 1415 | 2.07 |
| 1420 | 1.99 |
| 1425 | 1.91 |
| 1430 | 1.84 |
| 1435 | 1.77 |
| 1440 | 1.71 |
| 1445 | 1.65 |
| 1450 | 1.59 |
| 1455 | 1.53 |
| 1460 | 1.48 |
| 1465 | 1.43 |
| 1470 | 1.38 |
| 1475 | 1.33 |
| 1480 | 1.29 |
| 1485 | 1.24 |
| 1490 | 1.2 |
| 1495 | 1.16 |
| 1500 | 1.13 |
| 1505 | 1.09 |
| 1510 | 1.06 |
| 1515 | 1.02 |
| 1520 | 0.99 |
| 1525 | 0.96 |
| 1530 | 0.93 |
| 1535 | 0.9 |
| 1540 | 0.88 |
| 1545 | 0.85 |
| 1550 | 0.83 |
| 1555 | 0.8 |

| | |
|------|------|
| 1560 | 0.78 |
| 1565 | 0.76 |
| 1570 | 0.74 |
| 1575 | 0.71 |
| 1580 | 0.69 |
| 1585 | 0.68 |
| 1590 | 0.66 |
| 1595 | 0.64 |
| 1600 | 0.62 |
| 1605 | 0.61 |
| 1610 | 0.59 |
| 1615 | 0.57 |
| 1620 | 0.56 |
| 1625 | 0.55 |
| 1630 | 0.53 |
| 1635 | 0.52 |
| 1640 | 0.5 |
| 1645 | 0.49 |
| 1650 | 0.48 |
| 1655 | 0.47 |
| 1660 | 0.46 |
| 1665 | 0.45 |
| 1670 | 0.43 |
| 1675 | 0.42 |
| 1680 | 0.41 |
| 1685 | 0.4 |
| 1690 | 0.4 |
| 1695 | 0.39 |
| 1700 | 0.38 |
| 1705 | 0.37 |
| 1710 | 0.36 |
| 1715 | 0.35 |
| 1720 | 0.34 |
| 1725 | 0.34 |
| 1730 | 0.33 |
| 1735 | 0.32 |
| 1740 | 0.32 |
| 1745 | 0.31 |
| 1750 | 0.3 |
| 1755 | 0.3 |
| 1760 | 0.29 |
| 1765 | 0.28 |
| 1770 | 0.28 |

| | |
|------|------|
| 1775 | 0.27 |
| 1780 | 0.27 |
| 1785 | 0.26 |
| 1790 | 0.26 |
| 1795 | 0.25 |
| 1800 | 0.24 |
| 1805 | 0.24 |
| 1810 | 0.24 |
| 1815 | 0.23 |
| 1820 | 0.23 |
| 1825 | 0.22 |
| 1830 | 0.22 |
| 1835 | 0.21 |
| 1840 | 0.21 |
| 1845 | 0.21 |
| 1850 | 0.2 |
| 1855 | 0.2 |
| 1860 | 0.19 |
| 1865 | 0.19 |
| 1870 | 0.19 |
| 1875 | 0.18 |
| 1880 | 0.18 |
| 1885 | 0.18 |
| 1890 | 0.17 |
| 1895 | 0.17 |
| 1900 | 0.17 |
| 1905 | 0.16 |
| 1910 | 0.16 |
| 1915 | 0.16 |
| 1920 | 0.16 |
| 1925 | 0.15 |
| 1930 | 0.15 |
| 1935 | 0.15 |
| 1940 | 0.15 |
| 1945 | 0.14 |
| 1950 | 0.14 |
| 1955 | 0.14 |
| 1960 | 0.14 |
| 1965 | 0.13 |
| 1970 | 0.13 |
| 1975 | 0.13 |
| 1980 | 0.13 |
| 1985 | 0.13 |

| | |
|------|------|
| 1990 | 0.12 |
| 1995 | 0.12 |
| 2000 | 0.12 |
| 2005 | 0.12 |
| 2010 | 0.12 |
| 2015 | 0.11 |
| 2020 | 0.11 |
| 2025 | 0.11 |
| 2030 | 0.11 |
| 2035 | 0.11 |
| 2040 | 0.11 |
| 2045 | 0.1 |
| 2050 | 0.1 |
| 2055 | 0.1 |
| 2060 | 0.1 |
| 2065 | 0.1 |
| 2070 | 0.1 |
| 2075 | 0.09 |
| 2080 | 0.09 |
| 2085 | 0.09 |
| 2090 | 0.09 |
| 2095 | 0.09 |
| 2100 | 0.09 |
| 2105 | 0.09 |
| 2110 | 0.09 |
| 2115 | 0.08 |
| 2120 | 0.08 |
| 2125 | 0.08 |
| 2130 | 0.08 |
| 2135 | 0.08 |
| 2140 | 0.08 |
| 2145 | 0.08 |
| 2150 | 0.08 |
| 2155 | 0.08 |
| 2160 | 0.07 |
| 2165 | 0.07 |
| 2170 | 0.07 |
| 2175 | 0.07 |
| 2180 | 0.07 |
| 2185 | 0.07 |
| 2190 | 0.07 |
| 2195 | 0.07 |
| 2200 | 0.07 |

E-FIELD



| (ft) | (KV/m) |
|------|--------|
| 0 | 0 |
| 5 | 0 |
| 10 | 0 |
| 15 | 0 |
| 20 | 0 |
| 25 | 0 |
| 30 | 0 |
| 35 | 0 |

| | |
|-----|---|
| 40 | 0 |
| 45 | 0 |
| 50 | 0 |
| 55 | 0 |
| 60 | 0 |
| 65 | 0 |
| 70 | 0 |
| 75 | 0 |
| 80 | 0 |
| 85 | 0 |
| 90 | 0 |
| 95 | 0 |
| 100 | 0 |
| 105 | 0 |
| 110 | 0 |
| 115 | 0 |
| 120 | 0 |
| 125 | 0 |
| 130 | 0 |
| 135 | 0 |
| 140 | 0 |
| 145 | 0 |
| 150 | 0 |
| 155 | 0 |
| 160 | 0 |
| 165 | 0 |
| 170 | 0 |
| 175 | 0 |
| 180 | 0 |
| 185 | 0 |
| 190 | 0 |
| 195 | 0 |
| 200 | 0 |
| 205 | 0 |
| 210 | 0 |
| 215 | 0 |
| 220 | 0 |
| 225 | 0 |
| 230 | 0 |
| 235 | 0 |
| 240 | 0 |
| 245 | 0 |
| 250 | 0 |

| | |
|-----|---|
| 255 | 0 |
| 260 | 0 |
| 265 | 0 |
| 270 | 0 |
| 275 | 0 |
| 280 | 0 |
| 285 | 0 |
| 290 | 0 |
| 295 | 0 |
| 300 | 0 |
| 305 | 0 |
| 310 | 0 |
| 315 | 0 |
| 320 | 0 |
| 325 | 0 |
| 330 | 0 |
| 335 | 0 |
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| 360 | 0 |
| 365 | 0 |
| 370 | 0 |
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| 380 | 0 |
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| 395 | 0 |
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| 420 | 0 |
| 425 | 0 |
| 430 | 0 |
| 435 | 0 |
| 440 | 0 |
| 445 | 0 |
| 450 | 0 |
| 455 | 0 |
| 460 | 0 |
| 465 | 0 |

| | |
|-----|---|
| 470 | 0 |
| 475 | 0 |
| 480 | 0 |
| 485 | 0 |
| 490 | 0 |
| 495 | 0 |
| 500 | 0 |
| 505 | 0 |
| 510 | 0 |
| 515 | 0 |
| 520 | 0 |
| 525 | 0 |
| 530 | 0 |
| 535 | 0 |
| 540 | 0 |
| 545 | 0 |
| 550 | 0 |
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| 570 | 0 |
| 575 | 0 |
| 580 | 0 |
| 585 | 0 |
| 590 | 0 |
| 595 | 0 |
| 600 | 0 |
| 605 | 0 |
| 610 | 0 |
| 615 | 0 |
| 620 | 0 |
| 625 | 0 |
| 630 | 0 |
| 635 | 0 |
| 640 | 0 |
| 645 | 0 |
| 650 | 0 |
| 655 | 0 |
| 660 | 0 |
| 665 | 0 |
| 670 | 0 |
| 675 | 0 |
| 680 | 0 |

| | |
|-----|---|
| 685 | 0 |
| 690 | 0 |
| 695 | 0 |
| 700 | 0 |
| 705 | 0 |
| 710 | 0 |
| 715 | 0 |
| 720 | 0 |
| 725 | 0 |
| 730 | 0 |
| 735 | 0 |
| 740 | 0 |
| 745 | 0 |
| 750 | 0 |
| 755 | 0 |
| 760 | 0 |
| 765 | 0 |
| 770 | 0 |
| 775 | 0 |
| 780 | 0 |
| 785 | 0 |
| 790 | 0 |
| 795 | 0 |
| 800 | 0 |
| 805 | 0 |
| 810 | 0 |
| 815 | 0 |
| 820 | 0 |
| 825 | 0 |
| 830 | 0 |
| 835 | 0 |
| 840 | 0 |
| 845 | 0 |
| 850 | 0 |
| 855 | 0 |
| 860 | 0 |
| 865 | 0 |
| 870 | 0 |
| 875 | 0 |
| 880 | 0 |
| 885 | 0 |
| 890 | 0 |
| 895 | 0 |

| | |
|------|------|
| 900 | 0 |
| 905 | 0 |
| 910 | 0 |
| 915 | 0.01 |
| 920 | 0.01 |
| 925 | 0.01 |
| 930 | 0.01 |
| 935 | 0.01 |
| 940 | 0.01 |
| 945 | 0.01 |
| 950 | 0.01 |
| 955 | 0.01 |
| 960 | 0.02 |
| 965 | 0.02 |
| 970 | 0.02 |
| 975 | 0.03 |
| 980 | 0.03 |
| 985 | 0.04 |
| 990 | 0.05 |
| 995 | 0.06 |
| 1000 | 0.07 |
| 1005 | 0.09 |
| 1010 | 0.11 |
| 1015 | 0.14 |
| 1020 | 0.18 |
| 1025 | 0.22 |
| 1030 | 0.28 |
| 1035 | 0.35 |
| 1040 | 0.42 |
| 1045 | 0.46 |
| 1050 | 0.44 |
| 1055 | 0.37 |
| 1060 | 0.28 |
| 1065 | 0.22 |
| 1070 | 0.18 |
| 1075 | 0.13 |
| 1080 | 0.08 |
| 1085 | 0.07 |
| 1090 | 0.14 |
| 1095 | 0.25 |
| 1100 | 0.38 |
| 1105 | 0.53 |
| 1110 | 0.68 |

| | |
|------|------|
| 1115 | 0.81 |
| 1120 | 0.87 |
| 1125 | 0.84 |
| 1130 | 0.75 |
| 1135 | 0.68 |
| 1140 | 0.69 |
| 1145 | 0.72 |
| 1150 | 0.72 |
| 1155 | 0.68 |
| 1160 | 0.61 |
| 1165 | 0.53 |
| 1170 | 0.46 |
| 1175 | 0.39 |
| 1180 | 0.33 |
| 1185 | 0.28 |
| 1190 | 0.24 |
| 1195 | 0.2 |
| 1200 | 0.18 |
| 1205 | 0.15 |
| 1210 | 0.13 |
| 1215 | 0.12 |
| 1220 | 0.1 |
| 1225 | 0.09 |
| 1230 | 0.08 |
| 1235 | 0.07 |
| 1240 | 0.06 |
| 1245 | 0.06 |
| 1250 | 0.05 |
| 1255 | 0.05 |
| 1260 | 0.04 |
| 1265 | 0.04 |
| 1270 | 0.04 |
| 1275 | 0.03 |
| 1280 | 0.03 |
| 1285 | 0.03 |
| 1290 | 0.03 |
| 1295 | 0.02 |
| 1300 | 0.02 |
| 1305 | 0.02 |
| 1310 | 0.02 |
| 1315 | 0.02 |
| 1320 | 0.02 |
| 1325 | 0.02 |

| | |
|------|------|
| 1330 | 0.01 |
| 1335 | 0.01 |
| 1340 | 0.01 |
| 1345 | 0.01 |
| 1350 | 0.01 |
| 1355 | 0.01 |
| 1360 | 0.01 |
| 1365 | 0.01 |
| 1370 | 0.01 |
| 1375 | 0.01 |
| 1380 | 0.01 |
| 1385 | 0.01 |
| 1390 | 0.01 |
| 1395 | 0.01 |
| 1400 | 0.01 |
| 1405 | 0.01 |
| 1410 | 0.01 |
| 1415 | 0.01 |
| 1420 | 0.01 |
| 1425 | 0.01 |
| 1430 | 0 |
| 1435 | 0 |
| 1440 | 0 |
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| 1475 | 0 |
| 1480 | 0 |
| 1485 | 0 |
| 1490 | 0 |
| 1495 | 0 |
| 1500 | 0 |
| 1505 | 0 |
| 1510 | 0 |
| 1515 | 0 |
| 1520 | 0 |
| 1525 | 0 |
| 1530 | 0 |
| 1535 | 0 |
| 1540 | 0 |

| | |
|------|---|
| 1545 | 0 |
| 1550 | 0 |
| 1555 | 0 |
| 1560 | 0 |
| 1565 | 0 |
| 1570 | 0 |
| 1575 | 0 |
| 1580 | 0 |
| 1585 | 0 |
| 1590 | 0 |
| 1595 | 0 |
| 1600 | 0 |
| 1605 | 0 |
| 1610 | 0 |
| 1615 | 0 |
| 1620 | 0 |
| 1625 | 0 |
| 1630 | 0 |
| 1635 | 0 |
| 1640 | 0 |
| 1645 | 0 |
| 1650 | 0 |
| 1655 | 0 |
| 1660 | 0 |
| 1665 | 0 |
| 1670 | 0 |
| 1675 | 0 |
| 1680 | 0 |
| 1685 | 0 |
| 1690 | 0 |
| 1695 | 0 |
| 1700 | 0 |
| 1705 | 0 |
| 1710 | 0 |
| 1715 | 0 |
| 1720 | 0 |
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| 1730 | 0 |
| 1735 | 0 |
| 1740 | 0 |
| 1745 | 0 |
| 1750 | 0 |
| 1755 | 0 |

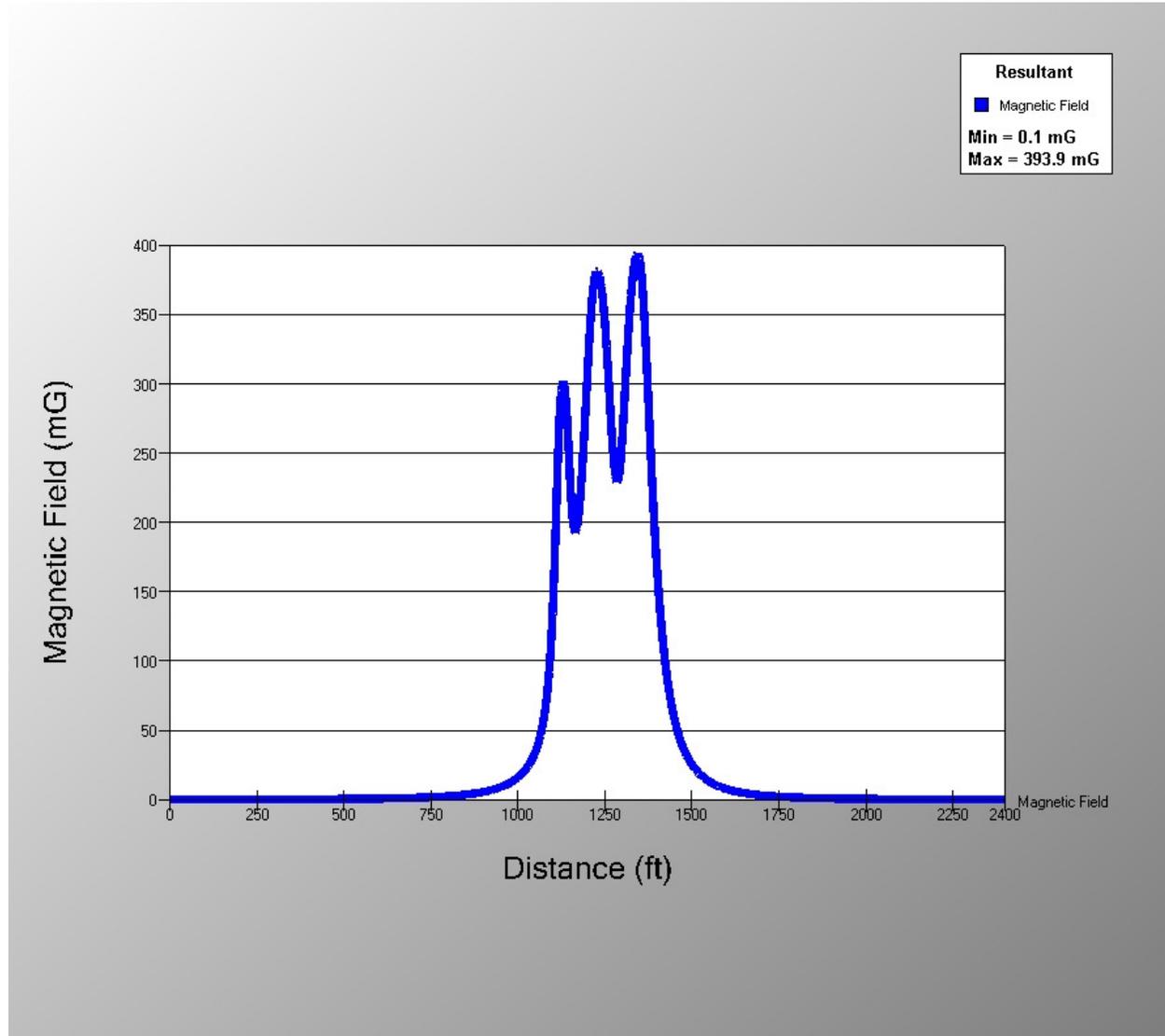
| | |
|------|---|
| 1760 | 0 |
| 1765 | 0 |
| 1770 | 0 |
| 1775 | 0 |
| 1780 | 0 |
| 1785 | 0 |
| 1790 | 0 |
| 1795 | 0 |
| 1800 | 0 |
| 1805 | 0 |
| 1810 | 0 |
| 1815 | 0 |
| 1820 | 0 |
| 1825 | 0 |
| 1830 | 0 |
| 1835 | 0 |
| 1840 | 0 |
| 1845 | 0 |
| 1850 | 0 |
| 1855 | 0 |
| 1860 | 0 |
| 1865 | 0 |
| 1870 | 0 |
| 1875 | 0 |
| 1880 | 0 |
| 1885 | 0 |
| 1890 | 0 |
| 1895 | 0 |
| 1900 | 0 |
| 1905 | 0 |
| 1910 | 0 |
| 1915 | 0 |
| 1920 | 0 |
| 1925 | 0 |
| 1930 | 0 |
| 1935 | 0 |
| 1940 | 0 |
| 1945 | 0 |
| 1950 | 0 |
| 1955 | 0 |
| 1960 | 0 |
| 1965 | 0 |
| 1970 | 0 |

| | |
|------|---|
| 1975 | 0 |
| 1980 | 0 |
| 1985 | 0 |
| 1990 | 0 |
| 1995 | 0 |
| 2000 | 0 |
| 2005 | 0 |
| 2010 | 0 |
| 2015 | 0 |
| 2020 | 0 |
| 2025 | 0 |
| 2030 | 0 |
| 2035 | 0 |
| 2040 | 0 |
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| 2060 | 0 |
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| 2070 | 0 |
| 2075 | 0 |
| 2080 | 0 |
| 2085 | 0 |
| 2090 | 0 |
| 2095 | 0 |
| 2100 | 0 |
| 2105 | 0 |
| 2110 | 0 |
| 2115 | 0 |
| 2120 | 0 |
| 2125 | 0 |
| 2130 | 0 |
| 2135 | 0 |
| 2140 | 0 |
| 2145 | 0 |
| 2150 | 0 |
| 2155 | 0 |
| 2160 | 0 |
| 2165 | 0 |
| 2170 | 0 |
| 2175 | 0 |
| 2180 | 0 |
| 2185 | 0 |

2190 0
2195 0
2200 0

EXISTING A AND CON ED LINES

MAG FIELD



| (ft) | (mG) |
|------|------|
| 0 | 0.08 |
| 5 | 0.08 |
| 10 | 0.08 |
| 15 | 0.08 |
| 20 | 0.08 |

| | |
|-----|------|
| 25 | 0.08 |
| 30 | 0.08 |
| 35 | 0.08 |
| 40 | 0.09 |
| 45 | 0.09 |
| 50 | 0.09 |
| 55 | 0.09 |
| 60 | 0.09 |
| 65 | 0.09 |
| 70 | 0.09 |
| 75 | 0.09 |
| 80 | 0.1 |
| 85 | 0.1 |
| 90 | 0.1 |
| 95 | 0.1 |
| 100 | 0.1 |
| 105 | 0.1 |
| 110 | 0.11 |
| 115 | 0.11 |
| 120 | 0.11 |
| 125 | 0.11 |
| 130 | 0.11 |
| 135 | 0.11 |
| 140 | 0.12 |
| 145 | 0.12 |
| 150 | 0.12 |
| 155 | 0.12 |
| 160 | 0.12 |
| 165 | 0.13 |
| 170 | 0.13 |
| 175 | 0.13 |
| 180 | 0.13 |
| 185 | 0.13 |
| 190 | 0.14 |
| 195 | 0.14 |
| 200 | 0.14 |
| 205 | 0.14 |
| 210 | 0.15 |
| 215 | 0.15 |
| 220 | 0.15 |
| 225 | 0.15 |
| 230 | 0.16 |
| 235 | 0.16 |

| | |
|-----|------|
| 240 | 0.16 |
| 245 | 0.16 |
| 250 | 0.17 |
| 255 | 0.17 |
| 260 | 0.17 |
| 265 | 0.18 |
| 270 | 0.18 |
| 275 | 0.18 |
| 280 | 0.19 |
| 285 | 0.19 |
| 290 | 0.19 |
| 295 | 0.2 |
| 300 | 0.2 |
| 305 | 0.2 |
| 310 | 0.21 |
| 315 | 0.21 |
| 320 | 0.22 |
| 325 | 0.22 |
| 330 | 0.22 |
| 335 | 0.23 |
| 340 | 0.23 |
| 345 | 0.24 |
| 350 | 0.24 |
| 355 | 0.25 |
| 360 | 0.25 |
| 365 | 0.26 |
| 370 | 0.26 |
| 375 | 0.27 |
| 380 | 0.27 |
| 385 | 0.28 |
| 390 | 0.28 |
| 395 | 0.29 |
| 400 | 0.3 |
| 405 | 0.3 |
| 410 | 0.31 |
| 415 | 0.31 |
| 420 | 0.32 |
| 425 | 0.33 |
| 430 | 0.34 |
| 435 | 0.34 |
| 440 | 0.35 |
| 445 | 0.36 |
| 450 | 0.37 |

| | |
|-----|------|
| 455 | 0.37 |
| 460 | 0.38 |
| 465 | 0.39 |
| 470 | 0.4 |
| 475 | 0.41 |
| 480 | 0.42 |
| 485 | 0.43 |
| 490 | 0.44 |
| 495 | 0.45 |
| 500 | 0.46 |
| 505 | 0.47 |
| 510 | 0.48 |
| 515 | 0.49 |
| 520 | 0.5 |
| 525 | 0.51 |
| 530 | 0.52 |
| 535 | 0.54 |
| 540 | 0.55 |
| 545 | 0.56 |
| 550 | 0.58 |
| 555 | 0.59 |
| 560 | 0.61 |
| 565 | 0.62 |
| 570 | 0.64 |
| 575 | 0.65 |
| 580 | 0.67 |
| 585 | 0.69 |
| 590 | 0.71 |
| 595 | 0.72 |
| 600 | 0.74 |
| 605 | 0.76 |
| 610 | 0.78 |
| 615 | 0.8 |
| 620 | 0.83 |
| 625 | 0.85 |
| 630 | 0.87 |
| 635 | 0.89 |
| 640 | 0.92 |
| 645 | 0.95 |
| 650 | 0.97 |
| 655 | 1 |
| 660 | 1.03 |
| 665 | 1.06 |

| | |
|-----|------|
| 670 | 1.09 |
| 675 | 1.12 |
| 680 | 1.15 |
| 685 | 1.19 |
| 690 | 1.22 |
| 695 | 1.26 |
| 700 | 1.3 |
| 705 | 1.34 |
| 710 | 1.38 |
| 715 | 1.42 |
| 720 | 1.46 |
| 725 | 1.51 |
| 730 | 1.56 |
| 735 | 1.61 |
| 740 | 1.66 |
| 745 | 1.72 |
| 750 | 1.77 |
| 755 | 1.83 |
| 760 | 1.89 |
| 765 | 1.96 |
| 770 | 2.02 |
| 775 | 2.09 |
| 780 | 2.16 |
| 785 | 2.24 |
| 790 | 2.32 |
| 795 | 2.4 |
| 800 | 2.49 |
| 805 | 2.58 |
| 810 | 2.68 |
| 815 | 2.77 |
| 820 | 2.88 |
| 825 | 2.99 |
| 830 | 3.1 |
| 835 | 3.22 |
| 840 | 3.35 |
| 845 | 3.48 |
| 850 | 3.62 |
| 855 | 3.77 |
| 860 | 3.92 |
| 865 | 4.09 |
| 870 | 4.26 |
| 875 | 4.44 |
| 880 | 4.63 |

| | |
|------|--------|
| 885 | 4.83 |
| 890 | 5.04 |
| 895 | 5.27 |
| 900 | 5.51 |
| 905 | 5.76 |
| 910 | 6.03 |
| 915 | 6.31 |
| 920 | 6.62 |
| 925 | 6.94 |
| 930 | 7.28 |
| 935 | 7.65 |
| 940 | 8.04 |
| 945 | 8.46 |
| 950 | 8.91 |
| 955 | 9.39 |
| 960 | 9.9 |
| 965 | 10.46 |
| 970 | 11.06 |
| 975 | 11.7 |
| 980 | 12.4 |
| 985 | 13.16 |
| 990 | 13.98 |
| 995 | 14.88 |
| 1000 | 15.86 |
| 1005 | 16.94 |
| 1010 | 18.12 |
| 1015 | 19.42 |
| 1020 | 20.86 |
| 1025 | 22.47 |
| 1030 | 24.26 |
| 1035 | 26.28 |
| 1040 | 28.56 |
| 1045 | 31.16 |
| 1050 | 34.13 |
| 1055 | 37.57 |
| 1060 | 41.59 |
| 1065 | 46.34 |
| 1070 | 52.03 |
| 1075 | 58.93 |
| 1080 | 67.47 |
| 1085 | 78.23 |
| 1090 | 92.07 |
| 1095 | 110.22 |

| | |
|------|--------|
| 1100 | 134.3 |
| 1105 | 165.91 |
| 1110 | 204.72 |
| 1115 | 244.96 |
| 1120 | 276.5 |
| 1125 | 294.95 |
| 1130 | 301.84 |
| 1135 | 296.92 |
| 1140 | 281.38 |
| 1145 | 257.96 |
| 1150 | 231.2 |
| 1155 | 208.96 |
| 1160 | 195.99 |
| 1165 | 192.25 |
| 1170 | 195.95 |
| 1175 | 205.52 |
| 1180 | 219.82 |
| 1185 | 238.04 |
| 1190 | 259.35 |
| 1195 | 282.75 |
| 1200 | 306.86 |
| 1205 | 329.94 |
| 1210 | 350.08 |
| 1215 | 365.69 |
| 1220 | 375.92 |
| 1225 | 380.8 |
| 1230 | 380.98 |
| 1235 | 377.22 |
| 1240 | 369.96 |
| 1245 | 359.25 |
| 1250 | 344.9 |
| 1255 | 326.97 |
| 1260 | 306.2 |
| 1265 | 284.18 |
| 1270 | 263.15 |
| 1275 | 245.55 |
| 1280 | 233.6 |
| 1285 | 228.88 |
| 1290 | 232.11 |
| 1295 | 242.94 |
| 1300 | 260.03 |
| 1305 | 281.31 |
| 1310 | 304.32 |

| | |
|------|--------|
| 1315 | 326.73 |
| 1320 | 346.79 |
| 1325 | 363.56 |
| 1330 | 376.79 |
| 1335 | 386.47 |
| 1340 | 392.37 |
| 1345 | 393.86 |
| 1350 | 389.98 |
| 1355 | 379.94 |
| 1360 | 363.57 |
| 1365 | 341.7 |
| 1370 | 315.97 |
| 1375 | 288.31 |
| 1380 | 260.5 |
| 1385 | 233.8 |
| 1390 | 209.01 |
| 1395 | 186.47 |
| 1400 | 166.29 |
| 1405 | 148.38 |
| 1410 | 132.56 |
| 1415 | 118.63 |
| 1420 | 106.39 |
| 1425 | 95.63 |
| 1430 | 86.15 |
| 1435 | 77.81 |
| 1440 | 70.44 |
| 1445 | 63.93 |
| 1450 | 58.15 |
| 1455 | 53.02 |
| 1460 | 48.46 |
| 1465 | 44.38 |
| 1470 | 40.74 |
| 1475 | 37.47 |
| 1480 | 34.53 |
| 1485 | 31.89 |
| 1490 | 29.5 |
| 1495 | 27.34 |
| 1500 | 25.38 |
| 1505 | 23.6 |
| 1510 | 21.97 |
| 1515 | 20.5 |
| 1520 | 19.15 |
| 1525 | 17.91 |

| | |
|------|-------|
| 1530 | 16.78 |
| 1535 | 15.73 |
| 1540 | 14.77 |
| 1545 | 13.89 |
| 1550 | 13.07 |
| 1555 | 12.32 |
| 1560 | 11.62 |
| 1565 | 10.97 |
| 1570 | 10.37 |
| 1575 | 9.82 |
| 1580 | 9.3 |
| 1585 | 8.81 |
| 1590 | 8.36 |
| 1595 | 7.94 |
| 1600 | 7.54 |
| 1605 | 7.17 |
| 1610 | 6.82 |
| 1615 | 6.5 |
| 1620 | 6.19 |
| 1625 | 5.91 |
| 1630 | 5.64 |
| 1635 | 5.38 |
| 1640 | 5.14 |
| 1645 | 4.92 |
| 1650 | 4.7 |
| 1655 | 4.5 |
| 1660 | 4.31 |
| 1665 | 4.13 |
| 1670 | 3.96 |
| 1675 | 3.8 |
| 1680 | 3.65 |
| 1685 | 3.5 |
| 1690 | 3.36 |
| 1695 | 3.23 |
| 1700 | 3.11 |
| 1705 | 2.99 |
| 1710 | 2.87 |
| 1715 | 2.77 |
| 1720 | 2.66 |
| 1725 | 2.57 |
| 1730 | 2.47 |
| 1735 | 2.39 |
| 1740 | 2.3 |

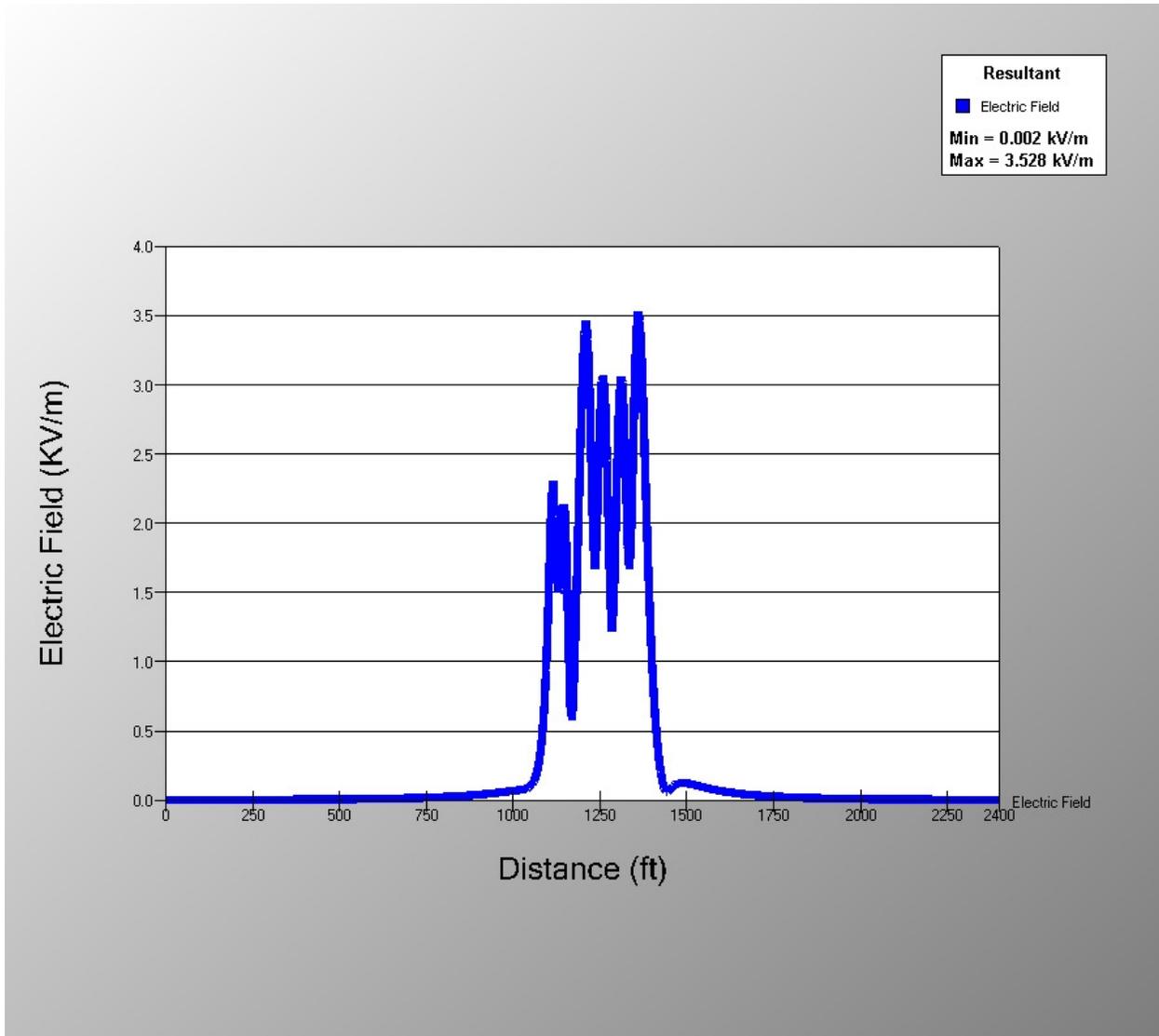
| | |
|------|------|
| 1745 | 2.22 |
| 1750 | 2.14 |
| 1755 | 2.07 |
| 1760 | 2 |
| 1765 | 1.93 |
| 1770 | 1.86 |
| 1775 | 1.8 |
| 1780 | 1.74 |
| 1785 | 1.69 |
| 1790 | 1.63 |
| 1795 | 1.58 |
| 1800 | 1.53 |
| 1805 | 1.48 |
| 1810 | 1.43 |
| 1815 | 1.39 |
| 1820 | 1.35 |
| 1825 | 1.3 |
| 1830 | 1.26 |
| 1835 | 1.23 |
| 1840 | 1.19 |
| 1845 | 1.15 |
| 1850 | 1.12 |
| 1855 | 1.09 |
| 1860 | 1.06 |
| 1865 | 1.03 |
| 1870 | 1 |
| 1875 | 0.97 |
| 1880 | 0.94 |
| 1885 | 0.91 |
| 1890 | 0.89 |
| 1895 | 0.86 |
| 1900 | 0.84 |
| 1905 | 0.82 |
| 1910 | 0.8 |
| 1915 | 0.77 |
| 1920 | 0.75 |
| 1925 | 0.73 |
| 1930 | 0.71 |
| 1935 | 0.7 |
| 1940 | 0.68 |
| 1945 | 0.66 |
| 1950 | 0.64 |
| 1955 | 0.63 |

| | |
|------|------|
| 1960 | 0.61 |
| 1965 | 0.59 |
| 1970 | 0.58 |
| 1975 | 0.57 |
| 1980 | 0.55 |
| 1985 | 0.54 |
| 1990 | 0.52 |
| 1995 | 0.51 |
| 2000 | 0.5 |
| 2005 | 0.49 |
| 2010 | 0.48 |
| 2015 | 0.47 |
| 2020 | 0.45 |
| 2025 | 0.44 |
| 2030 | 0.43 |
| 2035 | 0.42 |
| 2040 | 0.41 |
| 2045 | 0.4 |
| 2050 | 0.39 |
| 2055 | 0.39 |
| 2060 | 0.38 |
| 2065 | 0.37 |
| 2070 | 0.36 |
| 2075 | 0.35 |
| 2080 | 0.34 |
| 2085 | 0.34 |
| 2090 | 0.33 |
| 2095 | 0.32 |
| 2100 | 0.32 |
| 2105 | 0.31 |
| 2110 | 0.3 |
| 2115 | 0.3 |
| 2120 | 0.29 |
| 2125 | 0.28 |
| 2130 | 0.28 |
| 2135 | 0.27 |
| 2140 | 0.27 |
| 2145 | 0.26 |
| 2150 | 0.26 |
| 2155 | 0.25 |
| 2160 | 0.25 |
| 2165 | 0.24 |
| 2170 | 0.24 |

| | |
|------|------|
| 2175 | 0.23 |
| 2180 | 0.23 |
| 2185 | 0.22 |
| 2190 | 0.22 |
| 2195 | 0.21 |
| 2200 | 0.21 |
| 2205 | 0.21 |
| 2210 | 0.2 |
| 2215 | 0.2 |
| 2220 | 0.19 |
| 2225 | 0.19 |
| 2230 | 0.19 |
| 2235 | 0.18 |
| 2240 | 0.18 |
| 2245 | 0.18 |
| 2250 | 0.17 |
| 2255 | 0.17 |
| 2260 | 0.17 |
| 2265 | 0.16 |
| 2270 | 0.16 |
| 2275 | 0.16 |
| 2280 | 0.15 |
| 2285 | 0.15 |
| 2290 | 0.15 |
| 2295 | 0.15 |
| 2300 | 0.14 |
| 2305 | 0.14 |
| 2310 | 0.14 |
| 2315 | 0.14 |
| 2320 | 0.13 |
| 2325 | 0.13 |
| 2330 | 0.13 |
| 2335 | 0.13 |
| 2340 | 0.13 |
| 2345 | 0.12 |
| 2350 | 0.12 |
| 2355 | 0.12 |
| 2360 | 0.12 |
| 2365 | 0.12 |
| 2370 | 0.11 |
| 2375 | 0.11 |
| 2380 | 0.11 |
| 2385 | 0.11 |

| | |
|------|------|
| 2390 | 0.11 |
| 2395 | 0.1 |
| 2400 | 0.1 |

E-FIELD



| (ft) | (KV/m) |
|------|--------|
| 0 | 0 |
| 5 | 0 |
| 10 | 0 |
| 15 | 0 |
| 20 | 0 |
| 25 | 0 |
| 30 | 0 |

| | |
|-----|---|
| 35 | 0 |
| 40 | 0 |
| 45 | 0 |
| 50 | 0 |
| 55 | 0 |
| 60 | 0 |
| 65 | 0 |
| 70 | 0 |
| 75 | 0 |
| 80 | 0 |
| 85 | 0 |
| 90 | 0 |
| 95 | 0 |
| 100 | 0 |
| 105 | 0 |
| 110 | 0 |
| 115 | 0 |
| 120 | 0 |
| 125 | 0 |
| 130 | 0 |
| 135 | 0 |
| 140 | 0 |
| 145 | 0 |
| 150 | 0 |
| 155 | 0 |
| 160 | 0 |
| 165 | 0 |
| 170 | 0 |
| 175 | 0 |
| 180 | 0 |
| 185 | 0 |
| 190 | 0 |
| 195 | 0 |
| 200 | 0 |
| 205 | 0 |
| 210 | 0 |
| 215 | 0 |
| 220 | 0 |
| 225 | 0 |
| 230 | 0 |
| 235 | 0 |
| 240 | 0 |
| 245 | 0 |

| | |
|-----|------|
| 250 | 0 |
| 255 | 0 |
| 260 | 0 |
| 265 | 0 |
| 270 | 0 |
| 275 | 0 |
| 280 | 0 |
| 285 | 0 |
| 290 | 0 |
| 295 | 0 |
| 300 | 0 |
| 305 | 0 |
| 310 | 0 |
| 315 | 0 |
| 320 | 0 |
| 325 | 0 |
| 330 | 0 |
| 335 | 0 |
| 340 | 0 |
| 345 | 0 |
| 350 | 0 |
| 355 | 0 |
| 360 | 0 |
| 365 | 0 |
| 370 | 0 |
| 375 | 0 |
| 380 | 0 |
| 385 | 0 |
| 390 | 0 |
| 395 | 0 |
| 400 | 0 |
| 405 | 0 |
| 410 | 0 |
| 415 | 0 |
| 420 | 0.01 |
| 425 | 0.01 |
| 430 | 0.01 |
| 435 | 0.01 |
| 440 | 0.01 |
| 445 | 0.01 |
| 450 | 0.01 |
| 455 | 0.01 |
| 460 | 0.01 |

| | |
|-----|------|
| 465 | 0.01 |
| 470 | 0.01 |
| 475 | 0.01 |
| 480 | 0.01 |
| 485 | 0.01 |
| 490 | 0.01 |
| 495 | 0.01 |
| 500 | 0.01 |
| 505 | 0.01 |
| 510 | 0.01 |
| 515 | 0.01 |
| 520 | 0.01 |
| 525 | 0.01 |
| 530 | 0.01 |
| 535 | 0.01 |
| 540 | 0.01 |
| 545 | 0.01 |
| 550 | 0.01 |
| 555 | 0.01 |
| 560 | 0.01 |
| 565 | 0.01 |
| 570 | 0.01 |
| 575 | 0.01 |
| 580 | 0.01 |
| 585 | 0.01 |
| 590 | 0.01 |
| 595 | 0.01 |
| 600 | 0.01 |
| 605 | 0.01 |
| 610 | 0.01 |
| 615 | 0.01 |
| 620 | 0.01 |
| 625 | 0.01 |
| 630 | 0.01 |
| 635 | 0.01 |
| 640 | 0.01 |
| 645 | 0.01 |
| 650 | 0.01 |
| 655 | 0.01 |
| 660 | 0.01 |
| 665 | 0.01 |
| 670 | 0.01 |
| 675 | 0.01 |

| | |
|-----|------|
| 680 | 0.01 |
| 685 | 0.01 |
| 690 | 0.01 |
| 695 | 0.01 |
| 700 | 0.01 |
| 705 | 0.01 |
| 710 | 0.02 |
| 715 | 0.02 |
| 720 | 0.02 |
| 725 | 0.02 |
| 730 | 0.02 |
| 735 | 0.02 |
| 740 | 0.02 |
| 745 | 0.02 |
| 750 | 0.02 |
| 755 | 0.02 |
| 760 | 0.02 |
| 765 | 0.02 |
| 770 | 0.02 |
| 775 | 0.02 |
| 780 | 0.02 |
| 785 | 0.02 |
| 790 | 0.02 |
| 795 | 0.02 |
| 800 | 0.02 |
| 805 | 0.02 |
| 810 | 0.02 |
| 815 | 0.02 |
| 820 | 0.03 |
| 825 | 0.03 |
| 830 | 0.03 |
| 835 | 0.03 |
| 840 | 0.03 |
| 845 | 0.03 |
| 850 | 0.03 |
| 855 | 0.03 |
| 860 | 0.03 |
| 865 | 0.03 |
| 870 | 0.03 |
| 875 | 0.03 |
| 880 | 0.04 |
| 885 | 0.04 |
| 890 | 0.04 |

| | |
|------|------|
| 895 | 0.04 |
| 900 | 0.04 |
| 905 | 0.04 |
| 910 | 0.04 |
| 915 | 0.04 |
| 920 | 0.04 |
| 925 | 0.05 |
| 930 | 0.05 |
| 935 | 0.05 |
| 940 | 0.05 |
| 945 | 0.05 |
| 950 | 0.05 |
| 955 | 0.05 |
| 960 | 0.05 |
| 965 | 0.06 |
| 970 | 0.06 |
| 975 | 0.06 |
| 980 | 0.06 |
| 985 | 0.06 |
| 990 | 0.06 |
| 995 | 0.07 |
| 1000 | 0.07 |
| 1005 | 0.07 |
| 1010 | 0.07 |
| 1015 | 0.07 |
| 1020 | 0.07 |
| 1025 | 0.08 |
| 1030 | 0.08 |
| 1035 | 0.08 |
| 1040 | 0.08 |
| 1045 | 0.09 |
| 1050 | 0.1 |
| 1055 | 0.12 |
| 1060 | 0.14 |
| 1065 | 0.17 |
| 1070 | 0.21 |
| 1075 | 0.28 |
| 1080 | 0.37 |
| 1085 | 0.5 |
| 1090 | 0.68 |
| 1095 | 0.94 |
| 1100 | 1.29 |
| 1105 | 1.72 |

| | |
|------|------|
| 1110 | 2.14 |
| 1115 | 2.31 |
| 1120 | 2.05 |
| 1125 | 1.64 |
| 1130 | 1.5 |
| 1135 | 1.52 |
| 1140 | 1.8 |
| 1145 | 2.13 |
| 1150 | 2.07 |
| 1155 | 1.63 |
| 1160 | 1.1 |
| 1165 | 0.67 |
| 1170 | 0.58 |
| 1175 | 0.85 |
| 1180 | 1.27 |
| 1185 | 1.72 |
| 1190 | 2.2 |
| 1195 | 2.67 |
| 1200 | 3.08 |
| 1205 | 3.36 |
| 1210 | 3.46 |
| 1215 | 3.33 |
| 1220 | 2.97 |
| 1225 | 2.45 |
| 1230 | 1.94 |
| 1235 | 1.67 |
| 1240 | 1.84 |
| 1245 | 2.29 |
| 1250 | 2.74 |
| 1255 | 3.02 |
| 1260 | 3.06 |
| 1265 | 2.86 |
| 1270 | 2.45 |
| 1275 | 1.93 |
| 1280 | 1.44 |
| 1285 | 1.22 |
| 1290 | 1.44 |
| 1295 | 1.93 |
| 1300 | 2.45 |
| 1305 | 2.85 |
| 1310 | 3.06 |
| 1315 | 3.01 |
| 1320 | 2.73 |

| | |
|------|------|
| 1325 | 2.28 |
| 1330 | 1.83 |
| 1335 | 1.67 |
| 1340 | 1.95 |
| 1345 | 2.48 |
| 1350 | 3 |
| 1355 | 3.38 |
| 1360 | 3.53 |
| 1365 | 3.46 |
| 1370 | 3.2 |
| 1375 | 2.83 |
| 1380 | 2.41 |
| 1385 | 1.99 |
| 1390 | 1.61 |
| 1395 | 1.27 |
| 1400 | 0.99 |
| 1405 | 0.76 |
| 1410 | 0.57 |
| 1415 | 0.42 |
| 1420 | 0.3 |
| 1425 | 0.21 |
| 1430 | 0.14 |
| 1435 | 0.09 |
| 1440 | 0.06 |
| 1445 | 0.06 |
| 1450 | 0.08 |
| 1455 | 0.09 |
| 1460 | 0.1 |
| 1465 | 0.11 |
| 1470 | 0.12 |
| 1475 | 0.12 |
| 1480 | 0.12 |
| 1485 | 0.12 |
| 1490 | 0.12 |
| 1495 | 0.12 |
| 1500 | 0.12 |
| 1505 | 0.12 |
| 1510 | 0.12 |
| 1515 | 0.11 |
| 1520 | 0.11 |
| 1525 | 0.11 |
| 1530 | 0.1 |
| 1535 | 0.1 |

| | |
|------|------|
| 1540 | 0.1 |
| 1545 | 0.1 |
| 1550 | 0.09 |
| 1555 | 0.09 |
| 1560 | 0.09 |
| 1565 | 0.08 |
| 1570 | 0.08 |
| 1575 | 0.08 |
| 1580 | 0.08 |
| 1585 | 0.07 |
| 1590 | 0.07 |
| 1595 | 0.07 |
| 1600 | 0.07 |
| 1605 | 0.06 |
| 1610 | 0.06 |
| 1615 | 0.06 |
| 1620 | 0.06 |
| 1625 | 0.06 |
| 1630 | 0.05 |
| 1635 | 0.05 |
| 1640 | 0.05 |
| 1645 | 0.05 |
| 1650 | 0.05 |
| 1655 | 0.05 |
| 1660 | 0.04 |
| 1665 | 0.04 |
| 1670 | 0.04 |
| 1675 | 0.04 |
| 1680 | 0.04 |
| 1685 | 0.04 |
| 1690 | 0.04 |
| 1695 | 0.04 |
| 1700 | 0.04 |
| 1705 | 0.03 |
| 1710 | 0.03 |
| 1715 | 0.03 |
| 1720 | 0.03 |
| 1725 | 0.03 |
| 1730 | 0.03 |
| 1735 | 0.03 |
| 1740 | 0.03 |
| 1745 | 0.03 |
| 1750 | 0.03 |

| | |
|------|------|
| 1755 | 0.03 |
| 1760 | 0.03 |
| 1765 | 0.02 |
| 1770 | 0.02 |
| 1775 | 0.02 |
| 1780 | 0.02 |
| 1785 | 0.02 |
| 1790 | 0.02 |
| 1795 | 0.02 |
| 1800 | 0.02 |
| 1805 | 0.02 |
| 1810 | 0.02 |
| 1815 | 0.02 |
| 1820 | 0.02 |
| 1825 | 0.02 |
| 1830 | 0.02 |
| 1835 | 0.02 |
| 1840 | 0.02 |
| 1845 | 0.02 |
| 1850 | 0.02 |
| 1855 | 0.02 |
| 1860 | 0.02 |
| 1865 | 0.02 |
| 1870 | 0.01 |
| 1875 | 0.01 |
| 1880 | 0.01 |
| 1885 | 0.01 |
| 1890 | 0.01 |
| 1895 | 0.01 |
| 1900 | 0.01 |
| 1905 | 0.01 |
| 1910 | 0.01 |
| 1915 | 0.01 |
| 1920 | 0.01 |
| 1925 | 0.01 |
| 1930 | 0.01 |
| 1935 | 0.01 |
| 1940 | 0.01 |
| 1945 | 0.01 |
| 1950 | 0.01 |
| 1955 | 0.01 |
| 1960 | 0.01 |
| 1965 | 0.01 |

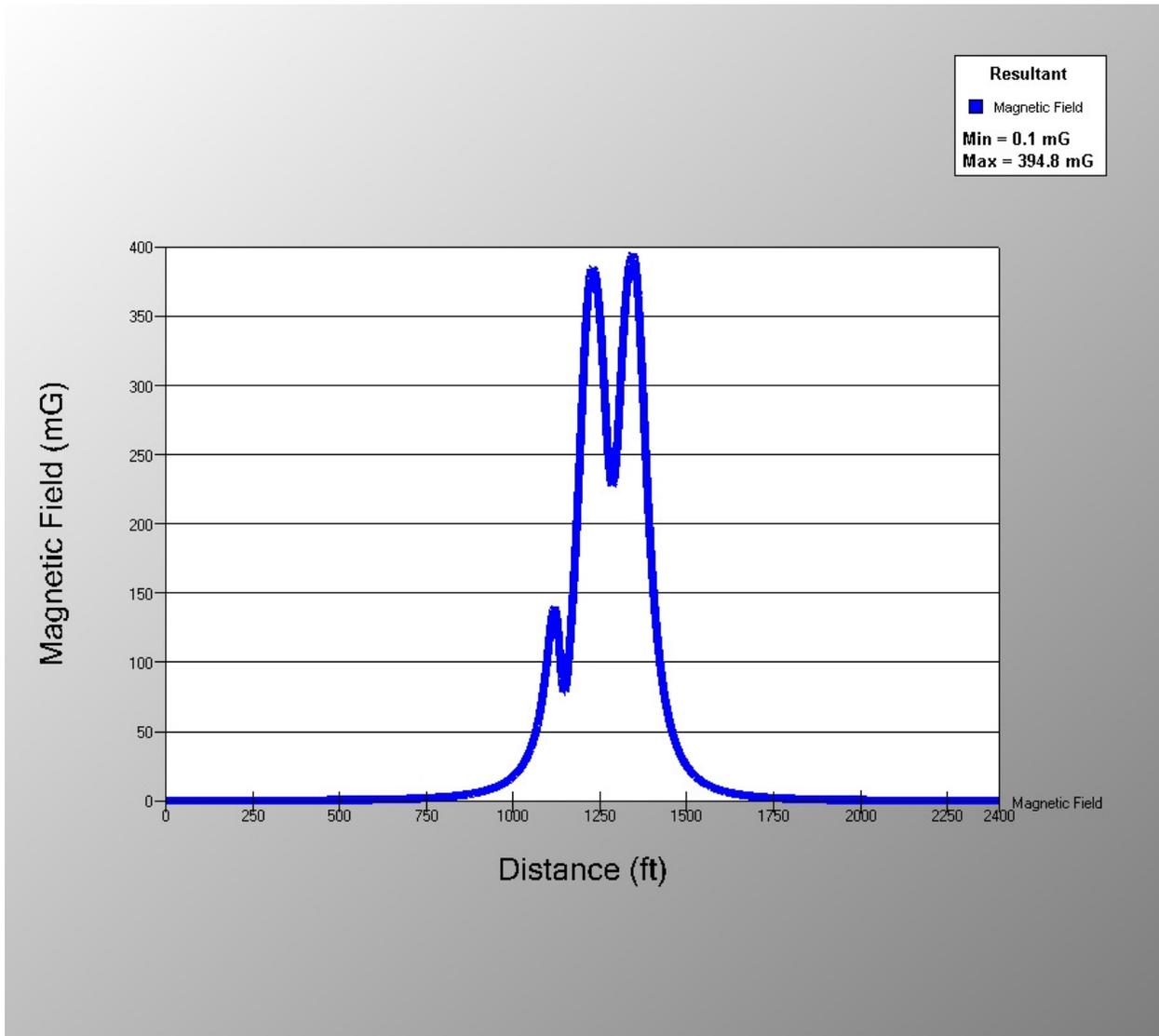
| | |
|------|------|
| 1970 | 0.01 |
| 1975 | 0.01 |
| 1980 | 0.01 |
| 1985 | 0.01 |
| 1990 | 0.01 |
| 1995 | 0.01 |
| 2000 | 0.01 |
| 2005 | 0.01 |
| 2010 | 0.01 |
| 2015 | 0.01 |
| 2020 | 0.01 |
| 2025 | 0.01 |
| 2030 | 0.01 |
| 2035 | 0.01 |
| 2040 | 0.01 |
| 2045 | 0.01 |
| 2050 | 0.01 |
| 2055 | 0.01 |
| 2060 | 0.01 |
| 2065 | 0.01 |
| 2070 | 0.01 |
| 2075 | 0.01 |
| 2080 | 0.01 |
| 2085 | 0.01 |
| 2090 | 0.01 |
| 2095 | 0.01 |
| 2100 | 0.01 |
| 2105 | 0.01 |
| 2110 | 0.01 |
| 2115 | 0.01 |
| 2120 | 0.01 |
| 2125 | 0.01 |
| 2130 | 0.01 |
| 2135 | 0.01 |
| 2140 | 0.01 |
| 2145 | 0.01 |
| 2150 | 0.01 |
| 2155 | 0.01 |
| 2160 | 0 |
| 2165 | 0 |
| 2170 | 0 |
| 2175 | 0 |
| 2180 | 0 |

| | |
|------|---|
| 2185 | 0 |
| 2190 | 0 |
| 2195 | 0 |
| 2200 | 0 |
| 2205 | 0 |
| 2210 | 0 |
| 2215 | 0 |
| 2220 | 0 |
| 2225 | 0 |
| 2230 | 0 |
| 2235 | 0 |
| 2240 | 0 |
| 2245 | 0 |
| 2250 | 0 |
| 2255 | 0 |
| 2260 | 0 |
| 2265 | 0 |
| 2270 | 0 |
| 2275 | 0 |
| 2280 | 0 |
| 2285 | 0 |
| 2290 | 0 |
| 2295 | 0 |
| 2300 | 0 |
| 2305 | 0 |
| 2310 | 0 |
| 2315 | 0 |
| 2320 | 0 |
| 2325 | 0 |
| 2330 | 0 |
| 2335 | 0 |
| 2340 | 0 |
| 2345 | 0 |
| 2350 | 0 |
| 2355 | 0 |
| 2360 | 0 |
| 2365 | 0 |
| 2370 | 0 |
| 2375 | 0 |
| 2380 | 0 |
| 2385 | 0 |
| 2390 | 0 |
| 2395 | 0 |

2400 0

PROPOSED A AND CON ED LINES

MAG FIELD



| (ft) | (mG) |
|------|------|
| 0 | 0.08 |
| 5 | 0.08 |
| 10 | 0.09 |
| 15 | 0.09 |
| 20 | 0.09 |

| | |
|-----|------|
| 25 | 0.09 |
| 30 | 0.09 |
| 35 | 0.09 |
| 40 | 0.09 |
| 45 | 0.09 |
| 50 | 0.1 |
| 55 | 0.1 |
| 60 | 0.1 |
| 65 | 0.1 |
| 70 | 0.1 |
| 75 | 0.1 |
| 80 | 0.1 |
| 85 | 0.11 |
| 90 | 0.11 |
| 95 | 0.11 |
| 100 | 0.11 |
| 105 | 0.11 |
| 110 | 0.11 |
| 115 | 0.12 |
| 120 | 0.12 |
| 125 | 0.12 |
| 130 | 0.12 |
| 135 | 0.12 |
| 140 | 0.13 |
| 145 | 0.13 |
| 150 | 0.13 |
| 155 | 0.13 |
| 160 | 0.13 |
| 165 | 0.14 |
| 170 | 0.14 |
| 175 | 0.14 |
| 180 | 0.14 |
| 185 | 0.15 |
| 190 | 0.15 |
| 195 | 0.15 |
| 200 | 0.15 |
| 205 | 0.16 |
| 210 | 0.16 |
| 215 | 0.16 |
| 220 | 0.16 |
| 225 | 0.17 |
| 230 | 0.17 |
| 235 | 0.17 |

| | |
|-----|------|
| 240 | 0.18 |
| 245 | 0.18 |
| 250 | 0.18 |
| 255 | 0.19 |
| 260 | 0.19 |
| 265 | 0.19 |
| 270 | 0.2 |
| 275 | 0.2 |
| 280 | 0.2 |
| 285 | 0.21 |
| 290 | 0.21 |
| 295 | 0.21 |
| 300 | 0.22 |
| 305 | 0.22 |
| 310 | 0.23 |
| 315 | 0.23 |
| 320 | 0.23 |
| 325 | 0.24 |
| 330 | 0.24 |
| 335 | 0.25 |
| 340 | 0.25 |
| 345 | 0.26 |
| 350 | 0.26 |
| 355 | 0.27 |
| 360 | 0.27 |
| 365 | 0.28 |
| 370 | 0.28 |
| 375 | 0.29 |
| 380 | 0.3 |
| 385 | 0.3 |
| 390 | 0.31 |
| 395 | 0.31 |
| 400 | 0.32 |
| 405 | 0.33 |
| 410 | 0.33 |
| 415 | 0.34 |
| 420 | 0.35 |
| 425 | 0.36 |
| 430 | 0.36 |
| 435 | 0.37 |
| 440 | 0.38 |
| 445 | 0.39 |
| 450 | 0.4 |

| | |
|-----|------|
| 455 | 0.4 |
| 460 | 0.41 |
| 465 | 0.42 |
| 470 | 0.43 |
| 475 | 0.44 |
| 480 | 0.45 |
| 485 | 0.46 |
| 490 | 0.47 |
| 495 | 0.48 |
| 500 | 0.49 |
| 505 | 0.51 |
| 510 | 0.52 |
| 515 | 0.53 |
| 520 | 0.54 |
| 525 | 0.56 |
| 530 | 0.57 |
| 535 | 0.58 |
| 540 | 0.6 |
| 545 | 0.61 |
| 550 | 0.63 |
| 555 | 0.64 |
| 560 | 0.66 |
| 565 | 0.67 |
| 570 | 0.69 |
| 575 | 0.71 |
| 580 | 0.73 |
| 585 | 0.75 |
| 590 | 0.76 |
| 595 | 0.78 |
| 600 | 0.81 |
| 605 | 0.83 |
| 610 | 0.85 |
| 615 | 0.87 |
| 620 | 0.89 |
| 625 | 0.92 |
| 630 | 0.94 |
| 635 | 0.97 |
| 640 | 1 |
| 645 | 1.03 |
| 650 | 1.05 |
| 655 | 1.08 |
| 660 | 1.12 |
| 665 | 1.15 |

| | |
|-----|------|
| 670 | 1.18 |
| 675 | 1.22 |
| 680 | 1.25 |
| 685 | 1.29 |
| 690 | 1.33 |
| 695 | 1.37 |
| 700 | 1.41 |
| 705 | 1.45 |
| 710 | 1.5 |
| 715 | 1.54 |
| 720 | 1.59 |
| 725 | 1.64 |
| 730 | 1.7 |
| 735 | 1.75 |
| 740 | 1.81 |
| 745 | 1.87 |
| 750 | 1.93 |
| 755 | 1.99 |
| 760 | 2.06 |
| 765 | 2.13 |
| 770 | 2.2 |
| 775 | 2.28 |
| 780 | 2.36 |
| 785 | 2.44 |
| 790 | 2.53 |
| 795 | 2.62 |
| 800 | 2.72 |
| 805 | 2.82 |
| 810 | 2.92 |
| 815 | 3.03 |
| 820 | 3.15 |
| 825 | 3.27 |
| 830 | 3.39 |
| 835 | 3.53 |
| 840 | 3.67 |
| 845 | 3.81 |
| 850 | 3.97 |
| 855 | 4.13 |
| 860 | 4.3 |
| 865 | 4.48 |
| 870 | 4.67 |
| 875 | 4.87 |
| 880 | 5.09 |

| | |
|------|-------|
| 885 | 5.31 |
| 890 | 5.55 |
| 895 | 5.8 |
| 900 | 6.07 |
| 905 | 6.35 |
| 910 | 6.65 |
| 915 | 6.97 |
| 920 | 7.31 |
| 925 | 7.67 |
| 930 | 8.05 |
| 935 | 8.46 |
| 940 | 8.9 |
| 945 | 9.37 |
| 950 | 9.87 |
| 955 | 10.41 |
| 960 | 10.99 |
| 965 | 11.61 |
| 970 | 12.28 |
| 975 | 13 |
| 980 | 13.78 |
| 985 | 14.63 |
| 990 | 15.55 |
| 995 | 16.55 |
| 1000 | 17.64 |
| 1005 | 18.84 |
| 1010 | 20.14 |
| 1015 | 21.58 |
| 1020 | 23.16 |
| 1025 | 24.92 |
| 1030 | 26.86 |
| 1035 | 29.03 |
| 1040 | 31.45 |
| 1045 | 34.18 |
| 1050 | 37.25 |
| 1055 | 40.74 |
| 1060 | 44.71 |
| 1065 | 49.25 |
| 1070 | 54.47 |
| 1075 | 60.49 |
| 1080 | 67.45 |
| 1085 | 75.49 |
| 1090 | 84.71 |
| 1095 | 95.14 |

| | |
|------|--------|
| 1100 | 106.61 |
| 1105 | 118.51 |
| 1110 | 129.55 |
| 1115 | 137.58 |
| 1120 | 139.85 |
| 1125 | 134.35 |
| 1130 | 121.42 |
| 1135 | 104.31 |
| 1140 | 88.23 |
| 1145 | 78.7 |
| 1150 | 78.87 |
| 1155 | 87.55 |
| 1160 | 101.54 |
| 1165 | 118.62 |
| 1170 | 137.92 |
| 1175 | 159.27 |
| 1180 | 182.75 |
| 1185 | 208.38 |
| 1190 | 235.93 |
| 1195 | 264.78 |
| 1200 | 293.77 |
| 1205 | 321.22 |
| 1210 | 345.21 |
| 1215 | 364.07 |
| 1220 | 376.86 |
| 1225 | 383.6 |
| 1230 | 384.99 |
| 1235 | 381.9 |
| 1240 | 374.88 |
| 1245 | 364.1 |
| 1250 | 349.44 |
| 1255 | 331.01 |
| 1260 | 309.57 |
| 1265 | 286.72 |
| 1270 | 264.72 |
| 1275 | 246.06 |
| 1280 | 233.03 |
| 1285 | 227.38 |
| 1290 | 229.96 |
| 1295 | 240.51 |
| 1300 | 257.69 |
| 1305 | 279.34 |
| 1310 | 302.89 |

| | |
|------|--------|
| 1315 | 325.9 |
| 1320 | 346.52 |
| 1325 | 363.75 |
| 1330 | 377.33 |
| 1335 | 387.24 |
| 1340 | 393.28 |
| 1345 | 394.84 |
| 1350 | 390.99 |
| 1355 | 380.93 |
| 1360 | 364.53 |
| 1365 | 342.61 |
| 1370 | 316.8 |
| 1375 | 289.05 |
| 1380 | 261.14 |
| 1385 | 234.34 |
| 1390 | 209.44 |
| 1395 | 186.8 |
| 1400 | 166.53 |
| 1405 | 148.53 |
| 1410 | 132.63 |
| 1415 | 118.64 |
| 1420 | 106.34 |
| 1425 | 95.53 |
| 1430 | 86.02 |
| 1435 | 77.64 |
| 1440 | 70.24 |
| 1445 | 63.71 |
| 1450 | 57.92 |
| 1455 | 52.77 |
| 1460 | 48.2 |
| 1465 | 44.11 |
| 1470 | 40.46 |
| 1475 | 37.19 |
| 1480 | 34.25 |
| 1485 | 31.61 |
| 1490 | 29.22 |
| 1495 | 27.06 |
| 1500 | 25.11 |
| 1505 | 23.33 |
| 1510 | 21.71 |
| 1515 | 20.24 |
| 1520 | 18.89 |
| 1525 | 17.66 |

| | |
|------|-------|
| 1530 | 16.53 |
| 1535 | 15.5 |
| 1540 | 14.54 |
| 1545 | 13.66 |
| 1550 | 12.85 |
| 1555 | 12.1 |
| 1560 | 11.41 |
| 1565 | 10.77 |
| 1570 | 10.17 |
| 1575 | 9.62 |
| 1580 | 9.1 |
| 1585 | 8.62 |
| 1590 | 8.18 |
| 1595 | 7.76 |
| 1600 | 7.37 |
| 1605 | 7 |
| 1610 | 6.66 |
| 1615 | 6.34 |
| 1620 | 6.04 |
| 1625 | 5.76 |
| 1630 | 5.49 |
| 1635 | 5.24 |
| 1640 | 5 |
| 1645 | 4.78 |
| 1650 | 4.57 |
| 1655 | 4.37 |
| 1660 | 4.18 |
| 1665 | 4.01 |
| 1670 | 3.84 |
| 1675 | 3.68 |
| 1680 | 3.53 |
| 1685 | 3.39 |
| 1690 | 3.25 |
| 1695 | 3.12 |
| 1700 | 3 |
| 1705 | 2.89 |
| 1710 | 2.78 |
| 1715 | 2.67 |
| 1720 | 2.57 |
| 1725 | 2.47 |
| 1730 | 2.38 |
| 1735 | 2.3 |
| 1740 | 2.21 |

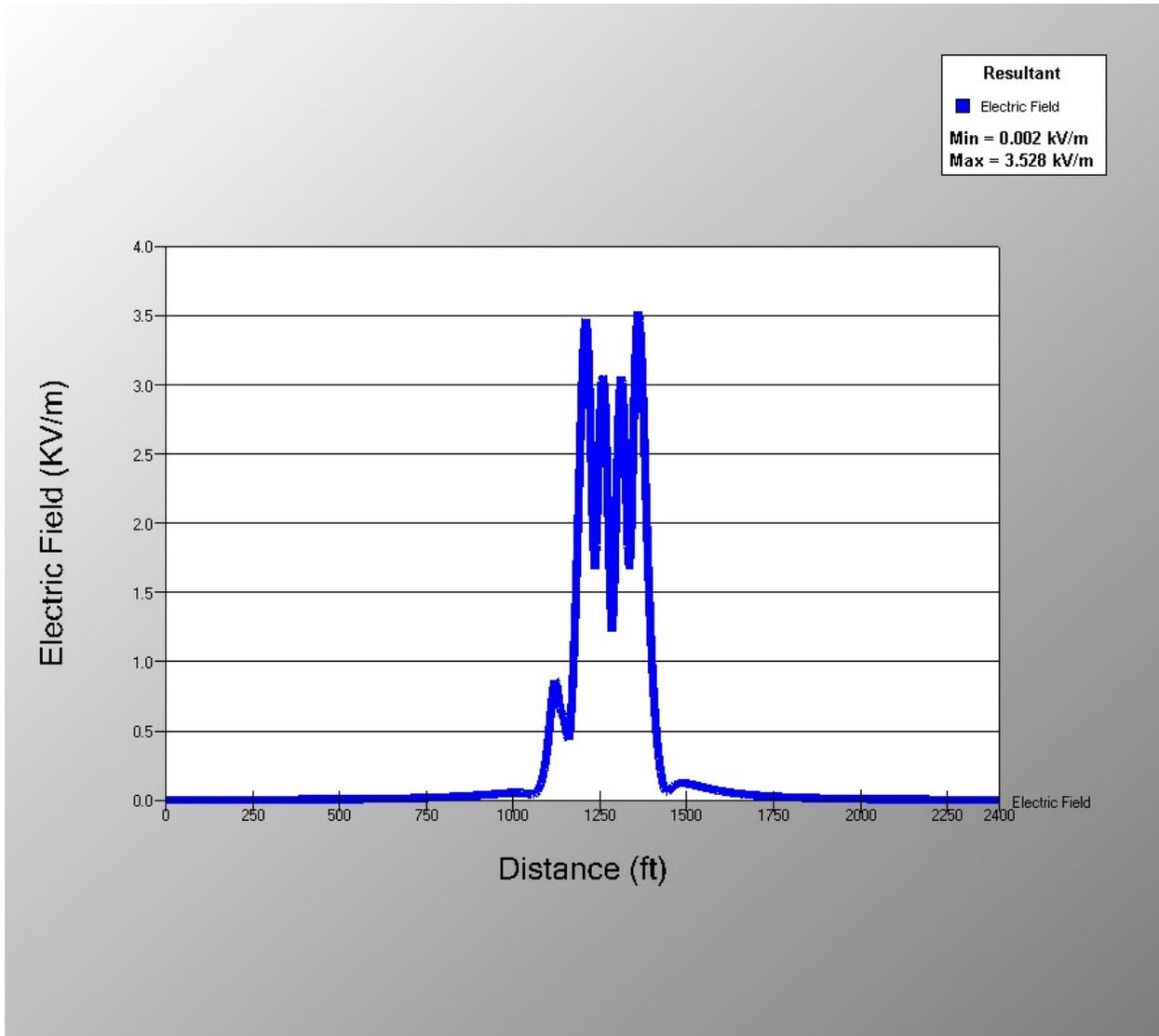
| | |
|------|------|
| 1745 | 2.13 |
| 1750 | 2.06 |
| 1755 | 1.99 |
| 1760 | 1.92 |
| 1765 | 1.85 |
| 1770 | 1.79 |
| 1775 | 1.73 |
| 1780 | 1.67 |
| 1785 | 1.61 |
| 1790 | 1.56 |
| 1795 | 1.51 |
| 1800 | 1.46 |
| 1805 | 1.41 |
| 1810 | 1.37 |
| 1815 | 1.33 |
| 1820 | 1.28 |
| 1825 | 1.24 |
| 1830 | 1.21 |
| 1835 | 1.17 |
| 1840 | 1.13 |
| 1845 | 1.1 |
| 1850 | 1.07 |
| 1855 | 1.03 |
| 1860 | 1 |
| 1865 | 0.97 |
| 1870 | 0.95 |
| 1875 | 0.92 |
| 1880 | 0.89 |
| 1885 | 0.87 |
| 1890 | 0.84 |
| 1895 | 0.82 |
| 1900 | 0.8 |
| 1905 | 0.77 |
| 1910 | 0.75 |
| 1915 | 0.73 |
| 1920 | 0.71 |
| 1925 | 0.69 |
| 1930 | 0.67 |
| 1935 | 0.66 |
| 1940 | 0.64 |
| 1945 | 0.62 |
| 1950 | 0.61 |
| 1955 | 0.59 |

| | |
|------|------|
| 1960 | 0.57 |
| 1965 | 0.56 |
| 1970 | 0.55 |
| 1975 | 0.53 |
| 1980 | 0.52 |
| 1985 | 0.51 |
| 1990 | 0.49 |
| 1995 | 0.48 |
| 2000 | 0.47 |
| 2005 | 0.46 |
| 2010 | 0.45 |
| 2015 | 0.44 |
| 2020 | 0.43 |
| 2025 | 0.41 |
| 2030 | 0.41 |
| 2035 | 0.4 |
| 2040 | 0.39 |
| 2045 | 0.38 |
| 2050 | 0.37 |
| 2055 | 0.36 |
| 2060 | 0.35 |
| 2065 | 0.34 |
| 2070 | 0.34 |
| 2075 | 0.33 |
| 2080 | 0.32 |
| 2085 | 0.31 |
| 2090 | 0.31 |
| 2095 | 0.3 |
| 2100 | 0.29 |
| 2105 | 0.29 |
| 2110 | 0.28 |
| 2115 | 0.27 |
| 2120 | 0.27 |
| 2125 | 0.26 |
| 2130 | 0.26 |
| 2135 | 0.25 |
| 2140 | 0.25 |
| 2145 | 0.24 |
| 2150 | 0.24 |
| 2155 | 0.23 |
| 2160 | 0.23 |
| 2165 | 0.22 |
| 2170 | 0.22 |

| | |
|------|------|
| 2175 | 0.21 |
| 2180 | 0.21 |
| 2185 | 0.2 |
| 2190 | 0.2 |
| 2195 | 0.2 |
| 2200 | 0.19 |
| 2205 | 0.19 |
| 2210 | 0.19 |
| 2215 | 0.18 |
| 2220 | 0.18 |
| 2225 | 0.17 |
| 2230 | 0.17 |
| 2235 | 0.17 |
| 2240 | 0.16 |
| 2245 | 0.16 |
| 2250 | 0.16 |
| 2255 | 0.16 |
| 2260 | 0.15 |
| 2265 | 0.15 |
| 2270 | 0.15 |
| 2275 | 0.14 |
| 2280 | 0.14 |
| 2285 | 0.14 |
| 2290 | 0.14 |
| 2295 | 0.13 |
| 2300 | 0.13 |
| 2305 | 0.13 |
| 2310 | 0.13 |
| 2315 | 0.12 |
| 2320 | 0.12 |
| 2325 | 0.12 |
| 2330 | 0.12 |
| 2335 | 0.12 |
| 2340 | 0.11 |
| 2345 | 0.11 |
| 2350 | 0.11 |
| 2355 | 0.11 |
| 2360 | 0.11 |
| 2365 | 0.1 |
| 2370 | 0.1 |
| 2375 | 0.1 |
| 2380 | 0.1 |
| 2385 | 0.1 |

| | |
|------|------|
| 2390 | 0.1 |
| 2395 | 0.09 |
| 2400 | 0.09 |

E-FIELD



| (ft) | (KV/m) |
|------|--------|
| 0 | 0 |
| 5 | 0 |
| 10 | 0 |
| 15 | 0 |
| 20 | 0 |
| 25 | 0 |
| 30 | 0 |

| | |
|-----|---|
| 35 | 0 |
| 40 | 0 |
| 45 | 0 |
| 50 | 0 |
| 55 | 0 |
| 60 | 0 |
| 65 | 0 |
| 70 | 0 |
| 75 | 0 |
| 80 | 0 |
| 85 | 0 |
| 90 | 0 |
| 95 | 0 |
| 100 | 0 |
| 105 | 0 |
| 110 | 0 |
| 115 | 0 |
| 120 | 0 |
| 125 | 0 |
| 130 | 0 |
| 135 | 0 |
| 140 | 0 |
| 145 | 0 |
| 150 | 0 |
| 155 | 0 |
| 160 | 0 |
| 165 | 0 |
| 170 | 0 |
| 175 | 0 |
| 180 | 0 |
| 185 | 0 |
| 190 | 0 |
| 195 | 0 |
| 200 | 0 |
| 205 | 0 |
| 210 | 0 |
| 215 | 0 |
| 220 | 0 |
| 225 | 0 |
| 230 | 0 |
| 235 | 0 |
| 240 | 0 |
| 245 | 0 |

| | |
|-----|------|
| 250 | 0 |
| 255 | 0 |
| 260 | 0 |
| 265 | 0 |
| 270 | 0 |
| 275 | 0 |
| 280 | 0 |
| 285 | 0 |
| 290 | 0 |
| 295 | 0 |
| 300 | 0 |
| 305 | 0 |
| 310 | 0 |
| 315 | 0 |
| 320 | 0 |
| 325 | 0 |
| 330 | 0 |
| 335 | 0 |
| 340 | 0 |
| 345 | 0 |
| 350 | 0 |
| 355 | 0 |
| 360 | 0 |
| 365 | 0 |
| 370 | 0 |
| 375 | 0 |
| 380 | 0 |
| 385 | 0 |
| 390 | 0 |
| 395 | 0 |
| 400 | 0 |
| 405 | 0 |
| 410 | 0 |
| 415 | 0 |
| 420 | 0 |
| 425 | 0 |
| 430 | 0 |
| 435 | 0.01 |
| 440 | 0.01 |
| 445 | 0.01 |
| 450 | 0.01 |
| 455 | 0.01 |
| 460 | 0.01 |

| | |
|-----|------|
| 465 | 0.01 |
| 470 | 0.01 |
| 475 | 0.01 |
| 480 | 0.01 |
| 485 | 0.01 |
| 490 | 0.01 |
| 495 | 0.01 |
| 500 | 0.01 |
| 505 | 0.01 |
| 510 | 0.01 |
| 515 | 0.01 |
| 520 | 0.01 |
| 525 | 0.01 |
| 530 | 0.01 |
| 535 | 0.01 |
| 540 | 0.01 |
| 545 | 0.01 |
| 550 | 0.01 |
| 555 | 0.01 |
| 560 | 0.01 |
| 565 | 0.01 |
| 570 | 0.01 |
| 575 | 0.01 |
| 580 | 0.01 |
| 585 | 0.01 |
| 590 | 0.01 |
| 595 | 0.01 |
| 600 | 0.01 |
| 605 | 0.01 |
| 610 | 0.01 |
| 615 | 0.01 |
| 620 | 0.01 |
| 625 | 0.01 |
| 630 | 0.01 |
| 635 | 0.01 |
| 640 | 0.01 |
| 645 | 0.01 |
| 650 | 0.01 |
| 655 | 0.01 |
| 660 | 0.01 |
| 665 | 0.01 |
| 670 | 0.01 |
| 675 | 0.01 |

| | |
|-----|------|
| 680 | 0.01 |
| 685 | 0.01 |
| 690 | 0.01 |
| 695 | 0.01 |
| 700 | 0.01 |
| 705 | 0.01 |
| 710 | 0.01 |
| 715 | 0.01 |
| 720 | 0.01 |
| 725 | 0.01 |
| 730 | 0.02 |
| 735 | 0.02 |
| 740 | 0.02 |
| 745 | 0.02 |
| 750 | 0.02 |
| 755 | 0.02 |
| 760 | 0.02 |
| 765 | 0.02 |
| 770 | 0.02 |
| 775 | 0.02 |
| 780 | 0.02 |
| 785 | 0.02 |
| 790 | 0.02 |
| 795 | 0.02 |
| 800 | 0.02 |
| 805 | 0.02 |
| 810 | 0.02 |
| 815 | 0.02 |
| 820 | 0.02 |
| 825 | 0.02 |
| 830 | 0.02 |
| 835 | 0.03 |
| 840 | 0.03 |
| 845 | 0.03 |
| 850 | 0.03 |
| 855 | 0.03 |
| 860 | 0.03 |
| 865 | 0.03 |
| 870 | 0.03 |
| 875 | 0.03 |
| 880 | 0.03 |
| 885 | 0.03 |
| 890 | 0.03 |

| | |
|------|------|
| 895 | 0.03 |
| 900 | 0.03 |
| 905 | 0.04 |
| 910 | 0.04 |
| 915 | 0.04 |
| 920 | 0.04 |
| 925 | 0.04 |
| 930 | 0.04 |
| 935 | 0.04 |
| 940 | 0.04 |
| 945 | 0.04 |
| 950 | 0.04 |
| 955 | 0.05 |
| 960 | 0.05 |
| 965 | 0.05 |
| 970 | 0.05 |
| 975 | 0.05 |
| 980 | 0.05 |
| 985 | 0.05 |
| 990 | 0.05 |
| 995 | 0.05 |
| 1000 | 0.05 |
| 1005 | 0.05 |
| 1010 | 0.05 |
| 1015 | 0.05 |
| 1020 | 0.05 |
| 1025 | 0.05 |
| 1030 | 0.05 |
| 1035 | 0.05 |
| 1040 | 0.05 |
| 1045 | 0.05 |
| 1050 | 0.04 |
| 1055 | 0.04 |
| 1060 | 0.04 |
| 1065 | 0.05 |
| 1070 | 0.07 |
| 1075 | 0.09 |
| 1080 | 0.12 |
| 1085 | 0.17 |
| 1090 | 0.23 |
| 1095 | 0.31 |
| 1100 | 0.41 |
| 1105 | 0.53 |

| | |
|------|------|
| 1110 | 0.67 |
| 1115 | 0.8 |
| 1120 | 0.87 |
| 1125 | 0.84 |
| 1130 | 0.75 |
| 1135 | 0.67 |
| 1140 | 0.63 |
| 1145 | 0.6 |
| 1150 | 0.54 |
| 1155 | 0.47 |
| 1160 | 0.44 |
| 1165 | 0.53 |
| 1170 | 0.75 |
| 1175 | 1.05 |
| 1180 | 1.41 |
| 1185 | 1.83 |
| 1190 | 2.27 |
| 1195 | 2.72 |
| 1200 | 3.11 |
| 1205 | 3.39 |
| 1210 | 3.47 |
| 1215 | 3.33 |
| 1220 | 2.97 |
| 1225 | 2.46 |
| 1230 | 1.94 |
| 1235 | 1.67 |
| 1240 | 1.84 |
| 1245 | 2.29 |
| 1250 | 2.74 |
| 1255 | 3.02 |
| 1260 | 3.06 |
| 1265 | 2.86 |
| 1270 | 2.45 |
| 1275 | 1.93 |
| 1280 | 1.44 |
| 1285 | 1.22 |
| 1290 | 1.44 |
| 1295 | 1.93 |
| 1300 | 2.45 |
| 1305 | 2.85 |
| 1310 | 3.06 |
| 1315 | 3.01 |
| 1320 | 2.73 |

| | |
|------|------|
| 1325 | 2.28 |
| 1330 | 1.83 |
| 1335 | 1.67 |
| 1340 | 1.95 |
| 1345 | 2.48 |
| 1350 | 3 |
| 1355 | 3.38 |
| 1360 | 3.53 |
| 1365 | 3.46 |
| 1370 | 3.2 |
| 1375 | 2.83 |
| 1380 | 2.41 |
| 1385 | 1.99 |
| 1390 | 1.61 |
| 1395 | 1.27 |
| 1400 | 0.99 |
| 1405 | 0.76 |
| 1410 | 0.57 |
| 1415 | 0.42 |
| 1420 | 0.3 |
| 1425 | 0.21 |
| 1430 | 0.14 |
| 1435 | 0.09 |
| 1440 | 0.06 |
| 1445 | 0.06 |
| 1450 | 0.07 |
| 1455 | 0.09 |
| 1460 | 0.1 |
| 1465 | 0.11 |
| 1470 | 0.12 |
| 1475 | 0.12 |
| 1480 | 0.12 |
| 1485 | 0.12 |
| 1490 | 0.12 |
| 1495 | 0.12 |
| 1500 | 0.12 |
| 1505 | 0.12 |
| 1510 | 0.12 |
| 1515 | 0.11 |
| 1520 | 0.11 |
| 1525 | 0.11 |
| 1530 | 0.1 |
| 1535 | 0.1 |

| | |
|------|------|
| 1540 | 0.1 |
| 1545 | 0.09 |
| 1550 | 0.09 |
| 1555 | 0.09 |
| 1560 | 0.09 |
| 1565 | 0.08 |
| 1570 | 0.08 |
| 1575 | 0.08 |
| 1580 | 0.07 |
| 1585 | 0.07 |
| 1590 | 0.07 |
| 1595 | 0.07 |
| 1600 | 0.07 |
| 1605 | 0.06 |
| 1610 | 0.06 |
| 1615 | 0.06 |
| 1620 | 0.06 |
| 1625 | 0.06 |
| 1630 | 0.05 |
| 1635 | 0.05 |
| 1640 | 0.05 |
| 1645 | 0.05 |
| 1650 | 0.05 |
| 1655 | 0.05 |
| 1660 | 0.04 |
| 1665 | 0.04 |
| 1670 | 0.04 |
| 1675 | 0.04 |
| 1680 | 0.04 |
| 1685 | 0.04 |
| 1690 | 0.04 |
| 1695 | 0.04 |
| 1700 | 0.03 |
| 1705 | 0.03 |
| 1710 | 0.03 |
| 1715 | 0.03 |
| 1720 | 0.03 |
| 1725 | 0.03 |
| 1730 | 0.03 |
| 1735 | 0.03 |
| 1740 | 0.03 |
| 1745 | 0.03 |
| 1750 | 0.03 |

| | |
|------|------|
| 1755 | 0.03 |
| 1760 | 0.02 |
| 1765 | 0.02 |
| 1770 | 0.02 |
| 1775 | 0.02 |
| 1780 | 0.02 |
| 1785 | 0.02 |
| 1790 | 0.02 |
| 1795 | 0.02 |
| 1800 | 0.02 |
| 1805 | 0.02 |
| 1810 | 0.02 |
| 1815 | 0.02 |
| 1820 | 0.02 |
| 1825 | 0.02 |
| 1830 | 0.02 |
| 1835 | 0.02 |
| 1840 | 0.02 |
| 1845 | 0.02 |
| 1850 | 0.02 |
| 1855 | 0.02 |
| 1860 | 0.02 |
| 1865 | 0.01 |
| 1870 | 0.01 |
| 1875 | 0.01 |
| 1880 | 0.01 |
| 1885 | 0.01 |
| 1890 | 0.01 |
| 1895 | 0.01 |
| 1900 | 0.01 |
| 1905 | 0.01 |
| 1910 | 0.01 |
| 1915 | 0.01 |
| 1920 | 0.01 |
| 1925 | 0.01 |
| 1930 | 0.01 |
| 1935 | 0.01 |
| 1940 | 0.01 |
| 1945 | 0.01 |
| 1950 | 0.01 |
| 1955 | 0.01 |
| 1960 | 0.01 |
| 1965 | 0.01 |

| | |
|------|------|
| 1970 | 0.01 |
| 1975 | 0.01 |
| 1980 | 0.01 |
| 1985 | 0.01 |
| 1990 | 0.01 |
| 1995 | 0.01 |
| 2000 | 0.01 |
| 2005 | 0.01 |
| 2010 | 0.01 |
| 2015 | 0.01 |
| 2020 | 0.01 |
| 2025 | 0.01 |
| 2030 | 0.01 |
| 2035 | 0.01 |
| 2040 | 0.01 |
| 2045 | 0.01 |
| 2050 | 0.01 |
| 2055 | 0.01 |
| 2060 | 0.01 |
| 2065 | 0.01 |
| 2070 | 0.01 |
| 2075 | 0.01 |
| 2080 | 0.01 |
| 2085 | 0.01 |
| 2090 | 0.01 |
| 2095 | 0.01 |
| 2100 | 0.01 |
| 2105 | 0.01 |
| 2110 | 0.01 |
| 2115 | 0.01 |
| 2120 | 0.01 |
| 2125 | 0.01 |
| 2130 | 0.01 |
| 2135 | 0.01 |
| 2140 | 0.01 |
| 2145 | 0.01 |
| 2150 | 0 |
| 2155 | 0 |
| 2160 | 0 |
| 2165 | 0 |
| 2170 | 0 |
| 2175 | 0 |
| 2180 | 0 |

| | |
|------|---|
| 2185 | 0 |
| 2190 | 0 |
| 2195 | 0 |
| 2200 | 0 |
| 2205 | 0 |
| 2210 | 0 |
| 2215 | 0 |
| 2220 | 0 |
| 2225 | 0 |
| 2230 | 0 |
| 2235 | 0 |
| 2240 | 0 |
| 2245 | 0 |
| 2250 | 0 |
| 2255 | 0 |
| 2260 | 0 |
| 2265 | 0 |
| 2270 | 0 |
| 2275 | 0 |
| 2280 | 0 |
| 2285 | 0 |
| 2290 | 0 |
| 2295 | 0 |
| 2300 | 0 |
| 2305 | 0 |
| 2310 | 0 |
| 2315 | 0 |
| 2320 | 0 |
| 2325 | 0 |
| 2330 | 0 |
| 2335 | 0 |
| 2340 | 0 |
| 2345 | 0 |
| 2350 | 0 |
| 2355 | 0 |
| 2360 | 0 |
| 2365 | 0 |
| 2370 | 0 |
| 2375 | 0 |
| 2380 | 0 |
| 2385 | 0 |
| 2390 | 0 |
| 2395 | 0 |

2400

0

Summary for DPS-002 (b)

Area of Interest 1- A&C Lines Standalone

| | 1000FT West ROW Edge | | Western ROW Edge | | A&C Line Centerline | | Eastern ROW Edge | | 1000FT East of ROW Edge | |
|---------------------|----------------------|----------|------------------|----------|---------------------|----------|------------------|----------|-------------------------|----------|
| | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed |
| E-Field (KV/m) | 0 | 0 | 0.05 | 0.06 | 1.47 | 0.72 | 0.61 | 0.38 | 0 | 0 |
| Magnetic Field (mG) | 0.05 | 0.05 | 12.91 | 14.37 | 346.32 | 183.7 | 69.1 | 57.31 | 0.06 | 0.06 |

Area of Interest 2- Shared ROW with the C and M Lines

| | 1000FT West ROW Edge | | Western ROW Edge | | M Line Centerline | | C Line Centerline | | Eastern ROW Edge | | 1000FT East of ROW Edge | |
|---------------------|----------------------|----------|------------------|----------|-------------------|----------|-------------------|----------|------------------|----------|-------------------------|----------|
| | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed |
| E-Field (KV/m) | 0 | 0 | 0.82 | 0.77 | 1.07 | 1.04 | 1.65 | 0.51 | 0.21 | 0.019 | 0 | 0 |
| Magnetic Field (mG) | 0.11 | 0.08 | 151.7 | 139.1 | 305.8 | 301.1 | 379.4 | 199.3 | 32 | 26.8 | 0.22 | 0.07 |

Area of Interest 3- Shared ROW with the A or C Lines and G Line

| | 1000FT West ROW Edge | | Western ROW Edge | | G Line Centerline | | A&C Line Centerline | | Eastern ROW Edge | | 1000FT East of ROW Edge | |
|---------------------|----------------------|----------|------------------|----------|-------------------|----------|---------------------|----------|------------------|----------|-------------------------|----------|
| | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed |
| E-Field (KV/m) | 0 | 0 | 0.21 | 0.22 | 0.3 | 0.37 | 1.45 | 0.73 | 0.62 | 0.39 | 0 | 0 |
| Magnetic Field (mG) | 0.05 | 0.06 | 27.22 | 30.77 | 38.9 | 50.45 | 342.13 | 181.05 | 70.99 | 58.71 | 1.84 | 0.07 |

Area of Interest 4- Shared ROW with the A Line and four 345kV Con Ed circuits

| | 1000FT West ROW Edge | | Western ROW Edge | | A Line Centerline | | Con Ed Eastern Towers Centerline | | Con Ed Western Towers Centerline | | Eastern ROW Edge | | 1000FT East of ROW Edge | |
|---------------------|----------------------|----------|------------------|----------|-------------------|----------|----------------------------------|----------|----------------------------------|----------|------------------|----------|-------------------------|----------|
| | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed | Existing | Proposed |
| E-Field (KV/m) | 0 | 0 | 0.08 | 0.05 | 1.49 | 0.73 | 1.67 | 1.67 | 1.67 | 1.67 | 2.83 | 2.83 | 0 | 0 |
| Magnetic Field (mG) | 0.08 | 0.09 | 22.47 | 24.92 | 301.81 | 118.18 | 377.22 | 381.9 | 386.47 | 387.24 | 288.31 | 289.05 | 0.11 | 0.1 |

Central Hudson Gas & Electric Corporation
A & C LINE REBUILD PROJECT- ARTICLE VII APPLICATION Case 13-T-0469
Exhibit A to Supplemental IR Response CHGE-002A

| <u>Section/Block/Lot</u> | <u>Property Owner</u> | <u>Attn:</u> | <u>Parcel Location</u> | <u>Mailing Address</u> | <u>Mail Town/City</u> | <u>Mail State</u> | <u>Mail ZIP</u> | <u>House Distance to Edge of ROW in Feet</u> | <u>Nearest Structure Number</u> |
|--------------------------|-------------------------------------|-----------------------|------------------------|------------------------|-----------------------|-------------------|-----------------|--|---------------------------------|
| 6363-04-862327-0000 | Odescalchi, Edmond | | 1020 Freedom Rd | 1020 Freedom Rd | Pleasant Valley | NY | 12569 | 1000 | C4 |
| 6460-03-184383-0000 | Kara, Todd | | 190 Lauer Rd | 190 Lauer Rd | Poughkeepsie | NY | 12603 | 998 | A8 |
| 6359-02-937991-0000 | Flynn, Donald Brian | | 8 Pine Ridge Rd | 8 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 998 | A17 |
| 6461-03-146026-0000 | Carter, Kathleen A | | 12 Lafayette Ct | 12 Lafayette Ct | Poughkeepsie | NY | 12603 | 997 | C54 |
| 6358-01-452611-0000 | Stringham, Varick Jr | | 1028 Route 376 | 1030 Route 376 | Wappingers Falls | NY | 12590 | 994 | A54 |
| 6362-04-832403-0000 | Yereance, Kenneth G | | 213 Rombout Rd | 213 Rombout Rd | Pleasant Valley | NY | 12569 | 994 | C22 |
| 6361-02-961859-0000 | DeLongis, Vincent | | 1 Mountain View Dr | 1 Mountain View Dr | Pleasant Valley | NY | 12569 | 994 | C33 |
| 6363-04-853416-0000 | Huber, Timothy P | | 12 South Ave | 12 South Ave | Pleasant Valley | NY | 12569 | 992 | C3 |
| 6461-01-008773-0000 | Barber, Ford C | | 21 Mountain View Dr | 21 Mountain View Dr | Pleasant Valley | NY | 12569 | 987 | C35 |
| 6359-02-823539-0000 | Red Hawk Hollow Ltd | | 41 Red Hawk Hollow Rd | 41 Red Hawk Hollow Rd | Wappingers Falls | NY | 12590 | 987 | A31 |
| 6459-03-095495-0000 | Travis Steven Trustee | | 82 Robinson Ln | 82 Robinson Ln | Wappingers Falls | NY | 12590 | 985 | A27 |
| 6358-01-431579-0000 | Small World Child Care Center , Inc | | 1031 Route 376 | 1031 Route 376 | Wappingers Falls | NY | 12590 | 983 | A55 |
| 6459-03-035426-0000 | Santiago, Hector I | | 9 Robinson Garden Dr | 9 Robinson Gardens Dr | Wappingers Falls | NY | 12590 | 982 | A29 |
| 6461-03-160215-0000 | Liguori, William F | | 119 Cramer Rd | 119 Cramer Rd | Poughkeepsie | NY | 12603 | 982 | C49 |
| 6358-03-246413-0000 | Nagel, Michael R | | 25 Montfort Rd | 25 Montfort Rd | Wappingers Falls | NY | 12590 | 978 | A58 |
| 6363-04-895167-0000 | Ne'Eman Israel | | 18 Richies Way | 18 Richies Way | Pleasant Valley | NY | 12569 | 976 | C8 |
| 6461-01-020748-0000 | Conlan, Brian S | | 25 Mountain View Dr | 25 Mountain View Dr | Pleasant Valley | NY | 12569 | 976 | C35 |
| 6460-01-136960-0000 | Lindsey Q Michael | | 38 Sedgewick Rd | 38 Sedgewick Rd | Poughkeepsie | NY | 12603 | 976 | C56 |
| 6461-03-383450-0000 | Tobin, Ellice R | Attn: Stephen Kirshon | 91-115 Freedom Rd | 311 Mill St | Poughkeepsie | NY | 12601 | 975 | C44 |
| 6360-04-933180-0000 | Wright, Forrest W | | 11 Forrest Way | 11 Forest Way | Poughkeepsie | NY | 12603 | 972 | A12 |
| 6460-01-134986-0000 | Sefcik, Matthew S | | 3 Victor Dr | 3 Victor Dr | Poughkeepsie | NY | 12603 | 971 | C55 |
| 6362-04-822344-0000 | Kelly, Catherine M | | 220 Rombout Rd | 220 Rombout Rd | Pleasant Valley | NY | 12569 | 969 | C23 |
| 6461-03-147074-0000 | Stewart, Hyacinth L | | 8 Lafayette Ct | 8 Lafayette Ct | Poughkeepsie | NY | 12603 | 966 | C54 |
| 6462-03-048323-0000 | Flynn, Thomas A Jr | | 312 Freedom Rd | 312 Freedom Rd | Pleasant Valley | NY | 12569 | 965 | C23 |
| 6461-03-151099-0000 | Bates, John | | 6 Lafayette Ct | 6 Lafayette Ct | Poughkeepsie | NY | 12603 | 963 | C53 |
| 6460-03-146216-0000 | Barry, Stephen | | 123 Lauer Rd | 123 Lauer Rd | Poughkeepsie | NY | 12603 | 962 | A11 |
| 6359-02-934917-0000 | Commisso, Steven J | | 14 Pine Ridge Rd | 14 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 962 | A19 |
| 6358-01-254824-0000 | Rider, Donald Oliver | | 1176 Route 376 | 1176 Route 376 | Wapp Fls | NY | 12590 | 960 | A49 |
| 6459-03-071451-0000 | Rowell, Richard C | | 88-90 Robinson Ln | 90 Robinson Ln | Wappingers Falls | NY | 12590 | 958 | A27 |
| 6459-01-123735-0000 | Collins-Judon RoseAnne | | 22 Robinson Ln | 22 Robinson Ln | Wappingers Falls | NY | 12590 | 958 | A23 |
| 6363-04-870252-0000 | Smith, Duane A | | 987 Freedom Rd | 987 Freedom Rd | Pleasant Valley | NY | 12569 | 957 | C6 |
| 6358-01-205670-0000 | Heinemann, Michelle M | | 1109-1111 Route 376 | 1111 Route 376 | Wappingers Falls | NY | 12590 | 953 | A52 |
| 6459-01-128753-0000 | Lee, Byoung Hun | | 20 Robinson Ln | 5817 Medicine Creek Dr | Austin | TX | 78735 | 952 | A22 |
| 6361-02-968849-0000 | Mastrangelo, Peter A | | 3 Mountain View Dr | 3 Mountain View Dr | Pleasant Valley | NY | 12569 | 948 | C33 |
| 6461-01-126636-0000 | Shin, Jeong Hye | | 65 Pond Hills Ct | 65 Pond Hills Ct | Pleasant Valley | NY | 12569 | 947 | C38 |
| 6362-02-985845-0000 | Groth, Marjorie | | 821 Freedom Rd | P O Box 677 | Pleasant Valley | NY | 12569 | 944 | C14 |
| 6461-01-160959-0000 | Phelan, Keith | | 224 Freedom Rd | 224 Freedom Rd | Pleasant Valley | NY | 12569 | 943 | C33 |
| 6462-03-053305-0000 | Mackey Robert | Attn: Kurt Haun | 310 Freedom Rd | 588 Clapp Hill Rd | Lagrangeville | NY | 12540 | 942 | C24 |
| 6461-01-032739-0000 | Murphy, Josephine | | 27 Mountain View Dr | 27 Mountain View Dr | Pleasant Valley | NY | 12569 | 942 | C36 |
| 6359-02-810521-0000 | Evans, Kevin R | | 44 Red Hawk Hollow Rd | 44 Red Hawk Hollow Rd | Wappingers Falls | NY | 12590 | 940 | A31 |
| 6461-03-356097-0000 | Wade, Sandra L. | | 153 Kramer Rd | 153 Kramer Rd | Poughkeepsie | NY | 12603 | 940 | C53 |
| 6358-03-251402-0000 | Devincenzi, Ronald P | | 27 Montfort Rd | 27 Montfort Rd | Wappingers Falls | NY | 12590 | 940 | A58 |
| 6363-04-889140-0000 | Igunbor Osaruwense | | 16 Richies Way | 16 Richies Way | Pleasant Valley | NY | 12569 | 938 | C8 |
| 6363-04-933088-0000 | Cannella, Sal | | 41 Ryans Run | 41 Ryans Run | Pleasant Valley | NY | 12569 | 938 | C9 |
| 6360-04-947149-0000 | Davidson, Mark J | | 7 Forrest Way | 7 Forrest Way | Poughkeepsie | NY | 12603 | 922 | A13 |
| 6359-02-938964-0000 | DiPalma, Helene M | | 10 Pine Ridge Rd | 10 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 921 | A18 |
| 6461-01-004785-0000 | Eckna, John Paul | | 19 Mountain View Dr | 19 Mountain View Dr | Pleasant Valley | NY | 12569 | 920 | C34 |
| 6461-03-150051-0000 | Vece, Ronald L Jr | | 10 Lafayette Ct | 10 Lafayette Ct | Poughkeepsie | NY | 12603 | 919 | C54 |
| 6359-02-940945-0000 | Smith, William E | | 12 Pine Ridge Rd | P O Box 172 | LaGrangeville | NY | 12540 | 917 | A18 |
| 6363-04-850387-0000 | Baxter, James N | | 1040 Freedom Rd | 1040 Freedom Rd | Pleasant Valley | NY | 12569 | 913 | C3 |
| 6358-03-256392-0000 | Rhodes, Linda G | | 29 Montfort Rd | 29 Monfort Rd | Wappingers Falls | NY | 12590 | 913 | A59 |
| 6360-04-966033-0000 | Howlett, Nicholas | | 3 Pine Ridge Rd | 3 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 908 | A16 |
| 6358-01-254808-0000 | Beneway, Howard R Jr | | 1168-1170 Route 376 | 1170 Route 376 | Wappingers Falls | NY | 12590 | 907 | A49 |
| 6461-01-163939-0000 | Galeno Andrew | | 222 Freedom Rd | 222 Freedom Rd | Pleasant Valley | NY | 12569 | 902 | C33 |
| 6362-02-706966-0000 | Drewes, Diane E. | | 566 Plass Rd. | 566 Plass Rd. | Pleasant Valley | NY | 12569 | 900 | C10 |
| 6359-02-919825-0000 | Bruno, Louis J | | 22 Pine Ridge Rd | 22 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 899 | A20 |
| 6459-01-115720-0000 | McKeon Kevin | | 24 Robinson Ln | 24 Robinson Ln | Wappingers Falls | NY | 12590 | 897 | A23 |
| 6359-04-982402-0000 | Riggio, Anthony R | | 11 Robinson Garden Dr | 11 Robinson Garden Rd | Wappingers Falls | NY | 12590 | 896 | A29 |
| 6361-02-975840-0000 | Flores, Noemi | | 5 Mountain View Dr | 5 Mountain View Dr | Pleasant Valley | NY | 12569 | 895 | C33 |
| 6360-04-960085-0000 | Crocker, John L | | 26-28 Old Noxon Rd | 26 Old Noxon Rd | Poughkeepsie | NY | 12603 | 892 | A14 |
| 6460-01-264633-0000 | Nesheiwat, Mazen | | 10 Todd Hill Rd | 10 Todd Hill Rd | Poughkeepsie | NY | 12603 | 890 | C62 |
| 6461-03-156125-0000 | Kunkeli, Theodore | | 4 Lafayette Ct | 4 La Fayette Ct | Poughkeepsie | NY | 12603 | 890 | C52 |
| 6359-02-944885-0000 | Ralston, Bruce R | | 21 Pine Ridge Rd | 21 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 889 | A19 |
| 6358-03-262382-0000 | Mari, Antonio | | 31 Montfort Rd | 31 Montfort Rd | Wappingers Falls | NY | 12590 | 889 | A59 |
| 6363-04-851365-0000 | La Scala, Jane | | 1034 Freedom Rd | 19 Schofield St | Bronx | NY | 1464 | 887 | C4 |
| 6358-01-220588-0000 | Cunningham Richard T Jr | | 319 Myers Corners Rd | 319 Myers Corners Rd | Wappingers Falls | NY | 12590 | 886 | A54 |
| 6461-01-061690-0000 | Stamer, David T | | 51 Pond Hills Ct | 51 Pond Hills Ct | Pleasant Valley | NY | 12569 | 879 | C37 |
| 6360-04-963207-0000 | D'Angelo, Mark | | 17 Forrest Way | 17 Forest Way | Poughkeepsie | NY | 12603 | 878 | A12 |

House Distances from A&C ROW

| | | | | | | | | |
|---------------------|--------------------------|-----------------------|-----------------------|------------------|----|-------|-----|-----|
| 6362-02-844567-0000 | Bodack, Mark P | 14 Brenner Ridge Rd | 14 Brenner Ridge Rd | Pleasant Valley | NY | 12569 | 878 | C18 |
| 6358-01-225553-0000 | Blatz, Richard W | 320 Myers Corners Rd | 320 Myers Corners Rd | Wapp Fls | NY | 12590 | 877 | A55 |
| 6362-02-929860-0000 | Juerss, Detlef | 837-839 Freedom Rd | 837 Freedom Rd | Pleasant Valley | NY | 12569 | 874 | C13 |
| 6460-01-330938-0000 | Matsoukas Ulysses | 435-437 Lauer Rd | 435 Lauer Rd | Poughkeepsie | NY | 12603 | 874 | C57 |
| 6360-04-973016-0000 | Blanchfield, Marcia A | 5 Pine Ridge Rd | 5 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 870 | A17 |
| 6461-01-003797-0000 | Ocasio, Francisca | 17 Mountain View Dr | 17 Mountain View Dr | Pleasant Valley | NY | 12569 | 869 | C34 |
| 6459-01-105570-0000 | Shortt, Yvonne | 71 Robinson Ln | 71 Robinson Ln | Wappingers Falls | NY | 12590 | 868 | A26 |
| 6461-01-200793-0000 | Dandeneau, James E | 215-217 Freedom Rd | 215 Freedom Rd | Pleasant Valley | NY | 12569 | 863 | C35 |
| 6363-04-935074-0000 | Henry, Suzanne | 45 Ryans Run | 45 Ryans Run | Pleasant Valley | NY | 12569 | 860 | C10 |
| 6461-03-338007-0000 | Brown, Deborah A. | 459 Lauer Rd. | 459 Lauer Rd. | Poughkeepsie | NY | 12603 | 859 | C55 |
| 6362-04-871477-0000 | Cordova, Jerry A | 217 Rombout Rd | 217 Rombout Rd | Pleasant Valley | NY | 12569 | 859 | C21 |
| 6361-02-983832-0000 | Linnane, Michael | 7 Mountain View Dr | 7 Mountain View Dr | Pleasant Valley | NY | 12569 | 850 | C33 |
| 6459-03-049451-0000 | Whalen, Bonnie A | 6 Robinson Garden Dr | 6 Robinson Garden Dr | Wappingers Falls | NY | 12590 | 850 | A27 |
| 6461-01-045739-0000 | Gold, Gene | 29 Mountain View Dr | 29 Mountain View Dr | Pleasant Valley | NY | 12569 | 842 | C36 |
| 6363-04-705109-0000 | Anduze, David D | 26 Valerie Ln | 26 Valerie Ln | Pleasant Valley | NY | 12569 | 839 | C8 |
| 6363-04-849399-0000 | Thompson, Michael G | 2 South Ave | 2 South Ave | Pleasant Valley | NY | 12569 | 837 | C3 |
| 6362-02-929860-0000 | Juerss, Detlef | 837-839 Freedom Rd | 837 Freedom Rd | Pleasant Valley | NY | 12569 | 835 | C13 |
| 6461-01-003806-0000 | Rearon, John A | 15 Mountain View Dr | 15 Mountain View Dr | Pleasant Valley | NY | 12569 | 832 | C34 |
| 6362-02-868606-0000 | Fenton, Christopher T | 20 Brenner Ridge Rd | 20 Brenner Ridge Rd | Pleasant Valley | NY | 12569 | 831 | C17 |
| 6459-01-093600-0000 | Secor, Donald | 63 Robinson Ln | 63 Robinson Ln | Wappingers Falls | NY | 12590 | 829 | A25 |
| 6362-02-956982-0000 | Kenyon David S | 61 Jennie Ln | 61 Jennie Ln | Pleasant Valley | NY | 12590 | 829 | C12 |
| 6459-01-106705-0000 | Babio, Frank | 26 Robinson Ln | 26 Robinson Ln | Wappingers Falls | NY | 12590 | 828 | A23 |
| 6361-02-975870-0000 | Strothmann, Derek H | 61 Mountain View Dr | 61 Mountain View Dr | Pleasant Valley | NY | 12569 | 827 | C33 |
| 6460-01-061621-0000 | Vetter, Charles G | 7 Smith Rd | 6574 Misty Harbor Ct | Flowery Branch | GA | 30542 | 826 | A3 |
| 6362-02-985743-0000 | Holder, Audrey Trustee | 405-407 Freedom Rd | 407 Freedom Rd | Pleasant Valley | NY | 12569 | 826 | C16 |
| 6460-01-029552-0000 | Tao, Barbara A | 2 Croft Hill Rd | 22 High Acres Dr | Poughkeepsie | NY | 12603 | 818 | A4 |
| 6459-01-138964-0000 | Smith, Dana M | 1-3 Old Noxon Rd | 1 Old Noxon Rd | Poughkeepsie | NY | 12603 | 816 | A17 |
| 6363-04-694202-0000 | Gasparini, Don D | 46 Patricia Dr | 46 Patricia Dr | Pleasant Valley | NY | 12569 | 816 | C6 |
| 6461-01-003815-0000 | Bauer, Arthur | 13 Mountain View Dr | 13 Mountain View Dr | Pleasant Valley | NY | 12569 | 815 | C34 |
| 6363-04-868088-0000 | Doehl, Klaus | 5 Richies Way | P O Box 445 | Pleasant Valley | NY | 12569 | 813 | C9 |
| 6460-01-147928-0000 | Parker, Kevin | 41 Sedgewick Rd | 41 Sedgewick Rd | Poughkeepsie | NY | 12603 | 812 | C57 |
| 6362-04-836491-0000 | Lindell Ellen M | 6 Brenner Ridge Rd | 6 Brenner Ridge Rd | Pleasant Valley | NY | 12569 | 811 | C20 |
| 6359-02-960901-0000 | Fischer, Elizabeth LT | 19 Pine Ridge Rd | 19 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 810 | A19 |
| 6358-01-234522-0000 | Alexander, Seth T | 316 Myers Corners Rd | 316 Myers Corners Rd | Wappingers Falls | NY | 12590 | 808 | A56 |
| 6461-03-350056-0000 | Dobbie, Thomas A Trustee | 1 Vervalen Dr | 1 Ver Valen Dr | Poughkeepsie | NY | 12603 | 804 | C54 |
| 6461-03-168140-0000 | Redl, Mark | 2 Lafayette Ct | 2 La Fayette Ct | Poughkeepsie | NY | 12603 | 803 | C52 |
| 6461-01-033775-0000 | Hedberg, John V | 8 Mountain View Dr | P O Box 1662 | Westcliffe | CO | 81252 | 802 | C35 |
| 6362-02-857520-0000 | Waters, Michael P | 10 Brenner Ridge Rd | 10 Brenner Ridge Rd | Pleasant Valley | NY | 12569 | 800 | C19 |
| 6360-04-973002-0000 | Rubinstein, Adam Lance | 7 Pine Ridge Rd | 7 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 800 | A17 |
| 6460-03-135238-0000 | Bell, Jessica | 131 Lauer Rd | 131 Lauer Rd | Poughkeepsie | NY | 12603 | 796 | A11 |
| 6363-04-708141-0000 | Alves, Amanda | 38 Patricia Dr | 38 Patricia Dr | Pleasant Valley | NY | 12569 | 796 | C8 |
| 6462-03-001207-0000 | Engelhardt, George G LT | 291 Freedom Rd | 291 Freedom Rd | Pleasant Valley | NY | 12569 | 795 | C26 |
| 6358-01-234590-0000 | Grant, Robert S LT | 323 Myers Corners Rd | 620 Route 55 | Napanoch | NY | 12458 | 792 | A54 |
| 6461-03-345134-0000 | Eshelman, Perry K | 151 Cramer Rd | 151 Cramer Raod | Poughkeepsie | NY | 12603 | 791 | C52 |
| 6363-04-873205-0000 | Fakhouri Rajai I | 28 Richies Way | 28 Richies Way | Pleasant Valley | NY | 12569 | 789 | C6 |
| 6358-03-273362-0000 | Cacciatore, Joseph J | 35 Montfort Rd | 35 Montfort Rd | Wapp Fls | NY | 12590 | 788 | A59 |
| 6461-03-171181-0000 | Schmansky, Gary A | 31 Vervalen Dr | 31 Ver Valen Dr | Poughkeepsie | NY | 12603 | 788 | C51 |
| 6461-03-169159-0000 | King, Nigel E | 29 Vervalen Dr | 29 Ver Valen Dr | Poughkeepsie | NY | 12603 | 787 | C52 |
| 6459-01-118782-0000 | Costa, Manuel | 314 Diddell Rd | 314 Diddell Rd | Poughkeepsie | NY | 12603 | 786 | A21 |
| 6361-02-990824-0000 | Gilman, James F | 9 Mountain View Dr | 9 Mountain View Dr | Pleasant Valley | NY | 12569 | 785 | C33 |
| 6461-03-384156-0000 | Wade, Glenn L | 21-23 Freedom Rd | 21 Freedom Rd | Pleasant Valley | NY | 12569 | 785 | C50 |
| 6461-03-181226-0000 | Bauer, Edwin W LT | 121 Cramer Rd | 121 Cramer Rd | Poughkeepsie | NY | 12603 | 784 | C50 |
| 6460-01-203522-0000 | Smythe Jane A | 256 Lauer Rd | P O Box 375 | LaGrangeville | NY | 12540 | 783 | A4 |
| 6462-03-036135-0000 | Shipley, William T | 273 Freedom Rd | 273 Freedom Rd | Pleasant Valley | NY | 12569 | 783 | C28 |
| 6363-04-941051-0000 | Madoff Stacey | 51 Ryans Run | 51 Ryans Run | Pleasant Valley | NY | 12569 | 783 | C10 |
| 6460-01-038505-0000 | Rendes, Gretchen | 51 Smith Rd | 757 Traver Rd | Pleasant Valley | NY | 12569 | 782 | A5 |
| 6363-04-707125-0000 | Prusi, Alexander | 36 Patricia Dr | 36 Patricia Dr | Pleasant Valley | NY | 12569 | 779 | C8 |
| 6461-01-042766-0000 | Perro, William D | 10 Mountain View Dr | 10 Mountain View Dr | Pleasant Valley | NY | 12569 | 777 | C35 |
| 6358-01-255535-0000 | Korzekwinski, Bernard T | 322 Myers Corners Rd | 322 Myers Corners Rd | Wappingers Falls | NY | 12590 | 776 | A55 |
| 6358-03-267372-0000 | Stopa, Robert J | 33 Montfort Rd | 33 Montfort Rd | Wapp Fls | NY | 12590 | 774 | A59 |
| 6359-02-938748-0000 | Kohlmyer, Tara | 267 Diddell Rd | 267 Diddell Rd | Poughkeepsie | NY | 12603 | 771 | A22 |
| 6359-02-968918-0000 | Greinacher, Klaus A | 17 Pine Ridge Rd | 17 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 770 | A19 |
| 6362-02-873628-0000 | Mc Hugh, Ronald | 22 Brenner Ridge Rd | 22 Brenner Ridge Rd | Pleasant Valley | NY | 12569 | 769 | C17 |
| 6461-01-001824-0000 | Di Stefano, Otto R | 11 Mountain View Dr | 11 Mountain View Dr | Pleasant Valley | NY | 12569 | 768 | C34 |
| 6359-02-972987-0000 | Stortini, Marcellino J | 9 Pine Ridge Rd | 9 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 767 | A17 |
| 6359-02-947811-0000 | Winters, Timothy Paul | 24 Pine Ridge Rd | 24 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 766 | A20 |
| 6459-01-136994-0000 | Short, Ralph H | 6 Old Noxon Rd | 6 Old Noxon Rd | Poughkeepsie | NY | 12603 | 766 | A17 |
| 6461-01-088675-0000 | Harris, Richard C | 59 Pond Hills Ct | 59 Pond Hills Ct | Pleasant Valley | NY | 12569 | 764 | C37 |
| 6459-03-021449-0000 | Seufert, Vincent | 10 Robinson Garden Dr | 10 Robinson Garden Dr | Wappingers Falls | NY | 12590 | 763 | A28 |
| 6462-03-068113-0000 | Daly, Brian | 266 Freedom Rd | 266 Freedom Rd | Pleasant Valley | NY | 12569 | 760 | C29 |
| 6358-03-253444-0000 | Pennachio, James | 7 Larissa Ln | 7 Larissa Ln | Wappingers Falls | NY | 12590 | 760 | A57 |
| 6359-02-821501-0000 | Feola, Karen R | 52 Red Hawk Hollow Rd | 52 Red Hawk Hollow Rd | Wappingers Falls | NY | 12590 | 760 | A31 |
| 6358-03-255312-0000 | Vivalda, John A Trustee | 20 Shale Dr | 20 Shale Dr | Wappingers Falls | NY | 12590 | 760 | A60 |

House Distances from A&C ROW

| | | | | | | | | |
|---------------------|---------------------------------|-----------------------|-----------------------|------------------|----|------------|-----|-----|
| 6361-02-989862-0000 | Flemister, Edward R | 59 Mountain View Dr | 59 Mountain View Dr | Pleasant Valley | NY | 12569 | 758 | C33 |
| 6359-02-952866-0000 | Pollock, Kenneth M Trustee | 23 Pine Ridge Rd | 23 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 757 | A20 |
| 6363-04-709156-0000 | Brown, David E | 40 Patricia Dr | 40 Patricia Dr | Pleasant Valley | NY | 12569 | 755 | C7 |
| 6363-04-705187-0000 | Plew, John E | 44 Patricia Dr | 44 Patricia Dr | Pleasant Valley | NY | 12569 | 753 | C7 |
| 6460-01-297757-0000 | Rockwell, Thomas | 347 Lauer Rd | 345 Lauer Rd | Poughkeepsie | NY | 12603 | 753 | C60 |
| 6462-03-005168-0000 | Mikula, Michael J | 281 Freedom Rd | 281 Freedom Rd | Pleasant Valley | NY | 12569 | 751 | C27 |
| 6461-01-036786-0000 | Haight Patricia McGrath Trustee | 6 Mountain View Dr | 6 Mountain View Dr | Pleasant Valley | NY | 12569 | 748 | C35 |
| 6462-03-003186-0000 | Smith, Richard J | 287 Freedom Rd | 287 Freedom Rd | Pleasant Valley | NY | 12569 | 744 | C27 |
| 6359-02-839510-0000 | Little, Rodney Alan | 54 Red Hawk Hollow Rd | 54 Red Hawk Hollow Rd | Wappingers Falls | NY | 12590 | 742 | A31 |
| 6460-01-052593-0000 | Kender, Lonnie R | 21 Smith Rd | 21 Smith Rd | Poughkeepsie | NY | 12603 | 739 | A3 |
| 6359-02-973971-0000 | Klare, Mark | 11 Pine Ridge Rd | 11 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 739 | A18 |
| 6358-03-246464-0000 | Riguzzi, Brian A | 9 Larissa Ln | 9 Larissa Ln | Wappingers Falls | NY | 12590 | 737 | A57 |
| 6461-01-058741-0000 | Buechele, Juergen A | 31 Mountain View Dr | 31 Mountain View Dr | Pleasant Valley | NY | 12569 | 733 | C36 |
| 6461-03-319253-0000 | Hatch III, Edward L. | 125 Frost Hill Rd. | PO Box 376 | Lagrangeville | NY | 12540 | 731 | C48 |
| 6461-03-331038-0000 | Landry, Henry B | 3 Vervalen Dr | 3 Ver Valen Dr | Poughkeepsie | NY | 12603 | 727 | C54 |
| 6363-04-710171-0000 | Andrews, Christopher P | 42 Patricia Dr | 42 Patricia Dr | Pleasant Valley | NY | 12569 | 726 | C7 |
| 6460-01-156982-0000 | Carpentier, Karen L | 2 Timothy Dr | 2 Timothy Dr | Poughkeepsie | NY | 12603 | 725 | C55 |
| 6460-01-219545-0000 | Spennacchio, Sam C | 264 Lauer Rd | 264 Lauer Rd | Poughkeepsie | NY | 12603 | 723 | A3 |
| 6359-02-971935-0000 | Tierney, Brian P Jr | 15 Pine Ridge Rd | 15 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 720 | A19 |
| 6461-03-176085-0000 | Burrow, Robert M | 5 Lafayette Ct | P O Box 406 | La Grangeville | NY | 12540 | 720 | C53 |
| 6461-03-175106-0000 | White, Michael P | 1 Lafayette Ct | 1 Lafayette Ct | Poughkeepsie | NY | 12603 | 719 | C53 |
| 6363-04-704090-0000 | Chavanne, Ilse | 587 Plass Rd | 587 Plass Rd | Pleasant Valley | NY | 12569 | 717 | C9 |
| 6460-03-168422-0000 | Dean, David L | 199 Lauer Rd | 199 Lauer Rd | Poughkeepsie | NY | 12603 | 717 | A6 |
| 6359-02-972954-0000 | Lubbers Bonnie L | 13 Pine Ridge Rd | 13 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 714 | A18 |
| 6460-01-249644-0000 | Allardi, Lisa A | 8 Todd Hill Rd | 8 Todd Hill Rd | Poughkeepsie | NY | 12603 | 709 | C62 |
| 6459-01-126876-0000 | Dean, Kenneth W | 350 Diddell Rd | 350 Diddell Rd | Poughkeepsie | NY | 12603 | 708 | A19 |
| 6363-04-702067-0000 | Lembesis, John G | 8 Valerie Ln | 8 Valerie Ln | Pleasant Valley | NY | 12569 | 708 | C9 |
| 6361-02-987876-0000 | Lapinsky Anthony | Overlook Rd | 354 Overlook Rd | Pleasant Valley | NY | 12569 | 703 | C33 |
| 6358-03-272416-0000 | Carroll, William G | 6 Larissa Ln | 6 Larissa Ln | Wappingers Falls | NY | 12590 | 699 | A58 |
| 6459-01-088686-0000 | Prunty, Erin M | 36 Robinson Ln | 36 Robinson Ln | Wappingers Falls | NY | 12590 | 698 | A23 |
| 6462-03-016328-0000 | Surico, Lucille | 317 Freedom Rd | 938 Freedom Rd | Pleasant Valley | NY | 12569 | 697 | C23 |
| 6461-03-336086-0000 | Krauss, Edward | 2 Vervalen Dr | 2 Ver Valen Dr | Poughkeepsie | NY | 12603 | 696 | C53 |
| 6361-02-997858-0000 | Stavish, Joseph | 57 Mountain View Dr | 57 Mountain View Dr | Pleasant Valley | NY | 12569 | 695 | C33 |
| 6462-03-012489-0000 | Occhicone, Nicholas J | 355 Freedom Rd | 355 Freedom Rd | Pleasant Valley | NY | 12569 | 694 | C20 |
| 6360-04-973134-0000 | Peruffo, Neil J | 3 Forrest Way | 3 Forrest Way | Poughkeepsie | NY | 12603 | 692 | A13 |
| 6461-01-053764-0000 | Feeney, Peter J | 12 Mountain View Dr | 12 Mountainview Dr | Pleasant Valley | NY | 12569 | 691 | C35 |
| 6358-04-509177-0000 | Valentine, Scott | 78 Lake Walton Rd | 78 Lake Walton Rd | Wappingers Falls | NY | 12590-7321 | 686 | A64 |
| 6461-01-036797-0000 | Musa Ann Florence | 4 Mountain View Dr | 4 Mountain View Dr | Pleasant Valley | NY | 12569 | 681 | C34 |
| 6460-01-322987-0000 | Lundewall, Mark Ernest | 453 Lauer Rd | 453 Lauer Rd | Poughkeepsie | NY | 12603 | 678 | C55 |
| 6363-04-838311-0000 | Warner, David F Jr | 1015 Freedom Rd | 1015 Freedom Rd | Pleasant Valley | NY | 12569 | 676 | C4 |
| 6358-01-276539-0000 | Warner, Damien E | 324 Myers Corners Rd | 324 Myers Corners Rd | Wappingers Falls | NY | 12590 | 675 | A54 |
| 6359-02-921657-0000 | Houskeeper, Peter | 242-244 Diddell Rd | 242-244 Diddell Rd | Poughkeepsie | NY | 12603 | 673 | A25 |
| 6358-03-275340-0000 | Prager, Joseph Howard | 37 Montfort Rd | 37 Montfort Rd | Wappingers Falls | NY | 12590 | 673 | A60 |
| 6358-03-265295-0000 | Palmateer, Paul H | 40 Montfort Rd | 40 Montfort Rd | Wappingers Falls | NY | 12590 | 671 | A61 |
| 6459-01-084622-0000 | Bascone, James J | 61 Robinson Ln | 61 Robinson Ln | Wappingers Falls | NY | 12590 | 668 | A25 |
| 6460-03-204485-0000 | Ball, James A | 230 Lauer Rd | 230 Lauer Rd | Poughkeepsie | NY | 12603 | 667 | A5 |
| 6459-01-070503-0000 | Kotchie, John S III | 80 Robinson Ln | 80 Robinson Ln | Wappingers Falls | NY | 12590 | 665 | A27 |
| 6461-03-170016-0000 | Knop, Felipe | 9 Lafayette Ct | 9 Lafayette Ct | Poughkeepsie | NY | 12603 | 664 | C54 |
| 6459-01-061534-0000 | Voght Gregory P | 72 Robinson Ln | 24 Frost Rd | Wappingers Falls | NY | 12590 | 662 | A26 |
| 6459-01-074674-0000 | Voght, Marcia P | 38 Robinson Ln | P O Box 367 | Wappingers Falls | NY | 12590 | 661 | A24 |
| 6362-02-868686-0000 | Brenner, Willi K Trustee | 24 Brenner Ridge Rd | 24 Brenner Ridge Rd | Pleasant Valley | NY | 12569 | 659 | C16 |
| 6359-02-941764-0000 | Fox, Carol | 271 Diddell Rd | 30 Surrey Ln | Plainview | NY | 11803-5128 | 654 | A22 |
| 6460-01-043536-0000 | Hammerschlag, Hans | 4 Croft Hill Rd | 4 Croft Hill Rd | Poughkeepsie | NY | 12603 | 652 | A5 |
| 6362-04-880412-0000 | Cobb, Regina B | 223 Rombout Rd | 223 Rombout Rd | Pleasant Valley | NY | 12569 | 651 | C22 |
| 6363-04-856235-0000 | Dunn, Richard | 985 Freedom Rd | 985 Freedom Rd | Pleasant Valley | NY | 12569 | 648 | C6 |
| 6461-01-070742-0000 | Lyons, John P LT | 33 Mountain View Dr | 33 Mountain View Dr | Pleasant Valley | NY | 12569 | 643 | C36 |
| 6460-01-314929-0000 | Minotti, Robert Sr | Lauer Rd | 200 Rte 216 | Stormville | NY | 12582 | 641 | C57 |
| 6359-02-909564-0000 | Snyder, Tod | 68 Red Hawk Hollow Rd | 68 Red Hawk Hollow Rd | Wappingers Falls | NY | 12590 | 640 | A29 |
| 6363-04-830334-0000 | Lopez, Diana O | 1027 Freedom Rd | 1027 Freedom Rd | Pleasant Valley | NY | 12569 | 639 | C4 |
| 6358-03-255479-0000 | Romano, John M | 11 Larissa Ln | 11 Larissa Ln | Wappingers Falls | NY | 12590 | 638 | A57 |
| 6461-03-174055-0000 | Simmons, Jeffrey P | 7 Lafayette Ct | 7 Lafayette Ct | Poughkeepsie | NY | 12603 | 634 | C54 |
| 6460-01-063573-0000 | Sykes, Josephine G | 1 Croft Hill Rd | 1 Croft Hill Rd | Poughkeepsie | NY | 12603 | 634 | A4 |
| 6362-04-998252-0000 | Dani, Ashlesh | 303 Freedom Rd | 89 Ridgeline Dr | Poughkeepsie | NY | 12603 | 633 | C25 |
| 6359-04-979440-0000 | Santiago, Clifford | 14 Robinson Garden Dr | 14 Robinson Garden Dr | Wappingers Falls | NY | 12590 | 630 | A29 |
| 6459-01-097794-0000 | Atulgama Preethi N | 320 Diddell Rd | 320 Diddell Rd | Poughkeepsie | NY | 12603 | 629 | A21 |
| 6359-02-971875-0000 | Mayerhauser, John A | 25 Pine Ridge Rd | 25 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 626 | A20 |
| 6460-01-170949-0000 | Tavarez, David | 42 Sedgewick Rd. | 42 Sedgewick Rd. | Poughkeepsie | NY | 12601 | 624 | C56 |
| 6358-01-251588-0000 | Bongiorno, Sandra | 327 Myers Corners Rd | 327 Myers Corners Rd | Wappingers Falls | NY | 12590 | 623 | A54 |
| 6460-01-230564-0000 | Sanavaitis, Andrew | 266 Lauer Rd | 266 Lauer Rd | Poughkeepsie | NY | 12603 | 619 | A3 |
| 6462-03-018311-0000 | Pace, Leonard A | Freedom Rd | 265 Rombout Rd | Pleasant Valley | NY | 12569 | 617 | C24 |
| 6461-01-011852-0000 | Roth, Gerald W | 55 Mountain View Dr | 55 Mountain View Dr | Pleasant Valley | NY | 12569 | 612 | C33 |
| 6362-02-927906-0000 | Mahler, Timothy E | 63 Jennie Ln | 63 Jennie Ln | Pleasant Valley | NY | 12569 | 610 | C12 |
| 6363-04-674398-0000 | Stanley, Leonard | 255 Rt. 216 | 42-48 Wilbur Rd. | Stormville | NY | 12582 | 610 | C1 |

Attn: Peter Krauss

House Distances from A&C ROW

| | | | | | | | | |
|---------------------|----------------------------------|-----------------------------|------------------------|------------------|----|-------|-----|-----|
| 6359-02-971830-0000 | Pomilla Frank C | 26 Pine Ridge Rd | 26 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 610 | A20 |
| 6362-02-896920-0000 | Berry, Brian | 64 Jennie Ln | 64 Jennie Ln | Pleasant Valley | NY | 12569 | 605 | C12 |
| 6460-01-281760-0000 | Rockwell, Thomas | 345 Lauer Rd | 345 Lauer Rd | Poughkeepsie | NY | 12603 | 604 | C60 |
| 6363-04-826359-0000 | Crichton, James M | 698 Plass Rd | 698 Plass Rd | Pleasant Valley | NY | 12569 | 603 | C4 |
| 6360-04-986048-0000 | Kern, Edward G | 21 Old Noxon Rd | 21 Old Noxon Rd | Poughkeepsie | NY | 12603 | 599 | A15 |
| 6461-03-210341-0000 | Carnell, Charles F | 82 Frost Hill Rd | 82 Frost Hill Rd | Pleasant Valley | NY | 12569 | 599 | C46 |
| 6459-01-115857-0000 | Saint-Louis, Scott C | 346 Diddell Rd | 346 Diddell Rd | Poughkeepsie | NY | 12603 | 598 | A20 |
| 6461-03-205185-0000 | Burger, Jeffrey E | 24 Vervalen Dr | 24 Ver Valen Dr | Poughkeepsie | NY | 12603 | 596 | C51 |
| 6461-01-031817-0000 | Insalaco, Joseph S | 2 Mountain View Dr | 2 Mountain View Dr | Pleasant Valley | NY | 12569 | 595 | C34 |
| 6360-04-985107-0000 | Starvaggi, Frank A | Forrest Way | 1 Forrest Way | Poughkeepsie | NY | 12603 | 594 | A14 |
| 6362-04-874337-0000 | Bergman, Betsey R | 231 Rombout Rd | 231 Rombout Rd | Pleasant Valley | NY | 12569 | 592 | C23 |
| 6461-03-204169-0000 | Buchanan, George H | 22 Vervalen Dr | P O Box 17 | La Grangeville | NY | 12540 | 591 | C51 |
| 6362-02-985743-0000 | Holder, Audrey Trustee | 405-407 Freedom Rd | 407 Freedom Rd | Pleasant Valley | NY | 12569 | 586 | C16 |
| 6461-03-188119-0000 | Gagliardo, Adele N | 25 Vervalen Dr | 25 Vervalen Dr | Poughkeepsie | NY | 12603 | 585 | C52 |
| 6359-02-957779-0000 | Kearney, Kevin F | 275 Diddell Rd | 275 Diddell Rd | Poughkeepsie | NY | 12603 | 584 | A22 |
| 6459-01-105841-0000 | Napolitano Philip | 336 Diddell Rd | 336 Diddell Rd | Poughkeepsie | NY | 12603 | 584 | A20 |
| 6461-03-321070-0000 | Fasolino, Julie M | 4 Vervalen Dr | 4 Vervalen Dr | Poughkeepsie | NY | 12603 | 582 | C53 |
| 6358-03-277438-0000 | Vega, Gilbert | 8 Larissa Ln | 8 Larissa Ln | Wappingers Falls | NY | 12590 | 569 | A57 |
| 6460-03-125054-0000 | MacMillan, Lance | 10 Old Noxon Rd | 10 Old Noxon Rd | Poughkeepsie | NY | 12603 | 564 | A16 |
| 6460-01-256591-0000 | Collins, Vincent E | 276 Lauer Rd | 276 Lauer Rd | Poughkeepsie | NY | 12603 | 563 | A2 |
| 6460-01-295820-0000 | Chorney, Helen B | 397 Lauer Rd | 397 Lauer Rd | Poughkeepsie | NY | 12603 | 563 | C59 |
| 6360-04-983168-0000 | Chipkin Bruce | 6 Forrest Way | 6 Forrest Way | Poughkeepsie | NY | 12603 | 562 | A13 |
| 6461-03-317026-0000 | Gibson, Scott P | 5 Vervalen Dr | 5 Ver Valen Dr | Poughkeepsie | NY | 12603 | 553 | C54 |
| 6462-03-019272-0000 | King Michael | 258 Rombout Rd | 258 Rombout Rd | Pleasant Valley | NY | 12569 | 553 | C24 |
| 6363-04-817209-0000 | Carlucci, Mary | 39 Richies Way | 39 Richies Way | Pleasant Valley | NY | 12569 | 547 | C6 |
| 6363-04-833286-0000 | Deichler Victoria A | 1007 Freedom Rd | 1007 Freedom Plains Rd | Pleasant Valley | NY | 12569 | 544 | C5 |
| 6460-01-086633-0000 | Zelker, John L | 100 Bushwick Rd | P O Box 436 | Lagrangeville | NY | 12540 | 542 | A2 |
| 6460-01-073562-0000 | Sever, Anthony D | 3 Croft Hill Rd | 3 Croft Hill Rd | Poughkeepsie | NY | 12603 | 542 | A5 |
| 6460-01-318965-0000 | Lundewall, Ernest R | 1023-1025 Freedom Plains Rd | 1025 Freedom Plains Rd | Poughkeepsie | NY | 12603 | 542 | C56 |
| 6358-03-285324-0000 | Cortes, Jimena M | 39 Montfort Rd | 39 Montfort Rd | Wappingers Falls | NY | 12590 | 538 | A60 |
| 6461-01-066765-0000 | Coyne, Kevin T | 14 Mountain View Dr | 14 Mountain View Dr | Pleasant Valley | NY | 12569 | 538 | C35 |
| 6461-03-225433-0000 | Dunn, Peter C | 28 Jeffrey Dr | 28 Jeffrey Dr | Pleasant Valley | NY | 12569 | 535 | C43 |
| 6359-04-999467-0000 | Bracchi, Ronald | 12 Robinson Garden Dr | 12 Robinson Garden Dr | Wappingers Falls | NY | 12590 | 533 | A28 |
| 6363-04-819342-0000 | Knox, Michael H | 692 Plass Rd | 692 Plass Rd | Pleasant Valley | NY | 12569 | 533 | C4 |
| 6462-03-019378-0000 | Bangura, Johnathan S | 323 Freedom Rd | 323 Freedom Rd | Pleasant Valley | NY | 12569 | 532 | C22 |
| 6461-01-010872-0000 | Johnson, Patricia A | 366 Overlook Rd | 366 Overlook Rd | Pleasant Valley | NY | 12569 | 532 | C33 |
| 6460-01-225643-0000 | Agunzo, Michael | 4 Todd Hill Rd | 4 Todd Hill Rd | Poughkeepsie | NY | 12603 | 532 | C62 |
| 6461-03-147291-0000 | Oh, Minseok | 86 Frost Hill Rd | 86 Frost Hill Rd | Pleasant Valley | NY | 12569 | 529 | C47 |
| 6358-04-515198-0000 | Gendron, Antoine O | 76 Lake Walton Rd | 76 Lake Walton Rd | Wappingers Falls | NY | 12590 | 527 | A64 |
| 6363-04-873010-0000 | Holland Kevin L | 58 Ryans Run | 58 Ryans Run | Pleasant Valley | NY | 12569 | 526 | C10 |
| 6358-03-269488-0000 | Dinardo, Richard | 13 Larissa Ln | 13 Larissa Ln | Wapp Fls | NY | 12590 | 523 | A56 |
| 6363-04-850179-0000 | Stein, Lawrence C | 27 Richies Way | 27 Richies Way | Pleasant Valley | NY | 12569 | 517 | C7 |
| 6459-01-091747-0000 | Swatek Brian | 30 Robinson Ln | 30 Robinson Ln | Wappingers Falls | NY | 12590 | 517 | A22 |
| 6462-03-017358-0000 | Bae, Myung Mun | 319 Freedom Rd | 319 Freedom Rd | Pleasant Valley | NY | 12569 | 515 | C23 |
| 6461-01-083745-0000 | Milne, Gerard W | 35 Mountain View Dr | 35 Mountain View Dr | Pleasant Valley | NY | 12569 | 515 | C36 |
| 6359-02-925523-0000 | Olah, Barry R | 64 Red Hawk Hollow Rd | 64 Red Hawk Hollow Rd | Wappingers Falls | NY | 12590 | 515 | A29 |
| 6461-03-188014-0000 | Boccia, Thomas | 7 Timothy Dr | 7 Timothy Dr | Poughkeepsie | NY | 12603 | 513 | C54 |
| 6461-03-198101-0000 | Idoni, Brian | 23 Vervalen Dr | 23 Vervalen Dr | Poughkeepsie | NY | 12603 | 511 | C53 |
| 6461-01-063778-0000 | Healy, Henry G | 16 Mountain View Dr | 16 Mountain View Dr | Pleasant Valley | NY | 12569 | 511 | C35 |
| 6358-03-276460-0000 | Cohen, Bruce M | 10 Larissa Ln | 10 Larissa Ln | Wappingers Falls | NY | 12590 | 510 | A57 |
| 6363-04-827310-0000 | Brandow, James F LT | 1023 Freedom Rd | 1023 Freedom Rd | Pleasant Valley | NY | 12569 | 510 | C5 |
| 6358-01-274564-0000 | Austin, Brad | 328 Myers Corners Rd | 328 Myers Corners Rd | Wappingers Falls | NY | 12590 | 507 | A55 |
| 6360-04-998017-0000 | Morley, Jeffrey | 708 Noxon Rd | 708 Noxon Rd | Poughkeepsie | NY | 12603 | 504 | A17 |
| 6459-01-064611-0000 | Scheu, Christian F | 44 Robinson Ln | 44 Robinson Ln | Wappingers Falls | NY | 12590 | 504 | A25 |
| 6460-01-189543-0000 | Hay, Wayne | 260 Lauer Rd | 260 Lauer Rd | Poughkeepsie | NY | 12603 | 503 | A3 |
| 6459-01-113927-0000 | Hallock, Donald Alan | 355 Diddell Rd | 355 Diddell Rd | Poughkeepsie | NY | 12603 | 503 | A19 |
| 6363-04-826142-0000 | Stec, David | 19 Richies Way | 19 Richies Way | Pleasant Valley | NY | 12569 | 503 | C8 |
| 6461-01-058787-0000 | Waters, Keith | 18 Mountain View Dr | 18 Mountain View Dr | Pleasant Valley | NY | 12569 | 499 | C35 |
| 6459-01-067643-0000 | Risinit, Michael J | 42 Robinson Ln | 42 Robinson Ln | Wappingers Falls | NY | 12590 | 499 | A24 |
| 6461-01-030845-0000 | Grega, Patricia Ann Long Trustee | 53 Mountain View Dr | 53 Mountain View Dr | Pleasant Valley | NY | 12569 | 498 | C34 |
| 6459-01-097819-0000 | Lopes, Jason | 332 Diddell Rd | 332 Diddell Rd | Poughkeepsie | NY | 12603 | 496 | A20 |
| 6460-01-178514-0000 | Edmonstone, James G | 250 Lauer Rd | 250 Lauer Rd | Poughkeepsie | NY | 12603 | 494 | A4 |
| 6460-03-094008-0000 | Nagy, Laszlo F | 9 Old Noxon Rd | 9 Old Noxon Rd | Poughkeepsie | NY | 12603 | 487 | A16 |
| 6461-03-316145-0000 | Eberhard, Henry O | 145 Cramer Rd | 145 Cramer Rd | Poughkeepsie | NY | 12603 | 487 | C51 |
| 6461-03-206220-0000 | Hoffman, Herbert H | 127 Cramer Rd | 127 Cramer Rd | Poughkeepsie | NY | 12603 | 485 | C50 |
| 6461-01-042815-0000 | Herrmann, Marilyn A Trustee | 22 Mountain View Dr | 22 Mountain View Dr | Pleasant Valley | NY | 12569 | 485 | C34 |
| 6461-03-200049-0000 | Vincini, Carmela LT | 17 Vervalen Dr | 17 Vervalen Dr | Poughkeepsie | NY | 12603 | 485 | C54 |
| 6460-01-297911-0000 | Mastrocinque, John J | 427 Lauer Rd | 427 Lauer Rd | Poughkeepsie | NY | 12603 | 481 | C57 |
| 6461-01-054804-0000 | Attanasio, Scott R | 20 Mountain View Dr | 20 Mountain View Dr | Pleasant Valley | NY | 12569 | 479 | C35 |
| 6461-03-198064-0000 | Miller, Michael J | 19 Vervalen Dr | 19 Ver Valen Dr | Poughkeepsie | NY | 12603 | 479 | C54 |
| 6359-02-986840-0000 | Posta, Daniel J Sr | 28 Pine Ridge Rd | 28 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 478 | A20 |
| 6461-03-199083-0000 | Ryu, Candice A | 21 Vervalen Dr | 21 Vervalen Dr | Poughkeepsie | NY | 12603 | 477 | C53 |
| 6363-04-848119-0000 | Dahdal, Ramy | 11 Richies Way | 11 Richie's Way | Pleasant Valley | NY | 12569 | 476 | C8 |

House Distances from A&C ROW

| | | | | | | | | |
|---------------------|-------------------------------|------------------------|-----------------------|------------------|----|-------|-----|-----|
| 6363-04-851097-0000 | Hoffman, Robert T | 9 Richies Way | 9 Richies Way | Pleasant Valley | NY | 12569 | 476 | C9 |
| 6359-02-968763-0000 | O'Sullivan, James | 279 Diddell Rd | 279 Diddell Rd | Poughkeepsie | NY | 12603 | 473 | A22 |
| 6459-01-080806-0000 | Hourahan, Jonathan G | 322 Diddell Rd | 322 Diddell Rd | Poughkeepsie | NY | 12603 | 471 | A21 |
| 6460-01-184919-0000 | MacPherson, Dermott | 973 Freedom Plains Rd. | 229 Skidmore Rd. | Pleasant Valley | NY | 12659 | 470 | C57 |
| 6363-04-815332-0000 | Long, Timothy P | 686 Plass Rd | 22 Sandi Dr | Poughkeepsie, NY | NY | 12603 | 468 | C4 |
| 6359-02-995972-0000 | Befanis, Barbara A | 6 Washburn Dr | 6 Washburn Dr | Poughkeepsie | NY | 12603 | 463 | A18 |
| 6358-03-490181-0000 | Jordan, James J | 6 Neville Rd | 6 Neville Rd | Wappingers Falls | NY | 12590 | 463 | A64 |
| 6460-01-202603-0000 | Torok, John G | 278 Lauer Rd | 278 Lauer Rd | Poughkeepsie | NY | 12603 | 463 | A2 |
| 6363-04-810192-0000 | Sheidlower David I | 37 Richies Way | 37 Richies Way | Pleasant Valley | NY | 12569 | 460 | C7 |
| 6359-02-984887-0000 | Bocchini, Manuel F III | 27 Pine Ridge Rd | 27 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 460 | A19 |
| 6460-01-180976-0000 | D'Avanzo, Michael A | 10 Timothy Dr | 10 Tomothy Dr | Poughkeepsie | NY | 12603 | 460 | C55 |
| 6362-04-995142-0000 | Leight, Walter E Jr | 275 Freedom Rd | 275 Freedom Rd | Pleasant Valley | NY | 12569 | 459 | C28 |
| 6360-04-989181-0000 | Jessup, Edward P | 8 Forrest Way | 8 Forrest Way | Poughkeepsie | NY | 12603 | 456 | A12 |
| 6358-03-485159-0000 | Madeiras, Catherine Trustee | 2 Neville Rd | 2 Neville Rd | Wappingers Falls | NY | 12590 | 454 | A64 |
| 6460-01-195574-0000 | Lake, William A | 270 Lauer Rd | 270 Lauer Rd | Poughkeepsie | NY | 12603 | 451 | A3 |
| 6460-01-256747-0000 | Rockwell, Gail | 335 Lauer Rd | 345 Lauer Rd | Poughkeepsie | NY | 12603 | 451 | C60 |
| 6459-01-079770-0000 | NYS Off Of Mental Retardation | 310 Diddell Rd | 44 Holland Ave | Albany | NY | 12208 | 450 | A21 |
| 6359-02-950663-0000 | Lefever, Robert J | 260 Diddell Rd | 260 Diddell Rd | Poughkeepsie | NY | 12603 | 448 | A24 |
| 6360-04-996230-0000 | Breite, Marshall | 14 Forrest Way | 14 Forrest Way | Poughkeepsie | NY | 12603 | 446 | A11 |
| 6359-04-889496-0000 | Nunziata, Scott | 60 Red Hawk Hollow Rd | 60 Red Hawk Hollow Rd | Wappingers Falls | NY | 12590 | 444 | A30 |
| 6460-01-290891-0000 | Mercado, Michael | 417 Lauer Rd | 417 Lauer Rd | Poughkeepsie | NY | 12603 | 443 | C58 |
| 6363-02-746548-0000 | Daley, Jeffery J | 53 Niagara Rd | 131 Pine Hill Rd | Pleasant Valley | NY | 12569 | 442 | C1 |
| 6358-03-297368-0000 | Harty, Edward J | 18 Elizabeth Ter | 18 Elizabeth Ter | Wappingers Falls | NY | 12590 | 441 | A59 |
| 6461-01-019868-0000 | Rousseau, Marc | 368 Overlook Rd | 368 Overlook Rd | Pleasant Valley | NY | 12569 | 436 | C33 |
| 6358-03-300350-0000 | Tierney, Gerald | 20 Elizabeth Ter | 20 Elizabeth Ter | Wapp Fls | NY | 12590 | 434 | A60 |
| 6359-02-981795-0000 | Rodgers, Robert S LT | 299 Diddell Rd | 299 Diddell Rd | Poughkeepsie | NY | 12603 | 433 | A21 |
| 6461-03-314113-0000 | Pelish, Stafford J | 144 Cramer Rd | 144 Cramer Rd | Poughkeepsie | NY | 12603 | 430 | C52 |
| 6460-01-106592-0000 | Sawicki, Douglas G | 114 Bushwick Rd | 114 Bushwick Rd | Poughkeepsie | NY | 12603 | 429 | A3 |
| 6460-03-172466-0000 | Smith, Dixon H III | 32 Croft Hill Rd | P O Box 168 | Lagrangeville | NY | 12540 | 429 | A5 |
| 6459-01-057708-0000 | Dougherty, Mark A | 32 Robinson Ln | 32 Robinson Ln | Wappingers Falls | NY | 12590 | 428 | A23 |
| 6358-03-293386-0000 | Riccardi, Daniel | 14 Elizabeth Ter | 14 Elizabeth Ter | Wappingers Falls | NY | 12590 | 422 | A59 |
| 6359-02-995946-0000 | Quizhpe Angel B | 5 Washburn Dr | 5 Washburn Dr | Poughkeepsie | NY | 12603 | 421 | A18 |
| 6358-03-289399-0000 | Caporale, Robert | 12 Elizabeth Ter | 12 Elizabeth Ter | Wappingers Falls | NY | 12590 | 420 | A59 |
| 6358-03-292416-0000 | Cavalleri, Jamie | 10 Elizabeth Ter | 10 Elizabeth Ter | Wappingers Falls | NY | 12590 | 417 | A58 |
| 6460-01-059520-0000 | Edmonds, Mark D | 6 Croft Hill Rd | 6 Croft Hill Rd | Poughkeepsie | NY | 12603 | 417 | A5 |
| 6461-03-302053-0000 | Faraone, Frank | 2 Patriot Ct | 2 Patriot Ct | Poughkeepsie | NY | 12603 | 416 | C54 |
| 6358-01-293552-0000 | Sabatelli, Richard | 330 Myers Corners Rd | 330 Myers Corners Rd | Wapp Fls | NY | 12590 | 414 | A54 |
| 6358-03-284497-0000 | Ho, Joseph K | 15 Larissa Ln | Laurel Park Rd | Wappingers Falls | NY | 12590 | 411 | A56 |
| 6461-03-219139-0000 | Casas, Miguel A Jr | 18 Vervalen Dr | 18 Ver Valen Dr | Poughkeepsie | NY | 12603 | 411 | C52 |
| 6461-03-307080-0000 | Stack, Kieran M | 4 Patriot Ct | 4 Patriot Ct | Poughkeepsie | NY | 12603 | 410 | C53 |
| 6461-01-093755-0000 | Jenkins, Daniel W | 37 Mountain View Dr | 37 Mountain View Dr | Pleasant Valley | NY | 12569 | 407 | C36 |
| 6459-01-035638-0000 | Kavanagh, Richard A | 278 Diddell Rd | 46 Robinson Ln | Wappingers Falls | NY | 12590 | 406 | A25 |
| 6362-02-817955-0000 | Albrecht, James P | 570 Plass Rd | P O Box 1619 | Pleasant Valley | NY | 12569 | 406 | C12 |
| 6362-04-983334-0000 | Logan, Mark | 253 Rombout Rd | 253 Rombout Rd | Pleasant Valley | NY | 12569 | 403 | C23 |
| 6358-01-375599-0000 | Snell, Thomas H | 1058 Route 376 | 1058 Rte 376 | Wapp Fls | NY | 12590 | 400 | A54 |
| 6358-01-271593-0000 | Rynkiewicz Roger A | 1093 Route 376 | 7 Winnie Ln | Poughkeepsie | NY | 12603 | 400 | A54 |
| 6363-04-810429-0000 | Howe, John C LT | 3 South Ave | P O Box 563 | Pleasant Valley | NY | 12569 | 400 | C2 |
| 6363-04-812321-0000 | Krom, Lucy Marie LT | 684 Plass Rd | 684 Plass Rd | Pleasant Valley | NY | 12569 | 400 | C4 |
| 6461-03-299017-0000 | Sheehan, Arthur J | 7 Vervalen Dr | 7 Ver Valen Dr | Poughkeepsie | NY | 12603 | 398 | C54 |
| 6358-03-292434-0000 | Lockwood, Lily | 8 Elizabeth Ter | 8 Elizabeth Ter | Wappingers Falls | NY | 12590 | 392 | A58 |
| 6359-02-999988-0000 | Atkins, Robert G | 4 Washburn Dr | 4 Washburn Dr | Poughkeepsie | NY | 12603 | 392 | A17 |
| 6362-04-900200-0000 | Garrison, Thomas G | 240 Rombout Rd | 240 Rombout Rd | Pleasant Valley | NY | 12569 | 391 | C27 |
| 6359-02-991907-0000 | Roeser, Richard P | 29 Pine Ridge Rd | 29 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 378 | A19 |
| 6358-03-414490-0000 | Hunt, Jeffrey | 1061 Route 376 | P O Box 5289 | Mooresville | NC | 28117 | 377 | A57 |
| 6460-03-009003-0000 | Ferrari, Geo. | 2 Washburn Dr | 2 Washburn Dr | Poughkeepsie | NY | 12603 | 375 | A17 |
| 6460-01-083548-0000 | Sewall, Diane A | 5 Croft Hill Rd | 5 Croft Hill Rd | Poughkeepsie | NY | 12603 | 375 | A4 |
| 6461-01-030864-0000 | Raymo, James E | 370 Overlook Rd | 370 Overlook Rd | Pleasant Valley | NY | 12569 | 372 | C33 |
| 6461-01-052842-0000 | Gillespie, Paul | 51 Mountain View Dr | 51 Mountain View Dr | Pleasant Valley | NY | 12569 | 371 | C34 |
| 6358-03-304336-0000 | Ajmera, Atul C | 22 Elizabeth Ter | 22 Elizabeth Terr | Wapp Falls | NY | 12590 | 368 | A60 |
| 6362-04-987309-0000 | Horstmann, Paul W | 255 Rombout Rd | 255 Rombout Rd | Pleasant Valley | NY | 12569 | 367 | C24 |
| 6363-04-856001-0000 | Joray, Ronald D | 54 Ryans Run | 54 Ryans Run | Pleasant Valley | NY | 12569 | 360 | C10 |
| 6362-04-908240-0000 | Puckette, James A | 242 Rombout Rd | 242 Rombout Rd | Pleasant Valley | NY | 12569 | 354 | C25 |
| 6358-03-466179-0000 | Collins, Ronald J | 3 Neville Rd | 3 Neville Rd | Wappingers Falls | NY | 12590 | 348 | A64 |
| 6461-01-091770-0000 | Rosenfeld, Erwin M | 39 Mountain View Dr | 69 Schrade Rd | Briarcliff Manor | NY | 10510 | 341 | C35 |
| 6359-02-980772-0000 | Di Cesare, Ernest J | 285 Diddell Rd | 285 Diddell Rd | Poughkeepsie | NY | 12603 | 341 | A22 |
| 6358-03-293453-0000 | Keys, David F | 6 Elizabeth Ter | 6 Elizabeth Ter | Wappingers Falls | NY | 12590 | 341 | A57 |
| 6459-01-084869-0000 | Medford, Cassimir J | 39 Pine Ridge Rd | 39 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 339 | A20 |
| 6462-03-002113-0000 | Werner, John G | 267 Freedom Rd | 267 Freedom Rd | Pleasant Valley | NY | 12569 | 336 | C29 |
| 6363-04-798389-0000 | Traver, Donald F | 709 Plass Rd | 709 Plass Rd | Pleasant Valley | NY | 12569 | 333 | C3 |
| 6460-03-004102-0000 | Peluse, John R | 2 Forrest Way | 2 Forest Way | Poughkeepsie | NY | 12603 | 332 | A14 |
| 6358-04-506246-0000 | Gaudinier, Michelle L | 66 Lake Walton Rd | 58 Lake Walton Rd | Wappingers Falls | NY | 12590 | 331 | A64 |
| 6363-02-732537-0000 | Roth Gerald W | 45 Niagara Rd | 55 Mountainview Rd | Pleasant Valley | NY | 12569 | 330 | C1 |
| 6358-03-496201-0000 | Gasparini, Dominick D | 8 Neville Rd | 8 Neville Rd | Wappingers Falls | NY | 12590 | 328 | A64 |

House Distances from A&C ROW

| | | | | | | | | |
|---------------------|--------------------------|------------------------|------------------------------|-------------------|----|------------|-----|-----|
| 6362-04-999229-0000 | Steinberg, Ulrich H | 297 Freedom Rd | P O Box 1630 | Pleasant Valley | NY | 12569 | 327 | C25 |
| 6362-04-899310-0000 | Overtchenko, Svetlana | 237 Rombout Rd | 237 Rombout Rd | Pleasant Valley | NY | 12569 | 327 | C24 |
| 6461-01-088783-0000 | Stekas, Matthias | 41 Mountain View Dr | 41 Mountain View Dr | Pleasant Valley | NY | 12569 | 323 | C35 |
| 6358-03-304290-0000 | Fulton, Jos H | 49 Montfort Rd | 49 Montfort Rd | Wapp Fls | NY | 12590 | 320 | A61 |
| 6459-01-059764-0000 | Jessup, Michael R | 308 Diddell Rd | 308 Diddell Rd | Poughkeepsie | NY | 12603 | 320 | A22 |
| 6460-01-194943-0000 | Eagen, Marilyn | 48 Sedgewick Rd. | 48 Sedgewick Rd. | Poughkeepsie | NY | 12603 | 320 | C56 |
| 6363-04-805312-0000 | Roe, Arthur F III | 682 Plass Rd | 682 Plass Rd | Pleasant Valley | NY | 12569 | 319 | C4 |
| 6461-03-217266-0000 | Stuts, George | 100 Frost Hill Rd | 100 Frost Hill Rd | Pleasant Valley | NY | 12569 | 319 | C48 |
| 6460-03-008146-0000 | Polish, Daniel F | 4 Forrest Way | 4 Forrest Way | Poughkeepsie | NY | 12603 | 316 | A13 |
| 6461-03-204011-0000 | Winkelbauer, Joseph F | 15 Timothy Dr | 15 Timothy Dr | Poughkeepsie | NY | 12603 | 314 | C55 |
| 6461-01-084793-0000 | Harris, Jonathan C | 43 Mountain View Dr | 43 Mountain View Dr | Pleasant Valley | NY | 12569 | 313 | C35 |
| 6461-03-237127-0000 | Shih, Da-Yuan | 16 Vervalen Dr | 16 Ver Valen Dr | Poughkeepsie | NY | 12603 | 312 | C52 |
| 6461-03-333352-0000 | Abdelqader, Mohmad H | 30 Frost Hill Rd | 30 Frost Hill Rd | Pleasant Valley | NY | 12569 | 312 | C45 |
| 6461-03-237127-0000 | Shih, Da-Yuan | 16 Vervalen Dr | 16 Ver Valen Dr | Poughkeepsie | NY | 12603 | 311 | C53 |
| 6461-03-296096-0000 | Beierholm, Kurt J | 6 Patriot Ct | P O Box 86 | Lagrangeville | NY | 12540 | 304 | C53 |
| 6358-03-292470-0000 | Giordano, Adriana C | 14 Larissa Ln | 14 Larissa Ln | Wappinger Falls | NY | 12590 | 301 | A57 |
| 6358-01-299560-0000 | Zipprich, Ferdinand | 332 Myers Corners Rd | 332 Myers Corners Rd | Wappingers Falls | NY | 12590 | 301 | A54 |
| 6461-01-080804-0000 | Bernardo John C | 45 Mountain View Dr | 45 Mountain View Dr | Pleasant Valley | NY | 12569 | 298 | C35 |
| 6461-01-042861-0000 | Palladino, Mario P | 372 Overlook Rd | 372 Overlook Rd | Pleasant Valley | NY | 12569 | 295 | C33 |
| 6462-03-015083-0000 | Lucas, Joseph A | 261 Freedom Rd | P O Box 820 | Pleasant Valley | NY | 12569 | 295 | C29 |
| 6459-01-073847-0000 | Palmieri, Robert V | 333 Diddell Rd | 333 Diddell Rd | Poughkeepsie | NY | 12603 | 294 | A20 |
| 6460-01-218954-0000 | Mc Hugh, Kevin | 18 Timothy Dr | 18 Timothy Dr | Poughkeepsie | NY | 12603 | 293 | C56 |
| 6461-03-213040-0000 | Henry, John S | 15 Vervalen Dr | 15 Ver Valen Dr | Poughkeepsie | NY | 12603 | 290 | C54 |
| 6460-03-012038-0000 | Lunden, Frances | 707 Noxon Rd | 7 Red Oaks Mill Rd | Poughkeepsie | NY | 12603 | 290 | A16 |
| 6358-03-464309-0000 | Robertson, John | 20 Cambridge Ct | 20 Cambridge Ct | Wappingers Falls | NY | 12590 | 289 | A63 |
| 6460-03-034119-0000 | Grimaldi, Marion | 18 Old Noxon Rd | 18 Old Noxon Rd | Poughkeepsie | NY | 12603 | 285 | A14 |
| 6460-01-284978-0000 | Jenkins, Delores R | 26 Timothy Dr | 26 Timothy Dr | Poughkeepsie | NY | 12603 | 281 | C55 |
| 6459-01-008921-0000 | Durand, Robert D | 31 Pine Ridge Rd | 79 Flint Rd - Apt 401 | Millbrook | NY | 12545 | 281 | A19 |
| 6459-01-004849-0000 | Weiss, Mellina A | 30 Pine Ridge Rd | 30 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 279 | A20 |
| 6363-04-680427-0000 | Lembesis, Stacey A | 50-52 Wilbur Rd | P O Box 1632 | Pleasant Valley | NY | 12569 | 276 | C1 |
| 6362-04-974270-0000 | Ainsworth, Richard A Jr | 254 Rombout Rd | 254 Rombout Rd | Pleasant valley | NY | 12569 | 273 | C24 |
| 6461-03-281018-0000 | Orchard, Wayne R | 9 Vervalen Dr | 9 Ver Valen Dr | Poughkeepsie | NY | 12603 | 269 | C54 |
| 6460-01-272937-0000 | Serino, Anthony | 1007 Freedom Plains Rd | 1007 Freedom Plains Rd | Poughkeepsie | NY | 12603 | 267 | C56 |
| 6461-01-077820-0000 | Howard, Joseph | 47 Mountain View Dr | 2414 County Rd - #1414 | Pearland | TX | 77584-5126 | 266 | C34 |
| 6460-01-164551-0000 | Owen, Lynn | 257 Lauer Rd | 257 Lauer Rd | Poughkeepsie | NY | 12603 | 263 | A3 |
| 6363-04-669385-0000 | Alves Jose A | 36-40 Wilbur Rd | 8 Cary Rd | Hyde Park | NY | 12538 | 262 | C1 |
| 6459-01-061835-0000 | Rawls, Robert C | 325 Diddell Rd | 325 Diddell Rd | Poughkeepsie | NY | 12603 | 260 | A20 |
| 6358-03-304311-0000 | Will, Alfred | 45 Montfort Rd | 45 Montfort Rd | Wappingers Falls | NY | 12590 | 260 | A61 |
| 6461-01-072839-0000 | Robinson, Richard A | 49 Mountain View Dr | 49 Mountain View Dr | Pleasant Valley | NY | 12569 | 258 | C34 |
| 6461-01-051890-0000 | Lang Cheryl J | 369 Overlook Rd | 369 Overlook Rd | Pleasant Valley | NY | 12569 | 253 | C33 |
| 6461-03-230212-0000 | Zach, Dennis | 131 Cramer Rd | 131 Cramer Rd | Poughkeepsie | NY | 12603 | 253 | C50 |
| 6461-03-229095-0000 | Williams, Joseph V | 14 Vervalen Dr | 14 Vervalen Dr | Poughkeepsie | NY | 12603 | 251 | C53 |
| 6460-01-110640-0000 | Machine Technology Inc | 104 Bushwick Rd | 104 Bushwick Rd | Poughkeepsie | NY | 12603 | 249 | A2 |
| 6460-01-175609-0000 | O'Dell, James | 281 Lauer Rd | 281 Lauer Rd | Poughkeepsie | NY | 12603 | 248 | A2 |
| 6460-01-140523-0000 | Brinckerhoff, Frank L LT | 245 Lauer Rd | 245 Lauer Rd | Poughkeepsie | NY | 12603 | 248 | A4 |
| 6461-01-107903-0000 | Traver, Kenneth R | 385 Overlook Rd | P O Box 446 | Pleasant Valley | NY | 12569 | 246 | C33 |
| 6459-01-015870-0000 | Klیمانis, Zaiga K | 32 Pine Ridge Rd | 32 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 246 | A19 |
| 6460-01-093536-0000 | Giacalone, Frank | 7 Croft Hill Rd | 7 Croft Hill Rd | Poughkeepsie | NY | 12603 | 243 | A4 |
| 6460-01-076506-0000 | Florence, Robert F Jr | 8 Croft Hill Rd | 8 Croft Hill Rd | Poughkeepsie | NY | 12603 | 243 | A5 |
| 6358-03-324404-0000 | Mc Cracken, Douglas R | 13 Elizabeth Ter | 13 Elizabeth Ter | Wappingers Falls | NY | 12590 | 242 | A59 |
| 6459-01-014963-0000 | Wesson, Paul R | 3 Washburn Dr | 3 Washburn Dr | Poughkeepsie | NY | 12603 | 239 | A18 |
| 6358-03-327387-0000 | Dichiario, Dominick | 15 Elizabeth Ter | 15 Elizabeth Ter | Wapp Fls | NY | 12590 | 235 | A59 |
| 6358-03-333357-0000 | Eglit, Rose C | 21 Elizabeth Ter | 21 Elizabeth Ter | Wapp Fls | NY | 12590 | 233 | A60 |
| 6460-01-250818-0000 | Paolilli, Eric A | 401 Lauer Rd | 401 Lauer Rd | Poughkeepsie | NY | 12603 | 229 | C59 |
| 6461-03-290132-0000 | D'Avanzo, Aurelio V | 140 Cramer Rd | 140 Cramer Rd | Poughkeepsie | NY | 12603 | 228 | C52 |
| 6358-03-321416-0000 | Cicero, Francisco | 11 Elizabeth Ter | 11 Elizabeth Ter | Wappingers Falls | NY | 12590 | 227 | A58 |
| 6461-03-240311-0000 | Varuzzo Louis C | 85 Frost Hill Rd | 85 Frost Hill Rd | Pleasant Valley | NY | 12569 | 226 | C47 |
| 6459-01-065779-0000 | Richard, Albert A Jr | 312 Diddell Rd | 312 Diddell Rd | Poughkeepsie | NY | 12603 | 221 | A21 |
| 6358-03-493258-0000 | Scaringe Christopher | 23 Cambridge Ct | 23 Cambridge Ct | Wappingers Falls | NY | 12590 | 220 | A64 |
| 6362-04-964365-0000 | Reith, Jay W | 247 Rombout Rd | 247 Rombout Rd - P O Box 295 | Lagrangeville | NY | 12540 | 218 | C22 |
| 6359-02-983720-0000 | Taylor, Richard M | 276 Diddell Rd | 2 Pamela Rd | Hopewell Junction | NY | 12533 | 216 | A22 |
| 6460-01-207884-0000 | Sokolik, Stephen | 970 Freedom Plains Rd | 970 Freedom Plains Rd | Poughkeepsie | NY | 12603 | 216 | C58 |
| 6363-04-798231-0000 | Ennis, Leacroft | 662 Plass Rd | 662 Plass Rd | Pleasant Valley | NY | 12569 | 215 | C6 |
| 6358-03-330370-0000 | Buoncora, Anthony | 19 Elizabeth Ter | 19 Elizabeth Ter | Wappingers Falls | NY | 12590 | 209 | A59 |
| 6461-03-230069-0000 | Carnell, Charles H | 12 Vervalen Dr | 12 Ver Valen Dr | Poughkeepsie | NY | 12603 | 205 | C53 |
| 6460-01-141587-0000 | Johnson, Robert D | 116 Bushwick Rd | 116 Bushwick Rd | Poughkeepsie | NY | 12603 | 203 | A3 |
| 6460-01-181625-0000 | Borges, John J | 287 Lauer Rd | 287 Lauer Rd | Poughkeepsie | NY | 12603-9802 | 200 | A2 |
| 6358-03-319429-0000 | Chetner, Karen T | 9 Elizabeth Ter | 9 Elizabeth Ter | Wappingers Falls | NY | 12590 | 199 | A58 |
| 6359-02-994778-0000 | Fiorisi, Michael C | 289 Diddell Rd | 289 Diddell Rd | Poughkeepsie | NY | 12603 | 199 | A22 |
| 6460-03-012191-0000 | Di Marco, David V | 12 Forrest Way | 12 Forrest Way | Poughkeepsie | NY | 12603 | 196 | A12 |
| 6363-04-799277-0000 | Still, Jeffrey D | 676 Plass Rd | 676 Plass Rd | Pleasant Valley | NY | 12569 | 195 | C5 |
| 6363-04-781362-0000 | Traver, Stephen Michael | 695 Plass Rd | 695 Plass Rd | Pleasant Valley | NY | 12569 | 193 | C3 |
| 6459-01-039825-0000 | DeNardo, Mary G Trustee | 319 Diddell Rd | 319 Diddell Rd | Poughkeepsie | NY | 12603 | 192 | A21 |

House Distances from A&C ROW

| | | | | | | | | | |
|---------------------|--------------------------|--------------------------|---------------------|--------------------------|------------------|----|-------|-----|-----|
| 6461-03-229241-0000 | Beinstein, Stanley A | | 110 Frost Hill Rd | 110 Frost Hill Rd | Pleasant Valley | NY | 12569 | 191 | C48 |
| 6358-01-299502-0000 | Kovalsky, Arleen M | | 17 Larissa Ln | 17 Larissa Ln | Wappingers Falls | NY | 12590 | 191 | A56 |
| 6459-01-071885-0000 | Matharu Manpreet H | | 37 Pine Ridge Rd | 37 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 190 | A19 |
| 6461-01-054863-0000 | Bryant, William M | | 374 Overlook Rd | 374 Overlook Rd | Pleasant Valley | NY | 12569 | 186 | C33 |
| 6461-03-279049-0000 | Ceonzo, Richard J | | 1 Patriot Ct | 1 Patriot Ct | Poughkeepsie | NY | 12603 | 184 | C54 |
| 6358-03-335344-0000 | Kolachik, Victor Peter | | 23 Elizabeth Ter | 23 Elizabeth Ter | Wappingers Falls | NY | 12590 | 182 | A60 |
| 6460-01-200655-0000 | Mack, Alfred L LT | | 301 Lauer Rd | 301 Lauer Rd | Poughkeepsie | NY | 12603 | 180 | A1 |
| 6461-03-317349-0000 | Roberts, Roderick | | 42 Frost Hill Rd | 42 Frost Hill Rd | Pleasant Valley | NY | 12569 | 172 | C45 |
| 6460-01-122628-0000 | Vetter, Charles G Jr | | Bushwick Rd | 110 Bushwick Rd | Poughkeepsie | NY | 12603 | 168 | A2 |
| 6358-03-319445-0000 | McHugh Edward LT | | 7 Elizabeth Ter | 7 Elizabeth Ter | Wappingers Falls | NY | 12590 | 163 | A58 |
| 6459-01-008782-0000 | Karius, Mary Lou G | | 297 Diddell Rd | 297 Diddell Rd | Poughkeepsie | NY | 12603 | 158 | A21 |
| 6358-03-465198-0000 | Periman, David J | | 7 Neville Rd | 7 Neville Rd | Wappingers Falls | NY | 12590 | 157 | A64 |
| 6459-01-030983-0000 | Peterle, Ruy | | 1 Washburn Dr | 1 Washburn Dr | Poughkeepsie | NY | 12603 | 156 | A17 |
| 6363-02-706524-0000 | Thompson, Nancy | | 35 Niagara Rd | 35 Niagara Rd | Pleasant Valley | NY | 12569 | 156 | C1 |
| 6460-03-073083-0000 | Rabinowitz, Sarah | | 16 Old Noxon Rd | 639 End Ave. - Apt 16A | New York | NY | 10025 | 149 | A15 |
| 6358-03-472277-0000 | Dawson, Michael | | 24 Cambridge Ct | 24 Cambridge Ct | Wappingers Falls | NY | 12590 | 145 | A63 |
| 6358-01-308568-0000 | Mauro Group, Inc The | c/o Anthony Mauro | 1081 Route 376 | 28 Reade St | Yonkers | NY | 10703 | 143 | A54 |
| 6461-03-238169-0000 | Fost, Richard J | | 132-134 Cramer Rd | 134 Cramer Rd | Poughkeepsie | NY | 12603 | 142 | C51 |
| 6459-01-055954-0000 | De Lango, Richard | | 742 Noxon Rd | 742 Noxon Rd | Poughkeepsie | NY | 12603 | 138 | A18 |
| 6363-04-656400-0000 | Doxsey, Howard Jr | | 41 Wilbur Rd | 41 Wilbur Rd | Pleasant Valley | NY | 12569 | 138 | C1 |
| 6461-03-231033-0000 | Friedemann, Robert M | | 13 Vervalen Dr | 13 Ver Valen Dr | Poughkeepsie | NY | 12603 | 135 | C54 |
| 6363-04-669385-0000 | Alves Jose A | | 36-40 Wilbur Rd | 8 Cary Rd | Hyde Park | NY | 12538 | 132 | C1 |
| 6460-01-150561-0000 | Schmidt Barbara | | 267 Lauer Rd | 1840 41st Ave - 102 -177 | Capitola | CA | 95010 | 128 | A3 |
| 6358-03-443185-0000 | Miller, George J Trustee | | 83 Montfort Rd | 39 Crestview Dr | Millbrook | NY | 12545 | 127 | A64 |
| 6460-03-073043-0000 | Hastings, John | | 13 Old Noxon Rd | 13 Old Noxon Rd | Poughkeepsie | NY | 12603 | 126 | A15 |
| 6358-03-317461-0000 | Thomas, William J. | Attn: Patricia A. Thomas | 3 Elizabeth Terrace | 3 Elizabeth Terrace | Wappingers Falls | NY | 12590 | 120 | A57 |
| 6358-03-480261-0000 | Nameih, Donald G | | 25 Cambridge Ct | 25 Cambridge Ct | Wappingers Falls | NY | 12590 | 118 | A64 |
| 6461-03-228006-0000 | De Sisto, Michael | | 23 Timothy Dr | 23 Timothy Dr | Poughkeepsie | NY | 12603 | 114 | C55 |
| 6460-03-050019-0000 | Buzzeo, Robert | | 715 Noxon Rd | 715 Noxon Rd | Poughkeepsie | NY | 12603 | 114 | A16 |
| 6461-01-064866-0000 | Reichert, Joseph M | | 376 Overlook Rd | 376 Overlook Rd | Pleasant Valley | NY | 12569 | 108 | C33 |
| 6358-03-473213-0000 | Dolan, Thomas J | | 10 Neville Rd | 10 Neville Rd | Wappingers Falls | NY | 12590 | 107 | A64 |
| 6459-01-045775-0000 | Williams, Wayne M | | 306 Diddell Rd | 949 Freedom Rd | Pleasant Valley | NY | 12569 | 107 | A21 |
| 6363-04-794255-0000 | Bednarczuk, Francis | | 664 Plass Rd | 664 Plass Rd | Pleasant Valley | NY | 12569 | 104 | C5 |
| 6362-04-962301-0000 | O'Connell, Daniel | | 249 Rombout Rd | 249 Rombout Rd | Pleasant Valley | NY | 12569 | 102 | C24 |
| 6461-03-280166-0000 | Milea, Richard J | | 137 Cramer Rd | 137 Cramer Rd | Poughkeepsie | NY | 12603 | 99 | C51 |
| 6362-04-927247-0000 | Hedgecock, Keith J | | 244 Rombout Rd | 244 Rombout Rd | Pleasant Valley | NY | 12569 | 98 | C25 |
| 6459-01-036878-0000 | Bruen, James F III | | 34 Pine Ridge Rd | 34 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 97 | A19 |
| 6459-01-022810-0000 | Halbert, David Jr | | 307 Diddell Rd | P O Box 99 | LaGrangeville | NY | 12540 | 96 | A20 |
| 6358-03-340326-0000 | Calabro, Elaine M | | 25 Elizabeth Ter | 25 Elizabeth Ter | Wappingers Falls | NY | 12590 | 92 | A61 |
| 6358-03-314481-0000 | Macry, Elaine | | 1 Elizabeth Ter | 1 Elizabeth Ter | Wappingers Falls | NY | 12590 | 91 | A56 |
| 6362-04-937200-0000 | Zwinscher, Edward F III | | 246 Rombout Rd | 246 Rombout Rd | Pleasant Valley | NY | 12569 | 91 | C27 |
| 6460-03-091480-0000 | Hoye, Daniel S | | 10 Croft Hill Rd | 10 Croft Hill Rd | Poughkeepsie | NY | 12603 | 87 | A6 |
| 6460-03-089371-0000 | Rendes, Gretchen | | 147 Lauer Rd | 757 Traver Rd | Pleasant Valley | NY | 12569 | 86 | A8 |
| 6459-01-048911-0000 | Adams, Richard L | | 35 Pine Ridge Rd | 35 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 83 | A19 |
| 6461-03-245203-0000 | Parodi, Louis J | | 133 Cramer Rd | 133 Cramer Rd | Poughkeepsie | NY | 12603 | 80 | C50 |
| 6459-01-028934-0000 | Bentivenga, Richard J. | | 33 Pine Ridge Rd. | 33 Pine Ridge Rd. | Poughkeepsie | NY | 12603 | 80 | A19 |
| 6358-01-310512-0000 | Blackstone, Valley J | | 19 Larissa Ln | 2805 Farris Ln | Bowie | MD | 20715 | 79 | A56 |
| 6459-01-034737-0000 | Balassone, Daniel F | | 300 Diddell Rd | 27 Diddell Rd | Poughkeepsie | NY | 12603 | 75 | A22 |
| 6461-03-266099-0000 | Inello, Frank | | 5 Patriot Ct | 5 Patriot Ct | Poughkeepsie | NY | 12603 | 74 | C53 |
| 6460-03-039056-0000 | Weber, Dianne M | | 15 Old Noxon Rd | 15 Old Noxon Rd | Poughkeepsie | NY | 12603 | 72 | A15 |
| 6459-01-050857-0000 | Cameron, Robert H | | 36 Pine Ridge Rd | 36 Pine Ridge Rd | Poughkeepsie | NY | 12603 | 70 | A20 |
| 6461-03-265075-0000 | Monturo, Madeline | | 3 Patriot Ct | 3 Patriot Ct | Poughkeepsie | NY | 12603 | 68 | C53 |
| 6459-01-012799-0000 | Parlow, James | | 303 Diddell Rd | 303 Diddell Rd | Poughkeepsie | NY | 12603 | 60 | A21 |
| 6362-04-925323-0000 | Hart, James W Jr | | 241 Rombout Rd | 241 Rombout Rd | Pleasant Valley | NY | 12569 | 57 | C23 |
| 6460-01-261997-0000 | Winston, Tess A | | 25 Timothy Dr | 25 Timothy Dr | Poughkeepsie | NY | 12603 | 57 | C55 |
| 6362-04-928302-0000 | Johnston, Robert J | | 243 Rombout Rd | 243 Rombout Rd | Pleasant Valley | NY | 12569 | 51 | C24 |
| 6459-01-018763-0000 | Davis, Warren George | | 290 Diddell Rd | 290 Diddell Rd | Poughkeepsie | NY | 12603 | 46 | A22 |
| 6459-01-048761-0000 | Giorgio, Joseph M Jr | | 302 Diddell Rd | 302 Diddell Rd | Poughkeepsie | NY | 12603 | 45 | A21 |
| 6460-01-107523-0000 | Kistner, William J Jr | | 9 Croft Hill Rd | 9 Croft Hill Rd | Poughkeepsie | NY | 12603 | 43 | A5 |
| 6461-03-257025-0000 | Tamweber Joseph E | | 11 Vervalen Dr | 11 Vervalen Dr | Poughkeepsie | NY | 12603 | 41 | C54 |
| 6461-03-272179-0000 | Hausam, Josephine A | | 138 Cramer Rd. | 138 Cramer Rd. | Poughkeepsie | NY | 12603 | 38 | C52 |
| 6461-03-257054-0000 | Ali, Luz C | | 10 Vervalen Dr | 10 Vervalen Dr | Poughkeepsie | NY | 12603 | 36 | C54 |
| 6461-03-293353-0000 | Knox Jerome C | | 46 Frost Hill Rd | P O Box 343 | LaGrangeville | NY | 12540 | 24 | C45 |

Central Hudson Gas & Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

SUPPLEMENTAL RESPONSE TO INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-002A (MS)

Central Hudson Response No: CHGE-002A (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas & Electric Corporation

Supplemental Reply Date: May 21, 2014

Supplemental Response Provided by: Lewis Fitzgerald

Information Requested:

- c. Provide a table showing the location of all houses within 1000 feet of the edge of the ROW. Include the nearest structure number and the distance from the edge of the ROW to the residence.

Response:

- c. A review of GIS mapping has identified 532 houses within 1,000 feet of the edge of the ROW. Central Hudson is in the process of preparing a table showing the specific distance from the edge of the ROW to each such house. This table will be provided in a supplemental response.

Supplemental Response:

The final count is 497 houses. In our initial Response, the original count was 532 but there were properties deleted due to parcels being vacant (upon closer inspection) or the house being outside the 1000' buffer.

*Attached as **Exhibit A** is a table listing dwellings (with tax parcel information, property owner, address, distance to edge of ROW, and nearest structure number) within 1000 feet of the edge of the ROW.*

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-003 (MAS/RQ)

Central Hudson Response No: CHGE-003 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Jose Ruaya

Information Requested:

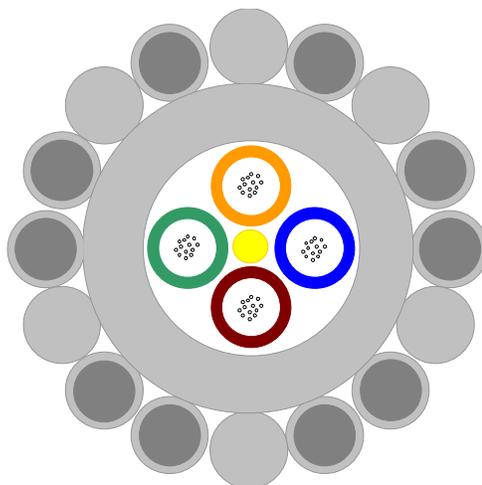
- a. Provide the catalog cut sheet for shield wires (include both the mechanical and electrical characteristics).
- b. Provide the catalog cut sheet for the conductors (include both the mechanical and electrical characteristics).
- c. Is it Central Hudson's intention to ground the shield wires to the structure or insulate them from the structure? Provide supporting documentation.
- d. Provide the un-redacted report pertaining to the A&C line conductor test referenced in the Application.
- e. What is the protective angle the company assumed for shield wire protection from lightning strikes?
- f. Does Central Hudson plan on using any mid-span splices? If so, provide the locations of planned splices. Explain why Central Hudson would use splices instead of terminating at dead end structures.

Responses:

- a. *The catalog cut sheet for the shield wire ("OPGW Spec Sheet") most likely to be used is attached as **Exhibit A** to this Response.*
- b. *The catalog cut sheets for the conductors ("CHGE 1033 ACSR Specifications" and "Southwire ACSR Spec Sheet") are attached as **Exhibit B (Parts 1 and 2 respectively)** to this Response.*
- c. *It is Central Hudson's intention to ground the shield wires to the structure. Central Hudson's ground standards ("Grounding for Direct Embedded Steel Poles") are attached to this Response as **Exhibit C**.*
- d. *The reports pertaining to the A & C line conductor test ("CHGE A&C Lines ACSR Testing" and "ACSR Testing Results from NEETRAC 6-2003") referenced in the Application are attached as **Exhibit D (Parts 1 and 2 respectively)** to this Response*
- e. *The protective angle is 30 degrees.*
- f. *Central Hudson does not plan on using mid-span splices.*

Specification DNO-7500

AlumaCore Optical Ground Wire



AC-29/49/630

| Component Details | | | | | | |
|--------------------------------|----------------------------------|----|----------|-----------|-----------------------|------------------------|
| | Component | # | OD | | Area | |
| CENTER | | | | | | |
| | Aluminum Pipe | 1 | 11.00 mm | 0.4331 in | 56.55 mm ² | 0.0877 in ² |
| LAYER 1 - LEFT HAND LAY | | | | | | |
| | Aluminum Clad Steel (20.3% IACS) | 10 | 2.50 mm | 0.0984 in | 49.09 mm ² | 0.0761 in ² |
| | Aluminum Alloy 6201 | 6 | 2.50 mm | 0.0984 in | 29.45 mm ² | 0.0457 in ² |

| Standards | |
|--|---|
| Designed and Manufactured in accordance with the following: | |
| Cable | <i>IEEE 1138, IEC 60794-4</i> |
| Fiber | <i>IEC 60793, ITU-T G.65x Series</i> |
| Color Code | <i>ANSI/EIA 359-A, 598-A, IEC 60304</i> |
| Aluminum Pipes | <i>ASTM B483</i> |
| Aluminum Alloy Wires | <i>ASTM B398, IEC 60104</i> |
| Aluminum Clad Steel Wires | <i>ASTM B415</i> |

Specification DNO-7500

| Mechanical / Electrical Details | | |
|-------------------------------------|----------------------------|----------------------------|
| Calculated Breaking Load | 7,739 kg | 17,061 lbs |
| Maximum Cable Design Tension | 6,191 kg | 13,649 lbs |
| Approximate Cable Diameter | 16.00 mm | 0.630 in |
| Total Cross-Sectional Area | 135.09 mm ² | 0.2094 in ² |
| Approximate Cable Weight | 592 kg/km | 2,101 lbs/mile |
| Modulus of Elasticity | 9,964 kg/mm ² | 14,172 kpsi |
| Coefficient of Linear Expansion | 1.70E-05 1/°C | 9.47E-06 1/°F |
| Sag10™ Chart Number | 1-1439 | 1-1439 |
| Calculated DC Resistance (20°C) | 0.2986 Ohms/km | 0.4806 Ohms/mile |
| Short Circuit Rating | 155 (kA) ² •sec | 155 (kA) ² •sec |
| Short Circuit Ambient Temperature | 40 °C | 104 °F |
| Short Circuit Duration 1 sec | 12.4 kA | 12.4 kA |
| Short Circuit Max Cable Temperature | 210 °C | 410 °F |

| Optical Details | |
|--|-----------------------------------|
| Attenuation Characteristics for 62.5/125 GIGA-Link™ 300 Multimode Fiber | |
| <u>Max Individual</u> | |
| 3.5 dB/km 850 nm | |
| 1.2 dB/km 1300 nm | |
| Attenuation Characteristics for Single-mode Fiber | |
| <u>Max Individual</u> | |
| 0.40 dB/km 1310 nm | |
| 0.30 dB/km 1550 nm | |
| 48 Fiber Loose Tube Design (4 - 12 fiber units) | |
| Unit | Fiber Type |
| Blue | 62.5/125 GIGA-Link™ 300 Multimode |
| Orange | 62.5/125 GIGA-Link™ 300 Multimode |
| Green | Single-mode |
| Brown | Single-mode |
| Total Fiber Count | |
| 48 | |

Standard Fiber Color Code

| | | | | | | | | | | | | |
|-------|------|--------|-------|-------|-------|-------|-----|-------|--------|--------|------|------|
| Fiber | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Color | Blue | Orange | Green | Brown | Slate | White | Red | Black | Yellow | Violet | Rose | Aqua |

Designs with more than 12 fibers per tube will use the standard color code and binders for identification of the fibers.

Installation and Handling Recommendations

Installation and cable preparation procedures are outlined in the AFL Telecommunications documents listed below. Contact AFL to request copies.

Recommended Installation Procedures for Composite Optical Ground Wire

Installation Instructions for Installing Optical Ground Wire in an AFL Telecommunications Splice Enclosure

Fiber Optic Cable Receiving, Handling and Storage. Document ACS-WI-809

Specification DNO-7500

| Electrical Characteristics | | | | | |
|---|-----------------------------------|-----------------|-------------------|---------------|-------------|
| Composite DC Resistance | [20°C] | 0.2986 Ohms/km | 0.4806 Ohms/mile | | |
| Geometric Mean Radius | | 0.62 cm | 0.0204 feet | | |
| Inductive Reactance | [60 Hz frequency] | 0.2933 Ohms/km | 0.4721 Ohms/mile | | |
| | [one foot (0.3048 meter) spacing] | | | | |
| | [50 Hz frequency] | 0.2444 Ohms/km | 0.3934 Ohms/mile | | |
| Capacitive Reactance | [60 Hz frequency] | 0.1738 MOhms·km | 0.1080 MOhms·mile | | |
| | [one foot (0.3048 meter) spacing] | | | | |
| | [50 Hz frequency] | 0.2085 MOhms·km | 0.1296 MOhms·mile | | |
| Composite Coefficient of Thermal Resistance | | 0.00367 (1/°C) | | | |
| Temperature | | DC Resistance | | AC Resistance | |
| (°C) | (°F) | (Ohms/km) | (Ohms/mile) | (Ohms/km) | (Ohms/mile) |
| 20 | 68 | 0.2986 | 0.4806 | 0.3046 | 0.4902 |
| 25 | 77 | 0.3041 | 0.4894 | 0.3102 | 0.4992 |
| 30 | 86 | 0.3096 | 0.4982 | 0.3158 | 0.5082 |
| 35 | 95 | 0.3150 | 0.5070 | 0.3213 | 0.5171 |
| 40 | 104 | 0.3205 | 0.5158 | 0.3269 | 0.5261 |
| 45 | 113 | 0.3260 | 0.5246 | 0.3325 | 0.5351 |
| 50 | 122 | 0.3315 | 0.5334 | 0.3381 | 0.5441 |
| 55 | 131 | 0.3369 | 0.5423 | 0.3437 | 0.5531 |
| 60 | 140 | 0.3424 | 0.5511 | 0.3493 | 0.5621 |
| 65 | 149 | 0.3479 | 0.5599 | 0.3549 | 0.5711 |
| 70 | 158 | 0.3534 | 0.5687 | 0.3604 | 0.5801 |
| 75 | 167 | 0.3589 | 0.5775 | 0.3660 | 0.5891 |
| 80 | 176 | 0.3643 | 0.5863 | 0.3716 | 0.5981 |
| 85 | 185 | 0.3698 | 0.5951 | 0.3772 | 0.6070 |
| 90 | 194 | 0.3753 | 0.6040 | 0.3828 | 0.6160 |
| 95 | 203 | 0.3808 | 0.6128 | 0.3884 | 0.6250 |
| 100 | 212 | 0.3862 | 0.6216 | 0.3940 | 0.6340 |
| 105 | 221 | 0.3917 | 0.6304 | 0.3995 | 0.6430 |
| 110 | 230 | 0.3972 | 0.6392 | 0.4051 | 0.6520 |
| 115 | 239 | 0.4027 | 0.6480 | 0.4107 | 0.6610 |
| 120 | 248 | 0.4081 | 0.6568 | 0.4163 | 0.6700 |
| 125 | 257 | 0.4136 | 0.6656 | 0.4219 | 0.6790 |
| 130 | 266 | 0.4191 | 0.6745 | 0.4275 | 0.6879 |
| 135 | 275 | 0.4246 | 0.6833 | 0.4331 | 0.6969 |
| 140 | 284 | 0.4300 | 0.6921 | 0.4386 | 0.7059 |
| 145 | 293 | 0.4355 | 0.7009 | 0.4442 | 0.7149 |
| 150 | 302 | 0.4410 | 0.7097 | 0.4498 | 0.7239 |

Specification DNO-7500

PLS-CADD Inputs

Use simplified elastic cable model (no creep, no coefficient)

| | | | | |
|---|-------------------------------------|--------------------------------|-------------------------------------|---|
| Name | | | | |
| Description | | AFL OPGW DNO-7500 AC-29/49/630 | | |
| Cross section area (in ²) | <input type="text" value="0.2094"/> | Unit weight (lbs/ft) | <input type="text" value="0.398"/> | Number of independent wires <input type="text" value="1"/> <small>(above should be 1 unless cables are separated by spacers)</small> |
| Outside diameter (in) | <input type="text" value="0.630"/> | Ultimate tension (lbs) | <input type="text" value="17,061"/> | |
| Temperature at which strand data below obtained (deg F) | <input type="text" value="72"/> | | | |

| | | | | | | | | | | | |
|--|------------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|---|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Outer Strands | | | | | Core Strands (if different from outer strands) | | | | | | |
| Final Modulus of elasticity (psi/100) | | <input type="text" value="134000"/> | | | Final Modulus of elasticity (psi/100) | | <input type="text"/> | | | | |
| Thermal expansion coeff. (/100 deg) | | <input type="text" value="0.000970"/> | | | Thermal expansion coeff. (/100 deg) | | <input type="text"/> | | | | |
| Polynomial coefficients (all strains in %) | | | | | Polynomial coefficients (all strains in %) | | | | | | |
| | A0 | A1 | A2 | A3 | A4 | | A0 | A1 | A2 | A3 | A4 |
| Stress-strain | <input type="text" value="232.5"/> | <input type="text" value="101213.1"/> | <input type="text" value="38254.6"/> | <input type="text" value="-117500"/> | <input type="text" value="45864"/> | Stress-strain | <input type="text"/> |
| Creep | <input type="text" value="456.6"/> | <input type="text" value="93991"/> | <input type="text" value="-44258.8"/> | <input type="text" value="74385"/> | <input type="text" value="-77593"/> | Creep | <input type="text"/> |

| | | | | |
|--|-------------------------------------|------------|----------------------------------|---|
| Thermal Rating Properties | | | | |
| Resistance at two different temperatures | | | | |
| Resistance (Ohms/mile) | <input type="text" value="0.4894"/> | at (deg F) | <input type="text" value="77"/> | Emissivity coefficient <input type="text" value="0.5"/> |
| Resistance (Ohms/mile) | <input type="text" value="0.5775"/> | at (deg F) | <input type="text" value="167"/> | Solar absorption coefficient <input type="text" value="0.5"/> |
| | | | | * Outer strands heat capacity (Watt-s/ft-deg F) <input style="background-color: #cccccc;" type="text"/> |
| | | | | * Core heat capacity (Watt-s/ft-deg F) <input style="background-color: #cccccc;" type="text"/> |

| | |
|---|---|
| Generate Coefficients from points on stress-strain cur. | <input type="button" value="OK"/> <input type="button" value="Cancel"/> |
|---|---|

* These two fields do not need to be entered for OPGW - intentionally left blank.

DATE: 2014/05/02
TIME: 14:28:11

MATERIALS MANAGEMENT SYSTEM
STOCK SPECIFICATIONS INQUIRY

PAGE: 1
SPI

STK#.....: 30-50-164 U/M: LB DESC...: WIRE, ACSR BARE 1033 45/7
ACQ CD....: HAZ CD....: ID CD.....:
LAST MOD.: 2014/02/26 BY EMPL#. 09981
XREF STK#: XREF STK#: ALT STK CD:

***** SPECIFICATIONS *****

WIRE, BARE, ACSR/AZ, ACSR/AW OR ACSR.GA. 1033.5MCM 45/7 (45 STRANDS
AL. OVER 7 STRANDS ALUMINIZED, AL. CLAD, OR CLASS A GALV. STEEL CORE
WIRE). CLASS AA, CONCENTRIC. 61% OR 62% CONDUCTIVITY, MFGR. TO STIP-
ULATE ON ALL QUOTES & INVOICES, SUBJECT TO AN ECONOMIC ANALYSIS W/
RESPECT TO AVAILABILITY. CODE NAME: ORTOLAN/AZ, ORTOLAN/AW, OR
ORTOLAN/GA. 1.212" O.D. WEIGHT: 1165 LBS./M. IN ACCORD. W/ ASTM
B232, B341, B498, B500, B502, AND B549. SHIP 5375 LBS. (4615 FT.)
ON REEL RM 68.38 UNLESS OTHERWISE SPECIFIED. (04-06-79)

FOR ADDITIONAL INFORMATION, DEPRESS 'ENTER'.

TRAN./CODE: | |

INIT. DATA: | |



APPLICATIONS

Used as bare overhead transmission conductor and as primary and secondary distribution conductor and messenger support. ACSR offers optimal strength for line design. Variable steel core stranding enables desired strength to be achieved without sacrificing ampacity.

SPECIFICATIONS

Southwire's ACSR bare conductor meets or exceeds the following ASTM specifications:

- B230 Aluminum 1350-H19 Wire for Electrical Purposes.
- B232 Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Reinforced (ACSR).
- B498 Zinc-Coated (Galvanized) Steel Core Wire for Use in Overhead Electrical Conductors.
- B500 Metallic Coated Stranded Steel Core for Use in Overhead Electrical Conductors.

CONSTRUCTION

- Aluminum 1350-H19 wires, concentrically stranded about a steel core. Standard core wire for ACSR is class A galvanized.
- Class A core stranding is also available in zinc-5% aluminum-mischmetal alloy coating.
- For aluminum-clad (AW) ACSR, please refer to the ACSR/AW catalog sheet
- Additional corrosion protection is available through the application of grease to the core or infusion of the complete cable with grease.
- ACSR conductor is also available in non-specular.

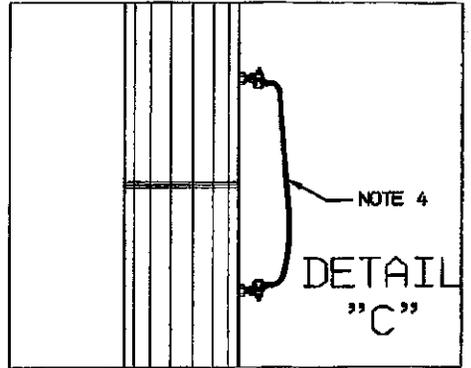
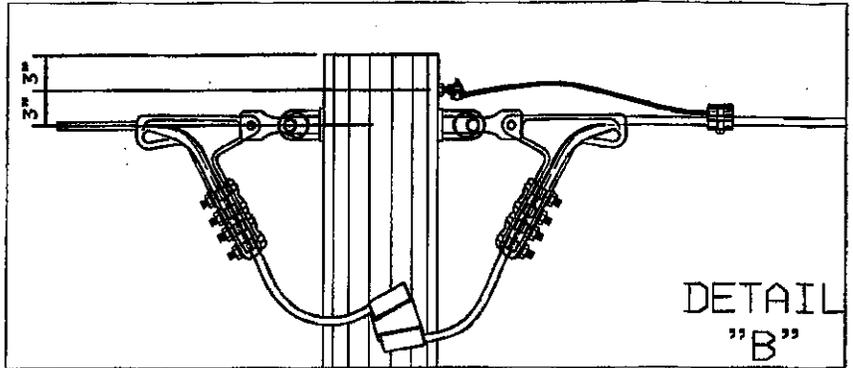
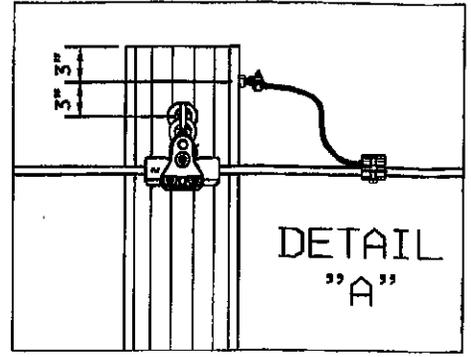
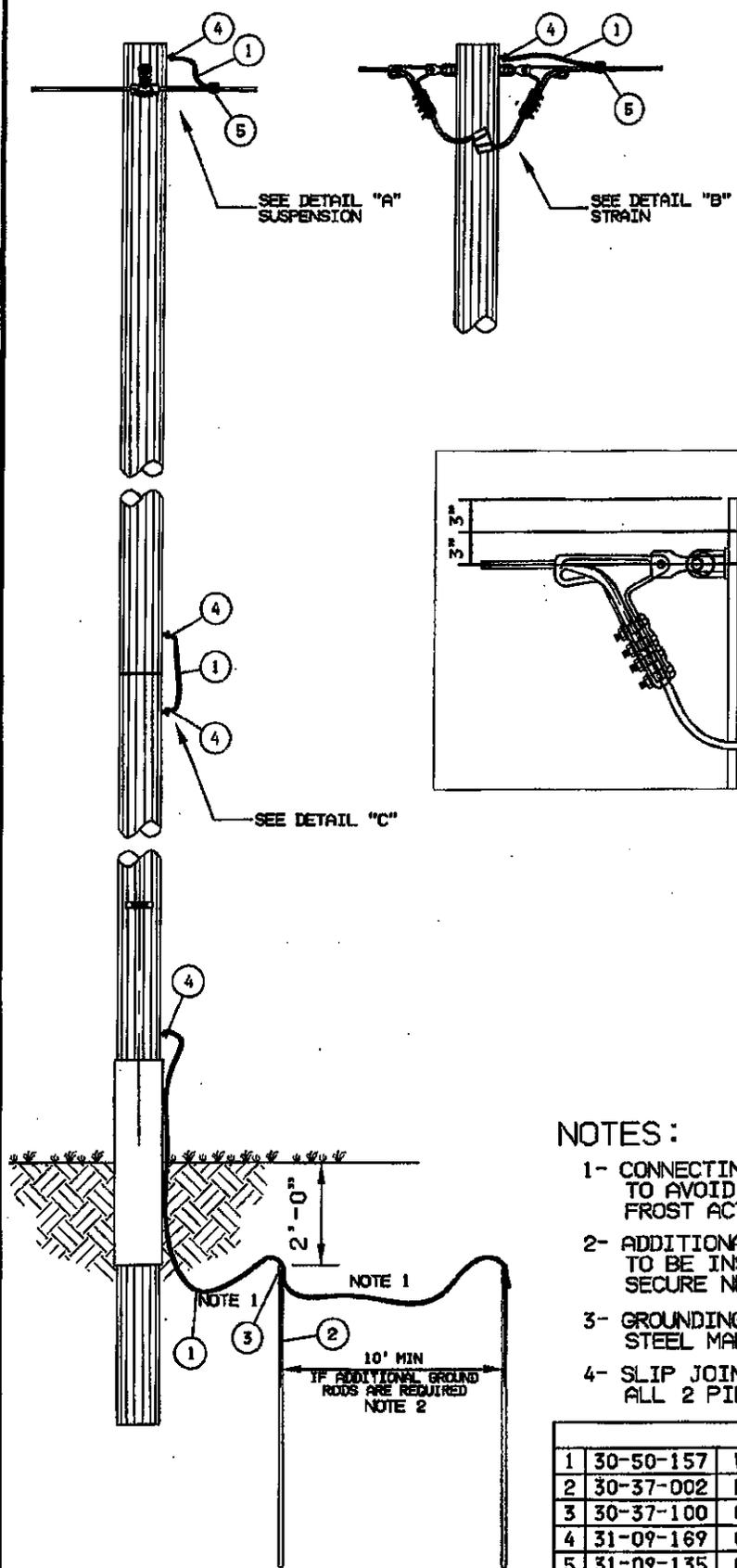
| Code Word | Size (AWG or kcmil) | Stranding (Al/Stl) | Diameter (ins.) | | | | Weight Per 1000 ft. (lbs.) | | | Content (%) | | Rated Strength (lbs.) | Resistance OHMS/1000 ft. | | Allowable Ampacity (Amps) |
|-----------|---------------------|--------------------|------------------|-------|------------|----------------|----------------------------|-----|-------|-------------|-------|-----------------------|--------------------------|-----------|---------------------------|
| | | | Individual Wires | | Steel Core | Complete Cable | Al | Stl | Total | Al | Stl | | DC @ 20°C | AC @ 75°C | |
| | | | Al | Stl | | | | | | | | | | | |
| Turkey | 6 | 6/1 | .0661 | .0661 | .0661 | .198 | 24 | 12 | 36 | 67.88 | 32.12 | 1190 | .641 | .806 | 105 |
| Swan | 4 | 6/1 | .0834 | .0834 | .0834 | .25 | 39 | 18 | 57 | 67.87 | 32.12 | 1860 | .403 | .515 | 140 |
| Swanate | 4 | 7/1 | .0772 | .103 | .103 | .257 | 39 | 28 | 67 | 58.1 | 41.9 | 2360 | .399 | .519 | 140 |
| Sparrow | 2 | 6/1 | .1052 | .1052 | .1052 | .316 | 62 | 29 | 91 | 67.9 | 32.1 | 2850 | .254 | .332 | 184 |
| Sparate | 2 | 7/1 | .0974 | .1298 | .1298 | .325 | 62 | 45 | 107 | 58.12 | 41.88 | 3460 | .251 | .338 | 184 |
| Robin | 1 | 6/1 | .1181 | .1181 | .1181 | .354 | 78 | 37 | 115 | 67.88 | 32.12 | 3550 | .201 | .268 | 212 |
| Raven | 1/0 | 6/1 | .1327 | .1327 | .1327 | .398 | 99 | 47 | 145 | 67.89 | 32.11 | 4380 | .159 | .217 | 242 |
| Quail | 2/0 | 6/1 | .1489 | .1489 | .1489 | .447 | 124 | 59 | 183 | 67.88 | 32.12 | 5310 | .126 | .176 | 276 |
| Pigeon | 3/0 | 6/1 | .1672 | .1672 | .1672 | .502 | 156 | 74 | 230 | 67.87 | 32.13 | 6620 | .100 | .144 | 315 |
| Penguin | 4/0 | 6/1 | .1878 | .1878 | .1878 | .563 | 197 | 93 | 291 | 67.88 | 32.12 | 8350 | .0795 | .119 | 357 |
| Waxwing | 266.8 | 18/1 | .1217 | .1217 | .1217 | .609 | 250 | 39 | 289 | 86.43 | 13.57 | 6880 | .0643 | .0787 | 449 |
| Partridge | 266.8 | 26/7 | .1013 | .0788 | .2363 | .642 | 251 | 115 | 367 | 68.51 | 31.49 | 11300 | .0637 | .0779 | 475 |
| Ostrich | 300 | 26/7 | .1074 | .0835 | .2506 | .68 | 283 | 130 | 412 | 68.51 | 31.49 | 12700 | .0567 | .0693 | 492 |
| Merlin | 336.4 | 18/1 | .1367 | .1367 | .1367 | .684 | 315 | 49 | 365 | 86.43 | 13.57 | 8680 | .0510 | .0625 | 519 |
| Linnet | 336.4 | 26/7 | .1137 | .0885 | .2654 | .72 | 317 | 146 | 462 | 68.51 | 31.49 | 14100 | .0505 | .0618 | 529 |
| Oriole | 336.4 | 30/7 | .1059 | .1059 | .3177 | .741 | 318 | 209 | 526 | 60.35 | 39.65 | 17300 | .0502 | .0613 | 535 |
| Chickadee | 397.5 | 18/1 | .1486 | .1486 | .1486 | .743 | 373 | 58 | 431 | 86.43 | 13.57 | 9940 | .0432 | .0529 | 576 |
| Brant | 397.5 | 24/7 | .1287 | .0858 | .2574 | .772 | 374 | 137 | 511 | 73.21 | 26.79 | 14600 | .0430 | .0526 | 584 |
| Ibis | 397.5 | 26/7 | .1236 | .0962 | .2885 | .783 | 374 | 172 | 546 | 68.51 | 31.49 | 16300 | .0428 | .0523 | 587 |
| Lark | 397.5 | 30/7 | .1151 | .1151 | .3453 | .806 | 375 | 247 | 622 | 60.35 | 39.65 | 20300 | .0425 | .0519 | 594 |
| Pelican | 477 | 18/1 | .1628 | .1628 | .1628 | .814 | 447 | 70 | 517 | 86.44 | 13.56 | 11800 | .0360 | .0442 | 646 |
| Flicker | 477 | 24/7 | .141 | .094 | .2819 | .846 | 449 | 164 | 614 | 73.21 | 26.79 | 17200 | .0358 | .0439 | 655 |
| Hawk | 477 | 26/7 | .1354 | .1053 | .316 | .858 | 449 | 207 | 656 | 68.51 | 31.49 | 19500 | .0356 | .0436 | 659 |
| Hen | 477 | 30/7 | .1261 | .1261 | .3783 | .883 | 450 | 296 | 746 | 60.35 | 39.65 | 23800 | .0354 | .0433 | 666 |
| Osprey | 556.5 | 18/1 | .1758 | .1758 | .1758 | .879 | 522 | 82 | 603 | 86.43 | 13.57 | 13700 | .0308 | .0379 | 711 |
| Parakeet | 556.5 | 24/7 | .1523 | .1015 | .3045 | .914 | 524 | 192 | 716 | 73.21 | 26.79 | 19800 | .0307 | .0376 | 721 |
| Dove | 556.5 | 26/7 | .1463 | .1138 | .3413 | .927 | 524 | 241 | 765 | 68.51 | 31.49 | 22600 | .0306 | .0375 | 726 |
| Eagle | 556.5 | 30/7 | .1362 | .1362 | .4086 | .953 | 525 | 345 | 871 | 60.35 | 39.65 | 27800 | .0303 | .0372 | 734 |
| Peacock | 605 | 24/7 | .1588 | .1059 | .3177 | .953 | 570 | 209 | 779 | 73.2 | 26.8 | 21600 | .0282 | .0346 | 760 |
| Squab | 605 | 26/7 | .1525 | .1186 | .3559 | .966 | 570 | 262 | 832 | 68.51 | 31.49 | 24300 | .0281 | .0345 | 765 |
| Wood Duck | 605.0 | 30/7 | .142 | .142 | .426 | .994 | 571 | 375 | 946 | 60.35 | 39.65 | 28900 | .0279 | .0342 | 774 |
| Teal | 605.0 | 30/19 | .142 | .0852 | .426 | .994 | 571 | 367 | 939 | 60.86 | 39.14 | 30000 | .0279 | .0342 | 773 |
| Kingbird | 636 | 18/1 | .188 | .188 | .188 | .94 | 596 | 94 | 690 | 86.43 | 13.57 | 15700 | .0270 | .0332 | 773 |
| Swift | 636.0 | 36/1 | .1329 | .1329 | .1329 | .93 | 596 | 47 | 643 | 92.72 | 7.28 | 13690 | .0271 | .0334 | 769 |
| Rook | 636 | 24/7 | .1628 | .1085 | .3256 | .977 | 599 | 219 | 818 | 73.22 | 26.78 | 22600 | .0268 | .0330 | 784 |
| Grosbeak | 636 | 26/7 | .1564 | .1216 | .3649 | .991 | 599 | 275 | 874 | 68.51 | 31.49 | 25200 | .0267 | .0328 | 789 |

| | | | | | | | | | | | | | | | |
|----------|--------|-------|-------|-------|-------|-------|------|-----|------|-------|-------|-------|--------|-------|------|
| Scoter | 636.0 | 30/7 | .1456 | .1456 | .4368 | 1.019 | 600 | 395 | 995 | 60.35 | 39.65 | 30400 | .0256 | .0325 | 798 |
| Egret | 636 | 30/19 | .1456 | .0874 | .4368 | 1.019 | 600 | 386 | 987 | 60.85 | 39.15 | 31500 | .0266 | .0326 | 798 |
| Flamingo | 666.6 | 24/7 | .1667 | .1111 | .3333 | 1 | 628 | 230 | 858 | 73.21 | 26.79 | 23700 | .0256 | .0315 | 807 |
| Gannet | 666.6 | 26/7 | .1601 | .1245 | .3736 | 1.014 | 628 | 289 | 916 | 68.51 | 31.49 | 26400 | .0255 | .0313 | 812 |
| Stilt | 715.5 | 24/7 | .1727 | .1151 | .3453 | 1.036 | 674 | 247 | 920 | 73.21 | 26.79 | 25500 | .0239 | .0294 | 844 |
| Starling | 715.5 | 26/7 | .1659 | .129 | .3871 | 1.051 | 674 | 310 | 984 | 68.51 | 31.49 | 28400 | .0238 | .0292 | 849 |
| Redwing | 715.5 | 30/19 | .1544 | .0927 | .4633 | 1.081 | 676 | 435 | 1110 | 60.85 | 39.15 | 34600 | .0236 | .0290 | 859 |
| Coot | 795 | 36/1 | .1486 | .1486 | .1486 | 1.04 | 745 | 58 | 804 | 92.72 | 7.28 | 16710 | .0217 | .0268 | 884 |
| Drake | 795 | 26/7 | .1749 | .136 | .408 | 1.107 | 749 | 344 | 1093 | 68.51 | 31.49 | 31500 | .0214 | .0263 | 907 |
| Tern | 795 | 45/7 | .1329 | .0886 | .2658 | 1.063 | 749 | 146 | 895 | 83.67 | 16.33 | 22100 | .0216 | .0269 | 887 |
| Condor | 795 | 54/7 | .1213 | .1213 | .364 | 1.092 | 749 | 274 | 1023 | 73.21 | 26.79 | 28200 | .0215 | .0272 | 889 |
| Mallard | 795 | 30/19 | .1628 | .0977 | .4884 | 1.14 | 751 | 483 | 1234 | 60.86 | 39.14 | 38400 | .0213 | .0261 | 918 |
| Ruddy | 900 | 45/7 | .1414 | .0943 | .2828 | 1.131 | 848 | 165 | 1013 | 83.67 | 16.33 | 24400 | .0191 | .0239 | 958 |
| Canary | 900 | 54/7 | .1291 | .1291 | .3873 | 1.162 | 848 | 310 | 1158 | 73.22 | 26.78 | 31900 | .0190 | .0241 | 961 |
| Rail | 954 | 45/7 | .1456 | .0971 | .2912 | 1.165 | 899 | 175 | 1074 | 83.67 | 16.33 | 25900 | .0180 | .0225 | 993 |
| Cardinal | 954 | 54/7 | .1329 | .1329 | .3987 | 1.196 | 899 | 329 | 1227 | 73.21 | 26.79 | 33800 | .0179 | .0228 | 996 |
| Ortolan | 1033.5 | 45/7 | .1515 | .101 | .3031 | 1.212 | 973 | 190 | 1163 | 83.67 | 16.33 | 27700 | .0167 | .0209 | 1043 |
| Curlew | 1033.5 | 54/7 | .1383 | .1383 | .415 | 1.245 | 973 | 356 | 1330 | 73.21 | 26.79 | 36600 | .0165 | .0211 | 1047 |
| Bluejay | 1113 | 45/7 | .1573 | .1048 | .3145 | 1.258 | 1048 | 205 | 1253 | 83.67 | 16.33 | 29800 | .0155 | .0194 | 1092 |
| Finch | 1113 | 54/19 | .1436 | .0861 | .4307 | 1.292 | 1053 | 375 | 1429 | 73.72 | 26.28 | 39100 | .0154 | .0197 | 1093 |
| Bunting | 1192.5 | 45/7 | .1628 | .1085 | .3256 | 1.302 | 1123 | 219 | 1343 | 83.67 | 16.33 | 32000 | .0144 | .0182 | 1139 |
| Grackle | 1192.5 | 54/19 | .1486 | .0892 | .4458 | 1.337 | 1129 | 402 | 1531 | 73.72 | 26.28 | 41900 | .0144 | .0184 | 1140 |
| Bittern | 1272 | 45/7 | .1681 | .1121 | .3362 | 1.345 | 1198 | 234 | 1432 | 83.67 | 16.33 | 34100 | .0135 | .0171 | 1184 |
| Pheasant | 1272 | 54/19 | .1535 | .0921 | .4605 | 1.381 | 1204 | 429 | 1633 | 73.71 | 26.29 | 43600 | .0135 | .0173 | 1187 |
| Dipper | 1351.5 | 45/7 | .1733 | .1155 | .3466 | 1.386 | 1273 | 248 | 1521 | 83.67 | 16.33 | 36200 | .0127 | .0162 | 1229 |
| Martin | 1351.5 | 54/19 | .1582 | .0949 | .4746 | 1.424 | 1279 | 456 | 1735 | 73.72 | 26.28 | 46300 | .0127 | .0163 | 1232 |
| Bobolink | 1431 | 45/7 | .1783 | .1189 | .3566 | 1.427 | 1348 | 263 | 1611 | 83.67 | 16.33 | 38300 | .0120 | .0153 | 1272 |
| Lapwing | 1590 | 45/7 | .188 | .1253 | .3759 | 1.504 | 1498 | 292 | 1790 | 83.67 | 16.33 | 42200 | .0108 | .0139 | 1354 |
| Falcon | 1590 | 54/19 | .1716 | .103 | .5148 | 1.544 | 1505 | 536 | 2041 | 73.72 | 26.28 | 54500 | .0108 | .0140 | 1359 |
| Chukar | 1780 | 84/19 | .1456 | .0874 | .4368 | 1.602 | 1685 | 386 | 2072 | 81.35 | 18.65 | 51000 | .0097 | .0125 | 1453 |
| Bluebird | 2156 | 84/19 | .1602 | .0962 | .4808 | 1.762 | 2040 | 468 | 2508 | 81.34 | 18.66 | 60300 | .00801 | .0105 | 1623 |
| Kiwi | 2167 | 72/7 | .1735 | .1157 | .347 | 1.735 | 2051 | 249 | 2300 | 89.17 | 10.82 | 49800 | .00801 | .0106 | 1607 |

+Conductor temperature of 75°C, ambient temperature 25°C, emissivity 0.5, wind 2 ft./sec., in sun.

ACSR

| Code Word | Size (AWG or kcmil) | Stranding (Al/Stl) | Diameter (ins.) | | | | Weight Per 1000 ft. (lbs.) | | | Content (%) | | Rated Strength (lbs.) | Resistance OHMS/1000 ft. | | Allowable Ampacity (Amps) |
|--|---------------------|--------------------|------------------|-------|------------|----------------|----------------------------|-----|-------|-------------|-------|-----------------------|--------------------------|-----------|---------------------------|
| | | | Individual Wires | | Steel Core | Complete Cable | Al | Stl | Total | Al | Stl | | DC @ 20°C | AC @ 75°C | |
| | | | Al | Stl | | | | | | | | | | | |
| HIGH MECHANICAL STRENGTH | | | | | | | | | | | | | | | |
| Grouse | 80 | 8/1 | .1 | .1667 | .1667 | .367 | 75 | 74 | 149 | 50.48 | 49.52 | 5200 | .207 | .294 | 204 |
| Petrel | 101.8 | 12/7 | .0921 | .0921 | .2763 | .461 | 96 | 158 | 254 | 37.79 | 62.21 | 10400 | .158 | .250 | 237 |
| Minorca | 110.8 | 12/7 | .0961 | .0962 | .2885 | .481 | 104 | 172 | 276 | 37.75 | 62.25 | 11300 | .145 | .235 | 248 |
| Leghorn | 134.6 | 12/7 | .1059 | .1059 | .3177 | .53 | 127 | 209 | 335 | 37.79 | 62.21 | 13600 | .120 | .204 | 273 |
| Guinea | 159.0 | 12/7 | .1151 | .1151 | .3453 | .576 | 150 | 247 | 396 | 37.79 | 62.21 | 16000 | .101 | .181 | 297 |
| Dotterel | 176.9 | 12/7 | .1214 | .1214 | .3642 | .607 | 167 | 274 | 441 | 37.79 | 62.21 | 17300 | .0911 | .169 | 312 |
| Dorking | 190.8 | 12/7 | .1261 | .1261 | .3783 | .63 | 180 | 296 | 476 | 37.78 | 62.22 | 18700 | .0845 | .160 | 324 |
| Cochin | 211.3 | 12/7 | .1327 | .1327 | .398 | .663 | 199 | 328 | 527 | 37.8 | 62.2 | 28400 | .0763 | .150 | 340 |
| +Conductor temperature of 75°C, ambient temperature 25°C, emissivity 0.5, wind 2 ft./sec., in sun. | | | | | | | | | | | | | | | |



NOTES:

- 1- CONNECTING WIRE TO BE SLACK TO AVOID BREAKAGE DUE TO FROST ACTION.
- 2- ADDITIONAL RODS AND/OR ROD SECTIONS TO BE INSTALLED WHERE NECESSARY TO SECURE NECESSARY GROUND RESISTANCE.
- 3- GROUNDING NUTS TO BE INSTALLED BY STEEL MANUFACTURER
- 4- SLIP JOINT JUMPER IS NECESSARY ON ALL 2 PIECE POLES

| BILL OF MATERIAL | | |
|------------------|-----------|-----------------------------------|
| 1 | 30-50-157 | WIRE, CU BARE 4 SD SOLID |
| 2 | 30-37-002 | ROD, GROUND SINGLE 5/8" X 8' |
| 3 | 30-37-100 | CLAMP, GROUND ROD 5/8" F/#8 & 1/0 |
| 4 | 31-09-169 | CONN, TRANSFORMER GROUND 8-2 CU. |
| 5 | 31-09-135 | CONN, ALL PURPOSE, 6CU - 336 ACSR |

| | |
|--------------------|-----|
| ELECTRIC STANDARDS | |
| DRWN. | TCJ |
| CLEAR | MFB |
| ENGR. | RKF |
| APPD. | |

CENTRAL HUDSON GAS & ELECTRIC CORP.

GROUNDING FOR DIRECT EMBEDDED STEEL POLES

| | |
|-------|--------|
| DATE | 2-5-13 |
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ACSR Replacement Program – A and C Lines Reconductor Project

Background

The electric utility industry has been routinely installing ACSR (Aluminum Conductor, Steel Re-enforced) Conductor for decades. Central Hudson has been using the ACSR material since the 1920's. In many cases the conductor installed at time of construction is still in-service and concerns have been raised regarding the remaining strength of the older lines. In the past 10 years, Central Hudson has experienced several ACSR conductor failures.

The ACSR failures prompted a system-wide testing program to determine the remaining strength of the ACSR conductor in-service. Samples of the older ACSR phase wires was removed and evaluated by NEETRAC (National Electric Energy Testing Research and Applications Center), a testing laboratory of the Georgia Institute of Technology. NEETRAC performed a series of tests including a visual inspection of the conductor condition, tensile/elongation testing, and a mandrel testing to access the coating of the strands to estimate total remaining conductor strength.

Based on the historical performance of the in-service ACSR (i.e. recent failures) and the NEETRAC analysis, Central Hudson has instituted an ACSR Replacement Program.

A and C Lines Analysis

The A and C Lines were installed in 1948. The conductor used on these lines is 397.5 ACSR (Ibis). The C Line experienced a failure in 1998 resulting from severe mechanical damage possibly inflicted during initial installation. Sections of the failed conductor on the C Line were tested at the NEETRAC facilities and found to be "normal" although there is evidence of thermal damage. Since the suspected cause of failure indicates damage during construction, other sections of the line could be damaged as well.

Sections of the A Line were removed and tested in August 2003. Most of the tested samples exhibited acceptable rated breaking strengths, however there was evidence that the aluminum had annealed. The annealing in the aluminum strands shows that the line has had some history of thermal overloading. Annealing of the conductor can cause the conductor to lose strength and sag lower than expected, possibly causing NESC clearance violations.

Reconductoring a transmission line is classified as a major update to the existing line and therefore subject to the most current edition of the NESC. Using PLS-CADD, a

preliminary model of the existing C Line was analyzed. The A and C Lines were installed at the same time, using the same structure types (including pole heights and classes). An initial review of the C Line shows structural behavior that is similar to the A Line. It was quickly determined that a minimum of 40% of the existing structures would not support the loads associated with reconductoring with 795 ACSR (tern), even if the structures were in excellent condition. Most of the wood pole structures on the A and C Lines were installed as part of the original line installation in 1948. This suggests that the wood poles would have experienced some age related degradation. The 2007 NESC has more stringent strength factor and load factor requirements for wood pole construction than the codes used at the time of construction.

Recommendation

After preliminary PLS-CADD review of the C Line, it is recommended that Central Hudson rebuild the A and C Lines, as many of the current structures will not support reconductoring. Rebuilding the lines will accomplish the need for replacing the aging ACSR conductor, while ensuring that supporting structures will adhere to the latest edition of the NESC and meet all loading requirements. Preliminary planning installation estimate for rebuilding the A and C Lines is \$7,080,000.

1/0 "Raven", 4/0 "Penguin", 101.8 "Petrel", and 397.5 "Ibis" ACSR
Conductor Remaining Life Evaluation

NEETRAC Project Number: 03-107

June 2003



Requested by: Mr. John Van Buren
Central Hudson Gas and Electric

Principal Investigator: Janeen J. McReynolds
Janeen J. McReynolds

Reviewed by: Paul L. Springer, III
Paul L. Springer, III

1/0 "Raven", 4/0 "Penguin", 101.8 "Petrel", and 397.5 "Ibis" ACSR
Conductor Remaining Life Evaluation

NEETRAC Project Number: 03-107

June 2003

Executive Summary

Mr. John Van Buren of Central Hudson Gas and Electric contracted with NEETRAC to perform an evaluation on twelve conductor samples. The field samples included 1/0 ACSR, 4/0 ACSR, 101.8 ACSR, and 397.5 ACSR. The objective of the project is to estimate the remaining service life.

1/0 "Raven" ACSR Samples

One section of 1/0 "Raven" conductor was received. Overall appearance is good. The outer aluminum strands exhibit a moderate oxide layer. The zinc coating remains on the steel core wire. Tensile tests show that most of the aluminum strands are annealed. The steel core failed to meet its minimum required tensile strength. As a result, "as-found" strength of the conductor is 96.9% RBS.

4/0 "Penguin" ACSR Samples

Four sections of 4/0 "Penguin" ACSR were received. Overall appearance is good. The outer aluminum strands exhibit a moderate oxide layer. Zinc coating on the steel core wires remains intact. All aluminum strands are annealed, which is an indication of a history of extreme over-temperature due to fault or sustained overloads. As-found temper of the aluminum strands is $\frac{3}{4}$ hard. None of the steel core wires met ASTM requirements, either. If continued operation is desired, line loading should be reviewed against "as-found" conductor strength. As a result, "as-found" strength of the conductor ranges between 94-97% RBS.

101.8 kcmil "Petrel" ACSR Samples

Two sections of "Petrel" conductor were received. Overall condition of the samples is marginal. The outer aluminum layers exhibit moderately heavy oxide. Galvanize coating on the steel core wires remains intact. Annealing was identified for some of the aluminum strands; however, temper has not diminished to $\frac{3}{4}$ hard. As-found strength was found to be 99.6% and 99.4% RBS.

397.5 kcmil "Ibis" ACSR Samples

Four "Ibis" samples were evaluated. Overall appearance is normal. A heavy oxide layer is present on the outer aluminum strands. Galvanize coating on the steel core wires remains intact. All but one sample exceeded RBS. All aluminum strands tested on the annealed sample failed to meet ASTM minimum requirements. Line loading should be reviewed against "as-found" conductor strength (94-102% RBS) for continued operation.

References

- ASTM B 230 "Standard Specification for Aluminum 1350-H19 Wire for Electrical Purposes"
 ASTM B 232 "Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Reinforced (ACSR)"
 ASTM B 498 "Standard Specification for Zinc-Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR)"

Sample Description

- Sample ID: #1; One section of 101.8 kcmil "Petrel" ACSR Conductor
 Line ID: AC Static; Date: 1948
 Conductor Diameter: 0.461", Stranding: 12 x 0.0921" Al/ 7 x 0.0921" St, RBS: 10,400 lbs.
- Sample ID: #2; One section of 397.5 kcmil "Ibis" ACSR Conductor
 Line ID: AC Line Fish-River Rd. Middle Phase; Date: 1948
 Conductor Diameter: 0.783", Stranding: 26 x 0.1236" Al/ 7 x 0.0961" St, RBS: 16,300 lbs.
- Sample ID: #3; One section of 397.5 kcmil "Ibis" ACSR Conductor
 Line ID: AC Line Fish-River Rd. South Phase; Date: 1948
 Conductor Diameter: 0.783", Stranding: 26 x 0.1236" Al/ 7 x 0.0961" St, RBS: 16,300 lbs.
- Sample ID: #4; One section of 397.5 kcmil "Ibis" ACSR Conductor
 Line ID: AC Line Fish-River Rd. North Phase; Date: 1948
 Conductor Diameter: 0.783", Stranding: 26 x 0.1236" Al/ 7 x 0.0961" St, RBS: 16,300 lbs.
- Sample ID: #5; One section of 397.5 kcmil "Ibis" ACSR Conductor
 Line ID: A Pole 55464; Date: 1948
 Conductor Diameter: 0.783", Stranding: 26 x 0.1236" Al/ 7 x 0.0961" St, RBS: 16,300 lbs.
- Sample ID: #6; One section of 4/0 "Penguin" ACSR Conductor
 Line ID: E Tower 1496; Date: 1948
 Conductor Diameter: 0.563", Stranding: 6 x 0.1878" Al/ 1 x 0.1878" St, RBS: 8350 lbs.
- Sample ID: #7; One section of 4/0 "Penguin" ACSR Conductor
 Line ID: GE Tower 1620 Bottom Phase; Date: 1940
 Conductor Diameter: 0.563", Stranding: 6 x 0.1878" Al/ 1 x 0.1878" St, RBS: 8350 lbs.
- Sample ID: #8; One section of 4/0 "Penguin" ACSR Conductor
 Line ID: GE Tower 1620 Middle Phase; Date: 1940
 Conductor Diameter: 0.563", Stranding: 6 x 0.1878" Al/ 1 x 0.1878" St, RBS: 8350 lbs.
- Sample ID: #9; One section of 4/0 "Penguin" ACSR Conductor
 Line ID: GE Tower 1620 Top Phase; Date: 1940
 Conductor Diameter: 0.563", Stranding: 6 x 0.1878" Al/ 1 x 0.1878" St, RBS: 8350 lbs.
- Sample ID: #10; One section of 4/0 "Penguin" ACSR Conductor*
 Line ID: E Line Middle Phase Tower 1496; Date: not shown
 Conductor Diameter: 0.563", Stranding: 6 x 0.1878" Al/ 1 x 0.1878" St, RBS: 8350 lbs.
- Sample ID: #11; One section of 1/0 "Raven" ACSR Conductor*
 Line ID: TV Static Pole 46085; Date: 1937
 Conductor Diameter: 0.398", Stranding: 6 x 0.1327" Al/ 1 x 0.1327" St, RBS: 4,380 lbs.
- Sample ID: #12; One section of 101.8 kcmil "Petrel" ACSR Conductor
 Line ID: NF Montfort Rd.; Date: 1948
 Conductor Diameter: 0.461", Stranding: 12 x 0.0921" Al/ 7 x 0.0921" St, RBS: 10,400 lbs.

* Samples 10 and 11 were tagged with different identification than what was shown in the table provided by CHG&E. Actual tag markings were used. Actual conductor size/type as determined by analysis is shown.

Equipment Used

Tinius Olsen Universal Testing Machine, Control #CQ 0013

Instron Universal Testing Machine, Control #CQ 0195

Starrett Vernier Caliper Micrometer 6", Control #CQ 3044

Starrett Vernier Caliper Micrometer 14", Control #CN 0144

Procedure and Results

An 18-inch section was cut from each section and unstranded. Each strand surface was examined for arcing/burn damage, corrosion, cracking and other signs of deterioration. All of the outer layer strand surfaces exhibited oxidation. Oxide layer for the 1/0 and 4/0 samples was moderate. Oxide layer for the "Petrel" samples was moderate-to-heavy. Oxide layer for the "Ibis" samples was heavy. The zinc coating remains intact for all samples.

The dimensions of each strand were measured and compared to ASTM B 232 and B 498 to identify the conductor size. One sample was positively identified as 1/0 "Raven" 6/1 ACSR. Five samples were identified as 4/0 "Penguin" ACSR. Two samples were identified as 101.8 "Petrel" ACSR. Four samples were identified as 397.5 "Ibis" ACSR.

For the tensile/ elongation test, each strand was loaded into the tensile machine and pulled to destruction. A computer data acquisition system is interfaced with the tensile machine and automatically records crosshead displacement and maximum load obtained. A ten-inch (10.000") gage section marked on each aluminum strand prior to testing was used to calculate the percent (%) elongation for each sample based on elongation measurements from the test. The percent elongation, rated strength, and "as-found" strength of the conductor were calculated according to the method outlined in ASTM B 230 and B 232. A summary of test results is presented in the following table.

| Sample ID | Minimum % Elongation ASTM ¹ | Average "As-Found" % Elongation ¹ | ASTM Average Minimum Tensile (psi) | Average "As-Found" Tensile (psi) | % Tensile ASTM |
|--------------|--|--|------------------------------------|----------------------------------|----------------|
| 1 (Petrel) | 1.6 | 2.6 | 27,000 | 26,771 | 99.2 |
| 2 (Ibis) | 1.8 | 2.8 | 25,000 | 22,156 | 88.6 |
| 3 (Ibis) | 1.8 | 2.8 | 25,000 | 25,277 | 101.1 |
| 4 (Ibis) | 1.8 | 2.9 | 25,000 | 25,496 | 102.0 |
| 5 (Ibis) | 1.8 | 3.0 | 25,000 | 25,835 | 103.3 |
| 6 (Penguin) | 2.1 | * | 24,000 | 22,063 | 91.9 |
| 7 (Penguin) | 2.1 | 4.9 | 24,000 | 21,268 | 88.6 |
| 8 (Penguin) | 2.1 | 4.9 | 24,000 | 21,609 | 90.0 |
| 9 (Penguin) | 2.1 | * | 24,000 | 21,880 | 91.2 |
| 10 (Penguin) | 2.1 | 4.9 | 24,000 | 21,851 | 91.0 |
| 11 (Raven) | 1.8 | 3.7 | 25,000 | 23,263 | 93.1 |
| 12 (Petrel) | 1.6 | 2.5 | 27,000 | 27,116 | 100.4 |

¹ Elongation criterion applies to strands prior to conductor manufacturing. Values are reported for reference only.

* Samples broke outside of gage section. Elongation measurement is invalid and not reported.

| Sample ID | ASTM Minimum RBS, lbs. | "As-Found" Value, lbs. | Percent Rating |
|-----------|------------------------|------------------------|----------------|
| Sample 1 | 10,400 | 10,337 | 99.4 |
| Sample 2 | 16,300 | 15,445 | 94.8 |
| Sample 3 | 16,300 | 16,351 | 100.3 |
| Sample 4 | 16,300 | 16,414 | 100.7 |
| Sample 5 | 16,300 | 16,513 | 101.3 |
| Sample 6 | 8,350 | 8,041 | 96.3 |
| Sample 7 | 8,350 | 7,914 | 94.8 |
| Sample 8 | 8,350 | 7,968 | 95.4 |
| Sample 9 | 8,350 | 8,012 | 95.9 |
| Sample 10 | 8,350 | 8,007 | 95.9 |
| Sample 11 | 4,380 | 4,224 | 96.4 |
| Sample 12 | 10,400 | 10,363 | 99.6 |

Complete test results may be found in the appendix. The steel core wire of samples 6 through 11 failed to meet ultimate tensile strength as outlined in ASTM B 498 2002. ASTM requirements for wire manufactured in 1948 may differ but cannot be confirmed.

Conclusions

The project evaluated the condition of twelve conductor samples. The evaluation was based on mechanical strength and corrosion. Corrosion is not a concern – there is still intact galvanizing on the steel cores, and the aluminum strands are not seriously degraded.

Tensile test results show that the overall conductor strength of three of four 397.5 kcmil ACSR samples exceeds the rated breaking strength outlined in ASTM B 232. The “Petrel” samples marginally fail to meet RBS.

The condition of the remaining samples should be addressed. The tensile strength of the aluminum strands shows annealing has occurred. In particular, for the 1/0 and 4/0 conductors, the “as-found” temper is “¾ hard”. Temper for ACSR conductor is H19 or “fully hard”. In addition, the steel core wires for samples 6 through 11 failed to meet ASTM minimum tensile requirements.

Annealing in the aluminum strands shows the line has some history of thermal overloading – either due to sustained overload, or due to fault overloads that did not clear before conductor temperature exceeded a safe level.

The conductor is suitable for continued use provided:

1. Splices are in good condition
2. There exists a minimal number of broken strands at any location
3. Annealing has not caused NESC ground clearance problems
4. Remaining strength (94-99% RBS) still meets NESC loading requirements.

If the line remains in operation, the reason for the thermal overloads should be found and corrected. If the line ampacity is insufficient, annealing will continue to degrade the conductor. If fault overloads caused annealing, protective relaying should be evaluated for proper line protection.

The condition of the conductor samples that failed to meet RBS is marginal. There is no depletion of the zinc coating. Nevertheless, some degradation has occurred. Based on the age and condition of these samples, an inspection interval of 5 to 10 years is recommended. The “Ibis” samples that exceed RBS should have decades of service life remaining under proper operating conditions.

Appendix

RBS Calculation Spreadsheets for Conductor Samples

Sample ID: #1

Line ID: AC Static; Date: 1948

Sample ID: #2

Line ID: AC Line Fish-River Rd. Middle Phase; Date: 1948

Sample ID: #3

Line ID: AC Line Fish-River Rd. South Phase; Date: 1948

Sample ID: #4

Line ID: AC Line Fish-River Rd. North Phase; Date: 1948

Sample ID: #5

Line ID: A Pole 55464; Date: 1948

Sample ID: #6

Line ID: E Tower 1496; Date: 1948

Sample ID: #7

Line ID: GE Tower 1620 Bottom Phase; Date: 1940

Sample ID: #8

Line ID: GE Tower 1620 Middle Phase; Date: 1940

Sample ID: #9

Line ID: GE Tower 1620 Top Phase; Date: 1940

Sample ID: #10

Line ID: E Line Middle Phase Tower 1496; Date: not shown

Sample ID: #11

Line ID: TV Static Pole 46085; Date: 1937

Sample ID: #12

Line ID: NF Montfort Rd.; Date: 1948

NEETRAC Project No: 03-107
 Evaluation of 101.8 ACSR "Petrel" field aged conductor

Date of Test: 6/11/2003
 Sample Description: 101.8 ACSR "Petrel" 12/7
 Line I.D.: AC Static
 Line Name: AC
 Date Built: 1948
 Conductor Diameter: 0.4750

| Conductor Data: | | | |
|---------------------------|--------|----------|--------|
| Al Strands | Number | Diameter | 0.092 |
| Steel Strands | Number | Diameter | 0.0521 |
| Aluminum Stranding Factor | | | 0.96 |
| Steel Stranding Factor | | | 0.96 |

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| Strand Description (Layer/Strand) | Strand Diameter (As Found) (inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|-----------------------------------|-------------------------------------|---|--------------------------|---------------------------------|-----------------------------|------------------|-----------|
| Core Strand-1 | | | 213,747 | NA | 205,000 | ASTM B498 | Pass |
| Core Strand-2 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 205,000 | ASTM B498 | NA |
| Alu Strand 1 | | | 27,679 | NA | 26,500 | ASTM B230 | Pass |
| Alu Strand 2 | | | 27,864 | NA | 26,500 | ASTM B230 | Pass |
| Alu Strand 3 | | | 26,169 | NA | 26,500 | ASTM B230 | Fail |
| Alu Strand 4 | | | 26,688 | NA | 26,500 | ASTM B230 | Pass |
| Alu Strand 5 | | | 25,262 | NA | 26,500 | ASTM B230 | Fail |
| Alu Strand 6 | | | 27,469 | NA | 26,500 | ASTM B230 | Pass |
| Alu Strand 7 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 26,500 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand
 *** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|-----------------------------|------------------|--------------------|------------------------|
| Average Tensile Strength of Steel Strands | 213,747 psi | 185,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 213,747 psi | 205,000 psi | B498 | Pass | 104.3% |
| Average Tensile Strength of Aluminum Strands | 26,771 psi | 27,000 psi | B230 | Fail | 99.2% |
| Minimum Tensile Strength of Aluminum Strands | 25,262 psi | 26,500 psi | B230 | Fail | 95.3% |
| Estimated* Conductor Strength for this Sample | 10,837 lbs | 10,400 lbs | B232 | Fail | 99.4% |
| Percent elongation of steel strands (individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | 2.6 % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107

Evaluation of 397.5 ACSR "Ibis" field aged conductor

Date of Test: 6/11/2003
 Sample Description:..... 397.5 26/7 "Ibis" ACSR
 Line I.D..... AC Middle Phase
 Line Name..... AC
 Date Built..... 1948
 Conductor Diameter..... 0.7890

| Conductor Data: | | | |
|---------------------------|--------|----------|--|
| Al Strands | Number | Diameter | |
| Steel Strands | Number | Diameter | |
| Aluminum Stranding Factor | | 0.93 | |
| Steel Stranding Factor | | 0.96 | |

Key: [] Do NOT enter data in these cells
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| Strand Description (Layer/Strand) | Strand Diameter (As Found) (inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|---|-----------------------------|------------------------------------|-----------------------------------|---------------------|-----------|
| Core Strand-1 | | | 212,179 | | 205,000 | ASTM B498 | Pass |
| Core Strand-2 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 205,000 | ASTM B498 | NA |
| Alu Strand 1 | | | 21,769 | | 23,500 | ASTM B230 | Fail |
| Alu Strand 2 | | | 23,170 | | 23,500 | ASTM B230 | Fail |
| Alu Strand 3 | | | 21,236 | | 23,500 | ASTM B230 | Fail |
| Alu Strand 4 | | | 22,136 | | 23,500 | ASTM B230 | Fail |
| Alu Strand 5 | | | 21,846 | | 23,500 | ASTM B230 | Fail |
| Alu Strand 6 | | | 22,778 | | 23,500 | ASTM B230 | Fail |
| Alu Strand 7 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 23,500 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand

*** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|--------------------------------|---------------------|--------------------|---------------------------|
| Average Tensile Strength of Steel Strands | 212,179 psi | 185,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 212,179 psi | 205,000 psi | B498 | Pass | 103.5% |
| Average Tensile Strength of Aluminum Strands | 22,156 psi | 25,000 psi | B230 | Fail | 88.6% |
| Minimum Tensile Strength of Aluminum Strands | 21,236 psi | 23,500 psi | B230 | Fail | 90.4% |
| Estimated* Conductor Strength for this Sample | 15,445 lbs | 16,800 lbs | B232 | Fail | 91.8% |
| Percent elongation of steel strands (Individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (Individual) | 2.0 % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension.

NEETRAC Project No: 03-107
 Evaluation of 397.5 ACSR "Ibis" field aged conductor

Date of Test: 6/11/2003
 Sample Description:..... 397.5 26/7 "Ibis" ACSR
 Line I.D..... AC South Phase
 Line Name..... AC
 Date Built..... 1948
 Conductor Diameter..... 0.7810

| Conductor Data: | | | |
|-----------------------------|---------|------|-----------|
| Al Strands | Number: | 26 | Diameter: |
| Steel Strands | Number: | 7 | Diameter: |
| Aluminum "Stranding Factor" | | 0.93 | |
| Steel "Stranding Factor" | | 0.96 | |

Key: [] Do NOT enter data in these cells
 [] Enter data into these cells

| Strand Description (Layer/Strand) | Strand Diameter (As Found) (inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|---|-----------------------------|------------------------------------|--------------------------------|---------------------|-----------|
| Core Strand-1 | 0.10955 | 17589 | 218,245 | NA*** | 205,000 | ASTM: B498 | Pass |
| Core Strand-2 | | | NA | | 205,000 | ASTM: B498 | NA |
| Core Strand-3 | | | NA | | 205,000 | ASTM: B498 | NA |
| Core Strand-4 | | | NA | | 205,000 | ASTM: B498 | NA |
| Core Strand-5 | | | NA | | 205,000 | ASTM: B498 | NA |
| Core Strand-6 | | | NA | | 205,000 | ASTM: B498 | NA |
| Alu Strand 1 | 0.1248 | 288 | 24,845 | 3.01 | 23,500 | ASTM: B230 | Pass |
| Alu Strand 2 | 0.1235 | 295 | 24,620 | 2.5 | 23,500 | ASTM: B230 | Pass |
| Alu Strand 3 | 0.1243 | 302 | 25,978 | NA | 23,500 | ASTM: B230 | Pass |
| Alu Strand 4 | 0.1245 | 299 | 24,936 | 2.8 | 23,500 | ASTM: B230 | Pass |
| Alu Strand 5 | 0.1243 | 300 | 25,036 | NA | 23,500 | ASTM: B230 | Pass |
| Alu Strand 6 | 0.1238 | 315 | 26,245 | NA | 23,500 | ASTM: B230 | Pass |
| Alu Strand 7 | | | NA | | 23,500 | ASTM: B230 | NA |
| Alu Strand 8 | | | NA | | 23,500 | ASTM: B230 | NA |
| Alu Strand 9 | | | NA | | 23,500 | ASTM: B230 | NA |
| Alu Strand 10 | | | NA | | 23,500 | ASTM: B230 | NA |
| Alu Strand 11 | | | NA | | 23,500 | ASTM: B230 | NA |
| Alu Strand 12 | | | NA | | 23,500 | ASTM: B230 | NA |

** Actual breaking strength divided by nominal area of strand
 *** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|--------------------------------|---------------------|--------------------|---------------------------|
| Average Tensile Strength of Steel Strands | 218,245 psi | 185,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 218,245 psi | 205,000 psi | B498 | Pass | 106.5% |
| Average Tensile Strength of Aluminum Strands | 25,277 psi | 25,000 psi | B230 | Pass | 101.1% |
| Minimum Tensile Strength of Aluminum Strands | 24,620 psi | 23,500 psi | B230 | Pass | 104.8% |
| Estimated* Conductor Strength for this Sample | 16,351 lbs | 16,300 lbs | B232 | Pass | 100.3% |
| Percent elongation of steel strands (individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | 2.8 % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107
 Evaluation of 397.5 ACSR "Ibis" field aged conductor

Date of Test: 6/11/2003
 Sample Description:..... 397.5 26/7 "Ibis" ACSR
 Line I.D..... AC North Phase
 Line Name..... AC
 Date Built..... 1948
 Conductor Diameter..... 0.7795

Conductor Data:

| | | |
|-----------------------------|------------|-------------------|
| Al Strands | Number: 26 | Diameter: 0.01236 |
| Steel Strands | Number: 7 | Diameter: 0.00961 |
| Aluminum "Stranding Factor" | 0.93 | |
| Steel "Stranding Factor" | 0.96 | |

Key: [] Do NOT enter data in these cells
 [] Enter data into these cells

| Strand Description (Layer/Strand) | Strand Diameter (As Found) (inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|--|-----------------------------|------------------------------------|--------------------------------|---------------------|-----------|
| Core Strand-1 | 0.00956 | 1856 | 214,523 | NA | 205,000 | ASTM B498 | Pass |
| Core Strand-2 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 205,000 | ASTM B498 | NA |
| Alu Strand 1 | 0.1240 | 3008 | 25,528 | NA | 23,500 | ASTM B230 | Pass |
| Alu Strand 2 | 0.1239 | 3007 | 25,045 | 2.8 | 23,500 | ASTM B230 | Pass |
| Alu Strand 3 | 0.1236 | 3010 | 25,828 | 2.7 | 23,500 | ASTM B230 | Pass |
| Alu Strand 4 | 0.1230 | 3010 | 25,795 | | 23,500 | ASTM B230 | Pass |
| Alu Strand 5 | 0.1227 | 2997 | 24,736 | NA | 23,500 | ASTM B230 | Pass |
| Alu Strand 6 | 0.1230 | 3013 | 26,045 | NA | 23,500 | ASTM B230 | Pass |
| Alu Strand 7 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 23,500 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand
 *** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|-----------------------------|------------------|--------------------|------------------------|
| Average Tensile Strength of Steel Strands | 214,523 psi | 185,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 214,523 psi | 205,000 psi | B498 | Pass | 104.6% |
| Average Tensile Strength of Aluminum Strands | 25,498 psi | 25,000 psi | B230 | Pass | 102.0% |
| Minimum Tensile Strength of Aluminum Strands | 24,736 psi | 23,500 psi | B230 | Pass | 105.9% |
| Estimated* Conductor Strength for this Sample | 16,414 lbs | 16,300 lbs | B232 | Pass | 100.7% |
| Percent elongation of steel strands (individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | 2.9 % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107
 Evaluation of 397.5 ACSR "Ibis" field aged conductor

Date of Test: 6/11/2003
 Sample Description:..... 397.5 26/7 "Ibis" ACSR
 Line I.D..... A Pole 55464
 Line Name..... A
 Date Built..... 1948
 Conductor Diameter..... 0.7845

| Conductor Data | | | |
|---------------------------|--------|---|----------|
| Al Strands | Number | 7 | Diameter |
| Steel Strands | Number | 7 | Diameter |
| Aluminum Stranding Factor | | | 0.98 |
| Steel Stranding Factor | | | 0.98 |

Key: [] Do NOT enter data in these cells
 [] Enter data into these cells

| Strand Description (Layer/Strand) | Strand Diameter (As Found) (inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|--|-----------------------------|------------------------------------|--------------------------------|---------------------|-----------|
| Core Strand-1 | | | 213,557 | | 205,000 | ASTM B498 | Pass |
| Core Strand-2 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 205,000 | ASTM B498 | NA |
| Alu Strand 1 | | | 25,203 | | 23,500 | ASTM B230 | Pass |
| Alu Strand 2 | | | 24,911 | | 23,500 | ASTM B230 | Pass |
| Alu Strand 3 | | | 25,487 | | 23,500 | ASTM B230 | Pass |
| Alu Strand 4 | | | 26,112 | | 23,500 | ASTM B230 | Pass |
| Alu Strand 5 | | | 26,812 | | 23,500 | ASTM B230 | Pass |
| Alu Strand 6 | | | 25,987 | | 23,500 | ASTM B230 | Pass |
| Alu Strand 7 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 23,500 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand
 *** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|--------------------------------|---------------------|--------------------|---------------------------|
| Average Tensile Strength of Steel Strands | 213,557 psi | 185,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 213,557 psi | 205,000 psi | B498 | Pass | 104.2% |
| Average Tensile Strength of Aluminum Strands | 25,835 psi | 25,000 psi | B230 | Pass | 103.3% |
| Minimum Tensile Strength of Aluminum Strands | 24,911 psi | 23,500 psi | B230 | Pass | 106.0% |
| Estimated* Conductor Strength for this Sample | 18,513 lbs | 16,300 lbs | B262 | Pass | 101.3% |
| Percent elongation of steel strands (individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | 3.0 % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107

Evaluation of 4/0 ACSR "Penguin" field aged conductor

Date of Test: 6/11/2003
 Sample Description: 4/0 6/1 "Penguin" ACSR
 Line I.D.: E Tower 1496
 Line Name: E Tower
 Date Built: 1948
 Conductor Diameter: 0.5305

Conductor Data:
 Al Strands: Number: 6 Diameter: 0.1878
 Steel Strands: Number: 12 Diameter: 0.1878
 Aluminum "Stranding Factor": 0.96
 Steel "Stranding Factor": 0.96

Key: [] Do NOT enter data in these cells
 [] Enter data into these cells

| Strand Description (Layer/Strand) | Strand Diameter (As Found) (inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|--|-----------------------------|------------------------------------|--------------------------------|---------------------|-----------|
| Core Strand-1 | 0.1888 | 5430 | 196,028 | NA | 200,000 | ASTM B498 | Fail |
| Core Strand-2 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 200,000 | ASTM B498 | NA |
| Alu Strand 1 | 0.1877 | 1670 | 22,018 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 2 | 0.1881 | 1645 | 23,271 | NA | 23,000 | ASTM B230 | Pass |
| Alu Strand 3 | 0.1875 | 1584 | 21,089 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 4 | 0.1862 | 1556 | 20,448 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 5 | 0.1870 | 1589 | 23,058 | NA | 23,000 | ASTM B230 | Pass |
| Alu Strand 6 | 0.1880 | 1524 | 22,513 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 7 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 23,000 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand

*** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|--------------------------------|---------------------|--------------------|---------------------------|
| Average Tensile Strength of Steel Strands | 196,028 psi | 170,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 196,028 psi | 200,000 psi | B498 | Fail | 98.0% |
| Average Tensile Strength of Aluminum Strands | 22,083 psi | 24,000 psi | B230 | Fail | 91.9% |
| Minimum Tensile Strength of Aluminum Strands | 20,448 psi | 23,000 psi | B230 | Fail | 88.9% |
| Estimated* Conductor Strength for this Sample | 8,041 lbs | 8,950 lbs | B232 | Fail | 89.3% |
| Percent elongation of steel strands (individual) | NA% | 4.0% | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | NA% | 1.7% | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107

Evaluation of 4/0 ACSR "Penguin" field aged conductor

Date of Test: 6/11/2003
 Sample Description: 4/0 6/1 "Penguin" ACSR
 Line I.D.: GE Tower 1620 Bottom Phase
 Line Name: GE Tower
 Date Built: 1940
 Conductor Diameter: 0.5540

| Conductor Data: | | | |
|---------------------------|--------|------|----------|
| Al Strands | Number | 6 | Diameter |
| Steel Strands | Number | 12 | Diameter |
| Aluminum Stranding Factor | | 0.96 | |
| Steel Stranding Factor | | 0.96 | |

Key: [] Do NOT enter data in these cells
 [] Enter data into these cells

| Strand Description (Layer/Strand) | Strand Diameter (As Found) (inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|---|-----------------------------|--|--------------------------------------|---------------------|-----------|
| Core Strand-1 | 0.157 | 1229 | 189,169 | NA | 200,000 | ASTM B498 | Fail |
| Core Strand-2 | 0.157 | 1229 | NA | NA | 200,000 | ASTM B498 | NA |
| Core Strand-3 | 0.157 | 1229 | NA | NA | 200,000 | ASTM B498 | NA |
| Core Strand-4 | 0.157 | 1229 | NA | NA | 200,000 | ASTM B498 | NA |
| Core Strand-5 | 0.157 | 1229 | NA | NA | 200,000 | ASTM B498 | NA |
| Core Strand-6 | 0.157 | 1229 | NA | NA | 200,000 | ASTM B498 | NA |
| Alu Strand 1 | 0.0539 | 673 | 22,473 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 2 | 0.0539 | 673 | 21,758 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 3 | 0.0539 | 673 | 21,787 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 4 | 0.0539 | 673 | 19,682 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 5 | 0.0539 | 673 | 21,802 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 6 | 0.0539 | 673 | 20,303 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 7 | 0.0539 | 673 | NA | NA | 23,000 | ASTM B230 | NA |
| Alu Strand 8 | 0.0539 | 673 | NA | NA | 23,000 | ASTM B230 | NA |
| Alu Strand 9 | 0.0539 | 673 | NA | NA | 23,000 | ASTM B230 | NA |
| Alu Strand 10 | 0.0539 | 673 | NA | NA | 23,000 | ASTM B230 | NA |
| Alu Strand 11 | 0.0539 | 673 | NA | NA | 23,000 | ASTM B230 | NA |
| Alu Strand 12 | 0.0539 | 673 | NA | NA | 23,000 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand

*** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|--------------------------------|---------------------|--------------------|---------------------------|
| Average Tensile Strength of Steel Strands | 189,169 psi | 170,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 189,169 psi | 200,000 psi | B498 | Fail | 94.6% |
| Average Tensile Strength of Aluminum Strands | 21,266 psi | 23,000 psi | B230 | Fail | 88.6% |
| Minimum Tensile Strength of Aluminum Strands | 19,682 psi | 23,000 psi | B230 | Fail | 85.6% |
| Estimated* Conductor Strength for this Sample | 7,914 lbs | 8,350 lbs | B232 | Fail | 94.8% |
| Percent elongation of steel strands (individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | 4.9 % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107

Evaluation of 4/0 ACSR "Penguin" field aged conductor

Date of Test: 6/11/2003
 Sample Description: 4/0 6/1 "Penguin" ACSR
 Line I.D.: GE Tower 1620 Middle Phase
 Line Name: GE Tower
 Date Built: 1940
 Conductor Diameter: 0.5645

| Conductor Data: | | | |
|-----------------|------------------|----------|--|
| Al Strands | Number | Diameter | |
| Steel Strands | Number | Diameter | |
| Aluminum | Stranding Factor | 0.96 | |
| Steel | Stranding Factor | 0.96 | |

Key: [] Do NOT enter data in these cells
 [] Enter data into these cells

| Strand Description (Layer/Strand) | Strand Diameter (As Found) (Inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|---|-----------------------------|------------------------------------|--------------------------------|---------------------|-----------|
| Core Strand-1 | | | 178,339 | NA | 200,000 | ASTM B498 | Fail |
| Core Strand-2 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 200,000 | ASTM B498 | NA |
| Alu Strand 1 | | | 21,805 | | 23,000 | ASTM B230 | Fail |
| Alu Strand 2 | | | 22,126 | | 23,000 | ASTM B230 | Fail |
| Alu Strand 3 | | | 21,585 | | 23,000 | ASTM B230 | Fail |
| Alu Strand 4 | | | 22,242 | | 23,000 | ASTM B230 | Fail |
| Alu Strand 5 | | | 20,913 | | 23,000 | ASTM B230 | Fail |
| Alu Strand 6 | | | 20,982 | | 23,000 | ASTM B230 | Fail |
| Alu Strand 7 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 23,000 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand

*** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|--------------------------------|---------------------|--------------------|---------------------------|
| Average Tensile Strength of Steel Strands | 178,339 psi | 170,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 178,339 psi | 200,000 psi | B498 | Fail | 89.2% |
| Average Tensile Strength of Aluminum Strands | 21,805 psi | 23,000 psi | B230 | Fail | 90.0% |
| Minimum Tensile Strength of Aluminum Strands | 20,913 psi | 23,000 psi | B230 | Fail | 90.9% |
| Estimated* Conductor Strength for this Sample | 7,968 lbs | 8,850 lbs | B232 | Fail | 95.4% |
| Percent elongation of steel strands (individual) | NA % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | 4.9 % | 4.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107

Evaluation of 4/0 ACSR "Penguin" field aged conductor

Date of Test: 6/11/2003
 Sample Description:..... 4/0 6/1 "Penguin" ACSR
 Line I.D..... GE Tower 1620 Top Phase
 Line Name..... GE Tower
 Date Built..... 1940
 Conductor Diameter..... 0.5355

Conductor Data:
 Al Strands Number: 6 Diameter: 0.1878
 Steel Strands Number: 12 Diameter: 0.1878
 Aluminum "Stranding Factor": 0.96
 Steel "Stranding Factor": 0.96

Key: [] Do NOT enter data in these cells
 [] Enter data into these cells

| Strand Description (Layer/Strand) | Strand Diameter (As Found) (inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|--|-----------------------------|------------------------------------|--------------------------------|---------------------|-----------|
| Core Strand-1 | 0.1885 | 5,290 | 190,974 | NA | 200,000 | ASTM B498 | Fail |
| Core Strand-2 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 200,000 | ASTM B498 | NA |
| Alu Strand 1 | 0.1875 | 654 | 21,787 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 2 | 0.1885 | 606 | 21,863 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 3 | 0.1882 | 654 | 21,430 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 4 | 0.1878 | 616 | 22,224 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 5 | 0.1878 | 609 | 21,989 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 6 | 0.1882 | 609 | 21,989 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 7 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 23,000 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand

*** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|--------------------------------|---------------------|--------------------|---------------------------|
| Average Tensile Strength of Steel Strands | 190,974 psi | 170,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 190,974 psi | 200,000 psi | B498 | Fail | 95.5% |
| Average Tensile Strength of Aluminum Strands | 21,880 psi | 24,000 psi | B230 | Fail | 91.2% |
| Minimum Tensile Strength of Aluminum Strands | 21,430 psi | 23,000 psi | B230 | Fail | 93.2% |
| Estimated* Conductor Strength for this Sample | 8,012 lbs | 8,950 lbs | B230 | Fail | 89.9% |
| Percent elongation of steel strands (individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | #DIV/0! % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107

Evaluation of 4/0 ACSR "Penguin" field aged conductor

Date of Test: 6/11/2003
 Sample Description: 4/0 6/1 "Penguin" ACSR
 Line I.D.: E Line Middle Phase Tower 1496
 Line Name: E
 Date Built: unknown
 Conductor Diameter: 0.5800

| Conductor Data: | | | |
|-----------------------------|--------|----|----------|
| Al Strands | Number | 6 | Diameter |
| Steel Strands | Number | 11 | Diameter |
| Aluminum "Stranding Factor" | | | 0.96 |
| Steel "Stranding Factor" | | | 0.96 |

Key: Do NOT enter data in these cells
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| Strand Description (Layer/Strand) | Strand Diameter (As Found) (inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|--|-----------------------------|------------------------------------|--------------------------------|---------------------|-----------|
| Core Strand-1 | 0.1877 | 5150 | 185,920 | NA | 200,000 | ASTM B498 | Fail |
| Core Strand-2 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 200,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 200,000 | ASTM B498 | NA |
| Alu Strand 1 | 0.1881 | 1708 | 25,556 | NA | 23,000 | ASTM B230 | Pass |
| Alu Strand 2 | 0.1882 | 1689 | 20,527 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 3 | 0.1886 | 1671 | 19,877 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 4 | 0.1882 | 1688 | 21,487 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 5 | 0.1882 | 1677 | 22,639 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 6 | 0.1875 | 1682 | 21,022 | NA | 23,000 | ASTM B230 | Fail |
| Alu Strand 7 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 23,000 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 23,000 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand

*** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|--------------------------------|---------------------|--------------------|---------------------------|
| Average Tensile Strength of Steel Strands | 185,920 psi | 170,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 185,920 psi | 200,000 psi | B498 | Fail | 93.0% |
| Average Tensile Strength of Aluminum Strands | 21,851 psi | 24,000 psi | B230 | Fail | 91.0% |
| Minimum Tensile Strength of Aluminum Strands | 19,877 psi | 23,000 psi | B230 | Fail | 86.4% |
| Estimated* Conductor Strength for this Sample | 8,007 lbs | 8,360 lbs | B232 | Fail | 95.9% |
| Percent elongation of steel strands (individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | 4.9 % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107

Evaluation of 105.6 ACSR "Raven" field aged conductor

Date of Test: 6/11/2003
 Sample Description: 1/0 6/1 "Raven" ACSR
 Line I.D.: TV Static Pole 46085
 Line Name: TV
 Date Built: 1937
 Conductor Diameter: 0.3750

| Conductor Data: | | | |
|---------------------------|--------|----------|--|
| Al Strands | Number | Diameter | |
| Steel Strands | Number | Diameter | |
| Aluminum Stranding Factor | | 0.98 | |
| Steel Stranding Factor | | 0.98 | |

Key: [] Do NOT enter data in these cells
 [] Enter data into these cells

| Strand Description (Layer/Strand) | Strand Diameter (As Found) (Inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|-----------------------------------|-------------------------------------|---|--------------------------|---------------------------------|-----------------------------|------------------|-----------|
| Core Strand-1 | | | 178,583 | N/A | 205,000 | ASTM B498 | Fail |
| Core Strand-2 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 205,000 | ASTM B498 | NA |
| Alu Strand 1 | 0.127 | 365 | 22,747 | N/A | 23,500 | ASTM B230 | Fail |
| Alu Strand 2 | 0.127 | 365 | 23,629 | N/A | 23,500 | ASTM B230 | Pass |
| Alu Strand 3 | 0.127 | 365 | 23,389 | N/A | 23,500 | ASTM B230 | Fail |
| Alu Strand 4 | 0.127 | 365 | 22,769 | N/A | 23,500 | ASTM B230 | Fail |
| Alu Strand 5 | 0.127 | 365 | 23,058 | N/A | 23,500 | ASTM B230 | Fail |
| Alu Strand 6 | 0.127 | 365 | 23,991 | N/A | 23,500 | ASTM B230 | Pass |
| Alu Strand 7 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 23,500 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 23,500 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand

*** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|-----------------------------|------------------|--------------------|------------------------|
| Average Tensile Strength of Steel Strands | 178,583 psi | 180,000 psi * | N/A | NA | NA |
| Minimum Tensile Strength of Steel Strands | 178,583 psi | 205,000 psi | B498 | Fail | 87.1% |
| Average Tensile Strength of Aluminum Strands | 23,269 psi | 25,000 psi | B230 | Fail | 93.1% |
| Minimum Tensile Strength of Aluminum Strands | 22,747 psi | 23,500 psi | B230 | Fail | 96.8% |
| Estimated* Conductor Strength for this Sample | 4,224 lbs | 4,380 lbs | B230 | Fail | 96.4% |
| Percent elongation of steel strands (individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | 9.7 % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

NEETRAC Project No: 03-107

Evaluation of 101.8 ACSR "Petrel" field aged conductor

Date of Test: 6/11/2003

Sample Description:..... 101.8 ACSR "Petrel" 12/7

Line I.D..... NF Montford Road

Line Name..... NF

Date Built..... 1948

Conductor Diameter..... 0.4620

| Conductor Data: | | | |
|---------------------------|--------|----------|-------|
| Al Strands | Number | Diameter | 0.092 |
| Steel Strands | Number | Diameter | 0.092 |
| Aluminum Stranding Factor | | | 0.96 |
| Steel Stranding Factor | | | 0.96 |

Key: XXXXXX Do NOT enter data in these cells
XXXXXX Enter data into these cells

| Strand Description (Layer/Strand) | Strand Diameter (As Found) (Inches) | Breaking Strength of Individual Strands (lbs) | Tensile Strength** (psi) | Elongation (%) (Reference only) | Required ASTM Minimum (psi) | ASTM (Reference) | Pass/Fail |
|--------------------------------------|---|--|-----------------------------|------------------------------------|--------------------------------|---------------------|-----------|
| Core Strand-1 | | | 215,248 | | 205,000 | ASTM B498 | Pass |
| Core Strand-2 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-3 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-4 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-5 | | | NA | | 205,000 | ASTM B498 | NA |
| Core Strand-6 | | | NA | | 205,000 | ASTM B498 | NA |
| Alu Strand 1 | | | 29,135 | | 26,500 | ASTM B230 | Pass |
| Alu Strand 2 | | | 22,711 | | 26,500 | ASTM B230 | Fail |
| Alu Strand 3 | | | 27,364 | | 26,500 | ASTM B230 | Pass |
| Alu Strand 4 | | | 25,583 | | 26,500 | ASTM B230 | Fail |
| Alu Strand 5 | | | 27,439 | | 26,500 | ASTM B230 | Pass |
| Alu Strand 6 | | | 30,486 | | 26,500 | ASTM B230 | Pass |
| Alu Strand 7 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 8 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 9 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 10 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 11 | | | NA | | 26,500 | ASTM B230 | NA |
| Alu Strand 12 | | | NA | | 26,500 | ASTM B230 | NA |

** Actual breaking strength divided by nominal area of strand

*** Strand broke outside gage marks - cannot determine elongation when that happens

Test Results Summary:

| | As Found Data | ASTM Requirements (Minimum) | ASTM (Reference) | Pass/Fail | Percent (%) of Minimum |
|---|---------------|--------------------------------|---------------------|--------------------|---------------------------|
| Average Tensile Strength of Steel Strands | 215,248 psi | 185,000 psi * | NA | NA | NA |
| Minimum Tensile Strength of Steel Strands | 215,248 psi | 205,000 psi | B498 | Pass | 105.0% |
| Average Tensile Strength of Aluminum Strands | 27,116 psi | 27,000 psi | B230 | Pass | 100.4% |
| Minimum Tensile Strength of Aluminum Strands | 22,711 psi | 26,500 psi | B230 | Fail | 85.7% |
| Estimated* Conductor Strength for this Sample | 10,365 lbs. | 10,400 lbs | B230 | Fail | 99.6% |
| Percent elongation of steel strands (individual) | N/A % | 4.0 % | B498 | For Reference Only | |
| Percent elongation of aluminum strands (individual) | 2.5 % | 1.7 % | B230 | For Reference Only | |

* Value is minimum tensile requirement for stress at 1% extension

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-004 (MAS/RQ)

Central Hudson Response No: CHGE-004 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Jose Ruaya

Information Requested:

- a. Provide engineering drawings of the structures: small angle, medium angle, large angle, and dead end. Include guying details. Provide a guying table.
- b. Does Central Hudson Gas and Electric Corporation (Central Hudson or Company) plan to replace all wood poles? Provide a list of structures that the company proposes to keep. Include pole numbers and whether they are wood or steel (i.e., lattice, galvanized, or corten).
- c. The Company has indicated that some wood poles will be reused. Explain how the poles will be used (i.e., as a utility pole, barricade, or other use). If they are to be reused as a utility pole and at a future time a wood pole failed, what would its replacement be? Explain.
- d. Does Central Hudson plan on using only steel poles for the rebuild? If not, explain the conditions under which Central Hudson would use some other type of pole and explain the reason for the type of structure to be used.
- e. Does Central Hudson plan on using only direct embedded poles and concrete caissons? If not, explain what other

types of pole foundations Central Hudson will utilize and provide examples and catalogue cut sheets.

- f. Does Central Hudson plan to use corrugated steel culverts as part of the foundation for pole placement? If so, provide an explanation and drawings of the foundations. In addition, provide a discussion of the backfill material and explain how the material for backfill material will be managed.
- g. The insulators on structure A36 are under compression. Explain what Central Hudson will do to remedy this compression issue and provide documentation. Explain and provide the Central Hudson standards on how such problems will be corrected and prevented from occurring in the future.

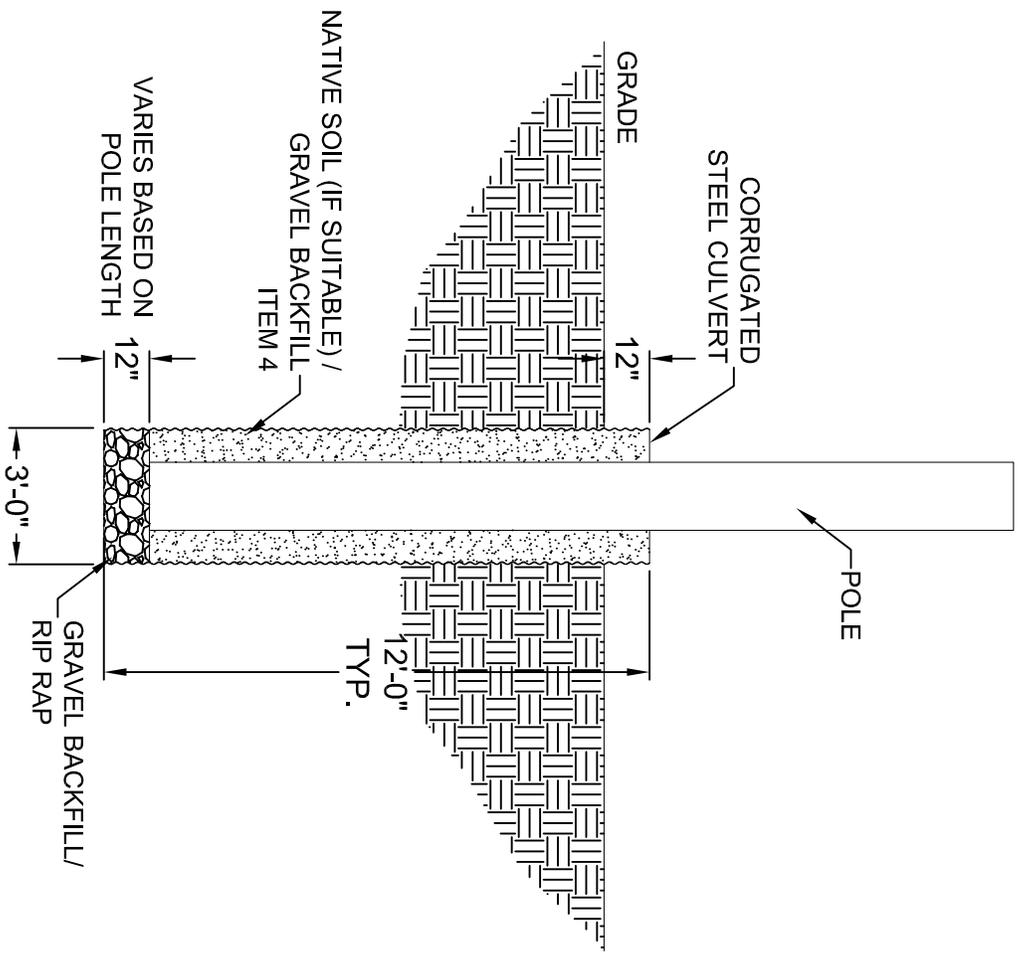
Responses:

- a. *The engineering drawings ("Structure drawings") are attached as **Exhibit A** to this Response. Guying drawings ("Guy Drawings") are attached as **Exhibit B** to this Response.*
- b. *Yes, Central Hudson plans on replacing all wood poles. Below is a Table listing the structures Central Hudson proposes to keep. The table contains pole numbers, type of pole and pole material.*

| No. | Structure Number | Type | Material Type |
|-----|------------------|--------------------|---------------|
| 1 | C57 | H-Frame | Corten Steel |
| 2 | C58 | H-Frame | Corten Steel |
| 3 | C59 | 3-Pole Swing Angle | Corten Steel |
| 4 | A8 | H-Frame | Corten Steel |
| 5 | A9 | H-Frame | Corten Steel |
| 6 | A10 | 3-Pole Deadend | Corten Steel |
| 7 | A11 | H-Frame | Corten Steel |
| 8 | A12 | 3-Pole Swing Angle | Corten Steel |
| 9 | A33 | H-Frame | Corten Steel |
| 10 | A34 | H-Frame | Corten Steel |
| 11 | A35 | H-Frame | Corten Steel |
| 12 | A37 | H-Frame | Corten Steel |
| 13 | A38 | H-Frame | Corten Steel |

- c. *If the Application indicates that Central Hudson intends to reuse wood poles, then that was an inadvertent error. Central Hudson does not intend to reuse wood poles to be removed.*
- d. *Yes, Central Hudson intends on using only steel poles.*
- e. *Central Hudson has proposed to use only direct embedded poles.*
- f. *Central Hudson intends to use corrugated steel culverts or sleeves as part of the direct embedding of the pole structure when the field and/or soil conditions are such that added stability in the excavation is required to keep the hole from collapsing prior to and during pole installation. If, however, the soils around the hole are stable and the pole is being installed shortly after the hole is dug, then Central Hudson may opt to not use a culvert sleeve. See **Exhibit C** ("Corrugated Steel Culverts").*
- g. *Central Hudson does not believe that the insulators on proposed new structure A36 are under compression.*

STEEL POLE INSTALLATION USING CORRUGATED STEEL CULVERT



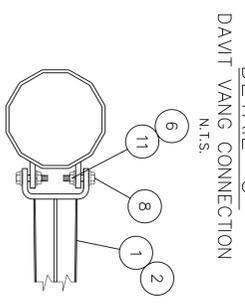
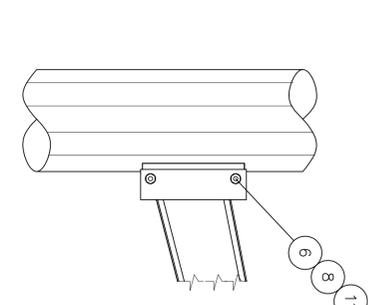
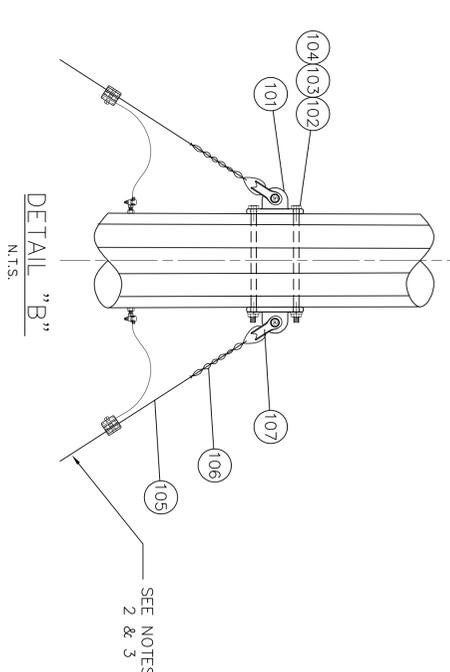
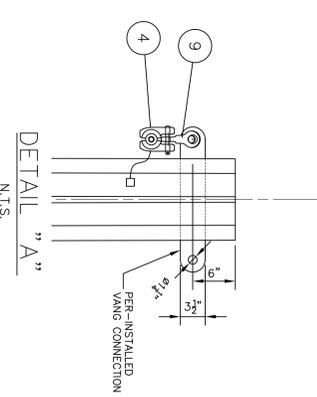
BILL OF MATERIAL

| ITEM | STOCK NO. | QUANT. | DESCRIPTION |
|------|-----------|--------|--|
| 1 | NONSTOCK | 2 | ARM STEEL DAVIT 7'-6" LONG |
| 2 | NONSTOCK | 1 | ARM STEEL DAVIT 6'-6" LONG |
| 3 | 30-07-102 | 3 | CLAMP, SUSP 1.40-2.13 AL. 25,000# W/SOCKET |
| 4 | NONSTOCK | 1 | CLAMP, SUSP OPGW |
| 5 | 30-23-141 | 3 | INSUL. SUSP UNIT 115KV PLW/WR 25000# SML |
| 6 | NONSTOCK | 12 | VALMONT #131650 PLW/WR, LOCK 1 1/2" BARE A563 |
| 7 | 30-37-181 | 3 | ROD, ARMOR PRESHAPED 1033.5 ACSR ORTOLAN |
| 8 | NONSTOCK | 12 | VALMONT #163360 BOLT 1 1/2" X 3 1/2" BARE A325 |
| 9 | 30-11-024 | 1 | CLEVIS, Y W/EYE 30000# |
| 10 | NONSTOCK | 1 | POLE, WEATHERED STEEL (SEE P&P FOR HEIGHT & CLASS) |

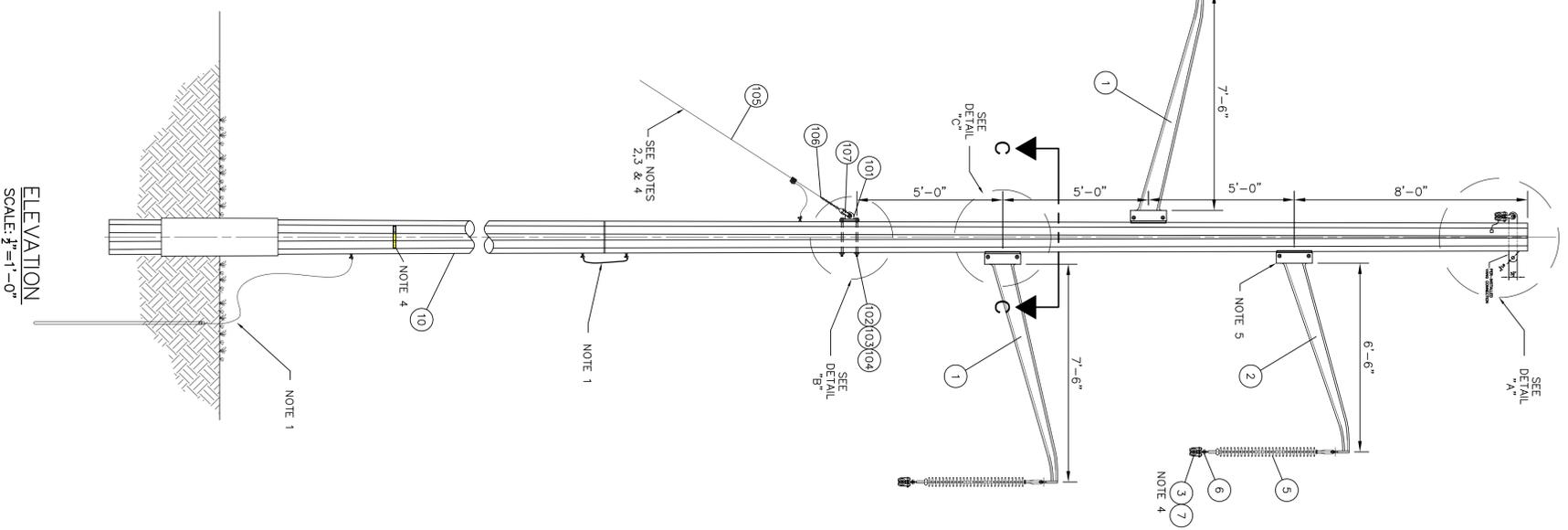
GUY ASSEMBLY BILL OF MATERIAL (PER GUY)

N.T.S.

| ITEM | STOCK NO. | QUANT. | DESCRIPTION |
|------|-----------|--------|--|
| 101 | 30-11-041 | 1 | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 102 | 31-04-063 | 2 | BOLT, MACHINE 3/4 X 14 |
| 103 | 31-49-039 | 2 | WASHER, ROUND LOCK 3/4" |
| 104 | 31-49-020 | 2 | WASHER, ROUND FLAT 3/4"ID X 2"OD |
| 105 | 30-50-136 | 25# | WIRE, STL, BARE 7/16 EHS GALV Z0800# |
| 106 | 30-07-116 | 2 | GRIP, DE, PRESH 3/8 GREEN 7/16 STEEL |
| 107 | 31-11-040 | 1 | CLEVIS, THIMBLE 1" GROOVE |



- NOTES:
1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
 2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
 3. REFER TO P&P, FOR GUY LEAD LENGTH AND ORIENTATION.
 4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
 5. DAVIT ARMS ATTACH USING PRE-FABRICATED VANGS.



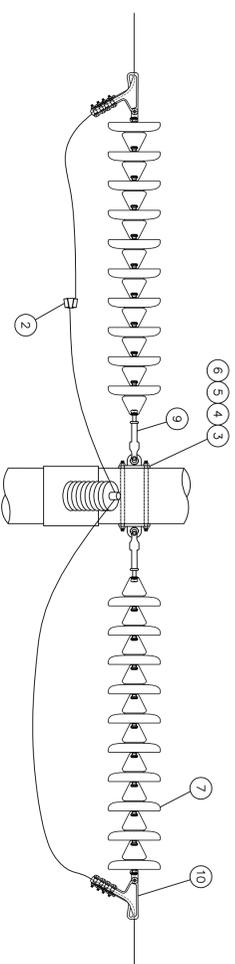
| REVISIONS | | SCALE AS NOTED | |
|------------|-------|----------------|---------|
| W/NO. | 7836A | DATE | 4-28-14 |
| PROJNO. | | REVNO. | |
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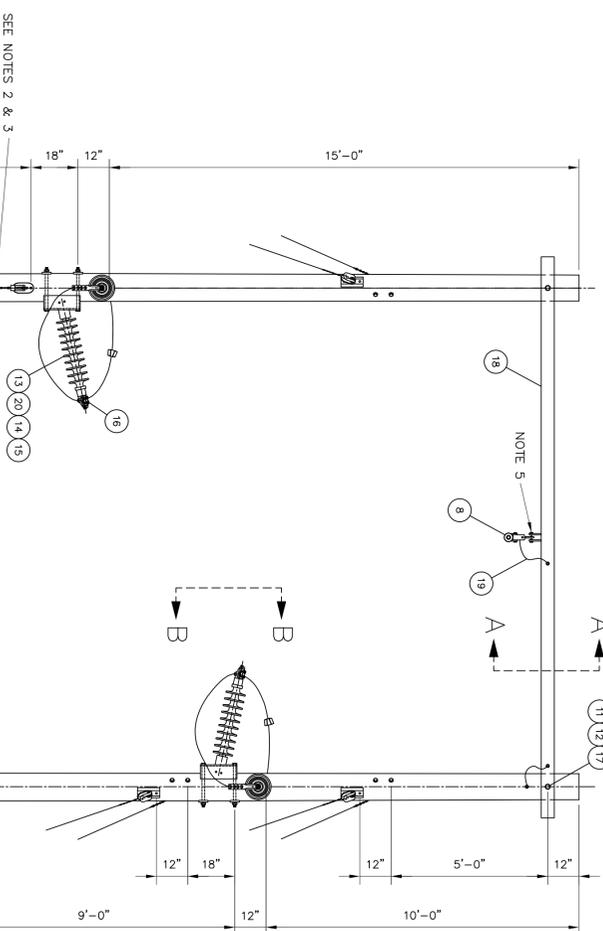


| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 1 | NONSTOCK | 2 | PC | STEEL POLE, SEE P & P FOR HEIGHT AND CLASS |
| 2 | 30-07-230 | 3 | PC | CONN. WEDGE, 1033 ACSR RUN, 1033 ACSR TAP |
| 3 | 30-11-041 | 6 | PC | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 4 | 31-04-063 | 6 | PC | BOLT, MACHINE 3/4" X 14" |
| 5 | 31-49-020 | 6 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 6 | 31-49-039 | 6 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 7 | 30-23-123 | 60 | PC | INSUL. SUSP 10" 30000# GRAY ANSI 52-5 |
| 8 | NONSTOCK | 1 | PC | OPGW SUSPENSION CLAMP |
| 9 | 30-11-028 | 6 | PC | CLEVIS, Y W/BALL |
| 10 | 30-07-130 | 6 | PC | CLAMP, STRAIN W/SOCKET 1.18-1.55 AL |
| 11 | 31-04-191 | 2 | PC | BOLT, MACHINE, 1" X 18" |
| 12 | 31-49-021 | 2 | PC | WASHER, ROUND, FLAT, 1" ID X 6" OD |
| 13 | 30-23-139 | 3 | PC | INSUL. POST CLAMP HORIZ 115KV PLYMER 3300# |
| 14 | 31-49-035 | 6 | PC | WASHER, ROUND, FLAT, 1" ID X 4" OD |
| 15 | 31-49-198 | 6 | PC | WASHER, ROUND LOOK 7/8" |
| 16 | 30-07-150 | 3 | PC | CLAMP, POST INSUL. STRAIT, 1.00-1.50 AL |
| 17 | 31-49-199 | 2 | PC | WASHER, ROUND, LOOK, 1" |
| 18 | NONSTOCK | 1 | PC | CROSSARM, 5" X 5" X 18" |
| 19 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |
| 20 | 31-04-124 | 6 | XX | BOLT, MACHINE 7/8" X 18" |

B

VIEW B-B

NTS



SEE NOTES 2 & 3

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BILL OF MATERIAL (X-BRACE)

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------------------|
| 101 | 30-11-041 | 1 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 102 | 31-04-063 | 2 | PC | BOLT, MACHINE 3/4"X14" |
| 103 | 31-49-039 | 2 | PC | WASHER ROUND LOOK 3/4" |
| 104 | 31-49-020 | 2 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 105 | 30-50-136 | 25 | # | WIRE STEEL BARE 7/16" EHS GALV 20800# |
| 106 | 30-07-116 | 2 | PC | GRIP, DE. FRESH 39 GREEN 7/16" STEEL |
| 107 | 31-11-040 | 1 | PC | CLEVIS THIMBLE 1" GROOVE |

BILL OF MATERIAL (X-BRACE)

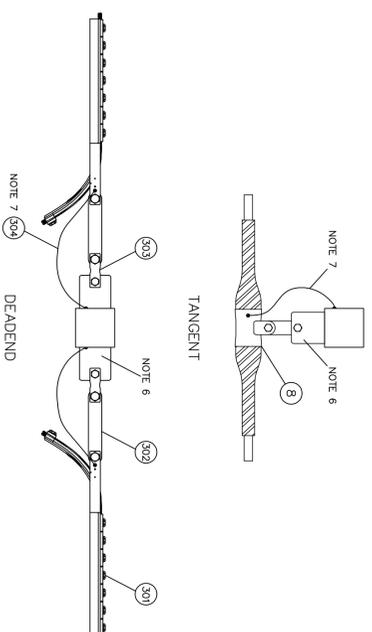
| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|------------------------------------|
| 201 | 30-11-041 | 4 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 202 | 31-04-061 | 4 | PC | BOLT, MACHINE 3/4"X20" |
| 203 | 31-04-059 | 4 | PC | BOLT, MACHINE 3/4"X16" |
| 204 | 31-49-020 | 20 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 205 | 31-04-195 | 12 | PC | BOLT, MACHINE 3/4"X6" |
| 206 | 31-49-039 | 20 | PC | WASHER, ROUND LOOK 3/4" |
| 207 | 31-04-145 | 4 | PC | BOLT, MACHINE 7/8"X3" |
| 208 | 31-49-198 | 4 | PC | WASHER, ROUND LOOK 7/8" |
| 209 | 31-49-035 | 4 | PC | WASHER, ROUND FLAT 7/8"IDX3-1/2"OD |
| 210 | 31-04-011 | 2 | PC | BOLT, MACHINE 5/8"X8" |
| 211 | 31-49-019 | 2 | PC | WASHER, ROUND FLAT 5/8"IDX1-3/4"OD |
| 212 | 31-49-032 | 2 | PC | WASHER, ROUND LOOK 5/8" |
| 213 | 34-79-008 | 4 | PC | X-BRACE, MOUNTING PLATE CHQ&E |
| 214 | 34-79-006 | 2 | PC | X-BRACE, 14 FT SPACING STEEL CHQ&E |
| 215 | 34-79-009 | 2 | PC | X-BRACE, CENTER CLAMP CHQ&E |

STANDARD DEADEND ASSEMBLY

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--------------------------|
| 301 | NONSTOCK | 1 | PC | AEL BOLTED DEADEND CLAMP |
| 302 | NONSTOCK | 1 | PC | TOP LINK PLATE |
| 303 | NONSTOCK | 1 | PC | Y-CLEVIS CLEVIS |
| 304 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |

VIEW A-A

NTS



TANGENT

NOTE 7

304

303

NOTE 6

302

301

NOTE 7

304

303

NOTE 6

302

4

3

2

1

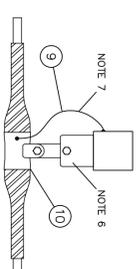
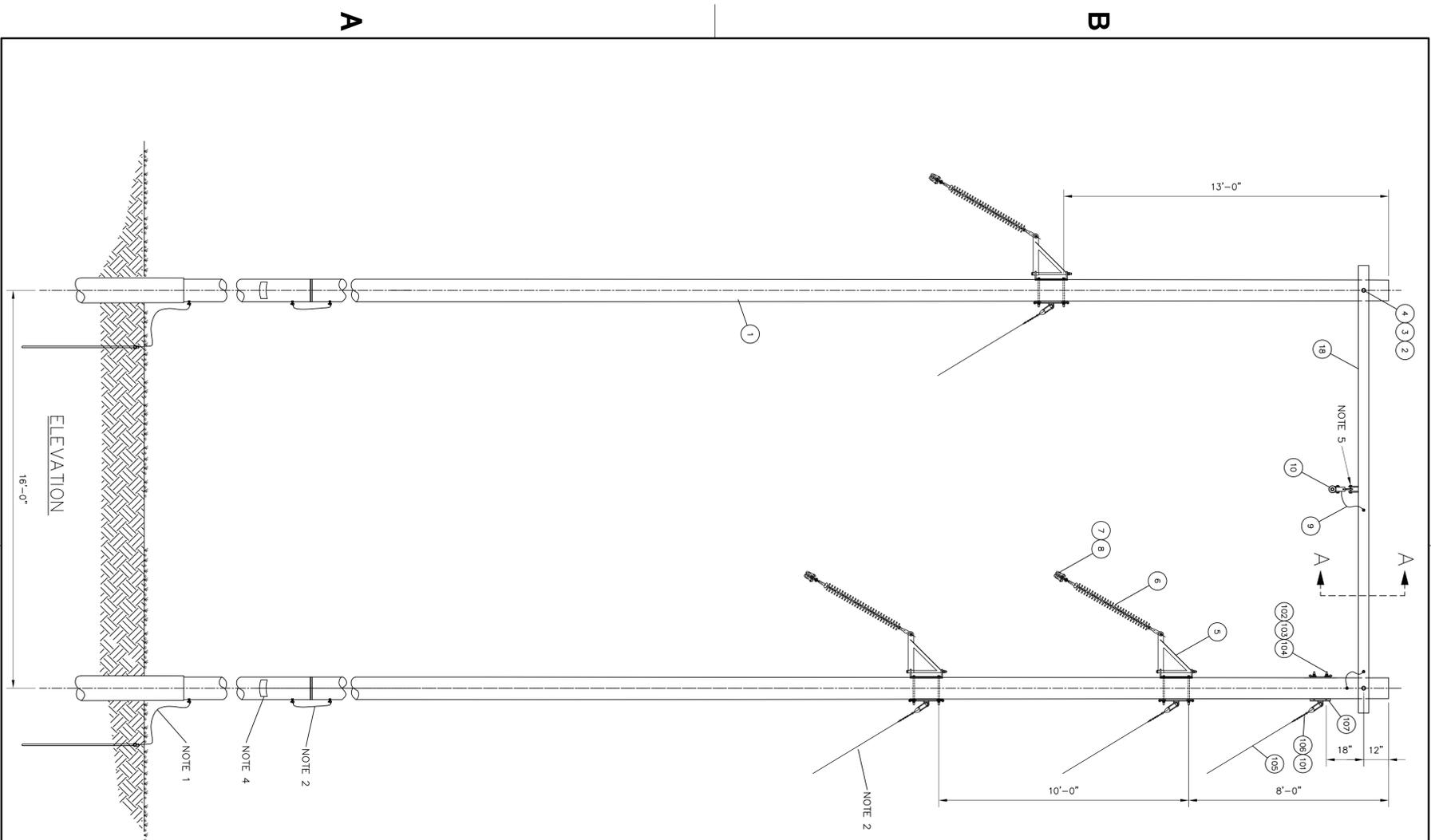
| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 1 | NONSTOCK | 1 | PC | STEEL POLE, SEE P & P FOR HEIGHT AND CLASS |
| 2 | 31-04-191 | 2 | PC | CONN WEDGE, (BURNDY CAT# WCY91) |
| 3 | 31-49-021 | 2 | PC | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 4 | 31-49-199 | 2 | PC | WASHER, ROUND LOCK 1" |
| 5 | 30-06-082 | 3 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 6 | 30-23-141 | 3 | PC | WASHER, ROUND LOCK 3/4" |
| 7 | 30-37-181 | 3 | PC | INSUL. SUSP 10" 30000# GRAY ANSI 52-5 |
| 8 | 30-07-102 | 3 | PC | CLAMP, SUSP 1.40-2.13 AL 25000# W/SOCKET |
| 9 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |
| 10 | NONSTOCK | 1 | PC | OPGW SUSPENSION CLAMP |

GUY ASSEMBLY BILL OF MATERIAL (PER GUY)

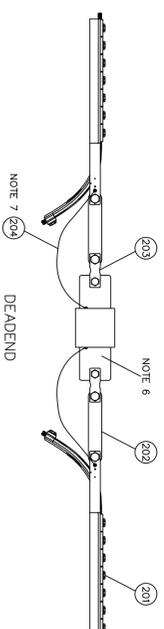
| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------------------|
| 101 | 30-11-041 | 1 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 102 | 31-04-063 | 2 | PC | BOLT, MACHINE 3/4"x1/4" |
| 103 | 31-49-039 | 2 | PC | WASHER ROUND LOCK 3/4" |
| 104 | 31-49-020 | 2 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 105 | 30-50-136 | 25 | # | WIRE STEEL BARE 7/16" EHS GALV 20800# |
| 106 | 30-07-116 | 2 | PC | GRIP, DE, FRESH 39 GREEN 7/16" STEEL |
| 107 | 31-11-040 | 1 | PC | CLEVIS THIMBLE 1" GROOVE |

STANDARD DEADEND ASSEMBLY BILL OF MATERIAL

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--------------------------|
| 201 | NONSTOCK | 1 | PC | AFL BOLTED DEADEND CLAMP |
| 202 | NONSTOCK | 1 | PC | 10" LINK PLATE |
| 203 | NONSTOCK | 1 | PC | Y-CLEVIS PLATE |
| 204 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |



TANGENT



DEADEND

VIEW A-A
NTS

- NOTES:
1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
 2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
 3. REFER TO P&P FOR GUY LEAD LENGTH AND ORIENTATION.
 4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
 5. SEE P&P FOR OPGW CONFIGURATION (DE OR TANGENT).
 6. YANG WELDED FOR OPGW ATTACHMENT
 7. SEE DWG. 51-C-14XX FOR OPGW GROUNDING.

REVISIONS

| W/NO. | PROJNO. | DRAWN | CHECKED | DATE | SCALE AS NOTED |
|-------|---------|-------|----------|---------|----------------|
| 7356A | | SMK | APPROVED | 4-28-14 | |
| 51 | | | | | |
| 14X3 | | | | | |

1

CAD DRAWING
DO NOT REVISE MANUALLY

A

B

A

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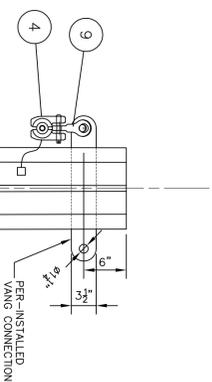
BILL OF MATERIAL

| ITEM | STOCK NO. | QUANT. | DESCRIPTION |
|------|-----------|--------|---|
| 1 | NONSTOCK | 2 | ARM STEEL DAVIT 7'-6" LONG |
| 2 | NONSTOCK | 1 | ARM STEEL DAVIT 6'-6" LONG |
| 3 | 30-07-130 | 3 | CLAMP STRAIN W/ SOCKET 1.18-1.55 AL |
| 4 | NONSTOCK | 1 | CLAMP SUSP OPGW |
| 5 | 30-23-123 | 3 | INSUL. SUSP 10" 30000# GRV ANS 52-5 |
| 6 | NONSTOCK | 12 | VALMONT #131650 WASHER, LOCK 1 1/2" BARE A563 |
| 7 | 30-11-028 | 3 | CLEVIS, V W/BALL |
| 8 | NONSTOCK | 12 | VALMONT #163360 BOLT 1 1/2" X 3 1/2" BARE A325 |
| 9 | 30-11-024 | 1 | CLEVIS, Y W/EYE 30000# |
| 10 | NONSTOCK | 1 | POLE WEATHERED STEEL (SEE P&P FOR HEIGHT & CLASS) |
| 11 | 30-07-230 | 3 | CONN, WEDGE 1073 ACSR RUN, 1033 ACSR TAP |

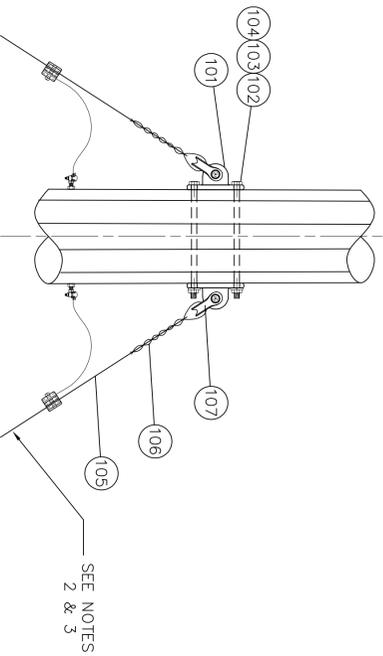
GUY ASSEMBLY BILL OF MATERIAL (PER GUY)

| ITEM | STOCK NO. | QUANT. | DESCRIPTION |
|------|-----------|--------|--|
| 101 | 30-11-041 | 1 | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 102 | 31-04-063 | 2 | BOLT, MACHINE 3/4 X 14 |
| 103 | 31-49-039 | 2 | WASHER, ROUND LOCK 3/4" |
| 104 | 31-49-020 | 2 | WASHER, ROUND FLAT 3/4"ID X 2"OD |
| 105 | 30-50-136 | 25# | WIRE, STL, BARE 7/16 EHS GALV Z0800# |
| 106 | 30-07-116 | 2 | GRIP, DE, FRESH 39 GREEN 7/16 STEEL |
| 107 | 31-11-040 | 1 | CLEVIS, THIMBLE 1" GROOVE |

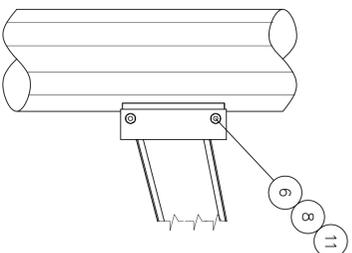
DETAIL "A"
N.T.S.



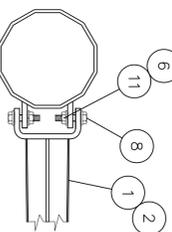
DETAIL "B"
N.T.S.



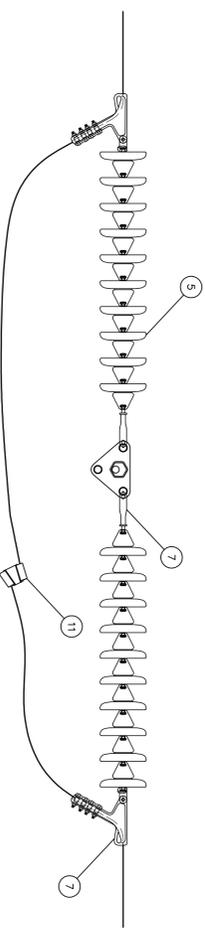
DETAIL "C"
DAVIT VANG CONNECTION
N.T.S.



SECTION "B-B"
DAVIT VANG CONNECTION
N.T.S.

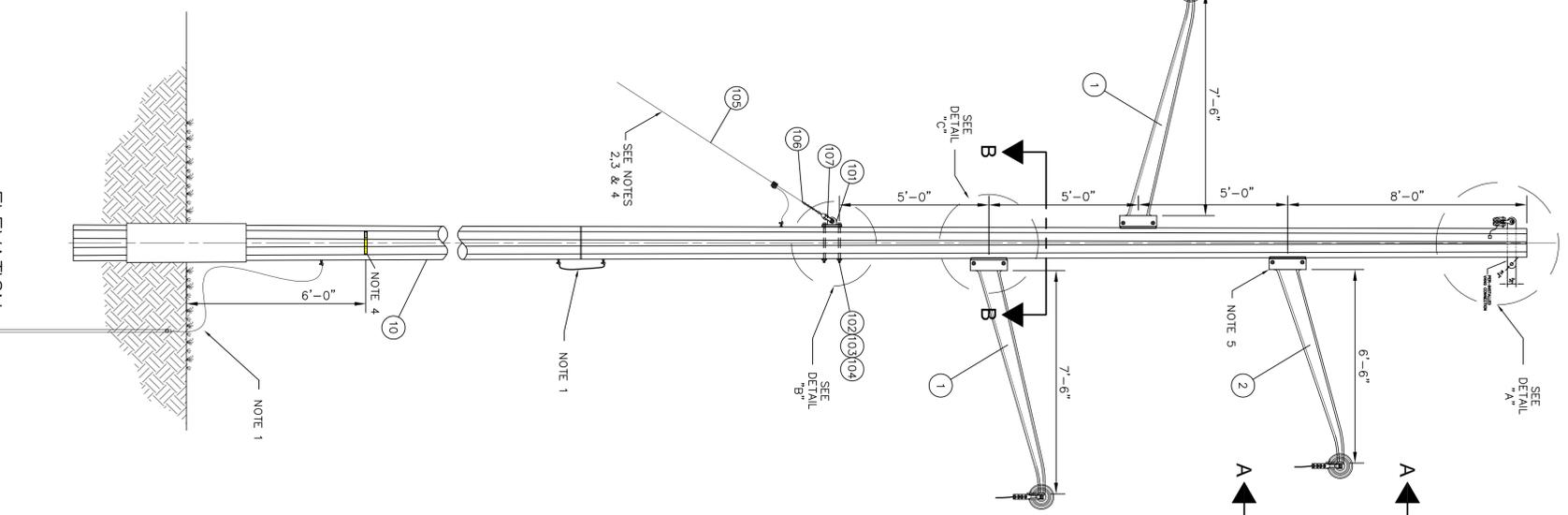


SECTION "A-A"
DAVIT VANG CONNECTION
N.T.S.



- NOTES:
1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
 2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
 3. REFER TO P&P, FOR GUY LEAD LENGTH AND ORIENTATION.
 4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
 5. DAVIT ARMS ATTACH USING PRE-FABRICATED VANGS.

ELEVATION
SCALE: 3/4"=1'-0"



| REVISIONS | | SCALE AS NOTED | |
|------------|-------|----------------|---------|
| W/O.N.O. | 7836A | DATE | 4-28-14 |
| PROJONG. | | REVNO. | |
| DRAFTER | SMK | FILE NO. | 51 |
| DRGT.SUPV. | | REVNO. | C |
| | | FILE NO. | 14X4 |
| | | DRGT.SUPV. | SHNO. |
| | | APPROVED | OF |

CENTRAL HUDSON GAS & ELEC. CORP.
 PLEASANT VALLEY - TODD HILL - FISHKILL PLAINS
 "A" & "C" 115KV LINES
 DEADEND STEEL DAVIT STRUCTURE

CAD DRAWING
 DO NOT REVISE MANUALLY

4

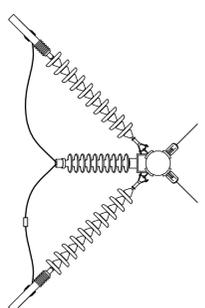
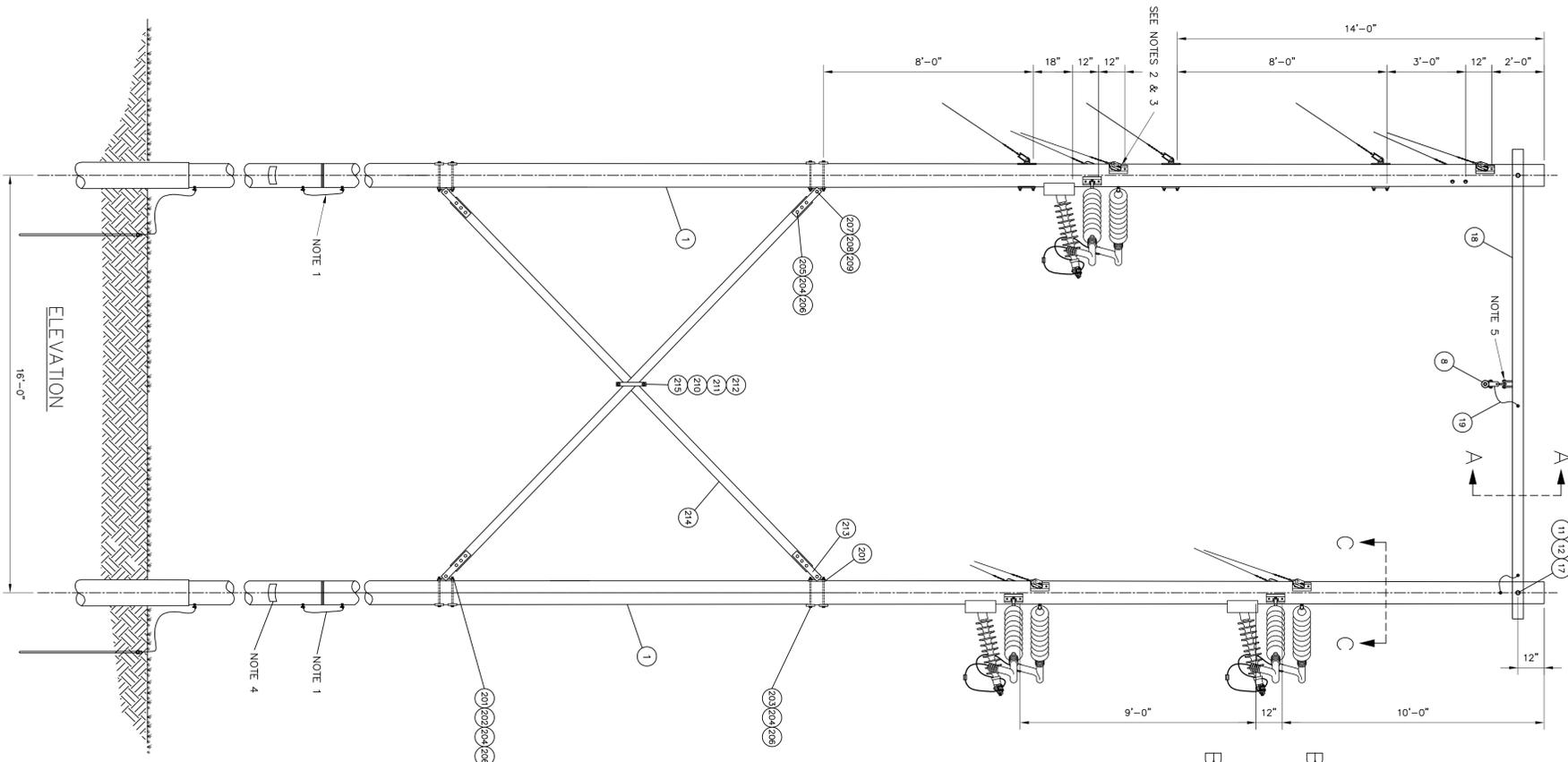
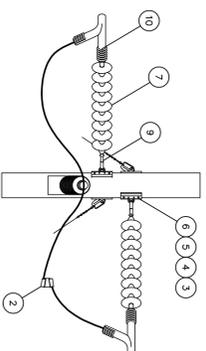
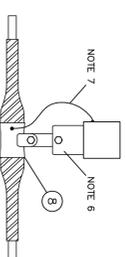
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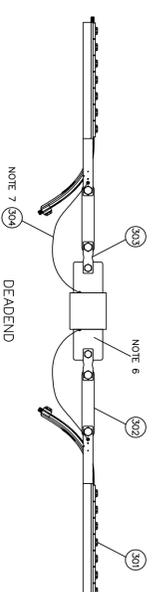
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VIEW C-C
NTSVIEW B-B
NTS

TANGENT

VIEW A-A
NTS

BILL OF MATERIAL

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 1 | NONSTOCK | 2 | PC | STEEL POLE, SEE P & P FOR HEIGHT AND CLASS |
| 2 | 30-07-230 | 3 | PC | CONN, WEDGE, 1033 ACSR RUN, 1033 ACSR TAP |
| 3 | 30-11-041 | 6 | PC | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 4 | 31-04-063 | 6 | PC | BOLT, MACHINE 3/4" X 14" |
| 5 | 31-49-020 | 6 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 6 | 31-49-039 | 6 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 7 | 30-23-123 | 60 | PC | INSUL, SUSP 10" 30000# GRAY ANSI 52-5 |
| 8 | NONSTOCK | 1 | PC | OPGW SUSPENSION CLAMP |
| 9 | 30-11-028 | 6 | PC | CLEVIS, Y W/BALL |
| 10 | 30-07-130 | 6 | PC | CLAMP, STRAIN W/SOCKET 1.18-1.55 AL |
| 11 | 31-04-191 | 2 | PC | BOLT, MACHINE, 1" X 18" |
| 12 | 31-49-021 | 2 | PC | WASHER, ROUND, FLAT, 1" ID X 6" OD |
| 13 | 30-23-139 | 3 | PC | INSUL, POST CLAMP HORIZ 115KV PLYMER 3300# |
| 14 | 31-49-035 | 6 | PC | WASHER, ROUND, FLAT, 1" ID X 4" OD |
| 15 | 31-49-198 | 6 | PC | WASHER, ROUND LOOK 7/8" |
| 16 | 30-07-150 | 3 | PC | CLAMP, POST INSUL, STRAIT, 1.00-1.50 AL |
| 17 | 31-49-199 | 2 | PC | WASHER, ROUND, LOOK, 1" |
| 18 | NONSTOCK | 1 | PC | CROSSARM, 5" X 5" X 18" |
| 19 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |
| 20 | 31-04-124 | 6 | XX | BOLT, MACHINE 7/8" X 18" |

GUY ASSEMBLY BILL OF MATERIAL (PER GUY)

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------------------|
| 101 | 30-11-041 | 1 | PC | TEE DEAD END 60K LBS./STEEL POLES |
| 102 | 31-04-063 | 2 | PC | BOLT, MACHINE 3/4" X 14" |
| 103 | 31-49-039 | 2 | PC | WASHER ROUND LOOK 3/4" |
| 104 | 31-49-020 | 2 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 105 | 30-50-136 | 25 | # | WIRE STEEL BARE 7/16" EHS GALV 20800# |
| 106 | 30-07-116 | 2 | PC | GRIP, DE, FRESH 39 GREEN 7/16" STEEL |
| 107 | 31-11-040 | 1 | PC | CLEVIS THIMBLE 1" GROOVE |

BILL OF MATERIAL (X-BRACE)

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 201 | 30-11-041 | 4 | PC | TEE DEAD END 60K LBS./STEEL POLES |
| 202 | 31-04-061 | 4 | PC | BOLT, MACHINE 3/4" X 20" |
| 203 | 31-04-059 | 4 | PC | BOLT, MACHINE 3/4" X 16" |
| 204 | 31-49-020 | 20 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 205 | 31-04-195 | 12 | PC | BOLT, MACHINE 3/4" X 16" |
| 206 | 31-49-039 | 20 | PC | WASHER, ROUND LOOK 3/4" |
| 207 | 31-04-145 | 4 | PC | BOLT, MACHINE 7/8" X 3" |
| 208 | 31-49-198 | 4 | PC | WASHER, ROUND LOOK 7/8" |
| 209 | 31-49-035 | 4 | PC | WASHER, ROUND FLAT 7/8" ID X 3-1/2" OD |
| 210 | 31-04-011 | 2 | PC | BOLT, MACHINE 5/8" X 8" |
| 211 | 31-49-019 | 2 | PC | WASHER, ROUND FLAT 5/8" ID X 1-3/4" OD |
| 212 | 31-49-032 | 2 | PC | WASHER, ROUND LOOK 5/8" |
| 213 | 34-79-008 | 4 | PC | X-BRACE, MOUNTING PLATE CHQ&E |
| 214 | 34-79-006 | 2 | PC | X-BRACE, 14 FT SPACING STEEL CHQ&E |
| 215 | 34-79-009 | 2 | PC | X-BRACE, CENTER CLAMP CHQ&E |

STANDARD DEADEND ASSEMBLY

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--------------------------|
| 301 | NONSTOCK | 1 | PC | AEL BOLTED DEADEND CLAMP |
| 302 | NONSTOCK | 1 | PC | 10" LINK PLATE |
| 303 | NONSTOCK | 1 | PC | Y-CLEVIS CLEVIS |
| 304 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |

NOTES:

1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
3. REFER TO P&P FOR GUY LEAD LENGTH AND ORIENTATION.
4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
5. SEE P&P FOR OPGW CONFIGURATION (DE OR TANGENT).
6. VANG WELDED FOR OPGW ATTACHMENT.
7. SEE DWG. 51-C-14XXX FOR OPGW GROUNDING.

REVISIONS

| REVNO. | DATE | SCALE AS NOTED |
|--------|---------|----------------|
| 51 | 4-28-14 | |

| W/NO. | 7356A | CLEARED |
|--|-------|----------|
| PROJNO. <td></td> <td>APPROVED</td> | | APPROVED |
| DRAFTER <td>SMK</td> <td>APPROVED</td> | SMK | APPROVED |
| DRFT SUVP. <td></td> <td>APPROVED</td> | | APPROVED |

| FILE NO. | 14X6 |
|----------|------|
| SHNO. OF | C |

CAD DRAWING
DO NOT REVISE MANUALLY

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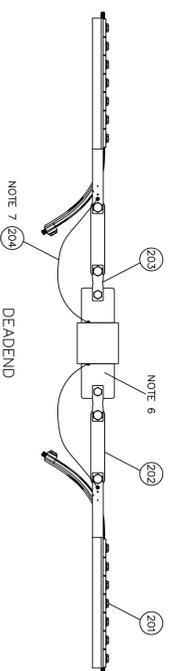
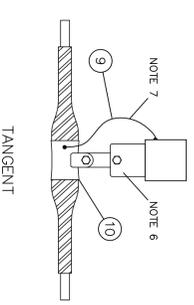
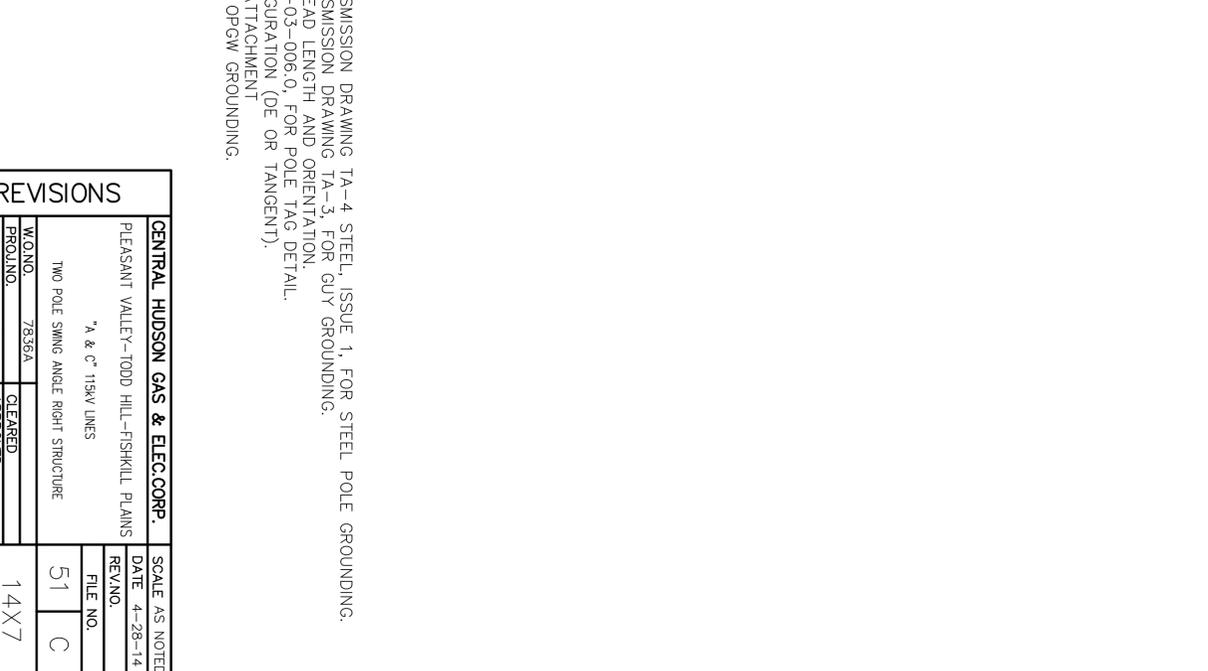
2

1

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 1 | NONSTOCK | 1 | PC | STEEL POLE, SEE P & P FOR HEIGHT AND CLASS |
| 2 | 31-04-191 | 2 | PC | CONN. WEDGE (BURUNDY CAT# WC391) |
| 3 | 31-49-021 | 2 | PC | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 4 | 31-49-199 | 2 | PC | WASHER, ROUND LOCK 1" |
| 5 | 30-06-062 | 3 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 6 | 30-23-141 | 3 | PC | WASHER, ROUND LOCK 3/4" |
| 7 | 30-37-181 | 3 | PC | INSUL. SUSP 10" 30000# GRAY ANSI 52-5 |
| 8 | 30-07-102 | 3 | PC | CLAMP, SUSP 1.40-2.13 AL 25000# W/SOCKET |
| 9 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |
| 10 | NONSTOCK | 1 | PC | OPGW SUSPENSION CLAMP |

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------------------|
| 101 | 30-11-041 | 1 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 102 | 31-04-063 | 2 | PC | BOLT, MACHINE 3/4"x14" |
| 103 | 31-49-039 | 2 | PC | WASHER ROUND LOCK 3/4" |
| 104 | 31-49-020 | 2 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 105 | 30-50-136 | 25 | # | WIRE STEEL BARE 7/16" EHS GALV 20800# |
| 106 | 30-07-116 | 2 | PC | GRIP, DE. PRESH 39 GREEN 7/16" STEEL |
| 107 | 31-11-040 | 1 | PC | CLEVIS THIMBLE 1" GROOVE |

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------|
| 201 | NONSTOCK | 1 | PC | AFL. BOLTED DEADEND CLAMP |
| 202 | NONSTOCK | 1 | PC | 10" LINK PLATE |
| 203 | NONSTOCK | 1 | PC | Y-CLEVIS CLEVIS |
| 204 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |



VIEW A-A
NTS

- NOTES:
1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
 2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
 3. REFER TO P&P FOR GUY LEAD LENGTH AND ORIENTATION.
 4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
 5. SEE P&P FOR OPGW CONFIGURATION (DE OR TANGENT).
 6. YANG WELDED FOR OPGW ATTACHMENT
 7. SEE DWG. 51-C-14XX FOR OPGW GROUNDING.

| CENTRAL HUDSON GAS & ELEC. CORP. | | SCALE AS NOTED | |
|--|-------|----------------|---------|
| PLEASANT VALLEY - TODD HILL - FISKILL PLAINS | | DATE | 4-28-14 |
| "A & C" 115KV LINES | | REVNO. | |
| TWO POLE SWING ANGLE RIGHT STRUCTURE | | FILE NO. | 51 C |
| WONO. | 7836A | CLEARED | 14X7 |
| PROJNO. | | APPROVED | |
| DRAFTER | SMK | APPROVED | |
| DRT.SUPV. | | APPROVED | |
| | | SHNO. OF | |

REVISIONS

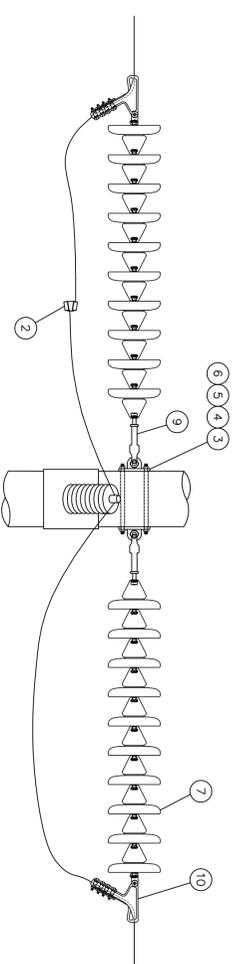
CAD DRAWING
DO NOT REVISE MANUALLY

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1



| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 1 | NONSTOCK | 2 | PC | STEEL POLE, SEE P & P FOR HEIGHT AND CLASS |
| 2 | 30-07-230 | 3 | PC | CONN. WEDGE, 1033 ACSR RUN, 1033 ACSR TAP |
| 3 | 30-11-041 | 6 | PC | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 4 | 31-04-063 | 6 | PC | BOLT, MACHINE 3/4" X 14" |
| 5 | 31-49-020 | 6 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 6 | 31-49-039 | 6 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 7 | 30-23-123 | 60 | PC | INSUL. SUSP 10" 30000# GRAY ANSI 52-5 |
| 8 | NONSTOCK | 1 | PC | OPGW SUSPENSION CLAMP |
| 9 | 30-11-028 | 6 | PC | CLEVIS, Y W/BALL |
| 10 | 30-07-130 | 6 | PC | CLAMP, STRAIN W/SOCKET 1.18-1.55 AL |
| 11 | 31-04-191 | 2 | PC | BOLT, MACHINE, 1" X 18" |
| 12 | 31-49-021 | 2 | PC | WASHER, ROUND, FLAT, 1" ID X 6" OD |
| 13 | 30-23-139 | 3 | PC | INSUL. POST CLAMP HORIZ 115KV PLYMER 3300# |
| 14 | 31-49-035 | 6 | PC | WASHER, ROUND, FLAT, 1" ID X 4" OD |
| 15 | 31-49-198 | 6 | PC | WASHER, ROUND LOOK 7/8" |
| 16 | 30-07-150 | 3 | PC | CLAMP, POST INSUL. STRAIT, 1.00-1.50 AL |
| 17 | 31-49-199 | 2 | PC | WASHER, ROUND, LOOK, 1" |
| 18 | NONSTOCK | 1 | PC | CROSSARM, 5" X 5" X 18" |
| 19 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |
| 20 | 31-04-124 | 6 | XX | BOLT, MACHINE 7/8" X 18" |

GUY ASSEMBLY BILL OF MATERIAL (PER GUY)

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------------------|
| 101 | 30-11-041 | 1 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 102 | 31-04-063 | 2 | PC | BOLT, MACHINE 3/4"X14" |
| 103 | 31-49-039 | 2 | PC | WASHER ROUND LOOK 3/4" |
| 104 | 31-49-020 | 2 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 105 | 30-50-136 | 25 | # | WIRE STEEL BARE 7/16" EHS GALV 20800# |
| 106 | 30-07-116 | 2 | PC | GRIP, DE. FRESH 39 GREEN 7/16" STEEL |
| 107 | 31-11-040 | 1 | PC | CLEVIS THIMBLE 1" GROOVE |

BILL OF MATERIAL (X-BRACE)

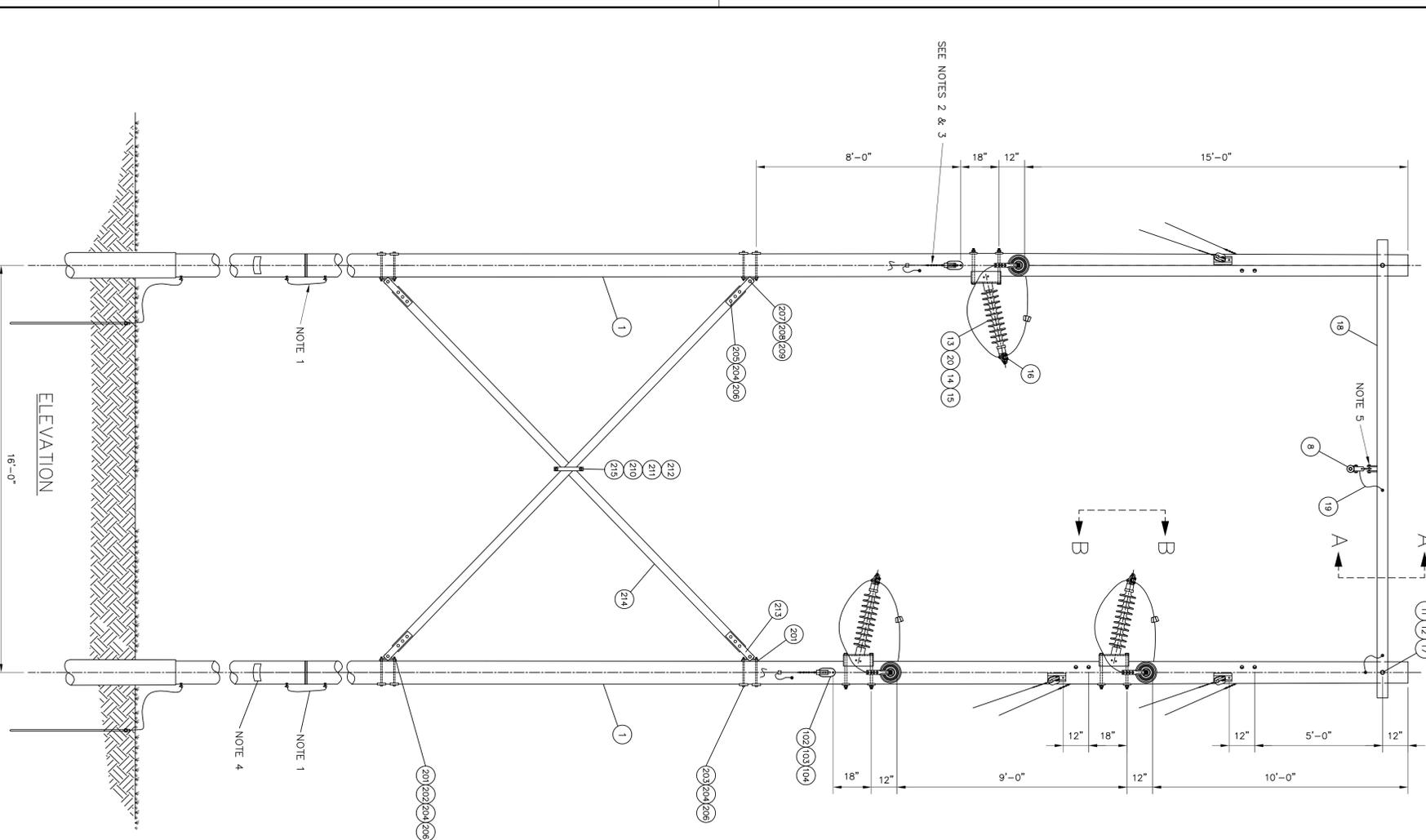
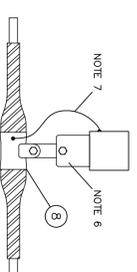
| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|------------------------------------|
| 201 | 30-11-041 | 4 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 202 | 31-04-061 | 4 | PC | BOLT, MACHINE 3/4"X20" |
| 203 | 31-04-059 | 4 | PC | BOLT, MACHINE 3/4"X16" |
| 204 | 31-49-020 | 20 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 205 | 31-04-195 | 12 | PC | BOLT, MACHINE 3/4"X6" |
| 206 | 31-49-039 | 20 | PC | WASHER, ROUND LOOK 3/4" |
| 207 | 31-04-145 | 4 | PC | BOLT, MACHINE 7/8"X3" |
| 208 | 31-49-198 | 4 | PC | WASHER, ROUND LOOK 7/8" |
| 209 | 31-49-035 | 4 | PC | WASHER, ROUND FLAT 7/8"IDX3-1/2"OD |
| 210 | 31-04-011 | 2 | PC | BOLT, MACHINE 5/8"X8" |
| 211 | 31-49-019 | 2 | PC | WASHER, ROUND FLAT 5/8"IDX1-3/4"OD |
| 212 | 31-49-032 | 2 | PC | WASHER, ROUND LOOK 5/8" |
| 213 | 34-79-008 | 4 | PC | X-BRACE, MOUNTING PLATE CHQ&E |
| 214 | 34-79-006 | 2 | PC | X-BRACE, 14 FT SPACING STEEL CHQ&E |
| 215 | 34-79-009 | 2 | PC | X-BRACE, CENTER CLAMP CHQ&E |

STANDARD DEADEND ASSEMBLY

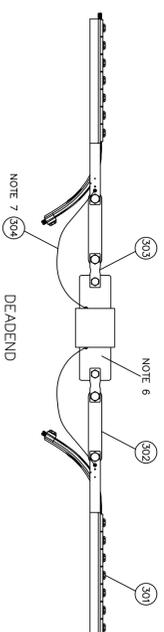
| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--------------------------|
| 301 | NONSTOCK | 1 | PC | AEL BOLTED DEADEND CLAMP |
| 302 | NONSTOCK | 1 | PC | TOP LINK PLATE |
| 303 | NONSTOCK | 1 | PC | Y-CLEVIS CLEVIS |
| 304 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |

B

B

VIEW B-B
NTS

TANGENT

VIEW A-A
NTS

DEADEND

NOTES:

- REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
- REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
- REFER TO P&P FOR GUY LEAD LENGTH AND ORIENTATION.
- SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
- SEE P&P FOR OPGW CONFIGURATION (DE OR TANGENT).
- VANG WELDED FOR OPGW ATTACHMENT.
- SEE DWG. 51-C-14XXX FOR OPGW GROUNDING.

REVISIONS

| WONO. | PROJNO. | DRAWN. | CHKD. | APPROVED. | SHNO. | OF |
|-------|---------|--------|-------|-----------|-------|----|
| 7356A | | | | | 51 | C |

CENTRAL HUDSON GAS & ELECTRIC CORP.
PLEASANT VALLEY-1000 HILL-FISHKILL PLANS
"A & C" 115KV LINES
SCALE AS NOTED
DATE: 4-28-14
FILE NO.

CAD DRAWING
DO NOT REVISE MANUALLY

4

3

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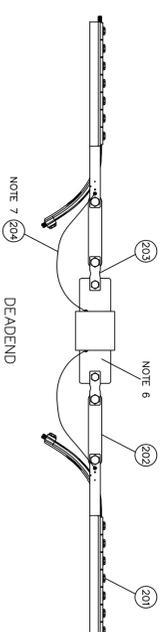
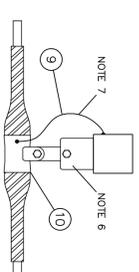
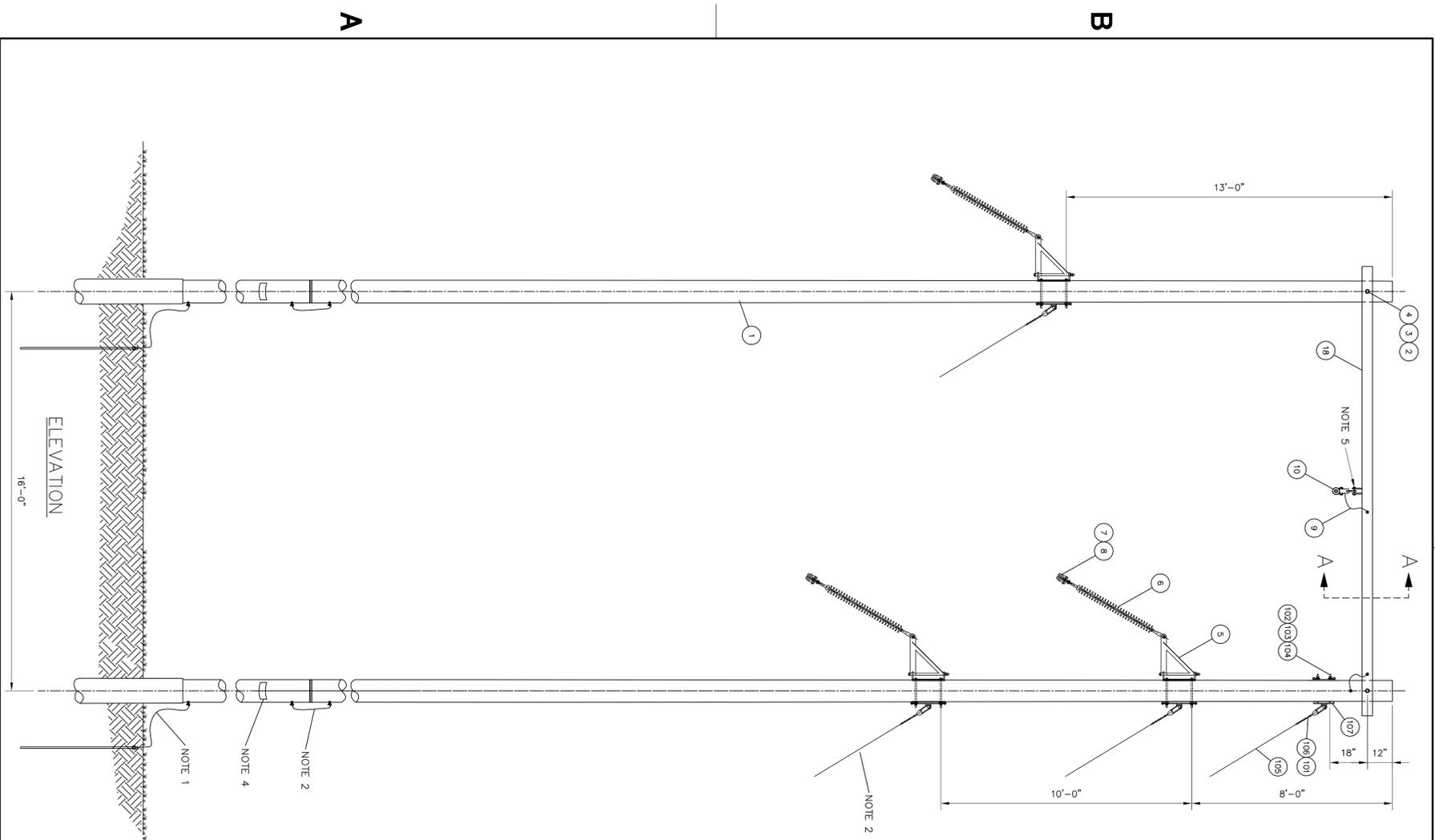
| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 1 | NONSTOCK | 1 | PC | STEEL POLE, SEE P & P FOR HEIGHT AND CLASS |
| 2 | 31-04-191 | 2 | PC | CONN WEDGE, (BURNDY CAT# WCY91) |
| 3 | 31-49-021 | 2 | PC | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 4 | 31-49-199 | 2 | PC | WASHER, ROUND LOCK 1" |
| 5 | 30-06-082 | 3 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 6 | 30-23-141 | 3 | PC | WASHER, ROUND LOCK 3/4" |
| 7 | 30-37-181 | 3 | PC | INSUL. SUSP 10" 30000# GRAY ANSI 52-5 |
| 8 | 30-07-102 | 3 | PC | CLAMP, SUSP 1.40-2.13 AL 25000# W/SOCKT |
| 9 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |
| 10 | NONSTOCK | 1 | PC | OPGW SUSPENSION CLAMP |

GUY ASSEMBLY BILL OF MATERIAL (PER GUY)

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------------------|
| 101 | 30-11-041 | 1 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 102 | 31-04-063 | 2 | PC | BOLT, MACHINE 3/4 X 1/4 |
| 103 | 31-49-039 | 2 | PC | WASHER ROUND LOCK 3/4" |
| 104 | 31-49-020 | 2 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 105 | 30-50-136 | 25 | # | WIRE STEEL BARE 7/16" EHS GALV 20800# |
| 106 | 30-07-116 | 2 | PC | GRIP, DE, FRESH 39 GREEN 7/16" STEEL |
| 107 | 31-11-040 | 1 | PC | CLEVIS THIMBLE 1" GROOVE |

STANDARD DEADEND ASSEMBLY BILL OF MATERIAL

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--------------------------|
| 201 | NONSTOCK | 1 | PC | AFL BOLTED DEADEND CLAMP |
| 202 | NONSTOCK | 1 | PC | 10" LINK PLATE |
| 203 | NONSTOCK | 1 | PC | Y-CLEVIS PLATE |
| 204 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |

VIEW A-A
NTS

- NOTES:
1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
 2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
 3. REFER TO P&P FOR GUY LEAD LENGTH AND ORIENTATION.
 4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
 5. SEE P&P FOR OPGW CONFIGURATION (DE OR TANGENT).
 6. YANG WELDED FOR OPGW ATTACHMENT
 7. SEE DWG. 51-C-14XX FOR OPGW GROUNDING.

| REVISIONS | | CENTRAL HUDSON GAS & ELECTRIC CORP. | | SCALE AS NOTED | |
|--|-------|-------------------------------------|--|----------------|--|
| PLEASANT VALLEY-1000 HILL-FISHKILL PLANS | | DATE: 4-28-14 | | REVNO. | |
| "A" & "C" 115KV LINES | | FILE NO. | | 51 | |
| TWO POLE SWING ANGLE LEFT STRUCTURE | | SH.NO. OF | | C | |
| WONNO. | 7356A | CLEARED | | 14X3 | |
| PROJNO. | | APPROVED | | | |
| DRAWN BY | SMK | APPROVED | | | |
| DRT SUBV. | | | | | |

CAD DRAWING
DO NOT REVISE MANUALLY

A

B

4

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1

A

B

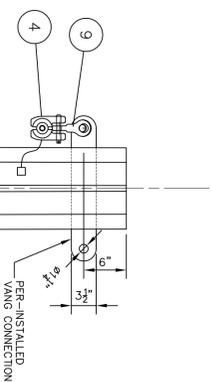
BILL OF MATERIAL

| ITEM | STOCK NO. | QUANT. | DESCRIPTION |
|------|-----------|--------|--|
| 1 | NONSTOCK | 2 | ARM STEEL DAVIT 7'-6" LONG |
| 2 | NONSTOCK | 1 | ARM STEEL DAVIT 6'-6" LONG |
| 3 | 30-07-130 | 3 | CLAMP, STRAIN W/ SOCKET 1.18-1.55 AL |
| 4 | NONSTOCK | 1 | CLAMP, SUSP OPGW |
| 5 | 30-23-123 | 3 | INSUL. SUSP 10" 30000# GRV ANS 52-5 |
| 6 | NONSTOCK | 12 | VALMONT #131650 WASHER, LOCK 1 1/2" BARE A563 |
| 7 | 30-11-028 | 3 | CLEVIS, V W/BALL |
| 8 | NONSTOCK | 12 | VALMONT #163360 BOLT 1 1/2" X 3 1/2" BARE A325 |
| 9 | 30-11-024 | 1 | CLEVIS, Y W/EYE 30000# |
| 10 | NONSTOCK | 1 | POLE, WEATHERED STEEL (SEE P&P FOR HEIGHT & CLASS) |
| 11 | 30-07-230 | 3 | CONN, WEDGE 1073 ACSR RUN, 1033 ACSR TAP |

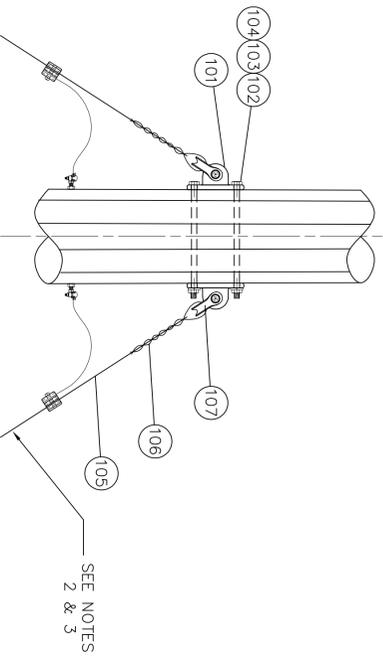
GUY ASSEMBLY BILL OF MATERIAL (PER GUY)

| ITEM | STOCK NO. | QUANT. | DESCRIPTION |
|------|-----------|--------|--|
| 101 | 30-11-041 | 1 | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 102 | 31-04-063 | 2 | BOLT, MACHINE 3/4 X 14 |
| 103 | 31-49-039 | 2 | WASHER, ROUND LOCK 3/4" |
| 104 | 31-49-020 | 2 | WASHER, ROUND FLAT 3/4"ID X 2"OD |
| 105 | 30-50-136 | 25# | WIRE, STL, BARE 7/16 EHS GALV Z0800# |
| 106 | 30-07-116 | 2 | GRIP, DE, FRESH 39 GREEN 7/16 STEEL |
| 107 | 31-11-040 | 1 | CLEVIS, THIMBLE 1" GROOVE |

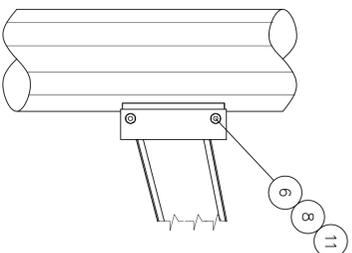
DETAIL "A"
N.T.S.



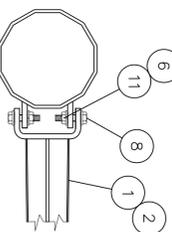
DETAIL "B"
N.T.S.



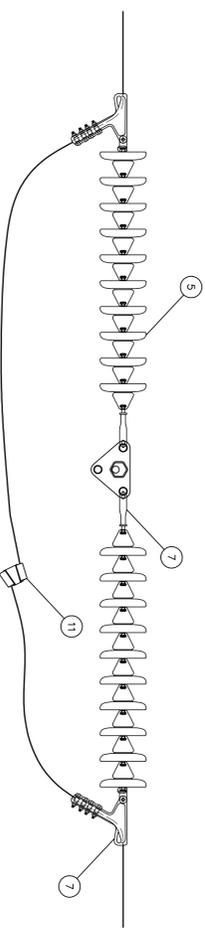
DETAIL "C"
DAVIT VANG CONNECTION
N.T.S.



SECTION "B-B"
DAVIT VANG CONNECTION
N.T.S.

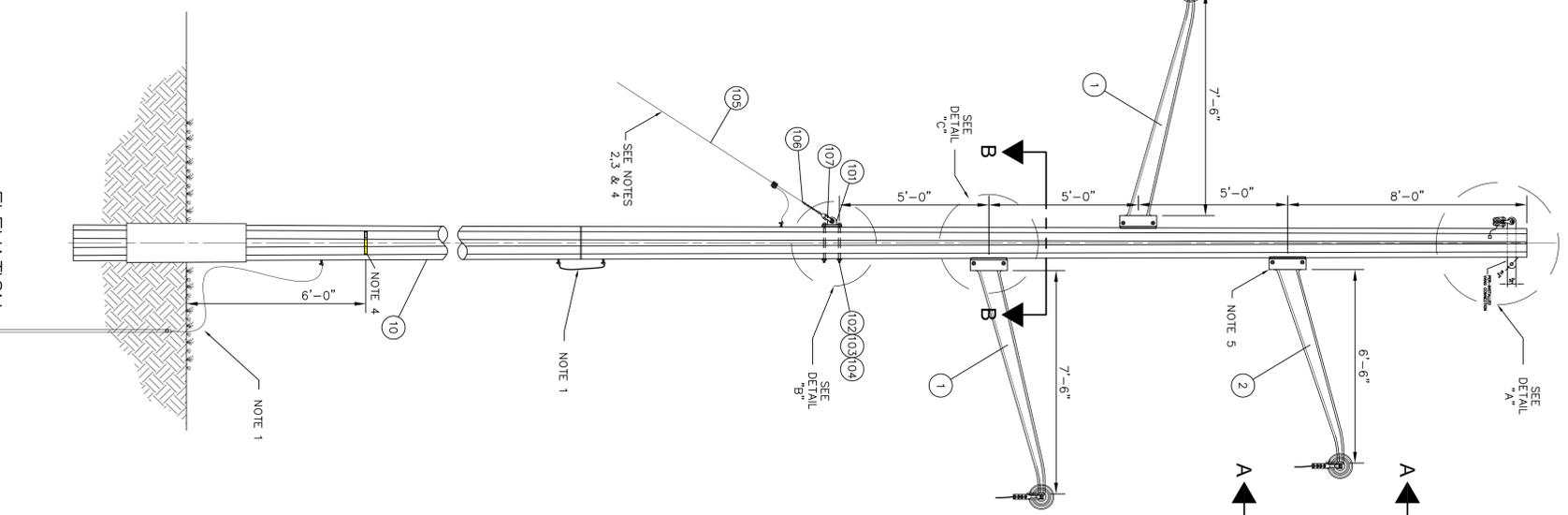


SECTION "A-A"
DAVIT VANG CONNECTION
N.T.S.



- NOTES:
1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
 2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
 3. REFER TO P&P, FOR GUY LEAD LENGTH AND ORIENTATION.
 4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
 5. DAVIT ARMS ATTACH USING PRE-FABRICATED VANGS.

ELEVATION
SCALE: 3/4"=1'-0"



| REVISIONS | | DATE | SCALE AS NOTED |
|-----------|-------------------------------|-------|----------------|
| 1 | W/NO. PROJ. DRAFTER DRT:SU/PV | 7836A | 4-28-14 |
| | | | 14X4 |

| CENTRAL HUDSON GAS & ELEC. CORP. | | DATE | SCALE AS NOTED |
|---|-------|------------------|----------------|
| PLEASANT VALLEY - TODD HILL - FISHKILL PLAINS | | 4-28-14 | 14X4 |
| "A" & "C" 115KV LINES | | | |
| DEADEND STEEL DAVIT STRUCTURE | | | |
| FILE NO. | 51 | REV. NO. | C |
| W/NO. PROJ. DRAFTER DRT:SU/PV | 7836A | CLEARED APPROVED | SHNO. OF |

CAD DRAWING DO NOT REVISE MANUALLY

4

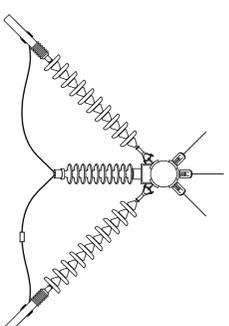
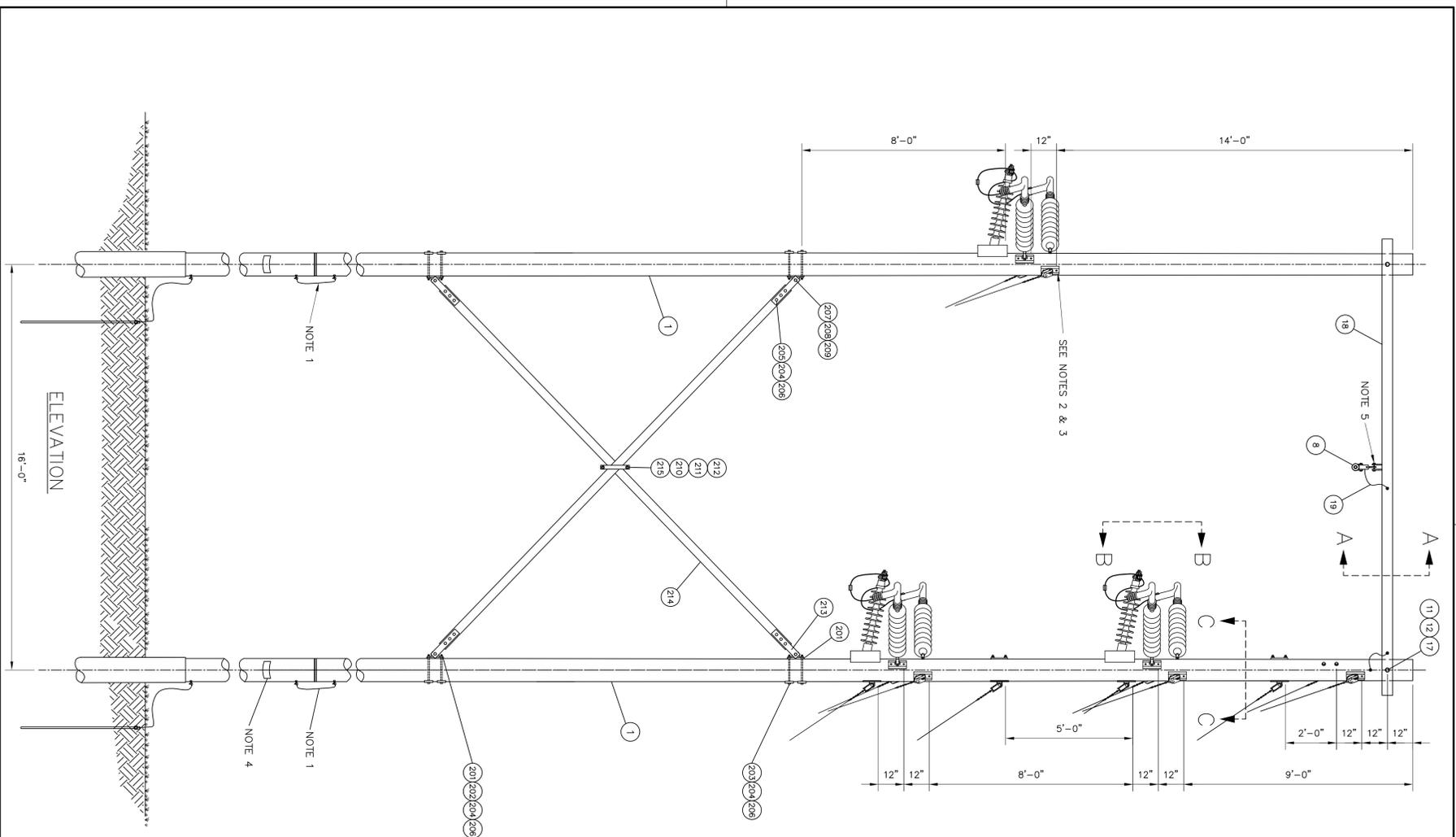
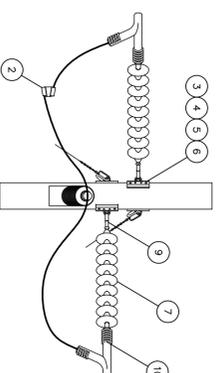
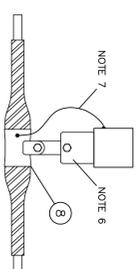
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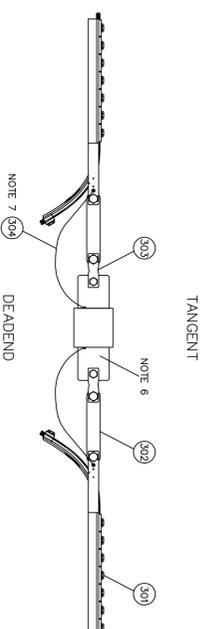
1

B

B

VIEW C-C
NTSVIEW B-B
NTS

TANGENT

VIEW A-A
NTS

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|---|-----------|--------|----|---|
| 101 | 30-11-041 | 1 | PC | TEE DEAD END 60K LBS.F./STEEL POLES |
| 102 | 31-04-063 | 2 | PC | BOLT, MACHINE 3/4"x14" |
| 103 | 31-49-039 | 2 | PC | WASHER ROUND LOOK 3/4" |
| 104 | 31-49-020 | 2 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 105 | 30-50-136 | 25 | # | WIRE STEEL BARE 7/16" EHS GALV 20800# |
| 106 | 30-07-116 | 2 | PC | GRIP, DE. FRESH 39 GREEN 7/16" STEEL |
| 107 | 31-11-040 | 1 | PC | CLEVIS THIMBLE 1" GROOVE |
| BILL OF MATERIAL (X-BRACE) | | | | |
| 201 | 30-11-041 | 4 | PC | TEE DEAD END 60K LBS.F./STEEL POLES |
| 202 | 31-04-061 | 4 | PC | BOLT, MACHINE 3/4"x20" |
| 203 | 31-04-059 | 4 | PC | BOLT, MACHINE 3/4"x16" |
| 204 | 31-49-020 | 20 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 205 | 31-04-195 | 12 | PC | BOLT, MACHINE 3/4"x6" |
| 206 | 31-49-039 | 20 | PC | WASHER, ROUND LOOK 3/4" |
| 207 | 31-04-145 | 4 | PC | BOLT, MACHINE 7/8"x3" |
| 208 | 31-49-198 | 4 | PC | WASHER, ROUND LOOK 7/8" |
| 209 | 31-49-035 | 4 | PC | WASHER, ROUND FLAT 7/8"IDX3-1/2"OD |
| 210 | 31-04-011 | 2 | PC | BOLT, MACHINE 5/8"x8" |
| 211 | 31-49-019 | 2 | PC | WASHER, ROUND FLAT 5/8"IDX1-3/4"OD |
| 212 | 31-49-032 | 2 | PC | WASHER, ROUND LOOK 5/8" |
| 213 | 34-79-008 | 4 | PC | X-BRACE, MOUNTING PLATE CHQ&E |
| 214 | 34-79-006 | 2 | PC | X-BRACE, 14 FT SPACING STEEL CHQ&E |
| 215 | 34-79-009 | 2 | PC | X-BRACE, CENTER CLAMP CHQ&E |
| STANDARD DEADEND ASSEMBLY | | | | |
| 301 | NONSTOCK | 1 | PC | AEL BOLTED DEADEND CLAMP |
| 302 | NONSTOCK | 1 | PC | 10" LINK PLATE |
| 303 | NONSTOCK | 1 | PC | Y-CLEVIS CLEVIS |
| 304 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |
| GUY ASSEMBLY BILL OF MATERIAL (PER GUY) | | | | |
| 11 | 30-07-130 | 6 | PC | CLEVIS, Y W/BALL |
| 12 | 31-49-021 | 2 | PC | BOLT, MACHINE, 1" X 18" |
| 13 | 30-23-139 | 2 | PC | WASHER, ROUND FLAT, 1" ID X 6" OD |
| 14 | 31-49-035 | 6 | PC | INSUL. POST CLWP HORIZ 115KV PLYMER 3300# |
| 15 | 31-49-198 | 6 | PC | WASHER, ROUND FLAT, 1" ID X 4" OD |
| 16 | 30-07-150 | 3 | PC | WASHER, ROUND LOOK 7/8" |
| 17 | 31-49-199 | 2 | PC | CLAMP, POST INSUL. STRAIT, 1.00-1.50 AL |
| 18 | NONSTOCK | 1 | PC | WASHER, ROUND, LOOK, 1" |
| 19 | NONSTOCK | 1 | PC | CROSSARM, 5" X 5" X 18" |
| 20 | 31-04-124 | 6 | XX | ALUMINUM BONDING WIRE |

- NOTES:
1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
 2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
 3. REFER TO P&P FOR GUY LEAD LENGTH AND ORIENTATION.
 4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
 5. SEE P&P FOR OPGW CONFIGURATION (DE OR TANGENT).
 6. VANG WELDED FOR OPGW ATTACHMENT.
 7. SEE DWG. 51-C-14XXX FOR OPGW GROUNDING.

REVISIONS

| W/NO. | PROJNO. | DRAWN | CHECKED | DATE | SCALE AS NOTED |
|-------|---------|-------|---------|---------|----------------|
| 7356A | | | | 4-28-14 | |
| 51 | | | | | |
| C | | | | | |

CAD DRAWING
DO NOT REVISE MANUALLY

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ELEVATION
16'-0"

NOTE 1

NOTE 1

NOTE 4

NOTE 1

4

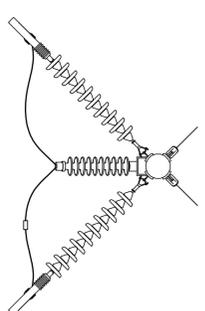
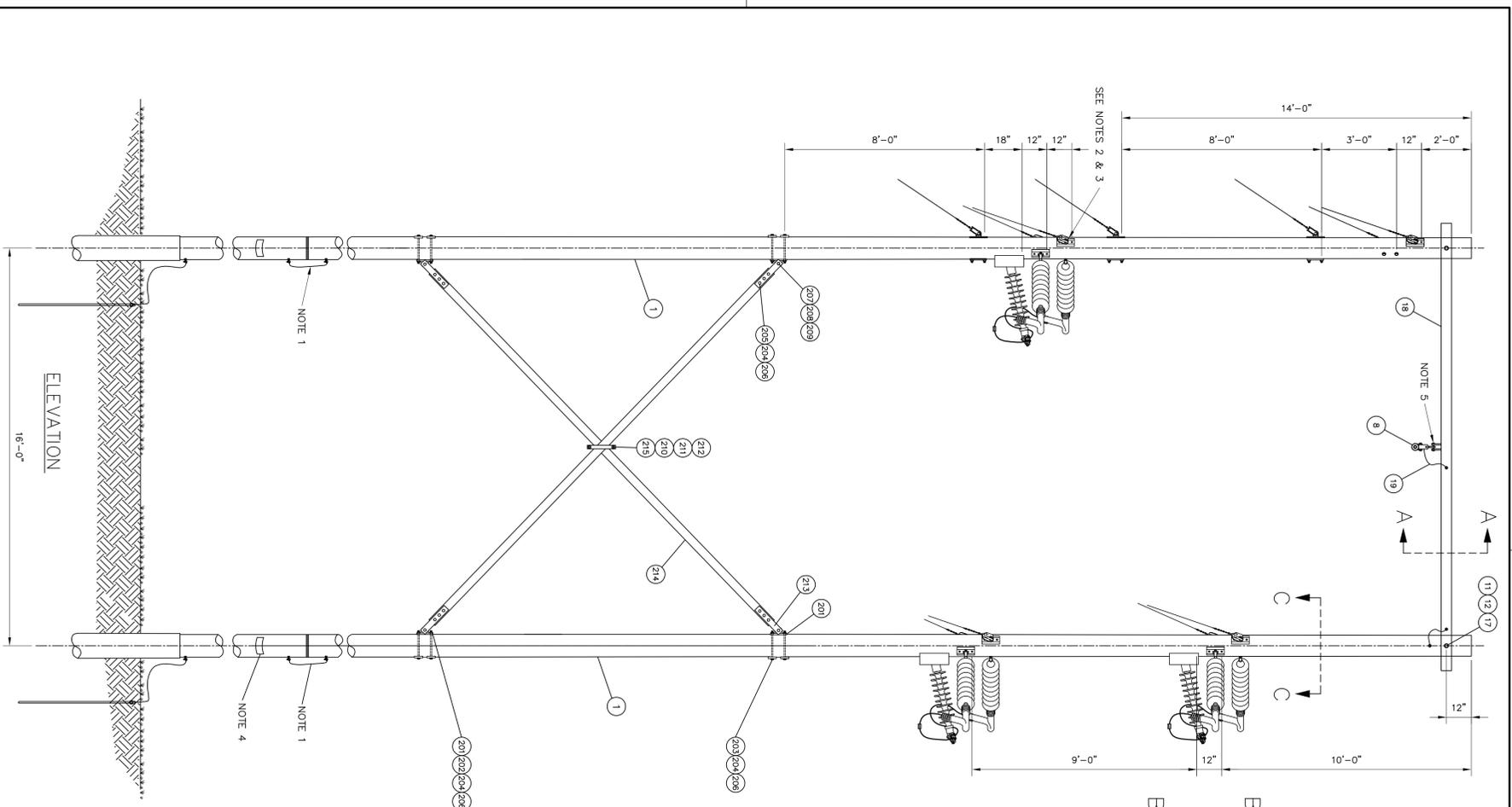
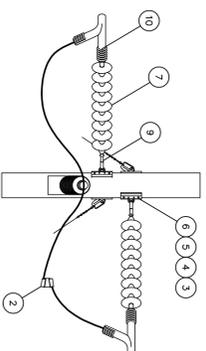
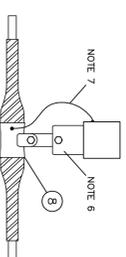
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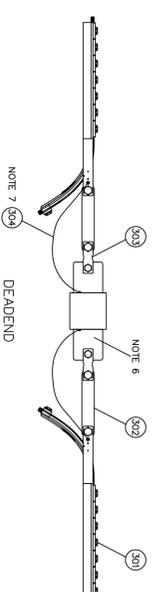
1

B

B

VIEW C-C
NTSVIEW B-B
NTS

TANGENT

VIEW A-A
NTS

BILL OF MATERIAL

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 1 | NONSTOCK | 2 | PC | STEEL POLE, SEE P & P FOR HEIGHT AND CLASS |
| 2 | 30-07-230 | 3 | PC | CONN, WEDGE, 1033 ACSR RUN, 1033 ACSR TAP |
| 3 | 30-11-041 | 6 | PC | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 4 | 31-04-063 | 6 | PC | BOLT, MACHINE 3/4" X 14" |
| 5 | 31-49-020 | 6 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 6 | 31-49-039 | 6 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 7 | 30-23-123 | 60 | PC | INSUL, SUSP 10" 300000# GR5 ANS1 52-5 |
| 8 | NONSTOCK | 1 | PC | OPGW SUSPENSION CLAMP |
| 9 | 30-11-028 | 6 | PC | CLEVIS, Y W/BALL |
| 10 | 30-07-130 | 6 | PC | CLAMP, STRAIN W/SOCKET 1.18-1.55 AL |
| 11 | 31-04-191 | 2 | PC | BOLT, MACHINE, 1" X 18" |
| 12 | 31-49-021 | 2 | PC | WASHER, ROUND, FLAT, 1" ID X 6" OD |
| 13 | 30-23-139 | 3 | PC | INSUL, POST CLWP HORIZ 115KV PLYMER 3300# |
| 14 | 31-49-035 | 6 | PC | WASHER, ROUND, FLAT, 1" ID X 4" OD |
| 15 | 31-49-198 | 6 | PC | WASHER, ROUND LOOK 7/8" |
| 16 | 30-07-150 | 3 | PC | CLAMP, POST INSUL, STRAIT, 1.00-1.50 AL |
| 17 | 31-49-199 | 2 | PC | WASHER, ROUND, LOOK, 1" |
| 18 | NONSTOCK | 1 | PC | CROSSARM, 5" X 5" X 18" |
| 19 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |
| 20 | 31-04-124 | 6 | XX | BOLT, MACHINE 7/8" X 18" |

GUY ASSEMBLY BILL OF MATERIAL (PER GUY)

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------------------|
| 101 | 30-11-041 | 1 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 102 | 31-04-063 | 2 | PC | BOLT, MACHINE 3/4" X 14" |
| 103 | 31-49-039 | 2 | PC | WASHER ROUND LOOK 3/4" |
| 104 | 31-49-020 | 2 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 105 | 30-50-136 | 25 | # | WIRE STEEL BARE 7/16" EHS GALV 20800# |
| 106 | 30-07-116 | 2 | PC | GRIP, DE, FRESH 39 GREEN 7/16" STEEL |
| 107 | 31-11-040 | 1 | PC | CLEVIS THIMBLE 1" GROOVE |

BILL OF MATERIAL (X-BRACE)

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 201 | 30-11-041 | 4 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 202 | 31-04-061 | 4 | PC | BOLT, MACHINE 3/4" X 20" |
| 203 | 31-04-059 | 4 | PC | BOLT, MACHINE 3/4" X 16" |
| 204 | 31-49-020 | 20 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 205 | 31-04-195 | 12 | PC | BOLT, MACHINE 3/4" X 16" |
| 206 | 31-49-039 | 20 | PC | WASHER, ROUND LOOK 3/4" |
| 207 | 31-04-145 | 4 | PC | BOLT, MACHINE 7/8" X 3" |
| 208 | 31-49-198 | 4 | PC | WASHER, ROUND LOOK 7/8" |
| 209 | 31-49-035 | 4 | PC | WASHER, ROUND FLAT 7/8" ID X 3-1/2" OD |
| 210 | 31-04-011 | 2 | PC | BOLT, MACHINE 5/8" X 8" |
| 211 | 31-49-019 | 2 | PC | WASHER, ROUND FLAT 5/8" ID X 1-3/4" OD |
| 212 | 31-49-032 | 2 | PC | WASHER, ROUND LOOK 5/8" |
| 213 | 34-79-008 | 4 | PC | X-BRACE, MOUNTING PLATE CHQ&E |
| 214 | 34-79-006 | 4 | PC | X-BRACE, 14 FT SPACING STEEL CHQ&E |
| 215 | 34-79-009 | 2 | PC | X-BRACE, CENTER CLAMP CHQ&E |

STANDARD DEADEND ASSEMBLY

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--------------------------|
| 301 | NONSTOCK | 1 | PC | AEL BOLTED DEADEND CLAMP |
| 302 | NONSTOCK | 1 | PC | 10" LINK PLATE |
| 303 | NONSTOCK | 1 | PC | Y-CLEVIS CLEVIS |
| 304 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |

NOTES:

1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
3. REFER TO P&P FOR GUY LEAD LENGTH AND ORIENTATION.
4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
5. SEE P&P FOR OPGW CONFIGURATION (DE OR TANGENT).
6. VANG WELDED FOR OPGW ATTACHMENT.
7. SEE DWG. 51-C-14XXX FOR OPGW GROUNDING.

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REVISIONS

| W/NO. | PROJNO. | DRAWN | CHKD | APPV | SHNO. | OF |
|-------|---------|-------|------|------|-------|----|
| 7356A | | | | | 51 | C |

CENTRAL HUDSON GAS & ELECTRIC CORP.
PLEASANT VALLEY-1000 HILL-FISHKILL PLANS
A & C 115KV LINES

SCALE AS NOTED

DATE 4-28-14

REVNO.

FILE NO.

DEADEND RIGHT ANGLE STEEL STRUCTURE

CLEARED

APPROVED

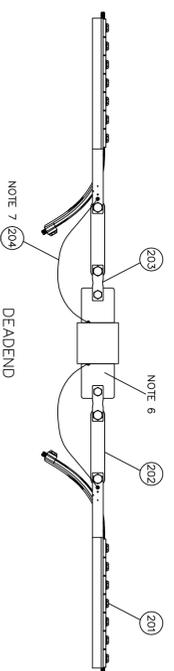
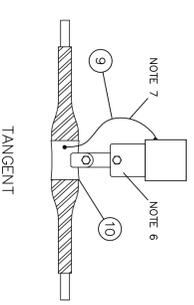
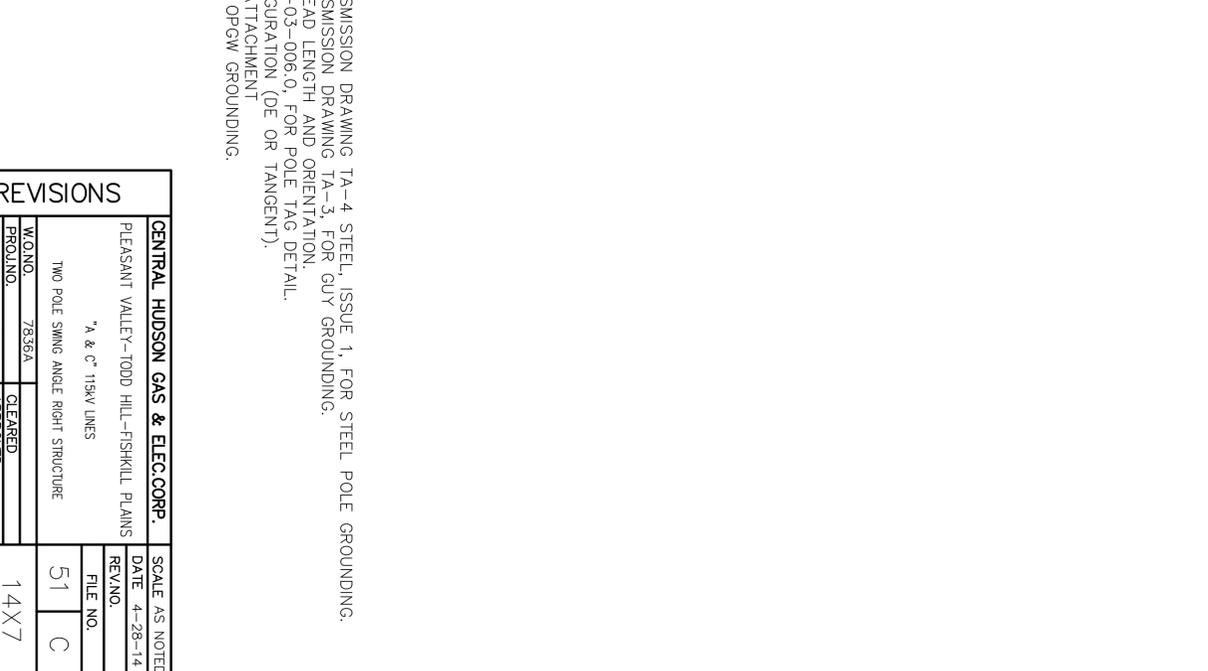
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| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|--|
| 1 | NONSTOCK | 1 | PC | STEEL POLE, SEE P & P FOR HEIGHT AND CLASS |
| 2 | 31-04-191 | 2 | PC | CONN. WEDGE (BURUNDY CAT# WC391) |
| 3 | 31-49-021 | 2 | PC | TEE, DEAD END, 60K LBS., F/STEEL POLES |
| 4 | 31-49-199 | 2 | PC | WASHER, ROUND LOCK 1" |
| 5 | 30-06-062 | 3 | PC | WASHER, ROUND FLAT 3/4" ID X 2" OD |
| 6 | 30-23-141 | 3 | PC | WASHER, ROUND LOCK 3/4" |
| 7 | 30-37-181 | 3 | PC | INSUL. SUSP 10" 30000# GRAY ANSI 52-5 |
| 8 | 30-07-102 | 3 | PC | CLAMP, SUSP 1.40-2.13 AL 25000# W/SOCKET |
| 9 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |
| 10 | NONSTOCK | 1 | PC | OPGW SUSPENSION CLAMP |

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------------------|
| 101 | 30-11-041 | 1 | PC | TEE DEAD END 60K LBS.F/STEEL POLES |
| 102 | 31-04-063 | 2 | PC | BOLT, MACHINE 3/4"x14" |
| 103 | 31-49-039 | 2 | PC | WASHER ROUND LOCK 3/4" |
| 104 | 31-49-020 | 2 | PC | WASHER ROUND FLAT 3/4" ID X 2" OD |
| 105 | 30-50-136 | 25 | # | WIRE STEEL BARE 7/16" EHS GALV 20800# |
| 106 | 30-07-116 | 2 | PC | GRIP, DE. PRESH 39 GREEN 7/16" STEEL |
| 107 | 31-11-040 | 1 | PC | CLEVIS THIMBLE 1" GROOVE |

| ITEM | STOCK NO. | QUANT. | UM | DESCRIPTION |
|------|-----------|--------|----|---------------------------|
| 201 | NONSTOCK | 1 | PC | AFL. BOLTED DEADEND CLAMP |
| 202 | NONSTOCK | 1 | PC | 10" LINK PLATE |
| 203 | NONSTOCK | 1 | PC | Y-CLEVIS CLEVIS |
| 204 | NONSTOCK | 1 | PC | ALUMINUM BONDING WIRE |



VIEW A-A
NTS

- NOTES:
1. REFER TO STANDARD TRANSMISSION DRAWING TA-4 STEEL, ISSUE 1, FOR STEEL POLE GROUNDING.
 2. REFER TO STANDARD TRANSMISSION DRAWING TA-3, FOR GUY GROUNDING.
 3. REFER TO P&P FOR GUY LEAD LENGTH AND ORIENTATION.
 4. SEE STANDARDS DWG. E01-03-006.0, FOR POLE TAG DETAIL.
 5. SEE P&P FOR OPGW CONFIGURATION (DE OR TANGENT).
 6. YANG WELDED FOR OPGW ATTACHMENT
 7. SEE DWG. 51-C-14XX FOR OPGW GROUNDING.

| CENTRAL HUDSON GAS & ELEC. CORP. | | SCALE AS NOTED | |
|--|----------|----------------|--|
| PLEASANT VALLEY - TODD HILL - FISKILL PLAINS | | DATE 4-28-14 | |
| "A & C" 115KV LINES | | REV. NO. | |
| TWO POLE SWING ANGLE RIGHT STRUCTURE | | FILE NO. | |
| WO. NO. 78356A | CLEARED | 51 C | |
| PROJ. NO. | APPROVED | 14X7 | |
| DRAWN BY SMK | APPROVED | SH. NO. OF | |
| DRAFT SUPV. | APPROVED | 1 | |

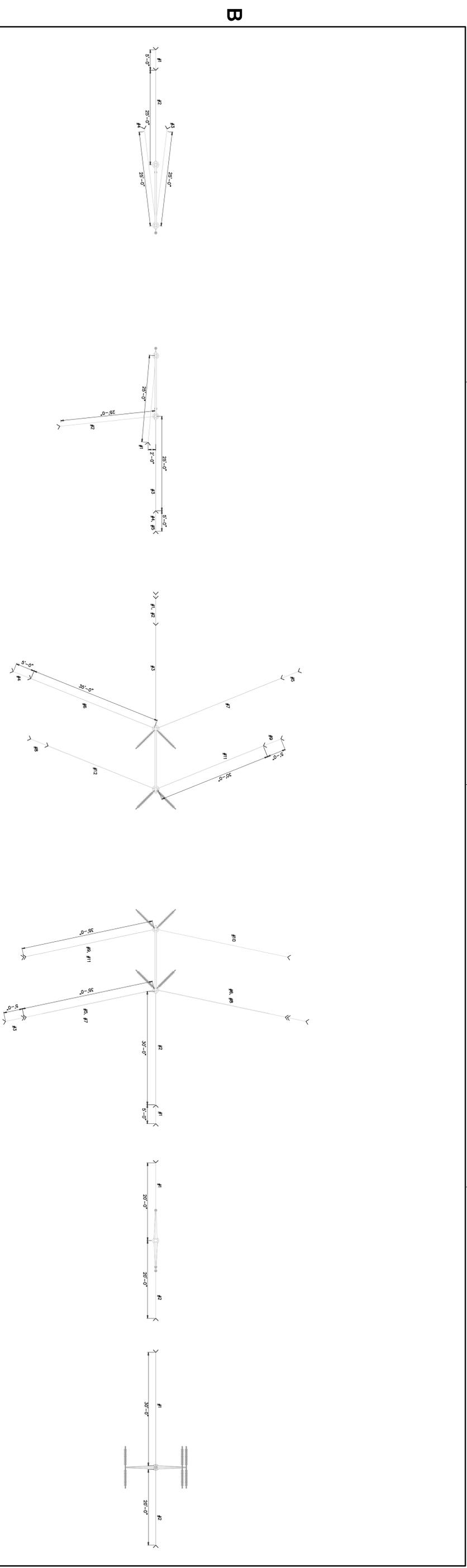
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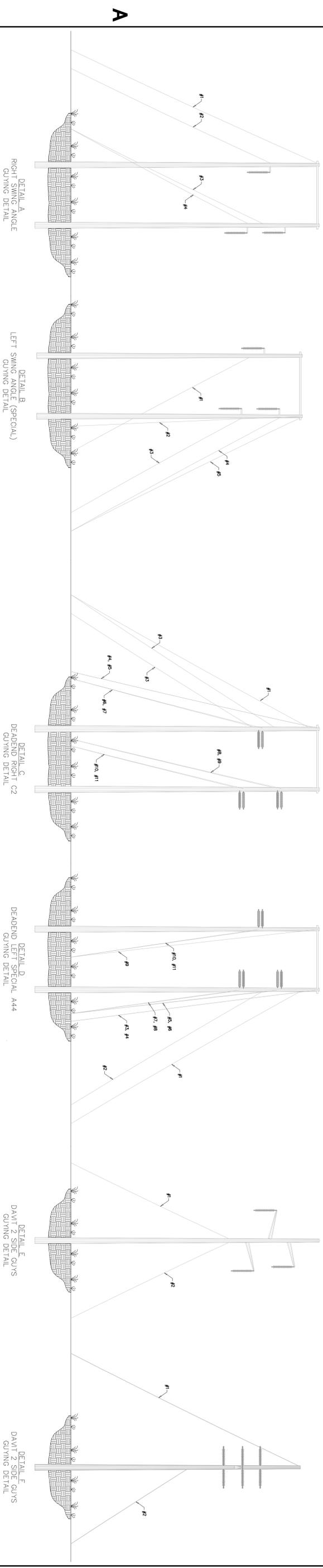
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NOTE: ALL GUYS TO BE 7/8" EHS

| REVISIONS | | SCALE | NTS |
|--|-------|----------|---------|
| CENTRAL HUDSON GAS & ELEC.CORP. | | DATE | 4-28-14 |
| PLEASANT VALLEY-1000 HILL-FISHKILL PLANS | | REV. NO. | |
| "A & C" 115KV LINES | | FILE NO. | |
| GUYING DETAILS | | 51 | C |
| WONO. | 7835A | CLEARED | |
| PROJNO. | | APPROVED | |
| DRAFTER | SMK | APPROVED | |
| DRT SUPV. | | SHLD. | 1 OF 2 |

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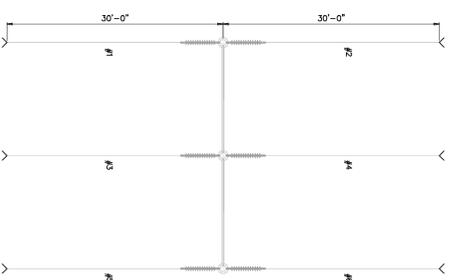
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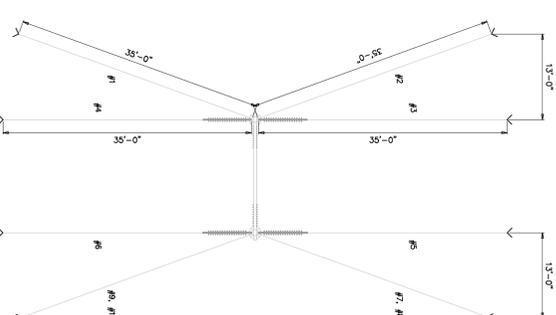
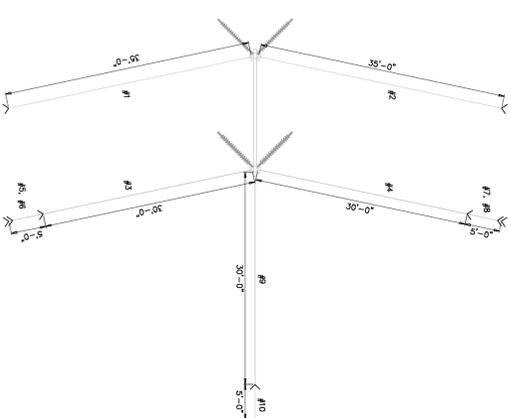
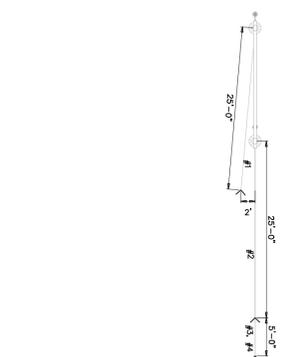
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NOTE: GUY 1 INLINE WITH STRIKE WIRE

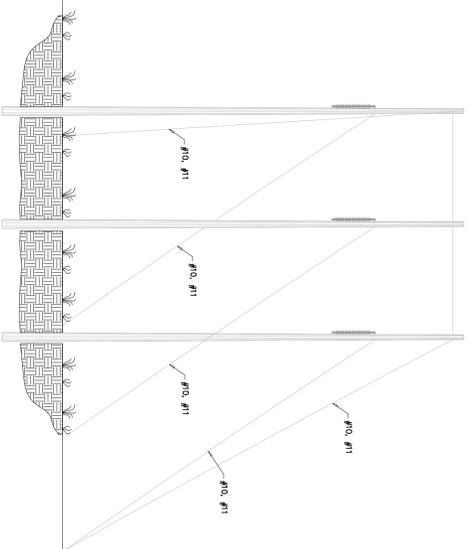


NOTE: ALL GUYS TO BE 1/8" AW

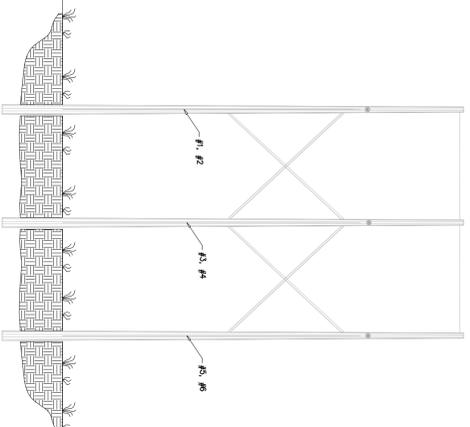


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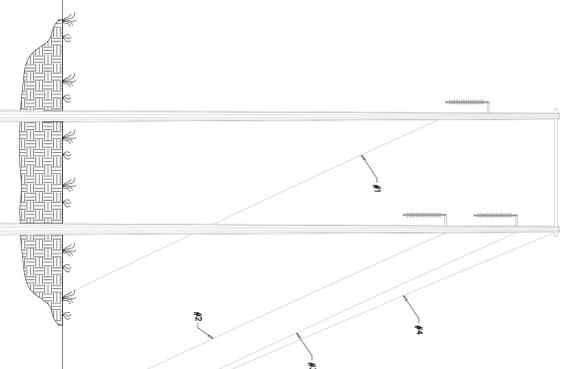
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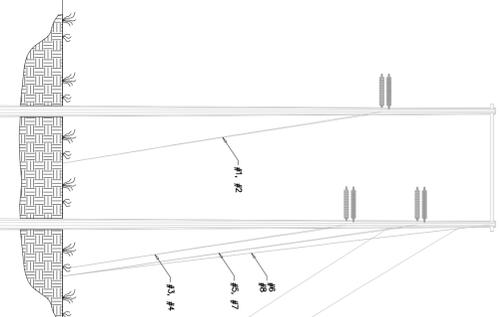
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3 POLE SWING C60
GUYING DETAIL



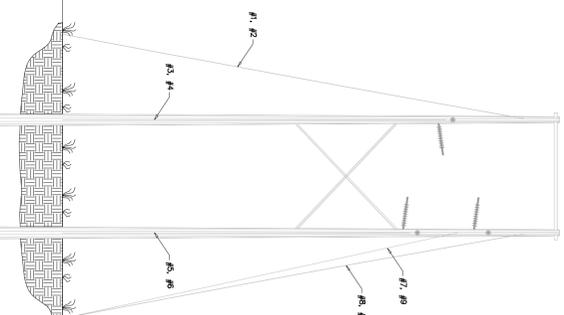
DETAIL H
3 POLE DEADEND
GUYING DETAIL



DETAIL I
LEFT SWING ANGLE
GUYING DETAIL



DETAIL J
DEADEND LEFT C28
GUYING DETAIL



DETAIL K
INLINE DEADEND
GUYING DETAIL

A

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NOTE: UNLESS NOTED, ALL GUYS TO BE 7/16" EHS

REVISIONS

| | | | |
|--|-------|----------|---------|
| CENTRAL HUDSON GAS & ELEC.CORP. | | SCALE | NTS |
| PLEASANT VALLEY-1000 HILL-FISHKILL PLANS | | DATE | 4-28-14 |
| "A & C" 115KV LINES | | REVNO. | |
| GUYING DETAILS | | FILE NO. | |
| WONTO | 7835A | CLEAR | |
| PROJNO | | APPROV | |
| DRAFTER | SMK | APPROV | |
| DRT SUPV. | | APPROV | |
| | | SHNO. | 2 OF 2 |
| | | FILE NO. | 51 |
| | | REVNO. | C |
| | | SCALE | 14X0 |

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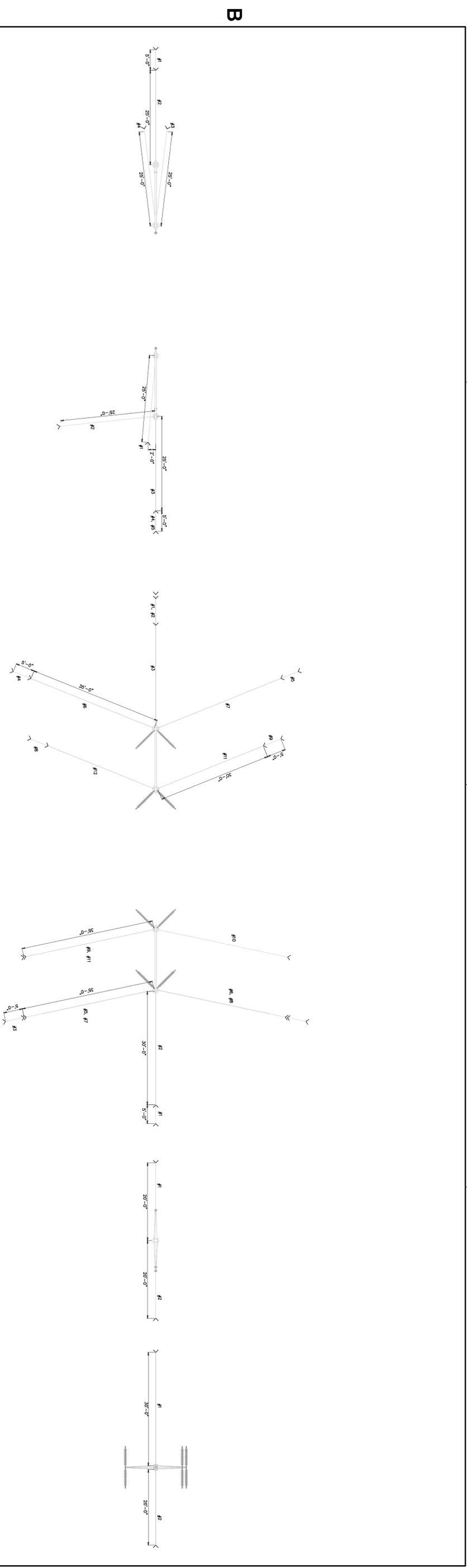
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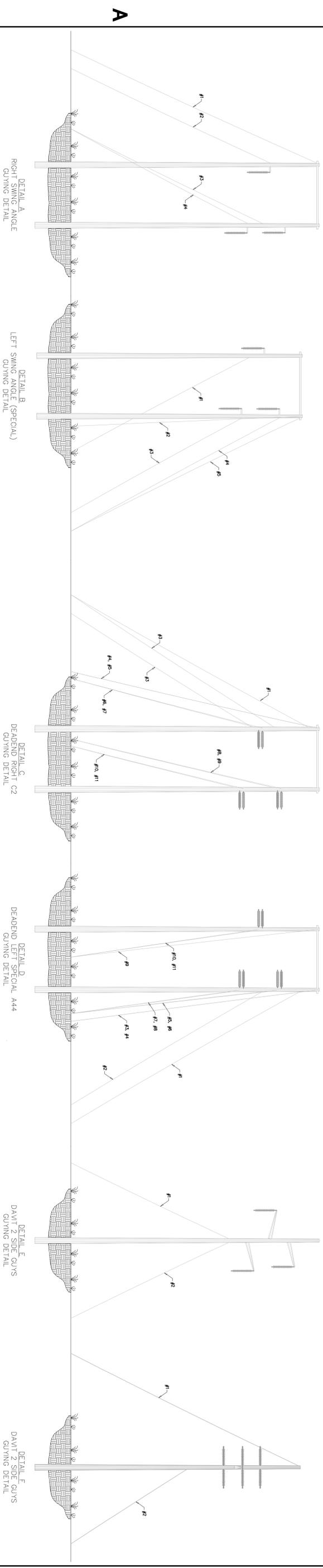
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NOTE: ALL GUY'S TO BE 7/8" EHS

| REVISIONS | | SCALE | NTS |
|--|-------|----------|---------|
| CENTRAL HUDSON GAS & ELEC.CORP. | | DATE | 4-28-14 |
| PLEASANT VALLEY-1000 HILL-FISHKILL PLANS | | REV. NO. | |
| "A & C" 115KV LINES | | FILE NO. | |
| GUYING DETAILS | | 51 | C |
| WONO. | 7835A | CLEARED | |
| PROJNO. | | APPROVED | |
| DRAFTER | SMK | APPROVED | |
| DRFT.SUPV. | | SHLD. | 1 OF 2 |

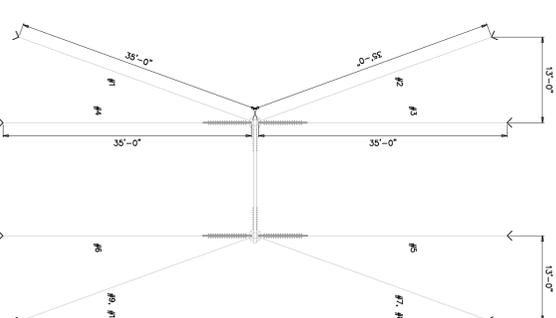
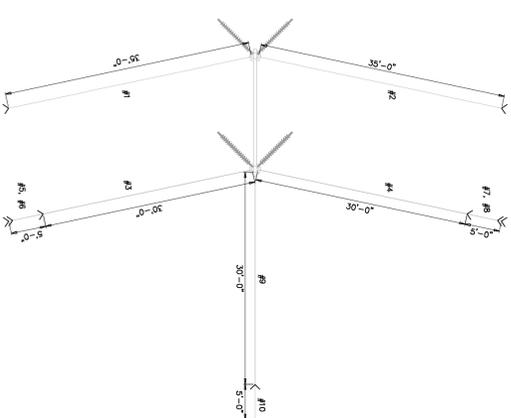
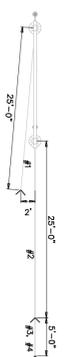
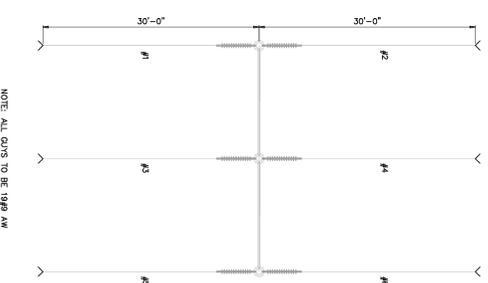
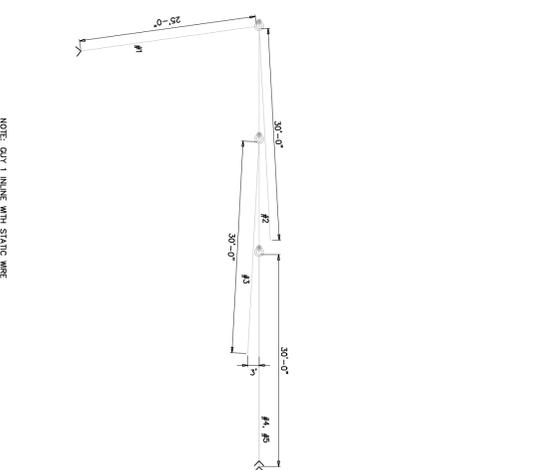
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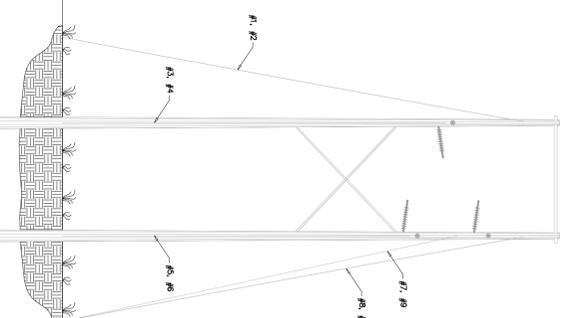
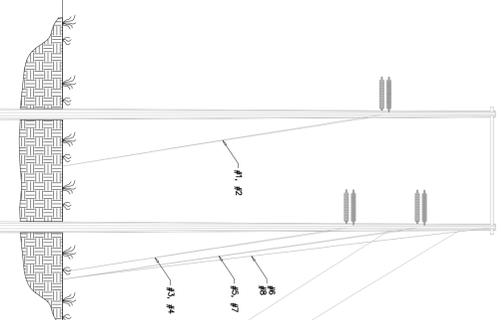
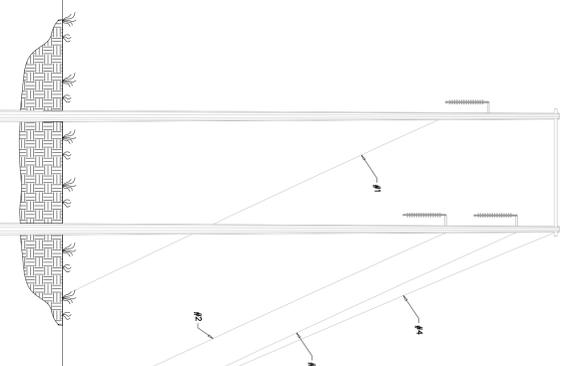
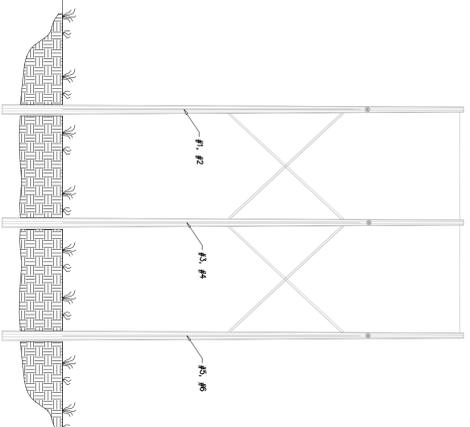
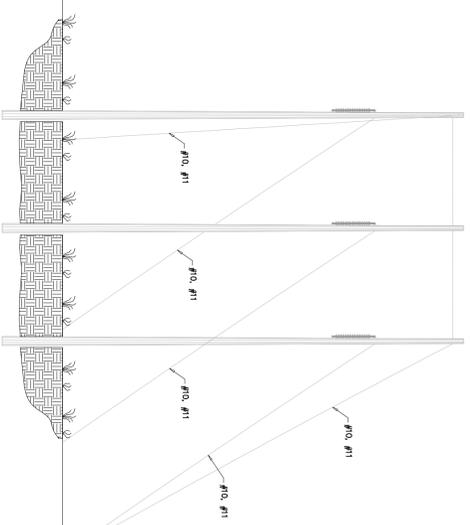
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DETAIL G
3 POLE SWING C60
GUYING DETAIL

DETAIL H
3 POLE DEADEND
GUYING DETAIL

DETAIL I
LEFT SWING ANGLE
GUYING DETAIL

DETAIL J
DEADEND LEFT C28
GUYING DETAIL

DETAIL K
INLINE DEADEND
GUYING DETAIL

NOTE: UNLESS NOTED, ALL GUYS TO BE 7/16" EHS

REVISIONS

| | | | |
|--|-------|----------|---------|
| CENTRAL HUDSON GAS & ELEC.CORP. | | SCALE | NTS |
| PLEASANT VALLEY-1000 HILL-FISHKILL PLANS | | DATE | 4-28-14 |
| "A & C" 115KV LINES | | REVNO. | |
| GUYING DETAILS | | FILE NO. | |
| WONTO | 7835A | CLEAR | |
| PROJNO | | APPROV | |
| DRAFTER | SMK | APPROV | |
| DRT SUPV. | | APPROV | |
| | | SHNO. | 2 OF 2 |
| | | NO. | 14X0 |
| | | REV. | 51 C |

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CAD DRAWING DO NOT REVISE MANUALLY

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-005 (MAS/RQ)

Central Hudson Response No: CHGE-005 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Jose Ruaya

Information Requested:

- a. Does the A&C line currently have a counterpoise system? Provide drawing of the type counterpoise system and where it is on the right-of-way.
- b. Does Central Hudson Gas and Electric Corporation (Central Hudson or Company) plan to use counterpoise with the A&C line rebuild? If so, where does the Company plan to use it? Provide engineering drawings of the counterpoise that the Company plans to incorporate and include the depth of burial.
- c. How does Central Hudson plan to accommodate poor grounding situations where the Company cannot obtain good impedances?

Responses:

- a. *The A and C line does not have a counterpoise system.*
- b. *Central Hudson does not plan on using a counterpoise system with the rebuild.*
- c. *Central Hudson uses ground rods to accommodate and/or remediate poor grounding situations.*

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-006 (MAS/RQ)

Central Hudson Response No: CHGE-006 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Jose Ruaya

Information Requested:

- a. What types of insulators are available that could be used for the A&C line rebuild (include color and material)? If color chips are available please provide.
- b. Will Central Hudson Gas and Electric Corporation (Central Hudson) use insulators other than polymer? Has Central Hudson considered using ceramic or glass insulators? If not, why? Explain your answer. Provide copies of all supporting documentation for choosing polymer over ceramic. Include reports by EPRI or any other origination.

Responses:

Polymer insulators are available in gray and blue. Ceramic insulators are available in brown and gray. Central Hudson's standard color is gray, which will be used on this Project. Polymer insulators will be used on tangent and angle structures, and ceramic will be used at dead ends.

Polymer insulators do not come in brown and Central Hudson does not want to use ceramic on suspension insulators for a number of reasons. First, ceramic bells are heavier than polymer. Second, ceramic bells are more expensive than polymer. Third,

ceramic bells are more difficult to work with in the field. Fourth, the performance of polymer insulators is just as good or better than ceramic from an electrical and mechanical perspective. Finally, the polymer insulators utilized by Central Hudson are made in the United States. Central Hudson understands that ceramic insulators are not made in the United States.

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-007 (MAS/RQ)

Central Hudson Response No: CHGE-007 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: John Hecklau

Information Requested:

- a. Provide the specific location (latitude and longitude) of all AM/TV broadcast antenna(s) within a 2 miles radius of the line. Include the call letters of the antenna(s).
- b. Should any AM/TV broadcast antennas fall within 2 miles of the rebuild, does Central Hudson Gas and Electric Corporation have plans to conduct an interference study? Explain.

Responses:

Communication tower studies were conducted and included in Appendix L of the Article VII application. The AM and FM Radio Report found the nearest AM broadcast tower was approximately 3.37 miles (5.43 kilometers) from the nearest Project structure. The call sign for that station is WKIP. The Off-Air Television Report indicates the nearest TV tower is W42AE, which is approximately 8.61 miles (13.85 kilometers) from the nearest Project structure. Because no AM/TV broadcast antennas fall within 2 miles of the rebuild, no interference study is planned.

Central Hudson Electric and Gas Corporation
A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-008 (MAS/RQ)

Central Hudson Response No: CHGE-008 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Jose Ruaya

Information Requested:

- a. Provide a copy of Central Hudson Gas and Electric's (Central Hudson) NESC calculations and work papers for vertical clearances of the transmission line from roads, agricultural fields, places accessible by off-road vehicles, pedestrians, etc.
- b. Provide a table of the vertical clearances for each area that the line traverses along the route.
- c. Provide the distance required between the 115 kV lines and the 345 kV line. Provide a copy of calculations and supporting documentation.

Responses:

- a. *Vertical clearances were determined using the National Electric Safety Code ("NESC"). Using the NESC 2012 Rule 232B, the results are summarized in the table below:*

| Voltage | Roads /Areas traversed by vehicles | Agricultural fields/Areas accessible by off-road vehicles | Pedestrian |
|----------------|---|--|-------------------|
| 115KV | 20.1 FT | 20.1 FT | 16.1 FT |

- b. *See answer above*
- c. *Using NESC 2012 Rule 233C, the calculated vertical clearance between the 345kV lines and 115kV lines is 9.8 ft.*

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-009 (MAS/RQ)

Central Hudson Response No: CHGE-009 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Jose Ruaya

Information Requested:

- a. Provide a copy of Central Hudson Gas and Electric's (Central Hudson) quality assurance program for steel poles delivered to the company.
- b. Discuss and document how and where the quality assurance will be done.
- c. Discuss and document where Central Hudson will do inspections for quality assurance.
- d. Discuss and document how Central Hudson will reject poles that have been delivered and do not meet the quality assurance program.
- e. Discuss and document who will be responsible for all costs related to poles that are rejected and sent back to be reworked or replaced.

Responses:

- a. *Central Hudson does not have a written quality assurance program for the receipt of steel poles delivered to the company in advance of construction.*

b-d. Most of the materials planned for use on this project are Central Hudson standard stock materials (either in stock storage already or will be ordered) that have been reviewed and approved by Central Hudson's Engineering and Standards Departments for purchase and use on other Central Hudson transmission facilities. All standard stock materials are received at Central Hudson's maintenance and warehouse facility and checked by Central Hudson employees to ensure that orders match materials received.

Any proposed materials that are project specific (such as Optical Groundwire ("OPGW") and associated hardware) will be competitively bid, reviewed, and approved by Central Hudson's Engineering Department prior to purchase. As with stock materials, such project specific materials will be received at Central Hudson's maintenance and warehouse facility and, in the case of OPGW, tested to ensure no delivery defects. Poles are visually inspected upon delivery to ensure it meets the pole specifications as shown on **Exhibit A** to this Response ("CH Steel Pole Specs").

If materials are rejected for whatever reason, the vendor will be notified and will be directed to replace the defective material and pick up that material which has been rejected.

e. The vendor will be responsible for any costs related to Central Hudson's rejection of defective material delivered by the vendor.

Technical Specification
Standard Class Steel Transmission Poles

CENTRAL HUDSON GAS & ELECTRIC CORP.

Specification: STLPOLE
Revision No: Original
Revision Date: 09/25/2012
Revision Originator: _____
Revision Approval: _____

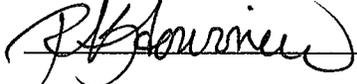
| <u>Original Approval</u> | <u>Date</u> |
|--|------------------|
| Originator: <u></u> | <u>9/26/2012</u> |
| Reviewed: <u></u> | <u>10/1/12</u> |
| Reviewed: _____ | _____ |
| Cleared: _____ | _____ |
| Approved: _____ | _____ |

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

1 Scope..... 2

2 Definitions 2

3 Codes and Standards..... 3

4 Conflicts Between Specifications, Drawings, and Reference Documents 4

5 General Requirements..... 5

6 Shipping and Delivery14

7 Drawings and Information To Be Supplied By The Manufacturer15

8 Approvals, Acceptance and Ownership16

9 List of Attachments To This Specification16

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 Attachment B - Application Requirements21

 Attachment C – Standard Class Steel Pole Bid Summary.....22

SPECIFICATIONS FOR STANDARD CLASS STEEL TRANSMISSION POLES

1 **SCOPE:** This specification covers the design, materials, welding, inspection, protective coatings, drawings and delivery of standard class, direct embedded, steel transmission poles. The poles are to be used in single pole, multiple pole, H frames, guyed, and unguyed structures. Direct embedded wood equivalent poles are to be embedded to a depth of $10\% + 2$ feet unless otherwise specified.

2 **DEFINITIONS:**

- a. Appurtenance – Any hardware or structural members that are attached to the pole to make a complete structure.
- b. Bearing Plate - A plate at the base of the pole that is intended to transfer the vertical loads of the pole.
- c. Cambering – The fabrication of a slight convex curve in a pole.
- d. Charpy Impact - The impact properties of the material which are used to evaluate the susceptibility of structural steel to brittle fracture. See ASTM A370 and ASCE Manual No. 72 for details.
- e. Crook – A localized deviation from straightness that causes the centerline of one section of the pole not to align with the centerline of another section of the pole.
- f. Circumferential Weld /C-weld - A weld perpendicular to the long axis of a structural member.
- g. D/t - The ratio of the diameter of a tubular pole to the plate thickness.
- h. Engineer – A registered or licensed person, who may be a staff employee or an outside consultant, and who provides engineering services. Engineer also includes duly authorized assistants and representatives of the licensed person.
- i. Ground Collar – An additional steel plate jacket that encapsulates the portion of the buried pole immediately above and below the *groundline*
- j. Group of Bolt Holes - All of the holes in which an appurtenance will be attached.
- k. Guyed Structure - A structure in which cable supports are used to increase its lateral load resistance.
- l. Groundline – A designated location on the pole where the surface of the ground will be after installation of a direct embedded pole. The groundline location will be used to locate the *ground collar* and other attachments to the pole.
- m. Flanged Connection/splice – A bolted type connection.
- n. Factored Load - The design load that includes the appropriate *load factor*.
- o. In-Line Face – The face of the pole which “faces” an adjacent structure in the line.
- p. Longitudinal Weld - A weld parallel to the long axis of a structural member.
- q. Manufacturer – The company responsible for the fabrication of the poles. The manufacturer fabricates

the poles based on the design drawings developed by the structural designer, which is the manufacturer's engineer responsible for the structural design of the poles.

- r. Load Factors (LF) – A multiplier, which is applied to each of the vertical, transverse and longitudinal structure loads to obtain an *ultimate load*.
 - s. Owner – The Rural Utilities Service borrower or owner's representative.
 - t. P-delta (P- Δ) Moment – A measure of the increase in bending moment resulting from a structure's displacement under load.
 - u. Pole Height - For this bulletin, this term is used interchangeably with *pole length*.
 - v. Pole Length - The length from the pole top to the bearing plate on the pole bottom.
 - w. Pole Sweep - The measure of deviation from straightness along the length of the pole.
 - x. Point of Fixity – The point where the maximum moment occurs. The actual location of this point is dependent on the characteristics of soils around the embedded portion of the pole. For this specification it will be assumed to be equal to 7 percent of the pole length.
 - y. Slip Connection/splice - A telescoping type connection of two tapered tubular pole sections.
 - z. Standard Class Pole – A direct embedded steel pole that is designed according to a standardized strength and loading criteria established by the owner.
 - aa. Taper - The change in diameter of a tubular section from its base to its top.
 - bb. Tip Load – The horizontal load that is applied to the standard class pole at a distance of 2 feet from the pole top.
 - cc. Ultimate Load – The maximum design load that includes the appropriate *load factor* specified.
 - dd. Yield Strength – The minimum stress at which a material will start to physically deform without further increase in the load or which produces a permanent 0.2 percent deformation. This is also known as the elastic limit of the material.
 - ee. Ultimate Moment Capacity - The moment that is developed in the pole at the time the yield strength of the pole is realized.
 - ff. *w/t* – Ratio of a flat width of a multisided pole to the thickness of the steel plate.
 - gg. Weathering Steel - Steel that conforms to ASTM A588 or A871. This steel forms a natural protective oxide layer on the surface.
- 3. CODES AND STANDARDS:** Codes, standards, or other documents referred to in this specification shall be considered as part of this specification. The following codes and standards are referenced:
- a. American Institute of Steel Construction (AISC), "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings," latest edition.

- b. American Society of Civil Engineers (ASCE) Standard, "Design of Steel Transmission Pole Structures," Manual 72, latest edition.
- c. American Society of Testing and Materials (ASTM), various standards, latest revision. Referenced ASTM specifications:
- | | |
|------------|---|
| A6/ A6M | Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling |
| A36/A36M | Specification for Carbon Structural Steel |
| A123/A123M | Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products |
| A143 | Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement |
| A153/153M | Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware |
| A325 | Specification for High-Strength Bolts for Structural Steel Joints |
| A354 | Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners |
| A370 | Test Methods and Definitions for Mechanical Testing of Steel Products |
| A384 | Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies |
| A570/A570M | Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality |
| A572/A572M | Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel |
| A588/588M | Specification for High Strength Low-Alloy Structural Steel with 50 ksi Minimum Yield Point to 4 in. Thick |
| A595 | Specification for Steel Tubes, Low-Carbon, Tapered for Structural Use |
| A607 | Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, columbium or Vanadium, or Both, Hot-Rolled and Cold-Rolled |
| A673/A673M | Specification for Sampling Procedure for Impact Testing of Structural Steel |
| A687 | Specification for High-Strength Nonheaded Steel Bolts and Studs |
| A871/A871M | Specification for High Strength Low-Alloy Structural Steel Plate with Atmospheric Corrosion Resistance |
| B695 | Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel |
| B696 | Specification for Coatings of Cadmium Mechanically Deposited |
- d. American Welding society (AWS), Structural Welding Code, AWS D1.1, latest edition.
- e. American National Standards Institute (ANSI), National Electrical Safety Code, ANSI C2, latest edition.
- f. Society for Protective Coatings (SSPC, formerly Steel Structure Painting Council)/ National Association of Corrosion Engineers (NACE) Surface Preparations Specification, SSPC/NACESP-6/NACE 3.

4. CONFLICT BETWEEN THIS SPECIFICATION, DRAWINGS, AND REFERENCES

DOCUMENTS: In the event of conflict between this specification and the above referenced documents, the requirements of this specification shall take precedence. In the case of conflict between several referenced documents, the most stringent requirement shall be followed. If a conflict exists between this specification and the referenced documents and the attached drawings, the attached drawings shall be followed. If clarification is necessary, contact the owner.

5 GENERAL REQUIREMENTS: The design, fabrication, allowable stresses, processes, tolerances, and inspection shall conform to ASCE Standard, "Design of Steel Transmission Pole Structures" (Manual 72), latest edition, with the following additions and/or exceptions:

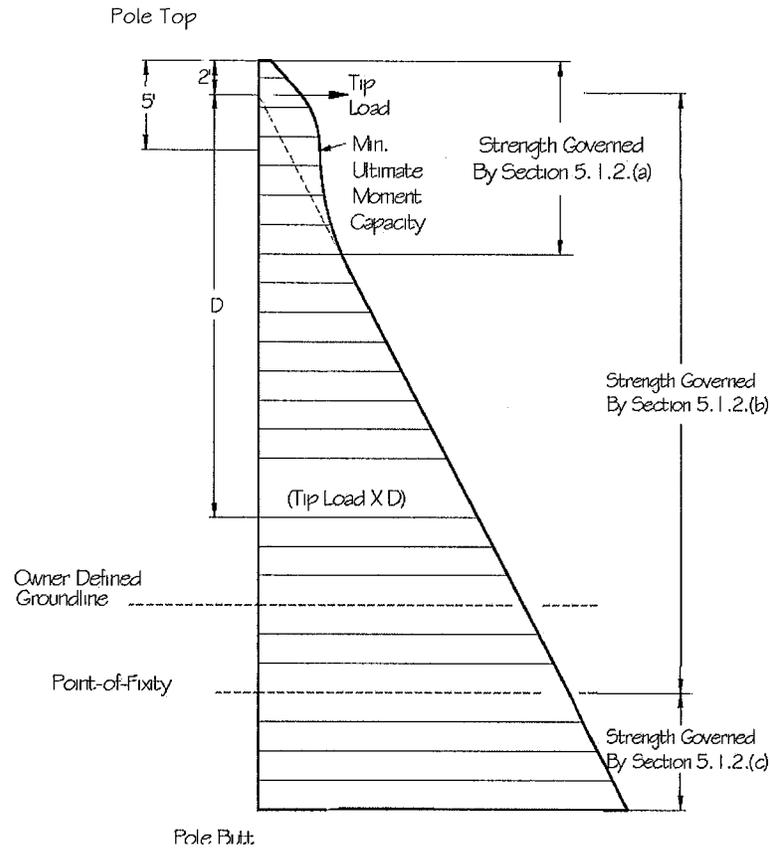
5.1 Design Requirements

5.1.1 Pole designs shall be prepared for the attached Standard Class design loads. The poles shall be designed to meet ASCE Manual No. 72, "Design of Steel Transmission Pole Structures", design methods. The point-of-fixity shall be considered to be located at a distance from the pole bottom that is equal to 7 percent of the pole length. The pole shall be symmetrically designed such that the strength required in any one direction shall be required in all directions about the longitudinal axis.

5.1.2 Using the corresponding values in Table 1, the poles shall be designed for the following requirements as illustrated by Figure 1.

- a. The pole shall develop the minimum ultimate moment capacity required in Table 1 at a distance of five feet from the pole top.
- b. The pole shall develop the minimum ultimate moment capacity above the point-of-fixity that is calculated by multiplying the tip load in Table 1 by the distance to the tip load.
- c. The geometry and taper of the pole shall be uniform throughout their entire length (top to butt).

FIGURE 1
Minimum Ultimate Moment Capacity Diagram along the Pole



5.1.3 The poles shall be designed to withstand the specified tip loading in Table 1 without exceeding a pole deflection of 15 percent of the pole length above the point of fixity when tested in accordance with ASCE Manual No. 72.

5.1.4 Overall length of poles shall be designed and manufactured in incremental lengths of 5 feet.

5.1.5 Poles shall be designed for the loads generated from handling and erecting without causing permanent deformation or damage to the pole when handled according to the manufacturer's instructions. Handling and erecting loads shall include but not be limited to, a one-point (tilting) pickup and a two point (horizontal) pickup.

5.1.6 The maximum design unit stress shall be the minimum yield strength as stated in applicable ASTM specifications for the particular application and types of loads, including load factors.

5.1.7 Minimum plate thickness for all pole components shall be 3/16 inch.

5.1.8 For vendor engineered structures, the owner shall provide the pole manufacturer with the load capabilities, attachment method, and attachment location of the appurtenances. The pole manufacture shall verify that the pole will not have a localized strength problem at the attachment point.

TABLE 1
Strength Requirements

| Standard Class Designations for Steel Poles | Minimum Ultimate Moment Capacity At Five Feet From Pole Top (Ft.-Kip) | Horizontal Tip Load Applied 2 Ft from Pole Top (Lbs.) |
|---|---|---|
| S-12.0 | 96 | 12,000 |
| S-11.0 | 88 | 11,000 |
| S-10.0 | 80 | 10,000 |
| S-09.0 | 72 | 9,000 |
| S-08.0 | 64 | 8,000 |
| S-07.4 | 57 | 7,410 |
| S-06.5 | 50 | 6,500 |
| S-05.7 | 44 | 5,655 |
| S-04.9 | 38 | 4,875 |
| S-04.2 | 32 | 4,160 |
| S-03.5 | 27 | 3,510 |
| S-02.9 | 23 | 2,925 |
| S-02.4 | 19 | 2,405 |
| S-02.0 | 15 | 1,950 |

5.1.9 All poles shall have bearing plates. Bearing plates shall have a maximum diameter not more than 2 inches greater than the maximum diameter at the pole butt, and shall not exceed the maximum anticipated pole butt diameter of Douglas Fir/Southern Pine wood poles as interpolated from ANSI 05.1.2008 table #8 @ 20% greater than minimum. See Attachment A-4 for dimensions.

5.1.10 Galvanized poles shall have a drain hole at the bottom. This hole shall not be greater than 20 percent of the bottom plate surface area.

5.1.11 Grade and type of steel shall be uniform for the poles.

5.1.12 Ground collars to protect the pole groundline area from corrosive environments are required per Attachment B. Length of the ground collar shall be 48 inches unless otherwise specified.

5.1.13 Ground collars shall have a minimum thickness of 3/16 inch; shall be centered at the groundline (located @ 10% + 2 feet above the bearing plate); and shall not be considered in strength calculations. A seal weld shall be provided around the ground collar at the top and bottom of the ground collar.

5.1.14 The top of the pole shall have a minimum dimension of 9" across flats, and be permanently covered with a structural steel plate that is welded or otherwise permanently attached to the pole. The pole shall be delivered with the pole cover attached in place.

5.1.15 Lifting lugs are optional. The manufacturer shall supply all guidelines for handling and erection of poles and arms.

5.1.16 In the design of connections for vangs, brackets, or stiffeners attached to the pole shaft, care shall be taken to distribute the loads sufficiently to protect the wall of the pole from local buckling.

5.1.17 Weathering steel structures shall be designed to eliminate water and refuse traps. The tubular sections shall be sealed from moisture entering the inside of the pole. Factory drilled holes shall be plugged to prevent moisture intrusion during shipping. Connections shall be designed to reduce the effect of pack-out by preventing moisture from entering the joint or by designing the connection to allow moisture to easily drain off. Welded grounding lug and jacking nuts shall not be drilled thru the pole surface, Surface weld nuts only.

5.1.18 Plastic plugs shall be installed in all nuts welded to the structure and all tapped holes.

5.1.19 Pole design and design calculations shall be the responsibility of the manufacturer.

5.1.20 Poles shall be designed with the minimum number of joints.

5.1.21 Field welding is not normally permitted. In rare instances, it will be permitted to make minor repairs. All welds must be approved by the owner and must follow the manufacturer's direction.

5.1.22 Flange connections for weathering steel poles shall be designed to avoid packout.

5.1.22 Application requirements: (See Attachment B of this Specification)

5.2 Materials

5.2.1 All materials shall comply with the applicable requirements of ASTM specifications. Any modifications from ASTM specifications must be approved by the owner or the owner's representative.

5.2.2 Steel utilized for the purposes of making poles shall conform with the following ASTM Specifications: ASTM A36, ASTM A570, ASTM A572, ASTM 588, ASTM A607, ASTM A871 or ASTM A595, and must be qualified to the requirements contained in ASTM A6/A6M-96b.

5.2.3 Structural plate, and weld material, shall conform to ASTM A370 and ASCE Manual 72. Plates shall be heat-lot tested in conformance with ASTM A 673 Charpy V-Notch Impact test for properties of 15ft.lbs. at -20°F.

5.2.4 For galvanized structures, steel used for the pole shaft and arms shall have a silicon content less than .06 percent.

5.2.5 Bolts and nuts shall conform, as applicable to ASTM A307, ASTM A325, ASTM A354, ASTM A687. Any required bolts or locknuts shall be hot dip galvanized. Other types of nut locking devices must be approved by the owner.

5.3 Fabrication

5.3.1 All welding shall be in accordance with the American Welding Society Code AWS D1.1, latest edition. Welders shall be qualified in accordance with AWS D1.1 welding procedures.

5.3.2 One hundred percent penetration welds shall be required in, but not limited to, the following areas:

- Circumferential welds (C-welds) joining structural members;
- Longitudinal welds in the female portion of the joint within the slip joint area plus 6 inches;
- Welds at butt joints with back-up strips; and

- Longitudinal welds for a minimum length of 3 inches adjacent to C-welds, flange welds, base welds and ends of tubes.

5.3.3 Full penetration, or equivalent 90 percent partial penetration with fillet overlay to develop the shaft capacity, shall be used for arm-to-arm brackets, vane-to-plate reinforcement, and arm box joints.

5.3.4 Quality and acceptability along the entire length of full penetration welds shall be determined by visual and ultrasonic inspection.

5.3.5 All other penetration welds shall have 60 percent minimum penetration. Quality and acceptability of all welds other than full penetration welds shall be determined by visual inspection, supplemented by magnetic particle, ultrasonic, or dye penetrant inspection.

5.3.6 All weld back-up strips shall be welded continuous for the length of the welds. Care shall be exercised in the design of welded connections to avoid areas of high stress concentration that could be subject to fatigue or brittle fractures.

5.3.7 Field welding shall not be permitted except with owners, or owner's representative's approval, and the manufacturer's direction in repairing the pole.

5.3.8 All parts of the pole shall be neatly finished and free from kinks or twists. All holes, blocks, and clips shall be made with sharp tools and shall be clean-cut without torn or ragged edges.

5.3.9 Before being laid out or worked in any manner, structural material shall be straight and clean. If straightening is necessary, it shall be done by methods that will not compromise the steel.

5.3.10 Shearing and cutting shall be performed carefully and all portions of the work shall be finished neatly. Copes and re-entrant cuts shall be finished neatly.

5.3.11 All forming or bending during fabrication shall be done by methods that will prevent embrittlement or loss of strength in the material being worked.

5.3.12 Holes for connection bolts shall be 1/8 inch larger than the nominal diameter of the bolts. Holes in the flange plates for bolted splices shall be 1/8 inch larger than the bolt diameter. The details of all connections and splices shall be subject to the approval of the owner or the owner's representative.

5.3.13 Holes in steel plates which are punched must be smooth and cylindrical without excessive tear out or depressions. Any burrs that remain after punching shall be removed by grinding, reaming, etc.

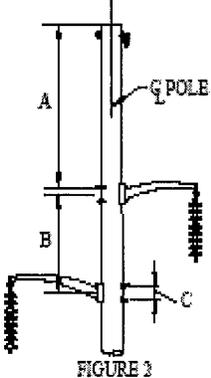
5.3.14 Holes of any diameter may be drilled in plate of any thickness. Care shall be taken to maintain accuracy when drilling stacks of plates.

5.3.15 Holes may be made by use of a machine guided oxygen torch. Flame cut edges shall be reasonably smooth to minimize stress concentrations.

5.3.16 Field drilled holes must be approved by the owner. Unless otherwise specified the manufacturer must supply a galvanizing touch-up kit for galvanized poles per section 5.9.1 of this specification.

5.4 Tolerances

Manufacturing tolerances shall be limited to the following:

| | | |
|---|--|--|
| Pole Length | One piece: ± 2 inches, or ± 1 inch $\pm 1/8$ inch per 10 feet of length, whichever is greater (i.e. - 120 foot pole shall have a length of 120 feet $\pm 2\frac{1}{2}$ inches) | |
| | Assembled pole with flange connections: same as for one piece Assembled pole with slip joint connections: The accumulation of the slip joint tolerances not to exceed -6 inch, $+12$ inch | |
| Pole Diameter | -0 inch, $+1/4$ inch | |
| Pole End Squareness | $\pm 1/2$ inch per foot of pole diameter | |
| Pole Sweep | $1/8$ inch per 10 feet of pole length | |
| Pole Twist | None Acceptable | |
| Slip Joint tolerances | Tolerances per manufacturer's recommendations and total pole length requirements above. See Paragraph 5.7 | |
| Pole Taper | See paragraph 5.1.2c . | |
| Location of Groups of Bolt Holes from Top of Pole | ± 1.0 inches (tolerance to dimension A, Figure 2) |  <p>FIGURE 2</p> |
| Location of Centerline Between Groups of Bolt Holes | ± 1.0 inch (tolerance to dimension B, Figure 2) | |
| Location of Holes Within a Group of Bolt Holes | $\pm 1/8$ inch (tolerance to dimension C, Figure 2) | |
| Bolt Hole Diameter | See Paragraph 5.3.12 for hole diameters | |
| Bolt Hole Alignment | Not to vary from the longitudinal pole centerline of that group of holes by more than $1/16$ inch | |
| Location of Identification Plate | ± 2.0 inch | |

5.5 Grounding

5.5.1 Two (2) grounding connections shall be welded to the pole shaft 6 inches above the ground collar, at 180 degrees offset, as well as additional locations specified in attachment A-3 and listed below. All grounding connections will be $\frac{1}{2}$ "-13 stainless steel heavy hex nuts, or an approved alternative.

5.5.2 Additionally, each pole shall have ½-13 NC stainless steel grounding nuts at the locations specified in attachment A-3. For multi-section poles, 2 additional ½-13 NC stainless steel grounding nuts per slip joint are required to be provided for electrical continuity. One nut is to be located at the bottom of the top section and the other at the top of the bottom section. Both nuts are to be placed so that they are 1 foot away from the slip joint of the assembled pole.

5.5.2 The grounding nuts shall be protected from coatings.

5.5.4 Threaded inserts for grounding that are riveted into the pole surface shall not be permitted.

5.6 Climbing Devices

5.6.1 Design Loads:

- a. **Step Bolts and removable steps:** The step bolts, removable steps and attachment to the pole shall be designed to support a minimum of a 300 pound worker and equipment multiplied by a load factor as defined in paragraph 5.6.2. The load shall be at the outer edge of the step or bolt.
- b. **Removable Ladders:** The ladder and each attachment to the pole shall be designed to support a minimum of a 300 pound worker and equipment multiplied by a load factor as defined in paragraph 5.6.2. The load shall be at the outer edge of the step or bolt.

5.6.2 Load Factor: A load factor of 2.0 shall be applied to the design loads in 5.6.1. These loads shall be supported without permanent deformation.

5.6.3 Location: Climbing devices shall start 8 feet above groundline and extend to the pole top unless specified by the owner. The climbing device shall be spaced such that each step is 1 foot 6 inches apart and orientated to provide maximum ease of climbing. They shall be located to avoid interference with other attachments.

5.6.4 Finish: Step bolts, removable steps, and removable ladders for galvanized and painted poles shall be hot dipped galvanized. For weathering steel poles, step bolts and removable ladders shall be weathering steel.

5.6.5 Intent of steps/ladder: This system is intended for climbing the pole and working on the structure. It is not intended to replace the worker's fall arrest system.

5.7 Splices

5.7.1 Poles shall be designed with a minimum number of joints. Field welding shall not be allowed as part of the design of a new pole. The shaft joints to be made in the field shall be slip joints or bolted flange joints. Slip joints shall be designed for a nominal lap that will develop the full required design strength of the pole at that point. The minimum lap shall meet the requirements of ASCE Manual No. 72. All welds on both sections of the pole, in the area of the splice, shall be complete penetration welds for at least a length equal to the maximum lap dimension.

5.7.2 Manufacturer shall verify slip joint fit, through dimensional measurement or actual fit-up, before shipment. Joints should not interfere with threaded inserts, step nuts, ladder clips, or jacking nuts.

5.7.3 Sufficient jacking lugs and permanent orientation marks shall be provided at all slips joints to ensure proper alignment and complete overlap of the joint.

5.7.4 The axis of the pole shall not be distorted after the pole is mated. Shims shall not be allowed to

straighten the pole unless approved by the owner. The owner reserves the right to reject a pole based on the improper mating of a pole splice.

5.8 Appurtenances

5.8.1 The steel pole manufacturer and the owner shall work together to assure design coordination and fit up of all appurtenance connections and members to poles. Also refer to paragraph 5.1.8 of this specification.

5.9 Finishes

5.9.1 The following finishes are acceptable: Galvanizing, zinc primer combined with paint, weathering steel, and a below grade coating.

- a. Galvanizing – All poles and structural components which are hot-dip galvanized shall meet all the requirements of ASTM A123 or ASTM A153. Measures shall be taken to prevent warping and distortion according to ASTM A384 and to prevent embrittlement according to ASTM A143. Poles made of ASTM A588 steel shall not be galvanized due to the high silicon content of the steel. One gallon of zinc enriched paint shall be provided with each ten (10) poles.
- b. Zinc Primer and Painting - Poles which are to be painted shall be hermetically sealed to prevent corrosion of interior surfaces. After shot or sand blasting and cleaning in accordance with the surface preparations specification, SSPC/NACE SP-6/NACE 3, a zinc primer of 3 mils dry film thickness (DFT) and two coats of finish paint, each 3 mils DFT shall be applied to all exterior surfaces in accordance with the paint supplier's recommendations. One gallon each of primer and finish paint shall be supplied with each ten (10) poles. A guarantee against flaking or fading of the paint for a minimum of 5 years shall be provided.
- c. Weathering Steel - Steel shall conform to ASTM A588 or A871. After fabrication, poles made of weathering steel shall be cleaned of oil, scale, etc. to ensure uniform and rapid formation of the protective oxide layer.
- d. Coatings for the Embedded Portion of the Pole A minimum 16 mil DFT of two component hydrocarbon extended polyurethane coating that is resistant to ultraviolet light shall be applied on the exposed surface of the embedded portion of the pole. The coating shall extend from the butt to the top of the ground collar, or 24 inches above Groundline, whichever is greater. Other coatings shall be approved by the owner prior to their use. One-quart container of touch up shall be provided with each ten (10) poles.

5.9.2 Bolts and nuts with yield strengths under 100,000 psi shall be hot-dip galvanized per ASTM A153 and ASTM A143, or mechanically coated with zinc in accordance with ASTM B695, Class 50. Bolting materials with yield strengths in excess of 100,000 psi shall not be hot-dip galvanized. Instead, they shall be painted with zinc enriched paint or mechanically coated with zinc per ASTM B695, Class 50. Bolts and nuts made from weathering steel do not require a galvanizing coating.

5.9.3 Compliance with coating thickness requirements shall be checked with a magnetic thickness gauge.

5.10 Markings

5.10.1 Each Pole shall be permanently marked on the pole shaft 60 inches above groundline with the following identifying information, unless specified otherwise by the owner:

- Manufacturer's name

- Month and year of manufacture
- Length and class of pole

5.10.2 The identification information listed above shall be permanently marked on the transverse side of the pole. The method of identification shall be approved by the owner. The lettering shall be at least 3/4 inch in height.

5.10.3 Each bearing plate and top cap plate shall be permanently marked with length and pole class by electric arc weld. Characters shall be a minimum of 2 inches in height, and be easily identifiable from the ends.

5.10.4 Each section of a spliced pole shall be marked such that the intended mate section can be easily identified. The markings shall be permanent and legible and contain at least the following information:

- Pole Length and Class (each section and total pole).

5.11 Inspection And Testing

5.11.1 The owner and the owner's representative shall have free entry at all times during fabrication, to all parts of the manufacturer's plant to inspect any part of the production of the poles covered by this specification.

5.11.2 Steel members that are bent or warped or otherwise improperly fabricated shall be properly repaired or replaced at the sole discretion of the owner.

5.11.3 The cost of tests made by the manufacturer (except full scale load tests on poles), including cost of the certified test reports shall be considered included in the bid price.

5.11.4 The manufacturer shall make tests in accordance with ASTM A370 and A673 to verify that the material used in the structures meets the impact properties.

5.11.5 Mill test reports showing chemical and physical properties of all material furnished under this specification shall be maintained by the manufacturer for a period of 5 years and shall be traceable to the pole.

5.11.6 All plates over 1-1/2 inches thick shall be ultrasonically tested to assure against defects that could lead to lamellar tearing.

5.11.7 Qualification of welders or welding operators will be verified as to conformance with the provisions of AWS D1.1.

5.11.8 The manufacturer shall make certified welding reports for each pole. The reports covering welding shall include all welds of a pole. Each weld shall be clearly identified; and the report shall consist of the method of testing, whether the weld is acceptable, the identification of the pole, the date, and the name and signature of the inspector.

5.12 Full Scale Structure Testing

5.12.1 The poles that are to have full-scale load tests performed on them are listed in Attachment B. Cost for such test shall be the responsibility of the owner, shall be separated from the manufacturer's bid, and shall be negotiated in advance of any test preparation.

5.12.2 Details of the test procedures and methods of measuring and recording test loads and deflections shall be specified by the manufacturer prior to testing and shall be subject to the review and approval of the owner or the owner's representative.

5.12.3 Deflections shall be recorded in the transverse and longitudinal directions when applicable. Deflection measurements shall be taken under the no load condition both before and after testing.

5.12.4 Material procurement for test poles shall be identical to material procurement procedures for regular production run poles.

5.12.5 A full report listing results shall be submitted after completion of all testing. Copies of mill test reports shall be included in the load test report. The report shall also include a complete description of the load tests with diagrams and photographs.

5.12.6 The owner or the owner's representative reserves the right to be present during testing and shall be notified 2 weeks prior to the start of pole test.

6. SHIPPING AND DELIVERY

6.1 Shipping

6.1.1 Each shipment shall be accompanied by a bill of materials, identifiable by pole type and number. All parts that are required for any one pole shall be in one shipment, if possible.

6.1.2 The owner and owner's representative shall be notified at least 10 business days prior to shipment that such shipment is to take place, and they reserve the right to inspect the components prior to shipment. The notification shall give quantities, weight, name of common carrier used, and expected time of arrival.

6.1.3 Salt-treated wood blocking and urethane foams shall not be used when shipping or storing weathering steel poles.

6.1.4 Transportation and site handling shall be performed with acceptable equipment and methods by qualified personnel. The manufacturer shall exercise precaution to protect poles against damage in transit.

6.1.5 Handling instructions shall be included with the pole shipment (if special handling is required).

6.1.6 The manufacturer or their representative shall be responsible for acquiring all permits, escorting services and flag personnel for a safe and timely delivery in accordance with all federal, state, and local permitting and safety requirements.

6.1.7 Poles shall be shipped on open flatbed trailers. Loads shall be banded and cribbed to facilitate unloading as a single unit, with sufficient spacing between the bottom row of poles and the trailer deck to insert 7" I-beams for lifting. Additionally, each row of poles shall be individually cribbed and banded to facilitate single row fork truck unloading. Receipt of deliveries not meeting the above criteria may be refused at the manufacturer's expense.

6.2 Delivery

6.2.1 The owner may take delivery at a designated location with the delivering carrier's equipment. The manufacturer shall coordinate with the owner to ensure smooth and efficient delivery of poles.

- 6.2.2 The owner will provide all labor, equipment, and materials for the unloading of poles at the project site. A pole is considered delivered when the pole is lifted from the trailer or semitrailer of the delivery carrier.

7. DRAWINGS AND INFORMATION TO BE SUPPLIED BY THE MANUFACTURER

7.1 Information to be Supplied with the Proposal (See Attachment C). Dimensional & strength data to be additionally supplied in PLS-POLE format.

- a. Pole diameter at the top, groundline, bottom, and bearing plate diameter.
- b. The pole taper of each pole in inches/foot.
- c. The calculated weight of each class and length of pole.
- d. General information about each pole length and class including tip load, location of point of fixity, type of steel used for the pole (ASTM number and yield), cross sectional shape, and connection details of multiple piece poles (slip joints/flange joints/welded to be one piece).
- e. Calculated groundline and point-of-fixity reactions due to the tip loadings (including shear, moment, and axial reactions) in order to demonstrate conformance with the requirements of 5.1.1 and 5.1.2.
- f. Description of pole shaft cross section including thickness of the plate at the bottom, groundline, and at the top.
- g. For each standard class pole, provide pole top deflection using the specified tip loading in order to demonstrate conformance with the requirements of and 5.1.3.
- h. The cost of each pole by size and length. Also the total order cost for each class and length of pole.
- i. Corrosion resistant metalized material and thickness, as well as embedment coating material and thickness.
- j. Per unit costs for: manufacturer drilled holes, grounding nuts, and ladder clips.
- k. Delivery costs shall be quoted as a separate line item. Delivery can be anywhere within Central Hudson's territory. If the delivery location is not known at the time bidding, it may be assumed to be Central Hudson's main storeroom located @ 24 South St, Highland, NY, 12528. If mileage adjustments to the final delivery location will apply, they must be specified on the initial proposal.

7.2 Documentation to be Supplied for the Owner's Approval Prior to Fabrication (as requested by the owner): Documentation includes final design calculations for the pole shaft at 5-foot intervals and will be based upon the pole loading shown in Table 1. The following information shall be supplied:

- Total shear forces
- Moment
- Design Stress, Allowable stress, and Stress ratio
- Section moduli
- Cross-sectional area
- Deflection at the pole top due to tip load
- Detailed approval drawings for each structure type giving weights, dimensions, exact locations of: corrosion protection, ground sleeves, climbing attachments, grounding nuts, jacking nuts, and manufacturer drilled holes.
- Bill of materials list (if any)
- Assembly instructions and erection drawings (Slip joint lengths and allowable tolerances)
- Special handling instructions (if required)

7.3 Test Reports (as requested).

- Certified mill test reports for all structural material.
- Certified welding reports for each pole.
- Impact property test reports showing that the material used in the poles meets the impact properties.
- Test reports on coating thickness.
- Report of pole testing, when required, including photographs, and diagrams.

8. APPROVALS, ACCEPTANCE AND OWNERSHIP

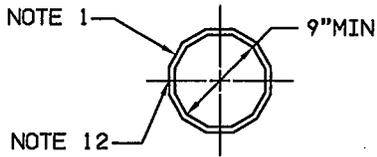
8.1 Final designs must be approved by the owner or owner's representative before material ordering and fabrication. Material ordering and fabrication prior to approval will be at supplier's risk. It is understood that award of this contract does not constitute acceptance of design calculations submitted with the bid, if corrections are required in the final structure designs due to manufacturer's errors, omissions, or misinterpretations of the specifications, the quoted price shall not change. Approval of the drawings and calculations by the owner or the owner's Representative does not relieve the supplier of responsibility for the adequacy of the design, correctness of dimensions, details on the drawings, and the proper fit of parts.

8.2 After delivery, the poles will be inspected and shall be free of dirt, oil blisters, flux, black spots, dross, teardrop edges, flaking paint or zinc; and in general shall be smooth, attractive, and unscarred. Poles not meeting this requirement shall be repaired or replaced by the manufacturer at no additional cost to the owner. Final decision to repair rather than replace a pole shall be at the owner's sole discretion.

8.3 All final drawings shall become the property of the owner, who shall have full rights to reproduce drawings and use them as the owner sees fit.

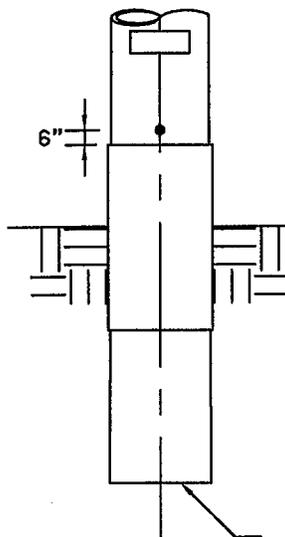
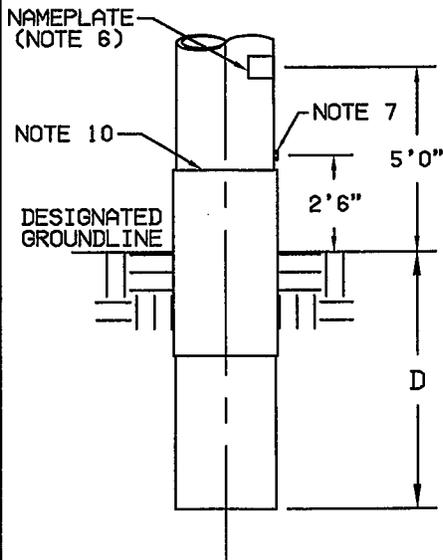
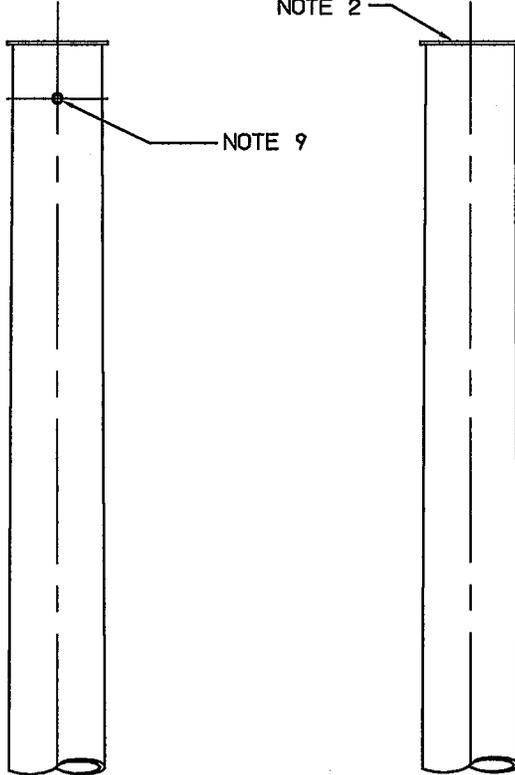
9. LIST OF ATTACHMENTS TO THIS SPECIFICATION: (Attachment A, and B to be completed by the engineer. Attachment C to be completed by the manufacturer)

- Attachment A, Structure Dimensions and Pole Framing Drawings
- Attachment B, Application Requirements
- Attachment C, Bid Summary



12 MULTISIDED
STEEL POLE

IDENTIFY HEIGHT
& CLASS BY
ARC WELD
NOTE 2

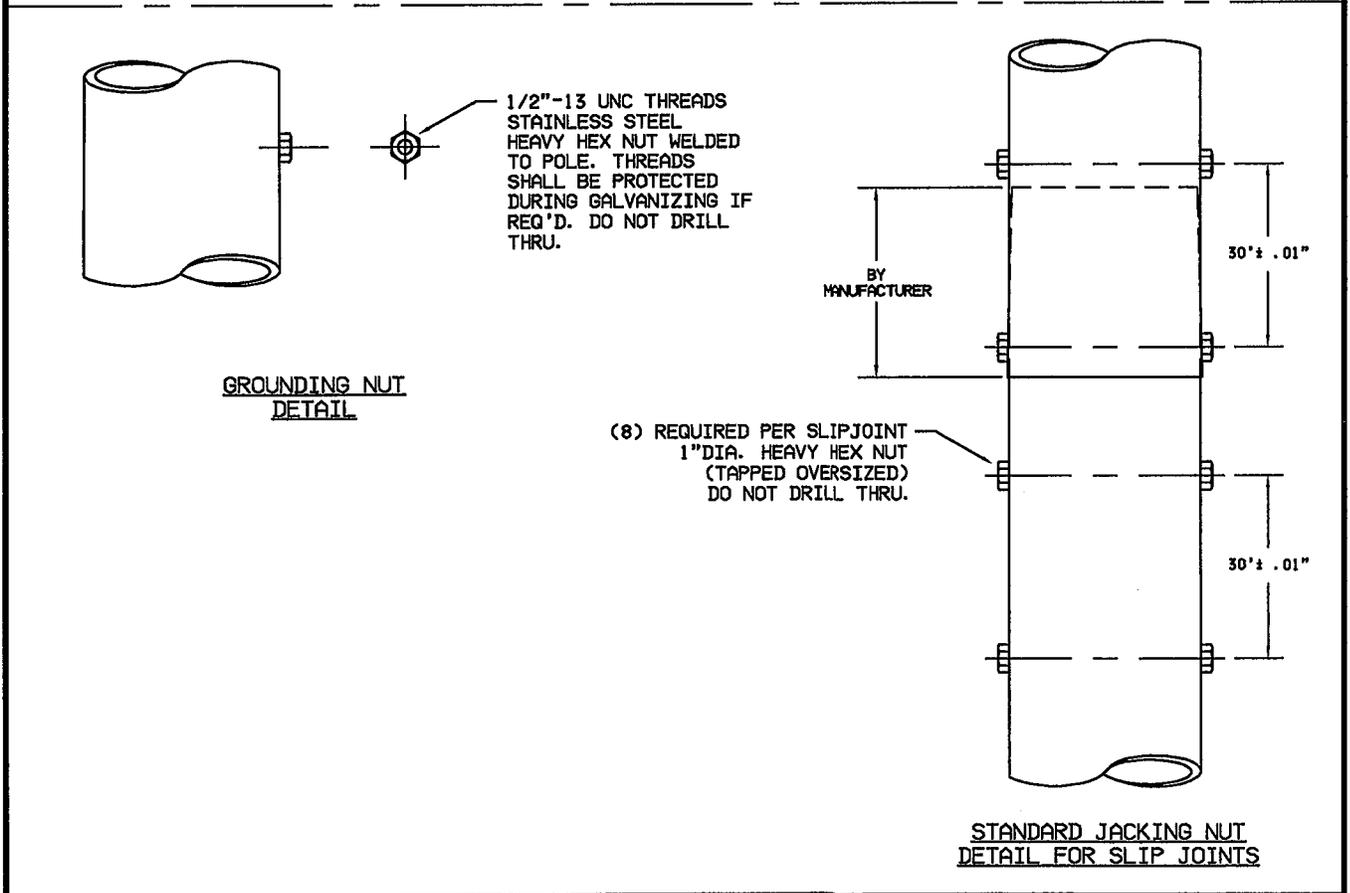
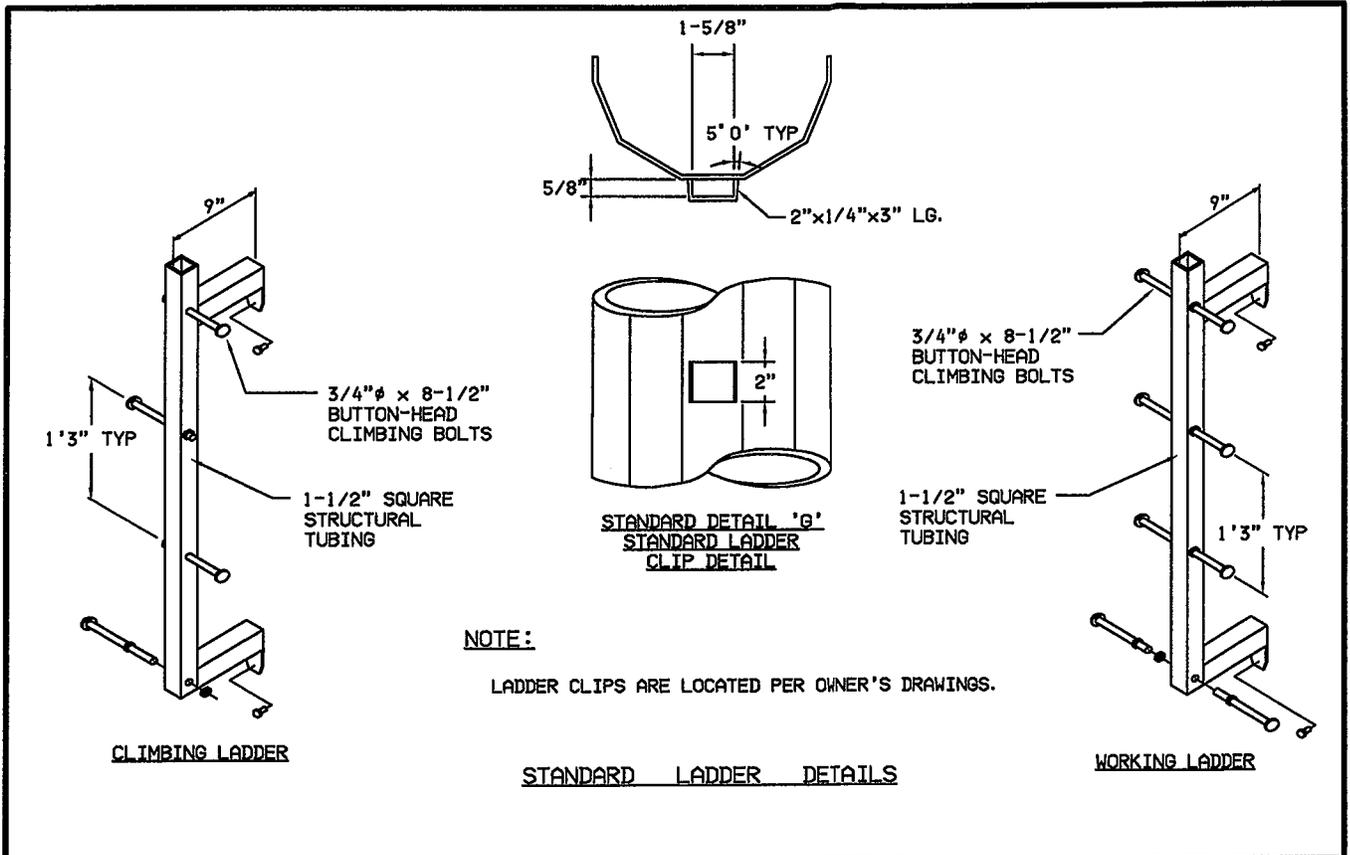


NOTE 11
IDENTIFY HEIGHT
& CLASS BY
ARC WELD

NOTES:

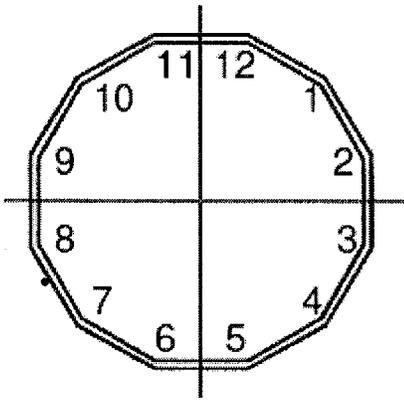
1. PROVIDE LADDER ATTACHMENT CLIPS FROM 1' BELOW POLE TOP TO APPROX. 8' ABOVE DESIGNATED GROUNDLINE TO POLETOP. ORIENTATION IS INDICATED ON TECHNICAL SPECIFICATION DRILLING PATTERN, ATTACHMENT A3.
2. THE TOP OF THE POLE SHALL HAVE A PERMANENTLY COVERED STRUCTURAL STEEL PLATE WELDED TO THE POLE. THE POLE SHALL BE DELIVERED WITH THE POLE COVER ATTACHED IN PLACE. IDENTIFY HEIGHT & CLASS OF POLE BY ARC WELD.
3. PLASTIC PLUGS SHALL BE INSTALLED IN ALL NUTS WELDED TO THE STRUCTURE AND ALL TAPPED HOLES.
4. FOR SPLICE DETAILS, SEE ATTACHMENT A2, STEEL POLE DETAIL #2 DRAWING.
5. TOLERANCES: SECTION 5.4 OF THE CENTRAL HUDSON TECHNICAL SPECIFICATION STANDARD CLASS STEEL TRANSMISSION POLES.
6. NAMEPLATE SHALL BE LOCATED AS SHOWN WITH THE FOLLOWING MINIMUM INFORMATION:
MANUFACTURER'S NAME
MONTH AND YEAR OF MANUFACTURE
LENGTH AND CLASS OF POLE
7. 1/2-13 STAINLESS STEEL HHN WELDED GROUNDING CONNECTION. FOR GROUNDING PLATE/NUT DETAILS, SEE DRAWING ATTACHMENT A2, STEEL POLE DETAIL #2 DWG.
8. DIMENSION 'D' FROM POLE BUTT TO DESIGNATED GROUNDLINE IS 10% + 2' OF POLE LENGTH.
9. SEE TECHNICAL SPECIFICATION DRILLING PATTERN ATTACHMENT A3 FOR DETAILS.
10. GROUND COLLARS SHALL HAVE A MINIMUM THICKNESS OF 3/16", HAVE A LENGTH OF 4 FEET, AND BE LOCATED ON THE CENTERLINE OF THE DESIGNATED GROUNDLINE.
11. FOR GALVANIZED POLES, THE DRAIN HOLE IN THE BOTTOM BEARING PLATE SHALL NOT BE GREATER THAN 20% OF THE BEARING PLATE AREA.
12. FOR ALL MULTISIDED SECTIONS, A FLAT SIDE SHOULD BE ON THE 0-180° AXIS.

| | | |
|--|--|-----------------------|
| ELECTRIC STANDARDS | CENTRAL HUDSON GAS & ELECTRIC CORP. | DATE 9-25-12 |
| DRAWN. <u>LNM</u> CLEAR <u>[Signature]</u> ENGR. _____ APP. _____ | TRANSMISSION POLES STEEL POLE DETAILS DRAWING #1 | ISSUE APP. APP. |



| | | |
|--|---|--------------------------------------|
| <p>ELECTRIC STANDARDS</p> | <p>CENTRAL HUDSON GAS & ELECTRIC CORP.</p> | <p>DATE 9-25-12</p> |
| <p>DRAWN. LNM</p> <p>CLEAR <i>[Signature]</i></p> <p>ENGR. _____</p> <p>APP. _____</p> | <p>TRANSMISSION POLES STEEL POLE DETAILS DRAWING #2</p> | <p>ISSUE</p> <p>APP.</p> <p>APP.</p> |

Attachment A-3: Drilling Pattern & Hardware Attachment Schedule.



| Item | Description | Size | For Use | Distance / From | Face |
|------|------------------------------------|-------------------------------------|----------------------------|---|---------------|
| 1 | Weld Size & Class On Top Cap | 2" min | ID | 0'-0" / Top | Top Cap |
| 2 | Heavy Hex SS Ground nuts | ½ - 13 NC | Groundwire | 0'-3" / Top | 2-3 & 8-9 |
| 3 | Thru Hole / Knockouts | 13/16" Dia | Static / Guys | 0'-6" / Top | 5-6 & 11-12 |
| 4 | Thru Hole / Knockouts | 13/16" Dia | Static / Guys | 0'-7" / Top | 2-3 & 8-9 |
| 5 | Thru Hole / Knockouts | 13/16" Dia | Static / Guys | 1'-0" / Top | 5-6 & 11-12 |
| 6 | Thru Hole / Knockouts | 13/16" Dia | Static / Guys | 1'-1" / Top | 2-3 & 8-9 |
| 7 | Heavy Hex SS Ground nut | ½ - 13 NC | Groundwire | 7'-0" / Top | 8-9 |
| 8 | Thru Hole / Knockouts | 15/16" Dia | Insulator | 7'-0" / Top | 5-6 & 11-12 |
| 9 | Thru Hole / Knockouts | 15/16" Dia | Insulator | 8'-0" / Top | 5-6 & 11-12 |
| 10 | Heavy Hex SS Ground nuts | ½ - 13 NC | Groundwire | 12'-0" / Top | 2-3 & 8-9 |
| 11 | Thru Hole / Knockouts | 15/16" Dia | Insulator | 13'-0" / Top | 5-6 & 11-12 |
| 12 | Thru Hole / Knockouts | 15/16" Dia | Insulator | 14'-0" / Top | 5-6 & 11-12 |
| 13 | Heavy Hex SS Ground nuts | ½ - 13 NC | Groundwire | 18'-0" / Top | 2-3 & 8-9 |
| 14 | Thru Hole / Knockouts | 15/16" Dia | Insulator | 19'-0" / Top | 5-6 & 11-12 |
| 15 | Thru Hole / Knockouts | 15/16" Dia | Insulator | 20'-0" / Top | 5-6 & 11-12 |
| 16 | Heavy Hex SS Ground nuts | ½ - 13 NC | Groundwire | 24'-0" / Top | 2-3 & 8-9 |
| 17 | Heavy Hex SS Ground nuts | ½ - 13 NC | Groundwire | 1'-0" / Above top section slip joint | 2-3 & 8-9 |
| 18 | Heavy Hex SS Ground nuts | ½ - 13 NC | Groundwire | 1'-0" / Below bottom sect max slip joint | 2-3 & 8-9 |
| 19 | Nameplate | ¾" Min Lettering | ID | 5'-0" / Above calculated groundline | 2-3 |
| 20 | Ground Sleeve, 3/16" min thick | 4'0" long | Corrosion Protection | Center on calculated groundline | All |
| 21 | Ladder Clip Attachments | 2"x1/4"x3" Industry standard shape. | Climbing & Working ladders | 1'-0" Below pole top & continuing to approximately 8' above calculated groundline @ standard spacing. | 8-9 |
| 22 | Weld Size & Class On Bearing Plate | 2" min | ID | 0'-0" / Bottom | Bearing Plate |

ATTACHMENT A-4

Maximum Allowable Bearing Plate Diameters

| Pole Class: | H6 | H5 | H4 | H3 | H2 | H1 | C1 | C2 |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Pole Height (feet) | | | | | | | | |
| 40 | | | 20.56 | 19.57 | 18.58 | 17.59 | 16.60 | 15.62 |
| 45 | 23.49 | 22.51 | 21.52 | 20.54 | 19.55 | 18.35 | 17.37 | 16.38 |
| 50 | 24.45 | 23.47 | 22.27 | 21.29 | 20.31 | 19.11 | 18.13 | 16.93 |
| 55 | 25.40 | 24.21 | 23.23 | 22.04 | 20.84 | 19.87 | 18.67 | 17.48 |
| 60 | 26.14 | 24.96 | 23.77 | 22.79 | 21.60 | 20.41 | 19.23 | 18.04 |
| 65 | 26.89 | 25.71 | 24.52 | 23.34 | 22.15 | 20.97 | 19.78 | 18.60 |
| 70 | 27.43 | 26.46 | 25.28 | 24.09 | 22.70 | 21.52 | 20.34 | 19.16 |
| 75 | 28.18 | 27.00 | 25.82 | 24.65 | 23.47 | 22.08 | 20.90 | 19.51 |
| 80 | 28.73 | 27.55 | 26.38 | 25.20 | 23.82 | 22.64 | 21.46 | 20.08 |
| 85 | 29.49 | 28.31 | 26.93 | 25.76 | 24.38 | 23.20 | 21.82 | 20.44 |
| 90 | 30.04 | 28.87 | 27.49 | 26.32 | 24.94 | 23.56 | 22.18 | 21.01 |
| 95 | 30.59 | 29.42 | 28.05 | 26.67 | 25.50 | 24.12 | 22.54 | 21.37 |
| 100 | 31.15 | 29.98 | 28.61 | 27.23 | 25.86 | 24.49 | 23.11 | 21.74 |
| 105 | 31.71 | 30.34 | 29.17 | 27.80 | 26.43 | 24.85 | 23.48 | 22.11 |
| 110 | 32.27 | 30.90 | 29.53 | 28.16 | 26.79 | 25.42 | 23.85 | 22.48 |
| 115 | 32.83 | 31.46 | 30.09 | 28.52 | 27.16 | 25.79 | 24.22 | 22.85 |
| 120 | 33.39 | 31.82 | 30.46 | 29.09 | 27.52 | 26.16 | 24.59 | 23.22 |
| 125 | 33.75 | 32.39 | 30.82 | 29.46 | 27.89 | 26.52 | 24.96 | 23.39 |

Attachment B
Application Requirements

Type of finish of the pole (indicate by checking one)

Weathering _____

Galvanized _____

Zinc primer and paint _____

Special Charpy requirements None _____

Surface protection desired for embedded portion of pole (indicate by checking one or both)

Polyurethane Coating (All Poles) _____

Anodes _____

Climbing device type (indicate by checking one)

Step Bolts _____

Ladder (All Poles) _____

Removable Steps _____

Location of climbing device: Ladder clips to begin @ 1 foot below pole top and continue to approximately 8' above calculated ground level. See attachment A-3 for details.

Length of ground collar 4 Feet _____

Grounding plate or nut 1/2-13 stainless steel heavy hex nuts _____

Delivery schedule _____

Free on board destination _____

Pole test (if required) _____

Additional Requirements (below) _____

Attachment C

| Standard Class Steel Pole Bid Summary (Information to be supplied with the bid) | | | | | |
|--|---|--|--|--|--|
| DESIGN INFORMATION | | | | | |
| Pole framing drawing | | | | | |
| Pole Class | | | | | |
| Pole Length | | | | | |
| POLE DESCRIPTION | | | | | |
| Top Diameter | | | | | |
| Groundline Diameter | | | | | |
| Bottom Diameter | | | | | |
| Taper (in/ft) | | | | | |
| GENERAL | | | | | |
| Pole Wt/ each | | | | | |
| Tip Load | | | | | |
| Point of Fixity Loc | | | | | |
| Steel (ASTM/yield) | | | | | |
| Cross section shape | | | | | |
| Splice joint type | | | | | |
| CALCULATIONS AT THE GROUNDLINE | | | | | |
| Moment | | | | | |
| Shear | | | | | |
| Axial | | | | | |
| Cross Sectional Area | | | | | |
| CALCULATIONS AT THE POINT OF FIXITY | | | | | |
| Moment | | | | | |
| Shear | | | | | |
| Axial | | | | | |
| Cross Sectional Area | | | | | |
| WALL THICKNESS | | | | | |
| Top | | | | | |
| Groundline | | | | | |
| Bottom | | | | | |
| DEFLECTION (Top) | | | | | |
| COST SUMMARY | | | | | |
| COST/POLE | | | | | |
| NUMBER OF POLES | | | | | |
| TOTAL COSTS | | | | | |
| COMMENTS: | TRANSMISSION LINE POLES | | | | |
| | ATTACHMENT C | | | | |
| | BID SUMMARY - DESIGN INFORMATION, WEIGHTS, AND PRICE INFORMATION | | | | |
| | (INFORMATION TO BE SUPPLIED WITH THE PROPOSAL) | | | | |

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-010 (MAS/RQ)

Central Hudson Response No: CHGE-010 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Jose Ruaya

Information Requested:

- a. Explain what analysis Central Hudson Gas and Electric Corporation (Central Hudson) has or will perform on the existing structures scheduled to remain. Provide a copy of the documentation that Central Hudson used in determining what structures will stay.
- b. Discuss what changes Central Hudson will make to those structure so that they are in conformance with the new structures and look like the new facility the company is installing (i.e., color, change in cross arm, insulators, etc.). Explain.

Responses:

- a. *Central Hudson will analyze the strength of the structures which are proposed to remain by performing a load analysis to determine if those structures can handle the weight of the new conductors.*
- b. *No changes are planned to those structures proposed to remain.*

Central Hudson Gas and Electric Corporation
A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469

INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-011 (MAS/RQ)

Central Hudson Response No: CHGE-011 (DPS)

Date of Request: 4/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 5, 2014

Response Provided by: Lewis Fitzgerald (1 and 2)
Christopher Rottkamp (3)

Information Requested:

1. Provide a table or other suitable format listing all right-of-way (ROW) encroachments, including the locations where they are found (between structures) and the property owner's name.
 - a. Include a column listing the final resolution of each encroachment and provide updates as they become available.
2. Provide a copy of Central Hudson Gas and Electric's policy on ROW encroachments and explain how the policy is enforced.
3. Provide the cost to remove the rocky outcrop between structures A8 and A9. Provide the cost associated with moving the structures to avoid the outcrop. Provide copies of workpapers and detailed explanations for each cost.

Responses:

1. See Table attached as **Exhibit A** to this Response.

2. See **Exhibit B**, Encroachments Review and Mitigation Procedures.
3. The estimated cost to remove the rock outcrop between structures A8 and A9 is approximately \$24,000. This is based upon an estimated (assumed) 2-day rock removal operation performed by a contractor (not Central Hudson forces). Cost breakdown is as follows:

Rock Location:

| | | |
|-----------------------------------|----------------------|---------|
| Mobilize machinery | 1 lump sum | \$1,800 |
| 20 ton excavator w/ 5000# hammer | 16 hours@\$185/hr. = | \$2,960 |
| 15 ton excavator - clean out/load | 16 hours@\$125/hr. = | \$2,000 |
| Silt fence | 300' | \$ 500 |
| Pick-up truck | 2 days@\$200/day = | \$ 400 |
| Dump truck (subcontract) | 18 hours@\$130/hr. = | \$2,340 |

Dump Site, Assumed Spreading Material:

| | | |
|--------------------------------|--------------------|----------|
| Find/markout/approve/monitor | 8 hours@\$85/hr. = | \$ 680 |
| Mobilize machinery | 1 lump sum | \$ 800 |
| 125 hp dozer | 8 hours@\$115 = | \$ 920 |
| Silt fence | 300' | \$ 500 |
| SUBTOTAL EARTHWORK CONTRACTOR: | | \$12,900 |

Other Costs:

| | | |
|-------------------------------------|------------------|---------|
| Ag. field protection (matting) | 1 lump sum | \$8,000 |
| Final restoration and de-compaction | 1 lump sum | \$1,000 |
| Contract administration/management | 1 lump sum | \$ 800 |
| Field supervision | 1 lump sum | \$ 800 |
| Overheads expenses | included | \$ 0 |
| AFUDC | AFUDC calculator | \$ 746 |
| | | ===== |

GRAND TOTAL COST ESTIMATE: **\$24,246 (\$24,000 rounded)**

Providing a cost estimate for re-routing the A-Line to avoid the outcropping would require at least a conceptual design. At a minimum, a re-route would require moving one of the recently installed existing structures that is planned to remain in place. The new structure would likely be an angle structure that requires guying, or an engineered (concrete foundation) structure would be required to avoid a net negative impact on the active agricultural field.

Re-route work would have a negative impact on the agricultural field, and would require additional costly protection and restoration measures. In addition, a new (or revised) right-of-way easement would need to be obtained from the landowner. All these re-route costs could easily be double or triple the cost of simply reducing the rock outcrop. Therefore, detailed design alternatives and cost estimates have not been pursued any further. It is our belief that the plan as submitted is

not only the most economically feasible, but has the best outcome for the landowner.

Exhibit A to CHGE-001 (DPS)
Case 13-T-0469

A&C Line- Known ROW Encroachments

| <u>LINE</u> | <u>ENCROACHMENT</u> | <u>DATE FOUND</u> | <u>OWNER</u> | <u>LOCATED BETWEEN STRUCTURES</u> | <u>FINAL RESOLUTION</u> |
|-------------|--|-------------------------|--------------------------------|-----------------------------------|-------------------------|
| A&C | ENCROACHMENTS (DRIVEWAY, UG UTILITIES) | 11/9/1993 11/16/1997 | William Beyer - original owner | 55415/55416 - 55417/55418 | Licensed |
| A&C | ENCORACHMENTS (WATER TOWER & MAINS) | & 2/25/2003 | Town of LaGrange | 55415/55416 - 55417/55418 | Licensed |

**Exhibit B to CHGE-011 (DPS)
Case 13-T-0469**

**ELECTRIC & GAS TRANSMISSION RIGHT OF WAY
ENCROACHMENT REVIEW AND MITIGATION PROCEDURE**

- 1) Real Property Services is notified of a potential encroachment. Notification comes from:
 - a. Quarterly aerial patrols of electric transmission lines
 - i. Receive quarterly Aerial Patrol Inspection spreadsheets, which contain the x-y coordinates of found encroachments.
 - ii. Import spreadsheet into the ARC GIS map and save as a shape file.
 - iii. Compare new encroachment layer with existing encroachment layer.
For new encroachments, proceed to Step 2.
 - b. Ground Patrols of electric transmission lines performed in accordance with the Comprehensive and Bulk Inspection of Electric Transmission Guideline Schedule. The Comprehensive Inspection is a 5-year schedule for which 20% of the transmission lines are inspected each year. Bulk Inspections are done once a year prior to the Summer Load period and are performed on the 345kV lines and those interconnecting 115kV and 69 kV lines.
 - i. Transmission Design receives the reports from these inspections. Upon receipt of inspection reports, Transmission Design will provide Real Property Services with these findings.
 - ii. Real Property Services will compare any found encroachments to existing encroachments on the ARC Gis Map. For new encroachments, proceed to Step 2.
 - c. Quarterly aerial and annual ground patrols of gas transmission lines
 - i. Receive aerial Inspection Reports on a quarterly basis and Ground Patrol Reports on an annual basis. Real Property Services to

Exhibit B to CHGE-011 (DPS)
Case 13-T-0469

compare found encroachments on report to existing encroachments on the ARC Gis Map. For new encroachments, proceed to Step 2.

- d. Field personnel
 - e. Other sources
- 2) In all cases, upon notification of a found encroachment, Real Property Services will establish that this encroachment is a “new” and unauthorized encroachment using both the ARC GIS Map and encroachment database. After verifying that the found encroachment is new and unauthorized, Real Property Services will:
- a. Plot the found encroachment on the ARC GIS Map.
 - b. Enter the encroachment into the database. At a minimum, the following information should be entered:
 - i. The Tax Identification Number defined as the Section, Block and Lot # (SBL) and address of the parcel the encroachment is located on.
 - ii. Name of property owner and mailing address, if different from parcel address.
 - iii. The name of the impacted transmission line, i.e., EF Line, A-H Gas Line.
 - iv. ROW # or Deed # that pertains to encroachment.
 - c. Try to determine date that encroachment was built or installed and if permit from the Town was required and/or issued. Various resources can be used: Town Clerks, County Tax Parcel Websites, etc.

Exhibit B to CHGE-011 (DPS)
Case 13-T-0469

- d. Transmission Design will determine if encroachment violates any safety codes and/or if it could be licensed – determination is based on field verification, lidar analysis, transmission design, etc.

Note: The database should be updated as soon as any form of communication and/or other informational items are received.

- 3) Within 30 days of Real Property Services' notification of a found encroachment, Real Property Services will send the Notice of Encroachment letter to the responsible property owner. Real Property Services will advise Risk Management of Notices to be sent prior to mailing.
- 4) To remove or remedy the encroachment, Real Property Services will commence action to either seek the voluntary removal of the encroachment, licensing of the encroachment or begin legal action for its removal.
 - a. If voluntary and/or legal action for removal is not available, and the encroachment is **not considered** a safety or access issue, CH will proceed with the licensing process. If the encroachment was not removed or licensed, the database will be updated noting that the encroachment is unlicensed.
 - b. For encroachments that **are considered** a safety or access issue, every legal attempt will be made to seek removal. If after 45 days, all attempts to have encroachment removed are unsuccessful, Real Property Services will notify Transmission Design and Line Clearance to develop a mitigation plan to remedy such safety or access issue. This mitigation plan will be developed within 30 days after expiration of the 45 days. If deemed necessary by Transmission Design and/or Line Clearance, temporary

Exhibit B to CHGE-011 (DPS)
Case 13-T-0469

measures will be taken to mitigate any safety issues. Database should be updated for all events.

- 5) Ongoing Public Awareness of CH Property Rights. Real Property Services will mail letters to:
 - a. Property Owners along our electric and gas transmission corridors emphasizing the need for Central Hudson permission prior to any use of property within the confines of our easements on an annual basis.
 - b. Municipalities asking them to be aware of Central Hudson facilities and right of ways and their restrictions prior to issuing building permits on an annual basis.
- 6) Semi-annually, Real Property Services will mail a follow up letter to those property owners where either an application or license was mailed and no response was received.

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-012 (MS)

Central Hudson Response No: CHGE-012 (DPS)

Date of Request: 5/23/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 29, 2014

Response Provided by: Eric Loeven

Information Requested:

Regarding the engineering justification to rebuild the A & C line provide the following information:

1. For the last ten years provide the actual and weather-normalized peaks loads for the Todd Hill Road and Fishkill Plains substations.
2. Provide the peak loads forecast for the Todd Hill Road and the Fishkill Plains substations for the next ten years.
3. Provide the new load-serving capability and a timeline (for the next ten years) showing the projected summer peaks of the Todd Hill Road and Fishkill Plains substations given that the A & C lines' conductors are replaced with 1033.5 MCM ACSR Ortolan.
4. What analysis was performed to determine the capability of the rebuild relative to projected load forecast?

Responses:

1. Central Hudson does not weather-normalize individual substation loads. Coincident peak loads are shown in the table below:

| Coincident Peak MW Loads | | | | |
|---------------------------------|-----------|------|-----------------|-----------|
| Year | Date | Time | Fishkill Plains | Todd Hill |
| 2004 | August 3 | 1700 | 31.9 | 16.8 |
| 2005 | July 27 | 1400 | 36.5 | 18.6 |
| 2006 | August 2 | 1700 | 43.5 | 22.2 |
| 2007 | August 8 | 1700 | 38.5 | 26.6 |
| 2008 | June 10 | 1500 | 39.4 | 25.7 |
| 2009 | August 17 | 1700 | 37.05 | 24.4 |
| 2010 | July 6 | 1700 | 44.6 | 29.5 |
| 2011 | July 22 | 1800 | 46.3 | 30.4 |
| 2012 | July 17 | 1800 | 41.2 | 23.5 |
| 2013 | July 18 | 1700 | 43.8 | 24.1 |

2. Forecast coincident peak loads are shown in the table below:

| Forecast Coincident Peak MW Loads | | |
|--|-----------------|-----------|
| Year | Fishkill Plains | Todd Hill |
| 2014 | 44.7 | 24.2 |
| 2015 | 44.8 | 24.3 |
| 2016 | 45.0 | 24.4 |
| 2017 | 45.1 | 24.5 |
| 2018 | 45.3 | 24.7 |
| 2019 | 45.4 | 24.8 |
| 2020 | 45.5 | 24.9 |
| 2021 | 45.7 | 25.0 |
| 2022 | 45.8 | 25.4 |
| 2023 | 46.0 | 25.3 |

3. The load serving capabilities of the Fishkill Plains & Todd Hill substations are approximately 50 MVA each. The A & C line rebuild project will not change these values.

Under an (n - 1) - 1 condition involving the loss of both East Fishkill 345/115 kV transformers, the proposed 1033.5 MCM ACSR conductor is expected to be limiting at a system load level of approximately 2620 MW (note that other facilities may be limiting at lesser system load levels). The 2620 MW load level considerably exceeds Central Hudson's all-time system peak load of 1295 MW.

4. System load serving capability analyses were performed to aid in selection of the proposed conductor (1033.5 MCM ACSR). As shown in the table below, that conductor is not expected to be limiting until system loads more than double (note that other facilities may be limiting at lesser system load levels).

| Conductor Limits following an (n - 1) - 1 outage of both East Fishkill 345/115 kV transformers | |
|---|---|
| Potential A & C Line ACSR Conductor | Approximate System Load (MW) |
| 397.5 MCM (existing) | 985 |
| 795 MCM | 1470 |
| 1033.5 MCM | 2620 |
| 1272 MCM | 3065 |

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-013 (MS)

Central Hudson Response No: CHGE-013 (DPS)

Date of Request: 5/14/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: May 29, 2014

Response Provided by: Jose Ruaya

Information Requested:

1. Request DPS-04(g) requested information about the compressed insulators on structure A36. In its response, Central Hudson states the insulators on proposed new structure A36 are not under compression. The request referred to the current structure, which does have compressed insulators. Provide a list of any other structures on the A and C lines in which insulators are under compression. Explain what Central Hudson will do to remedy this compression issue and provide documentation. Provide and explain the Central Hudson standards on how such problems will be corrected and prevented from occurring in the future.
2. Provide justification for the response to Request DPS-06, which claims "the performance of polymer insulators is just as good or better than ceramics from an electrical and mechanical perspective." Provide copies of all supporting documentation including EPRI reports.
3. Pages 8-19, inclusive, of Part 2 of Exhibit D of Central Hudson's response to Request DPS-03 are illegible. Provide a legible copy.

Responses:

1. *Central Hudson understands that the question referred to above relates to the presence of an uplift condition on the existing structure, which is replaced by A36. An uplift condition will generate the compressed insulators as stated in the question. An uplift condition occurs when there is negative vertical load on the insulator. This condition typically arises during a high wind and/or low temperature condition. NESC 2012 provides for an extreme wind event, Rule 230C, for which a structure must withstand. Using this criterion yields a positive vertical load on the insulators. A second analysis was performed using a very low temperature condition (-20F) and the insulators maintained positive vertical loads. Therefore, it can be concluded that the insulators are not in uplift condition for its designed operating weather/temperature range. There are no suspension insulators in uplift condition in the proposed design.*

Central Hudson's design methodology includes analysis of uplift and ensures that designs for suspensions do have this condition.

2. *Using a technical comparison between the two types, the polymer insulator (one proposed for use by Central Hudson) exceeds or meets its ceramic equivalent. Please refer to the table below.*

| <i>Property</i> | <i>Ceramic (7 Bells) 52-5 (ANSI C29.2- 1977)</i> | <i>Polymer (Maclean Cat# S148054MX01)</i> |
|--|--|---|
| <i>Mechanical Strength</i> | <i>25,000 lbs</i> | <i>25,000 lbs (SML)</i> |
| <i>Section Length</i> | <i>51.75</i> | <i>48.4</i> |
| <i>60 Hz Dry Flashover</i> | <i>440kV</i> | <i>453kV</i> |
| <i>60 Hz Wet Flashover</i> | <i>280kV</i> | <i>406kV</i> |
| <i>Critical Impulse Flashover Positive</i> | <i>640kV</i> | <i>778kV</i> |
| <i>Critical Impulse Flashover Negative</i> | <i>660kV</i> | <i>825kV</i> |
| <i>Leakage distance</i> | <i>77 in</i> | <i>93 in</i> |

An additional comparison prepared by Central Hudson in other instances is attached as **Exhibit 1**.

3. We do not have a better scanned copy of the document. We can bring a hard copy to the next negotiation session, currently scheduled for June 10, 2014.

Central Hudson Gas & Electric Corporation
A & C REBUILD PROJECT- ARTICLE VII APPLICATION
Case 13-T-0469
Exhibit 1 to DPS IR Response CHGE-013

Central Hudson Insulator Analysis

Central Hudson has employed the use of non-ceramic polymer insulators on tangent structures since the 1990s. In 2003, after careful review of EPRI research on the subject, Central Hudson updated the approved polymer insulator specifications to meet strict material requirements. Central Hudson’s approved polymer insulators are available in gray and bright blue colors. Central Hudson engineers contacted all approved vendors and confirmed that no brown polymer insulators were available for use on 115kV voltages. Each approved vendor confirmed that the process required to achieve a brown polymer included introduction of black carbon to the polymer resulting in a semi-conductive material that is not suitable for use as high voltage insulation.

Central Hudson has made it a practice of using polymer insulators in suspension applications on transmission pole replacements and new transmission lines in recent years because polymer offers clear benefits outlined in the table below:

| | Polymer Insulators | Ceramic Insulator Strings |
|-------------------------|--|--|
| Constructability | <p>Polymer suspension insulators are constructed as a single unit. 115kV insulators are typically 4.0’-5.0’ long and weigh approximately 10lbs-12lbs. Polymer insulators are slim, having sheds that are typically 4”-5” in diameter.</p> <p>The small size and low weight of the polymer units allow for efficient installation. These units can be handled and carried safely by one crew member. The single unit means less assembly time and requires less small pieces of hardware for connection.</p> <p>The single unit is also fairly rugged and will not shatter or crack easily during installation.</p> | <p>Ceramic insulators are manufactured as smaller units (bells) that are connected to achieve the desired insulation lengths. For 115kV suspension applications, 7 or more bells are attached as one insulator string. Each bell is 10” in diameter, approximately 6” tall, and weighs approximately 8lbs. The total length of the 115kV ceramic insulator is 3.5’-4.0’. The total weight of one 115kV string is approximately 55lbs-60lbs.</p> <p>The 115kV string is comprised of 7 bells linked together in non-rigid connections. The weight and flexibility of the string typically requires more than one crew member for handling. The string requires more assembly and increased use of small hardware, such as cotter keys, for connection.</p> <p>Although crews are instructed in the proper handling of ceramic insulators, they are fragile and will crack and shatter if knocked together or against the poles during installation. In the event of a cracked or shatter bell, that bell must be removed and replaced before the string can be installed.</p> |
| Appearance | <p>115kV insulators are typically 4.0’-5.0’ long and typically 4”-5” in diameter. Polymer insulators are available in gray and blue colors. The slim profile and gray or blue color tend to blend in with the sky and do not add to the bulk of the transmission line.</p> | <p>For 115kV suspension applications, 7 or more ceramic bells are attached as one insulator string. Each bell is 10” in diameter and approximately 6” tall. The total length of the 115kV ceramic insulator is 3.5’-4.0’. Ceramic insulators are wider than polymer insulators and have a more substantial appearance. Ceramic insulator bells are available in brown and gray.</p> |

**BEFORE THE
NEW YORK STATE
PUBLIC SERVICE COMMISSION**

In the Matter of the Application of Central Hudson Gas & Electric Corporation For a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law for the A and C Line Rebuild Project, Approximately 10.85 miles of 115 Kilovolt Transmission Lines in the Towns of Pleasant Valley, LaGrange, Wappinger, and East Fishkill, in Dutchess County

Case No.: 13-T-_____

**CENTRAL HUDSON GAS & ELECTRIC CORPORATION
A AND C LINE REBUILD PROJECT**

**EXHIBIT 7
LOCAL ORDINANCES**

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EXHIBIT 7 – LOCAL ORDINANCES

7.1 Introduction

Pursuant to 16 NYCRR § 86.8, this Exhibit identifies the local ordinances, laws and regulations that are applicable or potentially applicable to this project, and the status of compliance thereto. Pursuant to Section 130 of the Public Service Law, no state agency, municipality or any agency thereof may require any approval, permit or consent for the construction or operation of a facility subject to Article VII approval unless otherwise required by the Commission. The Commission has the responsibility of either waiving (at the request of the Applicant) or applying the requirements of the local municipalities where the Project is sited.

As described in Exhibit 2, CHG&E proposes to re-build and operate an approximately 10.8-mile electric transmission line located between the Towns of Pleasant Valley and East Fishkill in Dutchess County. This Project will be located in one county, four towns, and no villages. Towns crossed by the electric transmission line are the Towns of Pleasant Valley, LaGrange, Wappinger, and East Fishkill in Dutchess County.

The Applicant researched and directly inquired about local laws, ordinances and regulations that may pertain to this project. To determine the existence of ordinances for municipalities within the Project ROW, the Applicant contacted the town clerks or code enforcement officers, other appropriate officials, or the published ordinances for the above-referenced municipalities. Each of the four towns has local land use regulations in the form of a zoning ordinance that may apply to Project activities.

Section 126(1)(f) of the Public Service Law requires that the Commission find “that the location of the facility as proposed conforms to the applicable state and local laws and regulations...” To the extent the project does not conform to such laws, CHG&E has provided the justification for the Commission to refuse to apply such provisions to which the project cannot comply by explaining why such provision is unreasonably restrictive in view of the existing technology, or of factors of cost or economics, or of the needs of consumers whether located inside or outside of such municipality. In doing so, the Applicant has evaluated whether changes in the facility location or design could result in compliance with the specific law in question. A summary of these local ordinances and the project’s anticipated compliance is provided in Table 7-1, below.

7.1.1 Compliance Summary

The compliance summary contained in Table 7-1 below lists every substantive local legal provision potentially applicable to the Project. The table identifies whether the Applicant can or will comply with such potentially applicable local laws or where a waiver is being requested.

Table 7-1: Project Compliance Summary

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|-------------------------|---|-----------------------------|
| Town of Pleasant Valley | Chapter 39, Building Construction | Will Comply Except as Noted |
| | Chapter 39, §39-4, Stop-work Orders | Waiver Requested |
| | Chapter 46, Driveways and Highway Permits | Will Comply |
| | Chapter 48, Fire Prevention | Will Comply Except as Noted |
| | Chapter 48, §48-6(B), Firesafety and property maintenance inspections [re: local inspections] | Waiver Requested |
| | Chapter 50, Flood Damage Prevention | Will Comply Except as Noted |
| | Chapter 50, Article III §50-11 – Floodplain Development Permit | Waiver Requested |
| | Chapter 50, Article III §50-13(F) – Duties and Responsibilities of Local Administrator [re: stop-work orders] | Waiver Requested |
| | Chapter 53, Wetland, Water Body, and Watercourse Protection | Will Comply Except as Noted |
| | Chapter 53, Article III §50-8, Prohibited Activities [re: local enforcement] | Waiver Requested |
| | Chapter 57, Refuse Collection, Storage, and Disposal | Will Comply |
| | Chapter 60, Illicit Discharges, Activities and Connections | Will Comply |

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|------------------|--|-----------------------------|
| | Chapter 74, Stormwater Management and Erosion and Sedimentation Control | Will Comply |
| | Chapter 93, Vehicles and Traffic | Will Comply |
| | Chapter 98, Zoning | Will Comply Except as Noted |
| | Chapter 98, Article III §98-11 – General Regulations, Schedule of Permitted Uses [re: local site plan review requirements] | Waiver Requested |
| | Chapter 98, Article III §98-12 – General Regulations, Schedule of Area and Bulk Requirements [re: setbacks, height restrictions] | Waiver Requested |
| | Chapter 98, Article IV §98-44 – Supplementary Regulations, Public Utility Facility [re: screening requirements] | Waiver Requested |
| Town of LaGrange | Chapter 83, Building Construction Administration and Enforcement | Will Comply Except as Noted |
| | Chapter 83, §83-9, Stop-work Orders | Waiver Requested |
| | Chapter 103, Dumps and Dumping | Will Comply |
| | Chapter 107, Electrical Inspection | Will Comply Except as Noted |
| | Chapter 107, §107-3(C), Stop-work Orders | Waiver Requested |
| | Chapter 120, Flood Damage Prevention | Will Comply Except as Noted |
| | Chapter 120, §120-14(F) – Duties and Responsibilities of Local Administrator [re: stop-work orders] | Waiver Requested |
| | Chapter 120, §120-15 – General Construction Standards [re: local permit requirements] | Waiver Requested |
| | Chapter 124, Freshwater Wetlands, Watercourses, and Water Bodies | Will Comply Except as Noted |
| | Chapter 124, §124-15 Permit Procedure– [re: local enforcement] | Waiver Requested |
| | Chapter 140, Illicit Discharges to Storm Sewers | Will Comply |

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|-------------------|--|-----------------------------|
| | Chapter 162, Noise | Will Comply |
| | Chapter 195, Solid Waste | Will Comply |
| | Chapter 197, Stormwater Management and Erosion and Sediment Control | Will Comply |
| | Chapter 199, Streets and Sidewalks | Will Comply |
| | Chapter 226, Vehicles and Traffic | Will Comply |
| | Chapter 240, Zoning | Will Comply Except as Noted |
| | Chapter 240, Article II §240-27 – Establishment and Designation of Districts, Schedule of Permitted Uses and Special Use Permits [re: local site plan review requirements] | Waiver Requested |
| | Chapter 240, Article II §240-28 – Establishment and Designation of Districts, Schedule of Bulk Regulations and Coverage Limitations [re: setbacks, height restrictions] | Waiver Requested |
| | Chapter 240, Article III §240-31 – Special Zoning District Provisions, Preservation Overlay Zones [re: setbacks, height restrictions] | Waiver Requested |
| Town of Wappinger | Chapter 80, Blasting | Will Comply |
| | Chapter 85, Building Code Administration | Will Comply Except as Noted |
| | Chapter 85, §85-10, Inspections; Notification of Fire or Explosion; Operating Permits [re: local inspections] | Waiver Requested |
| | Chapter 85, §85-12, Stop-Work Orders | Waiver Requested |
| | Chapter 117, Environmental Quality Review | Will Comply |
| | Chapter 133, Flood Damage Prevention | Will Comply Except as Noted |
| | Chapter 133, §133-13(F) – Duties and Responsibilities of Code Enforcement Officer and Zoning Administrator [re: stop-work orders] | Waiver Requested |
| | Chapter 133, §133-14(B) – General Standards, Encroachment [re: local permit requirements] | Waiver Requested |

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|-----------------------|--|-----------------------------|
| | Chapter 137, Freshwater Wetland, Waterbody, and Watercourse Protection | Will Comply |
| | Chapter 166, Noise | Will Comply |
| | Chapter 206, Soil Erosion and Sediment Control | Will Comply |
| | Chapter 210, Solid Waste | Will Comply |
| | Chapter 213, Stormwater Management | Will Comply Except as Noted |
| | Chapter 213, §213-11, Enforcement [re: stop-work orders] | Waiver Requested |
| | Chapter 230, Vehicles and Traffic | Will Comply |
| | Chapter 240, Zoning | Will Comply Except as Noted |
| | Chapter 240, Article VI §240-37, Attachments 1 and 2– District Regulations, Schedule of Use Regulations [re: local site plan review and special permit requirements] | Waiver Requested |
| | Chapter 240, Article VI §240-37, Attachments 3 and 4 – District Regulations, Schedule of Dimensional Regulations [re: setbacks, height restrictions] | Waiver Requested |
| | Chapter 240, Article VII §240-44, Special Permit Uses, General Standards [re: site plan and operational requirements] | Waiver Requested |
| | Chapter 240, Article IX §240-83, Site Development Plan Approval [re: site plan approval requirements] | Waiver Requested |
| Town of East Fishkill | Chapter 80, Building Construction and Fire Prevention | Will Comply Except as Noted |
| | Chapter 80, §80-10, Stop-Work Orders | Waiver Requested |
| | Chapter 108, Flood Damage Prevention | Will Comply Except as Noted |
| | Chapter 108, Article III §108-13(F), Duties and Responsibilities of Local Administrator [re: stop-work orders] | Waiver Requested |
| | Chapter 108, Article III §108-14, General Standards [re: local permit requirements] | Waiver Requested |

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|--------------|--|-----------------------------|
| | Chapter 110, Freshwater Wetlands, Water Bodies, and Watercourses | Will Comply Except as Noted |
| | Chapter 110, §110-7(C), Permit Limitations, Certificate of Completion [re: stop-work orders] | Waiver Requested |
| | Chapter 127, Littering | Will Comply |
| | Chapter 154, Steep Slope Protection | Will Comply |
| | Chapter 156, Storm Sewers | Will Comply |
| | Chapter 157, Stormwater Management and Erosion and Sediment Control | Will Comply |
| | Chapter 177, Vehicles and Traffic | Will Comply |
| | Chapter 194, Zoning | Will Comply Except as Noted |
| | Chapter 194, Article V §194-16, Attachment 2–Schedules of Regulations, Schedule of Permitted Uses [re: prohibition of uses not specifically permitted] | Waiver Requested |
| | Chapter 194, Article V §194-17, Attachment 3–Schedules of Regulations, Schedule of Bulk Regulations [re: setbacks, height restrictions] | Waiver Requested |

7.2 Town of Pleasant Valley

Project activities in the Town of Pleasant Valley would include the removal of 12 electric transmission structures, to be replaced by the construction of 4 double pole structures and 8 single pole structures associated with approximately 1.25 miles of the A and C Lines Rebuild Project.

7.2.1 Chapter 39, Building Construction

Chapter 39 and Chapter 48 (see below) implement the New York State Uniform Fire Prevention and Building Code and the State Energy Conservation Construction Code.

The Applicant will comply with the requirements of Chapter 39. However, the Applicant requests that the Commission refuse to apply local stop-work order provisions granted in subsection §39-14, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection 39-4(B); as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building inspection.

7.2.2 Chapter 46, Driveways and Highway Permits

Chapter 46, §46-1 requires the issuance of a highway work permit for any improvements made within a Town right-of-way.

The Applicant will comply with the requirements of Chapter 46, although the need for a local highway work permit is preempted by PSL §130. The proposed Project will require overhead crossings of Plass Road and Niagara Road.

7.2.3 Chapter 48, Fire Prevention

Chapter 48 and Chapter 39 (see above) implement the New York State Uniform Fire Prevention and Building Code and the State Energy Conservation Construction Code.

The applicant will comply with the requirements of Chapter 48. However, the Applicant requests that the Commission refuse to apply local inspection provision granted in subsection §48-6(B); as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building inspection.

7.2.4 Chapter 50, Flood Damage Prevention

Chapter 50 implements the National Flood Insurance Program. Chapter 50, §50-6 identifies a special flood hazard area within the Town, pursuant to Flood Insurance Rate Maps created by the Federal Emergency Management Agency. Floodplains associated with Wappinger Creek in the Town of Pleasant Valley crossed by

a portion of the proposed Project are included in this special flood hazard area. Subsection §50-11 establishes the local floodplain development permit requirement as follows: “A floodplain development permit is hereby established for all construction and other development to be undertaken in areas of special flood hazard in this community for the purpose of protecting its citizens from increased flood hazards and insuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in an area of special flood hazard, as shown on the Flood Insurance Rate Map enumerated in § 50-6, without a valid floodplain development permit.”

Chapter 50 also details requirements for construction within special flood hazard areas, including general standards (§50-14).The construction standards detailed in subsection §50-14 are applicable to “new development, including new and cumulative substantially improved structures, in the areas of special flood hazard shown on the Flood Insurance Rate Map designated in §50-6.” Development is defined within §50-4 as “any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials”, which would appear to apply to the Project. Subsection §50-14(B) requires applicants to demonstrate that encroachments within special flood hazard areas will not cause increases in flood levels during flood events. Chapter 50, §50-13(F) authorizes the local zoning administrator to issue stop-work orders for floodplain development found ongoing without a development permit, or for that which is found noncompliant with the provisions of Chapter 50.

The Applicant requests that the Commission refuse to apply the provisions of Chapter §50-11 of the Town of Pleasant Valley's flood damage prevention ordinance that require all structures within the floodplain to go through a local permitting process. The ordinance is designed to regulate the construction of primarily residential, commercial, and industrial structures, as opposed to the transmission facilities included in the proposed Project. The transmission facilities proposed to be located within the special flood hazard area include poles C2 and C3 in the 100-year floodplain and C4 in the 500-year floodplain. The Project would convert existing two-pole structures to monopole structures. Transmission structures such as these are not prone to flood damage in the same way that residential, commercial, or industrial structures are. In addition, the proposed Project will not alter the floodplain, and will not increase flood hazards to adjacent properties. As proposed, the new transmission towers would replace three existing structures (consisting of six individual poles) that are currently located within the special flood hazard area. For these reasons, Chapter 50 of the Code of the Town of Pleasant Valley is unduly restrictive in view of existing technology.

The Applicant further requests that the Commission refuse to apply Chapter §50-13(F) of the ordinance which includes local stop-work order provisions, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.2.5 Chapter 53, Wetland, Water Body, and Watercourse Protection

Pursuant to §53-1, "it is declared to be the public policy of the Town of Pleasant Valley to preserve, protect and conserve freshwater wetlands, watercourses and water bodies and to regulate development in such wetlands and protect such watercourses and water bodies in order to secure the natural benefits derived therefrom consistent with the general welfare and the beneficial economic, social and agricultural development of the Town". According to §53-1, the areas subject to regulation under Chapter 53 are as follows:

- All wetlands identified on the map entitled "Town of Pleasant Valley, Dutchess County, N.Y." prepared by the Dutchess County Environmental Management Council, GIS Lab, and dated March 2001, as amended, and any other wetlands as yet unmapped exceeding 1/2 acre in area that will meet the definition provided in § 24-0107(1) of the New York State Freshwater Wetlands Act as amended and updated.
- All water bodies, natural or created, having an area of a 1/2 acre or more.
- All lands lying within:
 - Twenty-five feet of wetlands and water bodies of 1/2 acre to one acre in size;
 - Fifty feet of wetlands and water bodies of one acre to two acres in size;
 - Seventy-five feet of wetlands and water bodies of two acres to three acres in size; and
 - One-hundred feet of wetlands and water bodies of three acres or more in size.
- All lands lying within 100 feet of the normal stream bank of the Wappingers Creek, Little Wappingers Creek, Great Spring Creek, and any other perennial watercourse or tributary to these named streams. A twenty-five-foot-wide natural buffer shall be maintained from the normal stream bank for all activities except for those dependent upon the passive recreational use of the stream or as a source of water for emergency purposes or agriculture in accordance with Agricultural Best Management Practices.
- Wetlands located on property that is the subject of a subdivision application pursuant to Chapter 82 shall also be subject to the provisions of § 82-18 and to any requirements that may be imposed by the Planning Board in the application process.

Chapter 53, §53-4 identifies six regulated activities, including the erection “of any structure, construction of roads, driving of pilings or placing of any other obstructions, whether or not changing the ebb and flow of the water” . This definition would include the proposed Project, as the proposed transmission towers may be located within a regulated proximity to a delineated wetland.

Chapter 53, §53-5 identifies three prohibited activities. These activities are as follows:

- Placement or deposit of any chemical waste, hazardous waste, or storage of any materials that could result in the contamination of any wetland, water body or watercourse.
- Introduction of fluids or other materials with sufficiently high temperature to cause injurious or other harmful ecological effects in any wetland, water body, watercourse or buffer area.
- Such activities which may cause substantial damage or destruction to wetlands.

Potential construction activities have the potential to result in contamination or damage to wetlands, water bodies or other watercourse. The potential as well as detailed construction measures to prevent such occurrences are described in Exhibit 4 of this application and the project’s EM&CP.

Chapter 53, §53-6 establishes a requirement for obtaining local permits for undertaking these activities within regulated areas, noting that “Anyone proposing to undertake a regulated activity within a freshwater wetland, watercourse or water body, or its buffer, shall apply for and receive a permit from the Town before commencing such regulated activity.” In addition, according to §53-8, “Any person or entity found to be in violation of this chapter shall be ordered and required to cease and desist the violating activity.”

The Applicant will comply with Chapter 53. However, the Applicant requests that the Commission refuse to apply local enforcement authority as described in §53-8, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Cease and desist orders and fines pursuant to local authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.2.6 Chapter 57, Refuse Collection, Storage, and Disposal

Chapter 57 outlines restrictions regarding the collection, storage, and disposal of refuse material. Industrial refuse may be stored in portable waste-storage compactors, dumpsters, or similar devices. Equipment used for the collection of refuse must provide suitable coverage of the refuse to prevent littering. The Town of Pleasant Valley refuse disposal facility will not accept that which has originated outside of Town boundaries.

The applicant will comply with the requirements of Chapter 57.

7.2.7 Chapter 60, Illicit Discharges, Activities and Connections

Together with Chapter 74, Chapter 60 regulates discharges into the Town of Pleasant Valley municipal separate storm sewer system, per the requirements of the Town's SPDES General Permit.

The applicant will comply with the requirements of Chapter 60.

7.2.8 Chapter 74, Stormwater Management and Erosion and Sediment Control

Chapter 74 regulates development within the Town of Pleasant Valley with regard to erosion control measures. Per §74-4(D), all land development activities other than those regulated by the Town of Pleasant Valley Subdivision law (§82) are required to submit a stormwater pollution prevention plan to the Town Stormwater Management Officer. Eleven categories of activity are granted exemption per §74-5, including the "installation of fence, sign, telephone, and electric poles and other kinds of posts and poles". The ordinance does not make a clear distinction between electric poles and transmission towers.

The Applicant will comply with Chapter 74, although local permitting requirements are preempted per PSL §130.

Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. The approved EM&CP will include as an appendix a Stormwater Pollution Prevention Plan that will satisfy the requirements of General Permit No. GP-0-10-001 dated January 29, 2010.

7.2.9 Chapter 93, Vehicles and Traffic

Chapter 93 describes traffic and vehicle ordinances for the purposes of preventing obstruction of Town roads and highways. Chapter 93, §93-2 outlines specific parking regulations relative to winter parking on Town roads and Highways between November 1 and April 1.

The applicant will comply with the requirements of Chapter 93.

7.2.10 Chapter 98, Zoning

Chapter 98 describes 15 zoning districts, including one overlay district, within the Town of Pleasant Valley. The proposed Project is located within the Rural Residential (RR) and Medium Density Residential (MDR) zoning districts, as well as the Special Flood Hazard (SFH) overlay district. Per Attachment 1 of Chapter 98 and §98-11, each of these districts allows for “public utility facilities” as a permitted use subject to site plan review. Article X of Chapter 98 defines such facilities as an “installation used by a public agency or a specially franchised public utility to supply or transmit electric, gas, water, sewage disposal, cable television, telephone service, or other utility service, excluding electric power plants and gas wells” .

Attachment 2 of Chapter 98 (§98-12) identifies dimensional requirements relative to each zoning district, as follows (N/A dimensional or other requirements are not listed):

- Rural Residential (RR):
 - o Average density: 3.5 acres
 - o Minimum road frontage: 50 feet
 - o Minimum front yard setback: 70 feet
 - o Minimum side yard setback: 30 feet
 - o Minimum back yard setback: 50 feet
 - o Minimum lot width at primary building line: 200 feet
 - o Maximum impervious coverage: 20%
 - o Maximum building footprint per nonresidential establishment: 4,000 sq. feet
 - o Maximum height: 35 feet
- Medium Density Residential (MDR):
 - o Average density: 1 acre
 - o Minimum road frontage: 50 feet
 - o Minimum front yard setback: 50 feet
 - o Minimum side yard setback: 20 feet

- Minimum back yard setback: 30 feet
- Minimum lot width at primary building line: 100 feet
- Maximum impervious coverage: 25%
- Maximum building footprint per nonresidential establishment: 4,000 sq. feet
- Maximum height: 35 feet
- Special Flood Hazard (SFH):
 - Minimum road frontage: 50 feet
 - Allowed uses in the SFH district shall conform to the most restrictive adjoining zoning area and bulk requirements
 - Other requirements as per Chapter 50 of the Code of Ordinances, Flood Damage Prevention.

Per Chapter 98, Article IV §98-44, public utility facilities are required to provide adequate screening to mitigate detrimental impacts on neighboring properties. According to the supplementary regulations associated with public utilities, “in order to protect neighboring properties from any associated facility noises, facility lighting and/or detriments to the visual qualities of the surrounding area, adequate screening of the facility and sound barriers consisting of landscaping and/or fencing shall be provided if the need for such additional protection is determined necessary by the Planning Board in the site plan review process” .

Given that layout and design of the proposed facilities are being reviewed and approved pursuant to Article VII, the Applicant requests that the Commission refuse to apply subsection §98-11 that requires local site plan review and approval.

The Applicant requests that the Commission refuse to apply the dimensional requirements described within subsection §98-12. The proposed Project is a permitted use within each zoning district, and will be constructed wholly within an existing ROW, where transmission lines are currently strung along existing towers. Both the existing ROW and the proposed tower locations have been and will be sited according to technical specifications regarding clearance, reliability criteria, span lengths, and directional requirements. The area and bulk requirements detailed within subsection §98-12 are not designed to accommodate these specifications. For these reasons, compliance with dimensional requirements are either not applicable, or are being reviewed pursuant to Article VII.

The proposed Project will provide screening, landscaping, and/or fencing in accordance with any applicable conditions of the issued Certificate of Environmental Compatibility and Public Need and the approved EM&CP. Such screening, landscaping, and fencing must also comply with the National Electrical Safety Code (NESC).

The Applicant cannot determine whether the screening, landscaping, and/or fencing provided in accordance with the Certificate and EM&CP satisfies the supplementary regulations described in §98-44, as the latter would be a matter of local Planning Board discretion and a product of the site plan review process from which the Applicant has requested relief. Therefore, the Applicant requests that the Commission refuse to apply the provisions of §98-44.

7.3 Town of LaGrange

Project activities in the Town of LaGrange would include the removal of 66 electric transmission structures, to be replaced by the construction of 13 double pole structures and 53 single pole structures associated with approximately 6.75 miles of the A and C Line Rebuild Project.

7.3.1 Chapter 83, Building Construction Administration and Enforcement

Chapter 83 implements the New York State Uniform Fire Prevention and Building Code and the State Energy Conservation Construction Code.

The Applicant will comply with Chapter 83. However, the Applicant requests that the Commission refuse to apply local stop-work order provisions granted in subsection §83-9, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection §83-4(B); as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building inspection.

7.3.2 Chapter 103, Dumps and Dumping

Chapter 103 regulates waste disposal and transport within the Town. The use of private or public lands for the purpose of waste disposal or dumping is prohibited. All garbage, industrial waste, or refuse transported within the Town is required to be handled and covered so it cannot be accessible to rodents, flies, or other insects, or create a nuisance.

The applicant will comply with the requirements of Chapter 103.

7.3.3 Chapter 107, Electrical Inspections

Chapter 107 outlines the roles of the Electrical Inspector for the Town. According to subsection §107-3(A), it is a violation for any person, firm or corporation to install or alter electrical wiring for light, heat or power without first filing an application for inspection with the local Electrical Inspector. According to §107-3(B), it is also a violation to connect electrical wiring in or on properties for light, heat, or power to any source of electrical energy supply prior to the issuance of a temporary certificate or certificate of compliance by the local Electrical Inspector. Per §107-3(C), the Electrical Inspector has stop work authority should they determine that any section of this chapter has been violated.

The Applicant will comply with Chapter 107, although local permitting requirements are preempted per PSL §130.

Because local permitting requirements are preempted, the Applicant requests that the Commission refuse to apply local stop-work order provisions granted in subsection §107-3(C), which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection §107-2; as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local electrical inspection.

7.3.4 Chapter 120, Flood Damage Prevention

Chapter 120 implements the National Flood Insurance Program. Chapter 120, §120-6 identifies a special flood hazard area within the Town, pursuant to Flood Insurance Rate Maps created by the Federal Emergency Management Agency. Floodplains associated with Wappinger Creek and Sprout Creek in the Town of LaGrange crossed by a portion of the proposed Project are included in this special flood hazard area. Subsection §120-12 establishes the local floodplain development permit requirement as follows: “A floodplain development permit is hereby established for all construction and other development to be undertaken in areas of special flood hazard in this community for the purpose of protecting its citizens from increased flood hazards

and ensuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in an area of special flood hazard, as shown on the Flood Insurance Rate Map enumerated in §120-6, without a valid floodplain development permit.”

Chapter 120 also details requirements for construction within special flood hazard areas, including general construction standards (§120-15). The construction standards detailed in subsection §120-15 are applicable to “new development, including new and substantially improved structures, in the areas of special flood hazard shown on the Flood Insurance Rate Map designated in §120-6.” Development is defined within subsection §120-4 as “any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials”, which would appear to apply to the Project. Subsection §120-15(B) requires applicants to demonstrate that encroachments within special flood hazard areas will not cause increases in flood levels during flood events. Chapter 120, §120-14(F) authorizes the local zoning administrator to issue stop-work orders for floodplain development found ongoing without a development permit, or for that which is found noncompliant with the provisions of Chapter 120.

The Applicant requests that the Commission refuse to apply the provisions of subsection §120-15 of the Town of LaGrange’s flood damage prevention ordinance. The ordinance is designed to regulate the construction of primarily residential, commercial, and industrial structures, as opposed to the utility facilities included in the proposed Project. The transmission facilities proposed to be located within the special flood hazard area include poles C16 and C33, both in the 500-year floodplain. The Project would convert existing two-pole structures to monopole structures. The transmission facilities proposed to be located within the special flood hazard area are not prone to flood damage in the same way that residential, commercial, or industrial structures are. In addition, the proposed Project will not alter the floodplain, and will not increase flood hazards to adjacent properties. As proposed, the new transmission towers would replace two existing structures (consisting of four individual poles) that are currently located within the special flood hazard area, or overhead transmission lines would traverse them. For these reasons, subsection §120-15 of the Code of the Town of LaGrange is unduly restrictive in view of existing technology.

The Applicant further requests that the Commission refuse to apply local stop-work order provisions granted in subsection §120-14(F) , which the Applicant believes to be unduly restrictive in relation to project cost and the needs of utility ratepayers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-

work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.3.5 Chapter 124, Freshwater Wetlands, Watercourses, and Water Bodies

Pursuant to Chapter §124-2, “it is declared to be the public policy of the Town of LaGrange to preserve, protect and conserve freshwater wetlands, watercourses and water bodies and the benefits derived therefrom; to prevent despoilation and destruction of freshwater wetlands, watercourses and water bodies; and to regulate development in such wetlands and protect such watercourses and water bodies in order to secure the natural benefits derived therefrom consistent with the general welfare and the beneficial economic, social and agricultural development of the Town” (Town of LaGrange, 2002). According to Chapter 124, the boundaries of wetlands shall be determined by field investigation.

Chapter 124, §124-7(C) identifies eight activities that are subject to regulation, including the erection of “any structures or roads, the driving of pilings or placing of any other obstructions, whether or not changing the ebb and flow of the water” (Town of LaGrange, 2002). Chapter 124, §124-5 defines structure as “anything constructed or erected, the use of which requires location on or within the ground or attachment to something having location on the ground, including but not limited to buildings, tennis courts, swimming pools, as examples.” This definition would include the proposed Project, as the proposed transmission towers may be located within a regulated proximity to a delineated wetland.

The Applicant will comply with Chapter 124 and Article 24, although local permitting requirements and those of Article 24 of the ECL are preempted per PSL §130.

However, the Applicant requests that the Commission refuse to apply local enforcement authority as described in §124-15, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Penalties and appearance tickets pursuant to local authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.3.6 Chapter 140, Illicit Discharges to Storm Sewers

Chapter 140 regulates discharges into the Town of LaGrange municipal separate storm sewer system, per the requirements of the Town's SPDES General Permit.

The applicant will comply with the requirements of Chapter 140.

7.3.7 Chapter 162, Noise

Chapter 162 delineates permitted noise levels within the Town of LaGrange. Chapter 162, §162-4 states that “no person shall make, continue or cause or permit to be made or continued any unnecessary noise” (Town of LaGrange, 2002). Chapter 162, §162-2 defines such noises as “any excessive or unusually loud sound or any sound which either annoys, disturbs, injures or endangers the comfort, repose, health, peace or safety of a person or which causes injury to animal life or damages to property or business” (Town of LaGrange, 2002). The standard by which unnecessary noise shall be judged includes a consideration regarding “whether the sound source is temporary” (Town of LaGrange, 2002). The ordinance does not state whether this standard applies specifically to construction-related noises, nor is the term “temporary” defined within the ordinance.

The list of prohibited acts in §162-5 includes construction-related noises between the hours of 9:00 p.m. and 6:30 a.m., pump or fan-related noises between 11:00 p.m. and 7:00 a.m., and the loading and unloading of vehicles or materials between the hours of 11:00 p.m. and 7:00 a.m. within 300 feet of a residentially zoned area.

The list of permitted noises in §162-10 include sounds created by public utilities in carrying out the operations of their franchise.

Sounds created by public utilities are allowed pursuant to subsection §162-10. The construction process will include the use of motorized equipment during transportation, excavation, and erection of the proposed transmission towers. Temporary noises produced by such equipment are unavoidable given the nature of the activities. Industry-standard noise mitigation techniques will be employed as part of the project.

Construction hours of operation will be determined by the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Construction hours are anticipated to be in compliance with the requirements of §162-5.

7.3.8 Chapter 195, Solid Waste

Chapter 195 regulates local garbage disposal and collection. According to §195-2, only residents and business owners may utilize the Town dump facilities.

The applicant will comply with the requirements of Chapter 195.

7.3.9 Chapter 197, Stormwater Management and Erosion and Sediment Control

Chapter 197 regulates development within the Town of LaGrange with regard to erosion control measures. Unless otherwise exempted, all land development activities are required to submit stormwater pollution prevention plans to the Town's Stormwater Management Officer. Eleven categories of activity are granted exemption per §197-6, including the "installation of fence, sign, telephone, and electric poles and other kinds of posts and poles" (Town of LaGrange, 2002). The ordinance does not make a clear distinction between electric poles and transmission towers; however, it is assumed that towers such as those included in the proposed Project are not exempted in §197-6.

Article IV of Chapter 197 outlines the requirements of stormwater pollution prevention plans to be submitted in support of land development activities. In addition, any land development activity disturbing more than one acre (with exceptions for single-family residences and agricultural activities) must provide additional information with regard to each post-construction stormwater management practice per the requirements of §197-9.

The Applicant will comply with Chapter 197. However, stormwater management and sediment control requirements will be determined by conditions of the Certificate of Environmental Compatibility and Public Need, the approved EM&CP, and a Stormwater Pollution Prevention Plan (SWPPP).

Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. The approved EM&CP will include as an appendix a Stormwater Pollution Prevention Plan that will satisfy the requirements of General Permit No. GP-0-10-001 dated January 29, 2010.

7.3.10 Chapter 199, Streets and Sidewalks

Chapter 199, §199-52 requires the issuance of a work permit for any excavations made within a Town right-of-way.

The proposed Project will require overhead crossings of the following roads within the Town of LaGrange:

- *Rombout Road*
- *Overlook Road/County Route 46*
- *Frost Hill Road*
- *Cramer Road*
- *Vervalen Drive*
- *Freedom Plains Road/State Route 55*
- *Bushwick Road*
- *Croft Hill Road*
- *Old Noxon Road*
- *Noxon Road/County Route 21*
- *Pine Ridge Road*
- *Diddell Road*

The Applicant will comply with Chapter 199, although local permitting requirements are preempted per PSL §130.

7.3.11 Chapter 226, Vehicles and Traffic

Chapter 226 outlines regulations related to vehicular movement on roadways within the Town. Article II of Chapter 226 regulates stop and yield intersections, and Article IV regulates parking, stopping, and standing.

The applicant will comply with the requirements of Chapter 226.

7.3.12 Chapter 240, Zoning

Chapter 240 describes 12 zoning districts within the Town of LaGrange. The proposed Project is located within the Moderate Density Residential (R-40/60/80), Low Density Residential (R-80), and Rural Residential (R-120) districts. Per Schedule A of §240-27 (the Schedule of Permitted Uses and Special Use Permits), each of these

districts allows for “essential services” as a permitted use subject to project development plan review. Article XI, §240-112 of Chapter 240 defines essential services as “the erection, construction, alteration, or maintenance by public utilities or the Town or other governmental agencies of underground, surface or overhead electrical, gas or water transmission or distribution systems, including poles, wires, mains, drains, sewers, pipes, conduits, cables, fire alarm boxes, police call boxes, traffic signals, hydrants, and other similar equipment and accessories, in connection therewith reasonably necessary for the furnishing of adequate service by such public utilities or Town or other governmental agencies or for the public health or safety or general welfare, but not including buildings” (Town of LaGrange, 2002).

Article VII of Chapter 240 outlines requirements for the project development plan review process. Per Schedule A of Chapter 240, only site plan approval would be required. Schedule A of Chapter 240 also notes that such reviews are a prerequisite for the development of essential services within the R-40/60/80, R-80, and R-120 districts, the applicability of the process for such uses is unclear per the requirements of Article VII. Chapter 240, §240-72 notes the following:

“Project development plan approval by the Planning Board in accordance with this section is required for the proposed use or changes in use of land, buildings, and other structures for:

- (a) All special use permits in R-120, R-80, and R-40/60/80 Districts.
- (b) In all other districts, new principal uses, accessory uses and special permit uses and any expansion or reconstruction of existing uses.” (Town of LaGrange, 2002)

Dimensional requirements are detailed in Schedule B of §240-28, the Schedule of Bulk Regulations and Coverage Limitations. Dimensional requirements for the R-40/60/80, R-80, and R-120 districts are as follows:

- Moderate Density Residential (R-40/60/80):
 - o Minimum single-family residential lot area:
 - With public water and sewer: 40,000 square feet
 - With public water or sewer: 60,000 square feet
 - Without private well and septic system: 80,000 square feet
 - o Minimum width of lot along building line: 150 feet
 - o Minimum width of lot at any point:
 - On 40,000 square foot lots: 50 feet
 - On 60,000 square foot lots: 75 feet
 - On 80,000 square foot lots: 100 feet
 - o Minimum dimension of building square on lot: 150 feet
 - o Minimum lot frontage on Town right-of-way:

- On 40,000 square foot lots: 50 feet
 - On 60,000 square foot lots: 50 feet
 - On 80,000 square foot lots: 75 feet
 - Minimum lot frontage on County or State highway:
 - On 40,000 square foot lots: 125 feet
 - On 60,000 square foot lots: 125 feet
 - On 80,000 square foot lots: 200 feet
 - Maximum height of a building or structure: 35 feet
 - Minimum yard depth:
 - Front yard from County/State road: 90 feet
 - Front yard from Town road: 55 feet (from lot line) and 80 feet (from road centerline)
 - Rear yard: 20 feet
 - Side yard: 20 feet
 - Maximum total lot coverage as a percent of lot area (buildings, structures, outdoor deposit, paving):
 - On 40,000 square foot lots: 30%
 - On 60,000 square foot lots: 25%
 - On 80,000 square foot lots: 20%
- Low Density Residential (R-80):
 - Minimum single-family residential lot area: 80,000 square feet
 - Minimum width of lot along building line: 200 feet
 - Minimum width of lot at any point: 100 feet
 - Minimum dimension of building square on lot: 200 feet
 - Minimum lot frontage on Town right-of-way: 75 feet
 - Minimum lot frontage on County or State highway: 200 feet
 - Maximum height of a building or structure: 35 feet
 - Minimum yard depth:
 - Front yard from County/State road: 90 feet
 - Front yard from Town road: 55 feet (from lot line) and 80 feet (from road centerline)
 - Rear yard: 30 feet
 - Side yard: 30 feet
 - Maximum total lot coverage as a percent of lot area (buildings, structures, outdoor deposit, paving): 20%
- Rural Residential (R-120):

- Minimum single-family residential lot area: 120,000 square feet
- Minimum width of lot along building line: 200 feet
- Minimum width of lot at any point: 150 feet
- Minimum dimension of building square on lot: 200 feet
- Minimum lot frontage on Town right-of-way: 100 feet
- Minimum lot frontage on County or State highway: 225 feet
- Maximum height of a building or structure: 35 feet
- Minimum yard depth:
 - Front yard from County/State road: 90 feet
 - Front yard from Town road: 55 feet (from lot line) and 80 feet (from road centerline)
 - Rear yard: 40 feet
 - Side yard: 40 feet
- Maximum total lot coverage as a percent of lot area (buildings, structures, outdoor deposit, paving): 15%

In addition to the conventional zones described above, Article III of Chapter 240 (§240-31) identifies six overlay zones, as follows: Stream Corridor; Farmland Preservation; Historic; Scenic; Ridgeline Protection; and Groundwater Protection. Per zone descriptions provided in §240-31, as well as the Town of LaGrange Overlay Zone Maps illustrating the locations where such overlays apply, proposed Project facilities would be located within the Ridgeline and Groundwater Protection Overlay Zones.

The Ridgeline Protection Overlay Zone requires that all new construction or development within that zone obtain a special permit from the Town Planning Board, and that such development constitutes a Type I action pursuant to the State Environmental Quality Review Act. Standards for development within this zone are described in §240-31(F)(4), as follows:

- Maximum building or structure height shall not exceed 35 feet;
- Maximum cleared area shall be no more than 50 feet in extent from the outer edge of the primary structure's footprint, and during construction only the minimum amount of existing vegetation shall be cleared;
- 25-foot buffer strips are required at the outer edge of cleared areas
 - these strips shall be planted with vegetation of sufficient height and density as determined by the Planning Board, and
 - these strips shall be free of any man-made structures, including but not limited to fences, facilities, and roads; and

- Proposed yard setbacks from the property line must be no less than 1.5 times the height of the proposed structure or the setback requirements in the existing zoning regulations, whichever are greater.

The general provisions of the Groundwater Protection Overlay Zone, as detailed in §240-13(G)(4), do not apply to facilities such as those included in the proposed Project.

Given that layout and design of the proposed facilities are being reviewed and approved pursuant to Article VII, the Applicant requests that the Commission refuse to apply subsection §240-72 that requires local site plan review and approval.

The Applicant requests that the Commission refuse to apply the dimensional requirements described within subsections §240-28 and §240-31 of the Code of the Town of LaGrange. The proposed Project is a permitted use within each zoning district, and will be constructed wholly within an existing ROW, where transmission lines are currently strung along existing towers. Both the existing ROW and the proposed tower locations have been and will be sited according to technical specifications regarding clearance, reliability criteria, span lengths, and directional requirements. The area and bulk requirements detailed within subsections §240-28 and §240-31 are not designed to accommodate these specifications. For these reasons, compliance with dimensional requirements are either not applicable, or are being reviewed pursuant to Article VII.

7.4 Town of Wappinger

Project activities in the Town of Wappinger would include the removal of 31 electric transmission structures, to be replaced by the construction of 8 double pole structures and 23 single pole structures associated with approximately 2.8 miles of the A and C Line Rebuild Project.

7.4.1 Chapter 80, Blasting

Chapter 80 requires the issuance of a blasting permit for any use of explosives within the Town of Wappinger. Per §80-6, the use of explosives shall be governed by the provisions of the following regulations:

- Article 16 of the New York State Labor Law;
- 12 NYCRR Part 39;
- Title 19 of NYCRR, Chapter XXXIII, Subchapter A, the Uniform Fire Prevention and Building Code of New York State;
- 27 CFR 55;

- 29 CFR 1926, Subpart U;
- Title 49 of the Code of Federal Regulations;
- NFPA No. 495-1973; and
- Generally recognized criteria and accepted industry standards for the manufacture, sale, transportation, storage, handling or use of explosives.

Blasting permits are issued by the Town of Wappinger Fire Inspector, and subject to standard requirements detailed in §80-8. Blasting hours are limited to the period between 8:30 a.m. and 3:00 p.m., Monday through Friday. Blasting is prohibited on Saturdays, Sundays, and legal holidays, unless otherwise approved by the Town.

Local permitting requirements are preempted per PSL §130. The Applicant will comply with Chapter 80 in the event that blasting is required; however, the Applicant does not anticipate that blasting will be necessary.

7.4.2 Chapter 85, Building Code Administration

Chapter 85 implements the New York State Uniform Fire Prevention and Building Code and the State Energy Conservation Construction Code.

The Applicant will comply with Chapter 85. However, the Applicant requests that the Commission refuse to apply local stop-work order provisions granted in §85-12, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection §85-10; as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building or fire inspection.

7.4.3 Chapter 117, Environmental Quality Review

Chapter 117 outlines Type I, Type II, and Exempt Actions within the Town of Wappinger, pursuant to Part 617 of Title 6 of the NYCRR.

The proposed Project is identified within §117-6(A) as an Exempt Action, as it requires a Certificate of Environmental Compatibility and Public Need under Article VII of the PSL.

7.4.4 Chapter 133, Flood Damage Prevention

Chapter 133 implements the National Flood Insurance Program. Chapter 133, §133-6 identifies a special flood hazard area within the Town, pursuant to Flood Insurance Rate Maps created by the Federal Emergency Management Agency. Floodplains associated with Sprout Creek in the Town of Wappinger crossed by a portion of the proposed Project are included in this special flood hazard area. Subsection §133-11 establishes the local floodplain development permit requirement as follows: “A floodplain development permit is hereby established for all construction and other development to be undertaken in areas of special flood hazard in this community for the purpose of protecting its citizens from increased flood hazards and insuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in an area of special flood hazard, as shown on the Flood Insurance Rate Map enumerated in § 133-6, without a valid floodplain development permit.”

Chapter 133 also details requirements for construction within special flood hazard areas, including general construction standards (§133-14). The construction standards detailed in subsection §133-14 are applicable to “new development, including new and substantially improved structures, in the areas of special flood hazard shown on the Flood Insurance Rate Map designated in §133-6.” Development is defined within subsection §133-4 as “Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials”, which would appear to apply to the project. Subsection §133-14(B) requires applicants to demonstrate that encroachments within special flood hazard areas will not cause increases in flood levels during flood events. Chapter 133, §133-13(F) authorizes the local zoning administrator to issue stop-work orders for floodplain development found ongoing without a development permit, or for that which is found noncompliant with the provisions of Chapter 133.

The Applicant requests that the Commission refuse to apply the provisions of subsection §133-14 of the Town of Wappinger’s flood damage prevention ordinance. The ordinance is designed to regulate the construction of primarily residential, commercial, and industrial structures, as opposed to the utility facilities included in the proposed Project. The transmission facilities proposed to be located within the special flood hazard area include poles A59, A60, and A61 in the 100-year floodplain and A31, A32, and A34 in the 500-year floodplain. The Project would convert existing two-pole structures to monopole structures. Transmission structures such as

these are not prone to flood damage in the same way that residential, commercial, or industrial structures are. In addition, the proposed Project will not alter the floodplain, and will not increase flood hazards to adjacent properties. As proposed, the new transmission towers would replace six existing structures (consisting of twelve individual poles) that are currently located within the special flood hazard area. For these reasons, subsection §133-14 of the town code is unduly restrictive in view of existing technology.

The Applicant further requests that the Commission refuse to apply local stop-work order provisions granted in subsection §133-13(F), which the Applicant believes to be unduly restrictive in relation to project cost and the needs of utility ratepayers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.4.5 Chapter 137, Freshwater Wetland, Waterbody and Watercourse Protection

Per Chapter 137, §137-2 “it is declared to be the public policy of the Town of Wappinger to preserve, protect and conserve freshwater wetlands, waterbodies and watercourses and the benefits derived therefrom and to prevent the despoliation and destruction of such freshwater resources by regulating activities with potential impacts to such resources in order to secure their natural benefits consistent with the general health, safety and welfare of the public, and with the beneficial economic, social and agricultural development of the Town of Wappinger”.

Chapter 137, §137-6(A) identifies 14 activities that are subject to regulation if they occur within a freshwater wetland or 100-foot buffer around such wetland, including the “placement or construction of any structure”. This statement would include the proposed Project, as the proposed transmission towers may be located within a delineated wetland.

The Applicant will comply with Chapter 137 and Article 24, although local permitting requirements, as well as those of Article 24 of the ECL, are preempted per PSL §130.

7.4.6 Chapter 166, Noise

Chapter 166 restricts certain noise sources within the Town of Wappinger. Per §166-2, “no person shall cause or permit to be caused any noise which can be heard by a person with normal hearing beyond the boundaries of property owned, leased or otherwise controlled by him”. Construction and demolition-related noises are

prohibited between the hours of 7:00 p.m. and 7:00 a.m. Subsection §166-5(J) exempts “sound generated by the normal operation of utilities”.

The Applicant considers the Project to be consistent with the exemption granted in subsection §166-5(J). The construction process will include the use of motorized equipment during transportation, excavation, and erection of the proposed transmission towers. Temporary noises produced by such equipment are unavoidable given the nature of the activities and the brevity of the construction season. Industry-standard noise mitigation techniques (e.g. properly maintained equipment) will be employed as part of the project.

Construction hours of operation will be determined by the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Construction hours are anticipated to be in compliance with the requirements of §166-7(C).

7.4.7 Chapter 206, Soil Erosion and Sediment Control

Chapter 206 regulates development within the Town of Wappinger with regard to erosion control measures. According to §206-8, no land development activities (e.g. grading, stripping, cutting, filling, excavation, or other site preparation) shall be conducted “without a grading permit issued by the Zoning Administrator, [...or], for anything other than a one-family dwelling, without site plan approval from the Planning Board, pursuant to §240-83”.

Article IV of Chapter 206 outlines the requirements of erosion and sediment control structures. In addition, it authorizes the local Zoning Administrator to issue cease and desist orders for any work that is not consistent with relevant applications, grading permits, and approved plans.

The Applicant will comply with Chapter 206, although local permitting requirements are preempted per PSL §130.

7.4.8 Chapter 210, Solid Waste

Chapter 210 regulates the storage and disposal of garbage and debris. The Town dump facility may not be used to dispose of garbage or debris that has originated from outside of the Town of Wappinger. Use of other private or public land for storage and/or disposal of garbage and debris are prohibited. In addition, §210-14 describes requirements for large refuse receptacles that are typically associated with construction-related activities. In

general, the ownership of large receptacles must be clearly identifiable, the receptacles must be securely closed and free of leakage, and the area around the receptacle must be kept free of debris and spillage.

The applicant will comply with the requirements of Chapter 210.

7.4.9 Chapter 213, Stormwater Management

Chapter 206 regulates development within the Town of Wappinger with regard to stormwater management. Per §213-3, these standards are applicable to “all land development activities... including, but not limited to, land development activities subject to review and approval by the Town Board, the Planning Board or the Zoning Board of Appeals of the Town under subdivision, site plan, special permit, wetland permit, grading permit and/or other environmental permit regulations”. Applicants must submit stormwater pollution prevention plans to the local Stormwater Management Officer, complete with details as enumerated in §213-6. However, per §213-4 (H), the installation of fence, sign, telephone and electric poles and other kinds of posts or poles are exempt from this review. Per §213-11, the Town may issue a stop-work order for land development activities that are inconsistent with permits issued by the Town.

Article II of Chapter 113 also prohibits illicit discharges into the local storm sewer system.

The Applicant will comply with Chapter 213, although local permitting requirements are preempted per PSL §130.

The Applicant requests that the Commission refuse to apply local stop-work order provisions granted in subsection §213-11, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. The approved EM&CP will include as an appendix a

Stormwater Pollution Prevention Plan that will satisfy the requirements of General Permit No. GP-0-10-001 dated January 29, 2010.

7.4.10 Chapter 230, Vehicles and Traffic

Chapter 230 outlines regulations related to vehicular movement on roadways within the Town. Article II of Chapter 226 outlines all traffic regulations, and Article III regulates parking, stopping, and standing specifically.

The applicant will comply with the requirements of Chapter 230.

7.4.11 Chapter 240, Zoning

Chapter 240 outlines requirements relative to 25 zoning districts within the Town of Wappinger. Of these, the proposed Project intersects four: 1-Family Residence District R-3A, 1-Family Residence District R-40, 1-Family Residence District R-40/80, and Conservation Commercial District CC. Per the Schedule of Use Regulations (Attachments 1 and 2 of Chapter 240, as referenced in §240-37), public utility uses are allowed within each of these districts, subject to special permits.

Dimensional requirements are detailed in Attachments 3 and 4 of Chapter 240. Dimensional requirements for each of the four districts listed above are as follows:

- 1- Family Residential District R-3A:
 - o Minimum lot size: 3 acres
 - o Minimum lot width: 225 feet
 - o Minimum lot depth: 300 feet
 - o Minimum lot frontage: 50 feet
 - o Minimum front yard from:
 - County/State highway: 75 feet
 - Center line of other street: 75 feet
 - Front lot line of other street: 75 feet
 - o Minimum side yard: 50 feet
 - o Minimum rear yard: 50 feet
 - o Maximum building height: 35 feet (transmission towers are exempt from building height restrictions, per §240-22) (B)
 - o Maximum lot coverage: 7%
- 1- Family Residential District R-40:

- Minimum lot size: 40,000 square feet
- Minimum lot width: 125 feet
- Minimum lot depth: 125 feet
- Minimum lot frontage: 50 feet
- Minimum front yard from:
 - County/State highway: 75 feet
 - Center line of other street: 75 feet
 - Front lot line of other street: 50 feet
- Minimum side yard: 25 feet
- Minimum rear yard: 50 feet
- Maximum building height: 35 feet (transmission towers are exempt from building height restrictions, per §240-22)
- Maximum lot coverage: 12%
- 1- Family Residential District R-40/80:
 - Minimum lot size:
 - With public water and sewer: 40,000 square feet
 - With public water or sewer: 60,000 square feet
 - Without public water and sewer: 80,000 square feet
 - Minimum lot width:
 - On 40,000 square foot lots: 125 feet
 - On 60,000 square foot lots: 150 feet
 - On 80,000 square foot lots: 200 feet
 - Minimum lot depth:
 - On 40,000 square foot lots: 125 feet
 - On 60,000 square foot lots: 150 feet
 - On 80,000 square foot lots: 200 feet
 - Minimum lot frontage: 50 feet
 - Minimum front yard: 50 feet (conflicting minimum front yard requirements exist; see below)
 - Minimum front yard from:
 - County/State highway: 75 feet
 - Center line of other street: 75 feet
 - Front lot line of other street: 50 feet
 - Minimum side yard: 40 feet (conflicting minimum side yard requirements exist; see below)
 - Minimum side yard:

- On 40,000 square foot lots: 25 feet
 - On 60,000 square foot lots: 30 feet
 - On 80,000 square foot lots: 40 feet
 - Minimum rear yard: 50 feet
 - Maximum building height: 35 feet (transmission towers are exempt from building height restrictions, per §240-22)
 - Maximum lot coverage: 10%
- Conservation Commercial District CC:
 - Minimum lot size: 1 acre
 - Minimum lot width: 100 feet
 - Minimum lot depth: 100 feet
 - Minimum lot frontage: 100 feet
 - Minimum front yard from:
 - County/State highway: 75 feet
 - Center line of other street: 75 feet
 - Front lot line of other street: 50 feet
 - Minimum side yard: 10 feet
 - Minimum rear yard: 30 feet
 - Maximum building height: 35 feet (transmission towers are exempt from building height restrictions, per §240-22)
 - Maximum building coverage: 20%
 - Maximum impervious surface: 40%
 - Minimum landscaped open space: 60%
 - Minimum parking setback from front, side, and rear lot lines: 20, 10, and 10 feet, respectively.

Article VII of Chapter 240, §240-44 describes four general standards for special use permits, as follows:

- The location and size of the use, the nature and intensity of the operations involved in or conducted in connection with it, the size of the site in relation to it and the location of the site with respect to streets giving access to it, are such that it will be in harmony with the appropriate and orderly development of the district in which it is located.
- The location, nature and height of buildings, walls, fences and the nature and extent of existing or proposed plantings on the site are such that the use will not hinder or discourage the appropriate development and use of adjacent land and buildings.

- Operations in connection with any special permit use will not be more objectionable to nearby properties by reason of noise, fumes, vibration, illumination or other characteristics, than would be the operations of any permitted use not requiring a special permit.
- Parking areas will be of adequate size for the particular use, will be properly located and suitably screened from adjoining residential uses and the entrance and exit drives shall be laid out so as to achieve maximum safety.

In addition to these standards, applicants for special use permits are required to submit site development plans for review by the Planning Board. This process requires the assessment of 16 project components for their compatibility with standards as defined in Chapter 240, §240-86. These standards require adequate site access, on-site circulation, landscaping and buffering, lighting, protection of natural resources, and drainage, as well as other requirements that may or may not apply to utility structures (e.g. building design, signage, etc.).

Per Article XI of Chapter 240, §240-101 “no business or industrial use shall hereafter be maintained, established, altered, moved or expanded” unless it complies with a series of performance standards. Neither Article XI nor Article II (Zoning- Definitions) indicates whether utility uses such as the proposed Project would be regulated as an industrial use. The noise-related performance standards enumerated in §240-13 provide an exemption for construction-related noise between 8:00 a.m. and sunset.

Given that layout and design of the proposed facilities are being reviewed and approved pursuant to Article VII, the Applicant requests that the Commission refuse to apply subsection §240-83 that requires local site plan review and approval.

The Applicant requests that the Commission refuse to apply the dimensional requirements described within Attachments 3 and 4 of Chapter 240. Special use permits and local site plan review requirements are preempted per PSL §130. The general standards under §240-44 and compatibility standards under §240-86 are considerations the commission will make, where applicable, in making its findings under PSL §126.

Both the existing right-of-way and the proposed tower locations have been and will be sited according to technical specifications regarding clearance, reliability criteria, span lengths, and directional requirements. The requirements detailed within Attachments 3 and 4 of Chapter 240 are not designed to accommodate these specifications. For these reasons, the bulk requirements described therein are unduly restrictive in view of existing technology.

7.5 Town of East Fishkill

Project activities in the Town of East Fishkill would include the removal of 3 electric transmission structures and the construction of 2 double pole structures and 1 single pole structure associated with approximately 0.2 mile of the A and C Line Rebuild Project.

7.5.1 Chapter 80, Building Construction and Fire Prevention

Chapter 80 implements the New York State Uniform Fire Prevention and Building Code.

The Applicant will comply with Chapter 80, although local permitting requirements are preempted per PSL §130.

The Applicant requests that the Commission refuse to apply local stop-work order provisions granted in subsection §80-10, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection §80-9; as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building inspection.

7.5.2 Chapter 108, Flood Damage Prevention

Chapter 108 implements the National Flood Insurance Program. Chapter 108, §108-6 identifies a special flood hazard area within the Town, pursuant to Flood Insurance Rate Maps created by the Federal Emergency Management Agency. Floodplains associated with Sprout Creek in the Town of East Fishkill crossed by a portion of the proposed Project are included in this special flood hazard area. Subsection §108-11 establishes the local floodplain development permit requirement as follows: “A floodplain development permit is hereby established for all construction and other development to be undertaken in areas of special flood hazard in this community for the purpose of protecting its citizens from increased flood hazards and insuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in an area of special flood hazard, as shown on the Flood Insurance Rate Map enumerated in §108-6, without a valid floodplain development permit.”

Subsection §108-14 details general standards for construction within special flood hazard areas. The construction standards detailed in subsection §108-14 are applicable to “new development, including new and substantially improved structures, in the areas of special flood hazard shown on the Flood Insurance Rate Map designated in §108-6.” Development is defined within subsection §108-4 as “any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials”, which would appear to apply to the Project. Subsection §108-14(B) requires applicants to demonstrate that encroachments within special flood hazard areas will not cause increases in flood levels during flood events. Chapter 108, §108-13(F) authorizes the local zoning administrator to issue stop-work orders for floodplain development found ongoing without a development permit, or for that which is found noncompliant with the provisions of Chapter 108.

The Applicant requests that the Commission refuse to apply the provisions of subsection §108-14 of the Town of East Fishkill’s flood damage prevention ordinance. The ordinance is designed to regulate the construction of primarily residential, commercial, and industrial structures, as opposed to the utility facilities included in the proposed Project. The transmission facilities proposed to be located within the special flood hazard area include pole A63 in the 500-year floodplain. The Project would convert existing two-pole structures to monopole structures. Transmission structures such as these are not prone to flood damage in the same manner as residential, commercial, or industrial structures are. In addition, the proposed Project will not alter the floodplain, and will not increase flood hazards to adjacent properties. As proposed, the new transmission towers would replace one existing structure (consisting of two individual poles) that is currently located within the special flood hazard area. For these reasons, subsection §108-14 of the town code is unduly restrictive in view of existing technology.

The Applicant further requests that the Commission refuse to apply local stop-work order provisions granted in subsection 108-13(F), which the Applicant believes to be unduly restrictive in relation to project cost and the needs of utility ratepayers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.5.3 Chapter 110, Freshwater Wetlands, Water Bodies, and Watercourses

Chapter 110 regulates development within and around wetlands, water bodies, and watercourses, including the following:

- Ponds, lakes, reservoirs, marshes, swamps, bogs, vernal pools or other area of permanent water retention, regardless of origin.
- All natural drainage systems, including rivers, streams and brooks which contain water at least three months of the year and the associated floodplains of such watercourses. (Town of East Fishkill, 2001).

Chapter 110, §110-3(B) identifies 15 activities that are subject to regulation if they occur within such areas, including the “erecting or enlarging any building or structure of any kind, roads, driveways, the driving of pilings, digging of wells or placing of any obstructions, whether or not they change the ebb and flow of the water” (Town of East Fishkill, 2001). This definition (which would fall within the definition of structure) would include the proposed Project, as the proposed transmission towers may be located within a wetland or floodplain.

Chapter 110, Chapter 110, §110-4(K) identifies 11 activities that are permitted by right within freshwater wetlands, water bodies and watercourses. These include activities within wetlands under the jurisdiction of the federal or state government for which a permit has been obtained from the appropriate agency provided that a copy of the permit is filed with the approval authority or if none, the Town Clerk. Per this chapter the proposed project would be an exempt activity since the activity is authorized under an existing U.S. Army Corps of Engineers Nationwide Permit.

The Applicant will comply with Chapter 110 although local permitting requirements are preempted per PSL §130.

The Applicant requests that the Commission refuse to apply local stop-work order provisions granted in subsection §110-7(C) , which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.5.4 Chapter 127, Littering

Chapter 127 prohibits the deposition of garbage or debris on or about any street, lawn, vacant lot, or in any building, public place, culvert, or stream within the Town.

The applicant will comply with the requirements of Chapter 127.

7.5.5 Chapter 154, Steep Slope Protection

Chapter 154 requires local permits for disturbances occurring on any area with greater than 3:1 slope or 33.33% grade. Per §154-3, disturbances include “excavation or fill or any combination which changes the existing ground surface by more than two feet, or any removal of trees and/or vegetation and shall include the conditions resulting from any excavation or fill” (Town of East Fishkill, 2001). The standards for approval of such permits are enumerated in §154-6.

The Applicant will comply with Chapter 154, although local permitting requirements are preempted per PSL §130. .

Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. Based on past experience and guidance provided by New York State Department of Public Service Staff, Central Hudson understands that this project's EM&CP and associated erosion control measures will fulfill the NYSDEC's erosion and sediment control requirements and that a separate SWPPP will not be required. Concurrent with the EM&CP filing, Central Hudson will provide the NYSDEC with the required Notice of Intent for coverage of this Project under General Permit No. GP-0-10-001 dated January 29, 2010 for Stormwater Discharges from Construction Activities. The required Notice of Termination of such General Permit coverage will be provided to the NYSDEC following completion of the Project.

7.5.6 Chapter 156, Storm Sewers

Together with Chapter 157, Chapter 156 regulates discharges into the Town of Pleasant Valley municipal separate storm sewer system, per the requirements of the Town's SPDES General Permit.

The Applicant will comply with Chapter 156, although permitting requirements are preempted per PSL §130.

7.5.7 Chapter 157, Stormwater Management and Erosion and Sediment Control

Chapter 157 regulates development within the Town of East Fishkill with regard to erosion control measures. Per §157-7(A), all land development activities are required to submit a stormwater pollution prevention plan to the Town. Nine categories of activity are granted exemption per §157-6, including the “installation of fence, sign, telephone, and electric poles and other kinds of posts and poles” (Town of East Fishkill, 2001). The ordinance does not make a clear distinction between electric poles and transmission towers; however, for purposes of preparing Exhibit 7, it is assumed that towers such as those included in the proposed Project are not exempted in §157-6.

The Applicant will comply with Chapter 80, although local permitting requirements are preempted per PSL §130.

Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. The approved EM&CP will include as an appendix a Stormwater Pollution Prevention Plan that will satisfy the requirements of General Permit No. GP-0-10-001 dated January 29, 2010.

7.5.8 Chapter 177, Vehicles and Traffic

Chapter 177 outlines regulations related to vehicular movement on roadways within the Town. Article I of Chapter 177 outlines parking regulations relative to public roads, specifically no-parking zones and seasonal parking restrictions.

The applicant will comply with the requirements of Chapter 177.

7.5.9 Chapter 194, Zoning

Zoning regulations are described in Chapter 194 of the Town Code. The proposed Project would be located in only one of the 17 existing districts, specifically the R-1 residential district. Public utility uses are not identified within the Schedule of Permitted Uses (§194-16 and Attachment 2) as a permitted use within the R-1 district, and are therefore not permitted per §194-8.

The Schedule of Bulk Regulations (§194-17 and Attachment 3) sets forth the following dimensional requirements for the R-1 residential district:

- Minimum lot size: 1 acre
- Minimum lot frontage: 50 feet
- Minimum lot width: 125 feet
- Minimum lot depth: 150 feet
- Minimum front yard: 50 feet
- Minimum side yard: 25 feet
- Minimum rear yard: 50 feet
- Maximum lot coverage: 12%
- Maximum building height: 35 feet

Per Chapter 194, §194-110, all power and communication lines shall be installed underground in the manner prescribed by regulations of the governmental agency or utility company having jurisdiction. However, where site or other environmental considerations would cause undue hardship, the appropriate reviewing agency shall have authority to waive this requirement.

Per Chapter 194, §194-161, the construction or modification of public utility structures, including the construction or use of overhead lines or other structures used for public utility purposes and subject to the jurisdiction of the Public Service Commission of the State of New York is a permitted use in the Industrial districts within the Town.

The Applicant requests that the Commission refuse to apply the use and dimensional requirements described within subsection §194-17 and Attachment 3.

The proposed Project will be constructed wholly within an existing right-of-way, where transmission lines are currently strung along existing towers, and will connect to an existing substation within the R-1 district. Both the existing right-of-way and the proposed tower locations have been and will be sited according to technical specifications regarding clearance, reliability criteria, span lengths, and directional requirements. The requirements detailed within §194-17 and Attachment 3 are not designed to accommodate these specifications. For these reasons, the bulk requirements described therein are unduly restrictive in view of existing technology.

7.6 References

Town of East Fishkill, New York. 2001. Code of the Town of East Fishkill. Published by General Code, as amended through June 23, 2011. Available at: <http://ecode360.com/EA0495>. Accessed January, 2013.

Town of LaGrange, New York. 2002. Code of the Town of LaGrange. Published by General Code, as amended through November 14, 2012. Available at: <http://ecode360.com/LA0563>. Accessed January, 2013.

Town of Pleasant Valley, New York. 1978. Code of the Town of Pleasant Valley. Published by General Code, as amended through April 11, 2012. Available at: <http://ecode360.com/PL0575>. Accessed January, 2013.

Town of Wappinger, New York. 1999. Code of the Town of Wappinger. Published by General Code, as amended through April 9, 2012. Available at: <http://ecode360.com/WA0691>. Accessed January, 2013.

**BEFORE THE
NEW YORK STATE
PUBLIC SERVICE COMMISSION**

In the Matter of the Application of Central Hudson Gas & Electric Corporation For a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law for the A and C Line Rebuild Project, Approximately 10.85 miles of 115 Kilovolt Transmission Lines in the Towns of Pleasant Valley, LaGrange, Wappinger, and East Fishkill, in Dutchess County

Case No.: 13-T-_____

**CENTRAL HUDSON GAS & ELECTRIC CORPORATION
A AND C LINE REBUILD PROJECT**

**EXHIBIT 7
LOCAL ORDINANCES**

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EXHIBIT 7 – LOCAL ORDINANCES

7.1 Introduction

Pursuant to 16 NYCRR § 86.8, this Exhibit identifies the local ordinances, laws and regulations that are applicable or potentially applicable to this project, and the status of compliance thereto. Pursuant to Section 130 of the Public Service Law, no state agency, municipality or any agency thereof may require any approval, permit or consent for the construction or operation of a facility subject to Article VII approval unless otherwise required by the Commission. The Commission has the responsibility of either waiving (at the request of the Applicant) or applying the requirements of the local municipalities where the Project is sited.

As described in Exhibit 2, CHG&E proposes to re-build and operate an approximately 10.8-mile electric transmission line located between the Towns of Pleasant Valley and East Fishkill in Dutchess County. This Project will be located in one county, four towns, and no villages. Towns crossed by the electric transmission line are the Towns of Pleasant Valley, LaGrange, Wappinger, and East Fishkill in Dutchess County.

The Applicant researched and directly inquired about local laws, ordinances and regulations that may pertain to this project. To determine the existence of ordinances for municipalities within the Project ROW, the Applicant contacted the town clerks or code enforcement officers, other appropriate officials, or the published ordinances for the above-referenced municipalities. Each of the four towns has local land use regulations in the form of a zoning ordinance that may apply to Project activities.

Section 126(1)(f) of the Public Service Law requires that the Commission find “that the location of the facility as proposed conforms to the applicable state and local laws and regulations...” To the extent the project does not conform to such laws, CHG&E has provided the justification for the Commission to refuse to apply such provisions to which the project cannot comply by explaining why such provision is unreasonably restrictive in view of the existing technology, or of factors of cost or economics, or of the needs of consumers whether located inside or outside of such municipality. In doing so, the Applicant has evaluated whether changes in the facility location or design could result in compliance with the specific law in question. A summary of these local ordinances and the project’s anticipated compliance is provided in Table 7-1, below.

7.1.1 Compliance Summary

The compliance summary contained in Table 7-1 below lists every substantive local legal provision potentially applicable to the Project. The table identifies whether the Applicant can or will comply with such potentially applicable local laws or where a waiver is being requested.

Table 7-1: Project Compliance Summary

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|--|--|---------------------------------------|
| Town of Pleasant Valley | Chapter 39, Building Construction | Will Comply |
| | Chapter 46, Driveways and Highway Permits | Will Comply |
| | Chapter 48, Fire Prevention | Will Comply |
| | Chapter 50, Flood Damage Prevention | Requests PSC Partial Refusal to Apply |
| | Chapter 53, Wetland, Water Body, and Watercourse Protection | Will Comply |
| | Chapter 57, Refuse Collection, Storage, and Disposal | Will Comply |
| | Chapter 60, Illicit Discharges, Activities and Connections | Will Comply |
| | Chapter 74, Stormwater Management and Erosion and Sedimentation Control | Will Comply |
| | Chapter 93, Vehicles and Traffic | Will Comply |
| | Chapter 98, Zoning | |
| | Chapter 98, Article III §98-11 — General Regulations, Schedule of Permitted Uses | Requests PSC Partial Refusal to Apply |
| | Chapter 98, Article III §98-12 — General Regulations, Schedule of Area and Bulk Requirements | Requests PSC Partial Refusal to Apply |
| Chapter 98, Article IV §98-44 — Supplementary Regulations, Public Utility Facility | Requests PSC Partial Refusal to Apply | |

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|--|--|---------------------------------------|
| Town of LaGrange | Chapter 83, Building Construction Administration and Enforcement | Will Comply |
| | Chapter 103, Dumps and Dumping | Will Comply |
| | Chapter 117, Electrical Inspection | Will Comply |
| | Chapter 120, Flood Damage Prevention | Requests PSC Partial Refusal to Apply |
| | Chapter 124, Freshwater Wetlands, Watercourses, and Water Bodies | Will Comply |
| | Chapter 140, Illicit Discharges to Storm Sewers | Will Comply |
| | Chapter 162, Noise | Requests PSC Partial Refusal to Apply |
| | Chapter 195, Solid Waste | Will Comply |
| | Chapter 197, Stormwater Management and Erosion and Sediment Control | Will Comply |
| | Chapter 199, Streets and Sidewalks | Will Comply |
| | Chapter 226, Vehicles and Traffic | Will Comply |
| | Chapter 240, Zoning | |
| | Chapter 240, Article II §240-27— Establishment and Designation of Districts, Schedule of Permitted Uses and Special Use Permits | Requests PSC Partial Refusal to Apply |
| | Chapter 240, Article II §240-28— Establishment and Designation of Districts, Schedule of Bulk Regulations and Coverage Limitations | Requests PSC Partial Refusal to Apply |
| Chapter 240, Article III §240-31— Special Zoning District Provisions, Preservation Overlay Zones | Requests PSC Partial Refusal to Apply | |
| Town of Wappinger | Chapter 80, Blasting | Will Comply |
| | Chapter 85, Building Code Administration | Will Comply |

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|--|--|---------------------------------------|
| | Chapter 117, Environmental Quality Review | Will Comply |
| | Chapter 133, Flood Damage Prevention | Requests PSC Partial Refusal to Apply |
| | Chapter 137, Freshwater Wetland, Waterbody, and Watercourse Protection | Will Comply |
| | Chapter 166, Noise | Requests PSC Partial Refusal to Apply |
| | Chapter 206, Soil Erosion and Sediment Control | Will Comply |
| | Chapter 210, Solid Waste | Will Comply |
| | Chapter 213, Stormwater Management | Will Comply |
| | Chapter 230, Vehicles and Traffic | Will Comply |
| | Chapter 240, Zoning | |
| | Chapter 240, Article VI §240-37, Attachments 1 and 2 – District Regulations, Schedule of Use Regulations | Requests PSC Partial Refusal to Apply |
| | Chapter 240, Article VI §240-37, Attachments 3 and 4 – District Regulations, Schedule of Dimensional Regulations | Requests PSC Partial Refusal to Apply |
| | Chapter 240, Article VII §240-44, Special Permit Uses, General Standards | Requests PSC Partial Refusal to Apply |
| | Chapter 240, Article IX §240-86, Site Development Plans, Standards for Site Development Plan Approval | Requests PSC Partial Refusal to Apply |
| Chapter 240, Article XI, Performance Standards | Requests PSC Partial Refusal to Apply | |
| Town of East Fishkill | Chapter 80, Building Construction and Fire Prevention | Will Comply |
| | Chapter 108, Flood Damage Prevention | Requests PSC Partial Refusal to Apply |
| | Chapter 110, Freshwater Wetlands, Water Bodies, and Watercourses | Will Comply |

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|---------------------|--|---------------------------------------|
| | Chapter 127, Littering | Will Comply |
| | Chapter 154, Steep Slope Protection | Will Comply |
| | Chapter 156, Storm Sewers | Will Comply |
| | Chapter 157, Stormwater Management and Erosion and Sediment Control | Will Comply |
| | Chapter 177, Vehicles and Traffic | Will Comply |
| | Chapter 194, Zoning | |
| | Chapter 194, Article V §194-16, Attachment 2 – Schedules of Regulations, Schedule of Permitted Uses | Requests PSC Partial Refusal to Apply |
| | Chapter 194, Article V §194-17, Attachment 3 – Schedules of Regulations, Schedule of Bulk Regulations | Requests PSC Partial Refusal to Apply |

| MUNICIPALITY | APPLICABLE ORDINANCE | PROJECT COMPLIANCE STATUS |
|--------------------------------|--|------------------------------------|
| <u>Town of Pleasant Valley</u> | <u>Chapter 39, Building Construction</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 39, §39-4, Stop-work Orders</u> | <u>Waiver Requested</u> |
| | <u>Chapter 46, Driveways and Highway Permits</u> | <u>Will Comply</u> |
| | <u>Chapter 48, Fire Prevention</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 48, §48-6(B), Firesafety and property maintenance inspections [re: local inspections]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 50, Flood Damage Prevention</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 50, Article III §50-11 – Floodplain Development Permit</u> | <u>Waiver Requested</u> |
| | <u>Chapter 50, Article III §50-13(F) – Duties and Responsibilities of Local Administrator [re: stop-work orders]</u> | <u>Waiver Requested</u> |

| <u>MUNICIPALITY</u> | <u>APPLICABLE ORDINANCE</u> | <u>PROJECT COMPLIANCE STATUS</u> |
|-------------------------|---|------------------------------------|
| | <u>Chapter 53, Wetland, Water Body, and Watercourse Protection</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 53, Article III §50-8, Prohibited Activities [re: local enforcement]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 57, Refuse Collection, Storage, and Disposal</u> | <u>Will Comply</u> |
| | <u>Chapter 60, Illicit Discharges, Activities and Connections</u> | <u>Will Comply</u> |
| | <u>Chapter 74, Stormwater Management and Erosion and Sedimentation Control</u> | <u>Will Comply</u> |
| | <u>Chapter 93, Vehicles and Traffic</u> | <u>Will Comply</u> |
| | <u>Chapter 98, Zoning</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 98, Article III §98-11 – General Regulations, Schedule of Permitted Uses [re: local site plan review requirements]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 98, Article III §98-12 – General Regulations, Schedule of Area and Bulk Requirements [re: setbacks, height restrictions]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 98, Article IV §98-44 – Supplementary Regulations, Public Utility Facility [re: screening requirements]</u> | <u>Waiver Requested</u> |
| <u>Town of LaGrange</u> | <u>Chapter 83, Building Construction Administration and Enforcement</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 83, §83-9, Stop-work Orders</u> | <u>Waiver Requested</u> |
| | <u>Chapter 103, Dumps and Dumping</u> | <u>Will Comply</u> |
| | <u>Chapter 107, Electrical Inspection</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 107, §107-3(C), Stop-work Orders</u> | <u>Waiver Requested</u> |
| | <u>Chapter 120, Flood Damage Prevention</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 120, §120-14(F) – Duties and Responsibilities of Local Administrator [re: stop-work orders]</u> | <u>Waiver Requested</u> |

| <u>MUNICIPALITY</u> | <u>APPLICABLE ORDINANCE</u> | <u>PROJECT COMPLIANCE STATUS</u> |
|--------------------------|---|------------------------------------|
| | <u>Chapter 120, §120-15 – General Construction Standards [re: local permit requirements]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 124, Freshwater Wetlands, Watercourses, and Water Bodies</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 124, §124-15 Permit Procedure– [re: local enforcement]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 140, Illicit Discharges to Storm Sewers</u> | <u>Will Comply</u> |
| | <u>Chapter 162, Noise</u> | <u>Will Comply</u> |
| | <u>Chapter 195, Solid Waste</u> | <u>Will Comply</u> |
| | <u>Chapter 197, Stormwater Management and Erosion and Sediment Control</u> | <u>Will Comply</u> |
| | <u>Chapter 199, Streets and Sidewalks</u> | <u>Will Comply</u> |
| | <u>Chapter 226, Vehicles and Traffic</u> | <u>Will Comply</u> |
| | <u>Chapter 240, Zoning</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 240, Article II §240-27 – Establishment and Designation of Districts, Schedule of Permitted Uses and Special Use Permits [re: local site plan review requirements]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 240, Article II §240-28 – Establishment and Designation of Districts, Schedule of Bulk Regulations and Coverage Limitations [re: setbacks, height restrictions]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 240, Article III §240-31 – Special Zoning District Provisions, Preservation Overlay Zones [re: setbacks, height restrictions]</u> | <u>Waiver Requested</u> |
| <u>Town of Wappinger</u> | <u>Chapter 80, Blasting</u> | <u>Will Comply</u> |
| | <u>Chapter 85, Building Code Administration</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 85, §85-10, Inspections; Notification of Fire or Explosion; Operating Permits [re: local inspections]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 85, §85-12, Stop-Work Orders</u> | <u>Waiver Requested</u> |

| <u>MUNICIPALITY</u> | <u>APPLICABLE ORDINANCE</u> | <u>PROJECT COMPLIANCE STATUS</u> |
|--|---|------------------------------------|
| | <u>Chapter 117, Environmental Quality Review</u> | <u>Will Comply</u> |
| | <u>Chapter 133, Flood Damage Prevention</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 133, §133-13(F) – Duties and Responsibilities of Code Enforcement Officer and Zoning Administrator [re: stop-work orders]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 133, §133-14(B) – General Standards, Encroachment [re: local permit requirements]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 137, Freshwater Wetland, Waterbody, and Watercourse Protection</u> | <u>Will Comply</u> |
| | <u>Chapter 166, Noise</u> | <u>Will Comply</u> |
| | <u>Chapter 206, Soil Erosion and Sediment Control</u> | <u>Will Comply</u> |
| | <u>Chapter 210, Solid Waste</u> | <u>Will Comply</u> |
| | <u>Chapter 213, Stormwater Management</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 213, §213-11, Enforcement [re: stop-work orders]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 230, Vehicles and Traffic</u> | <u>Will Comply</u> |
| | <u>Chapter 240, Zoning</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 240, Article VI §240-37, Attachments 1 and 2– District Regulations, Schedule of Use Regulations [re: local site plan review and special permit requirements]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 240, Article VI §240-37, Attachments 3 and 4 – District Regulations, Schedule of Dimensional Regulations [re: setbacks, height restrictions]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 240, Article VII §240-44, Special Permit Uses, General Standards [re: site plan and operational requirements]</u> | <u>Waiver Requested</u> |
| <u>Chapter 240, Article IX §240-83, Site Development Plan Approval [re: site plan approval requirements]</u> | <u>Waiver Requested</u> | |
| <u>Town of East Fishkill</u> | <u>Chapter 80, Building Construction and Fire Prevention</u> | <u>Will Comply Except as Noted</u> |

| <u>MUNICIPALITY</u> | <u>APPLICABLE ORDINANCE</u> | <u>PROJECT COMPLIANCE STATUS</u> |
|---------------------|---|------------------------------------|
| | <u>Chapter 80, §80-10, Stop-Work Orders</u> | <u>Waiver Requested</u> |
| | <u>Chapter 108, Flood Damage Prevention</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 108, Article III §108-13(F), Duties and Responsibilities of Local Administrator [re: stop-work orders]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 108, Article III §108-14, General Standards [re: local permit requirements]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 110, Freshwater Wetlands, Water Bodies, and Watercourses</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 110, §110-7(C), Permit Limitations, Certificate of Completion [re: stop-work orders]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 127, Littering</u> | <u>Will Comply</u> |
| | <u>Chapter 154, Steep Slope Protection</u> | <u>Will Comply</u> |
| | <u>Chapter 156, Storm Sewers</u> | <u>Will Comply</u> |
| | <u>Chapter 157, Stormwater Management and Erosion and Sediment Control</u> | <u>Will Comply</u> |
| | <u>Chapter 177, Vehicles and Traffic</u> | <u>Will Comply</u> |
| | <u>Chapter 194, Zoning</u> | <u>Will Comply Except as Noted</u> |
| | <u>Chapter 194, Article V §194-16, Attachment 2–Schedules of Regulations, Schedule of Permitted Uses [re: prohibition of uses not specifically permitted]</u> | <u>Waiver Requested</u> |
| | <u>Chapter 194, Article V §194-17, Attachment 3–Schedules of Regulations, Schedule of Bulk Regulations [re: setbacks, height restrictions]</u> | <u>Waiver Requested</u> |

7.2 Town of Pleasant Valley

Project activities in the Town of Pleasant Valley would include the removal of 12 electric transmission structures, to be replaced by the construction of 4 double pole structures and 8 single pole structures associated with approximately 1.25 miles of the A and C Lines Rebuild Project.

7.2.1 Chapter 39, Building Construction

Chapter 39 and Chapter 48 (see below) implement the New York State Uniform Fire Prevention and Building Code and the State Energy Conservation Construction Code.

~~Local permitting requirements are preempted per PSL §130. However, t~~The Applicant will comply with the substantive portions~~requirements~~ of Chapter 39, ~~that are applicable to the Project. However,~~

~~t~~The Applicant ~~further~~ requests that the Commission refuse to apply local stop-work order provisions granted in subsection §39-14, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection 39-4(B); as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building inspection.

7.2.2 Chapter 46, Driveways and Highway Permits

Chapter 46, §46-1 requires the issuance of a highway work permit for any improvements made within a Town right-of-way.

The Applicant will comply with the requirements of Chapter 46, although the need for a local highway work permit is preempted by PSL §130. The proposed Project will require overhead crossings of Plass Road and Niagara Road. ~~The need for a local highway work permit is preempted by PSL §130.~~
~~Central Hudson will work with local highway superintendents to ensure that the standard requirements for new driveways contained in §46-3, if required, are met.~~

7.2.3 Chapter 48, Fire Prevention

Chapter 48 and Chapter 39 (see above) implement the New York State Uniform Fire Prevention and Building Code and the State Energy Conservation Construction Code.

The applicant will comply with the requirements of Chapter 48. However, the Applicant requests that the Commission refuse to apply local inspection provision granted in subsection §48-6(B); as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building inspection.

Local permitting requirements are preempted per PSL §130. However, the Applicant will comply with the substantive portions of Chapter 48 that apply to the Project.

7.2.4 Chapter 50, Flood Damage Prevention

Chapter 50 implements the National Flood Insurance Program. Chapter 50, §50-6 identifies a special flood hazard area within the Town, pursuant to Flood Insurance Rate Maps created by the Federal Emergency Management Agency. Floodplains associated with Wappinger Creek in the Town of Pleasant Valley crossed by a portion of the proposed Project are included in this special flood hazard area. Subsection §50-11 establishes the local floodplain development permit requirement as follows: “A floodplain development permit is hereby established for all construction and other development to be undertaken in areas of special flood hazard in this community for the purpose of protecting its citizens from increased flood hazards and insuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in an area of special flood hazard, as shown on the Flood Insurance Rate Map enumerated in § 50-6, without a valid floodplain development permit.” Article IV of Chapter 50 details requirements for construction within special flood hazard areas, including

Chapter 50 also details requirements for construction within special flood hazard areas, including general standards (§50-14), standards for all structures (§50-15), and standards for nonresidential structures (§50-17). The construction standards detailed in subsection §50-14 are applicable to “new development, including new and cumulative substantially improved structures, in the areas of special flood hazard shown on the Flood Insurance Rate Map designated in §50-6.” Development is defined within §50-4 as “any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials”, which would appear to apply to the Project. these standards appear to be inapplicable given that “structure” is defined as a “walled and roofed building, including a gas or liquid storage tank, that is principally above the ground, as well as a manufactured home” (§50-4). Subsection §50-14(B) requires applicants to demonstrate that encroachments within special flood hazard areas will not cause increases in flood levels during flood events. Chapter 50, §50-13(F) authorizes the local zoning administrator to issue stop-work orders for floodplain development found

ongoing without a development permit, or for that which is found noncompliant with the provisions of Chapter 50. ~~Under the code, the term development is more broadly defined than “structure” and could include work on the ROW.~~

The Applicant requests that the Commission refuse to apply the provisions of Chapter §50-11 of the Town of Pleasant Valley’s flood damage prevention ordinance that require all structures within the floodplain to go through a local permitting process. The ordinance is designed to regulate the construction of primarily residential, commercial, and industrial structures, as opposed to the transmission facilities included in the proposed Project. The transmission facilities proposed to be located within the special flood hazard area include poles C2 and C3 in the 100-year floodplain and C4 in the 500-year floodplain. The Project would convert existing two-pole structures to monopole structures. Transmission structures such as these are not prone to flood damage in the same ~~manner as~~ way that residential, commercial, or industrial structures are. In addition, the proposed Project will not alter the floodplain, and will not increase flood hazards to adjacent properties. As proposed, the new transmission towers would replace ~~a number of these~~ three existing structures (consisting of six individual poles) that are currently located within the special flood hazard area. For these reasons, Chapter 50 of the Code of the Town of Pleasant Valley is unduly restrictive in view of existing technology.

The Applicant further requests that the Commission refuse to apply Chapter §50-13(F) of the ordinance which includes local stop-work order provisions, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.2.5 Chapter 53, Wetland, Water Body, and Watercourse Protection

Pursuant to §53-1, “it is declared to be the public policy of the Town of Pleasant Valley to preserve, protect and conserve freshwater wetlands, watercourses and water bodies and to regulate development in such wetlands and protect such watercourses and water bodies in order to secure the natural benefits derived therefrom consistent with the general welfare and the beneficial economic, social and agricultural development of the Town” ~~(Town of Pleasant Valley, 1978)~~. According to §53-1, the areas subject to regulation under Chapter 53 are as follows:

- All wetlands identified on the map entitled "Town of Pleasant Valley, Dutchess County, N.Y." prepared by the Dutchess County Environmental Management Council, GIS Lab, and dated March 2001, as amended, and any other wetlands as yet unmapped exceeding 1/2 acre in area that will meet the definition provided in § 24-0107(1) of the New York State Freshwater Wetlands Act as amended and updated.
- All water bodies, natural or created, having an area of a 1/2 acre or more.
- All lands lying within:
 - Twenty-five feet of wetlands and water bodies of 1/2 acre to one acre in size;
 - Fifty feet of wetlands and water bodies of one acre to two acres in size;
 - Seventy-five feet of wetlands and water bodies of two acres to three acres in size; and
 - One-hundred feet of wetlands and water bodies of three acres or more in size.
- All lands lying within 100 feet of the normal stream bank of the Wappingers Creek, Little Wappingers Creek, Great Spring Creek, and any other perennial watercourse or tributary to these named streams. A twenty-five-foot-wide natural buffer shall be maintained from the normal stream bank for all activities except for those dependent upon the passive recreational use of the stream or as a source of water for emergency purposes or agriculture in accordance with Agricultural Best Management Practices.
- Wetlands located on property that is the subject of a subdivision application pursuant to Chapter 82 shall also be subject to the provisions of § 82-18 and to any requirements that may be imposed by the Planning Board in the application process. [\(Town of Pleasant Valley, 1978\)](#)

Chapter 53, §53-4 identifies six regulated activities, including the erection “of any structure, construction of roads, driving of pilings or placing of any other obstructions, whether or not changing the ebb and flow of the water” [\(Town of Pleasant Valley, 1978\)](#). This definition would include the proposed Project, as the proposed transmission towers may be located within a regulated proximity to a delineated wetland.

Chapter 53, §53-5 identifies three prohibited activities. These activities are as follows:

- Placement or deposit of any chemical waste, hazardous waste, or storage of any materials that could result in the contamination of any wetland, water body or watercourse.
- Introduction of fluids or other materials with sufficiently high temperature to cause injurious or other harmful ecological effects in any wetland, water body, watercourse or buffer area.
- Such activities which may cause substantial damage or destruction to wetlands.

Potential construction activities have the potential to result in contamination or damage to wetlands, water bodies or other watercourse. [This-The](#) potential as well as detailed construction measures to prevent such occurrences are described in Exhibit 4 of this application and the project’s EM&CP.

Chapter 53, §53-6 establishes a requirement for obtaining local permits for undertaking these activities within regulated areas, noting that “Anyone proposing to undertake a regulated activity within a freshwater wetland, watercourse or water body, or its buffer, shall apply for and receive a permit from the Town before commencing such regulated activity.” In addition, according to §53-8, “Any person or entity found to be in violation of this chapter shall be ordered and required to cease and desist the violating activity.”

The Applicant will comply with Chapter 53. However, the Applicant requests that the Commission refuse to apply local enforcement authority as described in §53-8, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Cease and desist orders and fines pursuant to local authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

Local permitting requirements, as well as those of Article 24 of the ECL, are preempted per PSL §130. However, the Applicant will comply with the substantive portions of Chapter 53 and Article 24.

7.2.6 Chapter 57, Refuse Collection, Storage, and Disposal

Chapter 57 outlines restrictions regarding the collection, storage, and disposal of refuse material. Industrial refuse may be stored in portable waste-storage compactors, dumpsters, or similar devices. Equipment used for the collection of refuse must provide suitable coverage of the refuse to prevent littering. The Town of Pleasant Valley refuse disposal facility will not accept that which has originated outside of Town boundaries.

The applicant will comply with the requirements of Chapter 57.

7.2.7 Chapter 60, Illicit Discharges, Activities and Connections

Together with Chapter 74, Chapter 60 regulates discharges into the Town of Pleasant Valley municipal separate storm sewer system, per the requirements of the Town’s SPDES General Permit.

The applicant will comply with the requirements of Chapter 60.

7.2.8 Chapter 74, Stormwater Management and Erosion and Sediment Control

Chapter 74 regulates development within the Town of Pleasant Valley with regard to erosion control measures. Per §74-4(D), all land development activities other than those regulated by the Town of Pleasant Valley Subdivision law (§82) are required to submit a stormwater pollution prevention plan to the Town Stormwater Management Officer. Eleven categories of activity are granted exemption per §74-5, including the “installation of fence, sign, telephone, and electric poles and other kinds of posts and poles” ~~(Town of Pleasant Valley, 1978)~~. The ordinance does not make a clear distinction between electric poles and transmission towers.

~~Local permitting requirements are preempted per PSL §130. However, the~~ The Applicant will comply with the substantive portions of Chapter 74, although local permitting requirements are preempted per PSL §130.

~~Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. Based on past experience and guidance provided by New York State Department of Public Service Staff, Central Hudson understands that this project's EM&CP and associated erosion control measures will fulfill the NYSDEC's erosion and sediment control requirements and that a separate SWPPP will not be required. The approved EM&CP will include as an appendix a Stormwater Pollution Prevention Plan that will satisfy the requirements of General Permit No. GP-0-10-001 dated January 29, 2010. Concurrent with the EM&CP filing, Central Hudson will provide the NYSDEC with the required Notice of Intent for coverage of this Project under General Permit No. GP-0-10-001 dated January 29, 2010 for Stormwater Discharges from Construction Activities. The required Notice of Termination of such General Permit coverage will be provided to the NYSDEC following completion of the Project.~~

7.2.9 Chapter 93, Vehicles and Traffic

Chapter 93 describes traffic and vehicle ordinances for the purposes of preventing obstruction of Town roads and highways. Chapter 93, §93-2 outlines specific parking regulations relative to winter parking on Town roads and Highways between November 1 and April 1.

The applicant will comply with the requirements of Chapter 93.

7.2.10 Chapter 98, Zoning

Chapter 98 describes 15 zoning districts, including one overlay district, within the Town of Pleasant Valley. The proposed Project is located within the Rural Residential (RR) and Medium Density Residential (MDR) zoning districts, as well as the Special Flood Hazard (SFH) overlay district. Per Attachment 1 of Chapter 98 and §98-11, each of these districts allows for “public utility facilities” as a permitted use subject to site plan review. Article X of Chapter 98 defines such facilities as an “installation used by a public agency or a specially franchised public utility to supply or transmit electric, gas, water, sewage disposal, cable television, telephone service, or other utility service, excluding electric power plants and gas wells” ([Town of Pleasant Valley, 1978](#)).

Attachment 2 of Chapter 98 (§98-12) identifies dimensional requirements relative to each zoning district, as follows (N/A dimensional or other requirements are not listed):

- Rural Residential (RR):
 - o Average density: 3.5 acres
 - o Minimum road frontage: 50 feet
 - o Minimum front yard setback: 70 feet
 - o Minimum side yard setback: 30 feet
 - o Minimum back yard setback: 50 feet
 - o Minimum lot width at primary building line: 200 feet
 - o Maximum impervious coverage: 20%
 - o Maximum building footprint per nonresidential establishment: 4,000 sq. feet
 - o Maximum height: 35 feet
- Medium Density Residential (MDR):
 - o Average density: 1 acre
 - o Minimum road frontage: 50 feet
 - o Minimum front yard setback: 50 feet
 - o Minimum side yard setback: 20 feet
 - o Minimum back yard setback: 30 feet
 - o Minimum lot width at primary building line: 100 feet
 - o Maximum impervious coverage: 25%
 - o Maximum building footprint per nonresidential establishment: 4,000 sq. feet
 - o Maximum height: 35 feet
- Special Flood Hazard (SFH):
 - o Minimum road frontage: 50 feet

- Allowed uses in the SFH district shall conform to the most restrictive adjoining zoning area and bulk requirements
- Other requirements as per Chapter 50 of the Code of Ordinances, Flood Damage Prevention.

Per Chapter 98, Article IV §98-44, public utility facilities are required to provide adequate screening to mitigate detrimental impacts on neighboring properties. According to the supplementary regulations associated with public utilities, “in order to protect neighboring properties from any associated facility noises, facility lighting and/or detriments to the visual qualities of the surrounding area, adequate screening of the facility and sound barriers consisting of landscaping and/or fencing shall be provided if the need for such additional protection is determined necessary by the Planning Board in the site plan review process” (~~Town of Pleasant Valley, 1978~~).

~~Given that layout and design of the proposed facilities are being reviewed and approved pursuant to Article VII, the Applicant requests that the Commission refuse to apply subsection §98-11 that requires local site plan review and approval.~~

~~To the extent that they are applicable to the proposed Project, t~~The Applicant requests that the Commission refuse to apply the ~~use and~~ dimensional requirements described within subsection §98-12~~Chapter 98~~. The proposed Project is a permitted use within each zoning district, ~~although local site plan review requirements are preempted per PSL §130 and~~

~~The proposed Project~~ will be constructed wholly within an existing ROW, where transmission lines are currently strung along existing towers. Both the existing ROW and the proposed tower locations have been and will be sited according to technical specifications regarding clearance, reliability criteria, span lengths, and directional requirements. The area and bulk requirements detailed within ~~Chapter 98 subsection §98-12~~ are not designed to accommodate these specifications. For these reasons, ~~Chapter 98 of the Code of the Town of Pleasant Valley is unduly restrictive in view of existing technology~~compliance with dimensional requirements are either not applicable, or are being reviewed pursuant to Article VII.

~~The proposed Project will provide screening, landscaping, and/or fencing in such a manner as to~~accordance with any applicable conditions of the issued Certificate of Environmental Compatibility and Public Need and the approved EM&CP. Such screening, landscaping, and fencing must also comply with the National Electrical Safety Code (NESC). ~~To the extent that these and other vegetation and/or access management controls are incompatible with the supplementary regulations described in §98-44, the Applicant requests that the Commission refuse to apply the supplementary regulations.~~

The Applicant cannot determine whether the screening, landscaping, and/or fencing provided in accordance with the Certificate and EM&CP satisfies the supplementary regulations described in §98-44, as the latter would be a matter of local Planning Board discretion and a product of the site plan review process from which the Applicant has requested relief. Therefore, the Applicant requests that the Commission refuse to apply the provisions of §98-44.

7.3 Town of LaGrange

Project activities in the Town of LaGrange would include the removal of 66 electric transmission structures, to be replaced by the construction of 13 double pole structures and 53 single pole structures associated with approximately 6.75 miles of the A& C Line Rebuild Project.

7.3.1 Chapter 83, Building Construction Administration and Enforcement

Chapter 83 implements the New York State Uniform Fire Prevention and Building Code and the State Energy Conservation Construction Code.

~~Local permitting requirements are preempted per PSL §130. However, t~~The Applicant will comply with the substantive portions of Chapter 83. However,

~~T~~he Applicant further requests that the Commission refuse to apply local stop-work order provisions granted in subsection §83-9, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need, and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection §83-4(B); as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building inspection.

7.3.2 Chapter 103, Dumps and Dumping

Chapter 103 regulates waste disposal and transport within the Town. The use of private or public lands for the purpose of waste disposal or dumping is prohibited. All garbage, industrial waste, or refuse transported within

the Town is required to be handled and covered so it cannot be accessible to rodents, flies, or other insects, or create a nuisance.

The applicant will comply with the requirements of Chapter 103.

7.3.3 Chapter ~~417~~107, Electrical Inspections

Chapter ~~417~~107 outlines the roles of the Electrical Inspector for the Town. According to subsection §107-3(A), it is a violation for Any-any person, firm or corporation that to installs and-or alters electrical wiring for light, heat or power without first filing an application must apply for an inspection with the local Electrical Inspector. According to §107-3(B), it is also a violation to connect electrical wiring in or on properties for light, heat, or power to any source of electrical energy supply prior to the issuance of a temporary certificate or certificate of compliance by the local Electrical Inspector. Per §107-3(C), tThe Electrical Inspector has stop work authority should they determine that any section of this chapter has been violated.

~~Local permitting requirements are preempted per PSL §130. However, t~~The Applicant will comply with the substantive portions of Chapter ~~417~~107, although local permitting requirements are preempted per PSL §130.

Because local permitting requirements are preempted,

~~T~~he Applicant ~~further~~ requests that the Commission refuse to apply local stop-work order provisions granted in subsection §107-3(C), which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection §107-2; as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local electrical inspection.

7.3.4 Chapter 120, Flood Damage Prevention

Chapter 120 implements the National Flood Insurance Program. Chapter 120, §120-6 identifies a special flood hazard area within the Town, pursuant to Flood Insurance Rate Maps created by the Federal Emergency Management Agency. Floodplains associated with Wappinger Creek and Sprout Creek in the Town of

LaGrange crossed by a portion of the proposed Project are included in this special flood hazard area. Subsection §120-12 establishes the local floodplain development permit requirement as follows: “A floodplain development permit is hereby established for all construction and other development to be undertaken in areas of special flood hazard in this community for the purpose of protecting its citizens from increased flood hazards and ensuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in an area of special flood hazard, as shown on the Flood Insurance Rate Map enumerated in §120-6, without a valid floodplain development permit.”

Chapter 120 also details requirements for construction within special flood hazard areas, including general construction standards (§120-15), ~~standards for all structures (§120-16), and standards for nonresidential structures (§120-18).~~ The construction standards detailed in subsection §120-15 are applicable to “new development, including new and substantially improved structures, in the areas of special flood hazard shown on the Flood Insurance Rate Map designated in §120-6.” Development is defined within subsection §120-4 as “any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials”, which would appear to apply to the Project. ~~these standards appear to be inapplicable given that “structure” is defined as a “walled and roofed building, including a gas or liquid storage tank, that is principally above the ground, as well as a manufactured home” (§120-4). Subsection §120-15(B) requires applicants to demonstrate that encroachments within special flood hazard areas will not cause increases in flood levels during flood events.~~ Chapter 120, §120-14(F) authorizes the local zoning administrator to issue stop-work orders for floodplain development found ongoing without a development permit, or for that which is found noncompliant with the provisions of Chapter 120. ~~Under the code, the term development is more broadly defined than “structure” and could include work on the ROW.~~

The Applicant requests that the Commission refuse to apply the provisions of subsection §120-15 of the Town of LaGrange’s flood damage prevention ordinance. The ordinance is designed to regulate the construction of primarily residential, commercial, and industrial structures, as opposed to the utility facilities included in the proposed Project. The transmission facilities proposed to be located within the special flood hazard area include poles C16 and C33, both in the 500-year floodplain. The Project would convert existing two-pole structures to monopole structures. The transmission facilities proposed to be located within the special flood hazard area are not prone to flood damage in the same ~~manner-way that~~as residential, commercial, or industrial structures are. In addition, the proposed Project will not alter the floodplain, and will not increase flood hazards to adjacent properties. As proposed, the new transmission towers would replace ~~a number of these~~two existing structures (consisting of four individual poles) that are currently located within the special flood hazard area, or overhead

transmission lines would traverse them. For these reasons, subsection §120-15 Chapter 120 of the Code of the Town of LaGrange is unduly restrictive in view of existing technology.

The Applicant further requests that the Commission refuse to apply local stop-work order provisions granted in subsection §120-14(F), which the Applicant believes to be unduly restrictive in relation to project cost and the needs of utility ratepayers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.3.5 Chapter 124, Freshwater Wetlands, Watercourses, and Water Bodies

Pursuant to Chapter §124-2, “it is declared to be the public policy of the Town of LaGrange to preserve, protect and conserve freshwater wetlands, watercourses and water bodies and the benefits derived therefrom; to prevent despoilation and destruction of freshwater wetlands, watercourses and water bodies; and to regulate development in such wetlands and protect such watercourses and water bodies in order to secure the natural benefits derived therefrom consistent with the general welfare and the beneficial economic, social and agricultural development of the Town” (Town of LaGrange, 2002). According to Chapter 124, the boundaries of wetlands shall be determined by field investigation.

Chapter 124, §124-7(C) identifies eight activities that are subject to regulation, including the erection of “any structures or roads, the driving of pilings or placing of any other obstructions, whether or not changing the ebb and flow of the water” (Town of LaGrange, 2002). Chapter 124, §124-5 defines structure as “anything constructed or erected, the use of which requires location on or within the ground or attachment to something having location on the ground, including but not limited to buildings, tennis courts, swimming pools, as examples.” This definition would include the proposed Project, as the proposed transmission towers may be located within a regulated proximity to a delineated wetland.

The Applicant will comply with Chapter 124 and Article 24, although ~~local permitting requirements, as well as~~ and those of Article 24 of the ECL, are preempted per PSL §130.

However, the Applicant will comply with the substantive portions of Chapter 124 and Article 24.

~~The Applicant further requests that the Commission refuse to apply local stop-work order provisions enforcement authority as described in §124-15, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Penalties and appearance tickets pursuant to local ~~Local stop-work~~ authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.~~

7.3.6 Chapter 140, Illicit Discharges to Storm Sewers

Chapter 140 regulates discharges into the Town of LaGrange municipal separate storm sewer system, per the requirements of the Town's SPDES General Permit.

The applicant will comply with the requirements of Chapter 140.

7.3.7 Chapter 162, Noise

Chapter 162 delineates permitted noise levels within the Town of LaGrange. Chapter 162, §162-4 states that "no person shall make, continue or cause or permit to be made or continued any unnecessary noise" (Town of LaGrange, 2002). Chapter 162, §162-2 defines such noises as "any excessive or unusually loud sound or any sound which either annoys, disturbs, injures or endangers the comfort, repose, health, peace or safety of a person or which causes injury to animal life or damages to property or business" (Town of LaGrange, 2002). The standard by which unnecessary noise shall be judged includes a consideration regarding "whether the sound source is temporary" (Town of LaGrange, 2002). The ordinance does not state whether this standard applies specifically to construction-related noises, nor is the term "temporary" defined within the ordinance.

The list of prohibited acts in §162-5 includes construction-related noises between the hours of 9:00 p.m. and 6:30 a.m., pump or fan-related noises between 11:00 p.m. and 7:00 a.m., and the loading and unloading of vehicles or materials between the hours of 11:00 p.m. and 7:00 a.m. within 300 feet of a residentially zoned area.

The list of permitted noises in §162-10 include sounds created by public utilities in carrying out the operations of their franchise.

~~Sounds created by public utilities are allowed pursuant to subsection §162-10 to the extent that they are applicable to the proposed Project, the Applicant requests that the Commission refuse to apply the noise standards as enumerated in Chapter 162, as they are unreasonably restrictive in view of the existing technology. The construction process will include the use of motorized equipment during transportation, excavation, and erection of the proposed transmission towers. Temporary noises produced by such equipment. ~~During the temporary construction period, such equipment may occasionally and intermittently produce noise in excess of the standards enumerated in Chapter 162, and these noises are unavoidable given the nature of the activities. Industry-standard noise mitigation techniques will be employed as part of the project.~~~~

~~and~~ Construction hours of operation will be determined by the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Construction hours are anticipated to be in compliance with the requirements of §162-5.

7.3.8 Chapter 195, Solid Waste

Chapter 195 regulates local garbage disposal and collection. According to §195-2, only residents and business owners may utilize the Town dump facilities.

The applicant will comply with the requirements of Chapter 195.

7.3.9 Chapter 197, Stormwater Management and Erosion and Sediment Control

Chapter 197 regulates development within the Town of LaGrange with regard to erosion control measures. Unless otherwise exempted, all land development activities are required to submit stormwater pollution prevention plans to the Town's Stormwater Management Officer. Eleven categories of activity are granted exemption per §197-6, including the "installation of fence, sign, telephone, and electric poles and other kinds of posts and poles" (Town of LaGrange, 2002). The ordinance does not make a clear distinction between electric poles and transmission towers; however, it is assumed that towers such as those included in the proposed Project are not exempted in §197-6.

Article IV of Chapter 197 outlines the requirements of stormwater pollution prevention plans to be submitted in support of land development activities. In addition, any land development activity disturbing more than one acre (with exceptions for single-family residences and agricultural activities) must provide additional information with regard to each post-construction stormwater management practice per the requirements of §197-9.

~~Local permitting requirements are preempted per PSL §130. However, t~~The Applicant will comply with the substantive portions of Chapter 197. However, stormwater management and sediment control requirements will be determined by conditions of the Certificate of Environmental Compatibility and Public Need, the approved EM&CP, and a Stormwater Pollution Prevention Plan (SWPPP).

Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. The approved EM&CP will include as an appendix a Stormwater Pollution Prevention Plan that will satisfy the requirements of General Permit No. GP-0-10-001 dated January 29, 2010. ~~Based on past experience and guidance provided by New York State Department of Public Service Staff, Central Hudson understands that this project's EM&CP and associated erosion control measures will fulfill the NYSDEC's erosion and sediment control requirements and that a separate SWPPP will not be required. Concurrent with the EM&CP filing, Central Hudson will provide the NYSDEC with the required Notice of Intent for coverage of this Project under General Permit No. GP-0-10-001 dated January 29, 2010 for Stormwater Discharges from Construction Activities. The required Notice of Termination of such General Permit coverage will be provided to the NYSDEC following completion of the Project.~~

7.3.10 Chapter 199, Streets and Sidewalks

Chapter 199, §199-52 requires the issuance of a work permit for any excavations made within a Town right-of-way.

The proposed Project will require overhead crossings of the following roads within the Town of LaGrange:

- Rombout Road
- Overlook Road/County Route 46
- Frost Hill Road
- Cramer Road
- Vervalen Drive
- Freedom Plains Road/State Route 55
- Bushwick Road
- Croft Hill Road
- Old Noxon Road

- Noxon Road/County Route 21
- Pine Ridge Road
- Diddell Road

~~The need for a local highway work permit is preempted by PSL §130. Central Hudson will work with local highway superintendents to ensure that the standard requirements for new driveways contained in §199-3, if required, are met. The Applicant will comply with Chapter 199, although local permitting requirements are preempted per PSL §130.~~

7.3.11 Chapter 226, Vehicles and Traffic

Chapter 226 outlines regulations related to vehicular movement on roadways within the Town. Article II of Chapter 226 regulates stop and yield intersections, and Article IV regulates parking, stopping, and standing.

The applicant will comply with the requirements of Chapter 226.

7.3.12 Chapter 240, Zoning

Chapter 240 describes 12 zoning districts within the Town of LaGrange. The proposed Project is located within the Moderate Density Residential (R-40/60/80), Low Density Residential (R-80), and Rural Residential (R-120) districts. Per Schedule A of §240-27 (the Schedule of Permitted Uses and Special Use Permits), each of these districts allows for “essential services” as a permitted use subject to project development plan review. Article XI, §240-112 of Chapter 240 defines essential services as “the erection, construction, alteration, or maintenance by public utilities or the Town or other governmental agencies of underground, surface or overhead electrical, gas or water transmission or distribution systems, including poles, wires, mains, drains, sewers, pipes, conduits, cables, fire alarm boxes, police call boxes, traffic signals, hydrants, and other similar equipment and accessories, in connection therewith reasonably necessary for the furnishing of adequate service by such public utilities or Town or other governmental agencies or for the public health or safety or general welfare, but not including buildings” (Town of LaGrange, 2002).

Article VII of Chapter 240 outlines requirements for the project development plan review process. Per Schedule A of Chapter 240, only site plan approval would be required. Schedule A of Chapter 240 also notes that such reviews are a prerequisite for the development of essential services within the R-40/60/80, R-80, and R-120

districts, the applicability of the process for such uses is unclear per the requirements of Article VII. Chapter 240, §240-72 notes the following:

“Project development plan approval by the Planning Board in accordance with this section is required for the proposed use or changes in use of land, buildings, and other structures for:

(a) All special use permits in R-120, R-80, and R-40/60/80 Districts.

(b) In all other districts, new principal uses, accessory uses and special permit uses and any expansion or reconstruction of existing uses.” (Town of LaGrange, 2002)

Dimensional requirements are detailed in Schedule B of §240-28, the Schedule of Bulk Regulations and Coverage Limitations. Dimensional requirements for the R-40/60/80, R-80, and R-120 districts are as follows:

- Moderate Density Residential (R-40/60/80):
 - o Minimum single-family residential lot area:
 - With public water and sewer: 40,000 square feet
 - With public water or sewer: 60,000 square feet
 - Without private well and septic system: 80,000 square feet
 - o Minimum width of lot along building line: 150 feet
 - o Minimum width of lot at any point:
 - On 40,000 square foot lots: 50 feet
 - On 60,000 square foot lots: 75 feet
 - On 80,000 square foot lots: 100 feet
 - o Minimum dimension of building square on lot: 150 feet
 - o Minimum lot frontage on Town right-of-way:
 - On 40,000 square foot lots: 50 feet
 - On 60,000 square foot lots: 50 feet
 - On 80,000 square foot lots: 75 feet
 - o Minimum lot frontage on County or State highway:
 - On 40,000 square foot lots: 125 feet
 - On 60,000 square foot lots: 125 feet
 - On 80,000 square foot lots: 200 feet
 - o Maximum height of a building or structure: 35 feet
 - o Minimum yard depth:
 - Front yard from County/State road: 90 feet
 - Front yard from Town road: 55 feet (from lot line) and 80 feet (from road centerline)
 - Rear yard: 20 feet

- Side yard: 20 feet
 - Maximum total lot coverage as a percent of lot area (buildings, structures, outdoor deposit, paving):
 - On 40,000 square foot lots: 30%
 - On 60,000 square foot lots: 25%
 - On 80,000 square foot lots: 20%
- Low Density Residential (R-80):
 - Minimum single-family residential lot area: 80,000 square feet
 - Minimum width of lot along building line: 200 feet
 - Minimum width of lot at any point: 100 feet
 - Minimum dimension of building square on lot: 200 feet
 - Minimum lot frontage on Town right-of-way: 75 feet
 - Minimum lot frontage on County or State highway: 200 feet
 - Maximum height of a building or structure: 35 feet
 - Minimum yard depth:
 - Front yard from County/State road: 90 feet
 - Front yard from Town road: 55 feet (from lot line) and 80 feet (from road centerline)
 - Rear yard: 30 feet
 - Side yard: 30 feet
 - Maximum total lot coverage as a percent of lot area (buildings, structures, outdoor deposit, paving): 20%
- Rural Residential (R-120):
 - Minimum single-family residential lot area: 120,000 square feet
 - Minimum width of lot along building line: 200 feet
 - Minimum width of lot at any point: 150 feet
 - Minimum dimension of building square on lot: 200 feet
 - Minimum lot frontage on Town right-of-way: 100 feet
 - Minimum lot frontage on County or State highway: 225 feet
 - Maximum height of a building or structure: 35 feet
 - Minimum yard depth:
 - Front yard from County/State road: 90 feet
 - Front yard from Town road: 55 feet (from lot line) and 80 feet (from road centerline)
 - Rear yard: 40 feet
 - Side yard: 40 feet

- Maximum total lot coverage as a percent of lot area (buildings, structures, outdoor deposit, paving): 15%

In addition to the conventional zones described above, Article III of Chapter 240 (§240-31) identifies six overlay zones, as follows: Stream Corridor; Farmland Preservation; Historic; Scenic; Ridgeline Protection; and Groundwater Protection. Per zone descriptions provided in §240-31, as well as the Town of LaGrange Overlay Zone Maps illustrating the locations where such overlays apply, proposed Project facilities would be located within the Ridgeline and Groundwater Protection Overlay Zones.

The Ridgeline Protection Overlay Zone requires that all new construction or development within that zone obtain a special permit from the Town Planning Board, and that such development constitutes a Type I action pursuant to the State Environmental Quality Review Act. Standards for development within this zone are described in §240-31(F)(4), as follows:

- Maximum building or structure height shall not exceed 35 feet;
- Maximum cleared area shall be no more than 50 feet in extent from the outer edge of the primary structure's footprint, and during construction only the minimum amount of existing vegetation shall be cleared;
- 25-foot buffer strips are required at the outer edge of cleared areas
 - these strips shall be planted with vegetation of sufficient height and density as determined by the Planning Board, and
 - these strips shall be free of any man-made structures, including but not limited to fences, facilities, and roads; and
- Proposed yard setbacks from the property line must be no less than 1.5 times the height of the proposed structure or the setback requirements in the existing zoning regulations, whichever are greater.

The general provisions of the Groundwater Protection Overlay Zone, as detailed in §240-13(G)(4), do not apply to facilities such as those included in the proposed Project.

Given that layout and design of the proposed facilities are being reviewed and approved pursuant to Article VII, the Applicant requests that the Commission refuse to apply subsection §240-72 that requires local site plan review and approval.

~~To the extent that they are applicable to the proposed Project, the~~ The Applicant requests that the Commission refuse to apply the ~~use and~~ dimensional requirements described within ~~Chapter subsections §240-28 and §240-31~~ of the Code of the Town of LaGrange. The proposed Project is a permitted use within each zoning district, ~~although local site plan review requirements are preempted per PSL §130 and~~

~~In addition, the proposed Project~~ will be constructed wholly within an existing ROW, where transmission lines are currently strung along existing towers. Both the existing ROW and the proposed tower locations have been and will be sited according to technical specifications regarding clearance, reliability criteria, span lengths, and directional requirements. The ~~area and bulk~~ requirements detailed within ~~Chapter subsections §240-28 and §240-31~~ are not designed to accommodate these specifications. For these reasons, ~~compliance with dimensional requirements are either not applicable, or are being reviewed pursuant to Article VII. the use and dimensional requirements enumerated within Chapter 240 of the Code of the Town of LaGrange are unduly restrictive in view of existing technology.~~

7.4 Town of Wappinger

Project activities in the Town of Wappinger would include the removal of 31 electric transmission structures, to be replaced by the construction of 8 double pole structures and 23 single pole structures associated with approximately 2.8 miles of the ~~A and~~ C Line Rebuild Project.

7.4.1 Chapter 80, Blasting

Chapter 80 requires the issuance of a blasting permit for any use of explosives within the Town of Wappinger. Per §80-6, the use of explosives shall be governed by the provisions of the following regulations:

- Article 16 of the New York State Labor Law;
- 12 NYCRR Part 39;
- Title 19 of NYCRR, Chapter XXXIII, Subchapter A, the Uniform Fire Prevention and Building Code of New York State;
- 27 CFR 55;
- 29 CFR 1926, Subpart U;
- Title 49 of the Code of Federal Regulations;
- NFPA No. 495-1973; and
- Generally recognized criteria and accepted industry standards for the manufacture, sale, transportation, storage, handling or use of explosives.

Blasting permits are issued by the Town of Wappinger Fire Inspector, and subject to standard requirements detailed in §80-8. Blasting hours are limited to the period between 8:30 a.m. and 3:00 p.m., Monday through Friday. Blasting is prohibited on Saturdays, Sundays, and legal holidays, unless otherwise approved by the Town.

Local permitting requirements are preempted per PSL §130. The Applicant will comply with ~~the substantive portions of~~ Chapter 80 in the event that blasting is required; however, the Applicant does not anticipate that blasting will be necessary.

7.4.2 Chapter 85, Building Code Administration

Chapter 85 implements the New York State Uniform Fire Prevention and Building Code and the State Energy Conservation Construction Code.

~~Local permitting requirements are preempted per PSL §130. However, t~~The Applicant will comply with ~~the substantive portions of~~ Chapter 85. However,

~~T~~he Applicant ~~further~~ requests that the Commission refuse to apply local stop-work order provisions granted in §85-12, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection §85-10; as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building or fire inspection.

7.4.3 Chapter 117, Environmental Quality Review

Chapter 117 outlines Type I, Type II, and Exempt Actions within the Town of Wappinger, pursuant to Part 617 of Title 6 of the NYCRR.

The proposed Project is identified within §117-6(A) as an Exempt Action, as it requires a Certificate of Environmental Compatibility and Public Need~~certificate of environmental compatibility and public need~~ under Article VII of the PSL.

7.4.4 Chapter 133, Flood Damage Prevention

Chapter 133 implements the National Flood Insurance Program. Chapter 133, §133-6 identifies a special flood hazard area within the Town, pursuant to Flood Insurance Rate Maps created by the Federal Emergency Management Agency. Floodplains associated with Sprout Creek in the Town of Wappinger crossed by a portion of the proposed Project are included in this special flood hazard area. Subsection §133-11 establishes the local floodplain development permit requirement as follows: “A floodplain development permit is hereby established for all construction and other development to be undertaken in areas of special flood hazard in this community for the purpose of protecting its citizens from increased flood hazards and insuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in an area of special flood hazard, as shown on the Flood Insurance Rate Map enumerated in § 133-6, without a valid floodplain development permit.”

Chapter 133 also details requirements for construction within special flood hazard areas, including general construction standards (§133-14). The construction standards detailed in subsection §133-14 are applicable to “new development, including new and substantially improved structures, in the areas of special flood hazard shown on the Flood Insurance Rate Map designated in §133-6.” Development is defined within subsection §133-4 as “Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials”, which would appear to apply to the project. ~~standards for all structures (§133-15), and standards for nonresidential structures (§133-17) these standards appear to be inapplicable given that “structure” is defined as a “walled and roofed building, including a gas or liquid storage tank, that is principally above the ground, as well as a manufactured home” (§133-4).~~ Subsection §133-14(B) requires applicants to demonstrate that encroachments within special flood hazard areas will not cause increases in flood levels during flood events. Chapter 133, §133-13(F) authorizes the local zoning administrator to issue stop-work orders for floodplain development found ongoing without a development permit, or for that which is found noncompliant with the provisions of Chapter 133. ~~Under the code, the term development is more broadly defined than “structure” and could include work on the ROW.~~

The Applicant requests that the Commission refuse to apply the provisions of subsection §133-14 of the Town of Wappinger’s flood damage prevention ordinance. The ordinance is designed to regulate the construction of primarily residential, commercial, and industrial structures, as opposed to the utility facilities included in the proposed Project. The transmission facilities proposed to be located within the special flood hazard area include

~~poles A59, A60, and A61 in the 100-year floodplain and A31, A32, and A34 in the 500-year floodplain. The Project would convert existing two-pole structures to monopole structures. Transmission structures such as these~~ ~~The transmission facilities proposed to be located within the special flood hazard area~~ are not prone to flood damage in the same ~~manner as way that~~ residential, commercial, or industrial structures are. In addition, the proposed Project will not alter the floodplain, and will not increase flood hazards to adjacent properties. As proposed, the new transmission towers would replace ~~a number of these~~ six existing structures (consisting of twelve individual poles) that are currently located within the special flood hazard area. For these reasons, ~~Chapter subsection §133-14 133~~ of the town code is unduly restrictive in view of existing technology.

The Applicant further requests that the Commission refuse to apply local stop-work order provisions granted in subsection §133-13(F), which the Applicant believes to be unduly restrictive in relation to project cost and the needs of utility ratepayers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.4.5 Chapter 137, Freshwater Wetland, Waterbody and Watercourse Protection

Per Chapter 137, §137-2 “it is declared to be the public policy of the Town of Wappinger to preserve, protect and conserve freshwater wetlands, waterbodies and watercourses and the benefits derived therefrom and to prevent the despoliation and destruction of such freshwater resources by regulating activities with potential impacts to such resources in order to secure their natural benefits consistent with the general health, safety and welfare of the public, and with the beneficial economic, social and agricultural development of the Town of Wappinger” ~~(Town of Wappinger, 1999)~~.

Chapter 137, §137-6(A) identifies 14 activities that are subject to regulation if they occur within a freshwater wetland or 100-foot buffer around such wetland, including the “placement or construction of any structure” ~~(Town of Wappinger, 1999)~~. This statement would include the proposed Project, as the proposed transmission towers may be located within a delineated wetland.

~~Local permitting requirements, as well as those of Article 24 of the ECL, are preempted per PSL §130. However, the~~ The Applicant will comply with the substantive portions of Chapter 137 and Article 24, although local permitting requirements, as well as those of Article 24 of the ECL, are preempted per PSL §130.

7.4.6 Chapter 166, Noise

Chapter 166 restricts certain noise sources within the Town of Wappinger. Per §166-2, “no person shall cause or permit to be caused any noise which can be heard by a person with normal hearing beyond the boundaries of property owned, leased or otherwise controlled by him” ~~(Town of Wappinger, 1999)~~. Construction and demolition-related noises are prohibited between the hours of 7:00 p.m. and 7:00 a.m. ~~It is noted that the standards as enumerated in Chapter 166 with regard to construction-related noise are inconsistent with the exemption for such noise as is noted in §240-103 of the Zoning ordinance. This exemption states the following activity is exempt from the noise level regulations, noises emanating from construction and construction maintenance activities between 8:00 a.m. and sunset.~~ Subsection §166-5(J) exempts “sound generated by the normal operation of utilities”.

~~To the extent that they are applicable to the proposed Project, the Applicant requests that the Commission refuse to apply the noise standards as enumerated in Chapter 166, as they are unreasonably restrictive in view of the existing technology. The Applicant considers the Project to be consistent with the exemption granted in subsection §166-5(J). The construction process will include the use of motorized equipment during transportation, excavation, and erection of the proposed transmission towers. Temporary noises produced by such equipment During the temporary construction period, such equipment may occasionally and intermittently produce noise in excess of the general standard enumerated in Chapter 166, and occur outside of the hours during which construction noise is permitted. However, these noises are unavoidable given the nature of the activities and the brevity of the construction season. Industry-standard noise mitigation techniques (e.g. properly maintained equipment) will be employed as part of the project.~~ ~~and e~~

Construction hours of operation will be determined by the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Construction hours are anticipated to be in compliance with the requirements of §166-7(C).

7.4.7 Chapter 206, Soil Erosion and Sediment Control

Chapter 206 regulates development within the Town of Wappinger with regard to erosion control measures. According to §206-8, no land development activities (e.g. grading, stripping, cutting, filling, excavation, or other site preparation) shall be conducted “without a grading permit issued by the Zoning Administrator, [...or], for

anything other than a one-family dwelling, without site plan approval from the Planning Board, pursuant to §240-83" ~~(Town of Wappinger, 1999).~~

Article IV of Chapter 206 outlines the requirements of erosion and sediment control structures. In addition, it authorizes the local Zoning Administrator to issue cease and desist orders for any work that is not consistent with relevant applications, grading permits, and approved plans.

~~Local permitting requirements are preempted per PSL §130. However, the~~The Applicant will comply with the substantive portions of Chapter 206, although local permitting requirements are preempted per PSL §130. unless they are otherwise inconsistent with a Commission approved EM&CP.

~~The Applicant further requests that the Commission refuse to apply local stop-work order provisions, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.~~

7.4.8 Chapter 210, Solid Waste

Chapter 210 regulates the storage and disposal of garbage and debris. The Town dump facility may not be used to dispose of garbage or debris that has originated from outside of the Town of Wappinger. Use of other private or public land for storage and/or disposal of garbage and debris are prohibited. In addition, §210-14 describes requirements for large refuse receptacles that are typically associated with construction-related activities. In general, the ownership of large receptacles must be clearly identifiable, the receptacles must be securely closed and free of leakage, and the area around the receptacle must be kept free of debris and spillage.

The applicant will comply with the requirements of Chapter 210.

7.4.9 Chapter 213, Stormwater Management

Chapter 206 regulates development within the Town of Wappinger with regard to stormwater management. Per §213-3, these standards are applicable to "all land development activities... including, but not limited to, land development activities subject to review and approval by the Town Board, the Planning Board or the Zoning Board of Appeals of the Town under subdivision, site plan, special permit, wetland permit, grading permit and/or

other environmental permit regulations” ~~(Town of Wappinger, 1999)~~. Applicants must submit stormwater pollution prevention plans to the local Stormwater Management Officer, complete with details as enumerated in §213-6. However, per §213-4 (H), the installation of fence, sign, telephone and electric poles and other kinds of posts or poles are exempt from this review. Per §213-11, the Town may issue a stop-work order for land development activities that are inconsistent with permits issued by the Town.

Article II of Chapter 113 also prohibits illicit discharges into the local storm sewer system.

~~Local permitting requirements are preempted per PSL §130. However, the~~ The Applicant will comply with the substantive portions of Chapter 213, although local permitting requirements are preempted per PSL §130.

The Applicant ~~further~~ requests that the Commission refuse to apply local stop-work order provisions granted in subsection §213-11, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. The approved EM&CP will include as an appendix a Stormwater Pollution Prevention Plan that will satisfy the requirements of General Permit No. GP-0-10-001 dated January 29, 2010. Based on past experience and guidance provided by New York State Department of Public Service Staff, Central Hudson understands that this project's EM&CP and associated erosion control measures will fulfill the NYSDEC's erosion and sediment control requirements and that a separate SWPPP will not be required. Concurrent with the EM&CP filing, Central Hudson will provide the NYSDEC with the required Notice of Intent for coverage of this Project under General Permit No. GP-0-10-001 dated January 29, 2010 for Stormwater Discharges from Construction Activities. The required Notice of Termination of such General Permit coverage will be provided to the NYSDEC following completion of the Project.

7.4.10 Chapter 230, Vehicles and Traffic

Chapter 230 outlines regulations related to vehicular movement on roadways within the Town. Article II of Chapter 226 outlines all traffic regulations, and Article III regulates parking, stopping, and standing specifically.

The applicant will comply with the requirements of Chapter 230.

7.4.11 Chapter 240, Zoning

Chapter 240 outlines requirements relative to 25 zoning districts within the Town of Wappinger. Of these, the proposed Project intersects four: 1-Family Residence District R-3A, 1-Family Residence District R-40, 1-Family Residence District R-40/80, and Conservation Commercial District CC. Per the Schedule of Use Regulations (Attachments 1 and 2 of Chapter 240, as referenced in §240-37), public utility uses are allowed within the each of these districts, subject to special permits.

Dimensional requirements are detailed in Attachments 3 and 4 of Chapter 240. Dimensional requirements for each of the four districts listed above are as follows:

- 1- Family Residential District R-3A:
 - Minimum lot size: 3 acres
 - Minimum lot width: 225 feet
 - Minimum lot depth: 300 feet
 - Minimum lot frontage: 50 feet
 - Minimum front yard from:
 - County/State highway: 75 feet
 - Center line of other street: 75 feet
 - Front lot line of other street: 75 feet
 - Minimum side yard: 50 feet
 - Minimum rear yard: 50 feet
 - Maximum building height: 35 feet (transmission towers are exempt from building height restrictions, per §240-22) (B)
 - Maximum lot coverage: 7%
- 1- Family Residential District R-40:
 - Minimum lot size: 40,000 square feet
 - Minimum lot width: 125 feet
 - Minimum lot depth: 125 feet

- Minimum lot frontage: 50 feet
- Minimum front yard from:
 - County/State highway: 75 feet
 - Center line of other street: 75 feet
 - Front lot line of other street: 50 feet
- Minimum side yard: 25 feet
- Minimum rear yard: 50 feet
- Maximum building height: 35 feet (transmission towers are exempt from building height restrictions, per §240-22)
- Maximum lot coverage: 12%
- 1- Family Residential District R-40/80:
 - Minimum lot size:
 - With public water and sewer: 40,000 square feet
 - With public water or sewer: 60,000 square feet
 - Without public water and sewer: 80,000 square feet
 - Minimum lot width:
 - On 40,000 square foot lots: 125 feet
 - On 60,000 square foot lots: 150 feet
 - On 80,000 square foot lots: 200 feet
 - Minimum lot depth:
 - On 40,000 square foot lots: 125 feet
 - On 60,000 square foot lots: 150 feet
 - On 80,000 square foot lots: 200 feet
 - Minimum lot frontage: 50 feet
 - Minimum front yard: 50 feet (conflicting minimum front yard requirements exist; see below)
 - Minimum front yard from:
 - County/State highway: 75 feet
 - Center line of other street: 75 feet
 - Front lot line of other street: 50 feet
 - Minimum side yard: 40 feet (conflicting minimum side yard requirements exist; see below)
 - Minimum side yard:
 - On 40,000 square foot lots: 25 feet
 - On 60,000 square foot lots: 30 feet
 - On 80,000 square foot lots: 40 feet

- Minimum rear yard: 50 feet
- Maximum building height: 35 feet (transmission towers are exempt from building height restrictions, per §240-22)
- Maximum lot coverage: 10%
- Conservation Commercial District CC:
 - Minimum lot size: 1 acre
 - Minimum lot width: 100 feet
 - Minimum lot depth: 100 feet
 - Minimum lot frontage: 100 feet
 - Minimum front yard from:
 - County/State highway: 75 feet
 - Center line of other street: 75 feet
 - Front lot line of other street: 50 feet
 - Minimum side yard: 10 feet
 - Minimum rear yard: 30 feet
 - Maximum building height: 35 feet (transmission towers are exempt from building height restrictions, per §240-22)
 - Maximum building coverage: 20%
 - Maximum impervious surface: 40%
 - Minimum landscaped open space: 60%
 - Minimum parking setback from front, side, and rear lot lines: 20, 10, and 10 feet, respectively.

Article VII of Chapter 240, §240-44 describes four general standards for special use permits, as follows:

- The location and size of the use, the nature and intensity of the operations involved in or conducted in connection with it, the size of the site in relation to it and the location of the site with respect to streets giving access to it, are such that it will be in harmony with the appropriate and orderly development of the district in which it is located.
- The location, nature and height of buildings, walls, fences and the nature and extent of existing or proposed plantings on the site are such that the use will not hinder or discourage the appropriate development and use of adjacent land and buildings.
- Operations in connection with any special permit use will not be more objectionable to nearby properties by reason of noise, fumes, vibration, illumination or other characteristics, than would be the operations of any permitted use not requiring a special permit.

- Parking areas will be of adequate size for the particular use, will be properly located and suitably screened from adjoining residential uses and the entrance and exit drives shall be laid out so as to achieve maximum safety. ~~(Town of Wappinger, 1999)~~

In addition to these standards, applicants for special use permits are required to submit site development plans for review by the Planning Board. This process requires the assessment of 16 project components for their compatibility with standards as defined in Chapter 240, §240-86. These standards require adequate site access, on-site circulation, landscaping and buffering, lighting, protection of natural resources, and drainage, as well as other requirements that may or may not apply to utility structures (e.g. building design, signage, etc.).

Per Article XI of Chapter 240, §240-101 “no business or industrial use shall hereafter be maintained, established, altered, moved or expanded” unless it complies with a series of performance standards. Neither Article XI nor Article II (Zoning- Definitions) indicates whether utility uses such as the proposed Project would be regulated as an industrial use. The noise-related performance standards enumerated in §240-13 provide an exemption for construction-related noise between 8:00 a.m. and sunset. ~~It is noted that this standard is inconsistent with that which is enumerated in §166-2 of the Noise Ordinance.~~

Given that layout and design of the proposed facilities are being reviewed and approved pursuant to Article VII, the Applicant requests that the Commission refuse to apply subsection §240-83 that requires local site plan review and approval.

~~To the extent that they are applicable to the proposed Project, the~~ *The Applicant requests that the Commission refuse to apply the use and dimensional requirements described within Attachments 3 and 4 of Chapter 240Chapter 240. Special use permits and local site plan review requirements are preempted per PSL §130. The general standards under §240-44 and compatibility standards under §240-86 are considerations the commission will make, where applicable, in making its findings under PSL §126.*

Both the existing right-of-way and the proposed tower locations have been and will be sited according to technical specifications regarding clearance, reliability criteria, span lengths, and directional requirements. The requirements detailed within Attachments 3 and 4 of Chapter 240 are not designed to accommodate these specifications. For these reasons, ~~Chapter 240 of the Code of the Town of Wappinger~~the bulk requirements described therein are ~~is~~ unduly restrictive in view of existing technology.

~~In addition, to the extent that they are applicable to the proposed Project, the Applicant requests that the Commission refuse to apply the noise standards as enumerated in Chapter 240, as they are unreasonably restrictive in view of the existing technology, cost, and the needs of the Applicant's consumers. The construction process will include the use of motorized equipment during transportation, excavation, and erection of the proposed transmission towers. During the temporary construction period, such equipment may occasionally and intermittently produce noise in excess of the standards enumerated in Chapter 240, and these noises are unavoidable given the nature of the activities. Industry standard noise mitigation techniques will be employed as part of the project, and construction hours of operation will be determined by the conditions and requirements of the Certificate of Environmental Compatibility and Public Need, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service.~~

7.5 Town of East Fishkill

Project activities in the Town of East Fishkill would include the removal of 3 electric transmission structures and the construction of 2 double pole structures and 1 single pole structure associated with approximately 0.2 mile of the A and C Line Rebuild Project.

7.5.1 Chapter 80, Building Construction and Fire Prevention

Chapter 80 implements the New York State Uniform Fire Prevention and Building Code.

~~Local permitting requirements are preempted per PSL §130. However, the~~The ~~Applicant will comply with the substantive portions of Chapter 80, although local permitting requirements are preempted per PSL §130. -~~

The Applicant ~~further~~ requests that the Commission refuse to apply local stop-work order provisions granted in subsection §80-10, which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs. In addition, the Applicant requests that the Commission refuse to apply local inspection provisions granted in subsection §80-9; as the Project is a rebuild of an existing high-voltage transmission line, the Applicant does not envision the need for local building inspection.

7.5.2 Chapter 108, Flood Damage Prevention

Chapter 108 implements the National Flood Insurance Program. Chapter 108, §108-3-6 identifies a special flood hazard area within the Town, pursuant to Flood Insurance Rate Maps created by the Federal Emergency Management Agency. Floodplains associated with Sprout Creek in the Town of East Fishkill crossed by a portion of the proposed Project are included in this special flood hazard area. Subsection §108-11 establishes the local floodplain development permit requirement as follows: “A floodplain development permit is hereby established for all construction and other development to be undertaken in areas of special flood hazard in this community for the purpose of protecting its citizens from increased flood hazards and insuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in an area of special flood hazard, as shown on the Flood Insurance Rate Map enumerated in §108-6, without a valid floodplain development permit.”

~~Chapter 108, §108-6 Subsection §108-14 details general standards requirements for construction within special flood hazard areas, including general provisions (§108-6 (A through F)) and standards for nonresidential structures (§108-6(H)) these standards appear to be inapplicable given that “structure” is defined as a “walled and roofed building, including a gas or liquid storage tank, that is principally above the ground, as well as a manufactured home” (§108-4). The construction standards detailed in subsection §108-14 are applicable to “new development, including new and substantially improved structures, in the areas of special flood hazard shown on the Flood Insurance Rate Map designated in §108-6.” Development is defined within subsection §108-4 as “any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials”, which would appear to apply to the Project. Subsection §108-14(B) requires applicants to demonstrate that encroachments within special flood hazard areas will not cause increases in flood levels during flood events. Chapter 108, §108-5-13(F) -authorizes the local zoning administrator to issue stop-work orders for floodplain development found ongoing without a development permit, or for that which is found noncompliant with the provisions of Chapter 108. Under the code, the term development is more broadly defined than “structure” and could include work on the ROW.~~

The Applicant requests that the Commission refuse to apply the provisions of subsection §108-14 of the Town of East Fishkill's flood damage prevention ordinance. The ordinance is designed to regulate the construction of primarily residential, commercial, and industrial structures, as opposed to the utility facilities included in the proposed Project. The transmission facilities proposed to be located within the special flood hazard area include pole A63 in the 500-year floodplain. The Project would convert existing two-pole structures to monopole

~~structures. Transmission structures such as these~~ ~~The transmission facilities proposed to be located within the special flood hazard area~~ are not prone to flood damage in the same manner as residential, commercial, or industrial structures are. In addition, the proposed Project will not alter the floodplain, and will not increase flood hazards to adjacent properties. As proposed, the new transmission towers would replace one existing structure (consisting of two individual poles) that is currently located within the special flood hazard area~~As proposed, the new transmission towers would replace a number of those that are currently located within the special flood hazard area, or overhead transmission lines would traverse them.~~ For these reasons, subsection §108-14 Chapter 108 of the town code is unduly restrictive in view of existing technology.

The Applicant further requests that the Commission refuse to apply local stop-work order provisions granted in subsection 108-13(F), which the Applicant believes to be unduly restrictive in relation to project cost and the needs of utility ratepayers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.5.3 Chapter 110, Freshwater Wetlands, Water Bodies, and Watercourses

Chapter 110 regulates development within and around wetlands, water bodies, and watercourses, including the following:

- Ponds, lakes, reservoirs, marshes, swamps, bogs, vernal pools or other area of permanent water retention, regardless of origin.
- All natural drainage systems, including rivers, streams and brooks which contain water at least three months of the year and the associated floodplains of such watercourses. (Town of East Fishkill, 2001).

Chapter 110, §110-3(B) identifies 15 activities that are subject to regulation if they occur within such areas, including the “erecting or enlarging any building or structure of any kind, roads, driveways, the driving of pilings, digging of wells or placing of any obstructions, whether or not they change the ebb and flow of the water” (Town of East Fishkill, 2001). This definition (which would fall within the definition of structure) would include the proposed Project, as the proposed transmission towers may be located within a wetland or floodplain.

Chapter 110, Chapter 110, §110-4(K) identifies 11 activities that are permitted by right within freshwater wetlands, water bodies and watercourses. These include activities within wetlands under the jurisdiction of the

federal or state government for which a permit has been obtained from the appropriate agency provided that a copy of the permit is filed with the approval authority or if none, the Town Clerk. Per this chapter the proposed project would be an exempt activity since the activity is authorized under an existing U.S. Army Corps of Engineers Nationwide Permit, will be sought for federally jurisdictional wetland impacts.

~~Local permitting requirements are preempted per PSL §130. However, the~~The Applicant will comply with the substantive portions of Chapter 110, although local permitting requirements are preempted per PSL §130, unless they are otherwise inconsistent with a Commission approved EM&CP.

The Applicant ~~further~~ requests that the Commission refuse to apply local stop-work order provisions granted in subsection §110-7(C), which the Applicant believes to be unduly restrictive in relation to project cost and the needs of customers. Construction activities will meet the conditions and requirements of the Certificate of Environmental Compatibility and Public Need and the approved EM&CP, and will be monitored by the New York State Public Service Commission and the staff of the New York State Department of Public Service. Local stop-work authority could potentially disrupt construction, resulting in adverse impacts to the construction schedule as well as increased Project costs.

7.5.4 Chapter 127, Littering

Chapter 127 prohibits the deposition of garbage or debris on or about any street, lawn, vacant lot, or in any building, public place, culvert, or stream within the Town.

The applicant will comply with the requirements of Chapter 127.

7.5.5 Chapter 154, Steep Slope Protection

Chapter 154 requires local permits for disturbances occurring on any area with greater than 3:1 slope or 33.33% grade. Per §154-3, disturbances include “excavation or fill or any combination which changes the existing ground surface by more than two feet, or any removal of trees and/or vegetation and shall include the conditions resulting from any excavation or fill” (Town of East Fishkill, 2001). The standards for approval of such permits are enumerated in §154-6.

~~Local permitting requirements are preempted per PSL §130. However, the~~The Applicant will comply with the substantive portions of Chapter 154, although local permitting requirements are preempted per PSL §130.

Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. Based on past experience and guidance provided by New York State Department of Public Service Staff, Central Hudson understands that this project's EM&CP and associated erosion control measures will fulfill the NYSDEC's erosion and sediment control requirements and that a separate SWPPP will not be required. Concurrent with the EM&CP filing, Central Hudson will provide the NYSDEC with the required Notice of Intent for coverage of this Project under General Permit No. GP-0-10-001 dated January 29, 2010 for Stormwater Discharges from Construction Activities. The required Notice of Termination of such General Permit coverage will be provided to the NYSDEC following completion of the Project.

7.5.6 Chapter 156, Storm Sewers

Together with Chapter 157, Chapter 156 regulates discharges into the Town of Pleasant Valley municipal separate storm sewer system, per the requirements of the Town's SPDES General Permit.

~~Local permitting requirements are preempted per PSL §130. However, the~~The Applicant will comply with the substantive portions of Chapter 156, although permitting requirements are preempted per PSL §130.

7.5.7 Chapter 157, Stormwater Management and Erosion and Sediment Control

Chapter 157 regulates development within the Town of East Fishkill with regard to erosion control measures. Per §157-7(A), all land development activities are required to submit a stormwater pollution prevention plan to the Town. Nine categories of activity are granted exemption per §157-6, including the "installation of fence, sign, telephone, and electric poles and other kinds of posts and poles" (Town of East Fishkill, 2001). The ordinance does not make a clear distinction between electric poles and transmission towers; however, for purposes of preparing Exhibit 7, it is assumed that towers such as those included in the proposed Project are not exempted in §157-6.

~~Local permitting requirements are preempted per PSL §130. However, the~~The Applicant will comply with the substantive portions of Chapter 80, although local permitting requirements are preempted per PSL §130.

Construction activities for the proposed Project will entail soil disturbances of greater than one acre. Absent an Article VII certificate, storm water discharge(s) from the construction site(s) are required to be covered under a

State Pollutant Discharge Elimination System (SPDES) General Permit issued in accordance with the New York Environmental Conservation Law (ECL) Article 17. The approved EM&CP will include as an appendix a Stormwater Pollution Prevention Plan that will satisfy the requirements of General Permit No. GP-0-10-001 dated January 29, 2010. ~~Based on past experience and guidance provided by New York State Department of Public Service Staff, Central Hudson understands that this project's EM&CP and associated erosion control measures will fulfill the NYSDEC's erosion and sediment control requirements and that a separate SWPPP will not be required. Concurrent with the EM&CP filing, Central Hudson will provide the NYSDEC with the required Notice of Intent for coverage of this Project under General Permit No. GP-0-10-001 dated January 29, 2010 for Stormwater Discharges from Construction Activities. The required Notice of Termination of such General Permit coverage will be provided to the NYSDEC following completion of the Project.~~

7.5.8 Chapter 177, Vehicles and Traffic

Chapter 177 outlines regulations related to vehicular movement on roadways within the Town. Article I of Chapter 177 outlines parking regulations relative to public roads, specifically no-parking zones and seasonal parking restrictions.

The applicant will comply with the requirements of Chapter 177.

7.5.9 Chapter 194, Zoning

Zoning regulations are described in Chapter 194 of the Town Code. The proposed Project would be located in only one of the 17 existing districts, specifically the R-1 residential district. Public utility uses are not identified within the Schedule of Permitted Uses (§194-16 and Attachment 2) as a permitted use within the R-1 district, and are therefore not permitted per §194-8.

The Schedule of Bulk Regulations (§194-17 and Attachment 3) sets forth the following dimensional requirements for the R-1 residential district:

- Minimum lot size: 1 acre
- Minimum lot frontage: 50 feet
- Minimum lot width: 125 feet
- Minimum lot depth: 150 feet
- Minimum front yard: 50 feet
- Minimum side yard: 25 feet
- Minimum rear yard: 50 feet

- Maximum lot coverage: 12%
- Maximum building height: 35 feet

Per Chapter 194, §194-110, all power and communication lines shall be installed underground in the manner prescribed by regulations of the governmental agency or utility company having jurisdiction. However, where site or other environmental considerations would cause undue hardship, the appropriate reviewing agency shall have authority to waive this requirement.

Per Chapter 194, §194-161, the construction or modification of public utility structures, including the construction or use of overhead lines or other structures used for public utility purposes and subject to the jurisdiction of the Public Service Commission of the State of New York is a permitted use in the Industrial districts within the Town.

To the extent that they are applicable to the proposed Project, the The Applicant requests that the Commission refuse to apply the use and dimensional requirements described within Chapter subsection §194-17 and Attachment 3.

The proposed Project will be constructed wholly within an existing right-of-way, where transmission lines are currently strung along existing towers, and will connect to an existing substation within the R-1 district. Both the existing right-of-way and the proposed tower locations have been and will be sited according to technical specifications regarding clearance, reliability criteria, span lengths, and directional requirements. The requirements detailed within §194-17 and Attachment 3 Chapter 194 are not designed to accommodate these specifications. For these reasons, Chapter 194 the bulk requirements described therein of the town code is are unduly restrictive in view of existing technology.

7.6 References

Town of East Fishkill, New York. 2001. Code of the Town of East Fishkill. Published by General Code, as amended through June 23, 2011. Available at: <http://ecode360.com/EA0495>. Accessed January, 2013.

Town of LaGrange, New York. 2002. Code of the Town of LaGrange. Published by General Code, as amended through November 14, 2012. Available at: <http://ecode360.com/LA0563>. Accessed January, 2013.

Town of Pleasant Valley, New York. 1978. Code of the Town of Pleasant Valley. Published by General Code, as amended through April 11, 2012. Available at: <http://ecode360.com/PL0575>. Accessed January, 2013.

Town of Wappinger, New York. 1999. Code of the Town of Wappinger. Published by General Code, as amended through April 9, 2012. Available at: <http://ecode360.com/WA0691>. Accessed January, 2013.

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-014 (DM)

Central Hudson Response No: CHGE-014 (DPS)

Date of Request: 6/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: July 8, 2014

Response Provided by: John Hecklau (Item 1)
Hans Schick (Item 2)

Information Requested:

1. Relative to Exhibit 7 in the Application regarding local laws provide clarification for any sections where the following verbiage is used: that the Company will either comply with the "substantive" or "to the extent they are applicable". Any clarification needs to detail the specific sections or provision of the local law/ordinance that is being discussed relative to the particular construction design or activity that cannot be complied with and why. The following are some examples of the Sections of local laws in question.
 - A. 7.2.2. - Will driveways be built for this project?
 - B. 7.2.4. - Do utility structures come under this definition or not?
 - C. 7.2.5. - What portions of this code are applicable and which parts need waiving?
 - D. 7.2.8. Is this section exempt or not?

- E. 7.2.10. - Will or will not all structures comply with the supplemental regulations. If not which ones will not.
 - F. 7.3.1. List all provisions of Chapter 83 and specify which provisions the project cannot comply with.
 - G. 7.3.3. - Explain how the electrical inspector would have stop work authority (hence needing a waiver of such activity) if local permitting is superseded by the Certificate.
 - H. 7.3.4. - Clarify if or if not this project is defined as "development" for purposes of this ordinance.
 - I. 7.3.5 - Does this ordinance contain a stop work provision? If so please provide it.
 - J. 7.3.7 - Clarify this response i.e. will the Company comply with the work hours for construction and or are construction noises for utility work permitted?
 - K. 7.3.9. - Clarify this section in light of recent discussions regarding the SPEDES General Permit.
2. Provide the Company's policies, practices or procedures (including any drawings or typicals) for crossing underground utilities with heavy equipment as they relate to this project.

Responses:

- 1. *Exhibit 7 has been revised to reflect Staff's requests for clarification as described above. The specific examples cited by Staff have been addressed as follows:*
 - A. *No, the Project will not include the construction of driveways. The review of Chapter 46 of the Town of Pleasant Valley Code has been revised to state that the Project will comply.*
 - B. *Yes, utility structures would meet the definition of "development". The review of Chapter 50 of the Town of Pleasant Valley Code has been revised to remove reference to the definition of "structure", which would not apply. Similar revisions have been made*

throughout Exhibit 7 regarding the definition of "development" relative to the Project.

- C. The review of Chapter 53 of the Pleasant Valley Code has been revised to request a waiver relative to local enforcement authority granted in §53-6.
- D. Yes, local permit requirements would be preempted by PSL §130.
- E. The screening and fencing requirements discussed in Section 7.2.10 and §98-44 of the Pleasant Valley Code are not specifically defined within the Code. The review of Chapter 98 has been revised to note the following: "The Applicant cannot determine whether the screening, landscaping, and/or fencing provided in accordance with the Certificate and EM&CP satisfies the supplementary regulations described in §98-44, as the latter would be a matter of local Planning Board discretion and a product of the site plan review process from which the Applicant has requested relief. Therefore, the Applicant requests that the Commission refuse to apply the provisions of §98-44."
- F. The review of Chapter 83 of the Town of LaGrange Code has been revised to request waivers relative to local stop-work authority granted in §83-9 and local inspection authority granted in §83-4(B).
- G. As local permit requirements would be preempted by PSL §130, stop work authority granted in Chapter 107 of the Town of LaGrange Code would therefore not apply.
- H. Utility structures would meet the definition of "development", which is "any man-made change to improved or unimproved real estate". The review of Chapter 120 of the Town of LaGrange Code has been revised to remove reference to the definition of "structure", which would not apply.
- I. The review of Chapter 124 of the Town of LaGrange Code has been revised to request a waiver from local enforcement authority granted in §124-15.
- J. The review of Chapter 162 of the Town of LaGrange Code has been revised to note that Project will comply with

the construction hour requirements of the EM&CP, which are compliant with the requirements of §162-5.

K. The review of Chapter 197 of the Town of LaGrange Code has been revised in light of discussions regarding the SPDES General Permit.

- 2. The A & C Lines Rebuild project team consulted with Central Hudson's Gas Engineering Department regarding the appropriate protections for buried gas transmission piping in close proximity to substantial construction work on overhead electric transmission facilities. This response constitutes the practice the Gas Engineering Department would typically follow regarding taking appropriate precautions.*

According to the Gas Engineering Department, the most important consideration is to make sure that all aspects of the One-Call rules are followed. This will provide an accurate indication of exactly where the pipeline is located. It will be the responsibility of those overseeing the electric transmission work, along with the contractor hired to do the work, to keep the marks fresh in the vicinity of the work. If the marks are lost for any reason, another One-Call must be made. Gas Engineering should be consulted about actual pipe depth in the immediate area of the work.

The second most important consideration is to keep the Central Hudson Gas Engineering department fully informed in a timely manner about the conduct and progress of the electrical transmission work so Gas Engineering personnel can be present if/when the pipeline is at heightened risk. For example, Gas Engineering must review (and approve) plans for crossing over the pipeline with heavy equipment (and perform periodic site inspections to make sure the plan is being followed). Gas Engineering must also be present on site whenever excavation work may expose the pipe.

The pipeline is at heightened risk whenever excavation/drilling work is done near the pipe, heavy machinery passes over it, and heavy loads are lifted to a significant height above it. If there is any plan to dig or drill close to any Central Hudson gas pipeline, Gas Engineering will require that the pipe first be exposed in its presence via

Hydrovac or hand excavation to confirm its exact location. If moving heavy equipment or lifting heavy objects over the pipe location, appropriate matting will be required.

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-015(MS)

Central Hudson Response No: CHGE-015 (DPS)

Date of Request: 6/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: June 24, 2014

Response Provided by: Jose Ruaya

Information Requested:

1. In response to DPS-6, Central Hudson Gas and Electric Corporation (Central Hudson or the Company) states that ceramic bells are more expensive than polymer. Provide a cost estimate of the A&C line rebuild assuming ceramic bell insulators are used instead of polymer insulators.
 - a. For each tangent structure provide:
 1. the number of polymer insulators;
 2. the length of each polymer insulator to be used;
 3. the expected cost of each insulator;
 4. the vendor/manufacture name of each insulator; and,
 5. the catalog cut sheet.
 - b. Assuming ceramic bell insulators are to be used in the line rebuild, provide:
 1. the number of strings required;
 2. the number of bells for each string required;
 3. the expected cost of each bell and/or string;
 4. the expected cost of associated hardware (cotter keys);
 5. the vendor/manufacture name of each bell;
 6. the vendor/manufacture name of all associated hardware; and,

7. catalog cut sheets for the insulators and associated hardware.
2. Provide a description of any hardware differences required for the installation of polymer and ceramic insulators. Include an engineering drawing as well as a complete description of the differences.
3. Explain any differences in tools required for the installation and replacement of polymer insulators versus ceramic insulators.
4. Provide a list of Central Hudson's "approved" (as mentioned in response to DPS-13) polymer insulators.
 - a. Provide the life expectancy of each Central Hudson approved polymer insulator. What is the basis for the life expectancy?
 - b. Provide the life expectancy of ceramic insulators. What is the basis for the life expectancy?
 - c. Provide the life expectancy of glass insulators. What is the basis for the life expectancy?
5. Pertaining to Central Hudson experienced insulator replacements since 1990:
 - a. Provide the number of ceramic insulator strings that have been replaced on Central Hudson's 115 kV system. Include a table showing the location of the failure, the reason for replacement, and the vintage of the failed equipment.
 - b. Provide the total number of ceramic insulator strings on Central Hudson's 115 kV system at the time of each failure.
 - c. Provide the number of polymer insulators that have been replaced on Central Hudson's 115 kV system. Include a table showing the location of the failure, the reason for replacement, and the vintage of the failed equipment.
 - d. Provide the total number of polymer insulators on Central Hudson's 115 kV system at the time of each failure.
6. Explain how Central Hudson determines if/when a polymer insulator has failed.
7. Provide Central Hudson's inspection procedures for detecting degrading or failing polymer insulators.

8. For Central Hudson experienced polymer insulator failures provide:
 - a. a description of the failure (brittle fracture, flashunder, discharge degradation of rods, end fitting pullout, etc) and pictures if available;
 - b. an explanation of whether the failure was partial or complete; and,
 - c. an explanation of the impact of the failure on the electric system.

9. Explain why Central Hudson plans on using ceramic bell insulators for dead-end structures (Reference: Exhibit E-1, Section E-1.2.1.)

Responses:

1. *Cost breakdown per structure:*

| <i>Item</i> | <i>Cost/per structure</i> | <i>Notes</i> |
|---|---------------------------|--|
| <i>Ceramic Insulator Cost</i> | \$ 407.49 | <i>(27) ceramic bells and (3) Clevis Y w/ Ball</i> |
| <i>Polymer Insulator Cost</i> | \$ 231.36 | <i>(3) Polymer Insulator Strings per structure</i> |
| <i>Incremental Material Cost</i> | \$ 176.13 | |
| <i>Additional Labor Cost</i> | \$ 180.00 | <i>Assumed 1.5 MH per structure @ \$120/MH</i> |
| <i>Total Cost Difference Per Structure</i> | \$ 356.13 | <i>Includes labor and material</i> |

Line Totals:

| <i>Structures</i> | <i>Qty</i> | <i>Incremental Cost</i> | <i>Total</i> | <i>Notes</i> |
|---|------------|-------------------------|--------------|---|
| <i>New Davit and Swing Angle Structures</i> | 90 | \$ 356.13 | \$ 32,051.70 | <i>Incremental cost is due to the labor and material cost differences between installation of polymer and ceramic insulators.</i> |
| <i>Existing 2- and 3- pole structures to remain</i> | 12 | \$ 587.49 | \$ 7,049.88 | <i>The higher incremental cost is due to the fact that existing structures to remain will require all insulators to be replaced to ceramic from existing polymer insulators</i> |

Total Cost Difference: \$39,101.58

- a. 1. *There will be three polymer insulators per structure.*

2. The length of each polymer insulator ranges from approximately 48 to 54 inches.
 3. The average cost of each insulator is \$77.12, so the cost for each structure is \$231.36.
 4.

| | |
|---------|-------------------|
| Hubbell | S0250362010 |
| LAPP | CS2-054-YB-106-A |
| Locke | A255-SC0330-YB-04 |
| MacLean | S148054MX01 |
 5. The catalog cut sheets for the insulators identified in response to Item 1(a)(4) above are attached as **Exhibit 1.**
- b.
1. Three strings per non-deadend structure and six strings per deadend structure would be required if ceramic bell insulators were used in this manner. This amounts to a total of 444 ceramic insulator strings.
 2. Central Hudson anticipates using nine bells per string at deadend structures.
 3. The average cost per bell is \$14.14. For a nine bell string, the total is \$127.26
 4. The additional hardware required per ceramic insulator string is a "Clevis, Y with Ball" at an average cost of \$8.57.
 5.

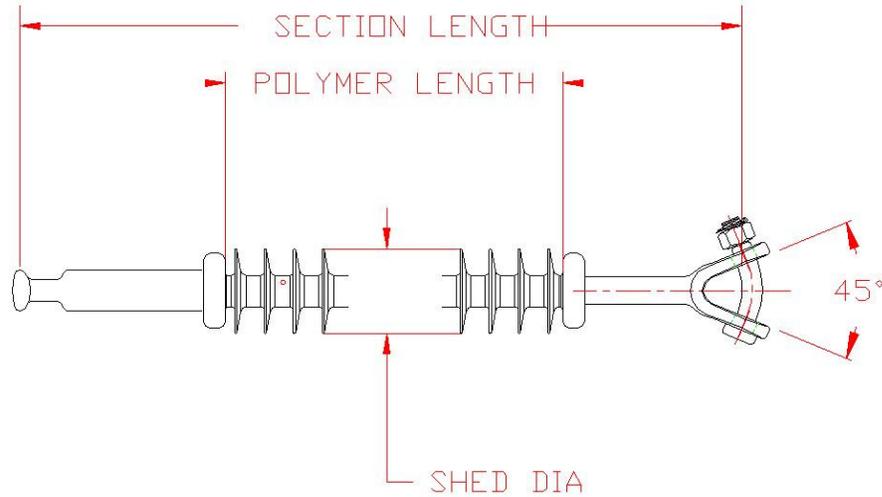
| | |
|----------------|--------------|
| LAPP | 5960A-70 |
| Locke | 30S255 |
| Ohio Brass | 47410 |
| PSN Components | 2325250-7001 |
| PSN Components | P525-11340 |
| Victor | VI 52-5 |
 6.

| | |
|------------------------------------|---------|
| MacLean (formerly Reliable/Bethea) | YCB-65A |
| Anderson | YBC-30 |
 7. The catalog cut sheets for the insulators and other hardware identified in response to Item 1(b)(5) and (6) above are attached as **Exhibit 2.**
2. The main hardware difference is the Y-Clevis with Ball when using ceramic insulators. See **Exhibit 3.**

3. *Due to the increased weight of ceramic insulators, a hoist may be required for installation. In addition, because of the weight, there would be an additional labor cost.*
4. *The "approved" insulators are those which are referenced in response to 1(a) above.*
 - a. *The life expectancy of a polymer insulator is similar to that of a ceramic insulator subjected to the same environmental and load factors. The basis for this is manufacturer literature.*
 - b. *The life expectancy of a ceramic insulator varies with environmental and loading conditions. Based on Central Hudson's experience, this could range from 40 to 80 years.*
 - c. *Central Hudson does not have glass insulators in the transmission line system.*
5.
 - a. *While there have been insulator replacements since 1990, Central Hudson does not have specific details on this question.*
 - b. *Central Hudson does not have this data.*
 - c. *Central Hudson is not aware of any in-service failures of polymer insulators.*
 - d. *Central Hudson is not aware of any in-service failures of polymer insulators.*
6. *For insulators suspected to have failed, Central Hudson confirms via visual field inspections and, if necessary, through use of thermal and/or corona cameras*
7. *As part of the comprehensive ground and/or aerial inspections, polymer insulators are visually checked for signs of flashover, tracking, and material degradation. Aerial patrols of the entire transmission system are performed on a quarterly basis. These inspections check for tree issues, pole and hardware conditions and ROW encroachments etc.*
8. *Central Hudson has not experienced an in-service failure of a polymer insulator.*

9. *Ceramic bell insulators have been chosen in deadends due to their resistance to degradation and premature aging caused by high electric field (e-field) levels in this insulator configuration. Research has shown a very high correlation between high e-field and loss of hydrophobicity and/or insulator damage.*

S025036S2010



Product Specifications

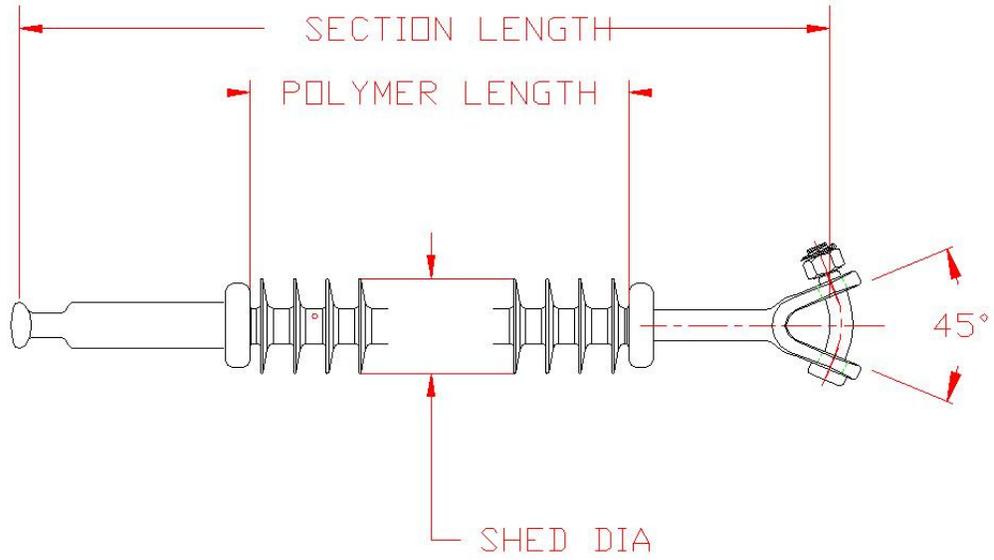
| | |
|---|----------------------|
| Typical System Voltage | 138kV / 161kV |
| Strength Class | 25 kip, 5/8" (16 mm) |
| Top/Ground End Fitting | Y-Clevis |
| Bottom/Line End Fitting | ANSI Ball |
| Section Length | 48.42 IN (1230 MM) |
| Leakage Distance | 94 IN (2375 MM) |
| Corona Ring | None |
| Polymer Length | 36.62 IN (930 MM) |
| System Voltage (kV) | 138kV |
| Working Load | 12,500 lbs |
| Dry Arc Distance | 36.6 IN (931 MM) |
| Number of Sheds | 34 |
| Shed Style | Uniform |
| Shed Diameter | 2.9 IN |
| Rod Diameter | 5/8 IN (16 MM) |
| Thickness of housing over Rod | > 3MM |
| End Fitting Class | ANSI |
| End Fitting Material | Ductile Iron |
| SML | 25,000 lbs |
| RTL | 12,500 lbs |
| ANSI 60Hz Dry FO | 385 kV |
| Housing Material | SILICONE RUBBER |
| ANSI 60Hz Wet FO | 365 kV |
| ANSI 60Hz Wet Withstand | 230 kV |
| IEC lightning Impulse Withstand - Positive | 635 kV |
| ANSI Critical Impulse FO - Positive | 540 kV |
| IEC lightning Impulse Withstand - Negative | 620 kV |

ANSI Critical Impulse FO - Negative

525 kV

Compressed Product Number

S025036S2010



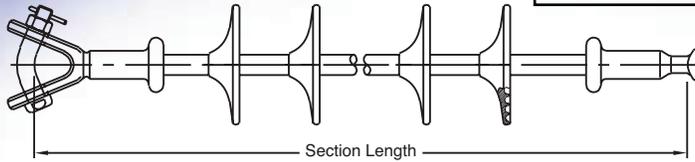
Suspension Insulator

Mechanical Rating

SML: 25,000 lbs • 111 kN

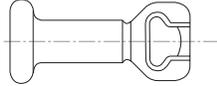
RTL: 12,500 lbs • 56 kN

Central Hudson Gas & Electric Corporation
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Case 13-T-0469
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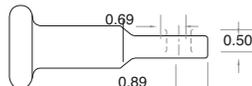


Available End Fittings

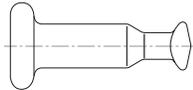
Socket: ANSI 52-5



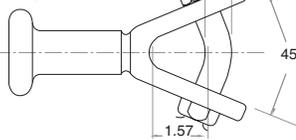
Tongue: ANSI 52-6



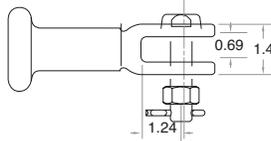
Ball: ANSI 52-5



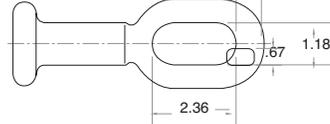
Y-Clevis



Clevis: ANSI 52-6



Oval Eye



| TYPICAL LINE VOLTAGE | PART NUMBER | ANSI CLASS | SECTION LENGTH | CREEPAGE DISTANCE | ARCING DISTANCE | LOW FREQUENCY FLASHOVER | | CRITICAL IMPULSE FLASHOVER | | WEIGHT |
|----------------------|------------------|------------|----------------|-------------------|-----------------|-------------------------|-----|----------------------------|------|--------|
| | | | | | | DRY | WET | POS | NEG | |
| 69 | CS2-036-YB-064-A | - | 36 | 64 | 27 | 269 | 257 | 446 | 455 | 7 |
| | CS2-036-YB-092-A | - | | 92 | | | | | | 9 |
| 69 | CS2-040-YB-072-A | - | 40 | 72 | 31 | 307 | 287 | 506 | 516 | 7.5 |
| | CS2-040-YB-101-A | - | | 101 | | | | | | 9 |
| 69/115 | CS2-047-YB-089-A | 60-1 | 47 | 89 | 38 | 374 | 337 | 609 | 622 | 8 |
| | CS2-047-YB-127-A | | | - | | | | | | 127 |
| 115 | CS2-054-YB-106-A | 60-2 | 54 | 106 | 45 | 442 | 388 | 713 | 729 | 9 |
| | CS2-054-YB-120-A | | | - | | | | | | 120 |
| 138 | CS2-060-YB-121-A | 60-3 | 60 | 121 | 51 | 499 | 431 | 801 | 820 | 10 |
| | CS2-060-YB-145-A | | | - | | | | | | 145 |
| 138/161 | CS2-065-YB-140-A | 60-4 | 65 | 140 | 56 | 547 | 468 | 875 | 896 | 11 |
| | CS2-065-YB-159-A | | | - | | | | | | 159 |
| 161 | CS2-071-YB-141-A | 60-5 | 71 | 141 | 62 | 605 | 511 | 964 | 988 | 11 |
| | CS2-071-YB-170-A | | | - | | | | | | 170 |
| 161 | CS2-077-YB-157-A | 60-6 | 77 | 157 | 68 | 663 | 555 | 1053 | 1079 | 12 |
| | CS2-077-YB-190-A | | | - | | | | | | 190 |
| 161/230 | CS2-083-YB-187-A | 60-7 | 83 | 187 | 74 | 720 | 598 | 1141 | 1170 | 13.5 |
| | CS2-083-YB-215-A | | | - | | | | | | 215 |
| 230 | CS2-088-YB-192-A | 60-8 | 88 | 192 | 79 | 768 | 634 | 1215 | 1247 | 14 |
| | CS2-088-YB-225-A | | | - | | | | | | 225 |
| 230 | CS2-097-YB-234-A | 60-9 | 97 | 234 | 88 | 854 | 699 | 1347 | 1383 | 16 |
| | CS2-097-YB-295-A | | | - | | | | | | 295 |
| 230 | CS2-107-YB-244-A | 60-10 | 107 | 244 | 98 | 950 | 772 | 1495 | 1535 | 16 |
| | CS2-107-YB-305-A | | | - | | | | | | 305 |
| 345 | CS2-120-YB-257-A | 60-12 | 120 | 257 | 111 | 1075 | 866 | 1688 | 1734 | 17 |
| | CS2-120-YB-309-A | | | - | | | | | | 309 |
| 500 | CS2-137-YB-307-A | 60-13 | 137 | 307 | 128 | 1238 | 990 | 1939 | 1991 | 20 |
| | CS2-137-YB-382-A | | | - | | | | | | 382 |

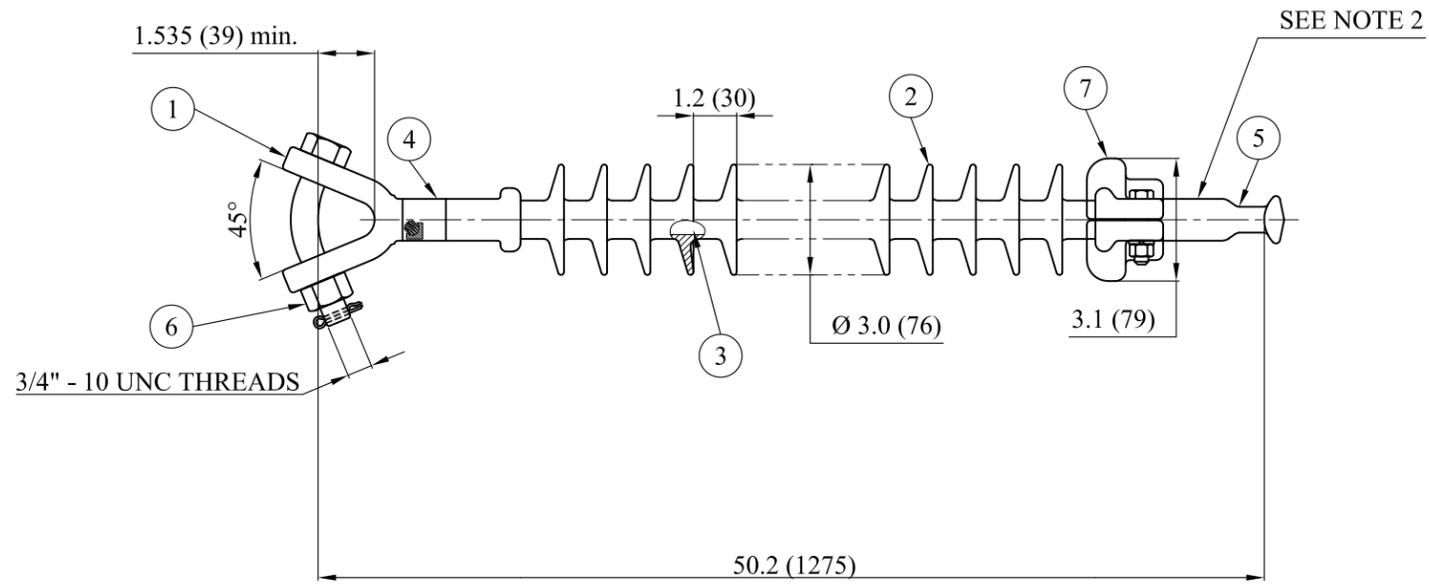
- All section lengths are based on Y-Clevis & Ball end fittings.
- Electrical data shown for insulators without corona rings. Lapp recommends corona rings to be installed at 230kV and above.
- Additional section lengths and creepage distances are available. Contact sales agency for details.
- All dimensions, tolerances and tests are within allowable ANSI standards.
- All dimensions are in inches and pounds.

| REVISIONS | |
|-----------|---------------|
| 0 | AUG. 31, 2011 |

NGK-LOCKE DWG. NO. **A255-SC0330-YB-04**
POLYMER SUSPENSION INSULATOR

- NOTES:
 1. DIMENSIONS ARE IN INCHES, METRIC EQUIVALENTS (mm) ARE SHOWN IN ().
 2. BALL COUPLINGS CONFORM TO GAUGES FOR ANSI CLASS 52-5 (TYPE-J).
 3. TOLERANCES ARE IN ACCORDANCE WITH ANSI C29.11 AND C29.12.
 POSITIVE TOLERANCE TO LEAKAGE (CREEPAGE) DISTANCE IS NOT LIMITED.

Central Hudson Gas & Electric Corporation
 A & C REBUILD PROJECT - ARTICLE VII APPLICATION
 Case 13-T-0469
 Exhibit 1 to DPS IR Response CHGE-015



TECHNICAL DATA

Specification Applied: ANSI C29.11 and C29.12, Latest Issue

| CHARACTERISTICS | RATING | CHARACTERISTICS | RATING |
|---------------------------------------|------------------|--------------------------------------|--------|
| DIMENSIONS | | ELECTRICAL VALUES | |
| Arcing Distance, in. (mm) | 40.1 (1019) | Power Frequency Dry Flashover, kV | 430 |
| Leakage (Creepage) Distance, in. (mm) | 92.2 (2343) | Power Frequency Wet Flashover, kV | 380 |
| Number of Sheds, "N" | 33 | Critical-Impulse Flashover, Pos., kV | 660 |
| Core Diameter, in. (mm) | 0.650 (17) | Critical-Impulse Flashover, Neg., kV | 700 |
| MECHANICAL VALUES | | | |
| Specified Mechanical Load, lb.(kN) | 25000 (111) | | |
| Routine Tension Load, lb. (kN) | 12500 (56) | | |
| APPROX. NET WEIGHT, lb. (kg) | 9.8 (4.4) | | |

| ITEM | COMPONENT | MATERIAL |
|------|------------------|--------------------------------|
| 7 | 4" CORONA RING | ALUMINUM ALLOY |
| 6 | COTTER BOLT SET | STEEL, HDG |
| 5 | BALL FITTING | HIGH GRADE FORGED STEEL, HDG |
| 4 | LABEL | POLYESTER |
| 3 | CORE | HIGH QUALITY PULTRUDED FRP ROD |
| 2 | WEATHERSHEDS | GRAY SILICONE RUBBER |
| 1 | Y CLEVIS FITTING | HIGH GRADE FORGED STEEL, HDG |

| | | |
|----------------|---|-----------------------------|
| MADE BY MM | NGK-LOCKE POLYMER INSULATORS, INC. VIRGINIA BEACH, VA 23455 | CAT. NO. 251-SC330-YJ-04 |
| APPROVED KE | | |



MACLEAN POWER SYSTEMS

Reliable Power Products

11411 Addison, Franklin Park, IL 60131 USA (847) 455-0014

Central Hudson Gas & Electric Corporation
A & C REBUILD PROJECT -
ARTICLE VII APPLICATION
Case 13-T-0469
Exhibit 1 to DPS IR Response CHGE-015

Catalog Number:

S148054MX01

Date:

10/17/2008

END FITTINGS / MATERIAL

Tower End Fitting:

Y-Clevis

Line End Fitting:

Ball (ANSI 52-5)

Corona Ring (tower):

none

Corona Ring (line):

none

Number of Sheds:

27

Weight Estimate:

13.6 Lbs

6.2 kg

DIMENSIONAL VALUES

Section Length (A):

54.3 In 1,379 mm

Shed Diameter (B):

3.7 In 94 mm

Shed Spacing (C):

1.57 In 40 mm

Dry Arc Distance:

46.1 In 1,171 mm

Leakage Distance:

109.2 In 2,773 mm

ELECTRICAL VALUES

60 Hz Dry F.O. (Min. Withstand):

453 kV (419 kV)

60 Hz Wet F.O. (Min. Withstand):

406 kV (353 kV)

CIFO + (Min. Withstand):

778 kV (675 kV)

CIFO - (Min. Withstand):

825 kV (722 kV)

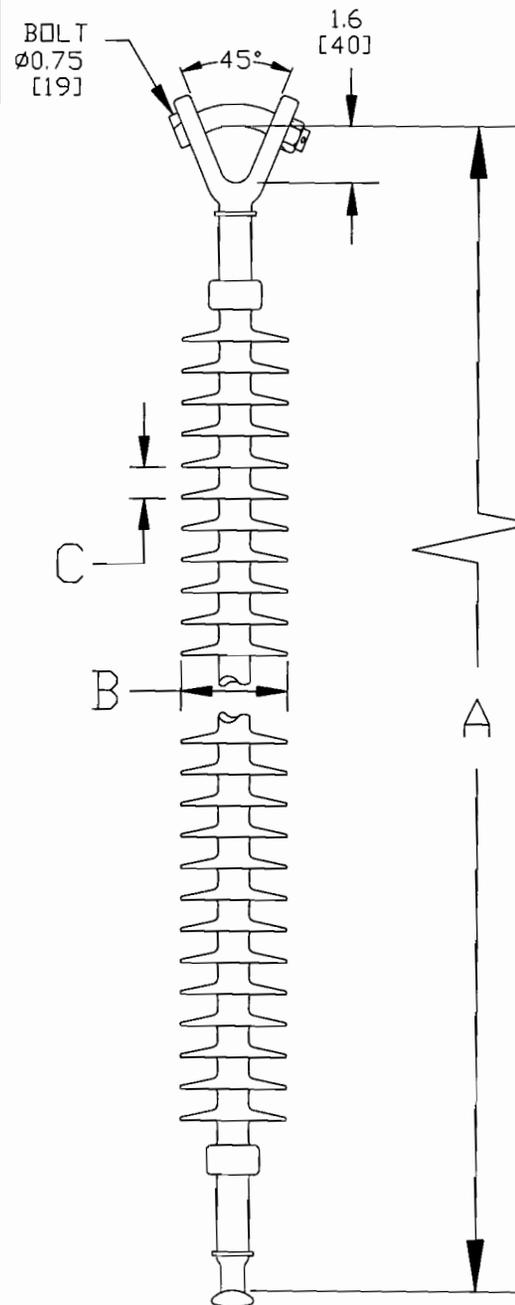
MECHANICAL VALUES

Specified Mech. Load (SML):

25,000 Lbs 111.2 kN

Routine Test Load (RTL):

12,500 Lbs 55.6 kN



| | | |
|-------------------|-------------|-----|
| Approved | S148054MX01 | JBB |
| <i>J. Branadi</i> | | |

This drawing contains confidential information that is the property of MacLean Power L.L.C ("MacLean"). Use of MacLean's confidential information without MacLean's express written consent is strictly prohibited and may expose you to legal liability. If you believe that you received this material in error, please destroy it or return it to "MacLean Power, L.L.C., 11411 Addison, Franklin Park, IL 60131, USA."

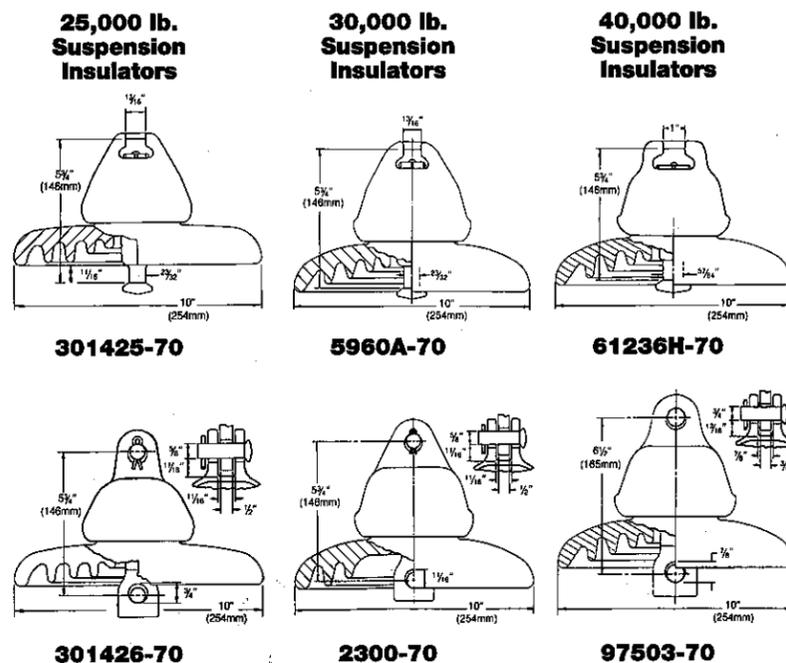
Silicone Rubber Sheath & Sheds 5 of 5
Complies with applicable ANSI and IEC standards.

HIGH STRENGTH UNITS

Lapp high strength porcelain suspension insulators are available in 25,000, 30,000, and 40,000 lb. strength ratings to give transmission design engineers the closest possible insulator match for any maximum design load requirement. High strength suspensions are widely used for unusually heavy lines, dead-ending long spans, or for extra factors of safety, particularly in EHV construction.

The 25,000 and 30,000 lb. suspension insulators meet ANSI Standards for Class 52-5 and Class 52-6 suspension insulators.

Insulator numbers 61236H and 97503B have a 40,000 lb. strength rating and have gray glaze as standard. Other glazes are available on specification.



| Catalog Number | 301425-70 | 301426-70 | 5960A-70 | 2300-70 | 61236H-70 | 97503-70 |
|---|---------------|---------------|---------------|---------------|---------------|---------------|
| Color - No. 70 Gray | 301425 | 301426 | 5960A | 2300 | 61236H | 97503B |
| Chocolate | 301425G | 301426G | 5960G | 2300D | 61236 | |
| Charcoal Gray | | | | | 61236E | |
| Royal Blue | | | | | | |
| ANSI Class | 52-5 | 52-6 | 52-5 | 52-6 | 52-8 | 52-10 |
| Dimensions | | | | | | |
| Leakage Distance, Inches (mm) | 12 (305) | 12 (305) | 11 (279) | 11 (279) | 11 (279) | 11 (279) |
| Dry Arcing Distance, Inches (mm) | 7.75 (197) | 7.75 (197) | 7.75 (197) | 7.75 (197) | 7.75 (197) | 7.75 (197) |
| Mechanical Values | | | | | | |
| Combined M&E Strength, Lbs. (kN) | 25,000 (111) | 25,000 (111) | 30,000 (133) | 30,000 (133) | 40,000 (178) | 40,000 (178) |
| Impact Strength, Inch-Lbs. (Nm) | 90 (10) | 90 (10) | 90 (10) | 90 (10) | 100 (11.3) | 100 (11.3) |
| Routine Proof Test, Lbs. (kN) | 12,500 (55.5) | 12,500 (55.5) | 15,000 (67) | 15,000 (67) | 20,000 (89) | 20,000 (89) |
| Time Load Test Value, Lbs. (kN) | 15,000 (67) | 15,000 (67) | 18,000 (80) | 18,000 (80) | 24,000 (107) | 24,000 (107) |
| Maximum Working Load, Lbs. (kN) | 12,500 (55.5) | 12,500 (55.5) | 15,000 (67) | 15,000 (67) | 20,000 (89) | 20,000 (89) |
| Electrical Values | | | | | | |
| Low Frequency Dry Flashover, kV | 80 | 80 | 80 | 80 | 80 | 80 |
| Low Frequency Wet Flashover, kV | 50 | 50 | 50 | 50 | 50 | 50 |
| Impulse Flashover, Positive, kV | 125 | 125 | 125 | 125 | 125 | 125 |
| Impulse Flashover, Negative, kV | 130 | 130 | 130 | 130 | 130 | 130 |
| Low Frequency Puncture Voltage, kV | 110 | 110 | 110 | 110 | 110 | 110 |
| Radio Influence Voltage Data | | | | | | |
| Test Voltage-rms to Ground, kV | 10 | 10 | 10 | 10 | 10 | 10 |
| Maximum RIV-Microvolts at 1000 kHz | 50 | 50 | 50 | 50 | 50 | 50 |
| Packing and Shipping Data | | | | | | |
| Net Weight, Each, Lbs. (kg), Approx. | 12.5 (5.7) | 12.5 (5.7) | 14.2 (6.4) | 14.0 (6.3) | 16.8 (7.6) | 17.0 (7.7) |
| Packed Weight, Each, Lbs. (kg), Approx. | 13.2 (6.0) | 13.2 (6.0) | 14.8 (6.7) | 14.7 (6.7) | 17.5 (7.9) | 17.7 (8.0) |
| Number in Standard Package | 6 | 6 | 6 | 6 | 6 | 6 |
| Pallet Weight, Pounds (kg), Approx. | 1,620 (734.8) | 1,620 (734.8) | 1,840 (834.6) | 1,820 (825.6) | 2,160 (979.8) | 2,180 (988.8) |
| Pallet Quantity | 120 | 120 | 120 | 120 | 120 | 120 |

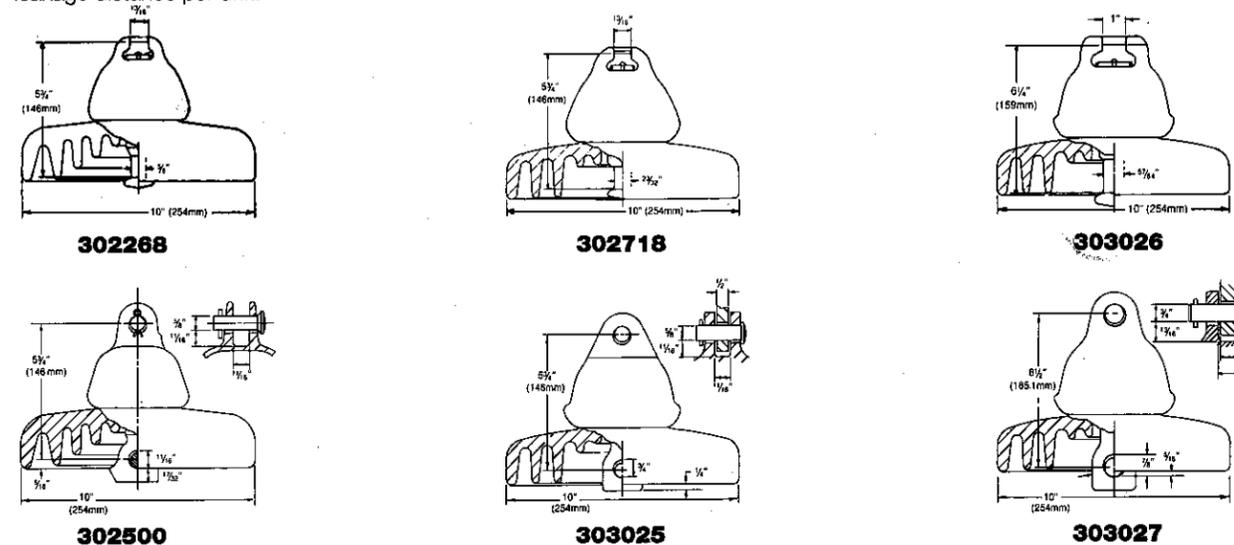
FOG-PACER® FOG-TYPE SUSPENSION INSULATORS

Many applications in contaminated areas or where a line is being upgraded or compacted require a suspension insulator with increased leakage distance. The Lapp Fog-Pacer is designed to meet this need.

The Fog-Pacer is a true fog-type insulator and provides 17 inches of leakage distance per unit.

This is 48% more leakage than the 11.5 inches on the comparable ANSI standard suspensions. Fog-Pacer suspension insulators are available in M&E ratings of 20,000 lbs., 30,000 lbs., and 36,000 lbs., in either ball-and-socket or clevis-eye designs.

Design tests show that the Fog-Pacer units meet or exceed all of the rating requirements of the equivalent ANSI standard suspensions. A series of contamination tests proved the Fog-Pacer can withstand voltages 27% higher than the equivalent standard unit at the highest contamination level tests.

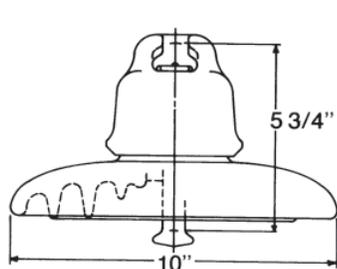


| Catalog Number | 302268-70 | 302500-70 | 302718-70 | 303025-70 | 303026-70 | 303027-70 |
|---|---------------|---------------|---------------|---------------|----------------|----------------|
| Color - #No. 70 Gray | 302268-70 | 302500-70 | 302718-70 | 303025-70 | 303026-70 | 303027-70 |
| Chocolate | 302268 | 302500 | NA | 303025A | 303026B | NA |
| Charcoal Gray | | | 302718 | 303025 | 303026 | 303027 |
| Royal Blue | | | | 303026A | 303026A | 303027A |
| Dimensions | | | | | | |
| Leakage Distance, In. (mm) | 17 (432) | 17 (432) | 17 (432) | 17 (432) | 17 (432) | 17 (432) |
| Dry Arcing Distance, In. (mm) | 9 (229) | 8 (203) | 8.5 (216) | 8 (203) | 8.5 (216) | 8 (203) |
| Mechanical Values | | | | | | |
| Combined M&E Strength, Lbs. (kN) | 20,000 (89) | 20,000 (89) | 30,000 (133) | 30,000 (133) | 36,000 (160) | 36,000 (160) |
| Impact Strength, Inch-Lbs. (Nm) | 90 (10) | 90 (10) | 90 (10) | 90 (10) | 100 (11.3) | 100 (11.3) |
| Routine Proof Test Load, Lbs. (kN) | 10,000 (44.5) | 10,000 (44.5) | 15,000 (67) | 15,000 (67) | 18,000 (80) | 18,000 (80) |
| Time Load Test Value, Lbs. (kN) | 12,000 (53.4) | 12,000 (53.4) | 18,000 (80) | 18,000 (80) | 24,000 (107) | 24,000 (107) |
| Max. Working Load, Lbs. (Nm) | 10,000 (44.5) | 10,000 (44.5) | 15,000 (67) | 15,000 (67) | 18,000 (80) | 18,000 (80) |
| Electrical Values | | | | | | |
| Low Freq. Dry Flashover, kV | 80 | 80 | 80 | 80 | 80 | 80 |
| Low Freq. Wet Flashover, kV | 50 | 50 | 50 | 50 | 50 | 50 |
| Impulse Flashover, Pos., kV | 125 | 125 | 125 | 125 | 125 | 125 |
| Impulse Flashover, Neg., kV | 130 | 130 | 130 | 130 | 130 | 130 |
| Low Freq. Puncture Voltage, kV | 110 | 110 | 110 | 110 | 110 | 110 |
| Radio Influence Voltage Data | | | | | | |
| Test Voltage-rms to Grd., kV | 10 | 10 | 10 | 10 | 10 | 10 |
| Max. RIV-Microvolts at 1000 kHz | 50 | 50 | 50 | 50 | 50 | 50 |
| Packing and Shipping Data | | | | | | |
| Net Wt., Ea., Lbs. (kg), Approximate | 13.7 (6.2) | 14.0 (6.4) | 16.2 (7.3) | 15.3 (6.9) | 19.0 (8.6) | 19.0 (8.6) |
| Packed Wt., Ea., Lbs. (kg), Approximate | 14.3 (6.5) | 14.7 (6.7) | 16.8 (7.6) | 16 (7.3) | 19.7 (8.9) | 19.7 (8.9) |
| Number in Standard Package | 6 | 6 | 6 | 6 | 6 | 6 |
| Pallet Weight, Lbs. (kg), Approximate | 1,780 (807.4) | 1,820 (825.6) | 2,080 (943.5) | 2,020 (916.3) | 2,420 (1097.7) | 2,420 (1097.7) |
| Pallet Quantity | 120 | 120 | 120 | 120 | 120 | 120 |

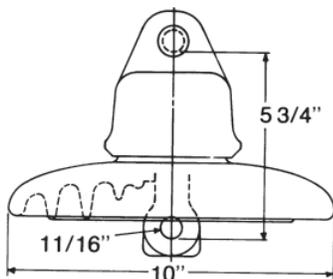
CHARACTERISTICS

| | | | |
|-------------------------------------|-----------------------------------|-------------|-----|
| Catalog Number | 30S255 | 30S257 | |
| Cat. No. w/LOKGARD Sleeve | 30S295 | - | |
| ANSI Class | 52-5 | 52-6 | |
| M&E Rating, lb. | 30,000 | 30,000 | |
| Leakage Distance in. | 12 5/8 | 12 5/8 | |
| Dry Arcing Distance, in. | 7 9/16 | 7 9/16 | |
| Mechanical Impact Strength, in.-lb. | 100 | 100 | |
| Tension Proof, lb. | 15,000 | 15,000 | |
| Low Frequency Flashover | Dry, kV | 80 | 80 |
| | Wet, kV | 50 | 50 |
| Critical Impulse Flashover | Pos., kV | 125 | 125 |
| | Neg., kV | 130 | 130 |
| Low Frequency Puncture, kV | 110 | 110 | |
| "Radio influence Voltage Data" | "Test Voltage, RMS to Ground, kV" | 10 | 10 |
| | "Max. RIV at 1000 kHz, uV " | 50 | 50 |
| Net Weight Each, lb. | 11.7 | 12.1 | |
| Standard Package Quantity | 6 | 6 | |
| Packed Weight, lb. | 84 | 82 | |

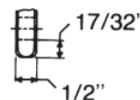
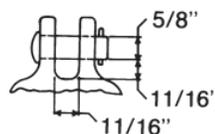
Central Hudson Gas & Electric Corporation
 A & C REBUILD PROJECT -
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 CHGE-015



30S255
ANSI CLASS 52-5



30S257
ANSI CLASS 52-6



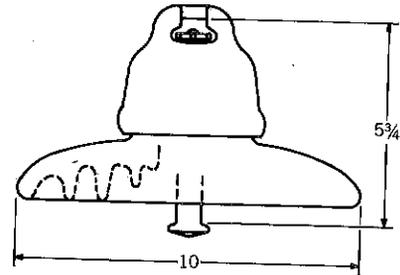
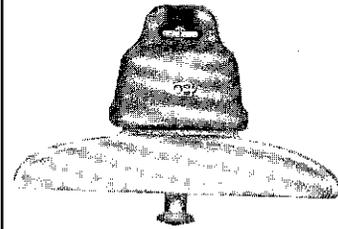


SUSPENSION INSULATORS

STRENGTH RATINGS

| | Pounds |
|---------------------|--------|
| M & E RATING | 30 000 |
| ANSI M & E CATEGORY | 25 000 |
| O-B PROOF TEST | 15 000 |

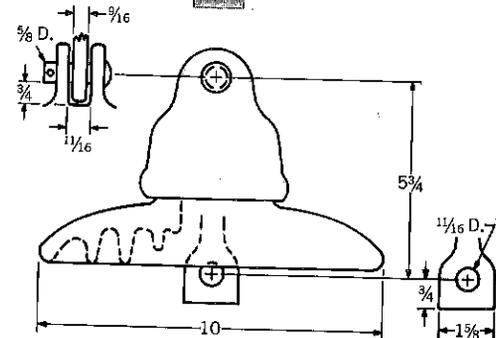
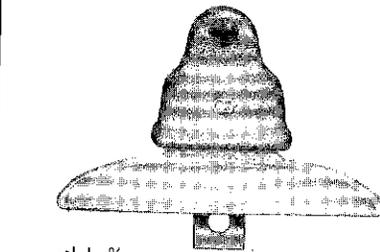
Central Hudson Gas & Electric
Corporation
A & C REBUILD PROJECT -
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CHGE-015



**Ball-Socket
Number 47410**

Heavier conductors, bundle configurations, and longer spans in modern transmission construction result in increasing requirements for mechanical strength in insulators. Units listed below represent the first step in strength characteristics beyond conventional designs, and meet a large segment of the demand.

| Line No. | Characteristics ^① | | | Ball-Socket Type | Clevis Type | |
|----------|---|---|----------|----------------------|--|-------------------------------|
| | | | | | | CATALOG NUMBER |
| 1 | CATALOG NUMBER | | | 47410 | 47415 | |
| 2 | ANSI Class (Std. C. 29.2 - 1977) | | | 52.5 | 52.6 | |
| 3 | Flashover Voltage ^② | Impulse Critical 1.2 x 50 Mu-Sec Wave | Positive | kV | 125 | 125 |
| 4 | | | Negative | kV | 130 | 130 |
| 5 | | 60 Hz | Dry | kV | 80 | 80 |
| 6 | | | Wet | kV | 50 | 50 |
| 7 | Low-Frequency Puncture Voltage | | | kV | 110 | 110 |
| 8 | Radio Influence Voltage | Test Voltage To Ground | | kV | 10 | 10 |
| 9 | | Max. RIV at 1000 kHz | | Micro-Volts | 50 | 50 |
| 10 | Leakage Distance | | | Inches | 12 | 12 |
| 11 | Dry Arcing Distance | | | Inches | 7 ³ / ₄ | 7 ³ / ₄ |
| 12 | Section Length | | | Inches | 5 ³ / ₄ ^③ | 5 ³ / ₄ |
| 13 | Porcelain Disc Diameter | | | Inches | 10 | 10 |
| 14 | Strength Ratings | M & E Rating | | Pounds | 30 000 | 30 000 |
| 15 | | ANSI M & E Category | | Pounds | 25 000 | 25 000 |
| 16 | | O-B Proof Test | | Pounds | 15 000 | 15 000 |
| 17 | Recommended Max. Sustained Load | | | Pounds | 15 000 | 15 000 |
| 18 | Impact Strength | | | Inch - Lbs. | 90 | 90 |
| 19 | Standard Glaze Color (Specify on Order) | | | Skytone Dark Gray | | |
| 20 | Net Weight | | | Lbs. Per 100 | 1260 | 1260 |
| 21 | Packed Weight | | | Lbs. Per 100 | 1420 | 1420 |
| 22 | Standard Package Quantity | | | 6 | | |



**Clevis
Number 47415**

Notes to catalog listings

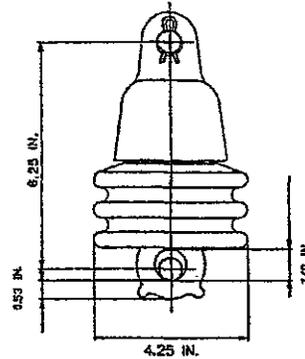
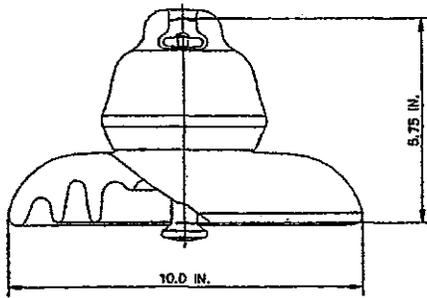
① For equivalent insulators to meet conditions of severe contamination or corrosion, see Numbers 47414 and 47413 on the following page and numbers 47416 and 47417 on page 26.

② For electrical characteristics of insulators in strings, see page 14.

③ To obtain identical electrical and mechanical values in an insulator with 5-inch section length, specify Number 47400.



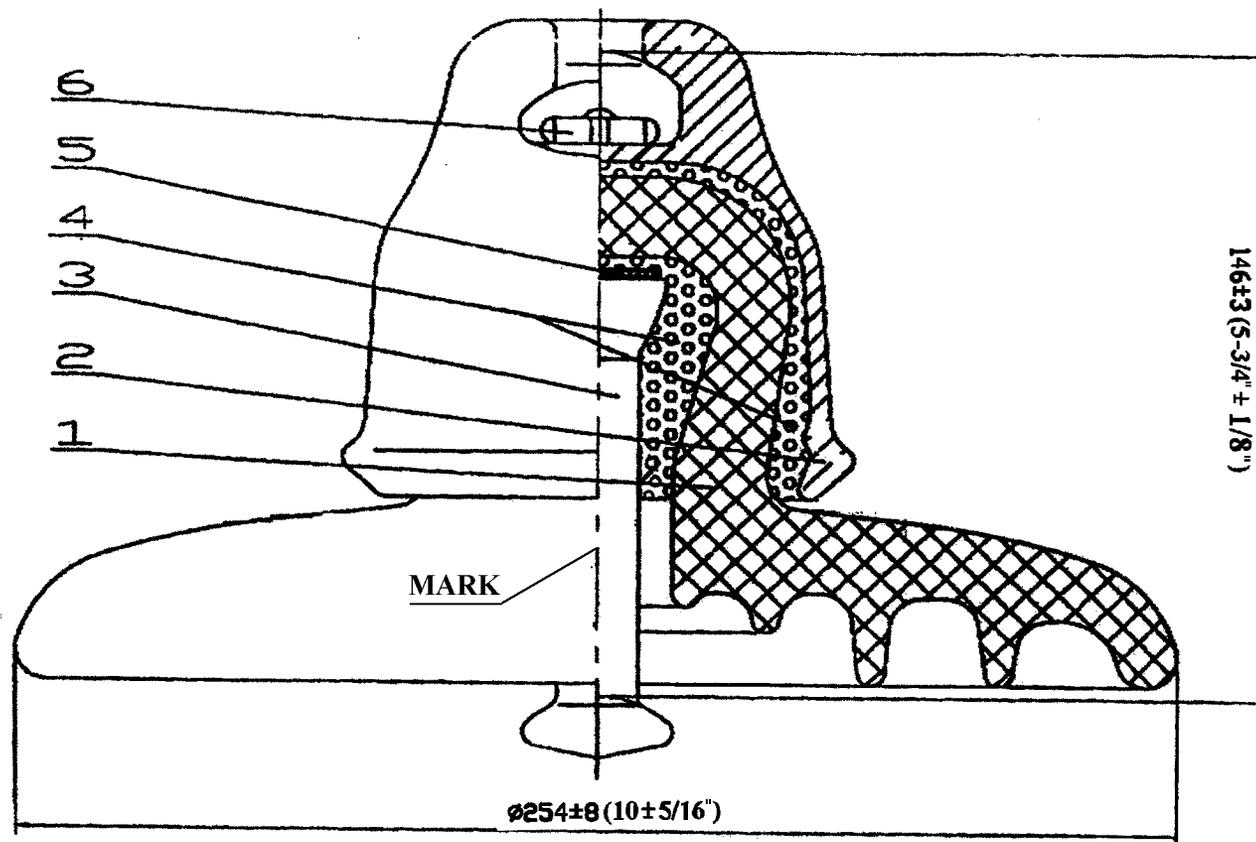
SUSPENSION INSULATORS



Central Hudson Gas & Electric Corporation
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 CHGE-015

| CATALOG NUMBER | 2325250 | 2325290 |
|--|--------------|--------------|
| ANSI Class | 52-5 | 52-9 |
| Electrical Characteristics: | | |
| Lightning impulse withstand, dry, kV | 100 | 70 |
| Low-frequency wet withstand, kV | 45 | 25 |
| Low-frequency dry withstand, kV | 70 | 55 |
| Critical impulse flashover, positive, kV | 125 | 100 |
| Critical impulse flashover, negative, kV..... | 130 | 90 |
| Low-frequency dry flashover, kV | 80 | 60 |
| Low-frequency wet flashover, kV | 50 | 30 |
| Low-frequency puncture, kV | 80 | 80 |
| Radio-influence test voltage, kV | 10 | 7.5 |
| Max. radio-influence voltage, mV | 50 | 50 |
| Mechanical Characteristics: | | |
| Combined M & E strength, pounds (kN) ... | 26,900 (120) | 10,000 (45) |
| Routine mechanical strength, pounds (kN) | 13,450 (60) | 5,000 (22.5) |
| Mechanical impact strength, inch-lbs. (Nm) | 55.8 (6.3) | 45.2 (5.1) |
| Leakage distance, inches (mm) | 11.5 (292) | 6.75 (172) |
| Dry arcing distance, inches (mm) | 8.25 (210) | 4.3 (110) |
| Net weight per unit, pounds (kg) | 13.4 (6.1) | 4.4 (2.0) |
| Units per package | 6 | 16 |
| Gross weight per package, pounds (kg) | 94.2 (42.7) | 86.0 (39) |

NEWELL-PSN, LLC 500 HARRISON ST., PO BOX 309 NEWELL, WV 26050
 TELEPHONE: (304) 387-2700 FAX: (304) 387-2792



Technical Specification

Combined E&M Strength: 30000lb
 Tension proof test: 15000lb
 Leakage distance, Min: 280mm(11")
 Mechanical impact strength 60in-lb
 Low-freq. dry flashover: 80kV
 Low-freq. wet flashover: 50kV
 Critical impulse flashover
 Positive Min: 125kV
 Critical impulse flashover
 Negative Min: 130kV
 Low-Freq. Puncture Min: 110kV
 RIV low-freq. Test voltage
 RMS to ground 10kV
 Max. RIV at 1000KHZ: 50μV

- | | |
|--------------------------|-----------------------------------|
| 1. Porcelain shed | 2. Malleable cast iron socket cap |
| 3. Forged steel ball pin | 4. Portland cement |
| 5. Lincrusta cushion | 6. Stainless steel clip |

| | | |
|--|----------------|---------|
| ANSI 52-5 | P525-11340 | |
| E&M STRENGTH: 30000lb | | |
| DISC PORCELAIN SUSPENSION INSULATOR | WEIGHT | UNIT |
| | 5.7 KG | MM/INCH |
| ASSEMBLY DRAWING | PSN COMPONENTS | |

1 ENG. MGR
 2 ENG
 PURCH.
 1 MKTG.
 PLT. MGR.
 COST
 PROD.
 INSP
 GLAZE
 BUSHING
 MAKING
 SHIP
 ASSEM
 MODEL
 MACH.
 45
 TOOLING
 CER LAB
 1 EL LAB
 1 E. MEDIA

Central Hudson Gas & Electric Corporation
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BALL AND SOCKET SUSPENSION
 ANSI CLASS 52-5
 CAT NO: VI 52-5

DIMENSIONS

LEAKAGE DISTANCE IN 12 mm 305

MECHANICAL VALUES

M & E STRENGTH LB 30,000 kN 133
 IMPACT STRENGTH IN-LB 90 N-m 10
 TENSION PROOF LB 15,000 kN 67

ELECTRICAL VALUES

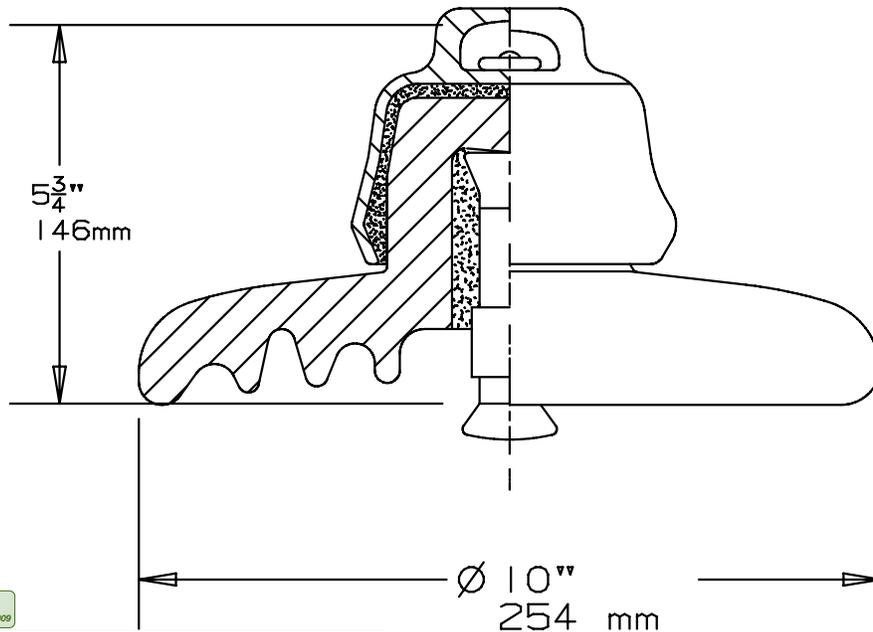
LOW FREQUENCY FLASHOVER kV 80
 VOLTAGE DRY
 LOW FREQUENCY FLASHOVER kV 50
 VOLTAGE WET
 CRITICAL IMPULSE FLASHOVER kV 125
 VOLTAGE POSITIVE
 CRITICAL IMPULSE FLASHOVER kV 130
 VOLTAGE NEG.
 LOW FREQUENCY PUNCTURE kV 110
 VOLTAGE

RADIO INFLUENCE VOLTAGE DATA

LOW FREQUENCY TEST VOLTAGE kV 10
 MAXIMUM RIV @ 1000 kHz μ V 50

PACKING INFORMATION

NET WEIGHT PER 100 LB 1320
 PACKED WEIGHT PER 100 LB 1580
 STANDARD PACKAGE 6



APPROVED
 By A. E. Schwalm at 2:31 pm, Jun 02, 2009

| | | | | |
|----------|-------------------------|----|--|---|
| 06-02-09 | CHANGED VALUES | TM | | C |
| 05-26-09 | CORRECTED OAL | TM | | B |
| 03-30-09 | REV'D MECHANICAL RATING | TM | | A |
| 02-29-08 | | TM | | |

VI INSULATORS
 VICTOR INSULATORS, INC.
 280 MAPLE AVENUE
 VICTOR, NEW YORK 14564
 TELEPHONE: (585)924-2127

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FILE: VI 52-5

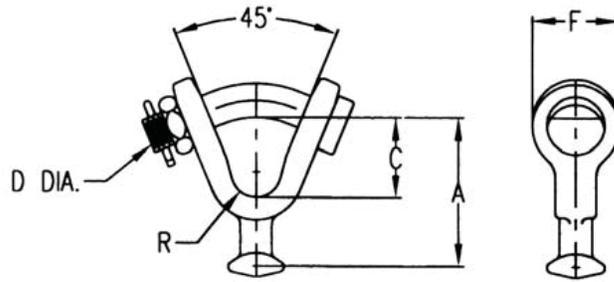


Y-Clevis Type Insulator Fittings

Y-Clevis - Ball, Standard Material

Forged steel hot dip galvanized

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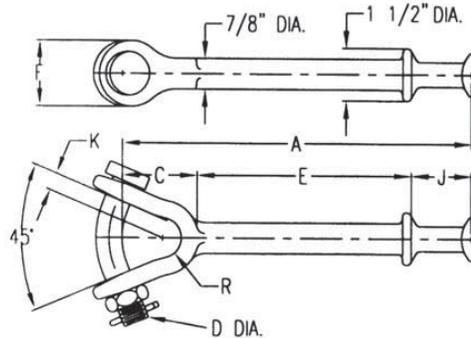
| Catalog Number | For Insulator Class | A | C | D | F | R | Ultimate Strength (lbs) | Weight /100 (lbs) |
|----------------|---------------------|---------|--------|-----|--------|-----|-------------------------|-------------------|
| YCB-65A | *ANSI 52-3 & 5 | 3 1/4 | 1 9/16 | 3/4 | 1 7/8 | 1/2 | 35000 | 215 |
| YCB-78 | ANSI 52-8 & 11 | 3 13/16 | 1 9/16 | 7/8 | 2 3/16 | 5/8 | 50000 | 330 |
| YCB-720 | IEC 20MM | 4 1/16 | 1 9/16 | 7/8 | 2 3/16 | 5/8 | 40000 | 340 |

Notes:

1) ANSI 52-5 & IEC 16mm are generally accepted as being interchangeable

Y-Clevis - Ball, Hot Line Material

Forged steel hot dip galvanized



| Catalog Number | For Insulator Class | A | C | D | E | F | J | K | R | Ultimate Strength (lbs) | Weight /100 (lbs) |
|----------------|---------------------|--------|---------|-----|---|--------|-------|------|-------|-------------------------|-------------------|
| YCBHL-65A | *ANSI 52-3 & 5 | 10 1/8 | 1 11/16 | 3/4 | 6 | 1 7/8 | 1 3/4 | 1/2 | 9/16 | 35000 | 317 |
| YCBHL-78 | ANSI 52-8 & 11 | 10 7/8 | 1 3/4 | 7/8 | 6 | 2 3/16 | 1 7/8 | 9/16 | 11/16 | 50000 | 460 |

Notes:

1) ANSI 52-5 & IEC 16mm are generally accepted as being interchangeable



Catalog Home

Product Datasheet

ANDERSON FARGO

YBC30 -- Ball Y-Clevis

Central Hudson Gas & Electric Corporation
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Ball Y-Clevis, Forged Steel, 0.750" Curved Bolt, UTS 30,000 lb; For use with ANSI class 52-3 & 52-5 insulators.

Product Specifications

| | |
|---------------------------------|---|
| <p>Hardware Family</p> |  <p>Ball Clevis & Ball Eye Coupling Fittings</p> |
| <p>Ball Fittings</p> |  <p>YBC Series Y-Clevis Ball Coupling Fittings</p> |
| <p>PDF Catalog Page</p> | <p>Click HERE to view the web page.</p> |
| <p>Ultimate Strength</p> | <p>30,000 lb (13,608 kg)</p> |
| <p>Coupling Length</p> | <p>3.094 in (78.58 mm)</p> |
| <p>Dimension B</p> | <p>1.500 in (38.10 mm)</p> |

| | |
|------------------------------|---------------------|
| Dimension T | 0.719 in (18.26 mm) |
| Dimension PD | 0.750 in (19.05 mm) |
| Material | Forged Steel |
| Cotter Pin Material | Stainless Steel |
| Clevis Pin Material | Galvanized Steel |
| Material Type | Standard |
| UPC Code | 09635934440 |
| Standard Package | 25 |
| Standard Package Unit | Each |
| Min Order Qty | 1 |
| Weight / Ea. | 1.744 lbs |

Notes

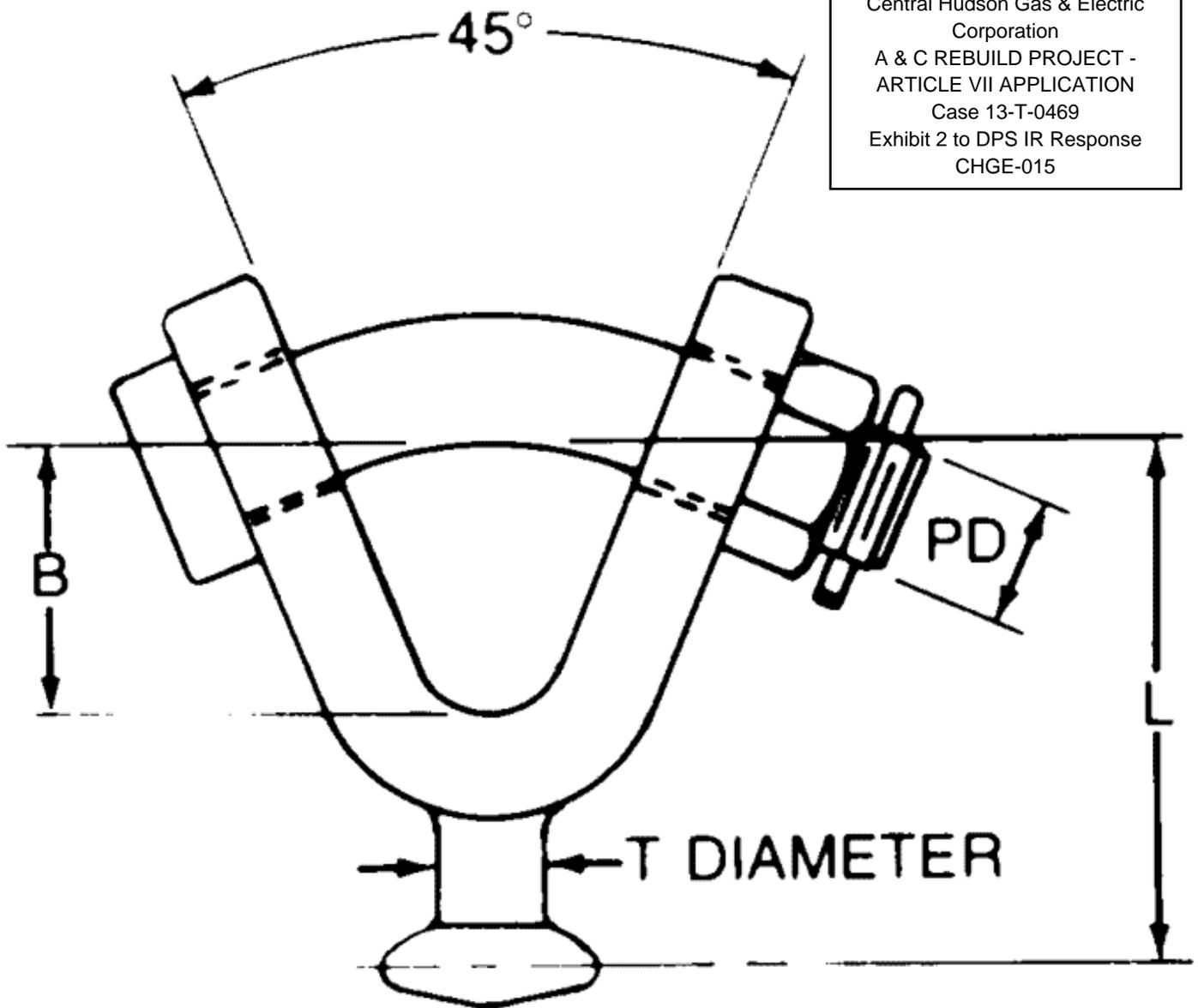
For use with ANSI class 52-3 & 52-5 insulators.

Compressed Product Number

YBC30

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Catalog Home

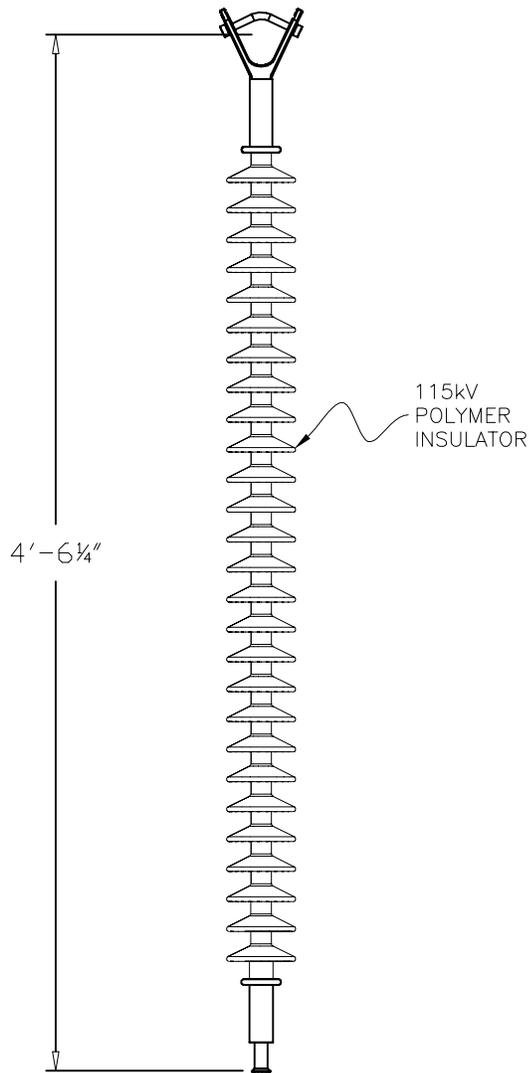
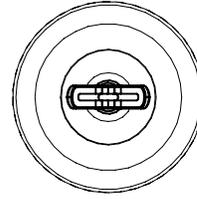


[Warranty Info](#) | [Trademarks](#) | [Terms of Use](#)

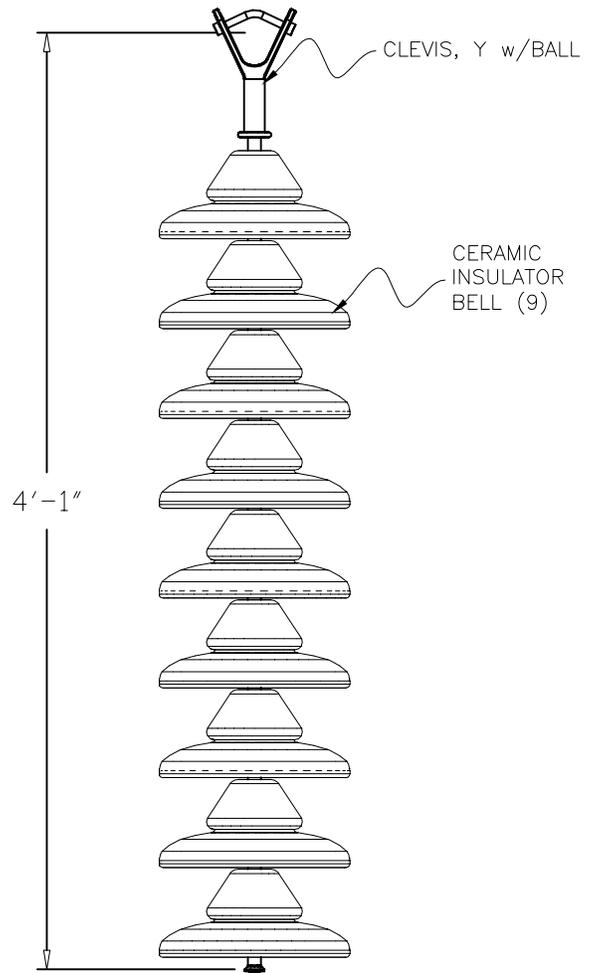
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NOTE: Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.

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A & C REBUILD PROJECT- ARTICLE VII APPLICATION
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POLYMER INSULATOR



CERAMIC INSULATOR STRING

MATERIAL DIFFERENCE

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-016 (MS)

Central Hudson Response No: CHGE-016 (DPS)

Date of Request: 6/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: June 24, 2014

Response Provided by: John Hecklau

Information Requested: Off ROW clearing

Section 3.1 of the Application states, "With the exception of potential minor clearing for off-ROW access, no additional clearing beyond the existing ROW is anticipated."

1. Provide the clearing type or types, clearing width, timing of trimming or tree removal, and vegetation disposal methods for all off-ROW accesses.
2. Provide the applicant's criteria for taking trees along the off-ROW accesses.
3. Provide what landowner agreements or rights the company has for taking of trees along the off-ROW accesses. Include a matrix for each property and describe the rights.

Responses:

1. *Currently, only two types of vegetation clearing and disposal are anticipated on the ROW. One would involve clearing of all woody vegetation that would interfere with construction activity within the limits of designated access routes, structure work areas, laydown areas, and wire pulling sites in upland locations. This would involve*

clearing by hand (with a chain saw) or mowing. If cleared by hand, all cut material would be chipped and distributed on the ROW (outside of wetlands and agricultural land).

The second type of clearing/disposal would be a drop and lop technique in which woody vegetation would be cut by hand, lopped-up where it falls, and left in place. This technique would be used within the limits of designated access routes and work areas that occur within delineated wetlands. No herbicide application is proposed with either clearing type.

2. All off-ROW access routes utilize existing roads or driveways, so the need for clearing along these routes will be limited. A clear area of approximately 15 feet wide by 15 feet high will generally be required to accommodate passage by construction vehicles. To achieve this, some selective clearing/trimming of woody vegetation may be required. Cutting will be done by hand, and cut material will generally be disposed of by piling along the edge of the access road, with lopping as necessary to lay the material flat on the ground. No application of herbicide is proposed.
3. Central Hudson has been in contact with the owners of land where the Company will be using off-ROW access. As noted in response to Item 2 above, there will be only limited instances where some clearing will be required. Central Hudson is in the process of formalizing agreements with these landowners regarding any potential clearing.

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-017 (MS)

Central Hudson Response No: CHGE-017 (DPS)

Date of Request: 6/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: June 24, 2014

Response Provided by: Christopher Rottkamp

Information Requested:

1. In response to DPS 1-3, the company states that it has no plans to close the Rail Trail during the construction of the project. How will the project ensure the safety of the public using the rail trail during the construction activities (e.g line pulling operation)?

Response:

Central Hudson met with Dutchess County on June 11, 2014 regarding the Rail Trail. In light of Staff's IRs, Central Hudson is considering the option (to be described in the EM&CP) of using the Rail Trail for equipment crossings. If that option is utilized, Central Hudson will use rubber matting to protect the paved Rail Trail from any potential damage from tracked equipment. Flaggers and signage will be utilized along the trail during any equipment crossings or wire pulling operations. It is not anticipated that rubber matting will be necessary for the crossing by any rubber tracked or tired equipment. In either case, Central Hudson will ensure that a clean surface is maintained and any damage is repaired. In addition, Central Hudson will provide the County (most likely its Department of Public Works) with advance notification of any activity affecting the Rail Trail.

Central Hudson Gas and Electric Corporation
A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469

RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-018 (MS)

Central Hudson Response No: CHGE-018 (DPS)

Date of Request: 6/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: June 24, 2014

Response Provided by: Jose Ruaya

Information Requested: Follow Up to DPS 1-7

1. Provide the shape files for the centerline and edge of the ROW for preferred proposed route.

Response:

Shape files were previously provided as Exhibit C to IR Response CHGE-007.

Central Hudson Gas and Electric Corporation
A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469

RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-019 (MS)

Central Hudson Response No: CHGE-019 (DPS)

Date of Request: 6/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: June 24, 2014

Response Provided by: John Hecklau

Information Requested:

1. In the company's response to DPS 1-12 the company states "General observations of invasive species occurrence were also documented elsewhere along the ROW." Provide those notes and/or documents.

Response:

*Attached as **Exhibit 1** is a spread sheet that summarizes invasive plant species documented at wetland and adjacent upland sampling points during the on-site wetland delineations. As indicated in the Invasive Species Control Plan included with the Application (Appendix E), "although not documented, invasive species were observed throughout upland areas throughout the ROW." Exhibit 1 thus constitutes all the available information regarding the occurrence of invasive species on the A and C Lines. However, conversations with EDR staff that conducted various field surveys on ROW indicate that in addition to the species listed in this spread sheet, the following non-native invasive species were also observed on the ROW:*

*Autumn olive (Eleagnus umbellata)
Garlic mustard (Alliaria petiolata)*

With the exception of black swallow wort (Cynanchum louiseae), which was only observed near Wetlands MM and NN, all other observed invasive species were widely distributed along the ROW.

Exhibit 1 to CHGE-019: Invasive Plant Species Documented on the A and C Lines Right-of-Way
Case 13-T-0469

| Wetland Name | NYSDEC Wetland 1=Yes, 0=No | Invasive Species Observed at Wetland Sample Point | Invasive Species in Wetlands 1=Yes, 0=No | Invasive Species Observed at Adjacent Upland Sample Point | Invasive Species in Uplands 1=Yes, 0=No |
|--------------|-------------------------------|---|--|--|---|
| A | 0 | | 0 | | 0 |
| B | 0 | Lythrum salicaria | 1 | Lonicera morrowii | 1 |
| C | 0 | Rosa multiflora | 1 | | 0 |
| D | 0 | Lythrum salicaria | 1 | Lonicera morrowii | 1 |
| E | 0 | Lythrum salicaria | 1 | Lonicera morrowii, Rosa multiflora | 1 |
| F | 0 | Lythrum salicaria | 1 | Lonicera morrowii, Rosa multiflora | 1 |
| G | 0 | | 0 | Lonicera morrowii | 1 |
| H | 0 | | 0 | Lonicera morrowii | 1 |
| I | 0 | Lythrum salicaria | 1 | Lonicera morrowii, Rhamnus cathartica | 1 |
| J | 0 | Lythrum salicaria, Rosa multiflora | 1 | Rosa multiflora | 1 |
| K | 0 | Lythrum salicaria | 1 | Lonicera morrowii, Rhamnus cathartica | 1 |
| L | 0 | Lythrum salicaria, Rosa multiflora, Lonicera morrowii | 1 | Lonicera morrowii | 1 |
| M | 0 | Lythrum salicaria, Lonicera morrowii | 1 | Lonicera morrowii, Rosa multiflora | 1 |
| N | 0 | Lonicera morrowii | 1 | Lonicera morrowii | 1 |
| O | 1 | Rosa multiflora | 1 | Lonicera morrowii, Rhamnus cathartica, Rosa multiflora | 1 |
| P | 0 | Lythrum salicaria | 1 | Lonicera morrowii | 1 |
| Q | 0 | Lythrum salicaria | 1 | | 0 |
| R | 0 | Phalaris arundinacea | 1 | Rosa multiflora | 1 |
| S | 0 | | 0 | | 0 |
| T | 0 | | 0 | | 0 |
| U | 1 | Lythrum salicaria | 1 | Lonicera morrowii, Rosa multiflora | 1 |
| V | 0 | Lythrum salicaria, Phalaris arundinacea | 1 | Lonicera morrowii, Rosa multiflora | 1 |
| W | 0 | Lythrum salicaria | 1 | Rosa multiflora | 1 |
| X | 0 | Lythrum salicaria, Lonicera morrowii | 1 | Lonicera morrowii | 1 |
| Y | 0 | Lythrum salicaria | 1 | | 0 |
| Z | 0 | Phalaris arundinacea, Lonicera morrowii | 1 | | 0 |
| AA | 0 | Lythrum salicaria, Phalaris arundinacea | 1 | Phalaris arundinacea, Lonicera morrowii | 1 |

Exhibit 1 to CHGE-019: Invasive Plant Species Documented on the A and C Lines Right-of-Way
Case 13-T-0469

| Wetland Name | NYSDEC Wetland 1=Yes, 0=No | Invasive Species Observed at Wetland Sample Point | Invasive Species in Wetlands 1=Yes, 0=No | Invasive Species Observed at Adjacent Upland Sample Point | Invasive Species in Uplands 1=Yes, 0=No |
|--------------|-------------------------------|--|--|--|---|
| BB | 0 | Lythrum salicaria | 1 | Lonicera morrowii, Ligustrum obtusifolium | 1 |
| CC | 0 | Lythrum salicaria | 1 | | 0 |
| DD | 1 | Lythrum salicaria | 1 | | 0 |
| EE | 1 | Lythrum salicaria | 1 | | 0 |
| FF | 0 | | 0 | Lonicera morrowii | 1 |
| GG | 0 | Lythrum salicaria | 1 | Lonicera morrowii, Rosa multiflora | 1 |
| HH | 0 | Lythrum salicaria | 1 | | 0 |
| II | 1 | Lythrum salicaria, Phragmites australis | 1 | Lonicera morrowii, Rosa multiflora | 1 |
| JJ | 0 | Lythrum salicaria, Phragmites australis, Phalaris arundinacea | 1 | Lonicera morrowii, Rosa multiflora | 1 |
| KK | 0 | Lythrum salicaria, Lonicera morrowii | 1 | Lonicera morrowii | 1 |
| LL | 0 | Lythrum salicaria | 1 | Lonicera morrowii, Rosa multiflora | 1 |
| MM | 0 | Lythrum salicaria, Phragmites australis | 1 | Lonicera morrowii, Lythrum salicaria, Cynanchum louiseae, Rosa multiflora | 1 |
| NN | 0 | Lythrum salicaria, Phragmites australis | 1 | Lonicera morrowii, Rosa multiflora, Cynanchum louiseae, Rosa multiflora | 1 |
| OO | 0 | Lythrum salicaria | 1 | Lonicera morrowii | 1 |
| PP | 1 | Lythrum salicaria | 1 | Lonicera morrowii | 1 |
| | 6 | | 36 | | 31 |

36 of 42 wetland sample points contained invasive species

31 of 42 upland sample points contained invasive species

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-020 (MS)

Central Hudson Response No: CHGE-020 (DPS)

Date of Request: 6/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: June 24, 2014

Response Provided by: Christopher Rottkamp

Information Requested:

1. In the company's response to DPS 1-19, the company states "There is no planned use for the inactive substation site north of Croft Hill Road. The previous substation was retired." With the substation being retired are there any plans to restore the site to a natural preconstruction condition? If not, why?

Response:

There are no plans at this time to perform any work at the retired substation north of Croft Hill Road. Until such time as a final determination is made as to the future use of the property, work to restore the site will not be conducted.

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-021 (MS)

Central Hudson Response No: CHGE-021 (DPS)

Date of Request: 6/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: June 24, 2014

Response Provided by: John Hecklau

Information Requested: ACOE (Army Corps of Engineers) Communications

In the May 9, 2013 e-mail included in Appendix M of the Application, the company states, to the Army Corp of Engineers, that this project is a rebuild on the existing right of way and no new clearing will be needed. Central Hudson states, in the January 13, 2014 response PSC request #2 of the Requests for Additional Information, that access routes and work areas will be mowed as necessary. In Section 3.1 of the Application the company states, "With the exception of potential minor clearing for off-ROW access, no additional clearing beyond the existing ROW is anticipated."

1. Has the Army Corp of Engineers been informed of the proposed mowing of access routes and work areas on the ROW, as well as off ROW trimming and clearing? Provide copies of all communications with the Army Corp of Engineers, including summaries of phone conversations and documents pertaining to this project.

Response:

1. *Any clearing or trimming of vegetation within wetlands under the jurisdiction of the U.S. Army Corps of Engineers (USACE) would be conducted in a non-jurisdictional manner.*

No mowing or other form of mechanized land clearing would be performed. All clearing/trimming within wetlands would be done by hand in a drop-and-lop manner. Clearing along the banks of streams would be minimized to the extent practicable, and any cleared vegetation would be removed from the stream channel and the area immediately adjacent to the stream.

There has been no formal submittal to the USACE, as all vegetation clearing and vehicular access within wetlands and streams are proposed to be conducted in a non-jurisdictional manner. The project as proposed would be authorized under Nationwide Permit 12 and installation of three new poles in wetlands represents the only project related impact that is not temporary. Furthermore, installation of these poles will not require submittal of a pre-construction notification (PCN), as the filling associated with their installation (totaling less than 100 square feet) is under the 0.1 acre notification threshold.

Central Hudson Gas and Electric Corporation

A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469

RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST

Requesting Party and No.: DPS Staff - DPS-022 (MS)

Central Hudson Response No: CHGE-022 (DPS)

Date of Request: 7/31/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: August 7, 2014

Response Provided by: Lewis Fitzgerald

Information Requested:

1. Provide all easement information relating to the Rockwell, Barnaby Property (Parcel Grid ID 133400-6460-01-204697-0000) off Bushwick Road in the Town of La Grange. The shape files for the right-of-way (ROW) do not show this area as ROW. In addition, several figures in the application also show no ROW on the property.

Response:

*Central Hudson has a valid ROW on this property. In 1930, Central Hudson obtained a 150' wide ROW from Peter and Olga Delin (R/W #18 - see **Exhibit 1**). Please see the attached Plan & Profile as **Exhibit 2**. The Delin ROW began along the O'Dell property line (Near Pole # 55429) to the north and followed down to the Croft Property Line on the south (near Pole 55439).*

*In 1989, Central Hudson purchased a 3.65 parcel from one of Delin's successors, Janet Whitson Sudler (allowed room to re-route the "G" line). Central Hudson essentially purchased a portion of the original Delin Property already encumbered with the easement. This is the site of the Current Todd Hill Substation. The deed for the Todd Hill Substation is attached as **Exhibit 3**. The remaining lands encumbered by the ROW were*

retained by Janet Whitson Sudler before being granted to the current owner, Gail Sudler Rockwell, in 1997.

The fact that the shape files do not show this area of ROW is simply from GIS mapping. For some reason, it does not show a ROW overlay on the Rockwell Property. In the attached GIS Map **(Exhibit 4)**, Pink indicates Central Hudson Fee-Owned Property and Green indicates ROW. Central Hudson believes this to be an error in the mapping, not an indication of deficient ROW.

CENTRAL HUDSON GAS & ELECTRIC CORPORATION

RIGHT OF WAY

NUMBER 18

TOWN LaGrange

VILLAGE

CITY

MAP 51-P-4754

W. O. No. 103-4-660

LINE Pleasant Valley-Marlboro

GRANTORDELIN, Peter G. & Olga M.

DATE January 27, 1930

Same right of way as right of way
#37 Pleasant Valley-Stoneco Line.

RECORDED

COUNTY Dutchess

DATE 7/6/30

LIBER 503

PAGE 309

CENTRAL HUDSON GAS & ELECTRIC CORPORATION

RIGHT OF WAY

NUMBER 37
TOWN LaGrange
VILLAGE
CITY

W. O. No.
LINE PLEASANT VALLEY-STONECO

GRANTOR Delin, Peter G. & Olga M.

DATE January 27, 1930

RECORDED

COUNTY Dutchess **DATE** 2/6/30

LIBER 503 **PAGE** 309

Wm. J. W. L. F. J. - 11 Valley - 1720000

In consideration of the sum of \$ 1000 and other good and valuable consideration, hereby acknowledged, the undersigned hereby grant(s) and convey(s) unto said corporation, its successors and assigns, an easement and right of way 150 feet in width throughout its extent, in, upon, over and across the lands of the undersigned, including roads thereon and adjacent thereto, situated in the Town of Saugerties, County of Dutchess State of New York, ~~the exact location thereof to be selected by said corporation after its final surveys have been made.~~

Transmission lines to run across my property approx. north and south as pointed out in the field. One Cleft on the south and one Odell on the north. The right to remove such trees that would be a message to the operation of said lines, to remove all brush and get such anchor guys that may be required. This grant covers pole lines + tower lines. Lines to be located west of hollow and pond. Blue print to be furnished showing location of lines in relation buildings and pond.

J.R. bounds of said right of way are as shown on the said Corp's drawing 10-5-1926 to 11 to be filed D.C. Clerk

Together with the right at all times to enter thereon and to have access thereto and to construct, operate and maintain thereon and to repair, replace, protect and remove, lines of poles, towers, cables, cross arms, guys, braces and all other appurtenances or fixtures adapted to the present and future needs, uses and purposes of said corporation, its successors, assigns and lessees.

Together with the right also to trim, cut and remove at any time such trees and other objects thereon ~~of the undersigned~~ of the undersigned, as in the judgment of said corporation, its successors, assigns and lessees, may interfere with, obstruct or endanger the construction, operation or maintenance of said rights, lines and fixtures or any thereof.

Reserving unto the undersigned the right to cultivate the ground between said poles and towers and beneath said wires and fixtures, provided that such use of said ground shall not interfere with, obstruct or endanger any of the rights granted as aforesaid; and provided that damage to the property owned by the undersigned caused solely by said corporation, its successors, assigns or lessees, in maintaining or repairing said lines shall be adjusted at the expense of said corporation, its successors, assigns, or lessees.

~~The undersigned agree(s) to accept in full payment and satisfaction for the easement, right of way and all the rights granted as aforesaid, the further sum of \$ 500 ~~1000~~ ~~2000~~, which shall be paid or tendered by said corporation before the construction of said lines is begun, and in any event not later than March 1st, 1920, in default of which said payment or tender, this agreement shall without further act on the part of either the undersigned or of the corporation, become in all respects void and of no effect.~~

The provisions hereof shall apply to and bind the heirs, legal representatives, successors, assigns and lessees of the undersigned and said corporation, respectively.

Signed, sealed and delivered on Jan 27, 1920

Peter G. Delin (L. S.)

Residing at 1181 E. 35th St. Bklyn N.Y.

In the presence of J. W. Howard

Olga M. Delin (L. S.)

Residing at 1181 E. 35th St. Brooklyn N.Y.

STATE OF NEW YORK

3065 } ss.:

309-5

County of _____

On this _____ day of _____, 19____, before me, the subscriber, personally appeared _____

to me personally known and known to me to be the individual(s) described in and who executed the foregoing instrument, and he (severally) duly acknowledged to me that he executed the same.

Notary Public.

STATE OF NEW YORK

County of _____

Dutchess

ss.:

On this 4th day of February, 1930 before me personally came J. H. Howard

(subscribing witness)

with whom I am personally acquainted, to me known and known to me to be the subscribing witness to the foregoing instrument, who, being by me duly sworn, did depose and say that he resides in Peekskill, N.Y., that he is

personally acquainted with Peter J. Delin and Olga M. Delin

and knows said person(s) to be the person(s) described in and who executed the foregoing instrument; that he, the said subscribing witness, was present and saw the said person(s) execute the same and that they (severally) duly acknowledged to him, the said subscribing witness, that they executed the same and that he thereupon subscribed his name as witness thereto.

Richard H. Conover

Notary Public.

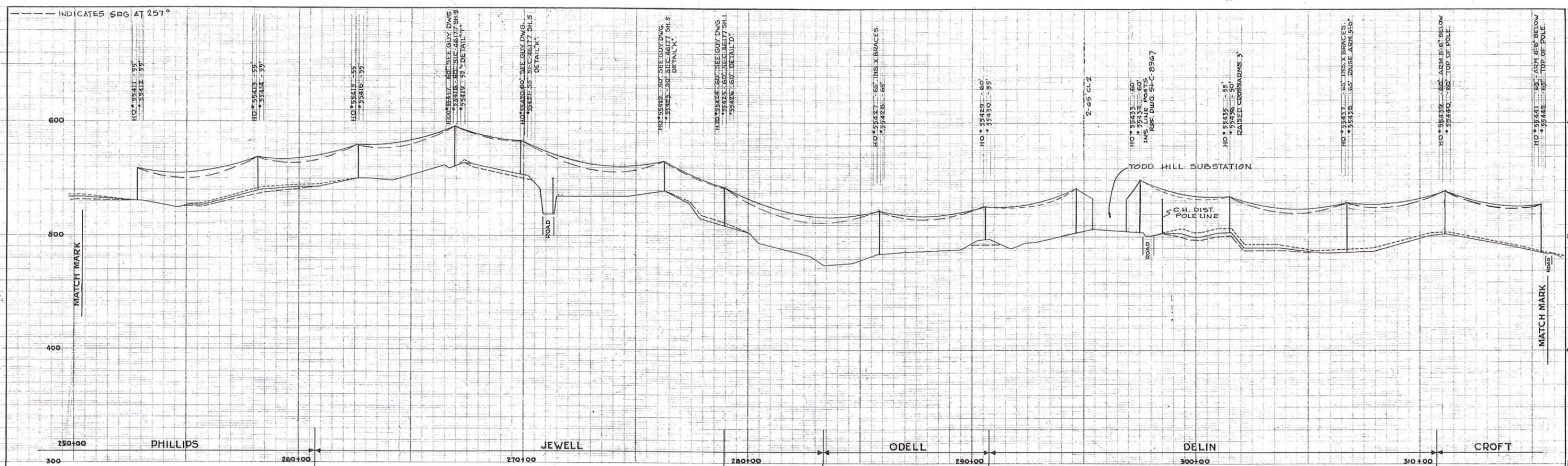
Dutchess County Clerk's Office
Received at 4:55 P.M. Feb 6 1930
Index No. 509 of Deeds
at page 309 and described.
J. A. Daughton

..FILED..
DUTCHESS COUNTY,

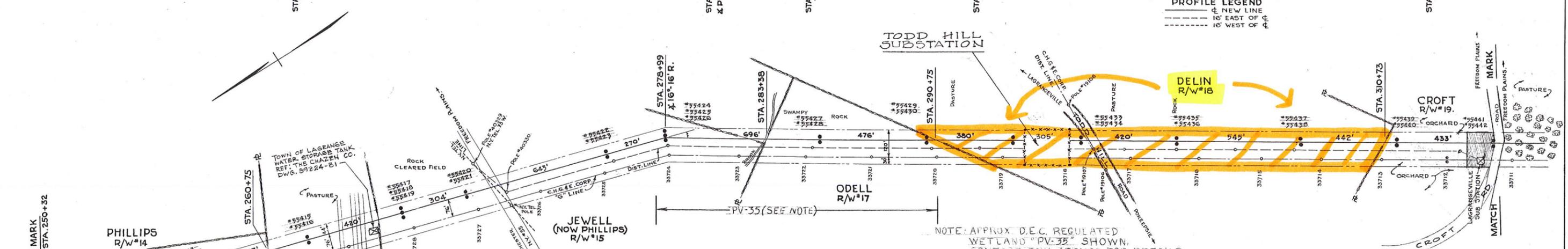
FEB 6 1930

CLERK'S OFFICE

[Handwritten signature]



PROFILE LEGEND
 - - - - - 16' EAST OF 4'
 - - - - - 16' WEST OF 4'



Central Hudson Gas & Electric Corporation
 A & C REBUILD PROJECT - ARTICLE VII
 APPLICATION
 Case 13-T-0469
 Exhibit 2 to DPS IR Response CHGE-022

| TOWN OF LAGRANGE | | COUNTY CLERK'S RECORD | | | | COUNTY OF DUTCHESS | | REFERENCE DRAWINGS | | CENTRAL HUDSON GAS & ELECTRIC CORP. | |
|------------------|------------------|-----------------------|---------|----------|------|--------------------|--------------|---------------------------|------------|--|--|
| NO. | GRANTOR | DATE OF INSTRUMENT | DATE | BOOK | PAGE | LENGTH IN FEET | NO. OF POLES | REMARKS | 51-P-47313 | PLEAS. VALLEY- MARLBORO 132 K.V. TRANSMISSION LINE | |
| 14 | WARREN PHILLIPS | 1-30-30 | 2-10-30 | 503 | 336 | 2444 | 12 | 150' R/W SEE 'G' LINE #40 | | SCALE 1" = 200' HOR. = 40' VERT. SUPERSEDES | |
| 15 | SHERMAN JEWELL | 1-30-30 | 1-31-30 | 503 | 174 | 2263 | 12 | 150' R/W SEE 'G' LINE #59 | | FILE NO. | |
| 16 | N.Y.S. H'WAY #55 | 4-16-47 | PERMIT | NO 8-138 | | | | #16 TN. LAGRANGE. | | 51-P-4754 | |
| 17 | ARTHUR K. ODELL | 2-1-30 | 2-8-30 | 503 | 318 | 737 | 4 | 150' R/W SEE 'G' LINE #38 | | SHEET 6 OF 18 | |
| 18 | PETER G. DELIN | 1-27-30 | 2-6-30 | 503 | 309 | 1998 | 0 | 150' R/W SEE 'G' LINE #37 | | | |
| 19 | J.L. CROFT | 1-30-30 | 1-31-30 | 503 | 179 | 1700 | 11 | 150' R/W SEE 'G' LINE #36 | | | |

DATE: 11/17/03
 DRAWN: [Signature]
 CHECKED: [Signature]
 TR. CHECKED: [Signature]
 DESIGNED: [Signature]
 R.O.F.W.: [Signature]
 STRUCT.: [Signature]
 ENGR.: [Signature]
 SAFETY ENGR.: [Signature]
 S.U.P.T.: [Signature]

This Indenture,

Made the 26th day of October nineteen hundred and eighty-nine

Between Janet Whitson Sudler, residing at Lauer Road, Poughkeepsie, New York 12603
also known as Janet Sudler,

party of the first part,

and Central Hudson Gas & Electric Corporation with principal offices at 284 South Avenue, Poughkeepsie, New York 12601

party of the second part,

Witnesseth, that the party of the first part, in consideration of

-----Ten----- Dollars,

lawful money of the United States, and other good and valuable considerations

paid by the party of the second part

do es hereby grant and release unto the party of the second part,

its successors and assigns forever,

All that piece or parcel of land situated lying and being on Todd Hill-Bushwick Road in the Town of LaGrange, County of Dutchess, State of New York, and being more particularly described as follows:

Commencing at a point in the centerline of Todd Hill-Bushwick Road at the southeast corner of lands now or formerly Alan Plotnik (Liber 1513 Page 690), and the south-westerly corner of lands now or formerly Janet Whitson Sudler (Liber 720 Page 122).

Thence N 60° 32' 20"E 36.80 feet and N 62° 07' 25"E 4.50 feet to the point of beginning of the herein described parcel; thence along the southerly line of said lands of Plotnik and the northerly line of the herein described parcel, following a stone wall N 62° 07' 25"E 64.92 feet, N 60° 33' 05"E 313.83 feet, N 61° 16' 05"E 200.48 feet, N 60° 20' 10"E 122.45 feet to a point, said point being the northwesterly corner of the herein described parcel. Thence through the lands of said Sudler S 52° 09' 25"E 219.56 feet to a point, said point being the northeasterly corner of the herein described parcel. Thence continuing thru the lands of said Janet Whitson Sudler S 37° 50' 35" W 327.43 feet to a point on the northerly bounds of said Todd Hill-Bushwick Road; thence along said northerly bounds of Todd Hill-Bushwick Road S 80° 27' 36" W 31.75 feet, S 76° 43' 10" W 46.00 feet, N 82° 52' 50" W 255.22 feet, N 82° 01' 50" W 258.54 feet to the point of beginning.

Containing 3.65 acres of land more or less.

Subject to utility easements of record (Liber 479 Page 36 and Liber 503 Page 309).

Being a portion of the premises conveyed to the Grantor herein by Arthur Sudler by deed dated June 7, 1951 and recorded in the Office of the Clerk of Dutchess County June 26, 1951 in Liber 777 of Deeds at Page 187.

Together with the appurtenances and all the estate and rights of the party of the first part in and to said premises.

To have and to hold the premises herein granted unto the party of the second part, its successors and assigns forever.

And the said Janet Whitson Sudler

covenants that she has not done or suffered anything whereby the said premises have been incumbered in any way whatever.

RECORDED & INDEXED
NOV 9 1989
DUTCHESS COUNTY CLERK'S OFFICE

The grantor, in compliance with Section 13 of the Lien Law, covenants that the grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and that the grantor will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

In Witness Whereof, the party of the first part has hereunto set her hand and seal the day and year first above written.

In presence of:

✓ Janet Sudler L. S.
..... L. S.
..... L. S.
..... L. S.

8749 19-
RECEIVED
\$ 360
REAL ESTATE
NOV 09 1989
TRANSFER TAX
DUTCHESS COUNTY
dd

DUTCHESS COUNTY CLERK'S OFFICE
RECEIVED ON THE 9 DAY OF NOV TO 89
2 H 39 M P M. RECORDED IN
BOOK No. 1850 OF DEEDS
AT PAGE 436 AND EX:)

NOV 9 2 39 PM '89
DUTCHESS COUNTY CLERK'S OFFICE RECEIVED

William R. Plimkens CLERK

50 Affidavit Filed

LIBER 1850 PAGE 437 437

State of New York
County of Dutchess

} ss.:

On the 25 day of October nineteen hundred and eighty-nine
before me came Janet Whitson Sudler

to me known and known to me to be the individual described in, and who executed, the foregoing instrument, and acknowledged to me that she executed the same.

Joanne E. Belch
Notary Public

JO ANNE E. BELCH
NOTARY PUBLIC, State of New York
Qualified in Dutchess County
Commission Expires Oct. 31 1990

State of
County of

} ss.:

On the _____ day of _____ nineteen hundred and _____
before me came _____ the subscribing
witness to the foregoing instrument, with whom I am personally acquainted, who, being by me duly
sworn, did depose and say that he resides in

that he knows

to be the individual described in, and who
executed the foregoing instrument; that he, said subscribing witness, was present, and saw
execute the same; and that he, said witness, at the same time subscribed his name as witness thereto.

Deed

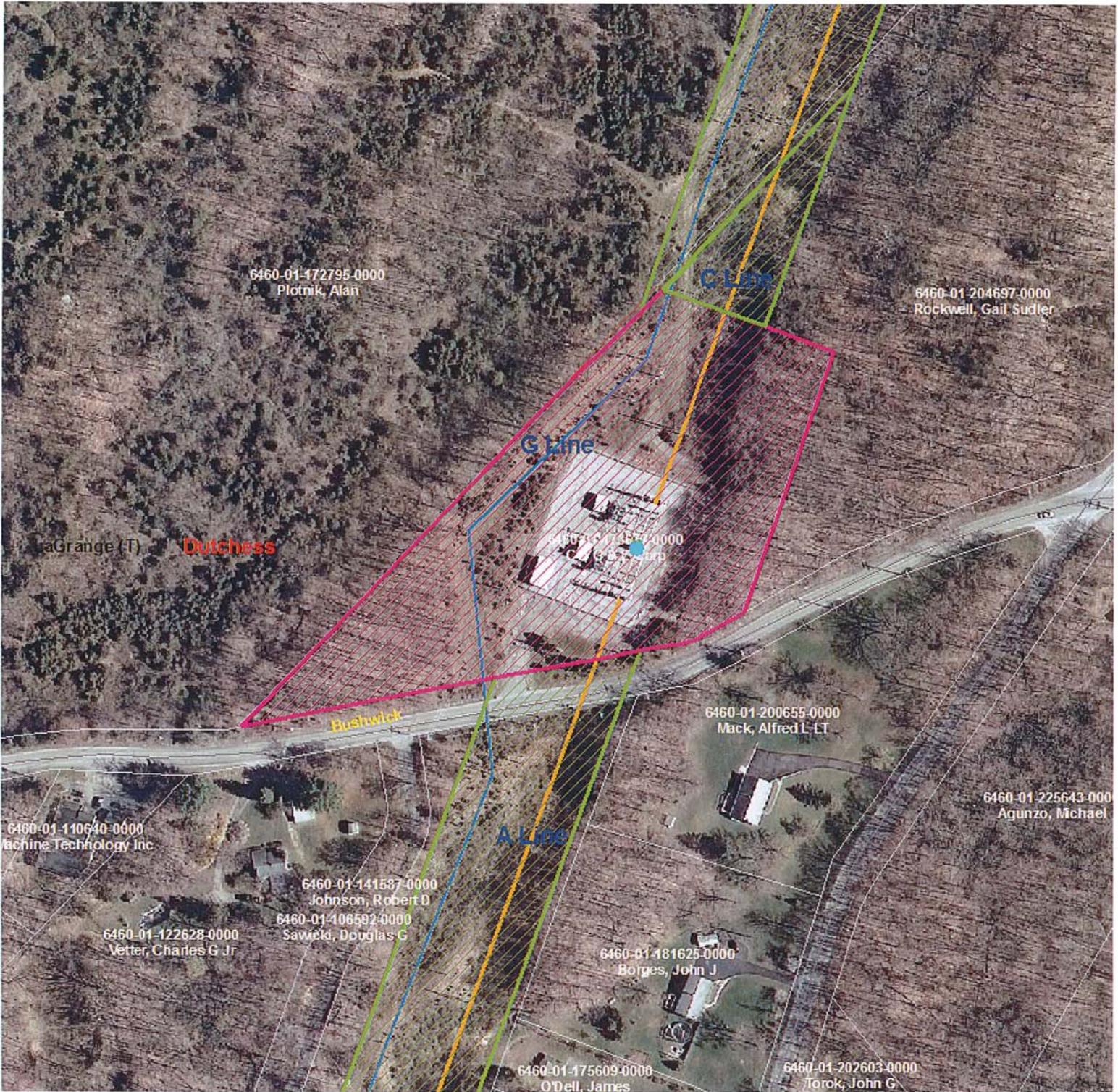
Dated, _____, 19_____

The land affected by the within instrument lies in

RECORD AND RETURN TO
RECORD & RETURN TO
TO
CENTRAL HUDSON GAS & ELECTRIC CORP.
284 SOUTH AVENUE
POUGHKEEPSIE, N. Y. 12602
ATTENTION: P. W. FEENEY

Reserve this space for use of Recording Office.

Central Hudson Gas & Electric Corporation
A & C REBUILD PROJECT- ARTICLE VII APPLICATION
Case 13-T-0469
Exhibit 4 to DPS IR Response CHGE-022



Legend:

Green Hatching = CHGE ROW

Red Hatching = CHGE Fee Owned Parcel

Central Hudson Gas & Electric Corporation
 A & C REBUILD PROJECT - ARTICLE VII APPLICATION
 Case 13-T-0469
 Exhibit 3 to DPS IR Response CHGE-022



Legend:

Green Hatching = CHGE ROW

Red Hatching = CHGE Fee Owned Parcel

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-023 (MS)

Central Hudson Response No: CHGE-023 (DPS)

Date of Request: 7/31/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: August 7, 2014

Response Provided by: John Hecklau

Information Requested:

1. Provide copies of all communications with the Army Corp of Engineers, including summaries of phone conversations and documents pertaining to this project.

Response:

On August 1, 2014, John Hecklau of Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) spoke with Rosie Miranda, Project Manager with the Regulatory Branch of the New York District of the U.S. Army Corps of Engineers. In the course of this conversation, Mr. Hecklau described the proposed project and the wetland/stream investigations and delineations that have been conducted to date. He stated that the project appears to be covered by Nationwide Permit (NWP) 12 and would include the following:

1. *No mechanized clearing within the wetlands (i.e., all clearing will be done by hand);*
2. *No conversion of forested wetlands;*
3. *No permanent access roads through wetlands (i.e., all crossings will be temporary, utilizing low impact equipment or construction matting);*

4. Removal of seven (7) old structures from wetlands and installation of three (3) new structures in wetlands;
5. The three (3) new poles would result in less than 100 square feet of wetland filling, well below the 0.1 acre threshold that requires a pre-construction notification (PCN); and
6. No navigable waters requiring authorization under Section 10 of the Rivers and Harbors Act will be crossed.

Ms. Miranda indicated that based on the information presented above, the project would be covered under NWP 12 and that no PCN would be required. Consequently, she indicated that no further correspondence or authorization from the Corps would be necessary.

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-024 (DM)

Central Hudson Response No: CHGE-024 (DPS)

Date of Request: 7/31/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: August 7, 2014

Response Provided by: Michael Gallucci

Information Requested:

During a project field review on 7/11/14, it was observed that the Right-of-Way (ROW) was not cleared to its limits (limits of ROW for this purpose shall be defined as the ROW from edge to edge from ground to sky).

1. Explain why the Applicant stated in a previous IR response that the ROW was cleared to its full limits.
2. Provide details regarding plans to perform vegetation management work including timeframes. Particular emphasis should be given to the manner and type of edge work to be performed to clear the ROW to its limits as defined above.
3. If the Applicant is not planning this work explain why.
4. Explain the rationale for not performing this work as part of the project or as routine ROW maintenance.

Response:

1. *During the last cycle of Routine ROW Maintenance, ROW Edge Reclamation work was completed on all of our transmission lines based on the Plan and Profile drawings for each line. This work was completed for all transmission lines in June of 2009. The delineation of the ROW edge was performed utilizing the easement details from the Plan and Profile*

drawings and measuring distances described via a measuring tape from the Center Line. Please note that this review confirmed that not all easements provide for full width of corridor, hence creating a deficiency. Subsequent plans and updates addressing how Central Hudson would address ROW deficiencies have been submitted to the Commission as part of its Annual Report for Vegetation Management activities. The ROW edge work as required in PSC's original order on ROW Management Practices (Case 04-E-0822, Issued and Effective June 20, 2005) was completed on the A & C lines in 2008. Any deficiencies identified from this process were incorporated into CH overall deficiency plan.

Survey work associated with the acquisition of additional easements to address deficiencies in those areas with less than optimal ROW width on the bulk transmission lines identified some discrepancies between the Plan and Profile drawings and actual easement rights. Based on the land surveys performed for Central Hudson's bulk transmission lines a total of 131 ROW deficiencies were found compared to the 10 identified from review of the Plan and Profile drawings.

Central Hudson maintains its transmission corridors on a five year cycle for routine ROW maintenance. As such, the ROWs for A & C Lines would be in a current state of vegetation encroachment after 5-6 years of growth along the edge, thus requiring maintenance activities including side trimming and in some cases further tree removal to maintain the ROW edge.

2. Both the A&C lines are on the schedule for Routine ROW Maintenance in 2014. Normal routine maintenance activities include herbicide applications, side trimming, mowing and hand cutting of the ROW floor. These activities are scheduled during the second half of 2014. Central Hudson has sent out notices to landowners about this work and this letter has been shared with DPS Staff. In addition, land surveys will be performed to confirm the accuracy of the ROW corridor and the full extent of easements and/or fee ownership. This work is scheduled for late August or early September and will be completed in October 2014. Any areas identified from the land survey requiring further edge reclamation work to be completed, will be scheduled after the Routine Transmission ROW vegetation work plan for 2014 has been completed. It is anticipated that any additional ROW Edge Reclamation work on the A&C lines will be

completed during the 4th quarter of 2014 or 1st quarter of 2015. Such edge reclamation work may include side trimming and in some cases further tree removal.

- 3. Work is being planned. See response to Item 2.*
- 4. The survey work will be performed as part of the reconstruction project to help with construction activities. Since the A&C lines are scheduled for Routine ROW Maintenance in 2014 all floor maintenance, side trimming, danger tree removal and edge reclamation will be performed as part of Routine ROW Maintenance. Any vegetation work required for the reconstruction project (mowing for access, clearing staging areas or pulling sites or tree removal associated with construction) will be included and charges allocated to the construction project.*

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-025 (MAS/RQ)

Central Hudson Response No: CHGE-025 (DPS)

Date of Request: 8/1/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: August 7, 2014

Response Provided by: Jeremy Ruaya

Information Requested: Insulators

1. Provide the criteria Central Hudson uses to determine if a polymer insulator can be placed on the "approved" (as mentioned in response to DPS-13) list. Provide supporting documentation for all polymer insulators on the approved list (as provided in response to DPS-15).
2. Provide the warranties for all polymer insulators used by Central Hudson. Include name of warranty issuer, costs (broken out by type: materials, labor, other) covered in the event of an insulator failure, and detailed terms (including duration and conditions of replacement) of such warranties.
3. Provide access to the EPRI polymer insulator databases, including:
 - a. The EPRI Transmission Line Polymer Insulator and Fiberglass Component Failure Databases: 2012.
 - b. Polymer Insulator Vintage Guide: Long Rod Suspension and Post Insulators.
 - c. Any updated databases or reports on polymer insulator failures from EPRI.

Responses:

1. See attached specifications (**Exhibit 1**).

2. *Terms and conditions for both Maclean Power Systems and Hubbell Power Systems are provided in the attachments (**Exhibit 2**).*
3. *Central Hudson understands that DPS Staff forwarded a letter to EPRI, the template for which Central Hudson provided to Staff. Central Hudson has been in contact with EPRI requesting that it cooperate with Staff. The report that Staff is seeking from Staff has been requested by Staff of EPRI. We are not aware of the status of that request, nor have we received a copy of the final letter that Staff sent to EPRI, which we understand occurred on July 29, 2014.*

December 29, 2003

SPECIFICATIONS FOR 30-23-141 (INSUL, SUSP UNIT 115KV PLYMER 25000# SML)

General Requirements:

Each insulator must be identified and tested in accordance with the latest minimum testing requirements of ANSI C29-11 (or more stringent standards) for suspension insulators. These minimum required tests shall include the definitions and test set-ups in ANSI C29-1 and ANSI C29-12 including electrical "design" tests (such as low frequency dry flash over test, low frequency wet flash over test, critical impulse flash over tests, and radio influence voltage (RTV) tests) as well as "routine" tests (such as tension proof test and visual examination). Dry arc test set up must include the grading ring if the application includes it (always included for voltages of 345kV).

Specific Requirements:

Insulator shall be constructed with polymer skirts of which the base polymer material (prior to adding reinforcing fillers) shall be silicone rubber. This silicone polymer material formulation shall be used on all rubber coverings including the sheath, shed, and all other connectors; rated 115kV; 25,000 LB SML strength; minimum section length 42"; rod shall be boron-free, corrosion resistant electrical grade (CR-E) fiberglass rod; end fittings to be galvanized or stainless steel which is crimped on without metal wedge or epoxy cone; rod must not be damaged during the crimping process; supply with Y-clevis at one end & ANSI class 52-5 ball on other end; Y clevis to have a minimum swing angle of 45 degrees and a minimum opening of 1.5 inches (in the direction along the shaft); end fitting to provide water proof seal; shall have the minimum electrical characteristics as follows: leakage distance - 85"; 60 Hz Flash over minimum wet -350kV, minimum impulse flash over - 670kV. The following design information must be provided and approved by Central Hudson: electric field levels calculated in a minimum of two-dimensional analysis from the live end up to and including the first two sheds for a single phase energized at a normal operating voltage of 115kV (phase to phase voltage). (Peak electric fields for two-dimensional analysis shall not to exceed .8 kV/mm. Peak electric fields for three-dimensional analysis shall not exceed .45kV/mm). Electric field calculations must include end fitting and insulator materials (rod and sheath may be considered one dielectric value). The following is not required but is recommended: the manufacturer is invited to provide a three-dimensional, three phase electric field calculation for a wooden H-frame structure With 14' phase spacing energized at a normal operating voltage of 115kV (phase to phase voltage).



MACLEAN POWER SYSTEMS TERMS AND CONDITIONS

Central Hudson Gas & Electric Corporation
A & C REBUILD PROJECT - ARTICLE VII
APPLICATION
Case 13-T-0469
Exhibit 2 to DPS IR Response CHGE-025

CONDITIONS OF SALE

Unless otherwise stated in writing by an authorized representative of MacLean Power Systems (hereafter "Seller"), all transactions between the Buyer and Seller are expressly subject to these terms and conditions. The Seller will not be bound by any terms proposed by Buyer, whether in purchase orders or otherwise, which are additional to or different from the terms and conditions set forth herein. Terms and conditions are subject to change without notice and become immediately effective.

PRICES

Prices are subject to change without notice. In the event of a price increase, quoted material not covered by a firm purchase order entered on Seller's computer system by the Seller may be subject to adjustment to those in effect at time of shipment. Possession of Seller's published price sheets does not obligate Seller to sell to the Buyer possessing the price sheets.

QUOTATIONS

Valid quotations are those issued by Seller's Marketing department and, unless otherwise specified, are subject to Buyer's written acceptance within 30 days of issuance to be valid. The Seller can modify quotations prior to their expiration date if the Buyer has not yet accepted them. Seller's quoted prices apply for the quantity stated on Buyer's RFP. Seller reserves the right to make price adjustments on items where quantities exceed the original quoted quantity or where costs exhibit extreme volatility or to rescind prices on items with no order activity within 120 days of the quote date. All clerical errors are subject to correction.

TAXES

Published or quoted prices do not include sales, excise, or similar taxes that are the responsibility of the Buyer. Where Seller is required to collect such taxes, they will be invoiced as a separate item to Buyer unless an appropriate tax exemption certificate is filed with Seller. Taxes not billed or quoted by the Seller are the responsibility of the Buyer.

CREDIT

Acceptance of orders shall be subject to Buyer providing Seller with an acceptable Credit Application. If in the judgment of Seller, the financial condition of the Buyer, at any time, does not prove worthy of extending credit, the Seller may require full or partial payment in advance of production or shipment.

PAYMENT TERMS

Unless modified in writing by Seller's quotation, terms of payment are net 30 days from date of invoice payable in US funds. Accounts that become overdue will be subject to a 1.5% monthly service charge until paid and Buyer will be liable for reimbursing Seller's expenses and legal fees in collecting such accounts. Seller may also suspend shipments of open orders to Buyer until Buyer's account is current.

ORDERS

Minimum charge on any individual order is \$500 net. Orders not meeting the above minimum will be automatically raised to and billed at the minimum billing level. All orders, including order deferrals, are subject to final acceptance by Seller's Marketing Department at its Franklin Park, IL headquarters. Order deferrals may be subject to a price adjustment. Individual line items on Buyer's order may be subject to either a \$ or quantity minimum. If a price discrepancy exists on an order, the item in question will not be entered into Seller's order system until the price issue is resolved and the order is amended in writing. Storm Emergency orders requiring expedited delivery may carry additional charges.

ORDER ADD-ON POLICY

Items can be added to Buyer's order at the original order terms within 15 calendar days of original order entry as long as the original order has not shipped complete. Minimum value of added items must be \$250 and original order terms apply

PACKING

Seller's prices are based on standard packaging suitable for domestic shipments in the 48 contiguous United States. If special packaging is required by Buyer additional charges will be invoiced to the Buyer.

SHIPMENT ESTIMATES

Delivery dates as set forth on order acknowledgments are approximate. Although Seller will use all reasonable efforts to meet delivery dates, Seller will not be responsible for failure to meet said dates. In no event will Seller be liable for any loss or damage or for any special, incidental or consequential damages to Buyer resulting from failure to deliver within the times specified. Unless otherwise amended and approved in writing, Seller reserves the right to ship up to 30 days in advance of the acknowledged shipping date. Seller reserves the right to make delivery in installments which shall be separately invoiced and paid when due without regard to subsequent deliveries.

TRANSPORTATION POLICY

All shipments will be made F.O.B. factory with transportation by the most economical means, prepaid and allowed for any single order or release with a value of **\$7500 net** (\$10000 for foundation anchors) or more and allowing for shipment at one time to a single delivery point within the 48 contiguous United States. All MPS North American Products, except those listed next, can be combined on a single order to achieve minimum for prepaid freight **EXCEPTION:** the following products cannot be combined on a combined order to achieve prepaid freight: Fiberglass Crossarms and Polymer Composite Insulators (except distribution deadends). For orders below \$7500 net, Seller will ship prepaid with freight cost added to the invoice or Buyer can request freight collect (UPS cannot ship freight collect without Buyer providing their account number). **EXCEPTION: OEM orders will be freight collect.**

Shipments to Alaska and Hawaii, meeting the above requirements, will be shipped to the nearest west coast port chosen by Seller, unless quoted otherwise, with freight collect beyond. For shipments outside the U.S. contact the Seller's Marketing Department for freight terms.

Seller reserves the right to select shipping point, method and route of shipment. When Buyer selects method (including flatbed trailers or expedited items) and/or route or timing of shipment, any resultant additional expenses will be invoiced to the Buyer. No credit for any shipping or freight cost will be allowed to Buyer if Buyer accepts shipment or product at Seller's factory or warehouse or otherwise supplies its own transportation. Seller shall not be liable for any cartage or storage charges at destination. Title and risk of loss shall pass to the Buyer upon delivery of the products by the Seller to the carrier. MPS factory shipping locations are: FRANKLIN PARK, IL; BIRMINGHAM, AL; CHATEAUGAY, QUEBEC, CANADA; YORK, SC & NEWBERRY, SC.

DROP SHIPMENT POLICY

Unless otherwise pre-approved by Buyer, a drop shipment charge of 20% will be added to any purchase order requesting delivery to a location other than to a recognized Buyer stocking warehouse.

BROKEN PACKAGE POLICY

Orders must be placed for standard package quantities. Seller has the right to raise order quantities per line item to multiples of standard package. Seller may waive this policy for project related orders. The Buyer is responsible for seeking this waiver, in writing, before order entry.

NON-STANDARD OR SPECIAL ITEMS

Products built to forecast or for stock are considered standard items. Items built for specific Buyer's requirements, even though outlined in Seller's catalog, are considered non-standard. Orders for these items will be accepted on a non-cancelable, non-returnable basis. The quantity manufactured, shipped, and invoiced may vary by 10% above or below the ordered quantity, and the order will be considered as shipped complete without further consequence.



MACLEAN POWER SYSTEMS TERMS AND CONDITIONS

ADJUSTMENTS

Unauthorized deductions by Buyer from its remittance to Seller will not be permitted unless Seller issues written authorization and credit memoranda. Deductions exceeding those authorized by Seller will be invoiced by Seller and will become payable upon receipt. Failure to settle Buyer's account may lead to suspension of future shipments to Buyer.

TOOLING

Seller shall retain title to and possession of any models, patterns, dies, molds, jigs, fixtures, tools, and test equipment made for or obtained for the performance of any order including items paid for by the Buyer.

TESTING

Unless otherwise stated in writing, product prices include only Seller's standard test data. Any special testing required by the Buyer shall be invoiced accordingly unless included in the Seller's quotation.

MODIFICATIONS

Unless otherwise provided, Seller reserves the right to modify the specifications, materials, or manufacturing methods of products ordered by the Buyer if the modification will not materially affect the quality or performance of the product.

RETURNED GOODS

No material can be returned without first obtaining a written return goods authorization from Seller's marketing department in Franklin Park, IL. A copy of this authorization must be included with the material being returned.

Products accepted for return must be in their original, unopened cartons, in standard package quantities, purchased within the last 12 months, of current design and manufacture, and in resaleable condition. Products designed and produced to Buyer's specifications or products not cataloged, or listed as special priced products, or obsolete products cannot be returned for credit.

Material authorized for return must be shipped prepaid to the Seller's destination within 30 days of authorization. No products will be accepted for return in the months of October, November and December.

Buyer is responsible for providing original invoice information to Seller on items requested for return. No return authorization shall be issued for less than \$100 per line item. All such returns will be subject to a \$50 minimum restocking and handling charge or 25% of the original net value of the products at the time of purchase, whichever is higher, plus original freight charges, in addition to any additional costs to restore the material to a resaleable condition. Material which fails Sellers incoming inspection will be rejected and no credit will be issued.

CANCELLATION

Cancellation of part or all of an order is subject to acceptance by Seller's marketing department in Franklin Park, IL. Requests for cancellation must be received a minimum of 7 calendar days before the scheduled ship date. Cancellation of standard products will be allowed only when Buyer pays cancellation charges based on the accumulated expense and commitments made by the Seller to supply the material in accordance with the Buyer's original purchase request. **The minimum cancellation charge will be \$50 or 20% of the unshipped value.** Special ordered items or items non-cataloged, or listed as special priced, are non-cancelable.

WARRANTY

Seller warrants that the products it manufactures and sells shall be free from defect in material and workmanship for a period of 18 months from date of shipment to Buyer, or 12 months from date of product installation, whichever is shorter. The warranty covers normal use only and does not apply to any products that are misused (used for a purpose other than originally intended), modified, repaired or otherwise abused by Buyers or others. Seller's sole obligation for breach of warranty shall be to repair or replace (F.O.B. original delivery point) any goods within 30 days of Buyer reporting defect to Seller. All installation and transportation expenses, and all other incidental expenses and damages shall be borne by Buyer.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

LIMITATION OF LIABILITY

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY TYPE OF SPECIAL, CONSEQUENTIAL, INCIDENTAL OR PENAL DAMAGES, WHETHER SUCH DAMAGES ARISE OUT OF OR ARE A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE) STRICT LIABILITY OR OTHERWISE.

Such damages shall include, but not limited to, loss of profit or revenues, loss of use of the equipment or associated equipment, costs of substitute equipment, facilities, down time costs, increased construction costs, change out costs, or claims for damages. Seller shall not be liable for any loss, claim, expense or damage caused by, contributed to or arising out of the acts or omissions of Buyer, whether negligent or otherwise.

PRODUCT USAGE

Buyer agrees that by accepting Seller's products, it agrees to use each product solely as Seller intended such product to be used and in accordance with Seller's instructions. Buyer further agrees that improper operation, storage, or maintenance of Seller's products could result in injury or death to a person, or damage to other property or equipment and it will hold Seller and its affiliates harmless for any such injury or damage. **BUYER AGREES TO INDEMNIFY AND HOLD SELLER, ITS AFFILIATES AND THEIR OFFICERS AND DIRECTORS HARMLESS AGAINST ANY LOSS, DAMAGE, OR EXPENSE OF ANY KIND (INCLUDING ATTORNEY'S FEES) ARISING OUT OF OR RELATED TO THE USE OF ANY OF SELLER'S PRODUCTS.**

PATENT INDEMNITY

Seller shall defend any suit or proceeding brought against Buyer based on a claim that any goods of Seller's design furnished to Buyer constitute an infringement of any U.S. patent. Buyer must notify Seller promptly, in writing, of such claim. Seller will not be liable if alleged infringement is the result of the application or use to which such goods are put by Buyer or others if different than Seller's application data.

Buyer agrees to protect Seller and save it harmless from all expense and damages that result from claims or demands that goods manufactured by Seller according to Buyer's design or specification infringe the right, title or interest of any third party because of being so produced. Buyer shall defend Seller in such claims and pay all expenses and damages based on claimed infringement.

The foregoing states the entire liability of either party to the other with respect to infringement.

ACCEPTANCE

Buyer shall notify Seller of any error, defect, or shortage of any items received by Buyer, in writing, within 15 calendar days of delivery. Failure to provide Seller with written notice within the prescribed timeframe obligates Buyer to have waived such errors, defects or shortages and to have accepted Buyer's items as delivered.

GOVERNING LAW

The laws of the State of Illinois shall govern all matters relating to the interpretation and effect of these terms and any authorized changes.

WAIVER OF JURY TRIAL

Both Buyer and Seller, to the extent permitted by law, knowingly, voluntarily, and intentionally waives its right to a trial by jury in any action, legal proceeding or counterclaim arising out of or in connection with any purchase order or other transaction between Buyer and Seller. This waiver applies to any and all actions and legal proceedings, whether sounding in contract, tort or otherwise.

Effective 8/16/08



HUBBELL POWER SYSTEMS, INC. TERMS & CONDITIONS OF SALES

These terms and conditions of sales ("terms and conditions") apply to the purchase by Buyer of any and all Hubbell Power Systems, Inc. ("HPS") products. HPS hereby gives notice of its rejection to any different or additional terms and conditions other than as stated herein. Buyer's acceptance of the provisions of HPS's terms and conditions as recited herein shall be conclusively presumed upon Buyer's receipt of the product(s), or if no written objection is received by HPS within fifteen (15) days from the date on HPS's order acknowledgment, whichever event shall first occur.

PRICING

Refer to appropriate Price Schedule, unless otherwise quoted.

TERMS

Payment terms are net 30 days. Invoices will be dated the day of shipment. A service charge of 1-1/2% per month or, if such rate exceeds the maximum lawful rate, the maximum lawful rate shall be assessed on all past due accounts and shall be payable on demand.

QUOTATIONS

Unless otherwise stated in writing, HPS' quotations are subject to acceptance by the Buyer within thirty (30) days from the date of issue.

SALES AND SIMILAR TAXES

Prices do not include any sales, use, excise or similar taxes. Consequently, in addition to the price specified herein, the amount of any present or future sales, use, excise or other similar tax applicable to the sale or use of the equipment hereunder, shall be paid by the Buyer, or in lieu thereof the Buyer shall provide HPS with a tax exemption certificate acceptable to the taxing authorities.

ACCEPTANCE OF ORDERS

All orders are subject to final acceptance by HPS. Any other terms proposed by Buyer are rejected unless expressly accepted in writing. Orders shall be deemed to be executed in the State of Missouri and shall be construed and performed in accordance with the laws of that State. Acceptance of any order is subject to availability of product and the ability of HPS to deliver. Orders will be billed at prices in effect at time of shipment unless otherwise agreed. Unless otherwise stated in writing, HPS reserves the right to ship plus or minus 10% of specified quantity for special products that are made to order.

SALES BY AGENTS

Sales by agents or through overseas representatives shall be at prices, terms and conditions of sale specified by HPS. All invoices will be issued by and payment remitted to HPS.

DELAY

HPS will use reasonable efforts to meet shipment or delivery dates specified by HPS, but such dates are estimates only. In no event shall be liable for any delay or nondelivery if caused directly or indirectly by Acts of God, fire, flood, strike or lockout or other labor dispute, accident, civil commotion, riot, war, governmental regulation or order, whether or not it later proves to be invalid, or from any other cause or causes (whether or not similar to any of the foregoing) beyond HPS's control. In no case will HPS be liable for loss of profits or any special or consequential damages on account of any delay in delivery or nondelivery whether or not excused hereunder.

SHIPPING DEFERMENT

Buyer requests for shipping deferment must be approved by HPS and are subject to price negotiation.

LIMITED WARRANTY AND LIMITATION OF LIABILITY

HPS warrants to Buyer that the products sold will be free of defects in workmanship or material for a period of one (1) year (or as otherwise specified) from the date of original shipment by HPS when stored, installed, operated or maintained in accordance with recommendations of HPS and standard industry practice and when used under proper and normal use. HPS shall in no event be responsible or liable for modifications, alterations, misapplication or repairs made to its products by Buyer or others, or for damage caused thereto by negligence, accident or improper use by Buyer or others. This warranty does not include reimbursement for the expenses of labor, transportation, removal or reinstallation of the products. This warranty shall run only to the first Buyer of a product from HPS, from HPS' Buyer, or from an original equipment manufacturer reselling HPS' product, and is non-assignable and non-transferable and shall be of no force and effect if asserted by any person other than such first Buyer.

APPLICATION: HPS does not warrant the accuracy of and results from product or system performance recommendations resulting from any engineering analysis or study. This applies regardless of whether a charge is made for the recommendation, or if it is provided free of charge. Responsibility for selection of the proper product of application rests solely

with the Buyer. In the event of errors or inaccuracies determined to be caused by HPS, its liability will be limited to the re-performance of any such analysis or study.

BUYER INSPECTIONS: Tests, inspections and acceptance of all material must be made at the factory. Buyer's inspectors are welcome at the factories and are provided with the necessary facilities for carrying out their work. Name and phone number of who should be contacted for inspection should be given to HPS no later than two weeks prior to scheduled shipment date.

DISCLAIMER OF WARRANTY: THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL, EXPRESSED OR IMPLIED. THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS OF ANY PRODUCT FOR A PARTICULAR PURPOSE.

EXCLUSIVE REMEDY: Any claim by Buyer that a product is defective or non-conforming shall be deemed waived by Buyer unless submitted to HPS in writing within thirty (30) days from the date Buyer discovered, or by reasonable inspection should have discovered the alleged defect or non-conformity. Any warranty claim must be brought within one year of discovery of the alleged defect or non-conformity. Upon prompt written notice by the Buyer that a product is defective or non-conforming, HPS' liability shall be limited to repairing or replacing the product, at HPS' option.

LIMITATION OF LIABILITY: IN NO EVENT AND UNDER NO CIRCUMSTANCES SHALL HPS BE LIABLE TO BUYER OR TO ANY OTHER PERSON FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL OR INCIDENTAL LOSSES OR DAMAGES, INCLUDING, WITHOUT LIMITATION, DAMAGE TO OR LOSS OF USE OF ANY PRODUCT, LOST SALES, OR PROFITS, OR DELAY OR FAILURE TO PERFORM THIS WARRANTY OBLIGATION, OR CLAIMS OF THIRD PARTIES AGAINST PURCHASER, ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, USE OF, INABILITY TO USE, OR THE REPAIR OR REPLACEMENT OF, HPS' PRODUCTS. As stated herein, the term "person" shall include without limitation, any individual proprietorship, partnership, corporation or entity.

FREIGHT ALLOWANCE and F.O.B. POINT

All shipments are F.O.B. origin. Risk of loss and title of products shall pass to Buyer upon delivery to the designated carrier. Freight is prepaid and allowed on all HPS shipments of products with a net order value of \$5,000 and above to destinations within the Continental U.S.A and Canada, with the exception of USCO brand products. Freight is prepaid and allowed on all shipments of USCO brand products with a net order value of \$20,000 and above. An 8% shipping and handling charge will be added to all standard shipments under the minimum net order value. Customer expedited orders will be billed at actual freight cost plus \$50.00 handling. Shipments to Alaska and Hawaii are F.O.B. Pacific Coast docks, collect beyond. Tool trailers will be F.O.B. HPS' dock – no freight allowed.

HPS reserves the right to route all qualified freight allowed shipments via least expensive surface route within the Continental United States and Canada. Buyer will assume all charges for transportation specified via more expensive means. Acceptance of a specified routing does not constitute a guarantee of ship date, transit time or arrival date. HPS will not be responsible for any cartage or storage charges at destination.

HPS' responsibility for exception-free delivery ceases when the transportation company receives shipment in good condition. Claims for loss or damage must be reported directly to the carrier. HPS's willingness to assist does not indicate liability for claim or replacement.

PARTIAL RELEASE

If an order has multiple releases specified by the Buyer, each release will be treated as individual orders, relative to freight allowance and minimum billing.

BACK ORDERS

Back orders that are the responsibility of HPS will be shipped F.O.B. factory or point of shipment with freight prepaid and allowed via the most cost effective method, providing the original order qualified for freight allowance.

MINIMUM BILLING

Standard Orders -- \$750 net per order.

Tools -- \$100 net per order.

Parts -- \$100 net per order.

ORDER ADD-ON POLICY

HPS' "Add-On" policy allows you to add items to an existing unshipped order for up to fifteen (15) days from the entry date of the original order. The minimum value for added products is \$250. Addition of tools or parts must be \$100.

DELIVERY SCHEDULE

Shipping dates provided by HPS are estimates only. HPS shall make every reasonable effort to meet Buyer's shipping requirements provided HPS promptly receives all necessary information from Buyer and approved drawings if required by HPS. HPS will not assume liability because of delayed shipment for any reason. HPS's responsibility ceases upon acceptance of shipment by carrier.

CANCELLATIONS

Cancellation of an order for current stock product requires a minimum of five (5) days' notice prior to actual ship date. Stock product orders shipped after cancellation notice is received, but before expiration of the five-day requirement, will be subject to all standard returned product conditions, noted below. Cancellation on non-stock products may be made only if no work has been performed or material purchased. If cancellation is requested after work is in progress, there will be a cancellation

charge as established by HPS. Orders may not be cancelled unless HPS gives its written consent, and then only upon agreement as to applicable cancellation charges.

RETURNED PRODUCT

GENERAL CONDITIONS applying to all transactions:

1. *Product is not returnable without the written consent of HPS.*
2. *Request for permission to return product must be made in writing within one year from date of shipment, and Buyer must provide original HPS invoice number.*
3. *Product to be returned must be considered standard product by HPS.*
4. *HPS reserves the right to refuse returns of any special or made-to-order product, regardless of condition.*
5. *All returned products must be in excellent, resaleable condition and packaged in the original carton. Products will be inspected upon return; and any service or repair needed to place them in first class, saleable condition will be charged and added to the restocking charge.*
6. *A 25% restocking charge will be deducted from all credits issued on authorized returns.*
7. *Return Goods Authorization (RGA) Packing List, supplied by the factory, must accompany the return shipment.*
8. *Return freight must be prepaid. Product must be received by HPS within sixty (60) days of issuance of RGA.*
9. *Net value of the return must not be less than \$250.*
10. *HPS reserves the right to deduct for any damage sustained in transit.*
11. *Unauthorized returns will be refused. Equipment returned without proper authorization from HPS will, at the sole option of HPS, be returned to the Buyer freight collect, or scrapped immediately with no issuance of credit. Unauthorized product included in a return will not be credited.*

BROKEN PACKAGE POLICY

Shipments will be made in standard package quantities or multiples thereof. HPS Customer Service will notify the Buyer of any orders that do not comply with this policy. The Buyer must authorize an adjustment to comply with standard package quantities before the order will be entered.

DROP SHIPMENT POLICY

A 10% net order value drop shipment charge will be added to all purchase orders requesting delivery to a location other than a recognized Buyer stocking warehouse, with the exception of full truckload and/or project material. This is in addition to any other charges to the net order.

QUOTATION PRICE PROTECTION

All prices shown in the price lists are subject to change without notice. All quotations on special products or modifications to catalog products are binding only if confirmed in writing by the factory for the period shown on the quotation. Price protection will be provided for a period of thirty (30) days from date of quotation from HPS.

ORDERS

All orders are taken and prices quoted only with the understanding that each order shall be subject to the acceptance of HPS upon such terms as we may specify when order is received. Prices to cover amount of any sales or excise tax which now or hereinafter may be imposed by any taxing authority upon this product or the sale or manufacture thereof.

PRODUCT SPECIFICATION

HPS reserves the right to discontinue products, modify designs, and change specifications or prices without incurring obligation.

INVOICING

All invoices are due and payable per the standard terms stated herein. In the case of an apparent discrepancy in a line item charge, Buyer is obligated to advise HPS Customer Service in writing of the nature of the claimed discrepancy within five (5) days of receipt of the invoice. This includes all requests for proof of delivery. A claim of discrepancy does not relieve Buyer of the absolute obligation to pay the remaining balance of the invoice in accordance with the standard terms of payment. Upon review, HPS will have sole discretion to resolve the discrepancy; and the Buyer expressly agrees to abide by HPS' decision. HPS will promptly advise Buyer of its decision regarding any disputed items or charges.

OSHA

HPS warrants that at time of shipment, the products will conform to the applicable occupational safety and health standards promulgated pursuant to the Federal Occupational Safety and Health Act of 1970, which are in effect on the date that HPS enters its acknowledgment of Buyer's order. The Buyer's exclusive remedy and HPS' liability for breach of this warranty is limited to replacement of the nonconforming products.

FAIR LABOR STANDARDS ACT AS AMENDED

HPS represents that any goods to be delivered hereunder will be produced in compliance with the requirements of the Fair Labor Standards Act of 1938, as amended.

NOTE

These Terms and Conditions supersede all those published and previously issued by The A.B. Chance Company, The Ohio Brass Company, Anderson Electrical Products, Inc., Fargo Manufacturing Company, Inc., Chardon Electrical Components, USCO Power Equipment Corporation, Hubbell Canada LP and Hubbell Power Systems, Inc.

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-026 (MS)

Central Hudson Response No: CHGE-026 (DPS)

Date of Request: 8/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: August 22, 2014

Response Provided by: John Hecklau

Information Requested:

1. Have the wetlands along off-Right-of-Way access "K" been evaluated for potential Blanding's Turtle habitat? Explain your answer.

Response:

The wetlands along off-ROW access K were not evaluated for potential Blanding's turtle habitat during the study conducted in 2012 by Riveredge Associates. Use of this access route was not anticipated at that time. Consequently, the potential for Wetlands QQ, RR, SS, TT and UU to provide Blanding's turtle habitat has not yet been determined. Central Hudson has contacted Lisa Masi at NYSDEC Region 3 to discuss this matter. If Ms. Masi believes that these wetlands have the potential to provide Blanding's turtle habitat, a notation to that effect will be added to the plan and profile drawings, and all Blanding's turtle protective measures included in the final Certificate conditions will be applied to these areas.

Central Hudson Gas and Electric Corporation

**A&C REBUILD PROJECT - ARTICLE VII APPLICATION
Case 13-T-0469**

**RESPONSE TO
INTERROGATORY/DOCUMENT REQUEST**

Requesting Party and No.: DPS Staff - DPS-027 (MS)

Central Hudson Response No: CHGE-027 (DPS)

Date of Request: 8/13/2014

Information Requested of: Central Hudson Gas and Electric Corporation

Reply Date: August 22, 2014

Response Provided by: Christopher Rottkamp

Information Requested:

In response to Information Request (IR) DPS-23, which requested copies of all communications with the Army Corp of Engineers (ACOE), Central Hudson Gas & Electric (the Company) described just one phone conversation. The Company response stated, among other things: "No mechanized clearing will be conducted within wetlands (i.e., all clearing will be done by hand)." However, the public outreach section of the Application includes emails to and from the ACOE referring to phone conversations and a submittal to the ACOE. In those emails the company and the ACOE state that no additional or new clearing would be required.

The public outreach section also includes documentation about meetings and discussions with the New York State (NYS) Department of Environmental Conservation and NYS Department of Agriculture & Markets.

1. Why were the conversations, submittal, and e-mails cited in the application not included in the Company's response to IR DPS-23? Are there any other communications with ACOE that are missing or outstanding?
2. Was the need for clearing of vegetation for access and work pads discussed with the ACOE? Explain your answer.

3. Explain why discussions and meetings with NYS Department of Agriculture & Markets, NYS Department of Environmental Conservation and ACOE are discussed in the public outreach section of the application and not the Agency Correspondence section of the application?
4. Were there any other Agency Correspondences that were not included in Agency Correspondence section? Explain your answer.

Response:

1. *Exclusion of reference to this earlier correspondence in Central Hudson's response to IR DPS-23 was an inadvertent omission. A copy of the referenced e-mail correspondence between Central Hudson and the ACOE from May 9 and May 14, 2013 was included in Appendix M of the Application. The only other communications with the ACOE were voicemail messages to Rosie Miranda left by John Hecklau of EDR on July 20, July 23 and August 1, 2014.*
2. *In John Hecklau's telephone conversation with Rosie Miranda of the ACOE on August 1, 2014 (follow-up to the voicemail referenced above), he explained to her that the Project was taking place on an existing ROW, and that clearing of mature trees in wetlands would not be required. He further explained that along access routes and at work sites within wetlands, woody vegetation (shrubs and saplings) would need to be removed. However, all such removals would be done by hand (i.e., using a chain saw) and there would be no mechanized land clearing within wetlands.*
3. *Agency discussions, meetings, and field visits are contained in the Public Outreach section of the Article VII Application (Appendix M). These were not included in the Agency Correspondence section (Appendix D) since it was thought that only written correspondence to or from agencies would be included in Appendix D. Internally prepared minutes from the May 14, 2013 meeting with the NYSDEC referenced is included in the Public Outreach section (Appendix M) of the Application. A memorandum with a summary of the NYSDAM site visit on April 10, 2013 was also included in Appendix M. No minutes or a summary memorandum of the NYSDEC site visit conducted on August 7, 2013 were prepared.*

4. *We are not aware of any other agency correspondence that took place prior to submittal of the Article VII Application that was not included in the Agency Correspondence section (Appendix D).*