APPALACHIAN POWER COMPANY
BEFORE THE
VIRGINIA STATE CORPORATION COMMISSION
CASE NO. PUR-2026-00132

APPLICATION FOR APPROVAL AND CERTIFICATION OF ELECTRICAL TRANSMISSION LINE

Daleville Area Transmission Improvements Project

VOLUME 1 OF 3

Application, Testimony, Response to Guidelines and Exhibits

September 2026

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GLOSSARY OF TERMS AND ABBREVIATIONS

3DHP	United States Geological Survey 3D Hydrography Program
ACCC-AZR	Aluminum Conductor Composite Core, Aluminum-Zirconium Reinforced
ACSR	Aluminum Conductor Steel Reinforced
ACS	American Community Survey
ACSS	Aluminum Conductor Steel Supported
AEP	American Electric Power Company, Inc. (parent company of Appalachian)
AEPSC	American Electric Power Service Corporation
Alternative Routes	Assemblage of Study Segments that form routes for analysis and comparison.
Appalachian	Appalachian Power Company (a unit of AEP)
ARIMMORA	Advanced Research on Interaction Mechanisms of ElectroMagnetic exposures with Organisms for Risk Assessment
BMP	Best Management Practice
CAFEP	Corona and Field Effects Program
CBG	Census Block Group
CCVT	Capacitive Coupled Voltage Transformer
CIR	Color-Infrared imagery
Company	Appalachian Power Company
DAVOX	Automated Telephone Outreach System
DCR	Virginia Department of Conservation and Recreation
EJ	Environmental Justice
ELF	Extremely Low Frequency
EMF	Electric and Magnetic Fields
EPRI	Electric Power Research Institute
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
GIS	Geographic Information System
HUC	Hydrologic Unit Code
Hz	Hertz
IARC	International Agency for Research for Cancer
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEEE	Institute of Electrical and Electronic Engineers
IPaC	Information for Planning and Consultation
kcmill	Thousand Circular Mils
kHz	Kilohertz
kV	Kilovolt
LiDAR	Light Detection and Ranging
LOD	Limit of Disturbance
M-3	PJM Attachment M-3 Process
mG	Milligauss
MOAB	Motor-Operated Air Break Switch

MVA	Megavolt-Ampere
MVAR	Megavolt-Ampere Reactive
mT	Millitesla
MW	Megawatt
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHD	National Hydrography Dataset
NIH	National Institutes of Health
NLCD	National Land Cover Database
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NUG	Non-Utility Generator
NWI	National Wetlands Inventory
OPGW	Optical Ground Wire
Opportunity Feature(s)	Areas or existing linear features along which the transmission line may have less disruption to area land uses and the natural and cultural environment.
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
PJM	PJM Interconnection, L.L.C. - the RTO that coordinates the movement of wholesale electricity in parts of the Northeast, Mid-Atlantic and Midwest
Project	Daleville Area Transmission Improvements Project
Proposed Route	The alignment on which the applicant/Siting Team proposes to construct a transmission line. The Proposed Route (1) reasonably minimizes adverse impacts on area land uses and the natural and cultural environment; (2) minimizes special design requirements and unreasonable costs; and (3) can be constructed and operated in a safe, timely, and reliable manner.
PSA	Power Service Area
PSS	Palustrine Scrub-Shrub Wetland
p.u.	Per unit
PUB	Palustrine Unconsolidated Bottom Wetland
QF	Qualifying Facility
Response to Guidelines	Response to "Guidelines of Minimum Requirements for Transmission Line Applications Filed under Title 56 of the Code of Virginia"
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-Way
RTEP	Regional Transmission Expansion Plan
RTO	Regional Transmission Organization
SCC	Virginia State Corporation Commission
SCHEER	Scientific Committee on Health, Environment and Emerging Risks
SCENIHR	Scientific Committee on Emerging and Newly Identified Health Risks
Siting Team	A multidisciplinary team of experts in transmission line routing, impact assessment for a wide variety of natural resources and the human environment, impact mitigation, engineering, and construction management.
SSURGO	Soil Survey Geographic Database

STATCOM	Static Synchronous Compensator
Substation or Station	Substations or stations are facilities that transform bulk electric voltage down to distribution levels and/or provide protection and controls for the transmission electric grid. Typical equipment includes switches, circuit breakers, buses, and transformers.
SUP	Special Use Permit
SWPPP	Stormwater Pollution Prevention Plan
TO	Transmission Owner
Transmission Line	An electric line that operates at 69 kilovolts and/or above and has the purpose of moving power from a generation facility to a substation or between substations.
TRI	Toxics Release Inventory
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
US (EPA)	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VDA	Virginia Department of Aviation
VDACS	Virginia Department of Agriculture and Consumer Services
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDF	Virginia Department of Foresty
VDH	Virginia Department of Health
VDHR	Virginia Department of Historic Resources
VDOT	Virginia Department of Transportation
VDWR	Virginia Department of Wildlife Resources
VMRC	Virginia Marine Resources Commission
VOF	Virginia Outdoors Foundation
VPDES	Virginia Pollutant Discharge Elimination System
WERMS	Wildlife Environmental Review Map Service
WHO	World Health Organization
WOTUS	Water of the United States
WSP	WSP USA Inc.

EXECUTIVE SUMMARY

So that it can adequately and reliably operate a portion of the local transmission system to provide service for area customers and accommodate a new customer interconnection request for 138-kilovolt ("kV") service with a peak demand of approximately 300 megawatts ("MW") Appalachian Power Company ("Appalachian" or "Company"), a unit of American Electric Power Company, Inc. ("AEP"), proposes in Botetourt County, Virginia to:

- Upgrade and expand the Botetourt Substation from 69 kV to 138 kV.
- Upgrade and expand the Mount Union 138-kV Substation.
- Upgrade the Cloverdale 138-kV Substation within the existing fence.
- Upgrade the Trinity Substation from 69 kV to 138 kV within the existing fence.
- Install the new Windy Pass 138-kV Substation on a parcel adjacent to the existing Trinity Substation.
- Rebuild approximately 5.3 miles of the Cloverdale – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Rebuild approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Reconductor approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line and replace approximately two existing structures and add one new structure.
- Construct two new 138-kV feeder lines, parallel to each other, approximately 1.3 miles in length from Botetourt Substation into the new customer's data center campus.
- Construct a new approximately 0.1-mile-long 138-kV tie line between the new Windy Pass 138-kV Substation and existing Trinity Substation.
- Extend the Trinity – Wheatland 69-kV Transmission Line approximately 0.1 miles to the new Windy Pass 138-kV Substation.
- Construct one new structure on the Mount Union – New Castle 34-kV Transmission Line.
- Install associated fiber and distribution upgrades.

The above-mentioned supplemental work is collectively referred to as the Daleville Area Transmission Improvements Project ("Project").

The existing Daleville Load Area is served from a transmission loop consisting of transmission lines operated at both 138-kV and 69-kV. The 69-kV transmission line sections comprising most of the existing loop have less than half the thermal capacity required to serve the requested 300 MW while satisfying North American Electric Reliability Corporation Transmission System Planning Performance Requirements. And while the remaining portion of the loop currently operates at 138 kV, that portion of the loop contains existing conductor that becomes overloaded when considering the loss of the opposite 69-kV side of the loop. Installing larger, higher capacity overhead conductor by reconductoring and/or rebuilding the transmission lines will provide the capacity and reliability required to reliably operate and maintain the transmission lines to serve the customer and area customers.

The proposed routes for the Project include the rebuild of approximately 5.3 miles of the Cloverdale – Trinity 138-kV Transmission Line and approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line, along with the reconductoring of approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line. This work will be completed almost exclusively in the existing 80-foot-wide or 100-foot-wide rights-of-way ("ROWs") of those transmission lines. The Project's proposed route also includes construction of a new approximately 0.1-mile 138-kV tie line between the proposed Windy Pass Substation and the existing Trinity Substation, a short extension of the Trinity – Wheatland 69-kV Transmission Line into the proposed Windy Pass Substation, as well as two new parallel 138-kV feeder lines, each approximately 1.3 miles in length, from the Botetourt Substation into the new customer's data center campus to serve the load.

The proposed substation upgrades are necessary to create a 138-kV loop that has sufficient capacity during system normal and outage conditions. The substation component of the Project mostly will be completed within existing substation properties, with limited expansion. The proposed new Windy Pass Substation will be located on land purchased by Appalachian that is immediately adjacent to the Trinity Substation.

Based on preliminary engineering, Appalachian anticipates primarily using single-circuit steel, monopole structures for the rebuild and new build transmission line sections. On the reconductored line section, where the Company plans to reuse most of the existing structures, the structures will be lattice towers, monopoles, H-frames, and three-pole structures. The average heights of the proposed structures are approximately 80 feet above ground for the rebuilt and newly built transmission lines, except for the customer feeder lines, which will average approximately 90 feet above ground. On average, the proposed structures on the rebuilt transmission lines are approximately 10 feet taller than existing structures. On the reconductored transmission line section, the average structure height will be 81.5 feet above ground.

The desired in-service date for the Project is November 15, 2029. Upon the Commission's approval of the Project, Appalachian estimates that it will need approximately two years for engineering, design, ROW acquisition, permitting, material procurement, and construction to place the Project in service. The estimated conceptual cost of the Project is approximately $264 million, which includes approximately $143 million for substation-related work and $121 million for transmission-related work. In accordance with the Ratepayer Protection Pledge, Appalachian's other customers' rates will not increase due to the transmission line and substation work of this Project as the costs are offset by the load growth.

Appalachian hired WSP USA Inc. ("WSP") to evaluate the existing transmission lines and to conduct a routing study for the rebuild. WSP used a traditional siting methodology that identified constraints and opportunities, evaluated the feasibility of rebuilding the transmission line within existing ROW easements, gathered and incorporated feedback from stakeholders and landowners, and conducted field interviews to select the proposed route for the rebuild. Appalachian supports WSP's selection of the proposed route because it maximizes the use of existing ROW easements.

In addition to engaging WSP to develop the proposed route, Appalachian considered feedback from federal, state, and local agencies or officials and undertook public outreach efforts to promote meaningful engagement from each community affected by the Project. The Project is not anticipated to have a disproportionately high or adverse impact on environmental justice or fenceline communities.

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF
APPALACHIAN POWER COMPANY **CASE NO. PUR-2026-00132**

for Approval and Certification of the
Daleville Area Transmission Improvements Project
under Title 56 of the Code of Virginia

Pursuant to Virginia Code § 56-46.1 and the Utility Facilities Act, Virginia Code § 56-265.1 et seq., Appalachian Power Company ("Appalachian" or "Company"), by counsel, submits this Application for approval and certification of the Daleville Area Transmission Improvements Project ("Project"). In support of this Application, the Company represents as follows:

1. Appalachian is a public service corporation duly organized and existing under the laws of the Commonwealth of Virginia that provides electric service in Virginia with a mailing address of P.O. Box 2021, Roanoke, Virginia 24022.

2. To adequately and reliably operate and maintain electric service for existing customers and to accommodate a new customer in its service territory, the Company seeks permission to construct, own, operate, and maintain the Project, which is located in Botetourt County, Virginia. The Project improves approximately 19.5 miles of existing transmission lines and provides for a new substation installation and several upgrades to existing substations, as follows:

- Upgrade and expand the Botetourt Substation from 69 kilovolts (kV) to 138 kV.
- Upgrade and expand the Mount Union 138-kV Substation.
- Upgrade the Cloverdale 138-kV Substation within the existing fence.
- Upgrade the Trinity Substation from 69 kV to 138 kV within the existing fence.

- Install the new Windy Pass 138-kV Substation on a parcel adjacent to the existing Trinity Substation.
- Rebuild approximately 5.3 miles of the Cloverdale – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Rebuild approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Reconductor approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line and replace approximately two existing structures and add one new structure.
- Construct two new 138-kV feeder lines, parallel to each other, approximately 1.3 miles in length from Botetourt Substation into the new customer's data center campus.
- Construct a new approximately 0.1-mile-long 138-kV tie line between the new Windy Pass 138-kV Substation and existing Trinity Substation.
- Extend the Trinity – Wheatland 69-kV Transmission Line approximately 0.1 miles to the new Windy Pass 138-kV Substation.
- Construct one new structure on the Mount Union – New Castle 34-kV Transmission Line.
- Install associated fiber and distribution upgrades.

All the various improvements and additions comprising the Project are more fully described in Sections I and II of the Company's Response to Guidelines filed with this Application.

3. The new substation installations and upgrades and transmission line additions, rebuilds, and extensions are necessary to create a 138-kV loop fed from the Cloverdale

Substation that has sufficient capacity during system normal and outage conditions defined by North American Electric Reliability Corporation ("NERC") planning criteria.

1. The proposed route for the Project's transmission line aspects generally follows existing 80- and 100-foot-wide rights-of-way ("ROWs") for the rebuilt and reconductored lines. These lines will generally follow existing centerlines, though in certain locations, structures may be shifted within the existing corridor to accommodate constructability considerations, outage constraints, and site-specific conditions. The proposed route of the new-build tie lines and parallel customer feeder lines will be located on new ROW that is 80 or 75 feet wide respectively. The filing corridor is generally 150 feet wide and encompasses the full extent of the existing and proposed ROWs, allowing for minor adjustments where needed.

4. Similarly, the upgrades and expansions at the Cloverdale, Botetourt, Trinity, and Mount Union Substations, as well as construction of the new Windy Pass Substation, will occur primarily within existing substation properties, with limited expansion beyond current footprints where necessary to accommodate new equipment, system reconfiguration, and interconnection facilities.

5. In support of this Application, the Company is filing the testimony of:

(a) Nicolas C. Koehler, P.E., with regard to the need for the Project.

(b) J. Scott Woody, P.E., with regard to the transmission line engineering aspects of the Project.

(c) Jason B. Czelusniak, P.E., with regard to the substation engineering aspects of the Project.

(d) Ebrahim Razaei, Ph.D., regarding electric and magnetic field levels associated with the Project.

(e) Daniel Fraser, P.E., with regard to the route development and environmental analysis aspects of the Project.

6. The Company is also filing: (a) a Response to Guidelines, responding to the "Guidelines of Minimum Requirements for Transmission Line Applications Filed Under Title 56 of the Code of Virginia" issued by the Commission's Division of Public Utility Regulation on August 10, 2017; (b) a Siting Study and Virginia Department of Environmental Quality ("VDEQ") Supplement prepared by the Company's siting and environmental consultant, WSP USA Inc.; and (c) related tables, exhibits, attachments and maps (including digital geographic information system ("GIS") constraints maps and GIS shapefiles of the Project via electronic filing).

7. The Company's testimony, Response to Guidelines, Siting Study, VDEQ Supplement, and related tables, exhibits, attachments, and maps filed with this Application establish the following:

(a) The Project is needed and the public convenience and necessity require the construction of the Project by Appalachian.

(b) The proposed route for the Project reasonably minimizes adverse impact on the scenic assets, historic districts, and environment of the area in which the Project will be located.

(c) The Project will ensure that the Company is able to adequately and reliably operate and maintain electric service for existing customers in Botetourt County and accommodate a new customer interconnection request.

8. The proposed in-service date for the Project is November 15, 2029. If the Commission approves the Project, the Company estimates that it will need approximately two

years after entry of the Commission's final approving order for engineering, design, ROW acquisition, permitting, material procurement, and construction to place the Project in service. Accordingly, the Company asks that the Commission expedite its consideration of this Application to the extent permitted under applicable law.

9. The estimated conceptual cost of the Project is approximately $264 million, which includes approximately $143 million for substation-related work and $121 million for transmission-related work. In accordance with the Ratepayer Protection Pledge, Appalachian's other customers' rates will not increase due to the transmission line and substation work of this Project as the costs are offset by the load growth.

10. The Company therefore requests:

(a) That this Application be filed and docketed.

(b) That the Commission cause notice of this Application to be given as required by Virginia Code § 56-46.1 and the Utility Facilities Act.

(c) That the Commission Staff undertake an investigation of this Application and report its findings to the Commission.

(d) That the Commission determine, as required by Virginia Code §§ 56-46.1 and 56-265.2, that (1) the Project is needed and the public convenience and necessity require the construction by Appalachian of the Project; and (2) the proposed route for the Project reasonably minimizes adverse impact on the scenic assets, historic districts, and environment of the area concerned.

(e) That the Commission approve the construction of the Project pursuant to Virginia Code § 56-46.1 and any other applicable law.

(f) That the Commission grant Appalachian a certificate of public convenience and necessity under the Utility Facilities Act and grant such other relief as may be necessary for the construction and operation of the Project.

Respectfully submitted,

APPALACHIAN POWER COMPANY

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Exhibit No. ___
Witness: NCK

DIRECT TESTIMONY OF
NICOLAS C. KOEHLER, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR 2026-00132

Exhibit No. ___
Witness: NCK

SUMMARY OF DIRECT TESTIMONY OF NICOLAS C. KOEHLER, P.E.

My direct testimony supports Appalachian Power Company's ("Appalachian" or "Company") Application and Response to Guidelines in connection with the Daleville Area Transmission Improvements Project ("Project"). I am sponsoring **Section I** of the Response to Guidelines (Necessity for the Project), including the associated figures and tables and confidential figures, and Exhibit 1.

In this Project, the Company proposes to:

- Upgrade and expand the Botetourt Substation from 69 kilovolts ("kV") to 138 kV.
- Upgrade and expand the Mount Union 138-kV Substation.
- Upgrade the Cloverdale 138-kV Substation within the existing fence.
- Upgrade the Trinity Substation from 69 kV to 138 kV within the existing fence.
- Install the new Windy Pass 138-kV Substation on a parcel adjacent to the existing Trinity Substation.
- Rebuild approximately 5.3 miles of the Cloverdale – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Rebuild approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Reconductor approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line and replace approximately two existing structures and add one new structure.
- Construct two new 138-kV feeder lines, parallel to each other, approximately 1.3 miles in length from Botetourt Substation into the new customer's data center campus.
- Construct a new approximately 0.1-mile-long 138-kV tie line between the new Windy Pass 138-kV Substation and existing Trinity Substation.
- Extend the Trinity – Wheatland 69-kV Transmission Line approximately 0.1 miles to the new Windy Pass 138-kV Substation.
- Construct one new structure on the Mount Union – New Castle 34-kV Transmission Line.
- Install associated fiber and distribution upgrades.

The Project is necessary to ensure that the Company can adequately and reliably operate and maintain a portion of the local transmission system to provide service for area customers and accommodate a new customer interconnection request located in Botetourt County, Virginia. A customer has requested new 138-kV service for a proposed data center campus, which is to be located in Botetourt County, Virginia. The peak demand at this delivery point will be approximately 300 megawatts ("MW"). The Project is required to upgrade the area transmission system to create a 138-kV loop that is fed from Cloverdale Substation that has sufficient capacity during system normal and outage conditions defined by North American Electric Reliability Corporation ("NERC") planning criteria. This includes upgrading equipment at the Cloverdale and Trinity Substations as well as expanding the Mount Union and Botetourt Substations to accommodate the upgraded equipment.

In addition, in order to operate within defined voltage limits, a 138-kV, 150 megavolt-ampere ("MVA") Static Synchronous Compensator ("STATCOM") will be required near the delivery point. This will ensure area voltage will not fall below 0.92 per unit or drop by 8% or more during contingency scenarios. As explained in the Guideline Responses, instead of attempting to expand space-constrained substations with significant and expensive grading, the Project proposes the construction of a new Windy Pass Substation on a parcel immediately adjacent to the Trinity Substation.

The desired in-service date for the Project is November 15, 2029. The total conceptual estimated cost of the Project is $264 million. In accordance with the Ratepayer Protection Pledge, Appalachian's other customers' rates will not increase due to the transmission line and substation work of this Project as the costs are offset by the load growth.

DIRECT TESTIMONY OF
NICOLAS C. KOEHLER, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00132

Q: PLEASE STATE YOUR NAME, ADDRESS AND PRESENT POSITION.

A: My name is Nicolas C. Koehler. My position is Managing Director of East Transmission Planning for American Electric Power Service Corporation ("AEPSC"). AEPSC supplies engineering, financing, accounting, planning, advisory, and other services to the subsidiaries of the American Electric Power ("AEP") system, one of which is Appalachian. My business address is 8600 Smiths Mill Road, New Albany, Ohio 43054.

Q: PLEASE REVIEW YOUR EDUCATIONAL BACKGROUND AND YOUR WORK EXPERIENCE.

A: I received a Bachelor of Science – Electrical Engineering degree from Ohio Northern University in Ada, Ohio. In 2008, I joined AEP as a Planning Engineer where I advanced through increasing levels of responsibility. I received my Professional Engineer license in the state of Ohio in 2012 (license number 76967). In April 2025, I assumed my current position.

Q. WHAT ARE YOUR RESPONSIBILITIES AS MANAGING DIRECTOR OF EAST TRANSMISSION PLANNING?

A. My role includes organizing and managing all activities related to assessing the adequacy of AEP's transmission network to meet the needs of its customers in a reliable, cost-effective, and environmentally compatible manner. I participate in planning activities with Appalachian to address overall system performance.

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A: The purpose of my testimony is to support certain aspects of Appalachian's Application to this Commission for approval and certification of the proposed Daleville Area Transmission Improvements Project, to be located in Botetourt County, Virginia. Specifically, the Company is proposing to:

- Upgrade and expand the Botetourt Substation from 69 kV to 138 kV.
- Upgrade and expand the Mount Union 138-kV Substation.
- Upgrade the Cloverdale 138-kV Substation within the existing fence.
- Upgrade the Trinity Substation from 69 kV to 138 kV within the existing fence.
- Install the new Windy Pass 138-kV Substation on a parcel adjacent to the existing Trinity Substation.
- Rebuild approximately 5.3 miles of the Cloverdale – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Rebuild approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Reconductor approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line and replace approximately two existing structures and add one new structure.
- Construct two new 138-kV feeder lines, parallel to each other, approximately 1.3 miles in length from Botetourt Substation into the new customer's data center campus.
- Construct a new approximately 0.1-mile-long 138-kV tie line between the new

Windy Pass 138-kV Substation and existing Trinity Substation.

- Extend the Trinity – Wheatland 69-kV Transmission Line approximately 0.1 miles to the new Windy Pass 138-kV Substation.
- Construct one new structure on the Mount Union – New Castle 34-kV Transmission Line.
- Install associated fiber and distribution upgrades.

The components described above comprise the Project. A map of the Project is included as Exhibit 1. In this connection, I am sponsoring a portion of the Response to Guidelines filed by Appalachian together with the Application in response to the Commission Staff's *Guidelines for Transmission Line Applications Filed Under Title 56 of the Code of Virginia.*

Q: WHICH OF THE SPECIFIC MATERIALS INCLUDED IN THE RESPONSE TO GUIDELINES ARE YOU SPONSORING?

A: I am sponsoring **Section I**, Necessity for the Proposed Project (Necessity for the Project), including the associated figures and tables.

Q: **WERE THE PORTIONS OF APPALACHIAN'S FILING WHICH YOU ARE SPONSORING PREPARED BY YOU OR UNDER YOUR SUPERVISION AND DIRECTION?**

A: Yes.

Q: PLEASE SUMMARIZE THE NEED FOR THE PROJECT.

A: The Project is necessary to ensure that the Company can adequately and reliably operate and maintain a portion of the local transmission system to provide service for area

customers and accommodate a new customer interconnection request located in Botetourt County, Virginia. A customer has requested new 138-kV service for a proposed data center campus, which is to be located in Botetourt County, Virginia. The peak demand at this delivery point will be approximately 300 MW.

As explained in more detail in the Company's Responses to **Section I** of the Response to Guidelines, the existing local transmission system is inadequate to serve the requested 300-MW data center load while adhering to NERC Transmission System Planning Performance Requirements. The existing local transmission system is 69 kV, and it does not have sufficient thermal capacity even during system normal conditions. The Project is required to upgrade the area transmission system to create a 138-kV loop that is fed from the Cloverdale Substation that has sufficient capacity during system normal and outage conditions as defined by NERC planning criteria. This includes upgrading equipment at the Cloverdale and Trinity Substations as well as expanding the Mount Union and Botetourt Substations to accommodate the upgraded equipment.

In addition, to operate within defined voltage limits, a 138-kV, 150-MVA STATCOM will be required near the delivery point. This will ensure area voltage will not fall below 0.92 per unit or drop by 8% or more during contingency scenarios. As explained in the Guideline Responses, instead of attempting to expand space-constrained substations with significant and expensive grading, the Project proposes the construction of the new Windy Pass Substation on a parcel immediately adjacent to the Trinity Substation.

Q: IS THE PROJECT A BASELINE OR SUPPLEMENTAL PROJECT?

A: Even though this Project is not classified as a PJM baseline project, the Project's upgrades to the existing system are needed in order for the system to serve 300 MW at the requested customer location without the creation of NERC planning criteria violations. The existing 69-kV system capacity requires rebuilding the corridor between the Cloverdale, Botetourt, Trinity, and Mount Union Substations and converting the operating voltage from 69 kV to 138 kV. The existing Cloverdale – Mount Union 138-kV Circuit needs to be reconductored with higher capacity overhead conductor to prevent thermal planning criteria violations. In addition, the proposed 138-kV, 150-MVA STATCOM is required to prevent low voltage below 0.92 per unit and voltage deviation greater than or equal to 8%.

The need for the Project was presented to PJM stakeholders through the Attachment M-3 process at the May 15, 2026 meeting. Supplemental Project ID's will be provided once they are assigned by PJM.

Q: WHAT ALTERNATIVES TO THE PROJECT WERE CONSIDERED, AND WHY WERE THEY REJECTED?

A: As an alternative, the Company considered tapping the existing Cloverdale – Lexington 500-kV Transmission Line and constructing a new 500-kV transmission line loop from the tap point in and out to the customer site. The Company determined this alternative to be undesirable because the Cloverdale – Lexington 500-kV Transmission Line is a tie line with Virginia Electric and Power Company ("Dominion") that changes direction in flow due to Dominion's large Bath County pumped storage generation facility located nearby (electrically). Additionally, the cost of this alternative was estimated to be

significantly more expensive than the proposed Project.

Q: WHAT IS THE PROPOSED IN-SERVICE DATE FOR THE PROJECT?

A: The desired in-service date is November 15, 2029.

Q: WHAT IS THE TOTAL ESTIMATED COST OF THE PROJECT?

A: The total proposed Project cost is $264 million. Out of the estimated total, $121 million is transmission-related costs and $143 million is substation-related costs. These are conceptual-level estimates based on the preliminary engineering design of facilities to be constructed. In accordance with the Ratepayer Protection Pledge, Appalachian's other customers' rates will not increase due to the transmission line and substation work of this Project as the costs are offset by the load growth.

Q: DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A: Yes.

Exhibit No. ____
Witness: JSW

DIRECT TESTIMONY OF
J. SCOTT WOODY, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00132

Exhibit No. ____
Witness: JSW

SUMMARY OF DIRECT TESTIMONY OF J. SCOTT WOODY, P.E.

My direct testimony supports the transmission line engineering aspects of Appalachian Power Company's ("Appalachian" or "Company") Application and Response to Guidelines in connection with the Daleville Area Transmission Improvements Project ("Project"). Specifically, I sponsor:

- The description of the transmission lines and other engineering components of the Project in Section II (but not **Sections II.A.2**, **3**, and **9** and **Section II.C**) of the Response to Guidelines.

- Exhibits 3 through 26: Existing and Proposed Transmission Line Structures.

- Confidential Exhibit 27-C: Construction and Outage Sequence.

- Confidential Exhibit 28-C: Digital copy of the VDOT Highway Maps and Existing Transmission Facilities showing the Project in lieu of providing three hard copies.

- Geographic information system shapefiles of the Project to be submitted electronically to the Commission with the Application.

My testimony describes the transmission line work for the Project, which generally consists of the rebuild of two existing transmission lines, the reconductoring of another transmission line, the installation of a short tie-line between the Trinity Substation and the proposed new Windy Pass Substation, the extension of another transmission line to reach the proposed Windy Pass Substation, and the construction of two parallel 138-kV feeder lines from the Botetourt Substation into the new customer's data center campus.

My testimony also describes the types of structures used for the transmission line work, and the relative heights of these structures where the lines are being rebuilt. I further detail what portions of the Project will be constructed in existing rights-of-way ("ROW") and which portions will require new ROWs.

DIRECT TESTIMONY OF
J. SCOTT WOODY, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00132

Q: PLEASE STATE YOUR NAME, PRESENT POSITION, AND BUSINESS ADDRESS.

A: My name is Jeffrey Scott Woody. I am a Manager for Transmission Line Engineering for American Electric Power Service Corporation ("AEPSC"). AEPSC is a subsidiary of American Electric Power Company, Inc. ("AEP") that provides corporate support services to the operating subsidiaries of AEP, including Appalachian. My business address is 40 Franklin Road SW, Roanoke, Virginia 24011.

Q: PLEASE REVIEW YOUR EDUCATIONAL BACKGROUND AND YOUR WORK EXPERIENCE.

A: I graduated from Virginia Polytechnic Institute and State University with a Bachelor of Science in Civil and Environmental Engineering in 2012. I am a licensed Professional Engineer in Virginia. I worked for two years in a civil site development firm and then was hired by AEP in 2014 as a full-time employee in the Transmission Line Engineering group. I was promoted to the position of Supervisor within the Transmission Line Engineering group in 2023. In 2024, I was promoted to my current position as a Manager for the Transmission Line Engineering group.

I am responsible for coordinating and directing engineering for the AEP transmission line system, including transmission lines operating at voltages from 34.5 kilovolts ("kV") through 765-kV in Virginia, West Virginia, Tennessee, and Kentucky.

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A: The purpose of my testimony is to support the transmission line components of Appalachian's Application to this Commission for approval and certification of the Project. Specifically, the Company proposes to:

- Rebuild approximately 5.3 miles of the existing Cloverdale – Trinity 138-kV Transmission Line between the Cloverdale and Botetourt Substations, in addition to rebuilding the transmission line between the Botetourt Substation and the proposed Windy Pass Substation. The proposed rebuild will be within or near Appalachian's existing ROW and named the Cloverdale – Windy Pass 138-kV Transmission Line.
- Rebuild approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line between the Mount Union Substation and the proposed Windy Pass Substation. The proposed rebuild will be within or near the existing ROW.
- Reconductor approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line between the Cloverdale and Mount Union Substations. To support wire installation, a few structures are proposed to be installed on the transmission line.
- Install approximately 0.1 miles of the proposed Trinity – Windy Pass 138-kV Transmission Line from the proposed Windy Pass Substation to the Trinity Substation. This proposed installation will occur within Company-owned property.
- Relocate approximately 0.1 miles of the existing Trinity – Wheatland 69-kV Transmission Line from existing structure 702-1, redirecting the transmission line into the proposed Windy Pass Substation. Relocation will replace existing structure 702-1 and install three new structures to enter the proposed Windy Pass Substation.

- Construct two new 138-kV feeder lines, parallel to each other, approximately 1.3 miles in length from the Botetourt Substation into the new customer's data center campus ("Daleville Area Customer Feeder Lines"). The installation of the proposed lines will require new ROW across the customer's property.

See Company witness Koehler's Direct Testimony concerning the necessity of the Project for additional details.

I am also sponsoring various sections of the Response to Guidelines filed by the Company together with the Application in response to the Commission Staff's *Guidelines for Transmission Line Applications Filed Under Title 56 of the Code of Virginia.*

Q: WHAT ARE YOUR RESPONSIBILITIES AS RELATED TO THE PROJECT?

A: As a Manager for the Transmission Line Engineering group, my primary duties involve oversight of the engineering, design, material procurement, and other technical requirements associated with the construction of transmission lines associated with this Project and other transmission line engineering projects.

Q: WHICH SPECIFIC MATERIALS INCLUDED IN THE RESPONSE TO GUIDELINES ARE YOU SPONSORING?

A: I am sponsoring:

- The description of the transmission lines and other engineering components of the Project in **Section II** (but not **Section II.A.2**, **3**, and **9** and **Section II.C**) of the Response to Guidelines.
- **Exhibits 3** through **26**: Existing and Proposed Transmission Line Structures.
- Confidential **Exhibit 27-C**: Construction and Outage Sequence.
- Confidential **Exhibit 28-C**: Digital copy of VDOT Highway Maps and Existing

Transmission Facilities showing the Project in lieu of providing three hard copies.

- Geographic information systems shapefiles of the Project to be submitted electronically to the Commission with the Application.

Q: WERE THE PORTIONS OF APPALACHIAN'S FILING THAT YOU ARE SPONSORING PREPARED BY YOU OR UNDER YOUR SUPERVISION AND DIRECTION?

A: Yes.

Q: PLEASE DESCRIBE TRANSMISSION LINE ENGINEERING'S ROLE IN THE ROUTE REVIEW PROCESS.

A: Company transmission line engineers were part of the Siting Team and were involved throughout the route review process. Specifically, transmission line engineers conducted desktop and field reviews of the Proposed Route to validate feasibility of rebuilding the transmission line primarily within existing transmission line ROW from an engineering and constructability standpoint. For more information on the route review process, please see Company witness Fraser's direct testimony.

Q: WHAT STRUCTURE TYPES WILL BE USED FOR THE PROJECT?

A: The Project requires multiple types of transmission line structures as described in **Section II.B** of the Response to Guidelines. Proposed structures will be made of dulled galvanized steel. Final structure types will be determined during final engineering, which includes ground survey and geotechnical studies. Nevertheless, based on preliminary engineering, the Company anticipates primarily using single-circuit steel monopole structures for the two proposed rebuilds and new build of the single-circuit 138-kV transmission lines. The few new structures to be installed to support the reconductor of

the Cloverdale – Mount Union 138-kV Transmission Line are anticipated to be steel lattice towers and steel monopoles. Specific configurations are to be determined per structure location throughout final engineering. The proposed structures are described in detail in Exhibits 12 through 26.

Q: PLEASE DESCRIBE THE TRANSMISSION LINE REBUILD WORK PROPOSED ON THE CLOVERDALE – TRINITY AND TRINITY – MOUNT UNION LINES.

A: The rebuild of these existing transmission lines will generally replace existing wood monopoles with steel monopoles in approximately the same location.

Q: HOW DO THE HEIGHTS OF THE EXISTING AND PROPOSED STRUCTURES COMPARE TO EACH OTHER ON THE LINES BEING REBUILT?

A: The average heights of the existing structures on the Cloverdale – Trinity and Trinity – Mount Union 138-kV Transmission Lines are approximately 72 and 71 feet, respectively. The average heights of the proposed structures will be 80 feet, so the new structures will be, on average, less than 10 feet taller than the existing structures. The increase in height is necessary to maintain required ground clearance for the new conductor, which may sag more than the existing conductor.

Q: WHY DID THE COMPANY CHOOSE STEEL MONOPOLES AND STEEL H-FRAMES FOR THE REBUILD STRUCTURES?

A: Galvanized steel structures are proven, durable, reliable, cost-effective, and efficient structures in this area and avoid woodpecker damage, which is common with wood pole structures. Steel H-frame structures are well-suited to support long conductor spans with fewer structures while minimizing structure height with wires that are horizontally

configured. The steel monopole structures are well-suited for short to medium conductor spans, utilize a smaller structural footprint, and are easier to construct.

Q: WHAT ARE THE COMPANY'S PLANS FOR THE LINE TO BE RECONDUCTORED?

A: On the Cloverdale – Mount Union 138-kV Transmission Line, the existing structures will be reused, and new conductor will be installed. A few new structures will be installed along the line in select locations. The average height of the structures on the line does not materially change because the existing structures will be reused.

Q: DID THE COMPANY CONSIDER USING ADVANCED CONDUCTORS AS DEFINED IN VIRGINIA CODE SECTION 56-597 (AS AMENDED) FOR THE PROJECT?

A: Yes, the Company is using advanced conductors due to various factors. See discussion in **Section II** of the Response to Guidelines.

Q: WILL THE COMPANY EMPLOY LOW-COST AND EFFECTIVE MEANS TO IMPROVE THE AESTHETICS OF THE PROPOSED TRANSMISSION LINES?

A: The proposed structures are to be located in or near the existing ROWs, similar in character to the existing structures; therefore, aesthetic impacts are expected to be minimal. Additionally, proposed transmission line structures will utilize low reflective steel, and the conductors will have a low reflective finish. The foregoing measures are a low-cost and effective means of improving the aesthetics of the proposed transmission lines.

Q: WHAT IS THE COMPANY'S OPINION ON THE PROPOSED ROUTE?

A: The Company supports the Siting Team's conclusion that the Proposed Route for the Project – which mainly uses existing ROWs – is the most suitable and reasonably avoids or minimizes adverse impacts on landowners, historic resources, and the environment of the area. See **Section II.A.9** and **Section V** of the Response to Guidelines and the Direct Testimony of Company witness Fraser for a detailed description of the Proposed Route. The Company reasonably expects that it will be able to efficiently and effectively engineer, build, operate, and maintain the transmission lines with minimal adverse impacts on the environment.

Q: HOW WIDE OF A ROW DOES THE COMPANY TYPICALLY NEED FOR THE PROPOSED PROJECT?

A: The ROWs for the Project will generally be 80 feet wide for the transmission line sections to be rebuilt. For the reconductoring of the existing Cloverdale – Mount Union 138-kV Transmission Line, the ROW will generally be 100 feet wide. For the Daleville Area Customer 138-kV Feeder Lines, the new ROWs for each line, parallel to one another, will generally be 75 feet wide.

Q: PLEASE DESCRIBE ANY OTHER WORK RELATED TO THE CONSTRUCTION OF THE TRANSMISSION LINE PROJECT.

A: Temporary material laydown yards and access roads for structure erection and conductor stringing will be necessary. The final location and extent of required laydown yards and access roads cannot be determined until after completion of final line design, environmental studies, and subsequent field reconnaissance by the Company's construction representatives and land agents.

Q: DESCRIBE THE CONSTRUCTION ACTIVITIES FOR THE TRANSMISSION LINE COMPONENTS OF THE PROJECT.

A: Project construction activities include the installation and maintenance of soil erosion and sedimentation control measures; access road construction; removal of the existing transmission line wire, structures, and foundations; foundation, structure, and wire installation; and the subsequent rehabilitation of all areas disturbed during construction. All required environmental compliance permits and studies will be completed, and a stormwater pollution prevention plan will be developed and implemented under the Virginia Department of Environmental Quality's "General Permit for Discharges of Stormwater from Construction Activities." Additionally, portions of the line that are located in new ROWs will be constructed prior to beginning the circuit outage in each section. Further details of each step of the construction activities can be found in **Section II.A.10** and **Exhibit 27-C**.

Q: DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A: Yes.

Exhibit No. ___
Witness: JBC

DIRECT TESTIMONY OF
JASON B. CZELUSNIAK, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00132

Exhibit No. ___
Witness: JBC

SUMMARY OF DIRECT TESTIMONY OF JASON B. CZELUSNIAK, P.E.

My direct testimony supports Appalachian Power Company's ("Appalachian" or "Company") Application and Response to Guidelines in connection with the Daleville Area Transmission Improvements Project ("Project"). I sponsor: (1) the information describing the substation engineering components of the Project set forth in **Section II.C** of the Response to Guidelines; (2) Exhibits 30 through 34; and (3) Confidential Exhibits 30-C through 34-C. The substation components of the Project consist of the following:

- Install the new Windy Pass 138-kilovolt ("kV") Substation on a parcel adjacent to the existing Trinity Substation.
- Upgrade and expand the Botetourt Substation from 69 kV to 138 kV.
- Upgrade and expand the Mount Union Substation.
- Upgrade the Cloverdale Substation within the existing fence.
- Upgrade the Trinity Substation from 69 kV to 138 kV within the existing fence.

My testimony provides details regarding the construction or improvements of these substations. **Section II.C** of the Response to Guidelines describes the technical features of the substations.

In my testimony, I also explain why the Company proposes to build the new Windy Pass Substation instead of expanding an existing substation to install the Static Synchronous Compensator ("STATCOM") and other equipment.

DIRECT TESTIMONY OF
JASON B. CZELUSNIAK, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00132

Q: PLEASE STATE YOUR NAME, PRESENT POSITION AND BUSINESS ADDRESS.

A: My name is Jason B. Czelusniak. I am a Manager for Station Engineering for American Electric Power Service Corporation ("AEPSC"). AEPSC is a subsidiary of American Electric Power Company, Inc. ("AEP") that provides corporate support services to the operating subsidiaries of AEP, including Appalachian. My business address is 40 Franklin Road SW, Roanoke, Virginia 24011.

Q: PLEASE REVIEW YOUR EDUCATIONAL BACKGROUND AND YOUR WORK EXPERIENCE.

A: In 2005, I received a Bachelor of Arts degree in Environmental Analysis and Design from the University of California at Irvine. In 2019, I received a Bachelor of Science degree in Electrical Engineering Technology from Old Dominion University. I am a licensed professional engineer in Virginia. I joined the Company in 2022 as an Engineering Technologist. I was promoted to the position of Senior Station Engineer with AEPSC in 2024. I was promoted to my current position in 2026. I am responsible for coordinating and directing station engineering for the AEP transmission system (including stations operating at voltages from 34.5 kV through 765 kV) in Virginia, Kentucky, and Tennessee.

Q: MR. CZELUSNIAK, WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A: The purpose of my testimony is to support certain aspects of Appalachian's Application to this Commission for approval and certification of the Project. I am sponsoring **Section II.C** of the Response to Guidelines filed by the Company together with the Application in response to the Commission Staff's "Guidelines for Transmission Line Applications Filed Under Title 56 of the Code of Virginia."

Q: WHAT ARE YOUR RESPONSIBILITIES AS RELATED TO THE PROJECT?

A: As a Manager for Station Engineering, my primary duties involve the oversight of the engineering, logistical, and other technical requirements associated with the construction of the substation components of the Project.

Q: WHICH SECTIONS IN THE RESPONSE TO GUIDELINES AND EXHIBITS ARE YOU SPONSORING?

A: I am sponsoring (1) the information describing the substation engineering components of the Project set forth in the Response to Guidelines, **Section II.C**, (2) Exhibits 30 through 34, and (3) Confidential Exhibits 30-C through 34-C.

Q: WERE THE PORTIONS OF APPALACHIAN'S FILING THAT YOU ARE SPONSORING PREPARED BY YOU OR UNDER YOUR SUPERVISION AND DIRECTION?

A: Yes.

Q: PLEASE DESCRIBE THE PROJECT'S SUBSTATION ENGINEERING COMPONENTS.

A: The substation components of the Project consist generally of the following:

- Install the new Windy Pass Substation on a parcel adjacent to the Trinity Substation.
- Upgrade and expand the Botetourt Substation from 69 kV to 138 kV.
- Upgrade and expand the Mount Union Substation.
- Upgrade the Cloverdale Substation within the existing fence.
- Upgrade the Trinity Substation from 69 kV to 138 kV within the existing fence.

These substation components are shown on the Project Overview, which is Exhibit 1 to the Company's Response to Guidelines. **Section I** of the Response to Guidelines describes, in detail, the need and necessity of these substation components.

Q: MR. CZELUSNIAK, PLEASE DESCRIBE THE PROPOSED WINDY PASS SUBSTATION.

A: The proposed Windy Pass Substation is located on an adjacent parcel, approximately 600 feet from the Trinity Substation, off of Country Club Road in Botetourt County, Virginia. The fenced portion of the proposed Windy Pass Substation is expected to be approximately 180 by 500 feet. The substation will be located on property already purchased by the Company.

The substation will be a five breaker, vertical ring bus substation with a 150-megavolt-ampere reactive ("MVAR") STATCOM. A single 138/69-kV transformer will be installed. The existing transmission lines to the Wheatland, Botetourt, and Mount Union Substations will now terminate at the proposed Windy Pass Substation and the Trinity Substation will be radially fed from the Windy Pass Substation to serve the

existing distribution load. **Section II.C** of the Response to Guidelines describes the technical features of the new substation in more detail.

Q: PLEASE DESCRIBE THE WORK PROPOSED FOR THE CLOVERDALE SUBSTATION.

A: The Cloverdale Substation is located along Olde Route 604 in Cloverdale, Virginia. It is a 345/138/69-kV yard, which is separate from the 765-kV yard. The proposed Project work will apply to the Botetourt – Cloverdale 69-kV Circuit in the yard to create the 138-kV loop needed for the Project (see **Section II.C** of the Response to Guidelines for details regarding the proposed Project work). The work at the Cloverdale Substation will be completed within the existing substation fence.

Q: PLEASE DESCRIBE THE PROPOSED UPGRADES AND EXPANSION TO THE BOTETOURT SUBSTATION.

A: The Botetourt Substation is located along United States Route 220 in Daleville, Virginia. The fenced portion of the existing substation is 170 by 200 feet. The substation will be upgraded from 69 kV to 138 kV and reconfigured into a six-breaker ring bus configuration with two 138-kV customer feeds and installation of a 138/12-kV transformer to support delivery of customer load. The fenced portion of the substation will be expanded by the addition of fenced area approximately 260 by 355 by 315 by 155 feet (approximately 2.3 acres), located entirely on Company property to accommodate new equipment and the bus reconfiguration. Site development grading, including stormwater management, will be required to extend the substation pad. **Section II.C** of the Response to Guidelines describes the substation work in additional detail.

Q: PLEASE DESCRIBE THE PROPOSED UPGRADES TO THE TRINITY SUBSTATION.

A: The Trinity Substation is located on Country Club Road in Botetourt County, Virginia. At the substation, the existing 69/12-kV transformer, transformer high-side circuit switcher, and motor operated switch will be removed. A new 138/12-kV transformer, transformer high-side circuit switcher, motor operated switch, and associated equipment will be installed. One new 138-kV H-frame dead-end structure will be installed, and the existing 69-kV box bay and switches will be removed. Because Trinity Substation will no longer be serving the Mount Union, Wheatland, and Botetourt Substations, those line switches will be removed from the substation. All work will be completed within the existing fence. See **Section II.C** of the Response to Guidelines for additional details.

Q: PLEASE DESCRIBE THE PROPOSED UPGRADES AND EXPANSION TO THE MOUNT UNION SUBSTATION.

A: The Mount Union Substation is located along Catawba Road in Daleville, Virginia. The fenced portion of the substation is approximately 175 feet by 235 feet. The fenced portion of the station will be expanded by the addition of an approximately 120-foot by 125-foot fenced area entirely located on property being purchased by the Company to accommodate the 138-kV box bay. The Company is installing the necessary equipment to create a new 138-kV bus to complete the 138-kV loop between the Cloverdale and Windy Pass Substations. See **Section II.C** of the Response to Guidelines for additional details.

Q: WHY IS THE COMPANY PROPOSING TO CONSTRUCT THE PROPOSED WINDY PASS SUBSTATION RATHER THAN EXPANDING ONE OF THE EXISTING SUBSTATIONS?

A: It is the Company's practice to always attempt to use or expand existing facilities before constructing new facilities for transmission projects. The Company investigated installing the needed STATCOM at the Cloverdale, Botetourt, or Trinity Substations. However, there was insufficient space to install the equipment in the existing substations, and expanding the substations for the STATCOM was impractical because: (1) it would require significant and expensive grading to expand; and/or (2) there was no property available to expand.

The Company identified property immediately adjacent to the existing Trinity Substation that was available and suitable for the Project and could accommodate the substation equipment and the STATCOM, so the new Windy Pass Substation was proposed for that site. The proposed Windy Pass Substation will be located approximately 600 feet from the existing Trinity Substation.

Q: PLEASE DESCRIBE THE CONSTRUCTION ACTIVITIES FOR THE PROJECT.

A: Construction activities for this Project will include the installation and maintenance of soil erosion and sedimentation control measures; grading of the new Windy Pass Substation site and the expanded sites of the Botetourt and Mount Union Substations; foundation, structure, equipment, and wire installations; and the subsequent rehabilitation of all areas disturbed during construction. All required environmental compliance permits and studies will be completed, and stormwater pollution prevention plans will be

developed and implemented under the Virginia Department of Environmental Quality's "General Permit for Discharges of Stormwater from Construction Activities."

Q: DOES THIS CONCLUDE YOUR TESTIMONY?

A: Yes.

Exhibit No.___
Witness: ER

DIRECT TESTIMONY OF
EBRAHIM REZAEI Ph.D.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00132

Exhibit No.___
Witness: ER

SUMMARY OF DIRECT TESTIMONY OF EBRAHIM REZAEI

My direct testimony supports Appalachian Power Company's ("Appalachian" or "Company") Application and Response to Guidelines. I sponsor **Section IV** of the Response to Guidelines.

The proposed Daleville Area Transmission Improvements Project ("Project") consists of rebuilding portions of two existing single-circuit transmission lines, reconductoring one existing single-circuit transmission line, building two new single-circuit feeder lines to the new customer, building a new single-circuit tie line between substations, and extending one existing single-circuit transmission line. My testimony summarizes the maximum electric and magnetic field ("EMF") levels expected to occur at the right-of-way ("ROW") edge of the Project's transmission lines.

For line segments with an 80-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the Project are 1.6 kilovolts per meter ("kV/m") and 142 milligauss ("mG"), respectively. These figures are only found at one isolated structure location; the more typical EMF numbers are 0.4 kV/m and 46 mG. The maximum EMF levels for the existing 80-foot-wide ROW line segments are 0.5 kV/m and 14 mG, respectively.

For line segments with a 100-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the proposed Project are 0.6 kV/m and 37 mG, respectively. The maximum EMF levels for the existing 100-foot-wide ROW (single-circuit transmission line) are 0.6 kV/m and 20 mG, respectively.

For line segments with a 75-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the proposed Project are 0.5 kV/m and 37 mG, respectively. There are no existing configurations with a 75-foot-wide ROW.

The maximum EMF levels, detailed in **Section IV** of the Response to Guidelines, for the proposed transmission lines are typical and expected results for such transmission lines and well within the limits specified in the Institute of Electrical and Electronics Engineers' Standard C95.1™-2019, which sets the safety levels with respect to human exposure to electromagnetic fields.

Appalachian considered the presence and proximity of dwellings, schools, hospitals, and other community facilities as features to avoid wherever practical during its route selection process to minimize EMF exposure. No significant adverse health effects will result from the construction and operation of the Project. **Section IV** of the Response to Guidelines provides further documentation and detail regarding the absence of adverse health effects from the construction and operation of the Project.

DIRECT TESTIMONY OF
EBRAHIM REZAEI
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00132

Q: PLEASE STATE YOUR NAME, PRESENT POSITION AND BUSINESS ADDRESS.

A: My name is Ebrahim Rezaei. I am a Manager of System Performance Analysis for American Electric Power Service Corporation ("AEPSC"). AEPSC is a subsidiary of American Electric Power Company, Inc. ("AEP") that provides corporate support services to the operating subsidiaries of AEP, including Appalachian. My business address is 8500 Smiths Mill Road, New Albany, Ohio 43054.

Q: PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A: I received both a Bachelor of Science and a Master of Science in Electrical Engineering from The University of Tehran. I received a Doctor of Philosophy in Electrical Engineering from Washington State University. My current position with AEPSC is a Manager of System Performance Analysis. I joined AEPSC in 2017 as an intern. In 2019, I became an Engineer. In 2023, I was promoted to Senior Engineer. In 2024, I was promoted to Supervisor. In 2025, I was promoted to my current position.

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A: The purpose of my testimony is to support certain aspects of Appalachian's Application to this Commission for approval and certification of the Project as they relate to EMF.

Q: WHICH SPECIFIC MATERIALS INCLUDED IN THE APPLICATION ARE YOU SPONSORING?

A: I am sponsoring **Section IV**, Health Aspects of EMF of the Response to Guidelines filed by the Company in response to the Commission Staff's *Guidelines for Transmission Line Applications Filed under Title 56 of the Code of Virginia*.

Q: WERE THE PORTIONS OF THE FILING THAT YOU ARE SPONSORING PREPARED BY YOU OR UNDER YOUR SUPERVISION AND DIRECTION?

A: Yes.

Q: WHAT IS EMF?

A: EMF is short for electric and magnetic fields, which exist wherever there is a flow of electricity. Electric transmission and distribution lines, electrical wiring in homes, and electric appliances all have electric and magnetic fields associated with their use. Electric fields are produced by the voltage gradient between a power line and ground; their strength is dependent upon the voltage difference of the energized line to ground, the physical characteristics of the line, and the distance from the line to the observation point at which the field strength is measured. The electric field strength is commonly measured in kV/m. Magnetic fields are created by the flow of electric current in a conductor. The magnetic field density generated by a transmission line varies with the load current of the line, the physical characteristics of the line, and the distance from the line to the observation point at which the magnetic field density is measured. The magnetic field density is measured in units known as gauss or mG. The electric and magnetic fields associated with power lines and electric appliances in the United States have a frequency of 60 hertz ("Hz") or 60 cycles per second.

Q: PLEASE DETAIL FOR THE COMMISSION YOUR EXPERIENCE IN CALCULATING AND ANALYZING EMF.

A: I have close to eight years of experience conducting and managing the calculation and analysis of a variety of issues in power systems for safe, reliable, economic, and environmentally compatible operation of power equipment and transmission lines, for high-voltage grid development, for system voltage coordination, for power flow and stability analysis, for power quality, and for development and implementation of advanced technologies. Prior to my roles at AEPSC, I was a research assistant at Washington State University for four years, focused on power systems data analytics while pursuing my PhD. I am now leading one of the System Performance Analysis teams, which is a team of experts who perform EMF calculations and analysis at AEP.

Q: WHAT ARE THE CALCULATED PRESENT AND PROPOSED MAXIMUM EMF LEVELS ASSOCIATED WITH THE TRANSMISSION LINES IN THIS PROJECT?

A: As set forth in **Section IV.A** of the Response to Guidelines, this Project consists of rebuilding portions of two existing single-circuit transmission lines, reconductoring one existing single-circuit transmission line, building two new single-circuit feeder lines to the customer, building a new single-circuit tie line between substations, and extending one existing single-circuit transmission line.

For line segments with an 80-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the Project are 1.6 kV/m and 142 mG, respectively. These figures are only found at one isolated structure location; the more

typical EMF numbers are 0.4 kV/m and 46 mG. The maximum EMF levels for the existing 80-foot-wide ROW line segments are 0.5 kV/m and 14 mG, respectively.

For line segments with a 100-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the proposed Project are 0.6 kV/m and 37 mG, respectively. The maximum EMF levels for the existing 100-foot-wide ROW (single-circuit transmission line) are 0.6 kV/m and 20 mG, respectively.

For line segments with a 75-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the proposed Project are 0.5 kV/m and 37 mG, respectively. There are no existing configurations with a 75-foot-wide ROW.

Q: ARE THE CALCULATED MAXIMUM EMF LEVELS FOR THE PROPOSED TRANSMISSION LINE EXTRAORDINARY?

A: No. The calculations are typical and expected results for such transmission lines. The maximum EMF levels for the proposed Project are 1.6 kV/m and 142 mG (assuming a 80-foot-wide ROW), 0.6 kV/m and 37 mG (assuming a 100-foot-wide ROW), or 0.5 kV/m and 37 mG (assuming a 75-foot-wide ROW). The EMF levels drop sharply from the centerline to the edge of the ROW and will continue to drop with distance from the ROW edge. These field levels are well within the limits specified in Institute of Electrical and Electronics Engineers' ("IEEE") Standard C95.1TM-2019, which sets the safety levels with respect to human exposure to electromagnetic fields.

Q: DOES THE COMPANY HAVE AN OPINION ON WHETHER ANY SIGNIFICANT ADVERSE HEALTH EFFECTS WILL RESULT FROM THE CONSTRUCTION AND OPERATION OF THE PROJECT?

A: Based upon the Company's ongoing review of the scientific literature on EMF, the

Company's experience with its existing transmission lines, and the fact that the calculated maximum EMF levels at the edges of the ROW for the proposed lines are well within the limits specified in IEEE Standard C95.1™-2019, the Company is of the opinion that no significant adverse health effects will result from the construction and operation of the Project. This position is consistent with the conclusions expressed in the final report to the Virginia General Assembly, dated October 31, 2000, by Vickie L. O'Dell and Khizar Wasti, Ph.D. of the Virginia Department of Health, in association with this Commission, entitled "Monitoring of Ongoing Research on the Health Effects of High Voltage Transmission Lines (Final Report)" and subsequent assessments as listed in **Section IV** of the Response to Guidelines.

Q: DOES THIS CONCLUDE YOUR TESTIMONY?

A: Yes.

Exhibit No. ____
Witness: DF

DIRECT TESTIMONY OF
DANIEL FRASER, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00132

Exhibit No. ____
Witness: DF

SUMMARY OF DIRECT TESTIMONY OF DANIEL FRASER, P.E.

My direct testimony supports the route development and environmental analysis aspects of Appalachian Power Company's ("Appalachian" or "Company") Application and Response to Guidelines for the Daleville Area Transmission Improvements Project ("Project"). Specifically, I sponsor:

- **Sections II.A.2**, **3**, and **9**, **Section III**, and **Section V** of the Response to Guidelines
- Exhibit 1: Project Overview
- Exhibit 2: GIS Constraints Map
- Exhibit 29: Photo Simulations
- Exhibit 35: Public Notice Map
- The Rebuild Siting Study for the Daleville Area Transmission Improvements Project ("Siting Study")
- Virginia Department of Environmental Quality Supplement ("VDEQ Supplement")

The Company retained WSP USA Inc. ("WSP") to conduct a siting analysis for the Project, which includes transmission line facilities to be rebuilt and upgraded between the Company's existing Cloverdale, Botetourt, Trinity, and Mount Union Substations. The siting analysis includes approximately 5.3 miles of the Cloverdale – Trinity 138-kilovolt ("kV") Transmission Line and approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line, which are to be rebuilt, and approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line, which is to be reconductored. The Project also includes the construction of two new parallel 138-kV customer feeder lines, each approximately 1.3 miles in length, to the new customer's data center campus; construction of a new 0.1 mile long 138-kV tie line between the proposed Windy Pass Substation and the existing Trinity Substation; and the extension of the Trinity – Wheatland 69-kV Transmission Line by approximately 0.1 miles to the proposed Windy Pass Substation.

My testimony describes the process followed by the Siting Team to identify the Proposed Route for the Project. Additionally, my testimony describes the rebuild and upgrade of the identified transmission line facilities largely within the Company's rights-of-way ("ROW") to the extent practicable, consistent with the Project's design and siting approach. The Siting Study shows that the Proposed Route for the Project is the most suitable and avoids or minimizes adverse impacts to the human and natural environments by constructing the Project almost entirely within existing transmission line ROWs.

The Company considered feedback from federal, state, and local agencies and/or officials and undertook public outreach efforts to promote meaningful engagement from each community affected by the Project. The Project is not anticipated to have a disproportionately high or adverse impact on environmental justice or fenceline communities, and the Company will continue to engage with all affected landowners.

Finally, I describe the Proposed Route, the potential impacts to natural and historic resources, and the corridor within which the Company proposes to engineer, construct, operate, and maintain the Project.

DIRECT TESTIMONY OF
DANIEL FRASER, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00132

Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A: My name is Daniel Fraser. My business address is 6641 West Broad Street, Suite 405, Richmond, Virginia 23230.

Q: BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A: I am employed by WSP, an engineering and professional services consulting firm that offers a wide range of engineering and environmental expertise. WSP supports public and private sector clients in the transportation and infrastructure, property and building, power and energy, and environmental services industries. My current title at WSP is Vice President, Project Management. In this role I lead multi-disciplinary teams, overseeing the planning and permitting of electric transmission projects.

Q: PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A: I received a Bachelor of Science degree in Civil Engineering from Clemson University. I am a licensed professional engineer in South Carolina (38361). In 2016, I joined POWER Engineers, Inc. as a transmission line engineer and held various roles in transmission line engineering, environmental planning, and project management. In December 2025, POWER Engineers, Inc. merged with and into its affiliate WSP, where I hold my current position. In these roles, I have supported electric transmission projects in Florida, Indiana, Kentucky, Maryland, Ohio, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Since 2021, I have overseen the work of technical staff members who are

responsible for routing and siting transmission lines and substations, engaging with stakeholders, surveying natural and cultural resources, evaluating environmental impacts, developing engineering drawings, and permitting electric transmission projects. My experience routing, engineering, and permitting electric transmission facilities has equipped me to evaluate projects and identify solutions that minimize impacts to the natural and human environments.

Q: DOES WSP HAVE EXPERIENCE IN ENVIRONMENTAL ANALYSIS AND ROUTING TRANSMISSION LINES?

A: Yes. WSP has successfully sited and/or permitted hundreds of transmission line projects covering thousands of miles of high-voltage transmission lines and associated facilities. Our staff has extensive experience in Virginia and has previously supported or provided written testimony to this Commission for 11 Company projects, including:

- Altavista to Leesville Transmission Improvements Project (SCC Case No. PUR-2026-00012)
- Abingdon 138-kV Substation Transmission Project (SCC Case No. PUR-2024-00169)
- Stuart Area 138-kV Transmission Improvements Project (SCC Case No. PUR-2023-00024)
- Reusens to Roanoke 138-kV Rebuild Project (SCC Case No. PUR-2022-00163)
- Fieldale to Ridgeway 138-kV Rebuild Project (SCC Case No. PUR-2021-00219)
- Reusens to New London 138-kV Rebuild Project (SCC Case No. PUR-2021-00049)
- Central Virginia Transmission Reliability Project (SCC Case No. PUR-2021-00001)

- Glendale Area Improvements 138-kV Transmission Project (SCC Case No. PUR-2018-00188)
- South Abingdon 138-kV Extension Transmission Line Project (SCC Case No. PUE-2016-00011)
- Huntington Court – Roanoke 138-kV Transmission Line Project (SCC Case No. PUE-2008-00096)
- Matt Funk 138-kV Transmission Line Project (SCC Case No. PUE-2008-00079).

Q: HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A: Yes, I previously testified as the Company's witness for the route development process and environmental analysis of the Altavista to Leesville Transmission Improvements Project, Abingdon 138-kV Substation Transmission Project, and Reusens to Roanoke 138-kV Rebuild Project. Additionally, although I did not offer testimony, I previously supported the development of four of the Company's previous filings to the Commission: the Stuart Area 138-kV Transmission Improvements Project, the Fieldale to Ridgeway 138-kV Rebuild Project, the Glendale Area Improvements 138-kV Transmission Project, and the South Abingdon 138-kV Extension Transmission Line Project.

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A: The purpose of my testimony is to support the route review process and environmental analysis completed for the Project as part of the Company's Application to the Commission.

Q: WHICH SPECIFIC MATERIALS ARE YOU SPONSORING?

A: I am sponsoring:

- **Sections II.A.2**, **3**, and **9**; **Section III**; and **Section V** of the Response to Guidelines

- Exhibit 1: Project Overview
- Exhibit 2: GIS Constraints Map
- Exhibit 29: Photo Simulations
- Exhibit 35: Public Notice Map
- Rebuild Siting Study For the Daleville Area Transmission Improvements Project VDEQ Supplement

Q: WERE THE PORTIONS OF APPALACHIAN'S FILING THAT YOU ARE SPONSORING PREPARED BY YOU OR UNDER YOUR SUPERVISION AND DIRECTION?

A: Yes.

Q: PLEASE DESCRIBE FOR THE COMMISSION YOUR PRIMARY DUTIES AS RELATED TO THE PROPOSED PROJECT.

A: The Company retained WSP to complete a routing study and evaluate the Proposed Route for the Project. As WSP's Project Manager, I led the Siting Team responsible for the following general activities:

- Identifying constraints and opportunities within the Project area.
- Conducting field reviews and analysis of existing ROWs.
- Documenting a Proposed Route that reasonably avoids or minimizes adverse impacts on the community, historic and visual resources, and natural environment in the Project area, and is consistent with general routing guidelines, technical criteria, and the Company's operational outage restrictions.

Q: WHO WAS ON THE SITING TEAM?

A: The Siting Team for the Project consisted of a multi-disciplinary team, including employees from the Company, WSP, and other consultants retained by or on behalf of the Company, who supported the route development and public involvement process. Members of the Siting Team represented transmission line, substation, and distribution engineering, ROW, public outreach, environmental, outage planning, and construction management. The Siting Team members have extensive experience in transmission line siting and impact assessment for natural resources, land uses, and constructability.

Q: PLEASE DESCRIBE FOR THE COMMISSION THE PURPOSE OF THE SITING STUDY FOR THE PROJECT.

A: The primary purpose of the Siting Study is to identify the route for the transmission line to be rebuilt that will enable the Company to engineer, construct, operate, and maintain the line, while minimizing overall environmental and land use impacts to the extent practical. The Siting Study identifies the study area, summarizes the siting methodology used to evaluate constraints and opportunities within the study area, documents public engagement activities undertaken by the Siting Team, and provides a quantitative and qualitative analysis of the Project. Finally, the Siting Study identifies and evaluates the Proposed Route for the Project.

Q: DID THE SITING TEAM CONSIDER ANY GENERAL OR TECHNICAL CRITERIA FOR THE EXISTING LINE TO BE REBUILT?

A: Yes. The Siting Team considered various siting and technical guidelines during the route development process for the transmission line to be rebuilt. Constructing transmission lines within existing Company ROWs is preferred and, when using an existing ROW is

not a practical solution due to constraints, paralleling an existing ROW is a preferred alternative. Using or paralleling existing ROWs generally minimizes impacts on the natural and human environments and is consistent with Sections 56-46.1 and 56-259 of the Code of Virginia and House Bill 889. Additionally, the Siting Team sought to avoid or reasonably minimize impacts on environmental justice ("EJ") communities, namely communities of color and low-income communities, and to obtain meaningful involvement from the public.

Technical criteria considered by the Siting Team included maximizing the separation distance from residences, businesses, and community facilities, minimizing tree clearing and new habitat fragmentation, minimizing impacts to pastureland and farmland of statewide importance, avoiding land use conflicts, minimizing the total transmission line length, and avoiding large line angles. The Siting Team considered the terrain along the routes which impacts structure and access road design, and considered safety with respect to construction, maintenance, and operation of the transmission line. The Siting Team considered these criteria in addition to stakeholder and landowner input received about the Project.

Q: PLEASE DESCRIBE THE SITING METHODOLOGY EMPLOYED FOR THE PROJECT.

A: First, the Siting Team completed a desktop review of the existing transmission line ROWs and outage requirements with the Company's engineers and outage planners. During this initial review, it was determined that circuit outages could be obtained to construct the Project largely within the Company's existing ROWs. The Siting Team then conducted a field reconnaissance effort to review the existing ROWs and identify any

potential constraints within the ROWs that should be avoided. Based on the availability of circuit outages and the results of the field reconnaissance, the Siting Team confirmed that the Project could be constructed almost entirely within the Company's existing ROWs or on Company-owned property near the substations. Because rebuilding within existing ROWs minimizes impacts to the natural and human environment and is consistent with land use and local communities, constructability, and engineering considerations, the Siting Team determined the Proposed Route for the Project would be within or near the existing transmission line ROWs.

The Company then engaged stakeholders, including local officials, and the communities crossed by the Project to inform them of the Project and gather specific feedback. The feedback received from the public will inform the detailed engineering and construction planning for the Project.

Q: WAS THE SITING METHODOLOGY CONSISTENTLY EMPLOYED FOR THE PROJECT?

A: Yes. The Siting Team's siting methodology was applied to the various transmission lines to be rebuilt as part of the Project. The Project's components cross developed communities as well as rural and mountainous areas – each of which requires specific considerations. However, the methodology of reviewing the ROW and considering constraints within the existing ROW was employed consistently. The Siting Team also considered the feedback received from the community to determine whether it was practicable to rebuild the transmission lines within the existing ROWs while balancing engineering and outage requirements.

Q: WILL THE TRANSMISSION LINES BE UPGRADED IN EXISTING ROWS?

A: Largely, yes. The Cloverdale – Trinity, Mount Union – Trinity, and Cloverdale – Mount Union 138-kV Transmission Lines will primarily be upgraded within the Company's existing transmission line ROWs. A small amount of new ROW will be required to accommodate the substation upgrades and connect to the new customer. Many of those sections of new ROW will also be completed on the Company's substation property. Use of the existing corridors allows the Project to reduce the need for new ROW acquisition, limit vegetation clearing, and avoid additional impacts to residential, commercial, and environmental resources.

Company transmission line engineers and planners determined that rebuilding within the existing ROW is generally feasible and desirable, including the ability to complete much of the work using established access within planned outage windows. This approach reduces overall construction disturbance and environmental impacts compared to development of entirely new routes.

Q: PLEASE DESCRIBE THE PORTIONS OF THE PROJECT THAT WILL BE BUILT IN NEW ROWS.

A: Based on the current design, a total of approximately 3.5 miles of the approximately 19.5-mile-long Proposed Route will be constructed in new ROWs. The locations of new ROW include:

- Approximately 0.1 miles at the Cloverdale 138-kV Substation to reroute the existing transmission line to the 138-kV substation bay. This work will be completed on the Company's property.

- Approximately 0.2 miles at the Botetourt Substation to accommodate the substation expansion and make space for the two new parallel 138-kV feeder lines from the Botetourt Substation into the new customer's data center campus ("Daleville Area Customer 138-kV Feeder Lines"). This ROW will be located on the Company's property.
- Approximately 1.3 miles for the Daleville Area Customer 138-kV Feeder Lines between the Botetourt Substation and the new customer. These new ROWs will be parallel to each other on the Company's and the new customer's property.
- Approximately 0.5 miles near the proposed Windy Pass Substation and Trinity Substation will be required to route the transmission lines to the Windy Pass Substation and connect the Windy Pass and Trinity Substations. The majority of these ROWs will be on property being purchased by the Company. Approximately 0.1 miles of new ROW will be needed from one private landowner in this area.
- Approximately 0.1 miles at the Mount Union Substation to accommodate the substation upgrades. This work will be completed on property being purchased by the Company.

This approach is consistent with the Project's siting methodology, which prioritizes the use of existing transmission ROWs to minimize land use conflicts and environmental impacts.

Q: DID THE COMPANY CONSIDER STAKEHOLDER AND PUBLIC INPUT DURING THE ROUTE DEVELOPMENT AND DATA COLLECTION PROCESS?

A: Yes. Stakeholder input and public participation is an important component of the siting process that the Company uses to gather information and inform decisions. The Siting Team obtained information from or contacted various federal, state, and local agencies and/or officials to inform them of the Project and request input for the route development process. In April 2026, the Company met with local officials from Botetourt County to introduce the Project and obtain information to aid the route planning process. In May and June 2026, the Siting Team contacted 32 representatives from local, state, and federal agencies as part of the data collection effort. Responses from 13 agencies were received. Copies of the agency letters, contact list, and correspondence are included in Attachment E to the Siting Study.

On May 15, 2026, the Company announced the Project to the public and invited landowners to attend an in-person open house for the Project. Notifications and open house invitations were mailed to 292 landowners of property within 500 feet of a transmission line to be rebuilt or 1,000 feet of a substation to be upgraded. Eighty-five members of the public attended the open house. Following the open house, the Siting Team corresponded with potentially affected landowners to answer questions from the public.

Q: PLEASE DESCRIBE ANY OTHER PUBLIC ENGAGEMENT ACTIVITIES THE COMPANY HAS COMPLETED TO INTRODUCE THE PROJECT AND SOLICIT FEEDBACK.

A: In addition to the in-person open house, the Company launched a Project-specific website that included Project information, mapping, and opportunities for stakeholders to submit comments electronically. Automated calls were also sent to 228 phone numbers in the Project area, and contact was made with 189 Company customers. Additionally, a press release from the Company was distributed to inform the public of the Project and the planned open house.

Following the open house, the Siting Team continued to receive and document comments through multiple channels, including the Project website, email, and phone calls. Feedback received generally related to Project design, potential effects on nearby properties, and general Project information. All comments were incorporated into the Project's siting evaluation and maintained within the Project database to inform the routing and design process.

Q: REGARDING THE VIRGINIA ENVIRONMENTAL JUSTICE ACT (§ 2.2-234 ET SEQ. OF THE CODE OF VIRGINIA), DID THE SITING TEAM RESEARCH THE DEMOGRAPHICS OF THE COMMUNITIES SURROUNDING THE PROJECT?

A: Yes. The Siting Team referenced data from the 2020 Decennial Census and the 2023 American Community Survey from the United States Census Bureau. The Company reviewed the Project area by examining census tract and census block group ("CBG") data. Per the available Census Bureau data, there are six census tracts within one mile of

the Project. These six census tracts are composed of 10 CBGs. Applicable demographic data for the six census tracts and ten CBGs is provided in Section 5.1.3 of the Siting Study. Two of the 10 CBGs within one mile of the Project exceed the threshold of the EJ community criteria for low-income community set by the Commonwealth. Of these two CBGs, one is crossed by the Proposed Route. Of the ten CBGs located within one mile of the Project, none exceed the threshold of the EJ community for a population of color as defined by the Commonwealth.

It is the Company's standard practice in its route development processes to avoid or reasonably minimize impacts to the human environment, which includes EJ and fenceline communities. The Project will largely be rebuilt in existing transmission line ROWs within these communities and other, non-EJ communities. Relocating the Project from its current location could result in crossing other similar EJ communities and would not reduce or minimize potential impacts of the Project. Therefore, the Project is not anticipated to have a disproportionately high or adverse impact on EJ communities, as defined in the Virginia Environmental Justice Act (§ 2.2-234 *et seq.* of the Code of Virginia).

Q: HAS THE COMPANY ENGAGED, AND WILL IT CONTINUE TO ENGAGE, THE EJ COMMUNITIES AND OTHERS AFFECTED BY THE PROJECT IN A MANNER THAT ALLOWS THEM TO MEANINGFULLY PARTICIPATE IN THE PROJECT?

A: Yes. The Company undertook initial public outreach activities to encourage the meaningful engagement of all communities affected by the Project, including EJ communities. To continue providing the opportunity for meaningful involvement, the

Company's ROW agents have begun contacting affected landowners to update them on the status of the Project and receive additional feedback. The Company will continue to engage and communicate with community members affected by the Project throughout detailed engineering and construction.

Q: PLEASE DESCRIBE THE PROPOSED ROUTE.

A: The Proposed Route for the Project is approximately 19.5 miles long between the Company's existing Cloverdale, Botetourt, Trinity, and Mount Union Substations, the proposed Windy Pass Substation, and the new customer's facility, all located in Botetourt County, Virginia. The Proposed Route is largely within existing transmission line ROWs to minimize impacts to the human and natural environments. The Proposed Route primarily consists of a loop following the existing transmission lines from the Company's Cloverdale 138-kV Substation through the existing Botetourt Substation, proposed Windy Pass Substation, and Mount Union Substation. The Proposed Route includes two new transmission lines from the Botetourt Substation to the customer which are contained within the Company's and the customer's properties. Additionally, the Proposed Route includes two short transmission lines near the existing Trinity Substation and the proposed Windy Pass Substation. The Proposed Route is further described in **Section V** of the Response to Guidelines and depicted in Exhibit 35.

Q: PLEASE DESCRIBE TO THE COMMISSION THE FILING CORRIDOR USED FOR THE PROPOSED ROUTE.

A: A 75-, 80-, or 100-foot-wide ROW will typically be sited within an approximately 150-foot-wide filing corridor, centered on the Proposed Route ("Filing Corridor"), as shown in Exhibit 2. Based on the preliminary engineering analysis to date, the Company

believes that the Proposed Route is the most suitable alignment; however, the Company generally seeks the flexibility to shift the centerline up to 35 feet in either direction from the proposed centerline to optimize structure locations and accommodate landowner discussions.

In one location north of the existing Cloverdale 138-kV Substation, the Filing Corridor is expanded to a maximum width of approximately 400 feet. This expansion is approximately 1,500 feet long and is generally located between United States Route Alternate 220 and Gateway Crossing. During the public engagement process for the Project, the Company received comments from a landowner with development plans in the area of the expanded Filing Corridor. Expanding the corridor to the edge of the landowner's property in this area will allow the Company and landowner the time to determine whether the line should be relocated to minimize impacts on the planned development.

Between the proposed Windy Pass Substation and the existing Trinity Substation, the Filing Corridor is also expanded on property the Company is purchasing and the adjacent landowner to the west of the substations. This will allow the Company to continue working with the neighboring landowner as the detailed transmission line and substation engineering progresses to finalize the location of the transmission lines in the area.

In another location on the Cloverdale – Mount Union 138-kV Transmission Line to be reconductored, the Filing Corridor is expanded to a maximum width of 275 feet to accommodate potential conductor swing in two long spans. This expansion is approximately one mile long between existing structures 286-19 and 286-22.

Q: ARE THERE ANY CONSERVATION EASEMENTS OR AREAS CROSSED BY THE PROJECT?

A: The existing ROW crosses three existing Virginia Outdoors Foundation ("VOF") conservation easements, as shown on Exhibit 2, GIS Constraints Map. The Company requested input on the Project from VOF as part of the Project development process and coordinated with VOF staff regarding the proposed transmission line improvements within the easement areas. The Project team provided information on the proposed rebuild activities within the existing transmission line ROW and confirmed that the Project would cross the conservation easements within the existing easement and transmission corridor. Because the Project would primarily involve reconductoring and rebuilding facilities within the existing ROW, the extent of new ground disturbance within the conservation easements would be limited, and potential impacts to easement-protected resources would be minimized.

Q: PLEASE DESCRIBE THE IMPACTS OF THE PROJECT ON CULTURAL RESOURCES LOCATED WITHIN THE PROJECT AREA.

A: In August 2026, WSP completed a Pre-Application Analysis for Cultural Resources in accordance with the Virginia Department of Historic Resources' ("VDHR") Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia. The analysis included a review of cultural resources for radial buffers of 0.5, 1.0, and 1.5 miles from the Project which will largely be constructed in existing ROWs.

Three archaeological resources were identified within the existing ROW for the Project, though all three resources have either not been formally evaluated by VDHR for

National Register of Historic Places ("NRHP")-eligibility, or have been previously determined to be not eligible. Based on WSP's assessment, the Project could result in up to a moderate physical effect on two of the sites and a minimal physical effect on one site.

Ten architectural resources, including five NRHP-eligible or potentially eligible resources, were identified within 0.5 miles of the ROW for the Project. In addition, five NRHP-listed historic landscapes were identified within one mile of the ROW for the Project. No National Historic Landmarks were identified within 1.5 miles of the ROW for the Project.

WSP's pre-application analysis concluded that the Project could have a minimal visual effect on seven of the architectural resources and would have no effect on three of the resources. A Phase I cultural resources survey of the Project area would determine the presence or absence of previously unrecorded resources and confirm the integrity of intersected resources prior to construction. For more information on these resources, please refer to Pre-Application Analysis for Cultural Resources for the Project.

Q. DESCRIBE THE POTENTIAL VISUAL IMPACTS OF THE PROJECT.

A. Because most of the Project construction will occur within existing transmission line ROWs, where replacement structures will generally be placed in the same location and be roughly the same height as the existing structures, the Project is not expected to significantly alter the existing visual character of the landscape. Although some new transmission lines and substations will be added, any potential visual impacts are expected to be limited by distance, intervening vegetation, terrain, and existing modern

features on the landscape. As a result, the Project is expected to be visually consistent with the existing utility infrastructure and mixed-use character of the surrounding area.

Q: WILL STUDIES FOR FEDERALLY OR STATE-PROTECTED SPECIES BE COMPLETED?

A: Where applicable, habitat assessments and/or species-specific surveys will be conducted prior to construction of the Project to identify, avoid, and/or mitigate to the extent practical potential impacts to federally or state-protected species. During detailed engineering, Appalachian will coordinate with applicable federal and state agencies to determine appropriate surveys.

Compliance with regulations and laws relating to protected species is of high importance to Appalachian and WSP. Accordingly, WSP prepared the VDEQ Supplement to facilitate review and analysis of the Project by the VDEQ and other relevant agencies. Based on the available data, it is anticipated that the Project will not result in significant impacts to any protected species.

Q: DOES THIS CONCLUDE YOUR TESTIMONY?

A: Yes.

SECTION I. NECESSITY FOR THE PROPOSED PROJECT

A. State the primary justification for the proposed project (for example, the most critical contingency violation including the first year and season in which the violation occurs). In addition, identify each transmission planning standard(s) (of the Applicant, regional transmission organization ("RTO"), or North American Electric Reliability Corporation) projected to be violated absent construction of the facility.

Response:

The Daleville Area Transmission Improvements Project ("Project") is necessary to ensure that Appalachian Power Company ("Appalachian" or "Company") can adequately and reliably operate and maintain a portion of the local transmission system to provide service for area customers and accommodate a new customer interconnection request located in Botetourt County, Virginia. To serve a new data center customer's projected load, the Company is proposing to rebuild two transmission lines currently operating at 69 kilovolts ("kV") and convert them to 138 kV, reconductor a 138-kV transmission line, upgrade four substations, build a new substation, and construct two 138-kV transmission tie lines approximately 1.3 miles long each into the data center campus. See **Exhibit 1** for an overall map of the proposed Project.

Appalachian is a regional operating subsidiary of American Electric Power Company, Inc. ("AEP"). AEP's transmission system consists of approximately 41,000 miles of transmission lines, 3,600 stations, 5,000 power transformers, 8,000 circuit breakers, and operating voltages between 23 kV and 765 kV in three different RTOs, connecting over 30 different electric utilities while providing service to approximately 5.5 million customers in 11 different states. AEP's interconnected transmission system was established in 1911 and consists of a large and diverse combination of line, station, and telecommunication assets. AEP is obligated to manage and maintain this diverse set of assets to provide for a safe, adequate, reliable, flexible, efficient, cost-effective, and resilient transmission system that meets the needs of all customers while complying with federal, state, RTO, and industry standards.

AEP is part of the PJM Interconnection, LLC ("PJM") RTO, which provides service to a large portion of the eastern United States. PJM is responsible for ensuring reliability and coordinating the movement of electricity through all or parts of 13 states and the District of Columbia. This service area has a population of approximately 65 million.

The North American Electric Reliability Corporation ("NERC") has been designated by the Federal Energy Regulatory Commission ("FERC") as the electric reliability organization for the United States. Accordingly, NERC requires the planning authority and transmission planner develop planning criteria to ensure compliance with NERC Reliability Standards. Mandatory NERC Reliability Standards require that a transmission owner ("TO") develop facility interconnection requirements that identify load and generation interconnection minimum requirement for a TO's transmission system, as well as the TO's reliability criteria.

PJM's Regional Transmission Expansion Plan ("RTEP") is the culmination of a FERC-approved annual transmission planning process that includes extensive analysis of the electric transmission system to determine any needed improvements. Outcomes of the RTEP process include three types of transmission project upgrades or projects: (i) baseline upgrades, which are those that resolve a system reliability criteria violation and can include planning criteria from NERC, PJM, and TOs; (ii) network upgrades, which are new or upgraded facilities required primarily to eliminate reliability criteria violations caused by proposed generation, merchant transmission, or long-term firm transmission service requests; and (iii) supplemental projects, which are projects initiated by the TO in order to interconnect new customer load, address degraded equipment performance, improve operational flexibility and efficiency, and increase infrastructure resilience.

This Project is deemed to be a supplemental project initiated by the TO as a means to interconnect the new customer load and proactively adhere to NERC Reliability Standards.[1] Supplemental projects are planned subject to the Attachment M-3 process wherein TOs review assumptions, needs, and solutions with PJM stakeholders through the regional and sub-regional RTEP meetings to solicit input and feedback from stakeholders. PJM then performs do-no-harm analysis for all supplemental solutions to ensure that proposed solutions do not cause any reliability violations before those projects are submitted for inclusion into the Local Plan and integration into the RTEP. The components of the Project (as outlined below) will be presented to PJM stakeholders through the Attachment M-3 process. PJM will then complete the do-no-harm analysis and assign a supplemental project ID. The Company developed the Project as a comprehensive solution to provide reliable service to the customer and is seeking approval to complete this work.

THE NEED AND THE PROPOSED PROJECT

A customer has requested new 138-kV service for a data center, which is to be located in Botetourt County, Virginia. The peak demand at this delivery point will be approximately 300 megawatts ("MW").

The existing Daleville Load Area is served from a transmission loop fed from Cloverdale Substation consisting of both 138-kV and 69-kV transmission lines (see **Figure 1**). Approximately 10 miles of the existing loop operates at 69 kV with the remaining portion located between the Cloverdale and Mount Union substations operating at 138 kV. The thermal capacity of the 69-kV line sections comprising most of the transmission loop has less than half the thermal capability required to serve the requested 300 MW while satisfying NERC Transmission System Planning Performance Requirements. While the 138-kV portion of the loop operates at 138 kV today, the thermal capacity of the existing 795 aluminum conductor steel reinforced ("ACSR") overhead conductor on this portion is not sufficient and becomes overloaded when considering the loss of the opposite 69-

[1] Federally mandated NERC Reliability Standards constitute minimum criteria with which all public utilities must comply as components of the interstate electric transmission system. Moreover, the Energy Policy Act of 2005 mandates that electric utilities must follow these NERC Reliability Standards and imposes fines on utilities found to be in noncompliance up to $1.3 million per day per violation. This supplemental project does not directly address a PJM baseline violation; however, the Company is required to adhere to NERC Reliability Standards.

kV side of the loop. Installing larger, higher capacity overhead conductor by a combination of reconductoring the existing 138-kV section and rebuilding the 69-kV section will provide the capacity and reliability required for the Company to reliably operate and maintain the lines to serve this customer and area customers.

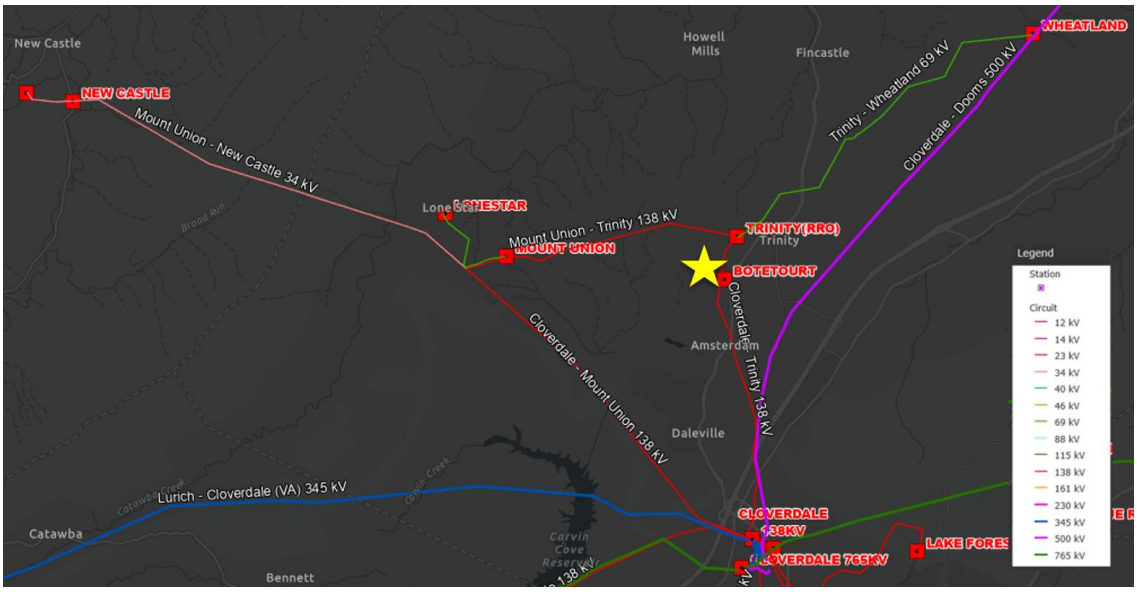


Figure 1: Daleville Load Area

Existing transmission system with a yellow star indicating the location of the proposed customer interconnection (Mount Union – Trinity 138-kV Transmission Line and Cloverdale – Trinity 138-kV Transmission Line currently operating at 69 kV).

Area transmission system upgrades will be required in order to create a 138-kV loop that is fed from Cloverdale Substation that has sufficient capacity during system normal and outage conditions defined by NERC planning criteria. This includes upgrading equipment at Cloverdale and Trinity Substations as well as expanding the Mount Union and Botetourt Substations to accommodate the upgraded equipment.

In addition, to operate within defined voltage limits, a 138-kV, 150 megavolt-ampere ("MVA") Static Synchronous Compensator ("STATCOM") will be required near the delivery point. This will ensure that area voltage will not fall below 0.92 per unit or drop by 8% or more during contingency scenarios. The Company investigated installing the STATCOM at the Cloverdale, Botetourt, and Trinity Substations; however, there was insufficient space to install the equipment in the existing substations, and expanding the substations would require significant and expensive grading or property was not available to expand.

The Company identified property immediately adjacent to the existing Trinity Substation that was available and suitable for the Project that could accommodate the substation equipment and the STATCOM, so the Project contemplates building the new Windy Pass Substation on that property. The proposed Windy Pass Substation will be located

approximately 600 feet from the existing Trinity Substation, which will no longer need to be expanded. Instead, the Company proposes to upgrade equipment inside the existing Trinity Substation fence while installing new equipment and the STATCOM at the proposed Windy Pass Substation.

See **Figure 2** for an overview of the Project area.

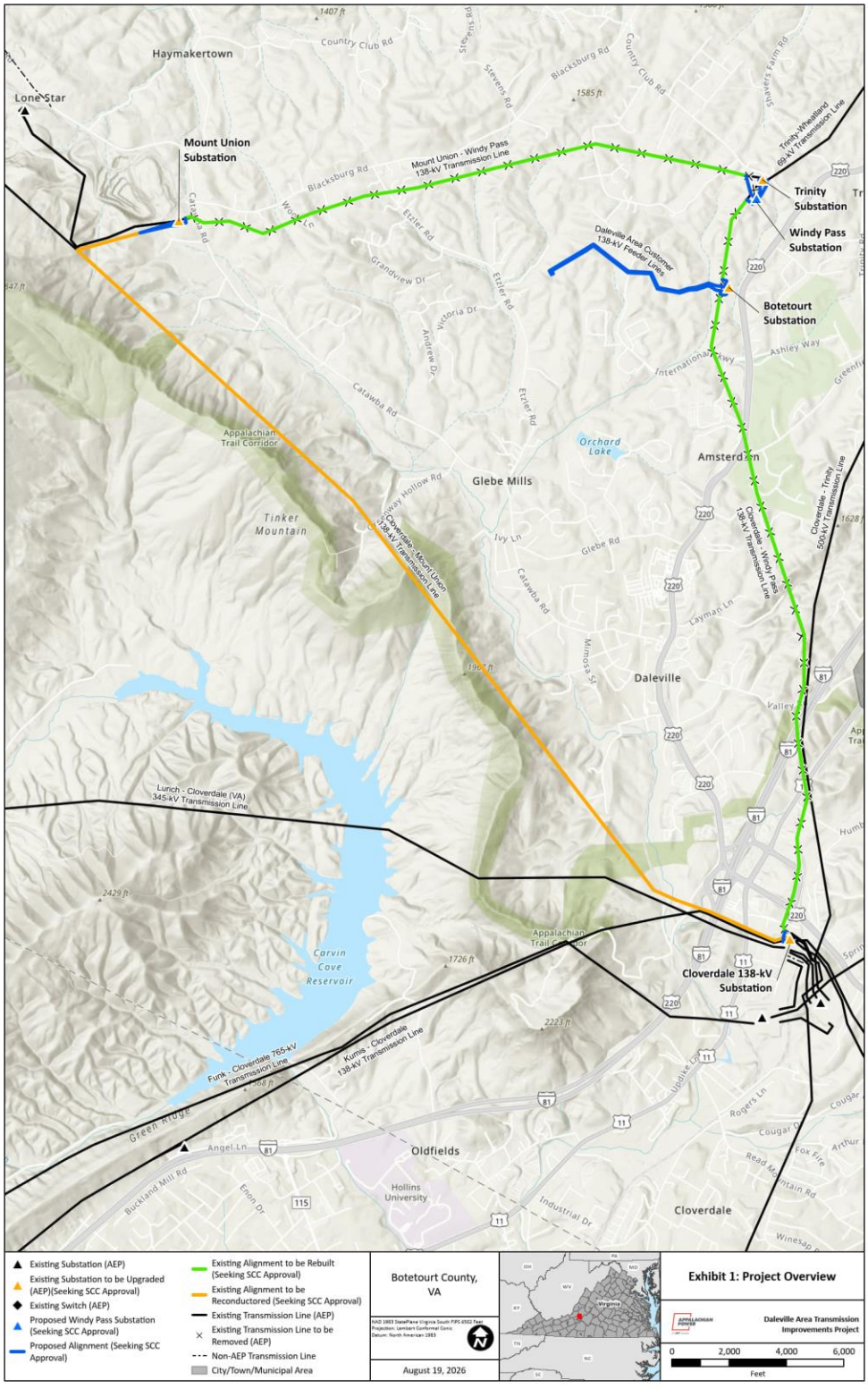


Figure 2: Project Overview

To provide service requested by the data center customer, proactively prevent any NERC planning criteria violations, and operate and maintain the transmission lines to provide reliable service for the overall Project area, the Company is proposing to construct the Project as follows:

- Upgrade and expand the Botetourt Substation from 69 kV to 138 kV.
- Upgrade and expand the Mount Union 138-kV Substation.
- Upgrade the Cloverdale 138-kV Substation within the existing fence.
- Upgrade the Trinity Substation from 69 kV to 138 kV within the existing fence.
- Install the new Windy Pass 138-kV Substation on a parcel adjacent to the existing Trinity Substation.
- Rebuild approximately 5.3 miles of the Cloverdale – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Rebuild approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV.
- Reconductor approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line and replace approximately two existing structures and add one new structure.
- Construct two new 138-kV feeder lines, parallel to each other, approximately 1.3 miles in length from Botetourt Substation into the new customer's data center campus ("Daleville Area Customer 138-kV Feeder Lines").
- Construct a new approximately 0.1-mile-long 138-kV tie line between the new Windy Pass 138-kV Substation and existing Trinity Substation.
- Extend the Trinity – Wheatland 69-kV Transmission Line approximately 0.1 miles to the new Windy Pass 138-kV Substation.
- Construct one new structure on the Mount Union – New Castle 34-kV Transmission Line.
- Install associated fiber and distribution upgrades.

The Company is seeking approval for the above-mentioned supplemental work (collectively referred to as the "Daleville Area Transmission Improvements Project"). The need for the Project was presented to PJM stakeholders through the Attachment M-3 process at the May 15, 2026, meeting. Supplemental Project IDs will be provided once they are assigned by PJM.

Even though this Project is not classified as a PJM baseline project, the Project's upgrades to the existing system are needed in order for the Company to operate and maintain the system to reliably serve 300 MW at the requested customer location without the creation of NERC planning criteria violations. The existing 69-kV system capacity requires the rebuilding of the corridor between the Cloverdale, Botetourt, Trinity, and

Mount Union Substations and converting of the operating voltage from 69 kV to 138 kV. The existing Cloverdale – Mount Union 138-kV Circuit needs to be reconductored with higher capacity overhead conductor to prevent thermal planning criteria violations. In addition, the proposed 138-kV, 150 MVA STATCOM is required to prevent low voltage below 0.92 per unit and voltage deviation greater than or equal to 8%.

B. Detail the engineering justifications for the proposed project (for example, provide narrative to support whether the proposed project is necessary to upgrade or replace an existing facility, to significantly increase system reliability, to connect a new generating station to the Applicant's system, etc.). Describe any known future project(s), including but not limited to generation, transmission, delivery point or retail customer projects, that require the proposed project to be constructed. Verify that the planning studies used to justify the need for the proposed project considered all other generation and transmission facilities impacting the affected load area, including generation and transmission facilities that have not yet been placed into service. Provide a list of those facilities that are not yet in-service.

Response:

With regard to engineering justification for the Project, see Section I.A. above.

Currently, there are no known current or future projects that depend or require this Project to be constructed.

C. Describe the present system and detail how the proposed project will effectively satisfy present and projected future electrical load demand requirements. Provide pertinent load growth data (at least five years of historical summer and winter peak demands and ten years of projected summer and winter peak loads where applicable). Provide all assumptions inherent within the projected data and describe why the existing system cannot adequately serve the needs of the Applicant (if that is the case). Indicate the date by which the existing system is projected to be inadequate.

Response:

AEP developed a load forecast for the Project Load Area using an econometric model that forecasts peak demand. This model had explanatory variables for the gross regional product for Botetourt County, Virginia, the combined, minimum and maximum temperatures on the day of the peak, and binary variables. The Project Load Area is winter peaking. The model used historical data for the period from the winter of 2015/16 through winter of 2024/25. Gross county product forecast data were obtained from Moody's Analytics. AEP developed forecasts of maximum and minimum temperatures on the day of the peak from an average of historical temperatures.

Tables I-1 and I-2, and Figures 3 and 4 below show historical and projected summer and winter peak loads for the Project Load Area. These figures show the actual summer and winter peak loads for the previous ten years and the projected summer and winter peak loads for the next ten years.

Table I-1
Historical and Forecasted Summer Peak Load Data

Daleville Load Area

	Actual Peak Load (MW)										Projected Peak Load (MW)									
Summer	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Peak	76.3	76.3	80.8	81.0	84.8	83.6	86.7	82.5	84.5	84.4	86.0	87.1	88.1	89.4	90.7	92.1	93.4	94.6	95.8	96.9

Table I-2
Historical and Forecasted Winter Peak Load Data

Daleville Load Area

	Actual Peak Load (MW)										Projected Peak Load (MW)									
Winter	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Peak	92.1	85.6	81.0	91.8	92.4	88.0	86.3	94.2	94.8	88.9	91.6	92.7	93.8	94.9	96.2	97.5	98.9	100.2	101.4	102.5

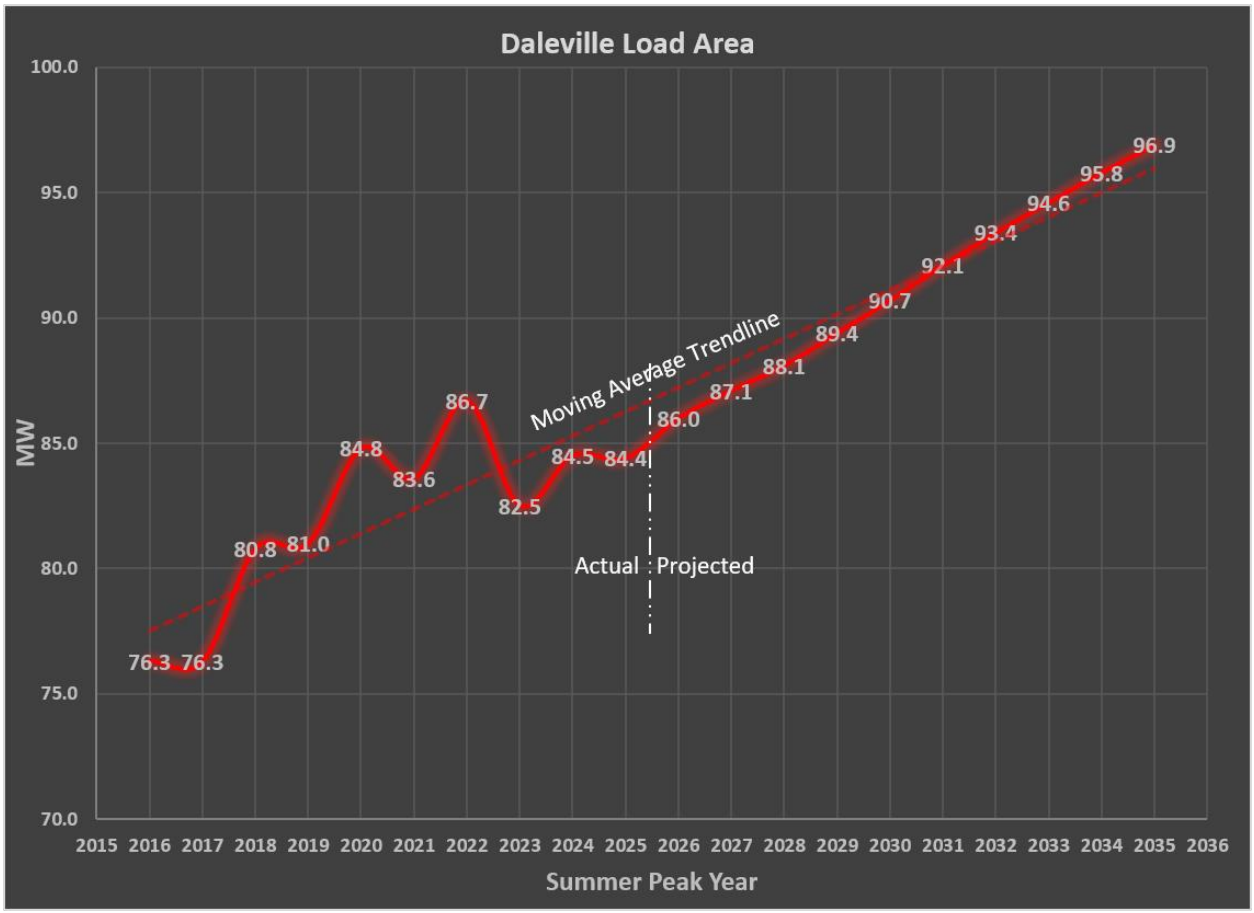


Figure 3
Project Load Area
Historical and Forecasted Summer Peak Load Data

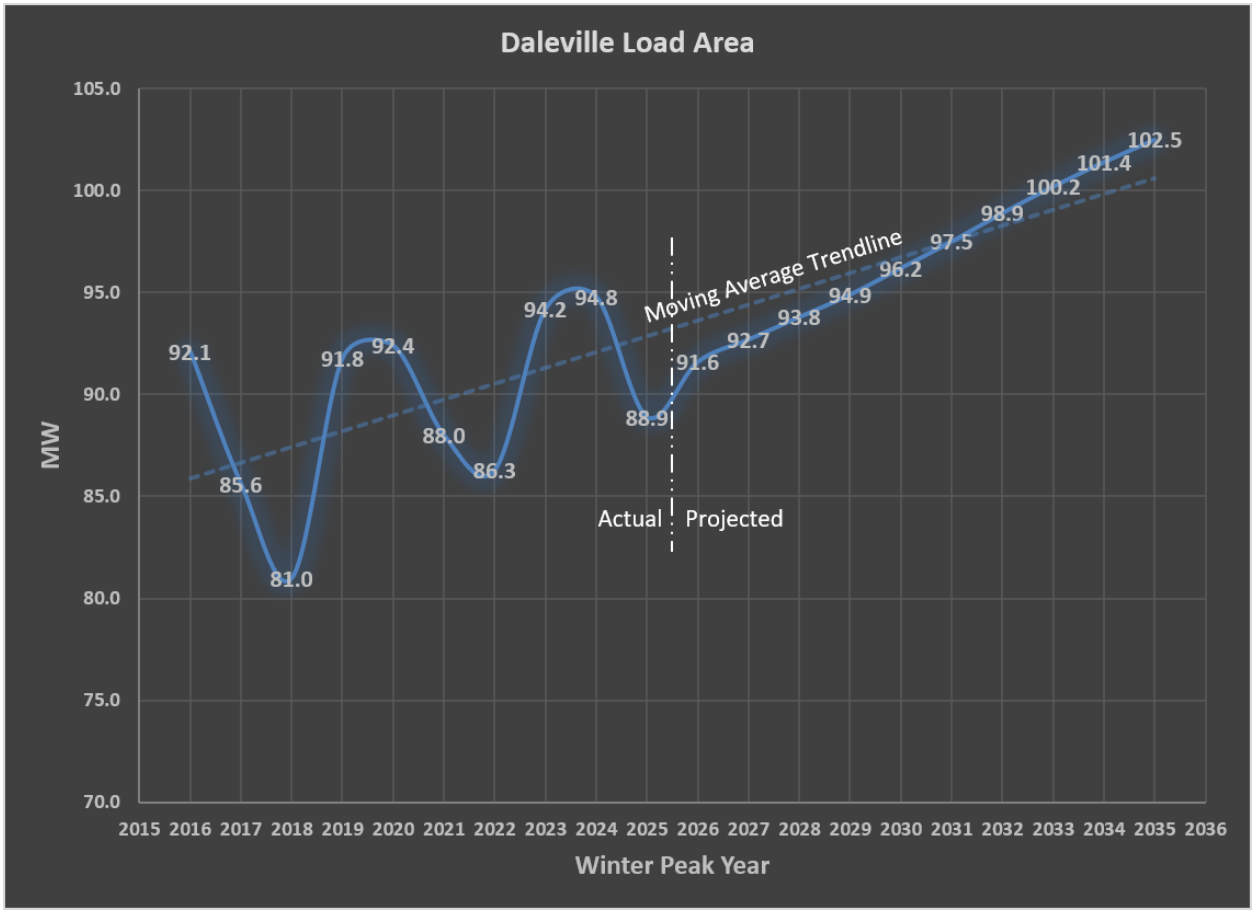


Figure 4
Project Load Area
Historical and Forecasted Winter Peak Load Data

The Project Load Area summer and winter peak demand are anticipated to grow at an average annual rate of approximately 1.4% over the course of the next ten years.

The existing transmission lines cannot adequately serve the needs of the Company and its future customers as discussed in Section I.A. Completing the Project will support the Company's continued reliable electric service to support the future overall growth in the surrounding area.

D. If power flow modeling indicates that the existing system is, or will at some future time be, inadequate under certain contingency situations, provide a list of all these contingencies and the associated violations. Describe the critical contingencies including the affected elements and the year and season when the violation(s) is first noted in the planning studies. Provide the applicable computer screenshots of single-line diagrams from power flow simulations depicting the circuits and substations experiencing thermal overloads and voltage violations during the critical contingencies described above.

Response:

As indicated in Section I.A above, the existing system is inadequate to serve 300 MW at the requested customer location without performing necessary upgrades to prevent NERC planning criteria violations. The existing 69-kV system capacity requires the rebuilding of the corridor between the Cloverdale, Botetourt, Trinity, and Mount Union Substations and converting the operating voltage from 69 kV to 138 kV. The existing Cloverdale – Mount Union 138-kV Circuit requires reconductoring with higher capacity overhead conductor to prevent thermal planning criteria violations. In addition, the proposed 138-kV, 150 MVA STATCOM is required to prevent low voltage below 0.92 per unit and voltage deviation greater than or equal to 8%.

E. Describe the feasible project alternatives, if any, considered for meeting the identified need including any associated studies conducted by the Applicant or analysis provided to the RTO. Explain why each alternative was rejected.

Response:

An alternative considered was to tap the existing Cloverdale – Lexington 500-kV Transmission Line and construct a new 500-kV transmission line loop from the tap point in and out to the customer site. This was determined to be undesirable because the Cloverdale – Lexington 500-kV Transmission Line is a tie line with Virginia Electric and Power Company (Dominion) that changes direction in flow due to Dominion's large Bath County pumped storage generation facility located nearby (electrically). Additionally, the cost of this alternative was estimated to be significantly more expensive than the proposed Project.

F. Describe any lines or facilities that will be removed, replaced, or taken out of service upon completion of the proposed project, including the number of circuits and normal and emergency ratings of the facilities.

Response:

The Project involves the removal and replacement of several existing transmission line and substation assets. There will be no lines permanently taken out of service as part of the proposed Project.

The existing Cloverdale – Trinity 138-kV Transmission Line asset will be replaced by the proposed Cloverdale – Windy Pass 138-kV Transmission Line.

Existing Ratings

All existing ratings are based on 795 ACSR 45/7 "Tern" overhead conductor:

- Summer Normal: 1,031 Amps
- Winter Normal: 1,302 Amps

- Summer Emergency: 1,366 Amps
- Winter Emergency: 1,553 Amps

Proposed Ratings

All proposed ratings are based on 1,033.5 aluminum conductor steel supported 54/7 “Curlew” overhead conductor:

- Summer Normal: 2,332 Amps
- Winter Normal: 2,457 Amps
- Summer Emergency: 2,332 Amps
- Winter Emergency: 2,457 Amps

The existing Mount Union – Trinity 138-kV Transmission Line will be rebuilt as the Mount Union – Windy Pass 138-kV Transmission Line in the existing right-of-way.

Existing Ratings

All existing ratings are based on 795 ACSR 45/7 “Tern” overhead conductor:

- Summer Normal: 1,031 Amps
- Winter Normal: 1,302 Amps
- Summer Emergency: 1,366 Amps
- Winter Emergency: 1,553 Amps

Proposed Ratings

All proposed ratings are based on 1,033.5 aluminum conductor steel supported 54/7 “Curlew” overhead conductor:

- Summer Normal: 2,332 Amps
- Winter Normal: 2,457 Amps
- Summer Emergency: 2,332 Amps
- Winter Emergency: 2,457 Amps

On the existing Cloverdale – Mount Union 138-kV Transmission Line, the conductor will be replaced, and almost all of the existing structures will be reused.

Existing Ratings

All existing ratings are based on 795 ACSR 45/7 “Tern” overhead conductor:

- Summer Normal: 1,031 Amps

- Winter Normal: 1,302 Amps
- Summer Emergency: 1,366 Amps
- Winter Emergency: 1,553 Amps

Proposed Ratings

All proposed ratings are based on 1120 aluminum conductor composite core ("ACCC-AZR") "Milan" overhead conductor:

- Summer Normal: 1,785 Amps
- Winter Normal: 2,003 Amps
- Summer Emergency: 2,127 Amps
- Winter Emergency: 2,292 Amps

G. Provide a system map, in color and of suitable scale, showing the location and voltage of the Applicant's transmission lines, substations, generating facilities, etc., that would affect or be affected by the new transmission line and are relevant to the necessity for the proposed line. Clearly label on this map all points referenced in the necessity statement.

Response:

See **Exhibit 1**, Project Overview.

H. Provide the desired in-service date of the proposed project and the estimated construction time.

Response:

The desired in-service date is November 15, 2029, with an estimated construction time of approximately two years. A detailed description of the construction sequence and duration is provided in Section II.B.10 of the Response to Guidelines.

I. Provide the estimated total cost of the project as well as total transmission-related costs and total substation-related costs. Provide the total estimated cost for each feasible alternative considered. Identify and describe the cost classification (e.g., "conceptual cost," "detailed cost," etc.) for each cost provided.

Response:

The conceptual estimated transmission-line-related cost is approximately $121 million.

The conceptual estimated substation-related cost is approximately $143 million.

The conceptual estimated total cost of the Project is approximately $264 million.

The conceptual estimated cost of the 500-kV alternative discussed in Section I.E above is approximately $400 million without the addition of a STATCOM.

Conceptual estimates are based on the preliminary engineering design of facilities to be constructed as described in this Application, incorporating input from various stakeholders. In accordance with the Ratepayer Protection Pledge, Appalachian's other customers' rates will not increase due to the transmission line and substation work of this Project as the costs are offset by the load growth.

J. If the proposed project has been approved by the RTO, provide the line number, regional transmission expansion plan number, cost responsibility assignments, and cost allocation methodology. State whether the proposed project is considered to be a baseline or supplemental project.

Response:

The proposed Project is classified as a supplemental project. The Company presented the need for the proposed Project to PJM on May 15, 2026, and the supplemental project ID will be provided once it is assigned by PJM.

K. If the need for the proposed project is due in part to reliability issues and the proposed project is a rebuild of an existing transmission line(s), provide five years of outage history for the line(s), including for each outage the cause, duration and number of customers affected. Include a summary of the average annual number and duration of outages. Provide the average annual number and duration of outages on all Applicant circuits of the same voltage, as well as the total number of such circuits. In addition to outage history, provide five years of maintenance history on the line(s) to be rebuilt including a description of the work performed as well as the cost to complete the maintenance. Describe any system work already undertaken to address this outage history.

Response:

Not applicable. The need for the Project is not driven by outage history, but rather by the need to support load growth in the area. See Sections I.A and I.J.

L. If the need for the proposed project is due in part to deterioration of structures and associated equipment, provide representative photographs and inspection records detailing their condition.

Response:

Not applicable. See Sections I.A and I.C.

M. In addition to all other information required by these guidelines, applications for approval to construct facilities and transmission lines inter-connecting a Non-Utility Generator ("NUG") and a utility shall include the following information.

1. **The full name of the NUG as it appears in its contract with the utility and the dates of the initial contract and any amendments;**

2. **A description of the arrangements for financing the facilities, including information on the allocation of costs between the utility and the NUG;**

3. **a. For Qualifying Facilities ("QFs") certificated by FERC order, provide the QF or docket number, the dates of all certification or recertification orders, and the citation to FERC Reports, if available;**

   b. For self-certified QFs, provide a copy of the notice filed with the FERC;

4. **In addition to the information required in 3a or 3b, provide the project number and project name used by the FERC in licensing hydro-electric projects, also provide the dates of all orders and citations to FERC Reports, if available; and**

5. **If the name provided in 1 above differs from the name provided in 3 above, give a full explanation.**

Response:

Not applicable.

N. Describe the proposed and existing generating sources, distribution circuits or load centers planned to be served by all new substations, switching stations and other ground facilities associated with the proposed project.

Response:

The distribution load served from the Wheatland and Trinity Substations will be served from the proposed Windy Pass Substation.

SECTION II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-Way

1. Provide the length of the proposed corridor and viable alternatives.

Response:

The proposed corridor for the Daleville Area Transmission Improvements Project includes the rebuild of approximately 5.3 miles of the Cloverdale – Trinity 138-kV Transmission Line and approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line, along with the reconductoring of approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line. The Project also includes construction of a new approximately 0.1-mile 138-kV tie line between the proposed Windy Pass Substation and the existing Trinity Substation, an approximately 0.1-mile extension of the Trinity – Wheatland 69-kV Transmission Line, as well as two Daleville Area Customer 138-kV Feeder Lines, each approximately 1.3 miles long, to serve the new customer load.

The Project will be developed primarily within existing transmission line ROWs. Much of the rebuild will follow existing centerlines. However, in certain locations, structures may be shifted within the existing corridor to accommodate constructability considerations, outage constraints, and site-specific conditions. Accordingly, the filing corridor encompasses the full extent of the existing ROW and allows for minor adjustments where needed.

In addition to transmission line improvements, the Project includes upgrades and expansions at the Cloverdale, Botetourt, Trinity, and Mount Union Substations, as well as construction of the new Windy Pass Substation. These activities will occur primarily within existing substation properties, with limited expansion beyond current footprints where necessary to accommodate new equipment, system reconfiguration, and interconnection facilities.

No separate viable alternative corridors have been identified for the Project. Because the Project is designed to maintain and enhance existing electrical connections among the Cloverdale, Mount Union, Trinity, and Botetourt Substations while interconnecting new customer load, it is inherently constrained to the existing transmission network. The siting evaluation determined that rebuilding and upgrading facilities within or parallel to existing ROWs minimizes impacts to environmental, land use, and socioeconomic resources compared to development of new corridors. As a result, potential alternatives are limited to minor deviations predominantly within the existing ROW and would not provide meaningful environmental, engineering, or cost advantages.

The route development process for the Project is described in detail in **Section II.A.9** of the Response to Guidelines.

2. **Provide color maps of suitable scale (including both general location mapping and more detailed geographic information system ["GIS"]-based constraints mapping) showing the route of the proposed line and its relation to: the facilities of other public utilities that could influence the route selection, highways, streets, parks and recreational areas, scenic and historic areas, open space and conservation easements, schools, convalescent centers, churches, hospitals, burial grounds/cemeteries, airports and other notable structures close to the proposed project. Indicate the existing linear utility facilities that the line is proposed to parallel, such as electric transmission lines, natural gas transmission lines, pipelines, highways, and railroads. Indicate any existing transmission ROW sections that are to be quitclaimed or otherwise relinquished. Additionally, identify the manner in which the Applicant will make available to interested persons, including state and local governmental entities, the digital GIS shape file for the route of the proposed line.**

   Response:

   A Project Overview is attached as **Exhibit 1.** Detailed GIS constraints mapping illustrating the Project in relation to existing facilities, various resources, and sensitive features is attached as **Exhibit 2**. A shapefile of the proposed route will be provided electronically to the Commission along with the Application.

3. **Provide a separate color map of a suitable scale showing all the Applicant's transmission line ROWs, either existing or proposed, in the vicinity of the proposed project.**

   Response:

   See **Exhibit 2**, GIS Constraints Map.

4. **To the extent the proposed route is not entirely within existing ROW, explain why existing ROW cannot adequately service the needs of the Applicant.**

   Response:

   The Project will be constructed predominantly within existing transmission line ROWs, consistent with the Company's approach to minimize impacts to the natural and human environment while maintaining and upgrading existing electrical infrastructure. The Cloverdale – Trinity and Mount Union – Trinity 138-kV Transmission Lines will be rebuilt largely along their existing centerlines, while the Cloverdale – Mount Union 138-kV Transmission Line will be reconductored using existing structures where feasible. As a result, the existing ROWs adequately support the majority of the Project's transmission line upgrades.

   However, existing ROW alone cannot fully accommodate all Project components. Localized new transmission line segments are required to support system improvements and serve new customer load, including short greenfield 138-kV

connections associated with the proposed Windy Pass Substation and the feeder lines to the data center campus. These segments are necessary to establish new electrical interconnections that do not currently exist within the existing transmission network and therefore cannot be accommodated within the existing corridors.

5. **Provide drawings of the ROW cross section showing typical transmission line structure placements referenced to the edge of the ROW. These drawings should include:**

    a. **ROW width for each cross section drawing.**

    b. **Lateral distance between the conductors and edge of ROW.**

    c. **Existing utility facilities on the ROW.**

    d. **For lines being rebuilt in existing ROW, provide all of the above (i) as it currently exists, and (ii) as it will exist at the conclusion of the proposed project.**

    Response:

    (a-c) See **Exhibits 3 through 16** for the typical existing ROW cross sections.

    (d) See **Exhibits 12 through 26** for the proposed ROW cross sections.

6. **Detail what portions of the ROW are subject to existing easements and over what portions new easements will be needed.**

    Response:

    The transmission line components of the Project will be constructed predominantly within existing transmission line ROWs that are already subject to established easements. These existing easements generally support the work of the Project. The Cloverdale – Trinity and Mount Union – Trinity 138-kV Transmission Lines will be rebuilt largely along their existing centerlines, and the Cloverdale – Mount Union 138-kV Transmission Line will be reconductored on existing structures, allowing the Company to rely on existing easement rights across the majority of the Project area.

    New easements will be required for portions of the Project that extend beyond the existing transmission network. These include short greenfield transmission line segments associated with interconnection to the existing Botetourt Substation and the proposed Windy Pass Substation as well as the transmission feeder lines to the customer. Because these facilities introduce new electrical connections that are not located within existing transmission corridors, new ROW and corresponding easements must be acquired in these areas. Based on the results of geotechnical and environmental surveys, landowner input, ROW negotiations, and final line design, there may also be minor deviations from the existing ROW that may be addressed by acquiring supplemental easements.

7. Detail the proposed ROW clearing methods to be used and the ROW restoration and maintenance practices planned for the proposed project.

Response:

The following are the Company's typical transmission line ROW clearing, restoration, and maintenance practices. Case-by-case exceptions are considered to address sensitive environmental areas/features and/or property owner requests while maintaining Company and National Electrical Safety Code ("NESC") safety clearances and complying with North American Electric Reliability Corporation requirements.

ROW Clearing

a. In areas with 125 feet or more vertical (conductor-to-ground) design clearance, the ROW is typically not cleared, except in the following instances:

   - Trees with less than 25-feet clearance from the conductor (at maximum sag conditions) will be removed.
   - Where a conductor stringing path is specified.
   - Where wire setup areas and other work areas are required.

b. In locations with less than 125-foot vertical clearance from conductor (at maximum sag conditions) to ground, all woody stemmed vegetation will be removed to the appropriate ROW width, leaving the cleared area of the ROW populated with grasses and herbaceous growth.

c. Cutting vegetation will be done by either manual or mechanical methods. Worker safety is first and foremost in determining a method; land use and landowner preference may influence the method utilized. Factors influencing safety include terrain, access, tree height, etc. Manual clearing involves the use of contract personnel using chain saws to cut vegetation. Mechanical clearing includes mowers, feller-bunchers, and other heavy operator-run equipment. Mechanical pruning operations employ a variety of configurations of boom-mounted saws mounted on vehicles capable of traversing the ROW. In very difficult terrain or inaccessible areas (high safety risk areas), an aerial saw may be employed for side trimming the ROW.

d. Where reasonable and practical, the Company will utilize selective clearing methods to retain low-growth shrubs and herbaceous vegetation within:

   - Fifty feet of all year-round streams, ponds, or wetlands and will undertake erosion control measures where necessary.
   - Fifty feet of road crossings.
   - Twenty-five feet of karst features and outcrops of limestone or dolomite rock.

e. Trees will be felled in a manner to minimize damage to crops, fences, and other facilities.

f. Where tree pruning is required, standards established by the International Society of Arboriculture, the American Standards Institute, and the Tree Care Industry Association will be used together with best management practices.

g. Logs, including fallen timber, may be left in tree lengths, log lengths, or as otherwise designated by the property owner. The property owner will retain ownership of all logs and may dispose of them by commercial sale, use them as firewood, or provide them for use as firewood by others. If the property owner does not want to retain ownership and wants the logs removed, the Company will dispose of them in a suitable location.

h. The disposal by the Company of all trees, brush, and slash will, where possible, be consistent with property owner preferences, wildlife values, and particular site conditions. Typical disposal methods consist of one or more of the following:

- Windrowing — the cut material will be laid in parallel rows along either or both sides of the ROW. This is the preferred method where slopes are 30% or less.

- Chipping — woody vegetation will be chipped and either scattered over the ROW area or disposed of in a suitable location. Logs will be windrowed (i.e., laid in parallel rows) on either or both sides of the ROW, as designated. The ROW must be accessible to chipping equipment for this option to be viable.

- Let Lie — the cut material will be left in a scattered manner over the ROW area. This is recommended where slopes exceed 30% to reduce erosion and otherwise minimize impact on soils. All woody vegetation will be lopped and scattered so that it lays as close to the ground as practical, but not to exceed two feet in height. This will accelerate the decomposition of this material and will improve the aesthetic impact by allowing more rapid vegetation coverage of the cut material.

i. All clearing debris will be kept out of streams, ponds, and other water areas, wetlands, pastures, and fields.

ROW Restoration

a. Where stream banks are disturbed, they will be restored (i.e., by planting herbaceous vegetation, where necessary) to prevent bank erosion.

b. The Company will take measures to drain and stabilize the surfaces of all construction roads both during construction and during future line maintenance phases.

c. Restoration, including temporary and permanent seeding, will be coordinated with the construction activities to ensure that revegetation and soil stabilization are achieved at the earliest practical time. Following construction, all structure sites, construction/wire stringing sites and access roads will be seeded with a suitable grass seed mixture.

d. Revegetation techniques will, where possible, seek to enhance the ROW for wildlife food and habitat.

e. Qualified personnel will perform all permanent reseeding and revegetation.

f. Fences and gates will be kept in sufficient state of repair to confine livestock satisfactorily and gates will be kept closed when not in immediate use. All fences cut or damaged will be restored to a condition as good as, or better than, the condition as found. Where frequent access is required, gates will be installed at no cost to the property owner.

ROW Maintenance

All herbicides used will be applied in accordance with applicable state and federal laws and regulations.

b. All herbicides used shall be registered with the United States Environmental Protection Agency and with the Virginia Department of Agriculture and Consumer Services. Herbicides will be used in accordance with label and manufacturer directions.

c. All herbicide applications will be performed under the direct supervision of certified applicators.

d. Regarding herbicide applications:

- Herbicides will not be applied when rainfall is imminent, during rainfall or within one day of large rain events (usually greater than 1.0 centimeter) that result in soil moisture capacity occurring above field capacity.
- Buffer zones will be maintained and used in accordance with herbicide label and manufacturer directions around streams, ponds, springs, wetlands, water supply wells, channelized drainage ways (e.g., perennial or intermittent), and karst features.

Long-term ROW Maintenance Plan

The Company will implement a comprehensive vegetation management program

designed to ensure that vegetation along each transmission line is managed at the proper time, and in the most cost-effective, environmentally sound manner. The plan will be reviewed periodically to ensure that the goals and objectives are addressed.

8. **Indicate the permitted uses of the proposed ROW by the easement landowner and the Applicant.**

   Response:

   Under the existing, new, and/or supplemental transmission line easements, the property owner will generally retain the right to use the easement area for grazing, pasture lands, gardens, cultivated fields, driveways, parking, and bike and walking paths, or any other use that is not inconsistent with the Company's right to construct, operate, maintain, access, or remove its electric transmission line. The Company retains the right to clear and keep the easement clear of buildings and/or other obstructions together with the right to clear any woody vegetation within the ROW or which is adjacent to the ROW, but which may endanger the safe operation of the electric transmission line.

9. **Describe the Applicant's route selection procedures. Detail the feasible alternative routes considered. For each such route, provide the estimated cost and identify and describe the cost classification (e.g., "conceptual cost," "detailed cost"). Describe the Applicant's efforts in considering these feasible alternatives. Detail why the proposed route was selected and other feasible alternatives were rejected. In the event that the proposed route crosses, or one of the feasible routes was rejected in part due to the need to cross, land managed by federal, state, or local agencies or conservation easements or open space easements qualifying under §§ 10.1-1009 – 1016 or §§ 10.1-1700 – 1705 of the Code (or a comparable prior or subsequent provision of the Code), describe the Applicant's efforts to secure the necessary ROW.**

   Response:

   The Project's route development process is summarized below and detailed in the Siting Study. A more comprehensive description of the proposed route is included in **Section V** of the Response to Guidelines.

   The route selection process began with the identification of Project endpoints, which include the existing Cloverdale, Mount Union, Trinity, Botetourt Substations, the proposed Windy Pass Substation, and the facilities necessary to interconnect a new customer load. The Project predominantly consists of rebuilding, reconductoring, and upgrading facilities within existing transmission line ROWs and at existing substation sites. Limited new transmission line segments are required to connect the new customer and related facilities. These segments are generally located on customer-owned property or property associated with the proposed Windy Pass Substation and were necessary to meet the Project's operational requirements. A multidisciplinary siting team composed of engineering, environmental, ROW, outreach, and constructability specialists evaluated how the Project could be implemented to meet design requirements and operational constraints. Consistent with applicable Virginia Code provisions, the team prioritized use of existing transmission line corridors and

ROW to the extent practicable to limit new impacts on the natural and human environment.

Engineering and constructability considerations were incorporated early in the process. Because the Project involves rebuilding and/or reconductoring existing transmission lines while maintaining service to customers, the siting team prioritized evaluating how to complete construction within the existing ROW while accounting for outage constraints, system reliability requirements, and constructability limitations. These factors informed the development of the routing approach, which balances constructability, outage duration, and environmental and community considerations.

The Siting Team conducted desktop analyses and field reviews of the existing Cloverdale – Trinity, Mount Union – Trinity, and Cloverdale – Mount Union 138-kV Transmission Lines and the surrounding study area. The study area included the existing ROW and a buffer to allow for minor deviations where necessary. Field reconnaissance and data collection focused on identifying environmental features, land use patterns, existing development, and potential constraints. In addition, the Company conducted coordination with local officials and stakeholders and provided Project information through a Project-specific website to solicit public input.

Constructing the Project entirely outside of existing ROW was determined to be unnecessary because it would increase environmental and socioeconomic impacts, require new ROW acquisition, and result in higher conceptual costs relative to the proposed approach. The proposed route maximizes the use of existing ROW, minimizes environmental and community impacts, reduces the need for new land disturbance, and represents the most practical and cost-effective solution to meet the Project's purpose and need. The limited new transmission line segments associated with serving the new customer are located primarily on customer-owned or utility-owned property and were designed to connect the customer load while minimizing impacts to surrounding land uses. The proposed route therefore provides the most practical means of serving a new customer load and supporting continued growth in the Project area.

The Project also includes upgrades and expansions at the Cloverdale, Botetourt, Trinity, and Mount Union Substations, which are located at established sites associated with the existing transmission system, as well as construction of the new Windy Pass Substation on a separate property adjacent to the existing Trinity Substation.

Based on available information, the Project primarily follows existing transmission corridors, including locations where the existing lines already cross lands managed by federal, state, or local agencies or other protected resources. The Project does not introduce new independent corridor crossings of such lands. To the extent that approvals are required for continued use or minor modifications within existing corridors or substation areas, the Company will coordinate with the appropriate agencies during permitting and construction.

10. Describe the Applicant's construction plans for the project, including how the Applicant will minimize service disruption to the affected load area. Include requested and approved line outage schedules for affected lines as appropriate.

Response:

Project construction activities will include installation and maintenance of erosion and sediment control measures; development of access roads; removal of existing conductor, structures, and associated components where rebuild is required; installation of new foundations, structures, and conductors; and restoration of all areas disturbed during construction. Substation construction activities will include site preparation, grading, foundation installation, equipment installation, and expansion or reconfiguration of existing facilities.

All required environmental studies and permits will be completed prior to construction, and stormwater pollution prevention plans will be developed and implemented in accordance with the Commonwealth of Virginia's General Permit for Discharges of Stormwater from Construction Activities.

Because the majority of the transmission line work will occur within existing ROWs, construction will require planned circuit outages to safely remove, rebuild, or upgrade facilities while maintaining reliable service to customers. Following the Commission's approval of the Project, engineering, Regional Transmission Organizer outage approvals, and ROW acquisition, the estimated construction sequence can be summarized briefly as follows (refer to **Confidential Exhibit 27-C**, Construction and Outage Sequence):

1. Begin work by constructing access roads and work pads at Botetourt, Trinity, Windy Pass, and Mount Union Substations, and implement required distribution ties to support temporary and permanent transmission line structures to allow proposed station expansions to be graded in the clear.

2. Take short outages on the Cloverdale – Mount Union 138-kV, Cloverdale – Trinity 69-kV and Mount Union – Trinity 69-kV Circuits, as required, to install proposed foundations and structures around Botetourt, Trinity, and Mount Union Substations necessary for temporary and permanent reconfigurations to clear space for station grading and support construction sequencing prior to major outages. This includes installation of structures such as 286-38A, 648-1A, 1542-50, 1542-53, and 702-1A.

3. After initial structures are installed on centerline and temporary bypasses are in place to maintain service continuity, take an outage between Botetourt and Trinity Substations to rebuild between Botetourt and the proposed Windy Pass Stations, while keeping the Cloverdale – Botetourt 69-kV and Cloverdale – Mount Union 138-kV Circuits energized.

4. Relocate or remove existing transmission, distribution, and communication facilities, including relocation of distribution circuits, fiber, and unused existing transmission segments, to accommodate substation expansions and new line construction at Cloverdale, Botetourt, Trinity, and Mount Union.

5. Begin continuous substation construction activities at Botetourt, Trinity, Mount Union, and Cloverdale Substations, including grading, installation of foundations, control house modifications, and installation of major equipment in the clear where feasible.

6. Take an outage between Cloverdale – Mount Union 138-kV Circuit to reconductor a short section from Cloverdale Substation to structure 286-3.

7. Relocate conductors at Mount Union Substation to a new station box bay once station expansion is complete.

8. Take an extended outage on Cloverdale – Botetourt 69-kV Circuit to rebuild this portion on centerline.

9. Construct the Daleville Area Customer 138-kV Feeder Lines in the clear.

10. Take short outage from Botetourt to Windy Pass to cut in Windy Pass Substation and tie Wheatland to the new 69-kV circuit.

11. Next, reconductor the remaining portion of the Cloverdale – Mount Union 138-kV Transmission Line under extended outages. This includes the installation of structures 286-10A and 286-28A. Once reconductoring is complete reenergize circuit.

12. Take an extended outage from Mount Union to Windy Pass to rebuild this portion on centerline.

13. After the proposed station expansions are completed at Mount Union, Windy Pass, and lines are rebuilt take required outages to cut in new equipment and reenergize the loop at 138 kV.

Where required, circuit outages will be staged and coordinated to maintain reliable service through the use of temporary transmission line configurations, distribution ties, load transfers, temporary feeds, mobile equipment, and phased construction approaches, while performing work in the clear where feasible.

11. Indicate how the construction of this transmission line follows the provisions discussed in Attachment 1 of these Guidelines.

Response:

Protecting environmental resources such as natural, historic, scenic, and recreational values is of high importance to the Company. The siting and construction phases of the Project will follow the above-referenced guidelines to the extent practical. For a detailed discussion of the attention given to environmental resources and siting process used for this Project, see **Section III** of this Response to Guidelines and the Virginia Department of Environmental Quality Supplement.

12. a. Detail counties and localities through which the line will pass. If any portion of the line will be located outside of the Applicant's certificated service area: (1) identify each electric utility affected; (2) state whether any affected electric utility objects to such construction; and (3) identify the length of line(s) proposed to be located in the service area of an electric utility other than the Applicant.

Response:

The Project is located in Botetourt County, Virginia, within the Company's certificated service area.

b. Provide three (3) color copies of the Virginia Department of Transportation ("VDOT") "General Highway Map" for each county and city through which the line will pass. On the maps show the proposed line and all previously approved and certificated facilities of the Applicant. Also, where the line will be located outside of the Applicant's certificated service area, show the boundaries between the Applicant and each affected electric utility. On each map where the proposed line would be outside of the Applicant's certificated service area, the map must include a signature of an appropriate representative of the affected electric utility indicating that the affected utility is not opposed to the proposed construction within its service area.

Response:

The Company will provide a digital copy of the VDOT General Highway Maps for Botetourt County to the Commission Staff with this Application in lieu of providing hard copies. A reduced copy of these maps is included as **Confidential Exhibit 28-C** to this Application. The maps identify the proposed Project as well as the Company's existing high-voltage transmission facilities.

B. Line Design and Operational Features

1. Detail the number of circuits and their design voltage, initial operational voltage, any anticipated voltage upgrade, and transfer capabilities.

Response:

The proposed Daleville Area Customer 138-kV Feeder Lines will be single-circuit lines containing the Botetourt – Raspberry No. 1 138-kV Circuit and Botetourt – Raspberry No. 2 138-kV Circuit with a three-phase design and a nominal phase-to-phase design and operating voltage of 138 kV. A future voltage upgrade is not anticipated. The maximum load transfer capability for the overhead conductor is 557 megavolt-ampere ("MVA") (summer emergency rating) and 587 MVA (winter emergency rating).

The Project will also rebuild the existing Cloverdale – Trinity and Mount Union – Trinity 138-kV Transmission Line assets (currently operated at 69 kV), consisting of the existing Botetourt – Cloverdale, Botetourt – Trinity, and Mount Union – Trinity 69-kV Circuits. The Cloverdale – Mount Union 138-kV Transmission Line, proposed to be reconductored, consists of the existing Cloverdale (AP) – Mount Union No. 1 138-kV Circuit.

With the addition of the proposed Windy Pass Substation, the transmission lines will contain the following circuits:

Cloverdale to Windy Pass

The proposed Cloverdale – Windy Pass 138-kV Transmission Line will be a single-circuit line containing the Botetourt – Cloverdale 138-kV and Botetourt – Windy Pass 138-kV circuits with a three-phase design and a nominal phase-to-phase design and operating voltage of 138 kV. A future voltage upgrade is not anticipated. The maximum load transfer capability for the overhead conductor is 557 MVA (summer emergency rating) and 587 MVA (winter emergency rating).

Mount Union to Windy Pass

The proposed Mount Union - Windy Pass 138-kV Transmission Line will be a single-circuit line containing the Mount Union – Windy Pass 138-kV Circuit with a three-phase design and a nominal phase-to-phase design and operating voltage of 138 kV. A future voltage upgrade is not anticipated. The maximum load transfer capability for the overhead conductor is 557 MVA (summer emergency rating) and 587 MVA (winter emergency rating).

Trinity to Windy Pass

The proposed Trinity – Windy Pass 138-kV Transmission Line will be a single-circuit line containing the Trinity – Windy Pass 138-kV Circuit with a three-phase design and a nominal phase-to-phase design and operating voltage of 138 kV. A future voltage upgrade is not anticipated. The maximum load transfer capability for the overhead conductor is 557 MVA (summer emergency rating) and 587 MVA (winter emergency rating).

Wheatland to Windy Pass

The extended Trinity – Wheatland 69-kV Transmission Line will be a single-circuit line containing the Wheatland – Windy Pass 69-kV Circuit with a three-phase design

and a nominal phase-to-phase design and operating voltage of 69 kV. A future voltage upgrade is not anticipated. The maximum load transfer capability of the overhead conductor is 91 MVA (summer emergency rating) and 105 MVA (winter emergency rating).

Cloverdale to Mount Union

The existing Cloverdale – Mount Union 138-kV Transmission Line to be reconductored is primarily a single-circuit line containing the Cloverdale (AP) – Mount Union No. 1 138-kV Circuit with a three-phase design and a nominal phase-to-phase design and operating voltage of 138 kV.

Approximately 0.7 miles of the Cloverdale – Mount Union 138-kV Transmission Line will be a double-circuit line between existing structure 286-35 and the Mount Union Substation with a three-phase design. On this section of the line, in addition to the circuit described above, there will also be the Mount Union – New Castle 34-kV circuit that will have a nominal phase-to-phase design voltage of 138 kV and operating voltage of 34 kV.

For the reconductored 138-kV circuit, the maximum load transfer capability of the overhead conductor is 508 MVA (summer emergency rating) and 548 MVA (winter emergency rating).

2. **Detail the number, size(s), type(s), coating and typical configurations of conductors. Provide the rationale for the type(s) of conductor(s) to be used.**

Response:

The proposed conductors and ground wires were selected to meet the electrical requirements of the Project including load capacity, system stability, and efficiency. The mechanical strength and impacts on constructability are also considered in the selection process. The Company is proposing advanced conductors for the 138-kV line sections of the Project because of the required electrical ratings and conditions of the existing lines. The conductors proposed meet the definition of "Advanced Conductors" under Virginia Code Section 56-597 (as amended).

Daleville Area Customer 138-kV Feeder Lines

The proposed three-phase single-circuit 138-kV transmission feeder lines will consist of three 1033.5 kcmil ACSS "Curlew" conductors with 54/7 stranding (1.245-inch diameter) with one conductor per phase. The conductors will typically be arranged in a vertical configuration. The transmission lines will typically utilize two 0.646-inch diameter 144 fiber optical ground wire ("OPGW") for lightning protection. See **Exhibits 21** and **25** for the proposed conductor and shield wire configuration and phase separation.

Cloverdale to Windy Pass

The proposed three-phase single-circuit 138-kV transmission line will consist of three 1,033.5 kcmil ACSS "Curlew" conductors with 54/7 stranding (1.245-inch diameter) with one conductor per phase. The conductors will typically be arranged in an alternating configuration. The transmission line will typically utilize one 0.646-inch diameter 96 fiber OPGW for lightning protection. See **Exhibits 20 - 26** for the proposed conductor and shield wire configuration and phase separation.

Mount Union to Windy Pass

The proposed three-phase single-circuit 138-kV transmission line will consist of three 1,033.5 kcmil ACSS "Curlew" conductors with 54/7 stranding (1.245-inch diameter) with one conductor per phase. The conductors will typically be arranged in an alternating configuration. The transmission line will typically utilize one 0.646-inch diameter 96 fiber OPGW for lightning protection. See **Exhibits 21-25** for the proposed conductor and shield wire configuration and phase separation.

Trinity to Windy Pass

The proposed three-phase single-circuit 138-kV transmission line will consist of three 1,033.5 kcmil ACSS "Curlew" conductors with 54/7 stranding (1.245-inch diameter) with one conductor per phase. The conductors will typically be arranged in a vertical configuration. The transmission line will typically utilize one 0.646-inch diameter 96 fiber OPGW for lightning protection. See **Exhibit 25** for the proposed conductor and shield wire configuration and phase separation.

Wheatland to Windy Pass

The extended three-phase single-circuit 69-kV Trinity – Wheatland 69-kV Transmission Line will consist of three 336.4 kcmil ACSR "Oriole" conductors with 30/7 stranding (0.741-inch diameter) with one conductor per phase. The conductors will typically be arranged in a vertical configuration. The transmission line will typically utilize one 7 #10 Alumoweld ground wire (0.306-inch diameter) for lightning protection. See **Exhibits 17 and 18** for the proposed conductor and shield wire configuration and phase separation.

Cloverdale to Mount Union

The existing three-phase single-circuit 138-kV transmission line will be reconductored with three 1120 kcmil ACCC-AZR "Milan" conductors with 36/1 stranding (1.146-inch diameter) with one conductor per phase. The single-circuit conductors will typically be arranged in a horizontal configuration. The existing double-circuit section of the transmission line, on the Cloverdale (AP) – Mount Union No. 1 138-kV Circuit, will be reconductored with three 1,120 kcmil ACCC-AZR "Milan" conductors with 36/1 stranding (1.146-inch diameter). The double-circuit conductors will be arranged in a vertical configuration. The transmission line will typically utilize one 0.646-inch diameter 144 fiber OPGW and one 7#8

Alumoweld ground wire (0.385-inch diameter) for lightning protection. See **Exhibits 13 – 16** and **19** for the proposed conductor and shield wire configuration and phase separation.

Unlike the other components of the Project, the age and condition of the existing Cloverdale – Mount Union 138-kV Transmission Line asset allows the Company to install the advanced conductor on the existing structures without affecting the operational capacity of the line.

The proposed conductors will have a low reflective finish to reduce glare and mitigate visual impacts. The OPGW is composed of aluminum clad steel strands surrounding a stainless-steel tube containing fiber optic strands used for utility operations and communication.

3. **With regard to the proposed supporting structures over each portion of the ROW for the preferred route, provide diagrams (including foundation reveal) and descriptions of all the structure types, to include:**

    a. **Mapping that identifies each portion of the preferred route.**
    b. **The rationale for the selection of the structure type.**
    c. **The number of each type of structure and the length of each portion of the ROW.**
    d. **The structure material and rationale for the selection of such material.**
    e. **The foundation material.**
    f. **The average width at cross arms.**
    g. **The average width at the base.**
    h. **The maximum, minimum and average structure heights.**
    i. **The average span length.**
    j. **The minimum conductor-to-ground clearances under maximum operating conditions.**

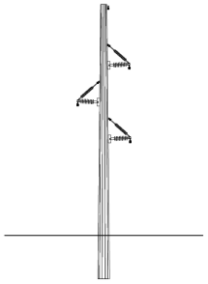
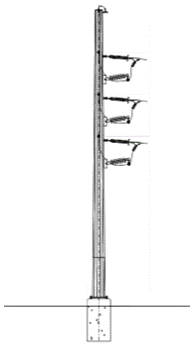
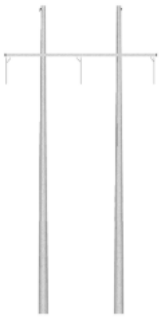
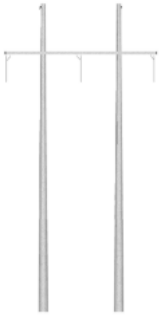
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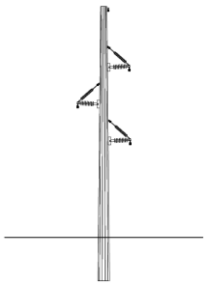
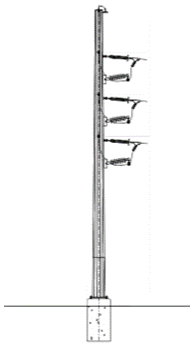
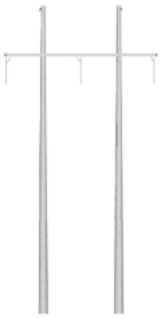
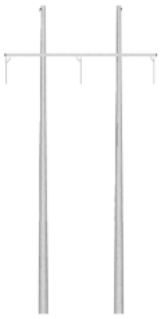
Final structure types will be determined during detailed engineering, which includes ground surveys and geotechnical studies. Nevertheless, based on preliminary engineering, the Company anticipates primarily using single-circuit steel monopole and H-frame structures for the new and rebuilt 138-kV transmission lines.

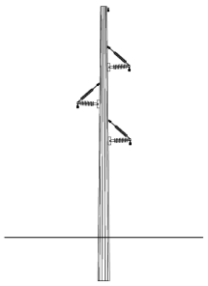
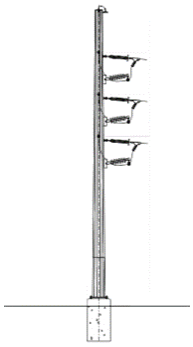
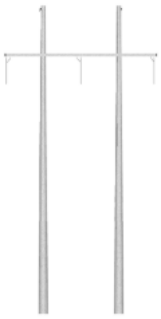
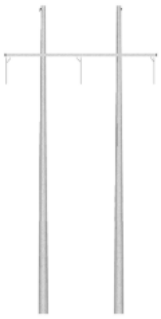
Cloverdale to Windy Pass, Trinity to Windy Pass, and Wheatland to Windy Pass

New or reused structure types and quantities of installations can be found in **Table II-1** below.

Table II-1
Structures (New or Reused) for the Lines to be Rebuilt between Cloverdale to Windy Pass, Wheatland to Windy Pass Extension, and the Tie Line between Trinity and Windy Pass

Structure Type	 **138-kV and 69-kV Monopole (Braced Post & Running Corner) See Exhibits 18 & 21-23**	 **138-kV and 69-kV Dead-end Monopole See Exhibits 17 & 24-25**	 **138-kV H-Frame See Exhibit 20**	 **138-kV Dead-end H-Frame See Exhibit 26**
a. Mapping that identifies each portion of the preferred route.	See **Exhibit 1**	See **Exhibit 1**	See **Exhibit 1**	See **Exhibit 1**
b. Rationale for the selection of the structure type.	The proposed 138-kV and 69-kV monopole braced post structure is best suited for short to medium spans in existing ROW.	The proposed 138-kV and 69-kV dead-end monopole structure is best suited for taps into substations, heavy line angle locations, and breaking wire tension.	The proposed 138-kV H-frame structure is best suited for medium to long spans in hilly terrain like the location in question.	The proposed 138-kV dead-end H-frame structure is best suited for special constraints such as crossing under existing transmission lines.
c-1. Estimated number of each type of structure.	39	24	1	2
c-2. Estimated length of each portion of the ROW.	C-WP: 3.3 miles W-WP: 0.03 miles	C-WP: 1.76 miles T-WP: 0.1 miles W-WP: 0.07 miles	C-WP: 0.09 miles	C-WP: 0.15 miles
d-1. Structure material.	Dulled galvanized steel	Dulled galvanized steel	Dulled galvanized steel	Dulled galvanized steel

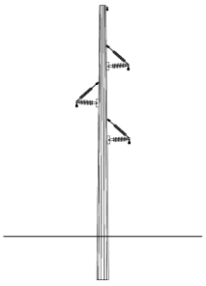
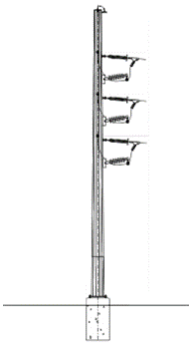
Structure Type	 **138-kV and 69-kV Monopole (Braced Post & Running Corner) See Exhibits 18 & 21-23**	 **138-kV and 69-kV Dead-end Monopole See Exhibits 17 & 24-25**	 **138-kV H-Frame See Exhibit 20**	 **138-kV Dead-end H-Frame See Exhibit 26**
d-2. Rationale for the selection of such material.	Galvanized steel was chosen for its durability and proven reliability in this region.	Galvanized steel was chosen for its durability and proven reliability in this region.	Galvanized steel was chosen for its durability and proven reliability in this region.	Galvanized steel was chosen for its durability and proven reliability in this region.
e. Foundation material.	Direct embed pole with an average embedment depth of 14’ or drilled concrete pier with an average depth of 25’. The typical concrete pier reveal height will be 1’ above grade.	Drilled concrete pier with an average depth of 25’. The typical concrete pier reveal height will be 1’ above grade.	Direct embed poles with an average embedment depth of 14’.	Drilled concrete pier with an average depth of 25’. The typical concrete pier reveal height will be 1’ above grade.
f. Average width at cross arms.	N/A	N/A	35’	35’
g. Average width at the base.	3’ Diameter Pole or 6’ Diameter Concrete Pier	6’ Diameter Concrete Pier	3’ Diameter Pole	6’ Diameter Concrete Pier
h-1. Approximate average height of structures (above ground).	80’	85’	65’	40’
h-2. Approximate typical structure height range (above ground).	65’ to 95’	70’ to 110’	65’	40’
i. Average span length.	460’	440’	530’	185’

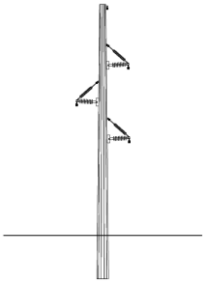
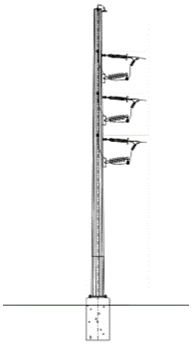
Structure Type	 **138-kV and 69-kV Monopole (Braced Post & Running Corner) See Exhibits 18 & 21-23**	 **138-kV and 69-kV Dead-end Monopole See Exhibits 17 & 24-25**	 **138-kV H-Frame See Exhibit 20**	 **138-kV Dead-end H-Frame See Exhibit 26**
j. Minimum conductor-to-ground clearances under maximum operating conditions.	24’-7”	24’-7”	24’-7”	24’-7”

Mount Union to Windy Pass

New or reused structure types and quantities of installations can be found in **Table II-2** below.

Table II-2
Structures (New or Reused) for the Line to be Rebuilt between Mount Union and Windy Pass

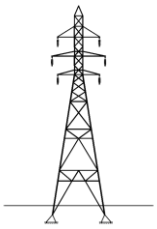
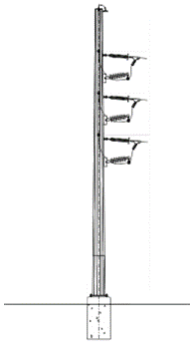
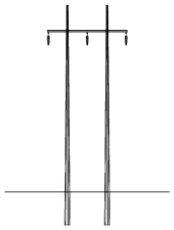
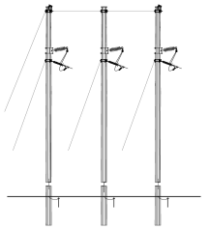
Structure Type	 **138-kV Monopole (Braced Post & Running Corner)** See **Exhibits 21 & 23**	 **138-kV Dead-end Monopole** See **Exhibits 24 & 25**	 **138-kV Dead-end Monopole with Davit Arms** See **Exhibit 12**
a. Mapping that identifies each portion of the preferred route.	See **Exhibit 1**	See **Exhibit 1**	See **Exhibit 1**
b. Rationale for the selection of the structure type.	The proposed 138-kV monopole braced post structure is best suited for short to medium spans in existing ROW.	The proposed 138-kV dead-end monopole structure is best suited for taps into substations, heavy line angle locations, and breaking wire tension.	The proposed 138-kV dead-end monopole structure is best suited for taps into substations, heavy line angle locations, and breaking wire tension.
c-1. Estimated number of each type of structure.	40	4	2
c-2. Estimated length of each portion of the ROW.	3.50 miles	0.25 miles	0.25 miles
d-1. Structure material.	Dulled Galvanized Steel	Dulled Galvanized Steel	Dulled Galvanized Steel
d-2. Rationale for the selection of such material.	Galvanized steel was chosen for its durability and proven reliability in this region.	Galvanized steel was chosen for its durability and proven reliability in this region.	Galvanized steel was chosen for its durability and proven reliability in this region.

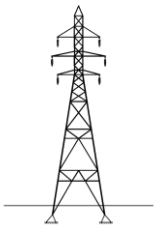
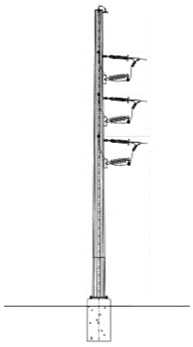
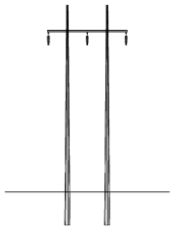
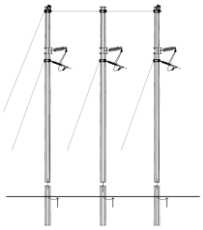
Structure Type	 **138-kV Monopole (Braced Post & Running Corner)** See **Exhibits 21 & 23**	 **138-kV Dead-end Monopole** See **Exhibits 24 & 25**	 **138-kV Dead-end Monopole with Davit Arms** See **Exhibit 12**
e. Foundation material.	Direct embed pole with an average embedment depth of 14'.	Drilled concrete pier with an average depth of 25'. The typical concrete pier reveal height will be 1' above grade.	Drilled concrete pier with an average depth of 25'. The typical concrete pier reveal height will be 1' above grade.
f. Average width at cross arms.	N/A	N/A	N/A
g. Average width at the base.	3' Diameter Pole	6' Diameter Concrete Pier	6' Diameter Concrete Pier
h-1. Approximate average height of structures (above ground).	80'	90'	100'
h-2. Approximate typical structure height range (above ground).	70' to 95'	80' to 95'	90' to 110'
i. Average span length.	460'	360'	730'
j. Minimum conductor-to-ground clearances under maximum operating conditions.	24'-7"	24'-7"	24'-7"

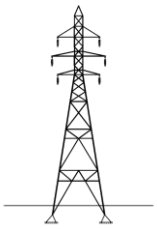
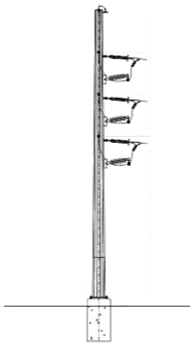
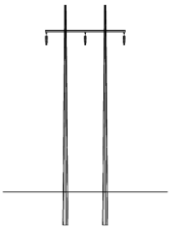
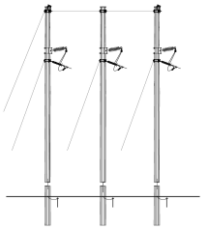
Cloverdale to Mount Union

One new structure will be installed and two existing structures will be replaced on the transmission line to be reconductored. The new or reused structures for the reconductored line are described in **Table II-3** below.

Table II-3
Structures (New or Reused) for the Line to be Reconductored between Cloverdale and Mount Union

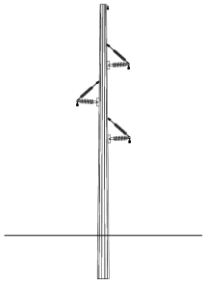
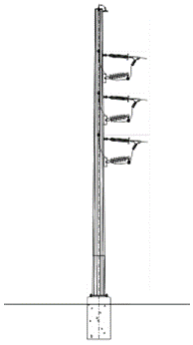
Structure Type	 **138-kV Lattice Tower** See **Exhibits 13 & 19**	 **138-kV Dead-end Monopole** See **Exhibit 16**	 **138-kV H-Frame Suspension** See **Exhibit 14**	 **138-kV Dead-end Three-Pole** See **Exhibit 15**
a. Mapping that identifies each portion of the preferred route.	See **Exhibit 1**	See **Exhibit 1**	See **Exhibit 1**	See **Exhibit 1**
b. Rationale for the selection of the structure type.	The proposed and existing 138-kV lattice tower structure is best suited for medium to long spans, heavy ling angle locations, and breaking wire tensions.	The proposed 138-kV dead-end monopole structure is best suited for taps into substations, heavy line angle locations, and breaking wire tension.	The proposed 138-kV H-frame structure is best suited for medium to long spans in mountainous terrain, like the location in question.	The existing 138-kV dead-end Three-Pole structure is best suited for heavy line angle locations and breaking wire tensions when adjoining horizontal conductor configurations.
c-1. Estimated number of each type of structure.	5	3	30	1
c-2. Estimated length of each portion of the ROW.	1.15 miles	0.25 miles	5.9 miles	0.10 Miles

Structure Type	 **138-kV Lattice Tower** See **Exhibits 13 & 19**	 **138-kV Dead-end Monopole** See **Exhibit 16**	 **138-kV H-Frame Suspension** See **Exhibit 14**	 **138-kV Dead-end Three-Pole** See **Exhibit 15**
d-1. Structure material.	Dulled Galvanized Steel	Dulled Galvanized Steel	Dulled Galvanized Steel	Dulled Galvanized Steel
d-2. Rationale for the selection of such material.	Galvanized steel was chosen for its durability and proven reliability in this region.	Galvanized steel was chosen for its durability and proven reliability in this region.	Galvanized steel was chosen for its durability and proven reliability in this region.	Galvanized steel was chosen for its durability and proven reliability in this region.
e. Foundation material.	Grillage foundations with an average embedment depth of 9'.	Drilled concrete pier with an average depth of 30'. The typical concrete pier reveal height will be 2' above grade.	Direct embed poles with an average embedment depth of 14'.	Direct embed poles with an average embedment depth of 10'.
f. Average width at cross arms.	30'	N/A	32'	N/A
g. Average width at the base.	32.5'	5' Diameter Pole with 8' Diameter Concrete Pier	3' Diameter Poles with 15.5' Pole-Spacing	2' Diameter Poles with 20' Pole-Spacing
h-1. Approximate average height of structures (above ground).	115'	102'	75'	55'
h-2. Approximate typical structure height range (above ground).	100' to 135'	100' to 105'	45' to 105'	55'
i. Average span length.	1,200'	1,000'	528'	440'

Structure Type	 **138-kV Lattice Tower** See **Exhibits 13 & 19**	 **138-kV Dead-end Monopole** See **Exhibit 16**	 **138-kV H-Frame Suspension** See **Exhibit 14**	 **138-kV Dead-end Three-Pole** See **Exhibit 15**
j. Minimum conductor-to-ground. clearances under maximum operating conditions.	24’-7”	24’-7”	24’-7”	24’-7”

Daleville Area Customer 138-kV Feeder Lines

Table II-4
Structures for the Feeder Lines

Structure Type	 **138-kV Monopole (Braced Post & Running Corner)** See **Exhibit 21**	 **138-kV Monopole Dead-end** See **Exhibit 25**
a. Mapping that identifies each portion of the preferred route.	See **Exhibit 1**	See **Exhibit 1**
b. Rationale for the selection of the structure type.	The proposed 138-kV monopole braced post structure is best suited for short to medium spans in existing ROW.	The proposed 138-kV dead-end monopole structure is best suited for taps into substations, heavy line angle locations, and breaking wire tension.
c-1. Estimated number of each type of structure.	2	22
c-2. Estimated length of each portion of the ROW.	0.22 miles	2.38 miles
d-1. Structure material.	Galvanized steel	Galvanized steel
d-2. Rationale for the selection of such material.	Galvanized steel was chosen for its durability and proven reliability in this region.	Galvanized steel was chosen for its durability and proven reliability in this region.
e. Foundation material.	Direct embed pole with an average embedment depth of 14’.	Drilled concrete pier with an average depth of 30’. The typical concrete pier reveal height will be 1’ above grade.
f. Average width at cross arms.	N/A	N/A
g. Average width at the base.	5’ Diameter Pole 6’ Diameter Concrete Pier	5’ Diameter Pole 6’ Diameter Concrete Pier

h-1. Approximate average height of structures (above ground).	85’	90’
h-2. Approximate typical structure height range (above ground).	85’	85’ to 100’
i. Average span length.	440’	530’
j. Minimum conductor-to-ground clearances under maximum operating conditions.	24’-7”	24’-7”

4. **With regard to the proposed supporting structures for all feasible alternate routes, provide the maximum, minimum, and average structure heights with respect to the whole route.**

   Response:

   Cloverdale to Windy Pass, Trinity to Windy Pass, and Wheatland to Windy Pass

   Based on preliminary engineering, the anticipated heights of the proposed transmission line structures range from approximately 40 feet to 110 feet, with an average structure height of 80 feet.

   Mount Union to Windy Pass

   Based on preliminary engineering, the anticipated heights of the proposed transmission line structures range from approximately 70 feet to 110 feet, with an average structure height of 80 feet.

   Cloverdale to Mount Union

   Based on preliminary engineering, the anticipated heights of the proposed transmission line structures range from approximately 45 feet to 135 feet, with an average structure height of 81.5 feet. On this line, the Company proposes to reconductor the line using existing structures almost exclusively.

   Daleville Area Customer 138-kV Feeder Lines

   Based on preliminary engineering, the anticipated heights of the proposed transmission line structures range from approximately 85 feet to 100 feet, with an average structure height of 90 feet.

5. **For lines being rebuilt, provide mapping showing existing and proposed structure heights for each individual structure within the ROW, as proposed in the Application.**

Response:

See **Exhibit 2,** GIS Constraints Map.

6. **Provide photographs for typical existing facilities to be removed, comparable photographs or representations for proposed structures, and visual simulations showing the appearance of all planned transmission structures at identified historic locations within one mile of the proposed centerline and in key locations identified by the Applicant.**

   Response:

   See **Exhibits 3 through 16** for photographs of existing structures, **Exhibits 12 through 26** for representations of proposed structures, and **Exhibit 29** for photo simulations representing typical Project construction.

C. Describe and furnish plan drawings of all new substations, switching stations, and other ground facilities associated with the proposed project. Include size, acreage, and bus configurations. Describe substation expansion capability and plans. Provide one-line diagrams for each.

Response:

The Project includes construction of one new substation and upgrades to four existing substations. Conceptual plan drawings and one-line diagrams for these facilities are provided at **Exhibits 30 through 34** and **Confidential Exhibits 30-C through 34-C**, including site layout, acreage, and equipment arrangement, will be determined during detailed engineering.

Proposed Windy Pass Substation (New Facility):

The Project includes construction of the new Windy Pass Substation, which will be constructed on property adjacent to the existing Trinity Substation that is being purchased by the Company. Site development grading, including stormwater management, will be required for the proposed substation.

The proposed fenced in 182- by 500-foot substation will be constructed within an approximately 12-acre site on the parcel. The substation will be configured with a 138-kV vertical ring bus and 69-kV support on the low side to serve the 69-kV transmission line to Wheatland Substation.

The proposed Windy Pass Substation will include:

- Five 138-kV circuit breakers and ten sets of associated switches.
- Four line motor-operated air-breaker (MOAB) switches.
- Four 138-kV box bays, one of which will be a Detroit bus to allow a corner tap to Mount Union.

- One 138-kV/69-kV transformer.
- One 69-kV circuit breaker.
- Five three-phase coupling capacitor voltage transformers (CCVTs).
- One 16-foot by 36-foot drop-in control house.
- One 150 MVAR STATCOM and associated equipment.
- Cable trench.
- One primary and one backup 120/240 volt station service.

See **Exhibits 30** and **Confidential Exhibit 30-C** for the proposed Windy Pass Substation location, layout, one-line, and photographs.

Cloverdale Substation (Existing Facility):

The existing Cloverdale Substation is a 345/138/69-kV yard, separate from the 765-kV yard. The proposed upgrades will apply to the Botetourt – Cloverdale 69-kV Circuit to create the 138-kV loop needed for the Project.

- Botetourt – Cloverdale 69-kV Circuit will be converted from 69 kV to 138 kV by upgrading the station equipment.
- To accomplish that, a new 138-kV circuit breaker and circuit breaker disconnect switches will be added to the open breaker and a half position of the 138-kV transmission bay.
- Install one three-phase 138-kV bus CCVT.
- No station fence expansion is needed because of this Project.

See **Exhibits 31** and **Confidential Exhibit 31-C** for the Cloverdale Substation location, layout, one-line, and photograph.

Botetourt Substation (Existing Facility):

The Botetourt Substation will be upgraded and reconfigured into a six-breaker 138-kV ring bus configuration with two 138-kV customer feeds and installation of a 138/12-kV transformer to support delivery of customer load. The existing Botetourt Substation is approximately 170 feet by 200 feet. The expansion area is approximately 260 feet by 355 feet by 315 feet by 155 feet (approximately 2.3 acres) beyond the existing footprint to accommodate new equipment and bus reconfiguration. Site development grading, including stormwater management, will be required to extend the substation pad.

To serve the load requested by a customer for a data center (projected peak demand approximately 300 MW), the Company will convert the existing Botetourt Substation from 69 kV to 138 kV and establish two independent 138 kV feeds to the customer delivery point. Because the surrounding transmission system currently operates at 69 kV, a conversion of the local transmission infrastructure to 138 kV is required to support the requested service.

The following equipment and facilities are planned for installation at the existing Botetourt Substation:

- One three-phase power transformer (138/12 kV)
- Five 138-kV H-frame structures
- One 138-kV monopole structure
- Four line MOAB switches
- Six 138-kV circuit breakers with associated disconnect switches
- Six 138-kV three-phase CCVTs
- Power quality metering
- Two sets of customer revenue metering
- Replacement of both primary and alternate station service systems
- Approximately 20-foot by 24-foot expansion of the existing Parkline control building
- One 12-kV rural distribution bay
- Cable trench installation
- Substation fence replacement

See **Exhibits 32** and **Confidential Exhibit 32-C** for the Botetourt Substation location, layout, one-line, and photograph.

Trinity Substation (Existing Facility):

At the existing Trinity Substation, the existing 69/12-kV transformer, transformer high-side 69-kV circuit switcher, and motor-operated switch will be removed. A new 138/12-kV transformer, transformer high-side 138-kV circuit switcher, motor-operated switch, and associated equipment will be installed. One new 138-kV H-frame dead-end structure will be installed and the existing 69-kV box bay and switches will be removed. Trinity Substation was previously serving the Mount Union, Wheatland, and Botetourt Substations, but those will now be served from the proposed Windy Pass Substation. As such, those line switches will be removed from Trinity Substation.

The existing access road to Trinity will be relocated to address the limited sight distance and safety concerns and improve ingress and egress to the property.

See **Exhibits 33** and **Confidential Exhibit 33-C** for the Trinity Substation location, layout, one-line, and photograph.

Mount Union Substation (Existing Facility):

The Mount Union Substation will be upgraded to accommodate the conversion of the transmission line circuits from 69 kV to 138 kV. Site development grading will be required to extend the substation pad and accommodate these improvements. The expansion area will be approximately 120 by 125 feet on property being purchased by Appalachian Power.

The following equipment is planned to be installed at the existing Mount Union Substation:

- One box bay
- Two breakers and five sets of associated switches
- Two three-phase CCVTs
- One station service
- One turn structure

See **Exhibits 34** and **Confidential Exhibit 34-C** for the Mount Union Substation location, layout, one-line, and photograph.

SECTION III. IMPACT OF LINE ON SCENIC, ENVIRONMENTAL, AND HISTORIC FEATURES

The Siting Study and the Virginia Department of Environmental Quality Supplement ("VDEQ Supplement") address scenic, environmental, and historic features associated with the Project. Brief responses to the **Section III** guideline questions are provided below, but for in-depth discussion of these issues, please refer to the Siting Study and the VDEQ Supplement. A Project Overview is included as **Exhibit 1** and a more detailed GIS constraints map, which illustrates the various resources and sensitive features relative to the proposed Project, is included as **Exhibit 2**. Furthermore, the Siting Study includes additional Project maps describing the route development process.

A. Describe the character of the area that will be traversed by this line, including land use, wetlands, etc. Provide the number of dwellings within 500 feet, 250 feet, and 100 feet of the centerline, and within the right-of-way ("ROW") for each route considered. Provide the estimated amount of farmland and forestland within the ROW that the proposed project would impact.

Response:

The Project area consists of a mix of residential, agricultural, forested, commercial, and recreational land uses, with existing electric transmission infrastructure crossing the community. The United States Geological Survey's National Land Cover Database ("NLCD") indicates the Project area is primarily composed of deciduous forest and pasture/hay land. The Project crosses multiple streams and wetland areas included in the National Hydrography Dataset and National Wetlands Inventory databases. A Desktop Wetland and Stream Delineation Report was prepared for the Project and is included in the VDEQ Supplement (see **Attachment 2.D.1**).

There are 167 dwellings located within 500 feet, 62 dwellings within 250 feet, and 15 dwellings within 100 feet of the Project centerline. No dwellings are within the existing or proposed ROWs for the Project. Two outbuildings (shed, garage, etc.) are within the existing and proposed ROWs for the Project. Approximately 23 acres of prime and unique farmland or farmland of statewide importance and approximately 72 acres of pasture and/or rangeland are within the Project ROWs. Additionally, there are approximately 100 acres of forested land within the existing and proposed ROWs of the Project.

The estimates provided above of the dwellings, farmland, and forested land are based on a typical 80- or 100-foot-wide ROW centered on the route and consider Light Detection and Ranging ("LiDAR") survey, NLCD data, and features digitized from aerial imagery.

Portions of this section containing sensitive information regarding archaeological resources are being withheld as public disclosure of such information is prohibited under 16 U.S.C. Section 470 H.H.

B. Describe any public meetings the Applicant has had with neighborhood associations and/or officials of local, state or federal governments that would have an interest or responsibility with respect to the affected area or areas.

Response:

The Company initiated the siting process for the Project in early 2026 and met with Botetourt County staff in April 2026 to introduce the Project. In addition, the Project team requested input from 19 federal and state agencies that may have an interest in the Project or responsibility for resources in the area. A list of each agency contacted and response is included as Attachment E to the Siting Study.

The Project was publicly announced in a news release on May 15, 2026, and a Project-specific website was launched that provided information on Project need, transmission line design, ROW activities, and the construction process. Direct mailings were sent to 292 landowners that were identified from Botetourt County parcel data and within a 500-foot corridor (250 feet on either side of the transmission line centerline to be rebuilt) and within a 1,000-foot buffer around the proposed substation and the substations to be upgraded. Both a postcard and a subsequent letter and fact sheet were mailed to each landowner inviting them to attend an in-person open house to learn more about the Project. Additionally, 228 automated DAVOX phone calls were placed to landowners in the Project area, resulting in 189 successful contacts. This outreach supplemented the mailed notices and provided an additional method for notifying landowners of the Project and the public open house.

Appalachian presented the rebuild route to the public through the website and at an in-person open house. The in-person public open house was held on June 3, 2026, at Read Mountain Middle School (182 Orchard Hill Drive, Cloverdale, Virginia). The open house provided an opportunity for landowners and other stakeholders to review Project information and submit comments to the Company. Eighty-five members of the public attended the in-person open house.

The Company will continue to engage with landowners, federal, state, and local agencies and officials, and stakeholders and incorporate feedback, as appropriate, throughout the remainder of the Project development process.

C. Detail the nature, location, and ownership of each building that would have to be demolished or relocated if the project is built as proposed.

Response:

Based on available aerial imagery and LiDAR survey, there are two secondary structures such as barns, outbuildings, sheds, and garages that are within the existing and proposed ROWs for the Project. Additional field work, engineering, and discussions with landowners are needed to determine whether these secondary structures will need to be removed to construct the Project. These building locations are identified in Exhibit 2, GIS Constraints Map. None of the 16 dwellings identified as being located within 100 feet of the centerline of the Proposed Route in Section III.A above are within the ROWs of the Proposed Route and therefore do not need to be demolished.

D. Identify existing physical facilities that the line will parallel, if any, such as existing transmission lines, railroad tracks, highways, pipelines, etc. Describe the current use and physical appearance and characteristics of the existing ROW that would be paralleled, as well as the length of time the transmission ROW has been in use.

Response:

The Project primarily consists of the rebuild and/or reconductor of three transmission line within Appalachian's existing transmission line ROWs or on Company-owned property. Two new approximately 1.3-mile-long transmission lines will be built on the customer's property between the Botetourt Substation and the customer facility. As such, the Project generally will not parallel other physical facilities.

E. Indicate whether the Applicant has investigated land use plans in the areas of the proposed route and indicate how the building of the proposed line would affect any proposed land use.

Response:

The Company considered potential impacts on existing and future land uses that may not be compatible with transmission and substation facilities. The Project team reviewed the land use plans adopted by Botetourt County and met with Botetourt County staff in April 2026 to discuss existing and future county plans. No potential conflicts with specific land use plans were identified in the Botetourt County Comprehensive Plan (Envision Botetourt 2045) or by the Botetourt County officials.

F. Government Bodies

1. **Indicate if the Applicant determined from the governing bodies of each county, city and town in which the proposed facilities will be located whether those bodies have designated the important farmlands within their jurisdictions, as required by § 3.2-205 B of the Code.**

   Response:

   Based on a review of the Botetourt County Comprehensive Plan and input from local officials, the Project does not cross any designated important farmlands in Botetourt County as determined by § 3.2-205 B of the Code. The Project is not expected to adversely impact farmland, given that the Project will largely be rebuilt within existing transmission line ROWs.

2. **If so, and if any portion of the proposed facilities will be located on any such important farmland:**

    a. **Include maps and other evidence showing the nature and extent of the impact on such farmlands;**

    Response:

    Not applicable.

    b. **Describe what alternatives exist to locating the proposed facilities on the affected farmlands, and why those alternatives are not suitable; and**

    Response:

    Not applicable.

    c. **Describe the Applicant's proposals to minimize the impact of the facilities on the affected farmland.**

    Response:

    Not applicable.

G. Identify the following that lie within or adjacent to the proposed ROW:

1. **Any district, site, building, structure, or other object included in the National Register of Historic Places ("NRHP") maintained by the U.S. Secretary of the Interior;**

    Response:

    Five NRHP resources were identified in the vicinity of the proposed facilities.

    - Nininger's Mill is located approximately 0.5 miles east of the Cloverdale – Mount Union 138-kilovolt ("kV") Transmission Line.
    - The Thomas D. Kinsie House is located approximately 0.2 miles west of the Cloverdale – Trinity 138-kV Transmission Line.
    - Greenfield Kitchen and Quarters is located approximately 0.1 miles east of the Cloverdale – Trinity 138-kV Transmission Line.
    - The Bryan McDonald, Jr., House is located approximately 0.2 miles south of the Mount Union – Trinity 138-kV Transmission Line.
    - [redacted]

[redacted]

No other NRHP resources were identified within or adjacent to the proposed ROWs.

2. **Any historic architectural, archaeological, and cultural resources, such as historic landmarks, battlefields, sites, buildings, structures, districts or objects listed or determined eligible by the Virginia Department of Historic Resources ("VDHR");**

Response:

A review of records maintained by the VDHR identified previously recorded architectural, archaeological, and cultural resources within and adjacent to the Project area. The following Table summarizes the identified resources, their designation status, proximity to the Project, and the anticipated effects of the Project.

Previously Recorded Cultural Resources in Project Area

VDHR ID / NR No	Name	Type	Designation	Distance to Project	Proposed Effect
011-0021 / 11000604	Bryan McDonald, Jr., House	Dwelling	NRHP/VLR	0.12 mi	Minimal visual effect
[redacted]	[redacted]	[redacted]	NRHP/VLR	[redacted]	Minimal visual effect
011-0057 / 80004171	Nininger's Mill-Tinker Mill	Mill	NRHP/VLR	0.42 mi	Minimal visual effect
011-5018	Delbert House (Demolished)	Dwelling	Eligible for Environmental Review purposes only	382 feet	No effect
011-5019	Delbert Log House (Demolished)	Dwelling	Eligible for Environmental Review purposes only	288 feet	No effect
011-5034 / 2000445	Thomas D. Kinzie House	Dwelling	NRHP/VLR	489 feet	Minimal visual effect
011-5481	Norfolk and Western Railway Section	Transportation	Potentially Eligible	358 feet	Minimal visual effect
011-5563	Cloverdale Furnace Foundation	Industrial	Eligible for Environmental Review purposes only	0.12 mi	No effect

VDHR ID / NR No	Name	Type	Designation	Distance to Project	Proposed Effect
011-5700 / SG100007570	Greenfield Buildings	Dwelling	NRHP/VLR	298 feet	Minimal visual effect
021-5012	Appalachian National Scenic Trail	Recreation	Eligible	Intersected	Minimal visual effect
[redacted]	Unnamed	[redacted]	Not NRHP Evaluated	[redacted]	Moderate physical effects
[redacted]	Unnamed	[redacted]	Not Eligible	[redacted]	Minimal physical effects
[redacted]	Unnamed	[redacted]	Not Eligible	[redacted]	Moderate physical effects

Refer to the Virginia Department of Historic Resources Pre-Application (see **Attachment 2.H.1** to the VDEQ Supplement) for additional detail on the eligible and potentially eligible resources in the Project area.

3. **Any historic district designated by the governing body of any city or county;**

   Response:

   The Daleville College Historic District, an eligible architectural resource, is located approximately 0.6 miles east of the Cloverdale – Mount Union 138-kV Transmission Line.

4. **Any state archaeological site or zone designated by the Director of the VDHR, or its predecessor, and any site designated by a local archaeological commission, or similar body;**

   Response:

   The Cloverdale Furnace Foundation (011-5563) is an identified cultural resource with archaeological characteristics. However, available records do not indicate that it is a state archaeological site or zone designated by the Director of the VDHR, or a site designated by a local archaeological commission or similar body. No state- or locally designated archaeological sites or zones were identified within the Study Area.

5. **Any underwater historic assets designated by the VDHR, or predecessor agency or board;**

   Response:

   None.

6. **Any National Natural Landmark designated by the U.S. Secretary of the Interior;**

   Response:

   None.

7. **Any area or feature included in the Virginia Registry of Natural Areas maintained by the Virginia Department of Conservation and Recreation ("VDCR");**

   Response:

   None.

8. **Any area accepted by the Director of the VDCR for the Virginia Natural Area Preserves System;**

   Response:

   None.

9. **Any conservation easement or open-space easement qualifying under §§ 10.1-1009 – 1016, or §§ 10.1-1700 – 1705, of the Code (or a comparable prior or subsequent provision of the Code);**

   Response:

   There are three existing Virgina Outdoors Foundation ("VOF") conservation easements crossed by the existing ROW, which qualify under §§ 10.1-1009 – 1016 or §§ 10.1-1700 – 1705 of the Code (or a comparable prior or subsequent provision of the Code). The Proposed Route crosses each of these VOF easements within the existing ROW. Project activities within this segment of the transmission line would primarily consist of reconductoring existing structures, thereby limiting the extent of ground disturbance and minimizing potential impacts to resources within the area. The Project team communicated with VOF staff to document the Proposed Route for the rebuild, which will be within the existing ROW across the VOF easements.

10. **Any state scenic river;**

    Response:

    None.

11. **Any lands owned by a municipality or school district; and**

    Response:

    None.

12. **Any federal, state or local battlefield, park, forest, game or wildlife preserve, recreational area, or similar facility. Features, sites, and the like listed in 1 through 11 above need not be identified again.**

    Response:

    The existing and proposed Project ROWs cross the Appalachian National Scenic Trail at multiple locations, as shown in **Exhibit 2**. Additional recreational features include the Cherry Blossom Trail and the Roanoke Appalachian Trail Club Trail, which are also crossed or intersected. Correspondence from the VDCR indicates that while the Carvins Cove Reservoir Slopes Conservation Site occurs within the Project area, it is a Virginia Natural Heritage Conservation Site and not a designated Natural Area Preserve or conservation/open-space easement under statutory provisions. Because the Project will largely be constructed within existing transmission line ROWs, new impacts to these conservation and recreation areas are not expected. The Company will coordinate with the National Park Service ("NPS"), VDCR, and other applicable agencies and organizations to minimize any potential impact from the Project.

H. List any registered aeronautical facilities (airports, helipads) where the proposed route would place a structure or conductor within the federally defined airspace of the facilities. Advise of contacts, and results of contacts, made with appropriate officials regarding the effect on the facilities' operations.

Response:

No public use airport is located within 20,000 linear feet of the Project based on a review of public Federal Aviation Administration ("FAA") data. The Company will use the FAA's Obstruction Evaluation/Airport Airspace Analysis tool to review the proposed structure locations and continue coordination with the FAA and Virginia Department of Aviation for the duration of the Project.

I. Advise of any scenic byways that are in proximity to or that will be crossed by the proposed transmission line and describe what steps will be taken to mitigate any visual impacts on such byways. Describe typical mitigation techniques for other highways' crossings.

Response:

None.

J. Identify coordination with appropriate municipal, state, and federal agencies.

Response:

The Siting Team contacted various federal, state, and local agencies and/or officials to inform them of the Project and obtain relevant information. A full list of agencies contacted and responses received are provided in Attachment E of the Siting Study.

K. Identify coordination with any non-governmental organizations or private citizen groups.

Response:

The Company solicited input from landowners and invited the general public to review the Project information and submit comments at the in-person open house.

A citizen group that identifies itself as the Botetourt Conservatives and Independent Thinkers attended the in-person open house and shared information with the public. The Company has considered all comments received from the public, including the comments received from this group.

L. Identify any environmental permits or special permissions anticipated to be needed.

Response:

The following is a list of environmental permits or special permissions that are anticipated to be needed for the Project:

- General Virginia Pollutant Discharge Elimination System Permit for Discharges of Stormwater from Construction Activities from VDEQ.
- Virginia Marine Resources Commission Crossing Permit.
- United States Army Corps of Engineers Nationwide Permit 57 for temporary and/or permanent impacts to waters of the United States.
- Special Use Permit or ROW authorization from the NPS and/or United States Forest Service, as applicable, for crossing and/or conducting work within the Appalachian National Scenic Trail corridor.

SECTION IV. HEALTH ASPECTS OF ELECTRIC AND MAGNETIC FIELDS

A. State the calculated maximum electric and magnetic field ("EMF") levels that are expected to occur at the edge of the rights-of-way ("ROWs"). If the new transmission line is to be constructed on an existing electric transmission line ROW, provide the present EMF levels as well as the maximum levels calculated at the edge of the ROW after the new line is operational.

Response:

The following is an analysis of EMF associated with the transmission line components of the Daleville Area Transmission Improvements Project.

The transmission line portion of the Project consists of rebuilding, reconductoring, and newly building multiple transmission lines in the Daleville Load Area, as shown below:

- Rebuild approximately 5.3 miles of the Cloverdale – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV (will maintain existing 80-foot-wide ROW).

- Rebuild approximately 4.0 miles of the Mount Union – Trinity 138-kV Transmission Line (currently operated at 69 kV) and upgrade from 69 kV to 138 kV (will maintain existing 80-foot-wide ROW).

- Reconductor approximately 7.4 miles of the Cloverdale – Mount Union 138-kV Transmission Line and replace approximately two existing structures and add one new structure (will generally maintain existing 100-foot-wide ROW).

- Construct two new 138-kV feeder lines, parallel to each other and each approximately 1.3 miles in length, from Botetourt Substation into the new customer's data center campus. The ROWs of the new feeder lines will both be 75 feet wide, creating an overall 150-foot-wide ROW.

- Extend the Trinity – Wheatland 69-kV Transmission Line approximately 0.1 miles to the new Windy Pass Substation. The new transmission line will have an 80-foot-wide ROW.

The lines being rebuilt will include installation of all new structures and infrastructure, while predominantly rebuilding within the existing ROWs.

EMF levels were computed at the ROW edges of the existing and proposed line configurations at the point of minimum ground clearance, where EMF is the highest. Lower EMF levels are expected beyond the ROW edges, as levels decline with distance.

Factors that affect EMF include the ROW width, operating voltage, current flow and direction, electrical unbalance, line configuration, conductor height above ground, and other nearby objects. Nominal voltages and balanced conditions are assumed, with maximum current levels and directions expected during normal system operation. No trees, shrubs, buildings, or other objects that can block EMF are assumed in proximity to the existing and proposed lines.

Normal maximum loading levels, representing peak load conditions, were assumed in the analysis to maximize the calculated magnetic fields. These loading levels are based on winter 2031 projected system conditions. Daily/hourly loads will fluctuate below these levels. All calculations were obtained at the height of 3.28 feet (one meter) above ground using the Corona and Field Effects Program ("CAFEP") EMF computer program.

For line segments with an 80-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the Project are 1.6 kilovolt per meter ("kV/m") and 142 milligauss ("mG"), respectively. These figures are only found at one isolated structure location; the more typical EMF numbers are 0.4 kV/m and 46 mG. The maximum EMF levels for the existing 80-foot-wide ROW line segments are 0.5 kV/m and 14 mG, respectively.

For line segments with a 100-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the proposed Project are 0.6 kV/m and 37 mG, respectively. The maximum EMF levels for the existing 100-foot-wide ROW (single-circuit transmission line) are 0.6 kV/m and 20 mG, respectively.

For line segments with a 75-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the proposed Project are 0.5 kV/m and 37 mG, respectively. There are no existing configurations with a 75-foot-wide ROW.

B. If Company is of the opinion that no significant health effects will result from the construction and operation of the line, describe in detail the reasons for that opinion and provide references or citations to supporting documentation.

Response:

EMF occurs naturally in the environment. An electric field is present between the earth and its atmosphere and can discharge as lightning during thunderstorms. The earth also has a magnetic field, which provides an operating basis for the magnetic compass. EMF exists wherever there is a flow of electricity, including electrical appliances and power equipment.

Electric fields are produced by voltage or electric charge. A lamp cord that is plugged in produces an electric field even if the lamp is turned off. These fields commonly are measured in kV/m; the higher the voltage, the greater the electric field. Magnetic fields are created by the flow of current in a wire. As current increases, the magnetic field strength also increases; these fields are measured in units known as gauss or mG.

Electric fields are blocked by trees, shrubs, buildings, and other objects. Magnetic fields are not easily blocked and can pass through most objects. The strength of these fields decreases rapidly with distance from the source.

EMF associated with power lines and household appliances oscillate at the power frequency (60 hertz in the United States ["U.S."]). When people are exposed to these fields, small electric currents are produced in their bodies. These currents are weaker than natural electric currents in the heart and nervous system.

Possible health effects from exposure to EMF have been studied for several decades. Initial research, focused on electric fields, found no evidence of biologic changes that could lead to adverse health effects. Subsequently, a large number of epidemiologic studies examined the possible role of magnetic fields in the development of cancer and other diseases in adults and children. While some studies have suggested an association between magnetic fields and certain types of cancer, researchers have been unable to consistently replicate those results in other studies. Similarly, inconclusive or inconsistent results have been reported in laboratory studies of animals exposed to magnetic fields that are representative of common human exposures. A summary of such exposures, found in residential settings, is provided in Table IV-1 below.

Appliance Type	Number of Devices	Magnetic Field (mG)		
		1.2" (0.1 feet)	12" (1.0 feet)	User Distance
AC Adapters	3	1.4 – 863	0 - 7.5	0 - 0.8
Blood Pressure Monitors	4	4.2 - 39.6	0 - 0.3	0 – 0.2
Bluetooth Headsets	3	0	0	0
Coffee Grinders	3	60.9 – 779	0.3 – 6.5	0.8 - 40.9
Compact Fluorescent Bulbs	15	0 – 32.8	0 - 0.1	0 - 0.6
Compact Fluorescent Bulb Ballast	1	8.5 – 23.5[1]	0 – 0.1[1]	0 - 0.1[1]
Computers, Desktop	3	3.8 – 68.9	0 -1.1	0.1 – 0.5
Computers, Laptop	4	0 – 5.1	0	0 – 0.1
Digital Cameras	3	0	0	0
Digital Photo Frames	5	0	0	0
Digital Video Recorders	4	0 – 29.6	0 – 0.2	0
Dimmer Switches	4	11.5 – 32.1	0 – 0.8	0 – 0.8
DVD Players	5	0 – 28.9	0 – 0.5	0
Electric Lawn Mower	1	1939	156	14.1
Electric Leaf Blowers	4	272 – 4642	17.1 – 155	28.3 – 61.5
Electric Toothbrushes	5	3.6 - 742	0 – 4.8	3.6 – 742
Electric Toothbrush Chargers	5	0 – 4.2	0	0
External Hard Drives	4	0.6 – 1.7	0	0
Gaming Consoles	10	0 – 215	0 – 0.5	0 – 0.6
GPS, Handheld	5	0 – 0.1	0	0
Hobby Tools	2	126 – 438	1.4 – 2.4	1.4 - 438
Hot Glue Guns	3	0 – 0.9	0	0
LCD Computer Monitors	4	0 – 4.5	0	0
LCD Televisions	4	1.1 – 3.9	0 – 2.5	0 – 0.6
Massagers/Massage Chairs	3	81.9 – 500	0.6 – 2.3	214 - 500
MP3 Players	5	0	0	0
Noise Cancellation Headphones	1	0	0	0
Paper Shredders	4	11.0 – 4841	0.5 – 102	0.5 – 33.4
Plasma Televisions	2	45.1 – 73.6	1.4 – 2.2	0 – 0.1
Power Tools – Corded	3	784 – 982	8.8 – 31.3	46.8 - 123
Power Tools – Cordless	6	9.0 – 227	0 – 2.2	0 – 13.7
Printers	5	0.1 – 6.2	0 – 0.3	0 – 0.3
Scanners	3	0.6 – 6.7	0 – 0.3	0
Security System Panels	3	0 – 0.3	0	0
Tankless Hot Water Heater	1	10.1 – 21.9[2]	1.2	0.2
Track Lighting	5	0.2 – 4.0	0 – 0.3	0
Vacuum Cleaners, Personal/Car	3	75.5 – 2226	0.6 – 23.3	0.1 – 23.1
Wireless Game Controllers	11	0	0	0
Wireless Routers	4	0 – 0.5	0	0-0.3

Table IV-1
Magnetic Fields from Household Electrical Appliances and Devices
Source: EPRI[1]

As part of the Energy Policy Act of 1992, U.S. Congress enacted the Electric and Magnetic Fields Research and Public Information Dissemination program. The National Institute of Environmental Health Sciences ("NIEHS") was charged with overseeing the health research and conducting an EMF risk evaluation. In its final report to Congress, issued in 1999, NIEHS concluded that power frequency "EMF exposure cannot be

recognized at this time as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard." Nonetheless, the report stated that "this finding is insufficient to warrant aggressive regulatory concern."[2]

In 2001, the Standing Committee on Epidemiology of the International Commission on Non-Ionizing Radiation Protection wrote in its review of the epidemiologic literature on EMF and health that "given the methodological uncertainties and in many cases inconsistencies of the existing epidemiologic literature, there is no chronic disease outcome for which an etiological [causal] relation to EMF exposure can be regarded as established."[3]

First published in 2001, International Agency for Research on Cancer ("IARC") published the results of an EMF health risk evaluation conducted by an expert scientific working group, which concluded that power frequency "magnetic fields are 'possibly carcinogenic to humans,' based on consistent statistical associations of high level residential magnetic fields with a doubling of risk of childhood leukemia."[4] More recently, a hazard assessment was performed by IARC, "…using available scientific evidence published before March 2015, with inclusion of new research findings from the Advanced Research on Interaction Mechanisms of electroMagnetic exposures with Organisms for Risk Assessment ("ARIMMORA") project."[4] IARC assigns its "possibly carcinogenic to humans" classification (Group 2B) if there is "limited evidence" of carcinogenicity in both humans and experimental animals, or if there is "sufficient evidence" in animals, but "inadequate evidence" in humans. Group 2B includes some 322 "agents" such as coffee, pickled vegetables, carpentry, textile manufacturing, and gasoline, among others (last update: April 2, 2025).

A comprehensive assessment of the EMF health risks was published by the World Health Organization ("WHO") in 2007. In its assessment, WHO wrote: "Scientific evidence suggesting that every day, chronic, low-intensity (above 0.3-0.4 mT) [3-4 mG] power-frequency magnetic field exposure poses a possible health risk is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukemia."[5] It added, however, that "virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF [extremely low frequency] magnetic fields and changes in biological function or disease status. Thus, on balance, the evidence is not strong enough to be considered causal, but sufficiently strong to remain a concern."

Regarding acute effects, the WHO noted, "Acute biological effects have been established for exposure to ELF electric and magnetic fields in the frequency range up to 100 kilohertz ("kHz") that may have adverse consequences on health. Therefore, exposure limits are needed. International guidelines exist that have addressed this issue. Compliance with these guidelines provides adequate protection for acute effects."[5]

In summary, some studies have reported an association between long-term magnetic field exposure and particular types of health effects, while other studies have not. The nature

of the reported association remains uncertain as no known mechanism or laboratory animal data exists to support the cause-and-effect relationship.

In view of the scientific evidence, the Institute of Electrical and Electronics Engineers ("IEEE") and other organizations have established guidelines limiting EMF exposure for workers in a controlled environment and for the general public. These guidelines focus on prevention of acute neural stimulation. No limits have been established to address potential long-term EMF effects, as the guideline organizations consider the scientific evidence insufficient to form the basis for such action. For power-frequency EMF, IEEE Standard C95.1™-2019[6] recommends the following limits:

	General Public	Controlled Environment
Electric Field Limit (kV/m)	5.0	20.0*
Magnetic Field Limit (mG)	9,040	27,100

*10.0 kV/m within power line ROW.

To address public concerns about EMF, the Government of Canada in 2012 and 2022 updated its website with the latest knowledge on the subject. It contains the following statements on the EMF health-related risks: "The potential health effects of extremely low frequency EMF has been studied extensively. While some people are concerned that long-term exposure to extremely low frequency EMF may cause cancer, the scientific evidence does not support such claims."[7]

Similarly, in 2016, the updated website of the WHO concluded: "[T]o date there is no evidence to conclude that exposure to low-level electromagnetic fields is harmful to human health."[8]

More recently, in its May 2024 report, the Scientific Committee on Health, Environmental, and Emerging Risks ("SCHEER"), an independent advisory body to the European Commission on Public Health, issued the following opinion: "The SCHEER could not identify recent (post 2015) systematic reviews or meta-analyses on low frequency EMF exposure and self-reported symptoms to update the previous SCENIHR assessment in the current Opinion. It is noted that in the SCENIHR Opinion (2015) it was concluded there was no convincing evidence for a causal relationship between ELF-MF exposure and self-reported symptoms."[9]

AEP has been following the EMF scientific developments worldwide, participating in and sponsoring EMF studies, and communicating with customers and employees on the subject. Also, AEP is a member of EPRI, an independent, non-profit organization sponsoring and coordinating EMF epidemiological, laboratory and exposure studies.

The transmission line rebuild construction proposed in this Project will be compliant with the EMF limits specified in IEEE Standard C95.1™-2019.

C. Describe any research studies the Company is aware of that meet the following criteria:

1. Became available for consideration since the completion of the Virginia Department of Health's most recent review of studies on EMF and its subsequent report to the Virginia General Assembly in compliance with 1985 Senate Joint Resolution No. 126;

2. Include findings regarding EMF that have not previously been reported and/or provide substantial additional insight into previous findings; and

3. Have been subjected to peer review.

Response:

In its report to the Virginia General Assembly, issued on October 31, 2000, the Virginia Department of Health stated: "[T]he Virginia Department of Health is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency electromagnetic fields emanated from nearby high voltage transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans."[10]

Key publications on the subject which became available after that report are included below as references to the discussion contained in Section IV.B and C of this Response to Guidelines.

Section IV References

[1] "Magnetic Fields from Electrical Appliances and Devices," Electric Power Research Institute (EPRI), Product ID 1021221, September 28, 2010.

[2] "NIEHS Report on Health Effects from Exposure to Power Line Frequency Electric and Magnetic Fields," National Institute of Environmental Health Sciences, National Institutes of Health, NIH Publication No. 99-4493, May 4, 1999. (https://www.niehs.nih.gov/sites/default/files/health/assets/docs_p_z/report_powerline_electric_mg_predates_508.pdf https://www.niehs.nih.gov/sites/default/files/health/assets/docs_p_z/report_powerline_electric_mg_predates_508.pdf).

[3] "Review of the Epidemiologic Literature on EMF and Health," International Commission for Non-Ionizing Radiation Protection (ICNIRP) Standing Committee on Epidemiology, Environmental Health Perspectives, Volume 109, Supplement 6, December 2001. (https://www.icnirp.org/cms/upload/publications/ICNIRPepireview2001.pdf). http://www.icnirp.de/documents/epireview1.pdf

[4] "Extremely low-frequency magnetic fields and risk of childhood leukemia: A risk assessment by the ARIMMORA consortium." International Agency for Research on Cancer, Wiley Periodicals, Inc. 2016. (http://www.iarc.fr/en/media-centre/pr/2001/pr136.html https://www.iarc.who.int/reference/extremely-low-frequency-magnetic-fields-and-risk-of-childhood-leukemia-a-risk-assessment-by-the-arimmora-consortium/).

[5] "Extremely Low Frequency Fields (Environmental Health Criteria 238)," World Health Organization, June 1, 2007. (http://www.who.int/peh-emf/publications/Complet_DEC_2007.pdf https://www.icnirp.org/cms/upload/publications/EHC238ELF.pdf).

[6] "C95.1™ IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0Hz to 300 GHz," IEEE Standards Coordinating Committee 39, October 4, 2019.

[7] "Power lines and electrical products: Extremely low frequency electric and magnetic fields." Healthy Canadians, November 1, 2022. (http://www.healthycanadians.gc.ca/environment-environnement/home-maison/emf-cem-eng.php).

[8] "What are Electromagnetic Fields? Summary of Health Effects," World Health Organization, 2016, (http://www.who.int/peh-emf/about/WhatisEMF/en/index1.html).

[9] "Potential Health Effects of Exposure to Electromagnetic Fields (EMF): Update with Regard to Frequencies Between 1 Hz and 100 kHz", Scientific Committee on Health, Environmental and Emerging Risks, SCHEER, May 17, 2024. (https://health.ec.europa.eu/system/files/2023-11/scheer_o_063.pdf).

[10] "Monitoring of Ongoing Research on the Health Effects of High Voltage Transmission Lines (Final Report)," Virginia Department of Health, October 31, 2000. (http://www.vdh.state.va.us/Epidemiology/DEE/publichealthtoxicology/documents/pdf/highfinal.PDF).

SECTION V. NOTICE

A. Furnish a proposed route description to be used for public notice purposes. Provide a map of suitable scale showing the route of the proposed project. For all routes that the Applicant proposes to be noticed, provide minimum, maximum and average structure heights.

Response:

Descriptions of each section of the Proposed Route are provided below. The requested public notice map is included as **Exhibit 35**.

Cloverdale to Windy Pass

The Proposed Route for the Cloverdale – Windy Pass 138-kilovolt ("kV") Transmission Line begins at the Company's existing Cloverdale 138-kV Substation, located at 364 Olde Route 604 in Botetourt County, Virginia. From the Cloverdale Substation, the existing Cloverdale – Trinity 138-kV Transmission Line will be rebuilt within the existing transmission line right-of-way ("ROW") for approximately 4.6 miles. Along this section, the Proposed Route crosses Olde Route 604, U.S. Route Alternate 220, Gateway Crossing (State Route 167), Humbert Road (State Route 653), Roanoke Valley Loop (U.S. Route 11), Interstate 81, the Appalachian Trail at Valley Road (State Route 779), Summit Ridge Road (State Route 1128), Greenfield Street (State Route 673), U.S. Route 220, South Center Drive (State Route T843), and International Parkway. The Proposed Route then turns into the existing Botetourt Substation on Company property at 4219 Roanoke Road.

From the Botetourt Substation, the Proposed Route for the Cloverdale – Windy Pass 138-kV Transmission Line continues north in the Company's existing ROW for approximately 0.7 miles to the proposed Windy Pass Substation at the southwest corner of Country Club Road and U.S. Route 220.

Between the proposed Windy Pass Substation and the existing Trinity Substation (269 Country Club Road), the new Trinity – Windy Pass 138-kV Transmission Line will extend approximately 0.1 miles on property to be purchased by the Company. On this same property, the existing Trinity – Wheatland 69-kV Transmission Line will be extended approximately 0.1 miles to the proposed Windy Pass Substation.

The predominant structure type anticipated for the Cloverdale to Windy Pass section of the Project will be single-circuit 138-kV galvanized-steel monopole with braced posts. The proposed structure heights will range from 40 feet to 110 feet with an average above ground height of 80 feet.

Daleville Area Customer 138-kV Feeder Lines

From the Company's Botetourt Substation (4219 Roanoke Road), the two proposed Daleville Area Customer 138-kV Feeder Lines each extend approximately 1.3 miles in parallel west across customer-owned property to connect to the customer's facility.

The predominant structure type anticipated for the Daleville Area Customer 138-kV Feeder Lines will be single-circuit 138-kV galvanized-steel monopole with braced posts. The proposed structure heights will range from 85 feet to 100 feet with an average above ground height of 90 feet.

Mount Union to Windy Pass

The Proposed Route for the Mount Union – Windy Pass 138-kV Transmission Line spans northwest from the proposed Windy Pass Substation for approximately 0.2 miles to the existing Mount Union – Trinity 138-kV Transmission Line ROW. The Proposed Route then follows the existing ROW west for approximately 3.8 miles before terminating at the existing Mount Union Substation. Along this segment of the Project, the Proposed Route crosses Shawnee Trail (State Route 735), Deerfield Road (State Route 760), Etzler Road (State Route 672), Catawba Road (State Route 779E), and a Norfolk Southern Railway.

The predominant structure type anticipated for the Mount Union to Windy Pass section of the Project will be single-circuit 138-kV galvanized-steel monopole with braced posts. The proposed structure heights will range from 70 feet to 110 feet with an average above ground height of 80 feet.

Cloverdale to Mount Union

The Proposed Route for the Cloverdale – Mount Union 138-kV Transmission Line follows the existing ROW west from Mount Union Substation (4533 Catawba Road) for approximately 0.7 miles. The Proposed Route then turns southeast in the existing ROW and continues along the side of Tinker Mountain for approximately 5.7 miles, crossing Greenway Hollow Road (State Route 672) once and the Appalachian Trail three times. The Proposed Route then turns east, parallel to existing transmission lines, for approximately one mile and crosses a Norfolk Southern Railway owned track, Tinker Mountain Road (State Route 816), Interstate 81, and U.S. Route 11 before terminating at the existing Cloverdale 138-kV Substation.

The predominant structure type anticipated for the Cloverdale to Mount Union section of the Project will be single-circuit 138-kV galvanized H-frames. The proposed structure heights will range from 45 feet to 135 feet with an average above ground height of 81.5 feet.

B. List Applicant offices where members of the public may inspect the application. If applicable, provide a link to website(s) where the application may be found.

Response:

This Application and all exhibits, tables, and maps made a part hereof will be available for inspection at the following location:

Blue Ridge Branch Library
28 State Route 1400
Roanoke, VA 24012

A link to the Commission docket will also be made available on the Project website: https://aeptransmission.com/Virginia/DalevilleArea/

C. List all federal, state, and local agencies and/or officials that may reasonably be expected to have an interest in the proposed construction and to whom the Applicant has furnished or will furnish a copy of the application.

Response:

Federal

- Federal Aviation Administration, Eastern Regional Administration
- United States Army Corps of Engineers, Norfolk District, Western Virginia Regulatory Section
- United States Department of Agriculture, Natural Resources Conservation Service
- United States Department of Transportation, Federal Highway Administration, Virginia Division
- United States Environmental Protection Agency, Region 3
- United States Fish and Wildlife Service, Virginia Ecological Services
- United States National Park Service, Appalachian National Scenic Trail
- United States House of Representatives, 6th District (Ben Cline)*

State

- Virginia State Corporation Commission (SCC)**
- Virginia Department of Agriculture and Consumer Services
- Virginia Department of Aviation
- Virginia Department of Conservation and Recreation
- Virginia Department of Environmental Quality* (VDEQ coordinates the Application's environmental review with the state agencies)
- Virginia Department of Forestry
- Virginia Department of Health
- Virginia Department of Historic Resources
- Virginia Department of Transportation
- Virginia Department of Wildlife Services
- Virginia Marine Resources Commission
- Virginia Office of the Secretary of the Commonwealth, Ombudsman for Tribal Consultation
- Virginia Outdoors Foundation
- Senate of Virginia, 3rd District (Christopher T. Head)*
- Virginia House of Delegates, District 37 (Terry L. Austin)*

Local

- Botetourt County, Board of Supervisors (D. "Mac" Scothorn, Chair)
- Botetourt County, Planning Commission (Dr. Beth Leffel, Chair)
- Botetourt County, Administration (Gary Larrowe, Administrator)**
- Botetourt County, Attorney (Mike Lockaby)

**The Company will provide access to an electric copy of the Application and related materials to these officials or agencies.*

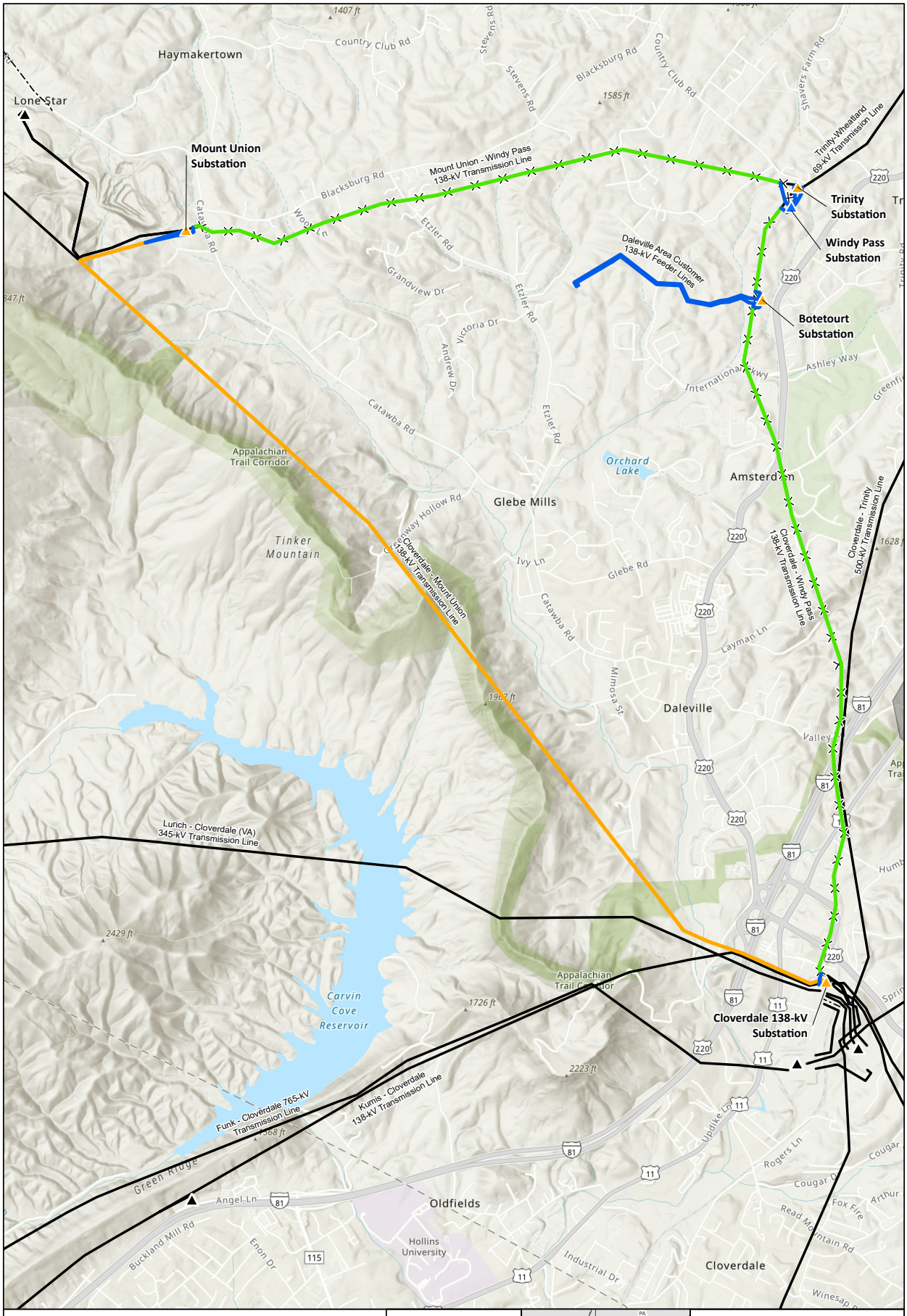
*** The Company will distribute a hard copy of the Application and related materials to these officials.*

D. If the application is for a transmission line with a voltage of 138 kV or greater, provide a statement and any associated correspondence indicating that prior to the filing of the application with the SCC the Applicant has notified the chief administrative officer of every locality in which it plans to undertake construction of the proposed line of its intention to file such an application, and that the Applicant gave the locality a reasonable opportunity for consultation about the proposed line (similar to the requirements of § 15.2-2202 of the Code for electric transmission lines of 150 kV or more).

Response:

As detailed in **Section III.B.**, the Company met with officials from Botetourt County in April 2026 to introduce the Daleville Area Transmission Improvements Project and gather feedback. During these meetings, county representatives were invited to provide input and were informed of the Company's intent to file an application with the SCC for Project approval.

EXHIBIT 1: PROJECT OVERVIEW MAP



Existing Substation (AEP)
Existing Substation to be Upgraded (AEP)(Seeking SCC Approval)
Existing Switch (AEP)
Proposed Windy Pass Substation (Seeking SCC Approval)
Proposed Alignment (Seeking SCC Approval)
Existing Alignment to be Rebuilt (Seeking SCC Approval)
Existing Alignment to be Reconductored (Seeking SCC Approval)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Non-AEP Transmission Line
City/Town/Municipal Area

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

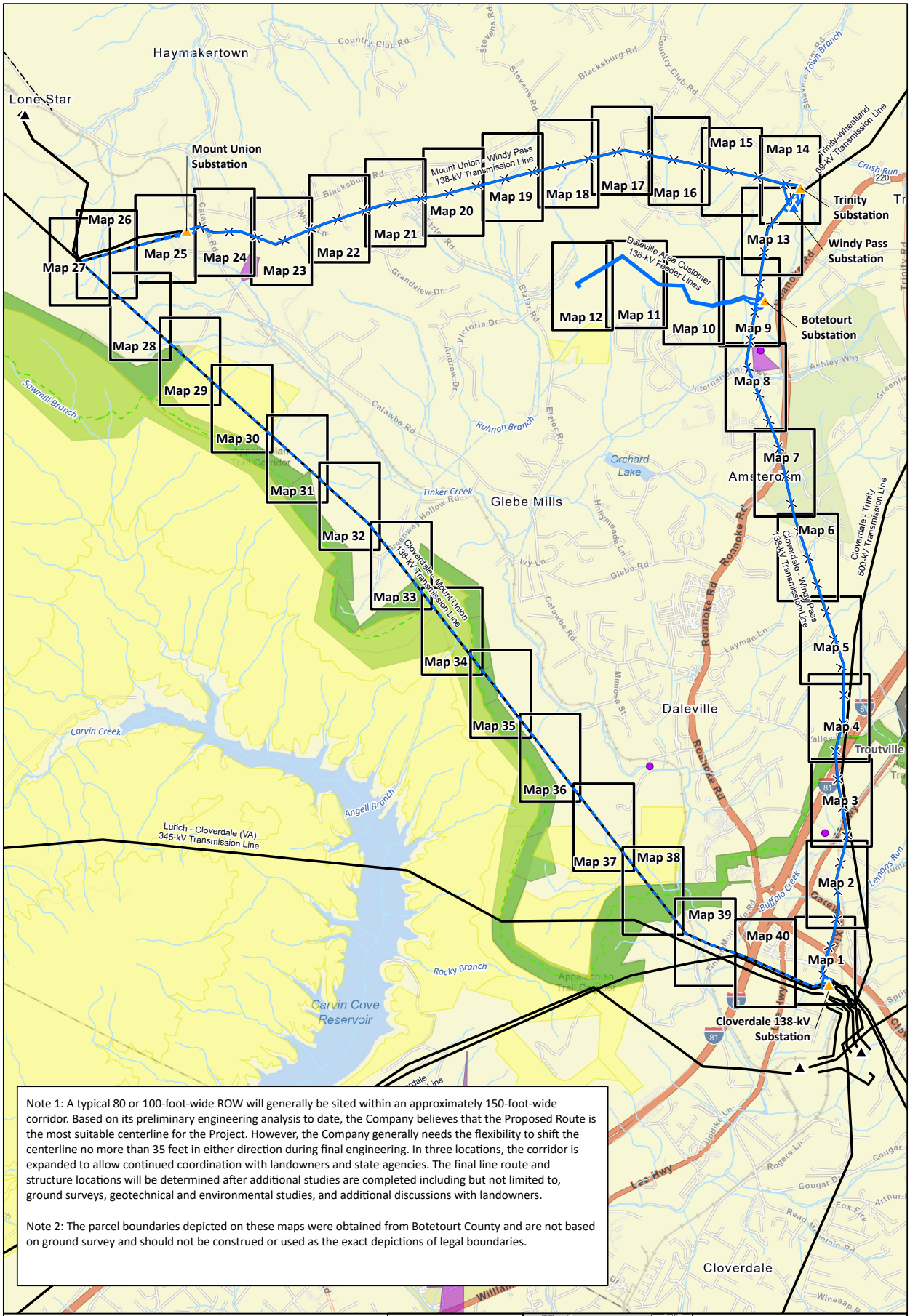
August 19, 2026

Exhibit 1: Project Overview

Daleville Area Transmission Improvements Project

0 2,000 4,000 6,000
Feet

EXHIBIT 2: GIS CONSTRAINTS MAP



Note 1: A typical 80 or 100-foot-wide ROW will generally be sited within an approximately 150-foot-wide corridor. Based on its preliminary engineering analysis to date, the Company believes that the Proposed Route is the most suitable centerline for the Project. However, the Company generally needs the flexibility to shift the centerline no more than 35 feet in either direction during final engineering. In three locations, the corridor is expanded to allow continued coordination with landowners and state agencies. The final line route and structure locations will be determined after additional studies are completed including but not limited to, ground surveys, geotechnical and environmental studies, and additional discussions with landowners.

Note 2: The parcel boundaries depicted on these maps were obtained from Botetourt County and are not based on ground survey and should not be construed or used as the exact depictions of legal boundaries.

- Existing Substation (AEP)
- Existing Substation to be Upgraded (AEP) (Seeking SCC Approval)
- Existing Switch (AEP)
- Proposed Windy Pass Substation (Seeking SCC Approval)
- Existing Transmission Line to be Reconductored (Seeking SCC Approval)
- Proposed Route (Seeking SCC Approval); Trinity - Windy Pass; Windy Pass – Wheatland
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Non-AEP Transmission Line
- Historic Site (NRHP)
- Stream (3DHP)
- Historic Site/District (NRHP)
- VOF Easement
- Federal Conservation Land
- City/Town/Municipal Area

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

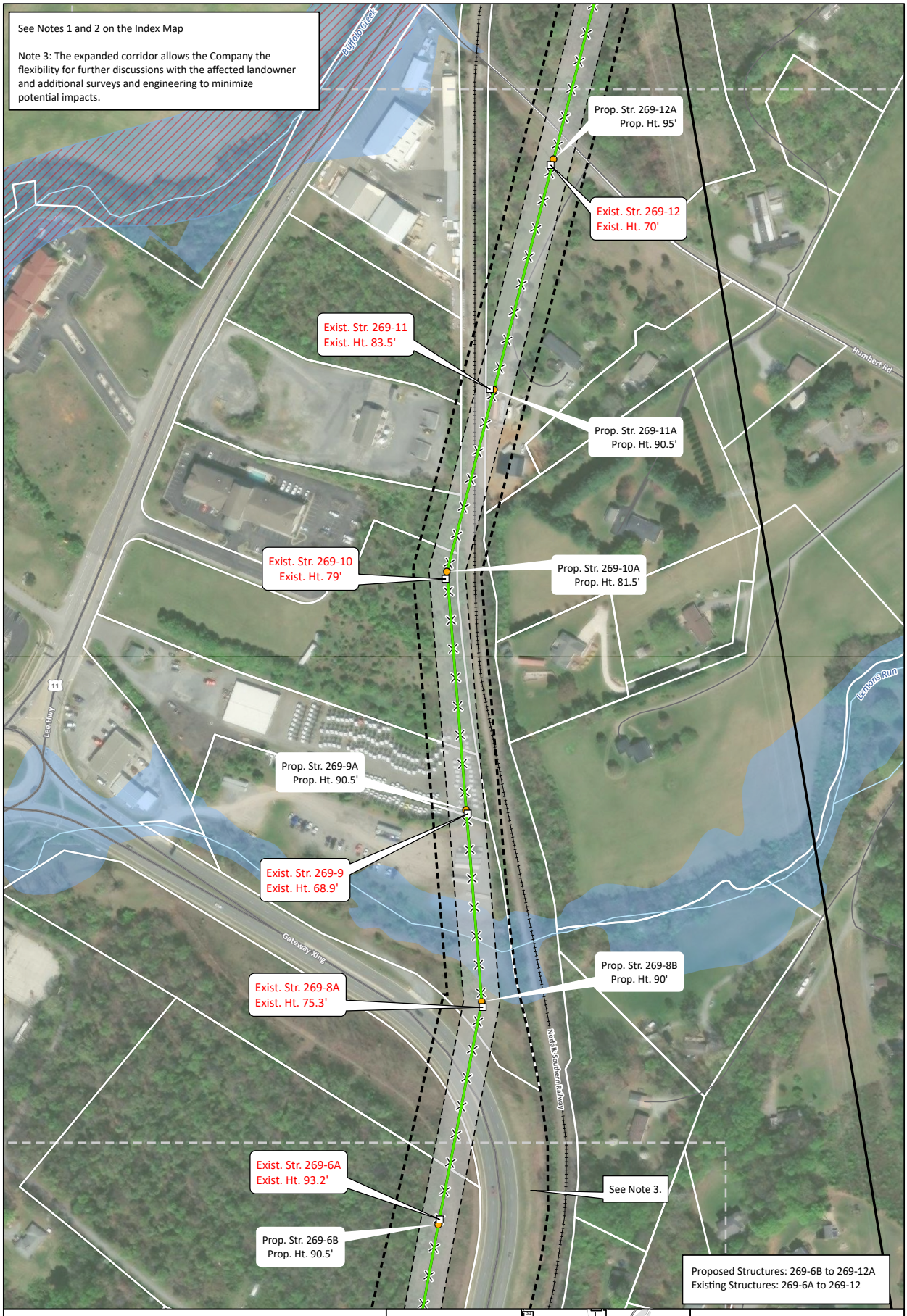
August 12, 2026

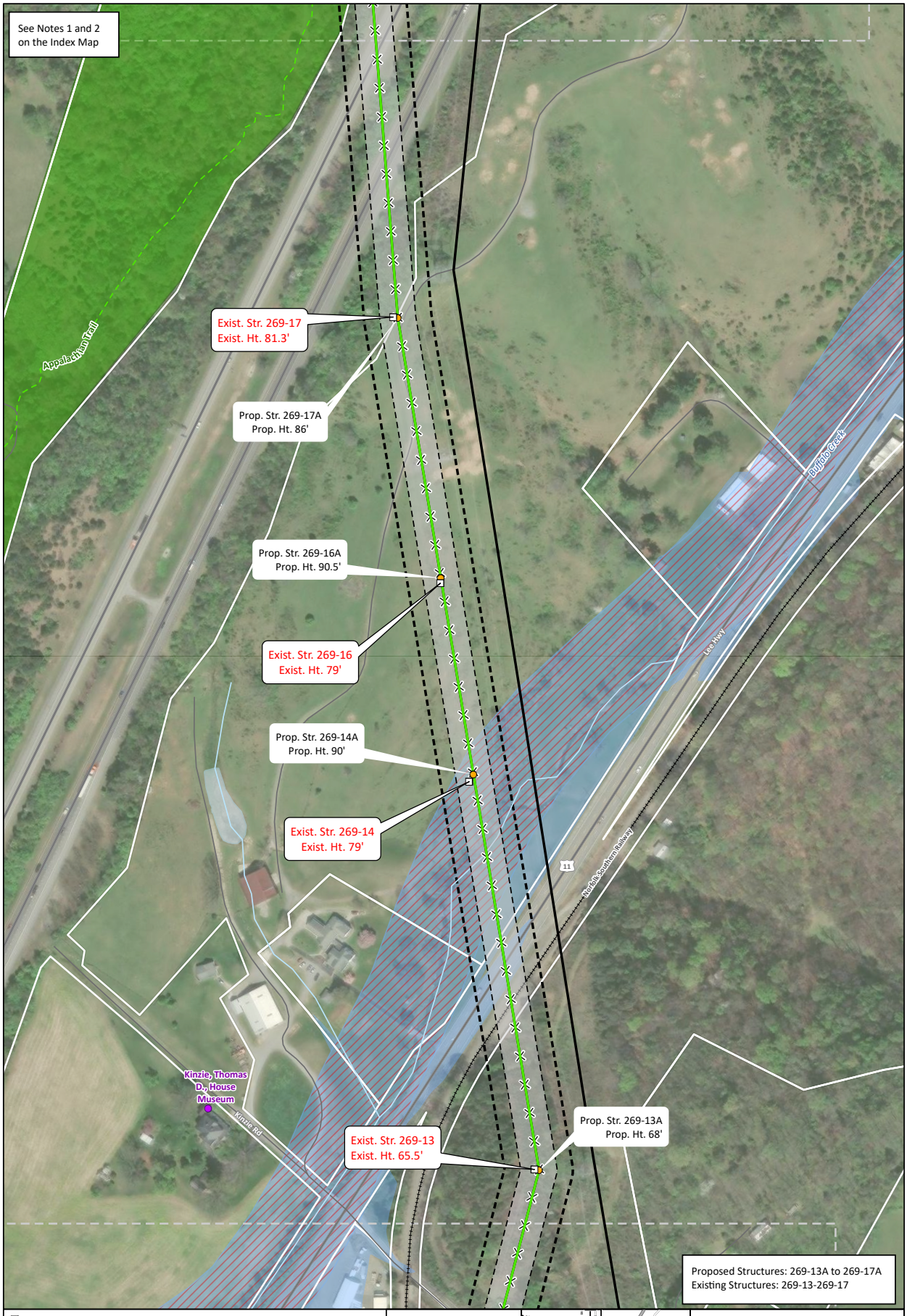
Exhibit 2: GIS Constraints Map INDEX

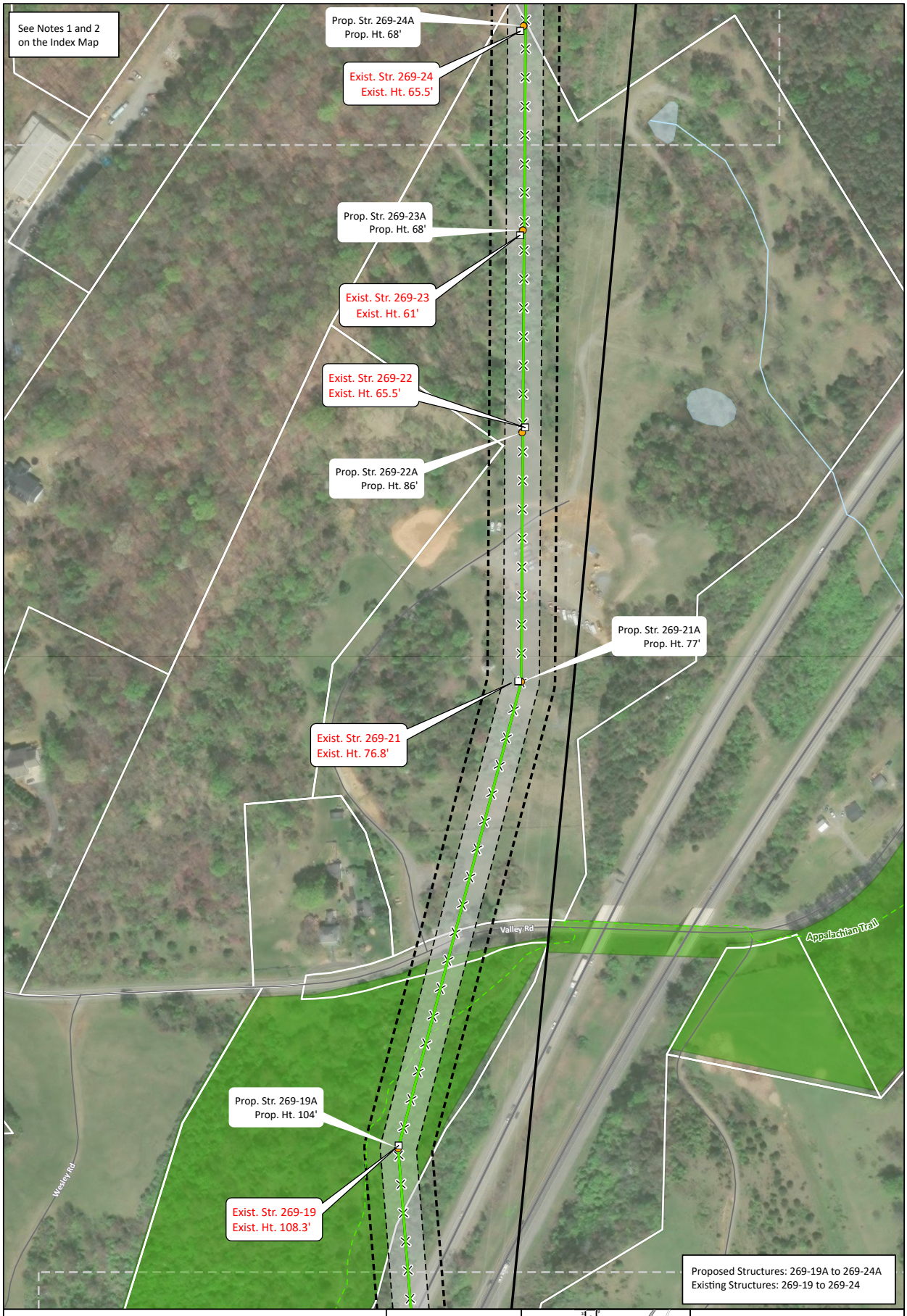
Daleville Area Transmission Improvements Project

0 2,000 4,000 6,000
Feet


See Notes 1 and 2 on the Index Map
Note 3: The expanded corridor allows the Company the flexibility for further discussions with the affected landowner and additional surveys and engineering to minimize potential impacts.
Exist. Str. 269-6A
Exist. Ht. 93.2'
Prop. Str. 269-6B
Prop. Ht. 90.5'
Exist. Str. 269-5A
Exist. Ht. 88.9'
Prop. Str. 269-5B
Prop. Ht. 95'
Gateway Xing
See Note 3.
Exist. Str. 269-4
Exist. Ht. 64'
Dalbert Rd
Prop. Str. 269-4A
Prop. Ht. 72.5'
Exist. Str. 269-3
Exist. Ht. 68.3'
Prop. Str. 269-3A
Prop. Ht. 72.5'
Cloverdale Dr
Prop. Str. 269-2A
Prop. Ht. 72.5'
Olde Route 604
Exist. Str. 269-2
Exist. Ht. 83.5'
Norfolk Southern Railway
Cloverdale Rd
Prop. Str. 269-1
Prop. Ht. 107.2'
Exist. Str. 286-4
Exist. Ht. 59.6'
Exist. Str. 269-1
Exist. Ht. 103'
Exist. Str. 269-1A
Exist. Ht. 103'
Prop. Str. 269-1D
Prop. Ht. 45'
Exist. Str. 286-1A
Exist. Ht. 101.5'
Cloverdale 138-kV Substation
Prop. Str. 269-1B
Prop. Ht. 81.5'
Exist. Str. 286-3
Exist. Ht. 57.1'
Prop. Str. 269-1C
Prop. Ht. 40'
Proposed Structures: 269-1C to 269-6B
Existing Structures: 286-4 to 269-6A
Existing Substation (AEP)
Existing Structure (AEP)
Proposed Structure
Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Stream (3DHP)
Local Road
Highway
Railroad
Habitable Building (within Filing Corridor)
Non-Habitable Building (within Filing Corridor)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
BOTETOURT COUNTY
ROANOKE COUNTY
Exhibit 2: GIS Constraints Map
Map 1 of 39
APPALACHIAN POWER
Daleville Area Transmission Improvements Project
0
200
400
Feet


See Notes 1 and 2 on the Index Map
Note 3: The expanded corridor allows the Company the flexibility for further discussions with the affected landowner and additional surveys and engineering to minimize potential impacts.
Buffalo Creek
Prop. Str. 269-12A
Prop. Ht. 95'
Exist. Str. 269-12
Exist. Ht. 70'
Exist. Str. 269-11
Exist. Ht. 83.5'
Humbert Rd
Prop. Str. 269-11A
Prop. Ht. 90.5'
Exist. Str. 269-10
Exist. Ht. 79'
Prop. Str. 269-10A
Prop. Ht. 81.5'
Lee Hwy
Leading Run
Prop. Str. 269-9A
Prop. Ht. 90.5'
Exist. Str. 269-9
Exist. Ht. 68.9'
Gateway Xing
Prop. Str. 269-8B
Prop. Ht. 90'
Exist. Str. 269-8A
Exist. Ht. 75.3'
Norfolk Southern Railway
Exist. Str. 269-6A
Exist. Ht. 93.2'
See Note 3.
Prop. Str. 269-6B
Prop. Ht. 90.5'
Proposed Structures: 269-6B to 269-12A
Existing Structures: 269-6A to 269-12
Existing Structure (AEP)
Proposed Structure
Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Stream (3DHP)
Local Road
Highway
Railroad
Floodway (FEMA)
100 Year Floodplain (FEMA)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
Exhibit 2: GIS Constraints Map
Map 2 of 39
Daleville Area Transmission Improvements Project
0
200
400
Feet


See Notes 1 and 2 on the Index Map
Exist. Str. 269-17
Exist. Ht. 81.3'
Prop. Str. 269-17A
Prop. Ht. 86'
Prop. Str. 269-16A
Prop. Ht. 90.5'
Exist. Str. 269-16
Exist. Ht. 79'
Prop. Str. 269-14A
Prop. Ht. 90'
Exist. Str. 269-14
Exist. Ht. 79'
Exist. Str. 269-13
Exist. Ht. 65.5'
Prop. Str. 269-13A
Prop. Ht. 68'
Appalachian Trail
Buffalo Creek
Lee Hwy
Norfolk Southern Railway
11
Kinzie, Thomas D., House Museum
Kinzie Rd
Proposed Structures: 269-13A to 269-17A
Existing Structures: 269-13-269-17
Existing Structure (AEP)
Proposed Structure
Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Historic Site (NRHP)
Stream (3DHP)
Local Road
Highway
Railroad
Federal Conservation Land
Floodway (FEMA)
100 Year Floodplain (FEMA)
Waterbody (3DHP)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
Troutville
BOTETOURT COUNTY
Exhibit 2: GIS Constraints Map
Map 3 of 39
APPALACHIAN POWER
Daleville Area Transmission Improvements Project
0
200
400
Feet



Existing Structure (AEP)
Proposed Structure
Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Stream (3DHP)
Local Road
Highway
Federal Conservation Land
Waterbody (3DHP)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

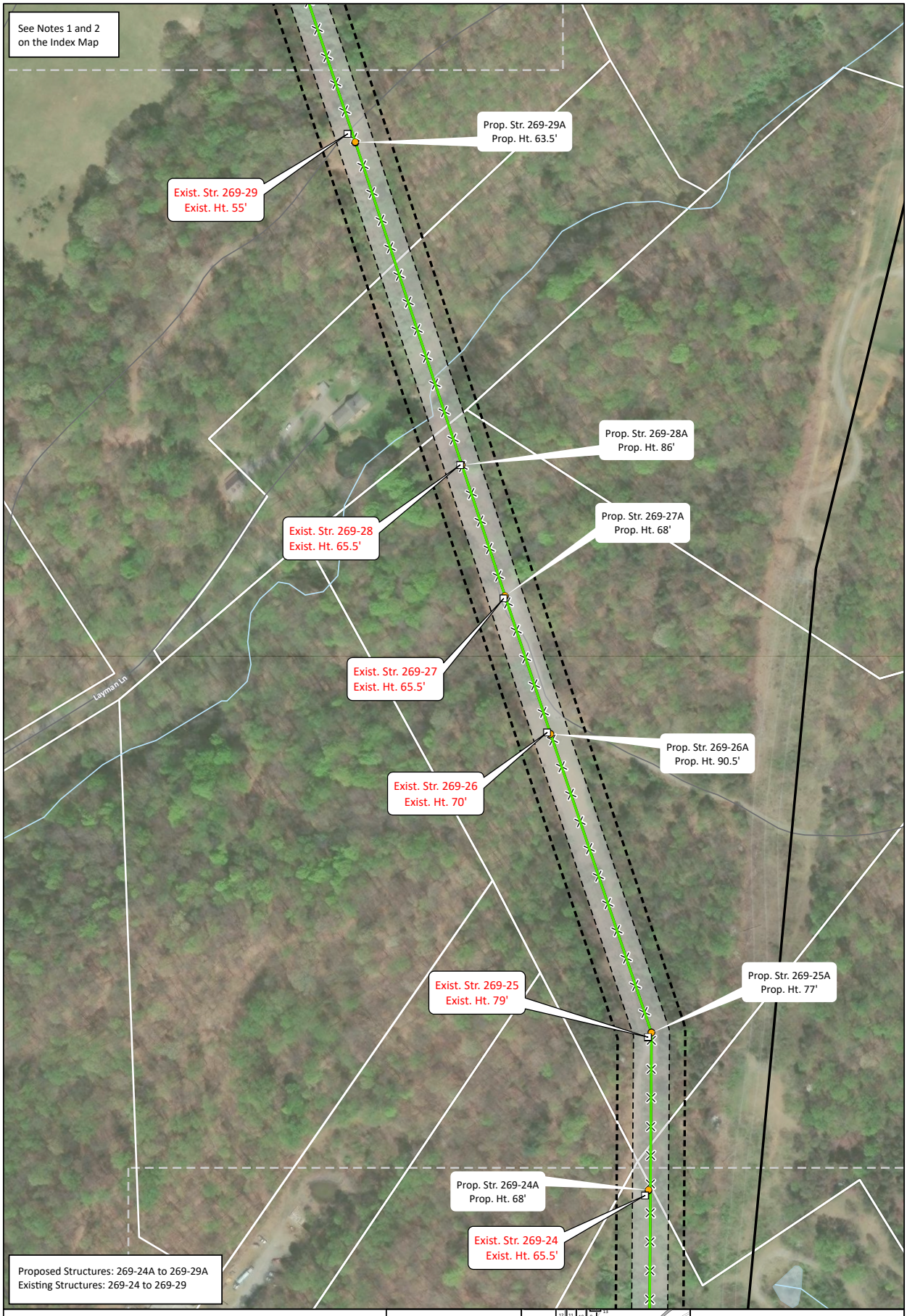
BOTETOURT COUNTY

Exhibit 2: GIS Constraints Map
Map 4 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



Existing Structure (AEP)
Proposed Structure
Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Stream (3DHP)
Local Road
Waterbody (3DHP)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

Exhibit 2: GIS Constraints Map
Map 5 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Stream (3DHP)
- Local Road
- Habitable Building (within Filing Corridor)
- Waterbody (3DHP)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

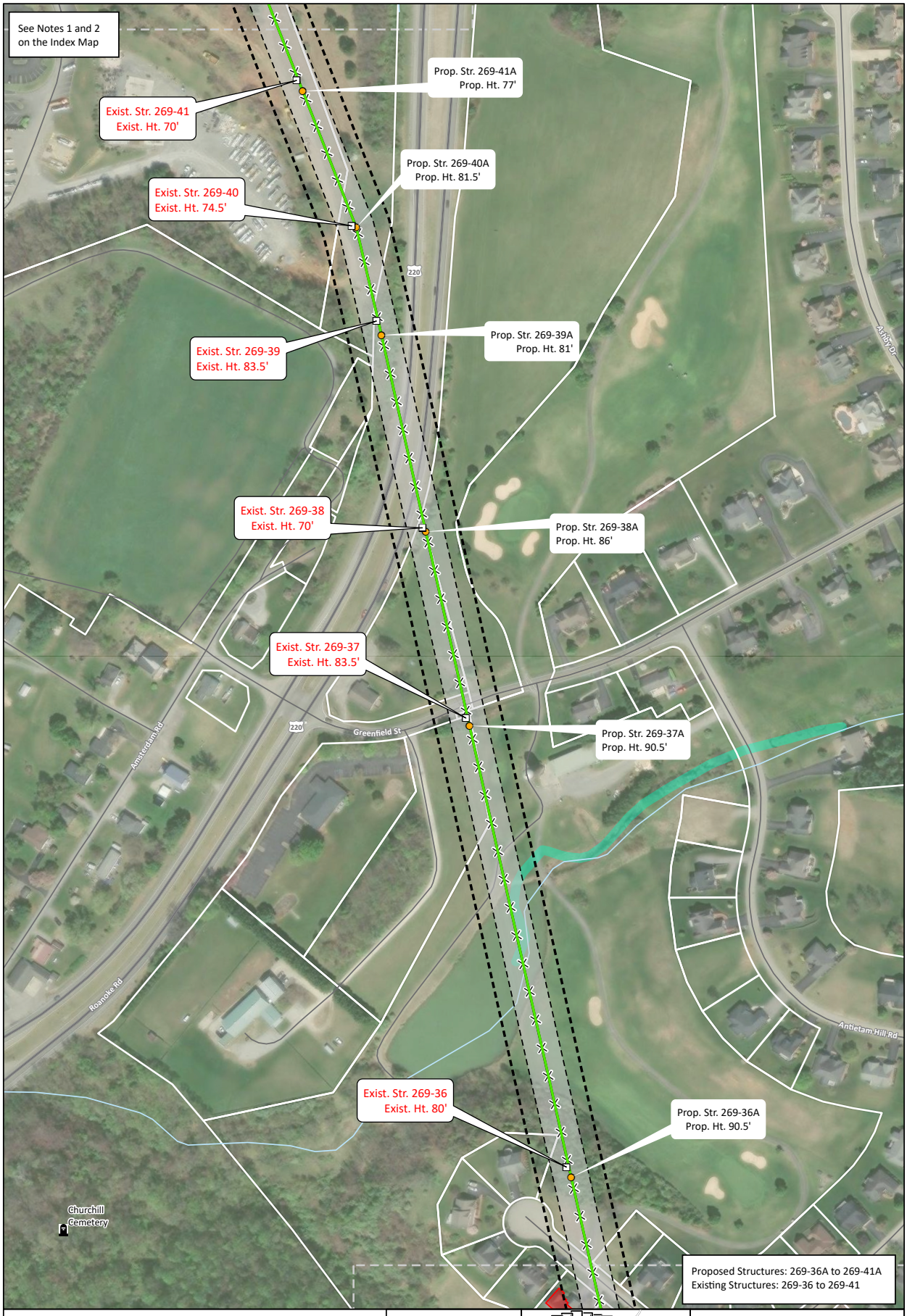
August 19, 2026

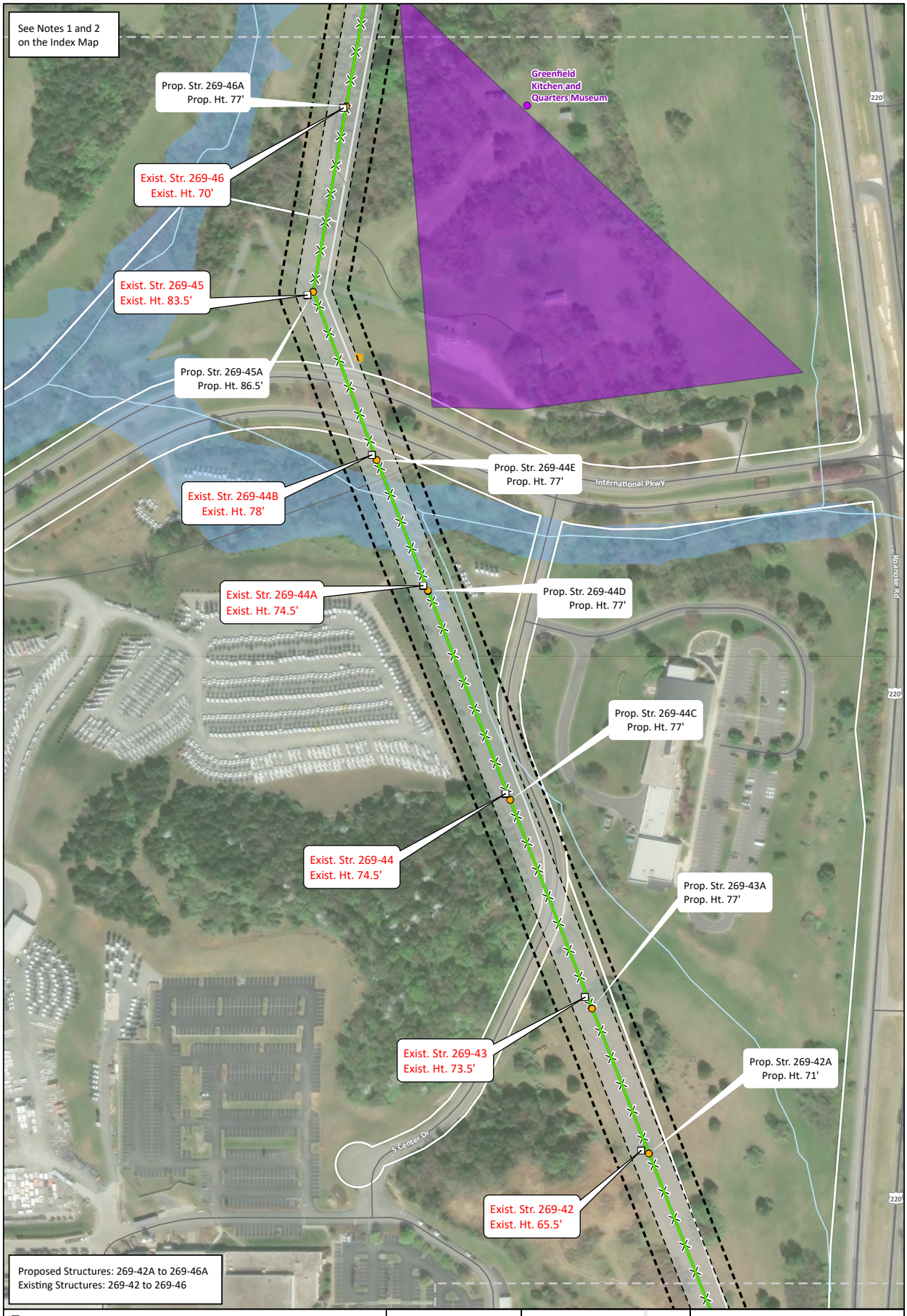
Exhibit 2: GIS Constraints Map
Map 6 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet


See Notes 1 and 2 on the Index Map
Prop. Str. 269-41A
Prop. Ht. 77'
Exist. Str. 269-41
Exist. Ht. 70'
Prop. Str. 269-40A
Prop. Ht. 81.5'
Exist. Str. 269-40
Exist. Ht. 74.5'
Prop. Str. 269-39A
Prop. Ht. 81'
Exist. Str. 269-39
Exist. Ht. 83.5'
Exist. Str. 269-38
Exist. Ht. 70'
Prop. Str. 269-38A
Prop. Ht. 86'
Exist. Str. 269-37
Exist. Ht. 83.5'
Prop. Str. 269-37A
Prop. Ht. 90.5'
Exist. Str. 269-36
Exist. Ht. 80'
Prop. Str. 269-36A
Prop. Ht. 90.5'
220
Greenfield St
Amsterdam Rd
Roanoke Rd
Antietam Hill Rd
Churchill Cemetery
Proposed Structures: 269-36A to 269-41A
Existing Structures: 269-36 to 269-41
Existing Structure (AEP)
Proposed Structure
Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Cemetery
Stream (3DHP)
Local Road
Highway
Habitable Building (within Filing Corridor)
Wetland (NWI)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
BOTETOURT COUNTY
Troutville
Exhibit 2: GIS Constraints Map
Map 7 of 39
APPALACHIAN POWER
Daleville Area Transmission Improvements Project
0
200
400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Historic Site (NRHP)
- Stream (3DHP)
- Local Road
- Highway
- Non-Habitable Building (within Filing Corridor)
- Historic Site/District (NRHP)
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

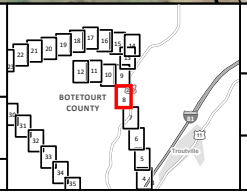
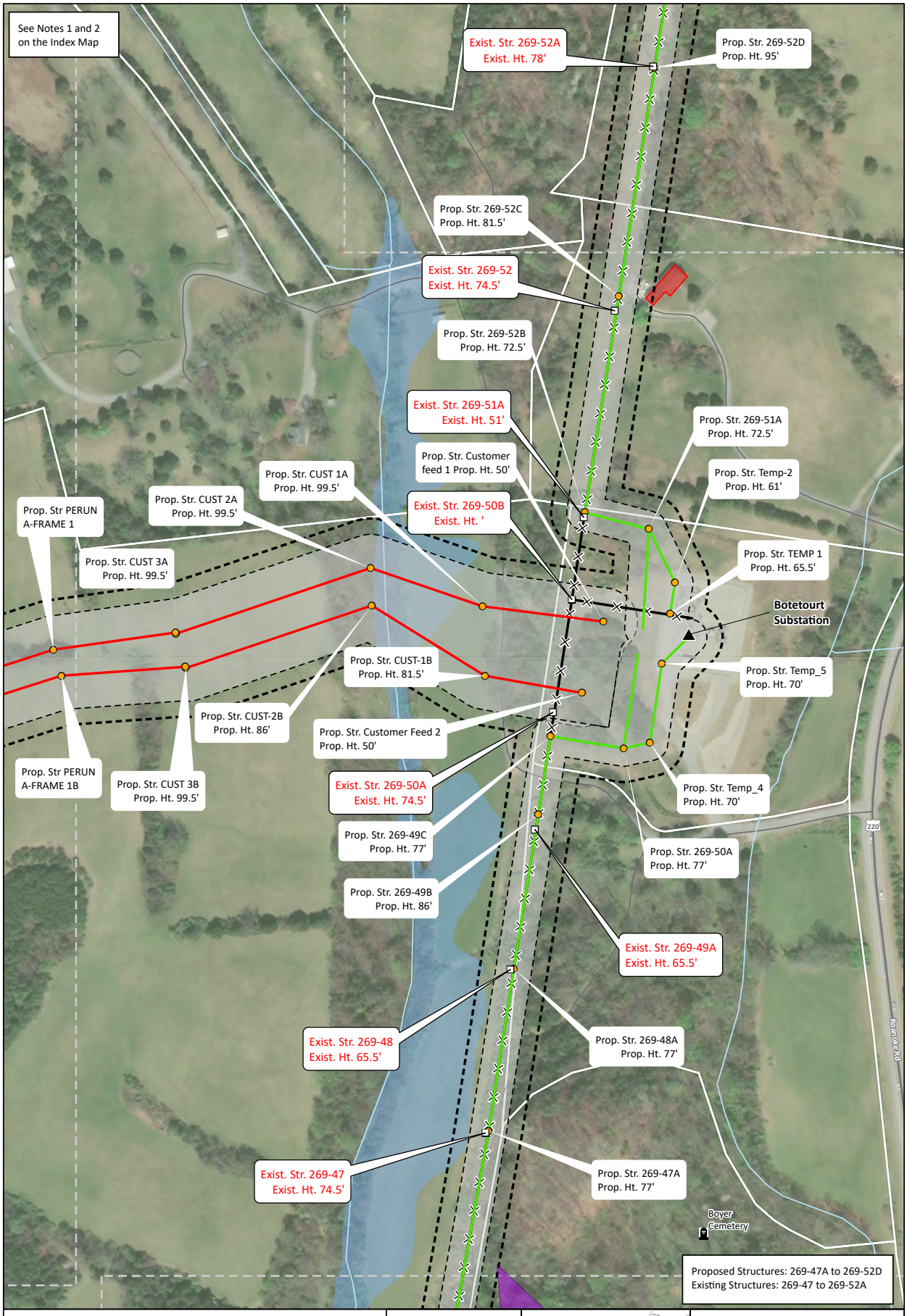


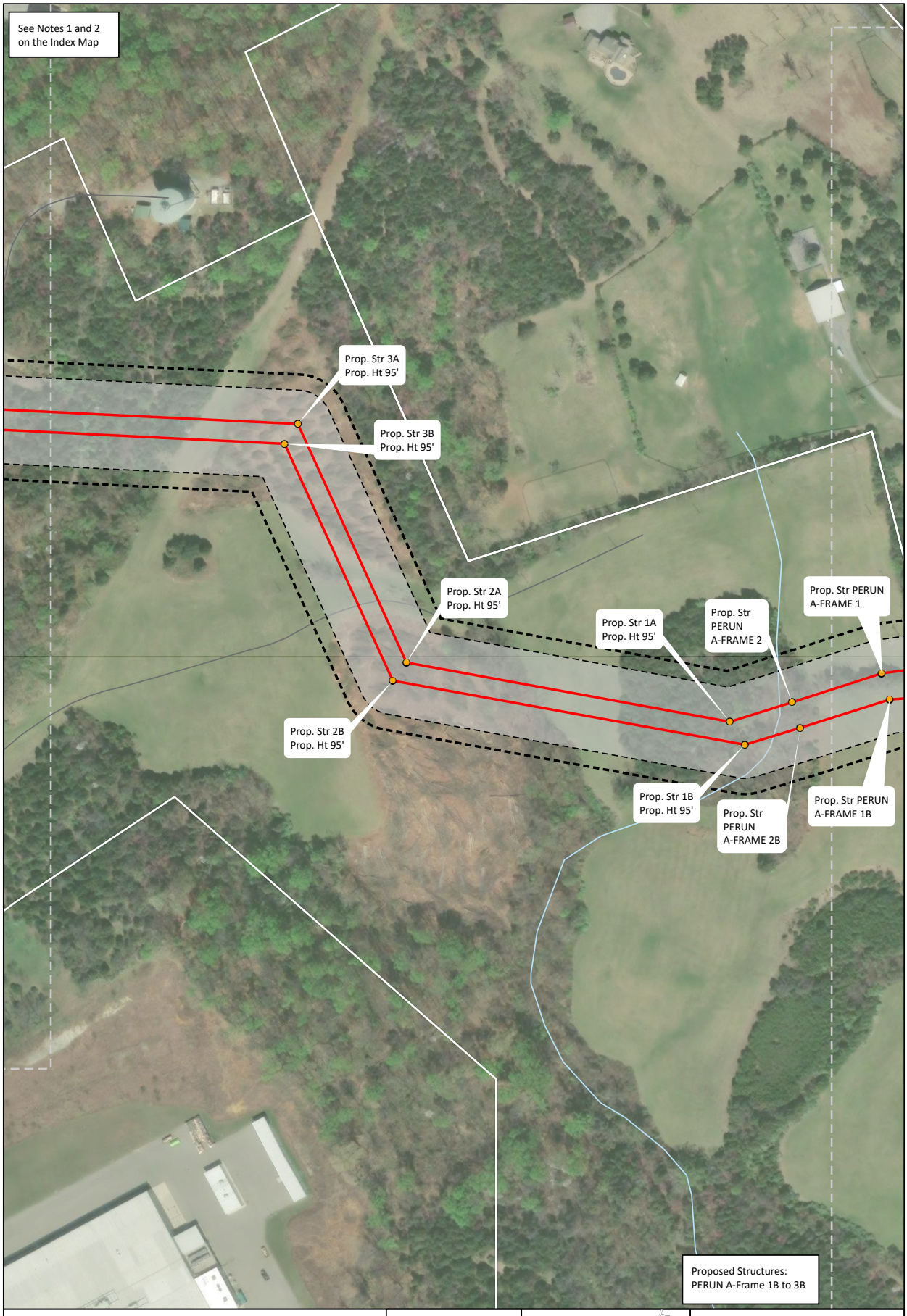
Exhibit 2: GIS Constraints Map
Map 8 of 39

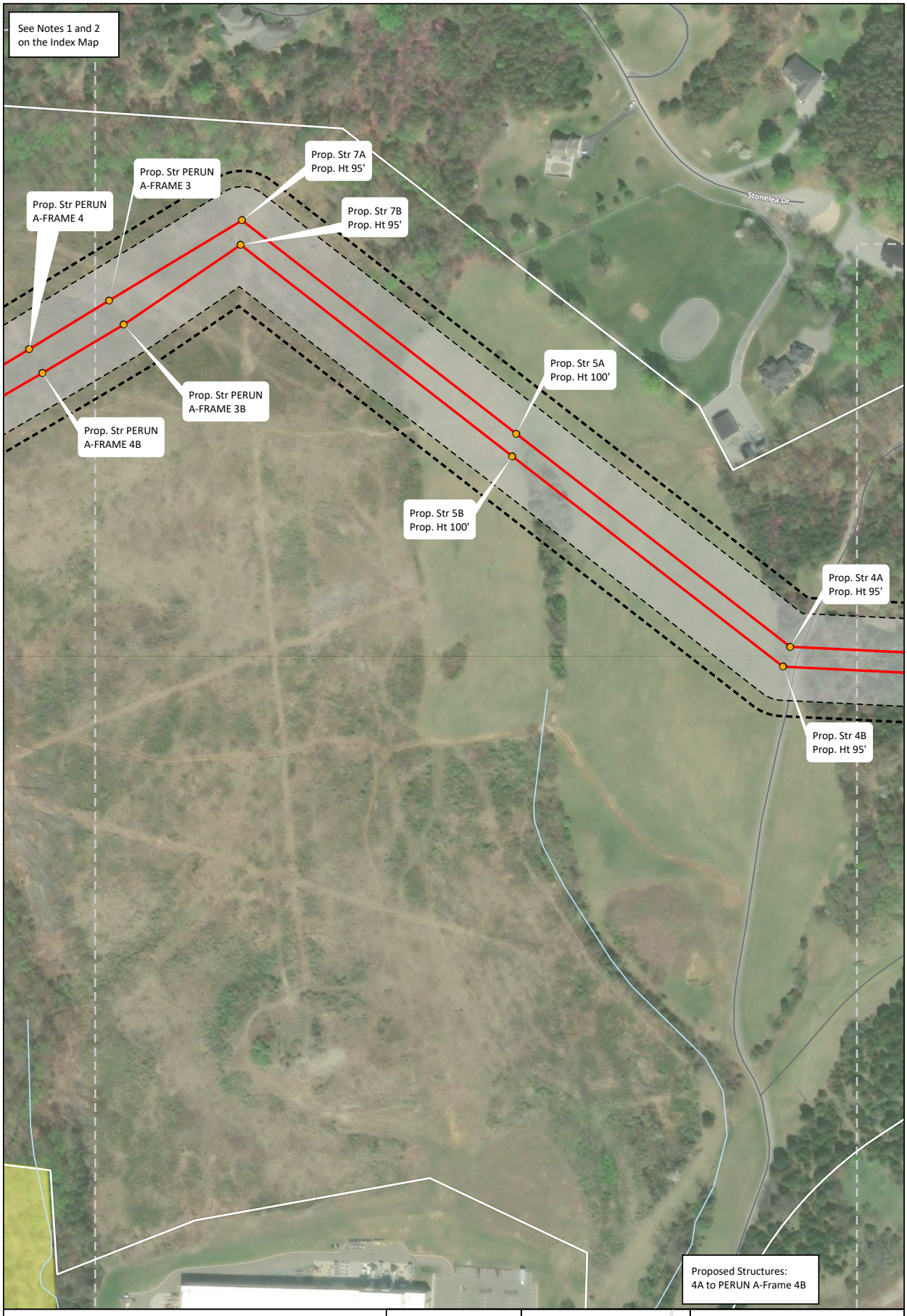
APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet


See Notes 1 and 2 on the Index Map
Exist. Str. 269-52A Exist. Ht. 78'
Prop. Str. 269-52D Prop. Ht. 95'
Prop. Str. 269-52C Prop. Ht. 81.5'
Exist. Str. 269-52 Exist. Ht. 74.5'
Prop. Str. 269-52B Prop. Ht. 72.5'
Exist. Str. 269-51A Exist. Ht. 51'
Prop. Str. 269-51A Prop. Ht. 72.5'
Prop. Str. Customer feed 1 Prop. Ht. 50'
Prop. Str. Temp-2 Prop. Ht. 61'
Prop. Str. CUST 1A Prop. Ht. 99.5'
Prop. Str. CUST 2A Prop. Ht. 99.5'
Exist. Str. 269-50B Exist. Ht. '
Prop. Str PERUN A-FRAME 1
Prop. Str. CUST 3A Prop. Ht. 99.5'
Prop. Str. TEMP 1 Prop. Ht. 65.5'
Botetourt Substation
Prop. Str. CUST-1B Prop. Ht. 81.5'
Prop. Str. Temp_5 Prop. Ht. 70'
Prop. Str. CUST-2B Prop. Ht. 86'
Prop. Str. Customer Feed 2 Prop. Ht. 50'
Prop. Str PERUN A-FRAME 1B
Prop. Str. CUST 3B Prop. Ht. 99.5'
Exist. Str. 269-50A Exist. Ht. 74.5'
Prop. Str. Temp_4 Prop. Ht. 70'
Prop. Str. 269-49C Prop. Ht. 77'
Prop. Str. 269-50A Prop. Ht. 77'
Prop. Str. 269-49B Prop. Ht. 86'
Exist. Str. 269-49A Exist. Ht. 65.5'
Exist. Str. 269-48 Exist. Ht. 65.5'
Prop. Str. 269-48A Prop. Ht. 77'
Exist. Str. 269-47 Exist. Ht. 74.5'
Prop. Str. 269-47A Prop. Ht. 77'
Boyer cemetery
Roanoke Rd
220
Proposed Structures: 269-47A to 269-52D
Existing Structures: 269-47 to 269-52A
Existing Substation (AEP)
Existing Structure (AEP)
Proposed Structure
Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Botetourt - Raspberry 138-kV Transmission Line (on new centerline)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Cemetery
Stream (3DHP)
Local Road
Highway
Habitable Building (within Filing Corridor)
Historic Site/District (NRHP)
100 Year Floodplain (FEMA)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
BOTETOURT COUNTY
Troutville
Exhibit 2: GIS Constraints Map
Map 9 of 39
APPALACHIAN POWER
Daleville Area Transmission Improvements Project
0
200
400
Feet


See Notes 1 and 2 on the Index Map
Prop. Str 3A Prop. Ht 95'
Prop. Str 3B Prop. Ht 95'
Prop. Str 2A Prop. Ht 95'
Prop. Str 1A Prop. Ht 95'
Prop. Str PERUN A-FRAME 2
Prop. Str PERUN A-FRAME 1
Prop. Str 2B Prop. Ht 95'
Prop. Str 1B Prop. Ht 95'
Prop. Str PERUN A-FRAME 2B
Prop. Str PERUN A-FRAME 1B
Proposed Structures: PERUN A-Frame 1B to 3B
Proposed Structure
Botetourt - Raspberry 138-kV Transmission Line (on new centerline)
Stream (3DHP)
Local Road
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
BOTETOURT COUNTY
Exhibit 2: GIS Constraints Map
Map 10 of 39
APPALACHIAN POWER
Daleville Area Transmission Improvements Project
0
200
400
Feet



Proposed Structure
Botetourt - Raspberry 138-kV Transmission Line (on new centerline)
Stream (3DHP)
Local Road
VOF Easement
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

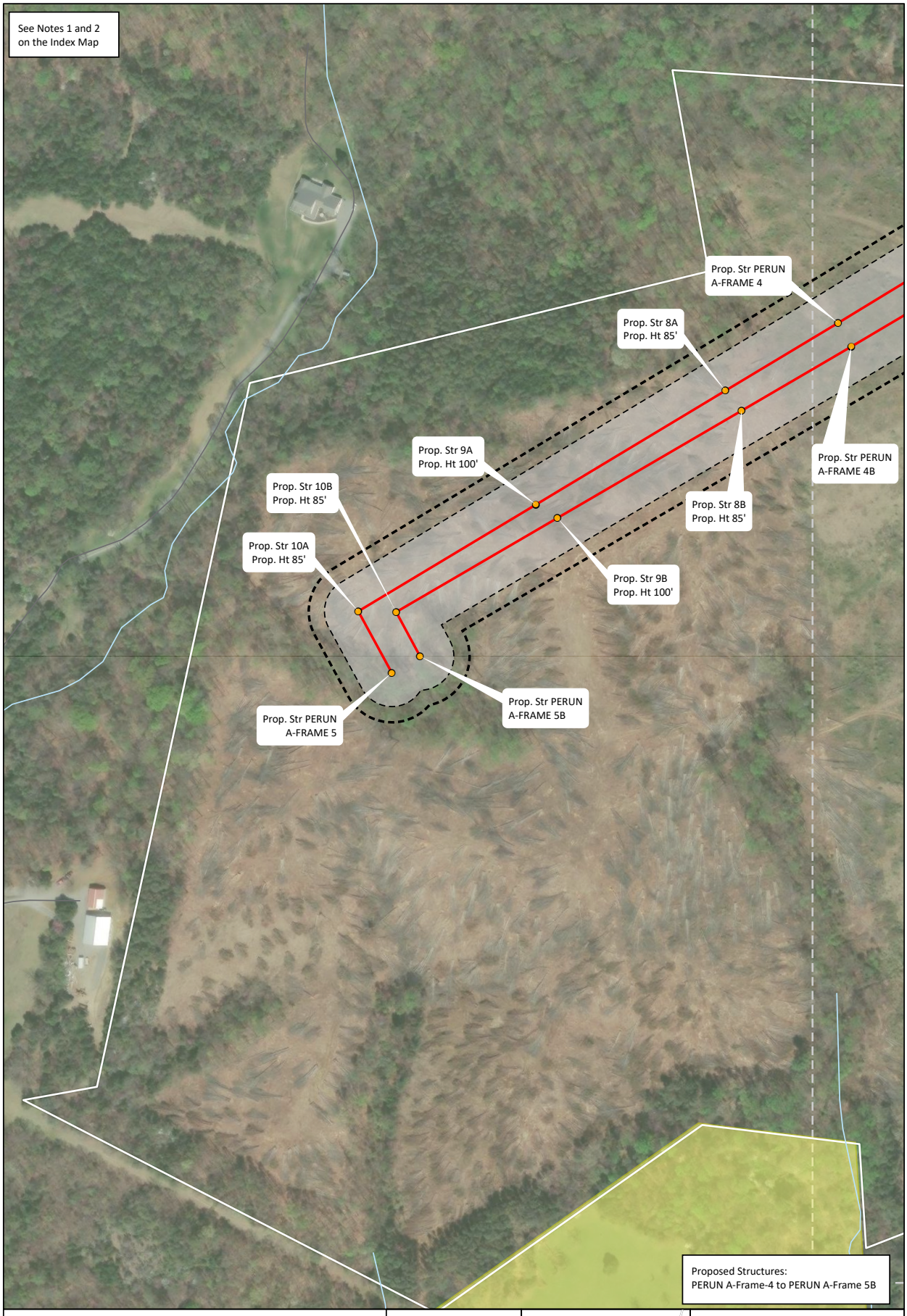
August 19, 2026

Exhibit 2: GIS Constraints Map
Map 11 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



Proposed Structure
Botetourt - Raspberry 138-kV Transmission Line (on new centerline)
Stream (3DHP)
Local Road
VOF Easement
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

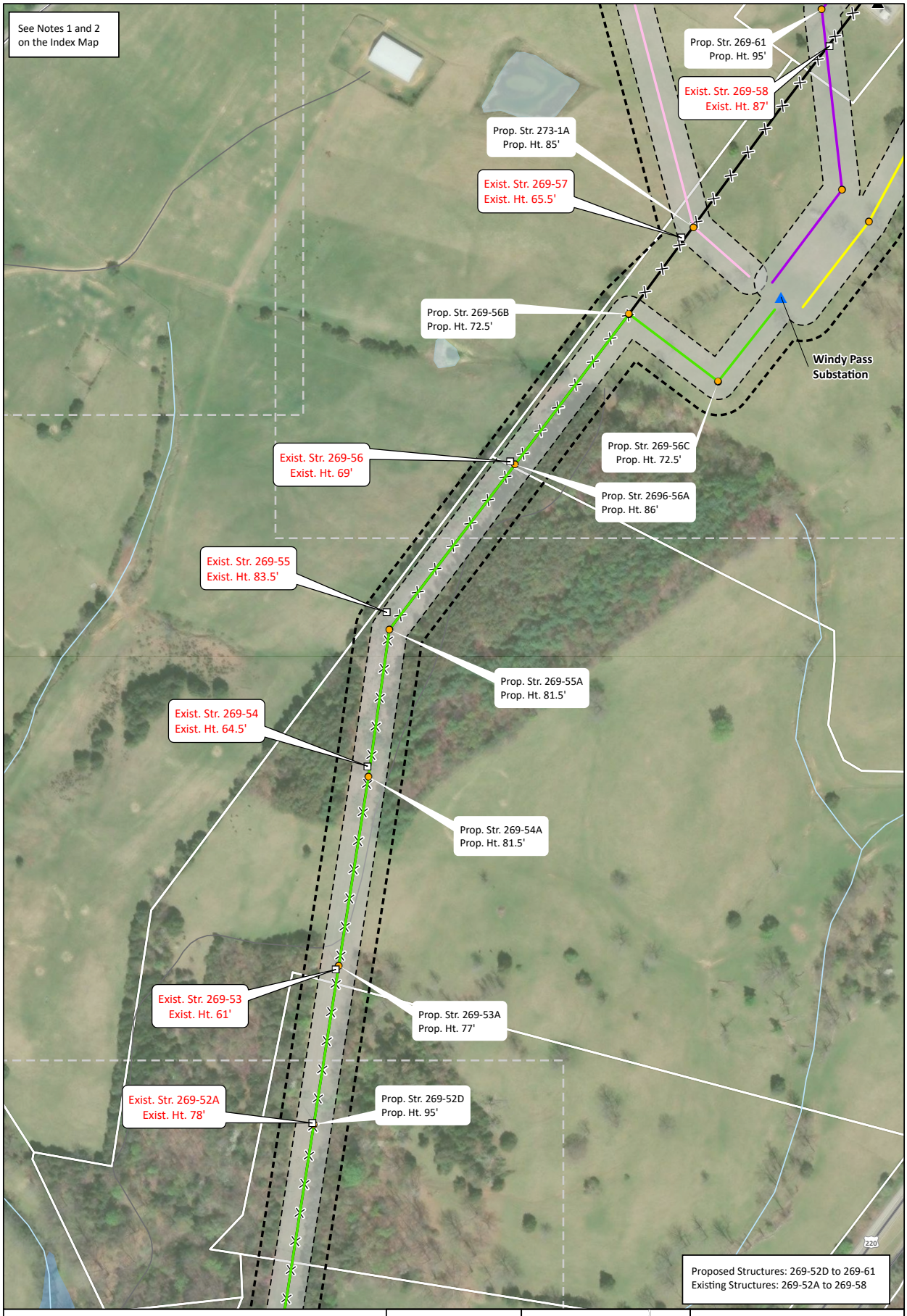
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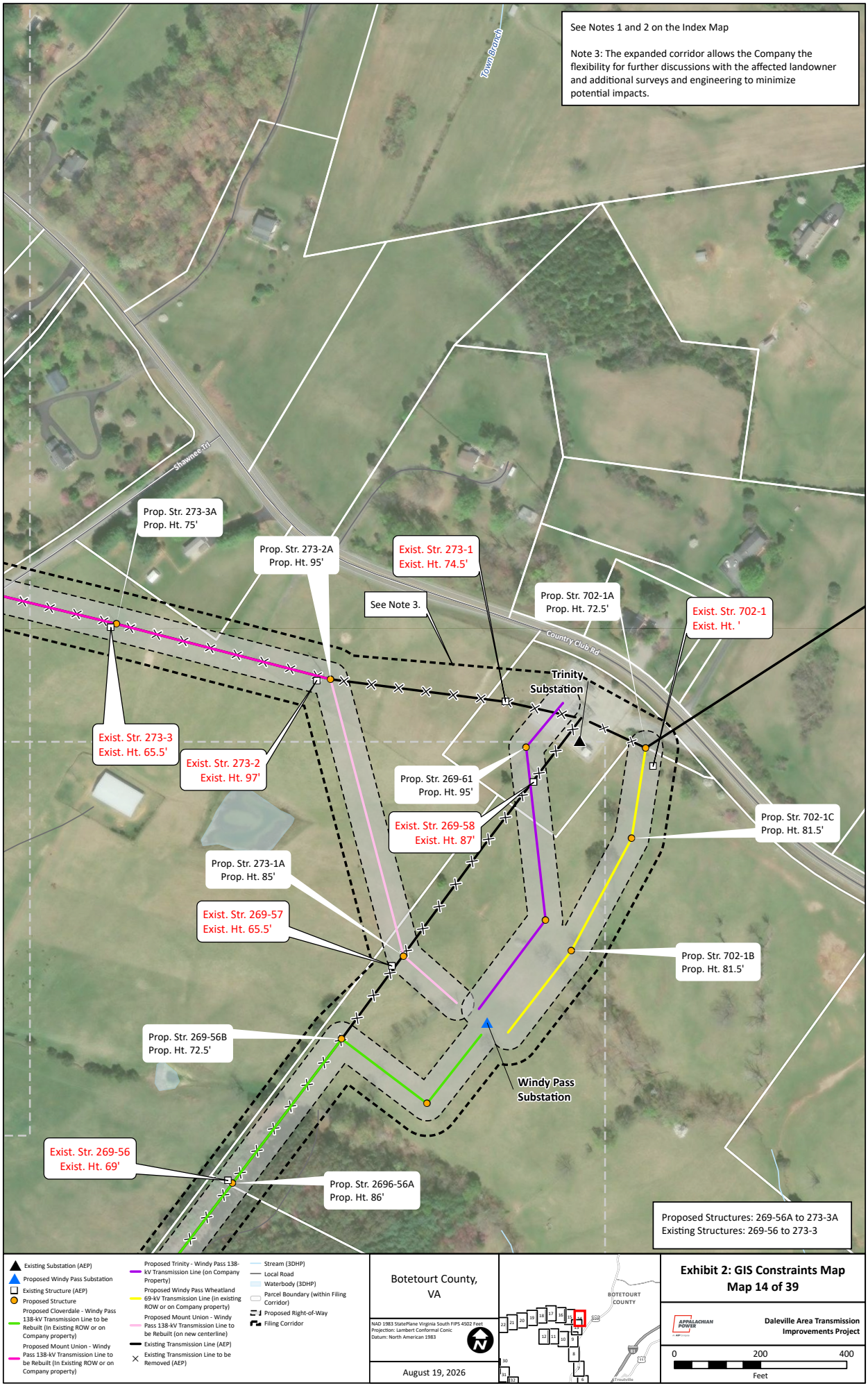
Exhibit 2: GIS Constraints Map
Map 12 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet


See Notes 1 and 2 on the Index Map
Prop. Str. 269-61
Prop. Ht. 95'
Exist. Str. 269-58
Exist. Ht. 87'
Prop. Str. 273-1A
Prop. Ht. 85'
Exist. Str. 269-57
Exist. Ht. 65.5'
Prop. Str. 269-56B
Prop. Ht. 72.5'
Windy Pass Substation
Prop. Str. 269-56C
Prop. Ht. 72.5'
Exist. Str. 269-56
Exist. Ht. 69'
Prop. Str. 2696-56A
Prop. Ht. 86'
Exist. Str. 269-55
Exist. Ht. 83.5'
Prop. Str. 269-55A
Prop. Ht. 81.5'
Exist. Str. 269-54
Exist. Ht. 64.5'
Prop. Str. 269-54A
Prop. Ht. 81.5'
Exist. Str. 269-53
Exist. Ht. 61'
Prop. Str. 269-53A
Prop. Ht. 77'
Exist. Str. 269-52A
Exist. Ht. 78'
Prop. Str. 269-52D
Prop. Ht. 95'
Proposed Structures: 269-52D to 269-61
Existing Structures: 269-52A to 269-58
Existing Substation (AEP)
Proposed Windy Pass Substation
Existing Structure (AEP)
Proposed Structure
Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Proposed Trinity - Windy Pass 138-kV Transmission Line (on Company Property)
Proposed Windy Pass Wheatland 69-kV Transmission Line (in existing ROW or on Company property)
Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (on new centerline)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Stream (3DHP)
Local Road
Highway
100 Year Floodplain (FEMA)
Waterbody (3DHP)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
BOTETOUR COUNTY
Troutville
Exhibit 2: GIS Constraints Map
Map 13 of 39
APPALACHIAN POWER
Daleville Area Transmission Improvements Project
0
200
400
Feet


See Notes 1 and 2 on the Index Map
Note 3: The expanded corridor allows the Company the flexibility for further discussions with the affected landowner and additional surveys and engineering to minimize potential impacts.
Town Branch
Shawnee Trl
Country Club Rd
Prop. Str. 273-3A
Prop. Ht. 75'
Prop. Str. 273-2A
Prop. Ht. 95'
Exist. Str. 273-1
Exist. Ht. 74.5'
See Note 3.
Prop. Str. 702-1A
Prop. Ht. 72.5'
Exist. Str. 702-1
Exist. Ht. '
Trinity Substation
Exist. Str. 273-3
Exist. Ht. 65.5'
Exist. Str. 273-2
Exist. Ht. 97'
Prop. Str. 269-61
Prop. Ht. 95'
Exist. Str. 269-58
Exist. Ht. 87'
Prop. Str. 702-1C
Prop. Ht. 81.5'
Prop. Str. 273-1A
Prop. Ht. 85'
Exist. Str. 269-57
Exist. Ht. 65.5'
Prop. Str. 702-1B
Prop. Ht. 81.5'
Prop. Str. 269-56B
Prop. Ht. 72.5'
Windy Pass Substation
Exist. Str. 269-56
Exist. Ht. 69'
Prop. Str. 2696-56A
Prop. Ht. 86'
Proposed Structures: 269-56A to 273-3A
Existing Structures: 269-56 to 273-3
Existing Substation (AEP)
Proposed Windy Pass Substation
Existing Structure (AEP)
Proposed Structure
Proposed Cloverdale - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Proposed Trinity - Windy Pass 138-kV Transmission Line (on Company Property)
Proposed Windy Pass Wheatland 69-kV Transmission Line (in existing ROW or on Company property)
Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (on new centerline)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Stream (3DHP)
Local Road
Waterbody (3DHP)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
BOTETOURT COUNTY
Troutville
Exhibit 2: GIS Constraints Map
Map 14 of 39
APPALACHIAN POWER
Daleville Area Transmission Improvements Project
0
200
400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Stream (3DHP)
- Local Road
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

Exhibit 2: GIS Constraints Map
Map 15 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



Existing Structure (AEP)
Proposed Structure
Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Stream (3DHP)
Local Road
Non-Habitable Building (within Filing Corridor)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

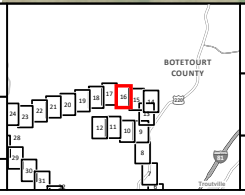


Exhibit 2: GIS Constraints Map
Map 16 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Stream (3DHP)
- Local Road
- Habitable Building (within Filing Corridor)
- Non-Habitable Building (within Filing Corridor)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

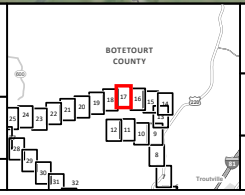
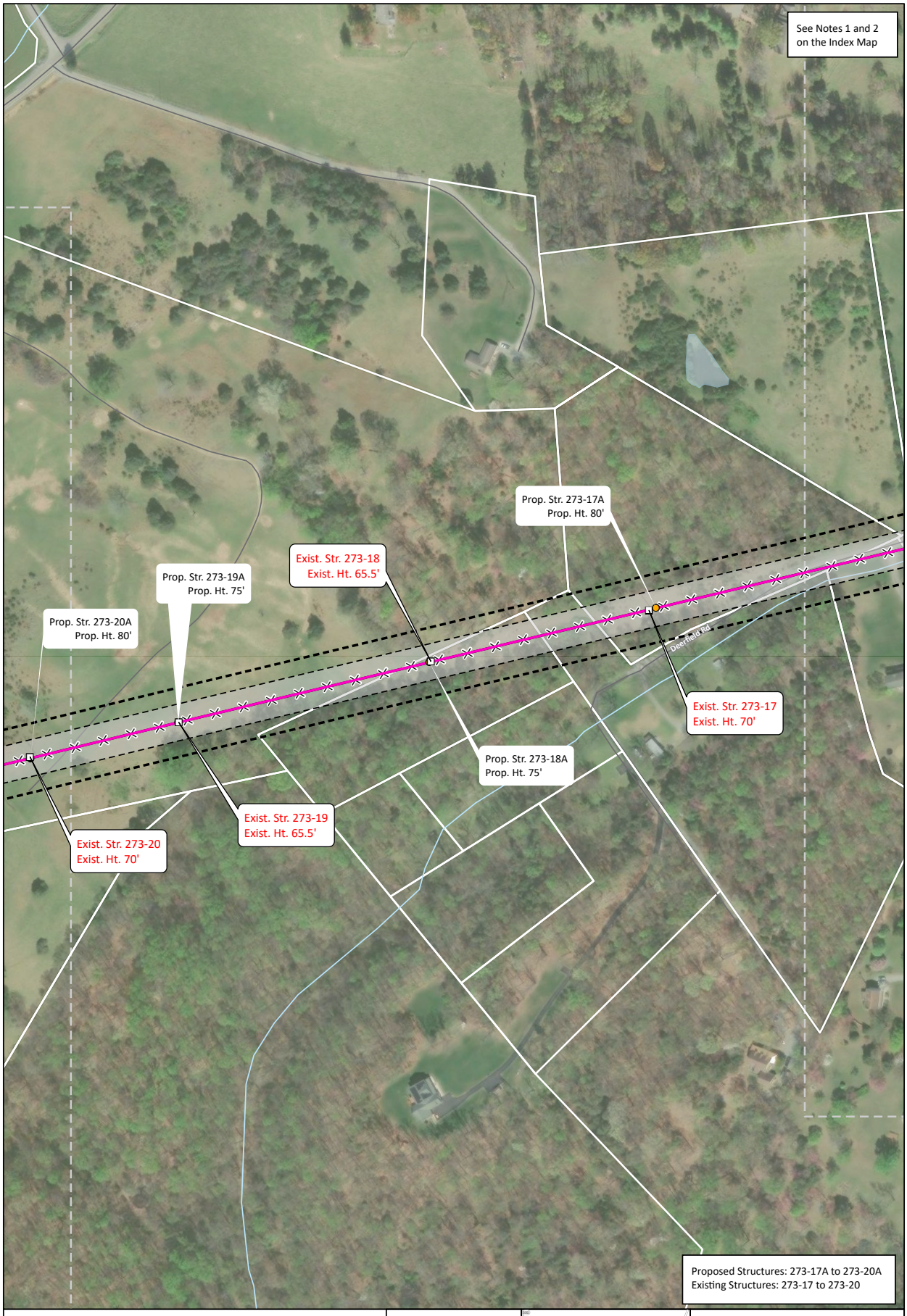


Exhibit 2: GIS Constraints Map
Map 17 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



Existing Structure (AEP)
Proposed Structure
Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
Existing Transmission Line (AEP)
Existing Transmission Line to be Removed (AEP)
Stream (3DHP)
Local Road
Waterbody (3DHP)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

BOTETOURT COUNTY

Exhibit 2: GIS Constraints Map
Map 18 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Stream (3DHP)
- Local Road
- Wetland (NWI)
- Waterbody (3DHP)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

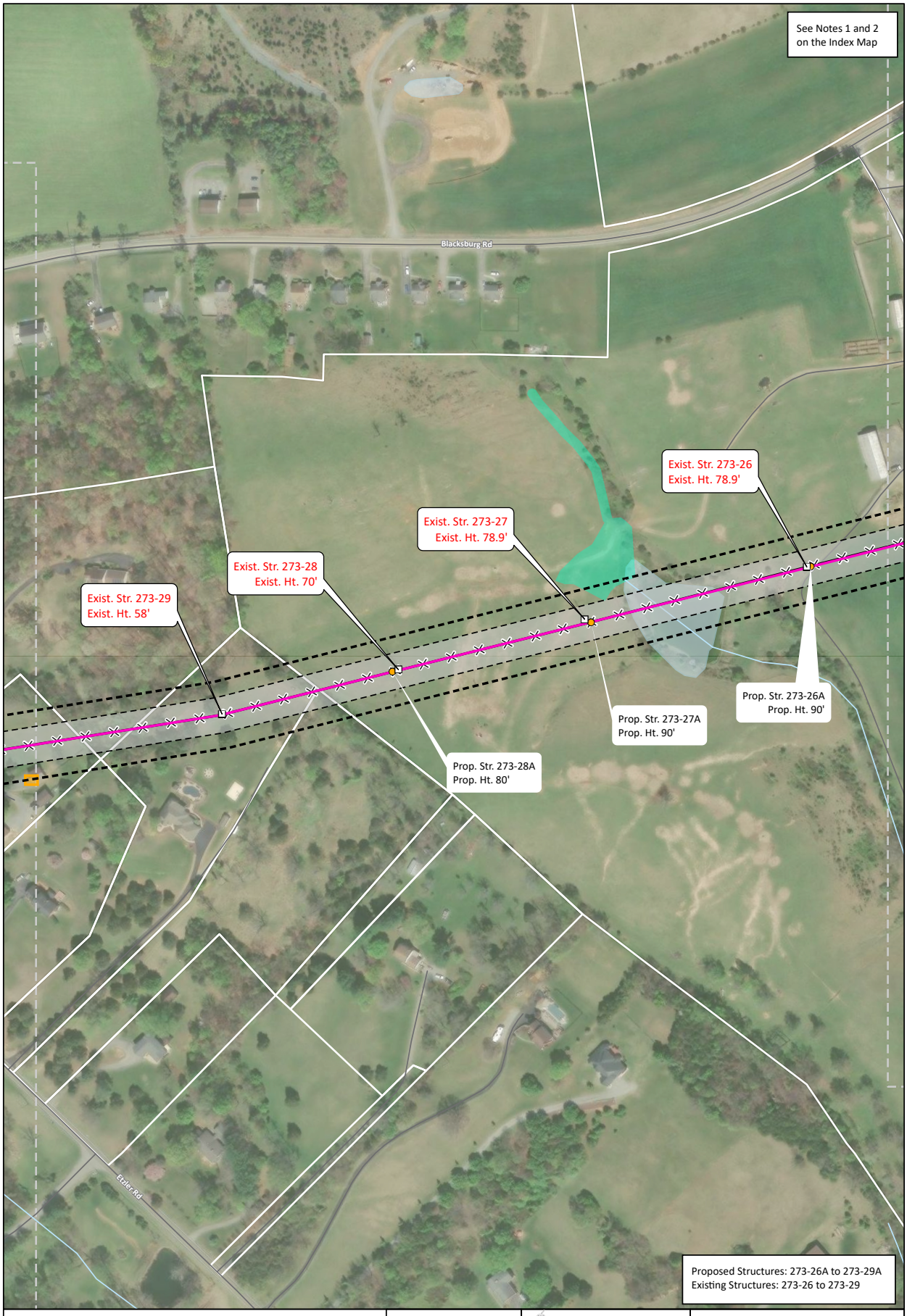
BOTETOURT COUNTY

Exhibit 2: GIS Constraints Map
Map 19 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Stream (3DHP)
- Local Road
- Non-Habitable Building (within Filing Corridor)
- Wetland (NWI)
- Waterbody (3DHP)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

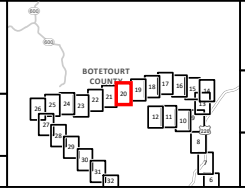


Exhibit 2: GIS Constraints Map
Map 20 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Stream (3DHP)
- Local Road
- Non-Habitable Building (within Filing Corridor)
- Waterbody (3DHP)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

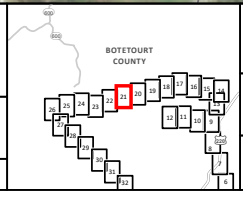


Exhibit 2: GIS Constraints Map
Map 21 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Local Road
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

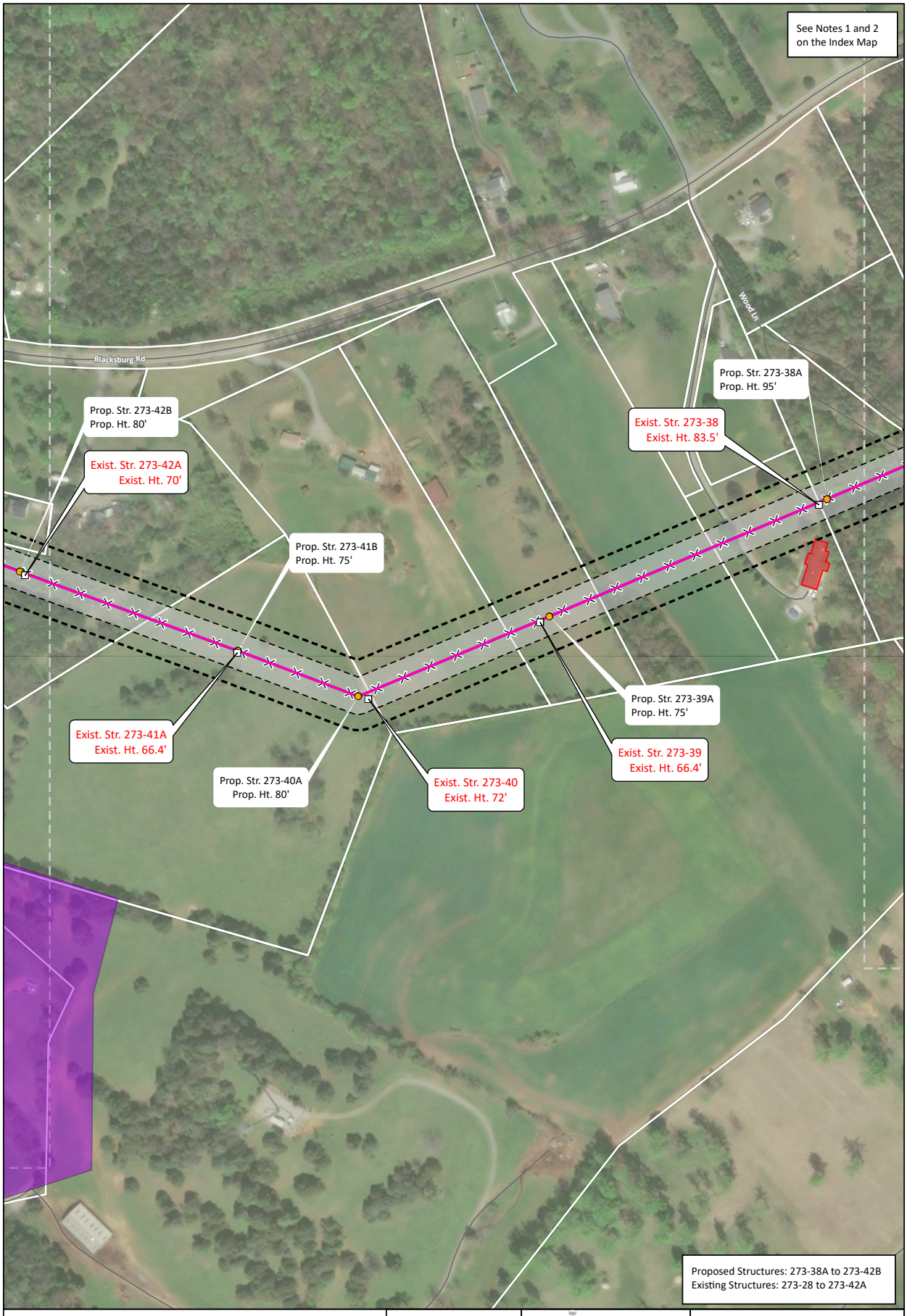
August 19, 2026

Exhibit 2: GIS Constraints Map
Map 22 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Stream (3DHP)
- Local Road
- Habitable Building (within Filing Corridor)
- Historic Site/District (NRHP)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

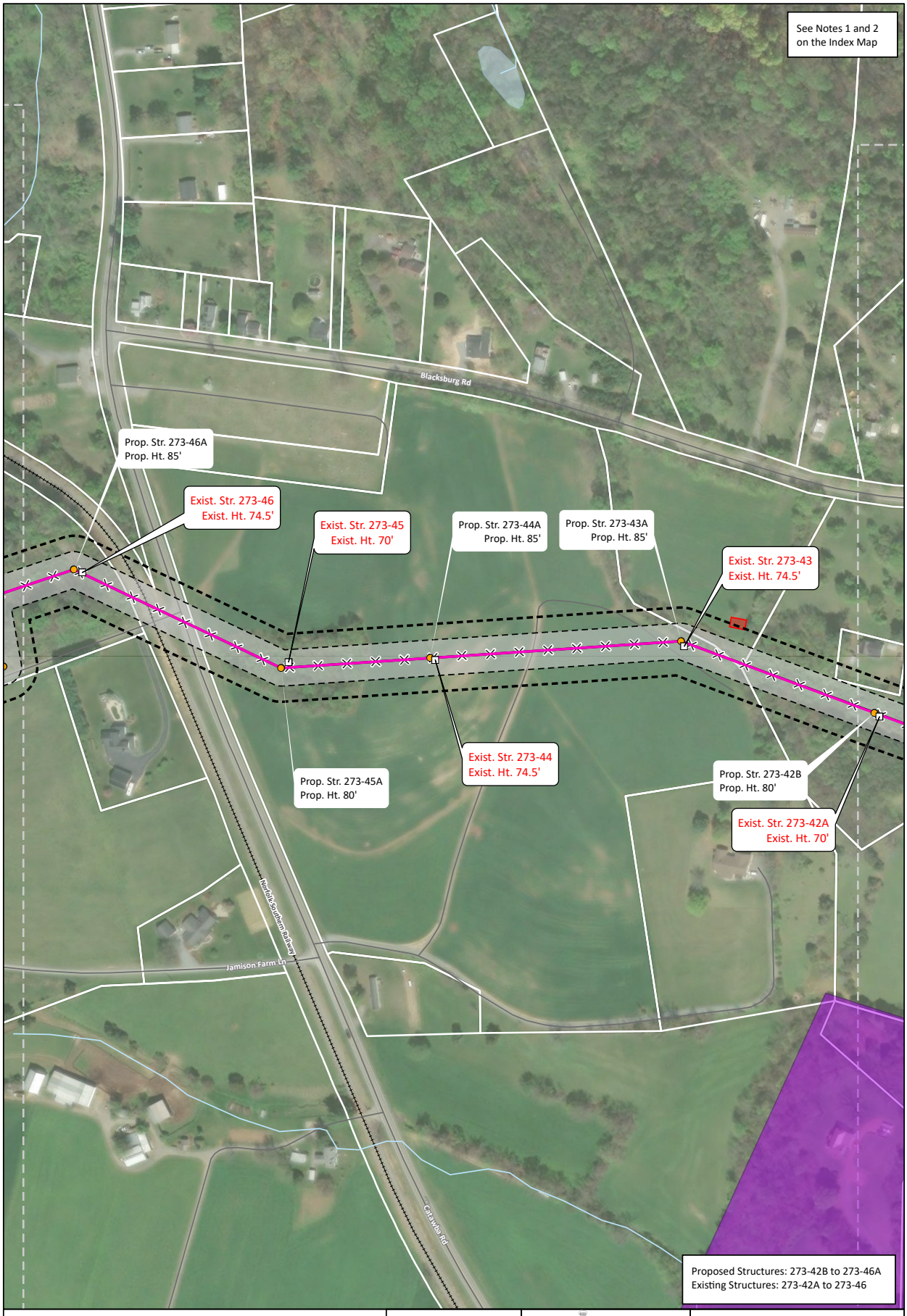
August 19, 2026

Exhibit 2: GIS Constraints Map
Map 23 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Stream (3DHP)
- Local Road
- Railroad
- Habitable Building (within Filing Corridor)
- Historic Site/District (NRHP)
- Waterbody (3DHP)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
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Datum: North American 1983

August 19, 2026

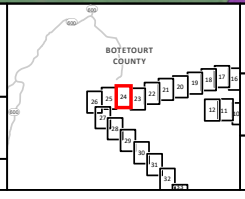
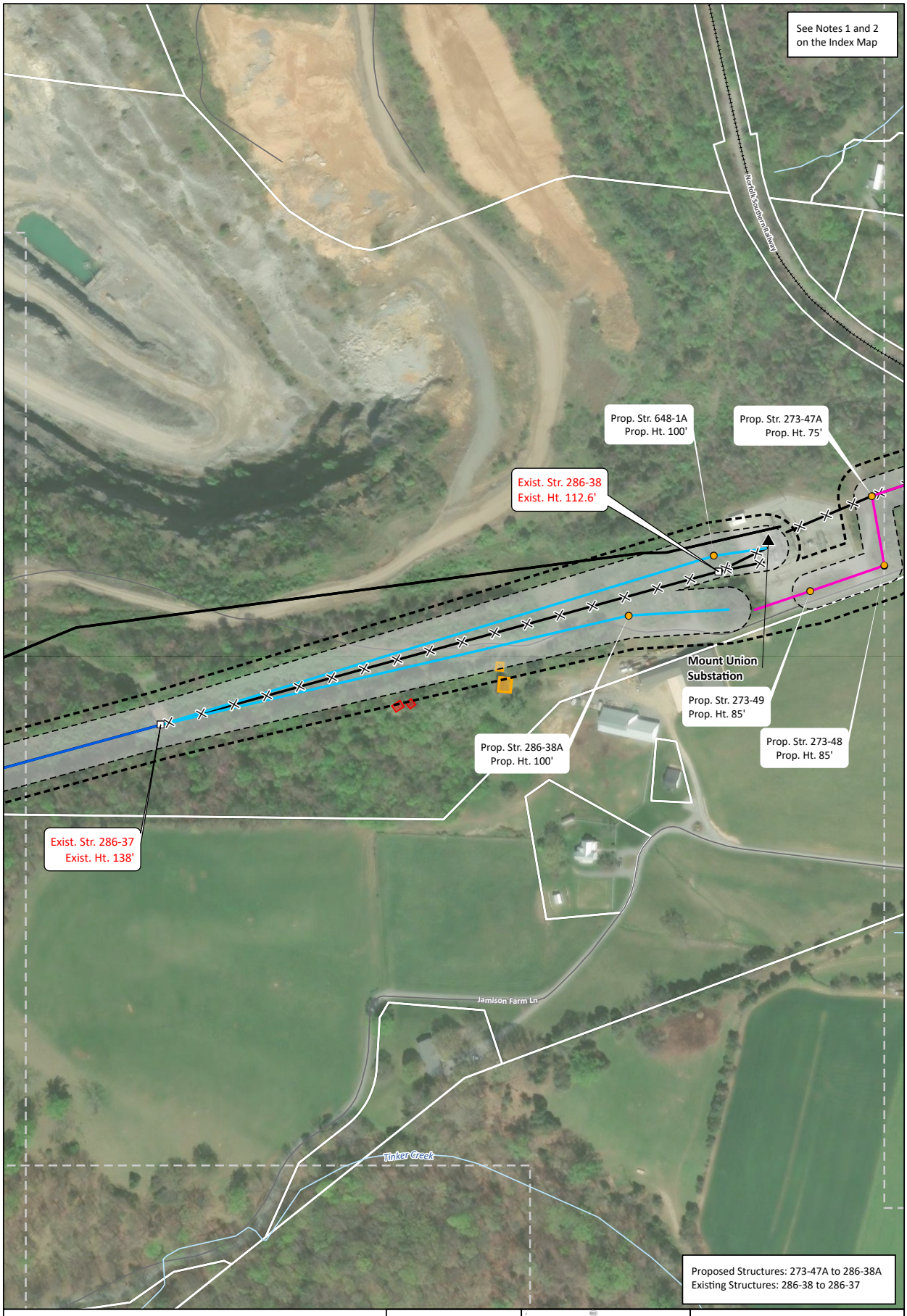


Exhibit 2: GIS Constraints Map
Map 24 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Substation (AEP)
- Existing Structure (AEP)
- Proposed Structure
- Proposed Colverdale - Mount Union to be Rebuilt (on new centerline)
- Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
- Proposed Mount Union - Windy Pass 138-kV Transmission Line to be Rebuilt (In Existing ROW or on Company property)
- Existing Transmission Line (AEP)
- Existing Transmission Line to be Removed (AEP)
- Stream (3DHP)
- Local Road
- Railroad
- Habitable Building (within Filing Corridor)
- Non-Habitable Building (within Filing Corridor)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

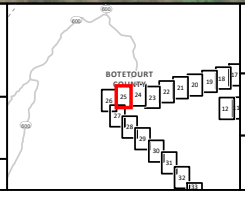


Exhibit 2: GIS Constraints Map
Map 25 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



Existing Structure (AEP)
Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
Existing Transmission Line (AEP)
Stream (3DHP)
Local Road
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

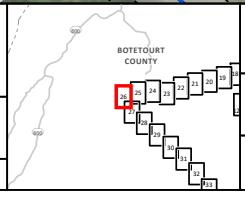


Exhibit 2: GIS Constraints Map
Map 26 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



Existing Structure (AEP)
Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
Existing Transmission Line (AEP)
Stream (3DHP)
Local Road
Federal Conservation Land
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

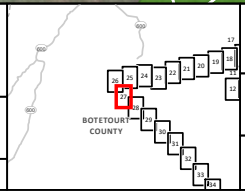


Exhibit 2: GIS Constraints Map
Map 27 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet


See Notes 1 and 2 on the Index Map
Mountain Trail Rd
Exist. Str. 286-30
Exist. Ht. 58'
Exist. Str. 286-29
Exist. Ht. 102.4'
Existing Structures: 286-30 to 286-29
Existing Structure (AEP)
Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
Existing Transmission Line (AEP)
Stream (3DHP)
Local Road
Non-Habitable Building (within Filing Corridor)
VOF Easement
Federal Conservation Land
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
BOTETOURT COUNTY
Exhibit 2: GIS Constraints Map
Map 28 of 39
APPALACHIAN POWER
Daleville Area Transmission Improvements Project
0
200
400
Feet



Existing Structure (AEP)
Proposed Structure
Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
Existing Transmission Line (AEP)
Stream (3DHP)
VOF Easement
Federal Conservation Land
Waterbody (3DHP)
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

BOTETOURT COUNTY

Exhibit 2: GIS Constraints Map
Map 29 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
- Existing Transmission Line (AEP)
- Stream (3DHP)
- Local Road
- VOF Easement
- Federal Conservation Land
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

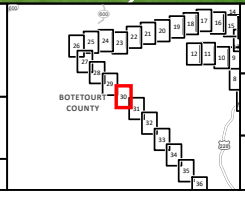


Exhibit 2: GIS Constraints Map
Map 30 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
- Existing Transmission Line (AEP)
- Stream (3DHP)
- Local Road
- VOF Easement
- Federal Conservation Land
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

BOTETOURT COUNTY

Exhibit 2: GIS Constraints Map
Map 31 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
- Existing Transmission Line (AEP)
- Stream (3DHP)
- Local Road
- Habitable Building (within Filing Corridor)
- Non-Habitable Building (within Filing Corridor)
- VOF Easement
- Federal Conservation Land
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

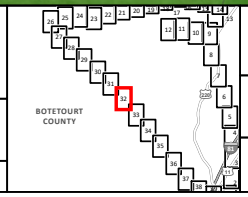
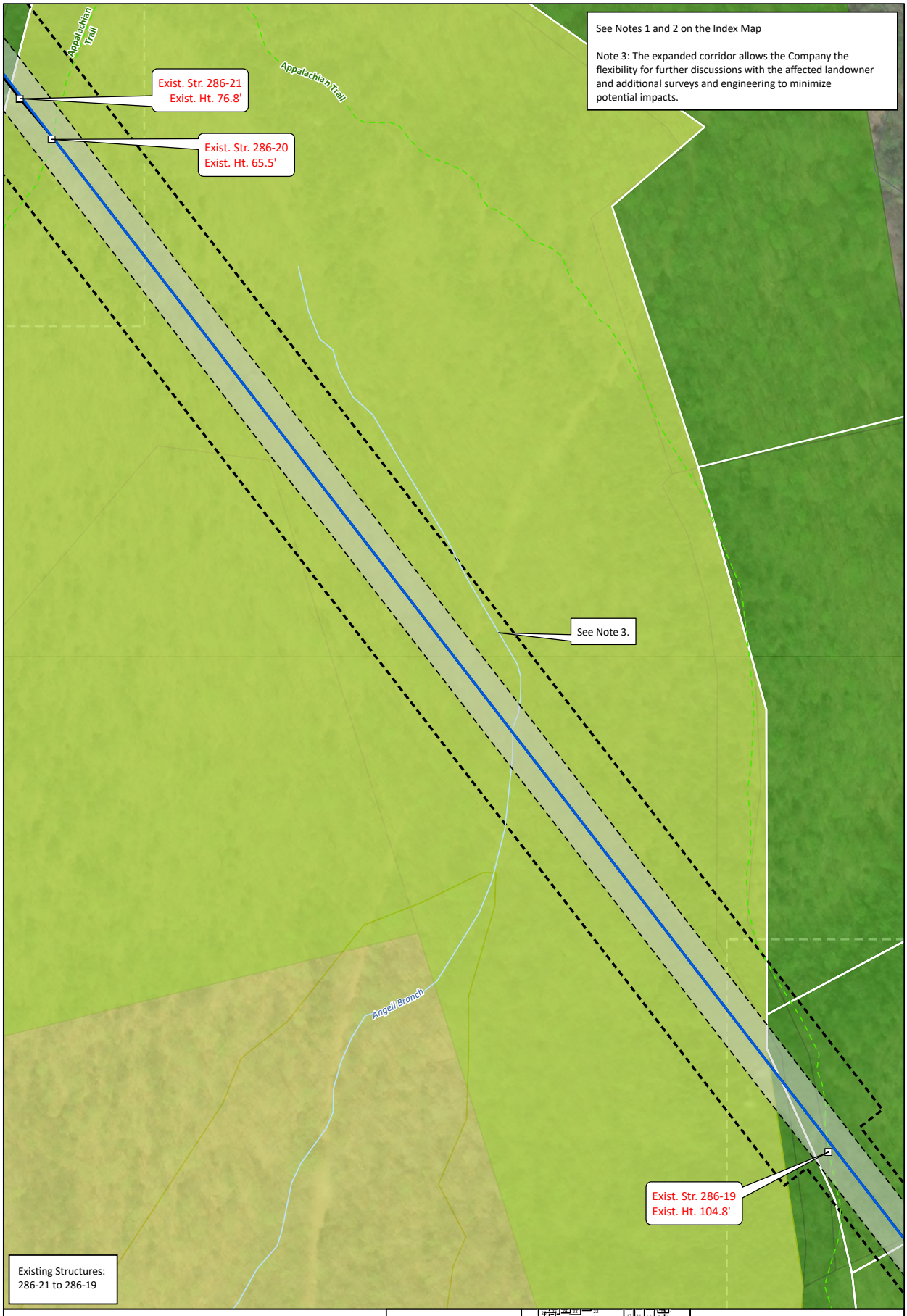


Exhibit 2: GIS Constraints Map
Map 32 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet


Appalachian Trail
Appalachian Trail
Exist. Str. 286-21
Exist. Ht. 76.8'
Exist. Str. 286-20
Exist. Ht. 65.5'
See Notes 1 and 2 on the Index Map
Note 3: The expanded corridor allows the Company the flexibility for further discussions with the affected landowner and additional surveys and engineering to minimize potential impacts.
See Note 3.
Angell Branch
Exist. Str. 286-19
Exist. Ht. 104.8'
Existing Structures: 286-21 to 286-19
Existing Structure (AEP)
Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
Existing Transmission Line (AEP)
Stream (3DHP)
Local Road
VOF Easement
Federal Conservation Land
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor
Botetourt County, VA
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
August 19, 2026
BOTETOURT COUNTY
Exhibit 2: GIS Constraints Map
Map 33 of 39
APPALACHIAN POWER
Daleville Area Transmission Improvements Project
0
200
400
Feet



Existing Structure (AEP)
Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
Existing Transmission Line (AEP)
VOF Easement
Federal Conservation Land
Parcel Boundary (within Filing Corridor)
Proposed Right-of-Way
Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

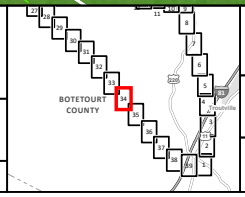


Exhibit 2: GIS Constraints Map
Map 34 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
- Existing Transmission Line (AEP)
- Stream (3DHP)
- Local Road
- VOF Easement
- Federal Conservation Land
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

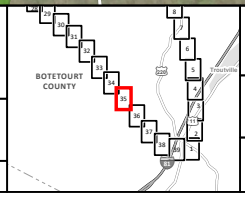


Exhibit 2: GIS Constraints Map
Map 35 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
- Existing Transmission Line (AEP)
- Stream (3DHP)
- Local Road
- VOF Easement
- Waterbody (3DHP)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

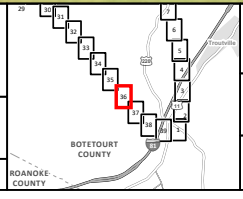


Exhibit 2: GIS Constraints Map
Map 36 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
- Existing Transmission Line (AEP)
- Stream (3DHP)
- Railroad
- Wetland (NWI)
- VOF Easement
- Federal Conservation Land
- 100 Year Floodplain (FEMA)
- Waterbody (3DHP)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

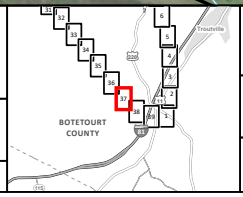
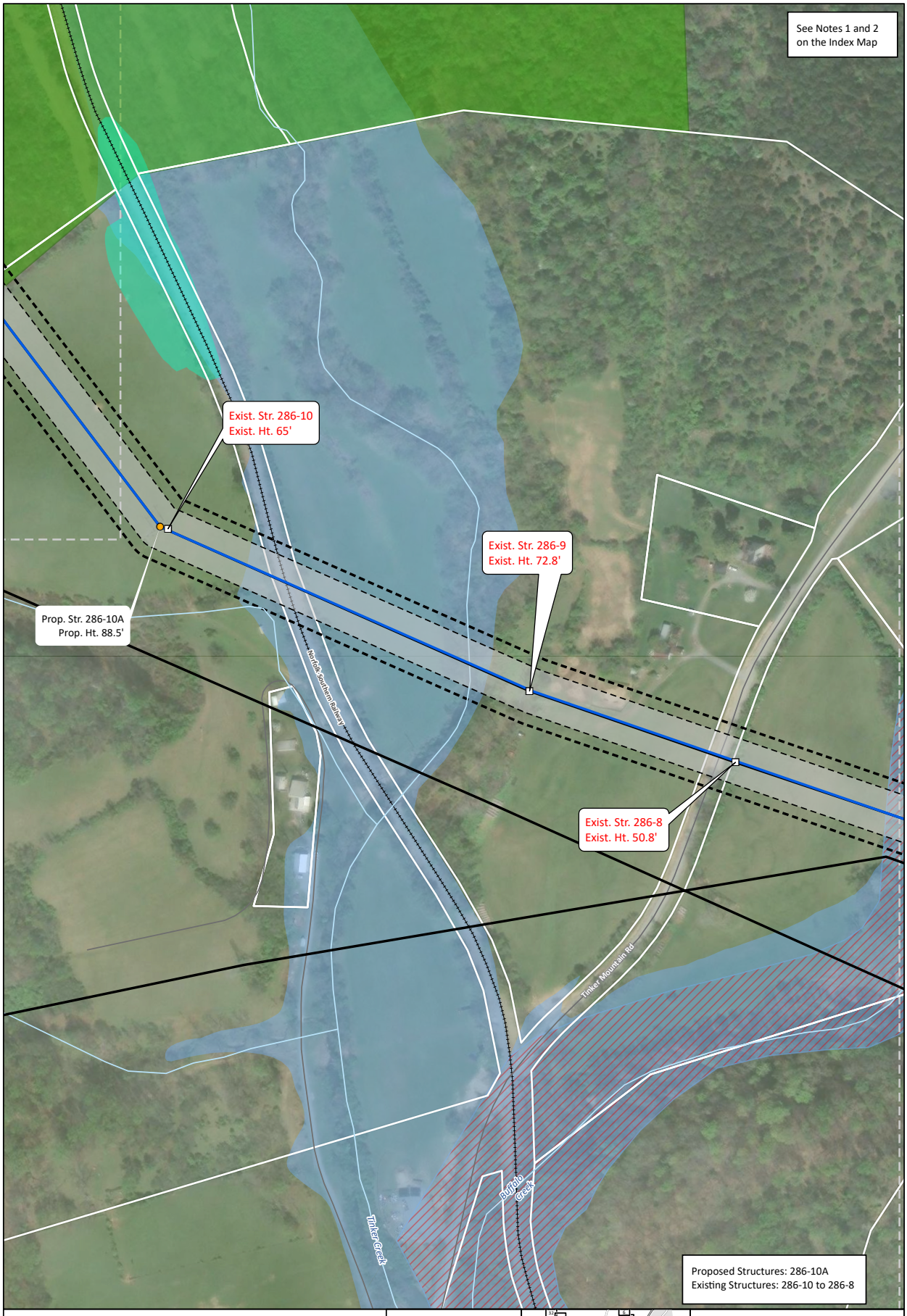


Exhibit 2: GIS Constraints Map
Map 37 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Proposed Structure
- Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
- Existing Transmission Line (AEP)
- Stream (3DHP)
- Local Road
- Railroad
- Wetland (NWI)
- Federal Conservation Land
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

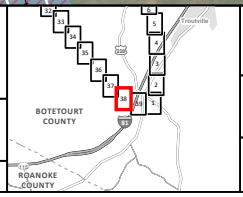
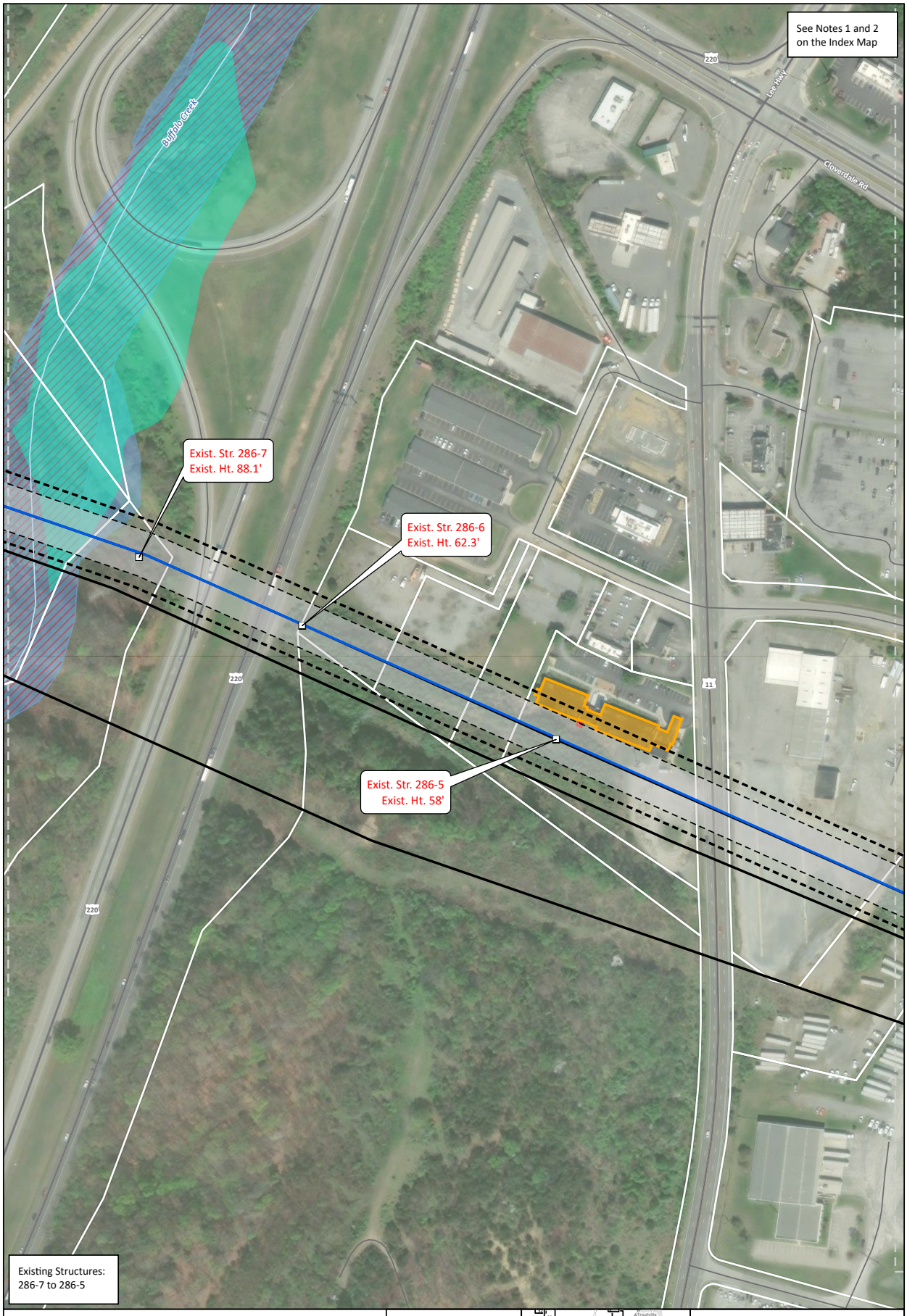


Exhibit 2: GIS Constraints Map
Map 38 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

0 200 400
Feet



- Existing Structure (AEP)
- Cloverdale - Mount Union 138-kV Transmission Line to be Reconductored
- Existing Transmission Line (AEP)
- Stream (3DHP)
- Local Road
- Highway
- Habitable Building (within Filing Corridor)
- Non-Habitable Building (within Filing Corridor)
- Wetland (NWI)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- Proposed Right-of-Way
- Filing Corridor

Botetourt County, VA

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

August 19, 2026

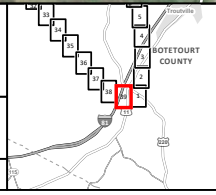


Exhibit 2: GIS Constraints Map
Map 39 of 39

APPALACHIAN POWER

Daleville Area Transmission Improvements Project

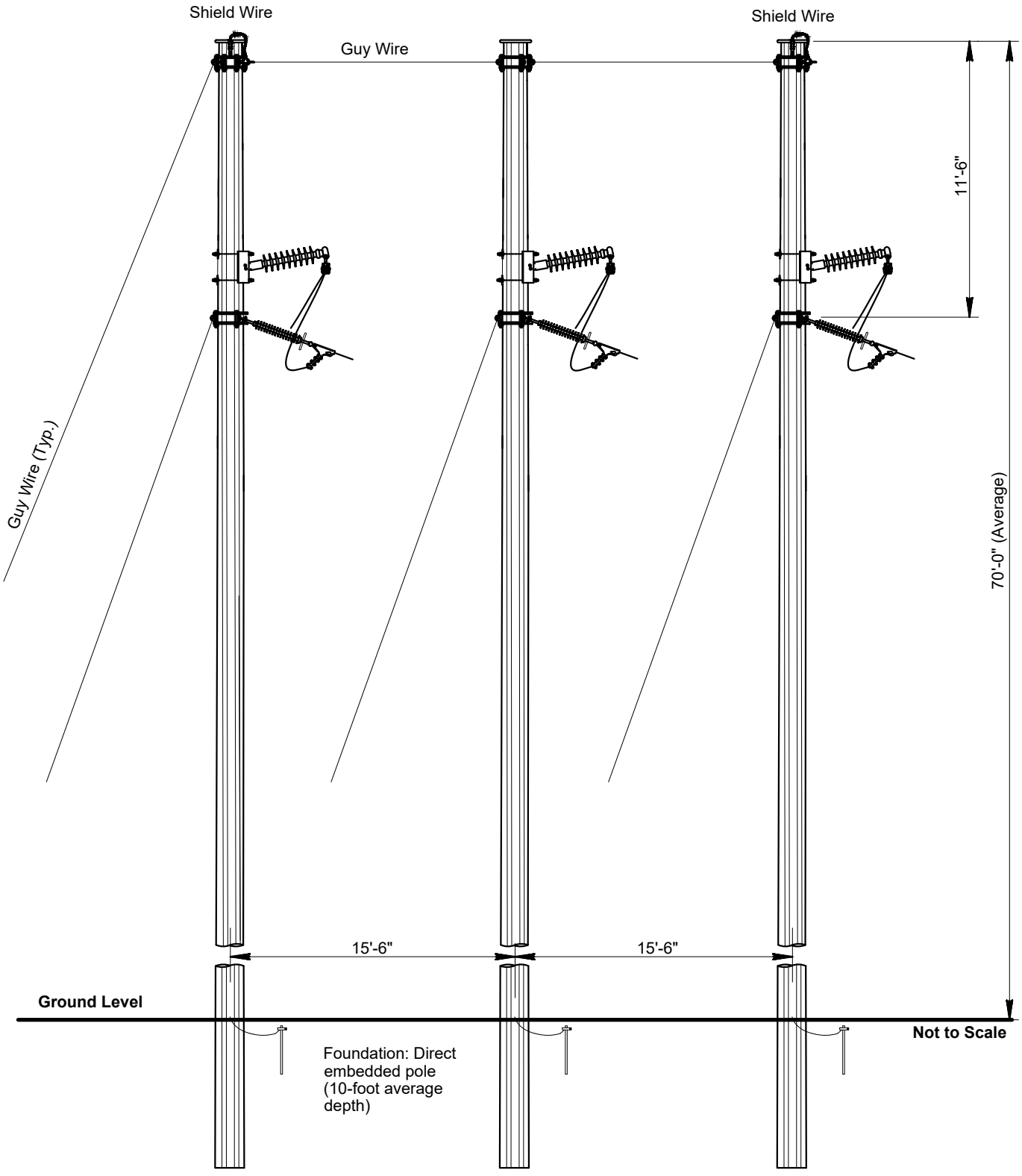
0 200 400
Feet

EXHIBIT 3: EXISTING 69-kV DEAD-END GUYED 3-POLE IN 80-FOOT ROW

EXHIBIT 3

EXISTING 69kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing 69-kV Dead-end Guyed 3-pole in 80-foot ROW (SINGLE CIRCUIT)

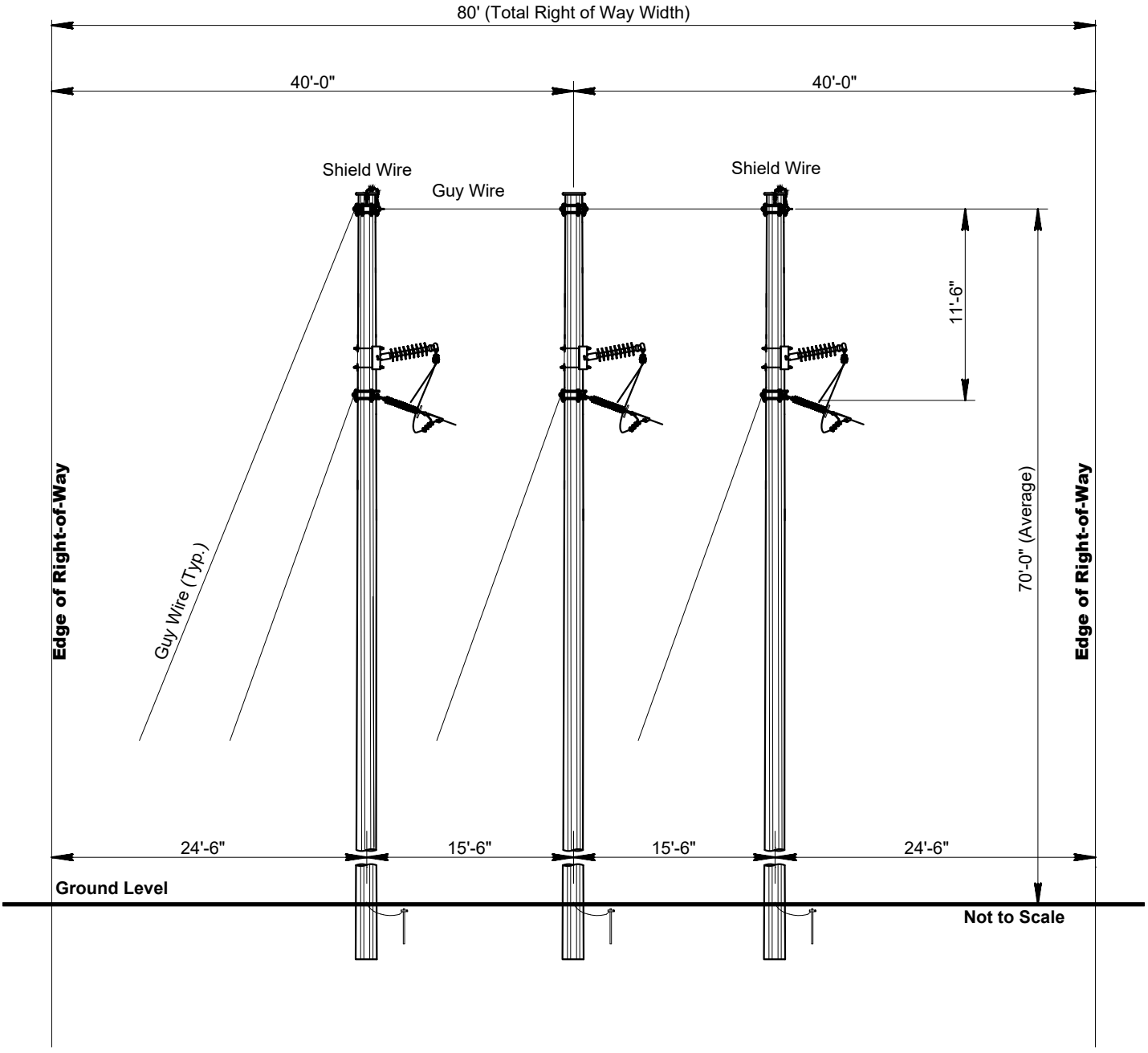


TYPICAL SCHEMATIC

EXHIBIT 3

EXISTING 69kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing 69-kV Dead-end Guyed 3-pole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing 69-kV Dead-end Guyed 3-pole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

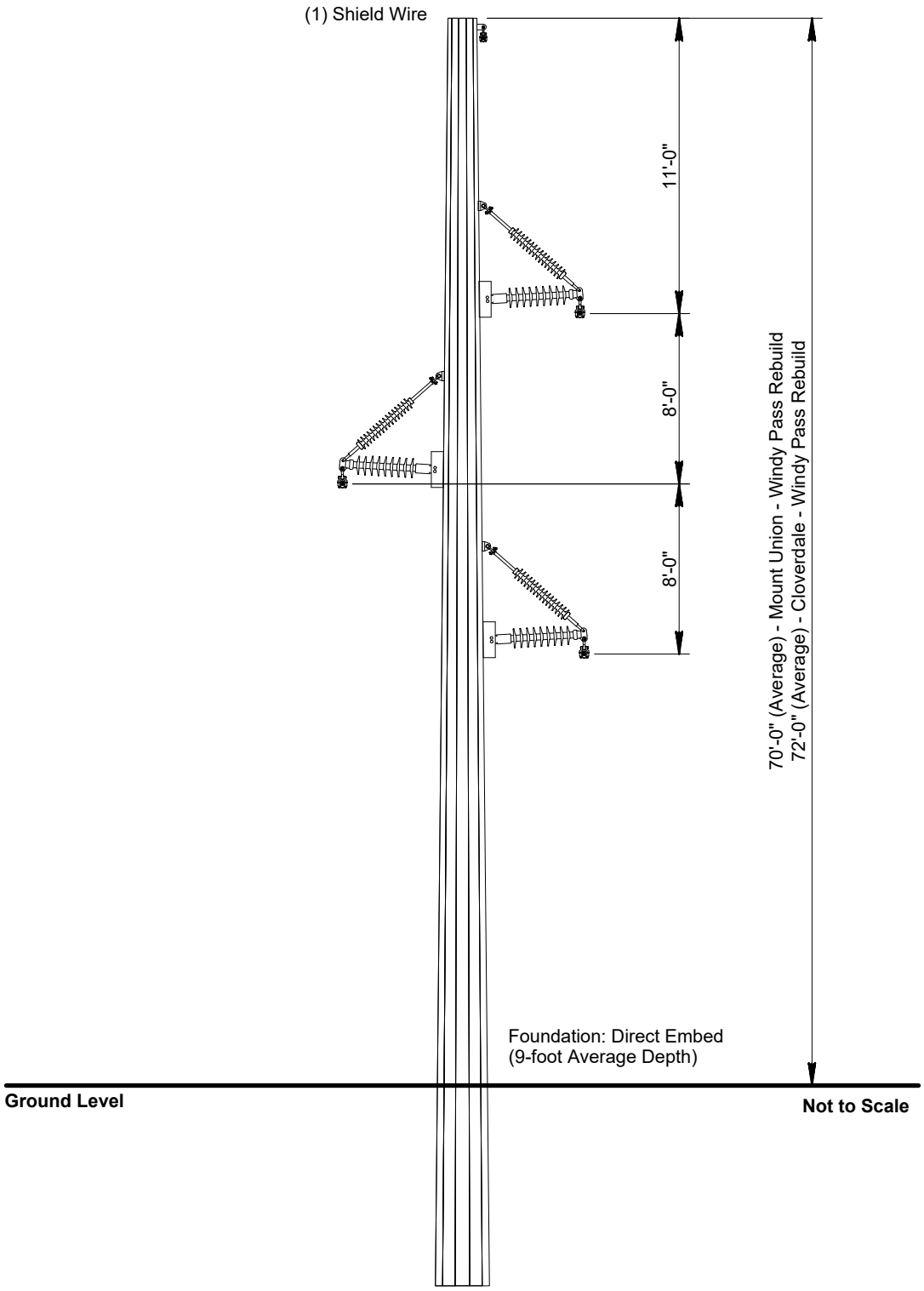
Note: The material for the existing typical structure is wood (as shown above).

EXHIBIT 4: EXISTING 138-kV SUSPENSION ALTERNATING BRACED-POST MONOPOLE IN 80-FOOT ROW

EXHIBIT 4

EXISTING 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing 138-kV Alternating Braced-post Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)

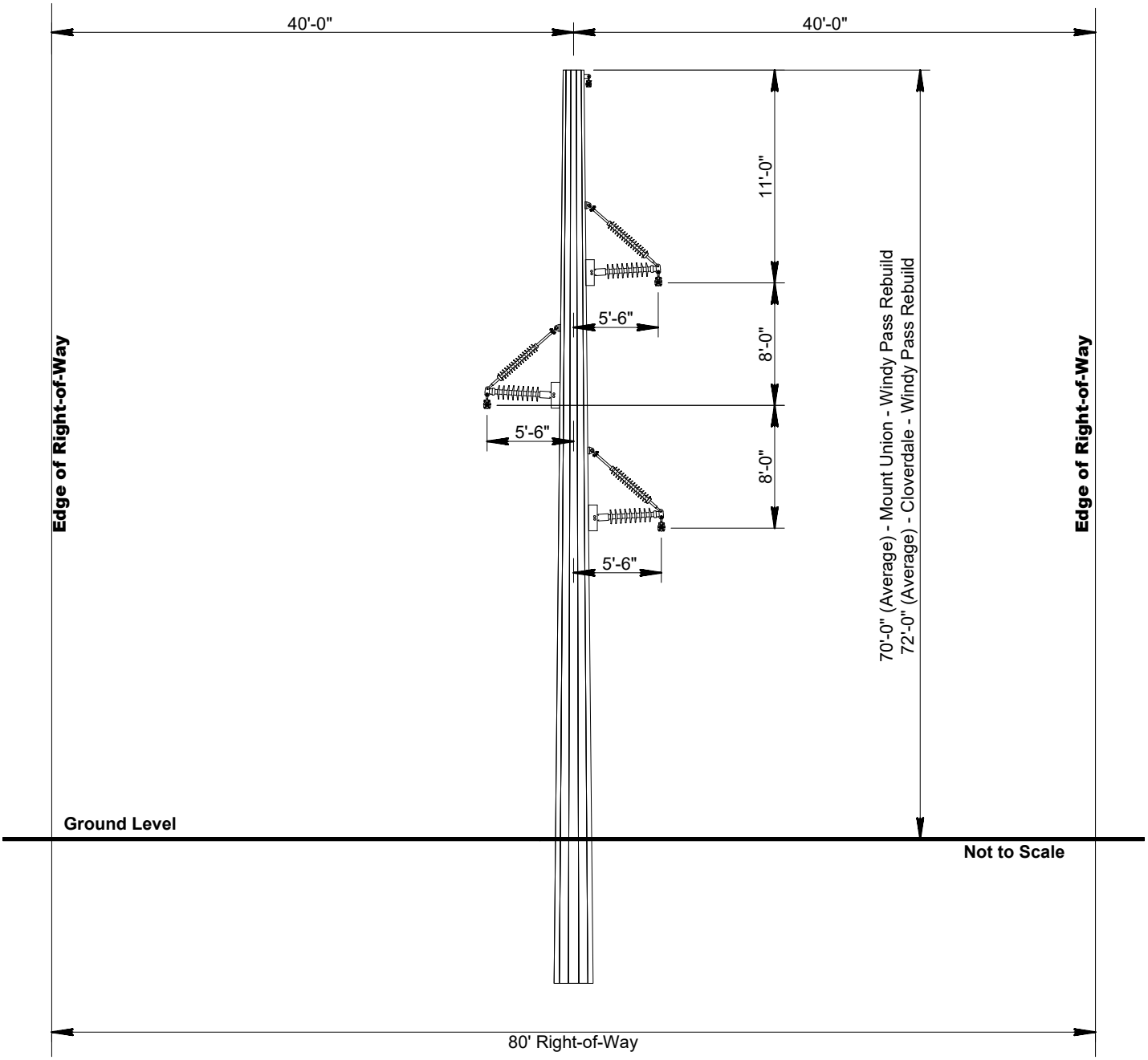


TYPICAL SCHEMATIC

EXHIBIT 4

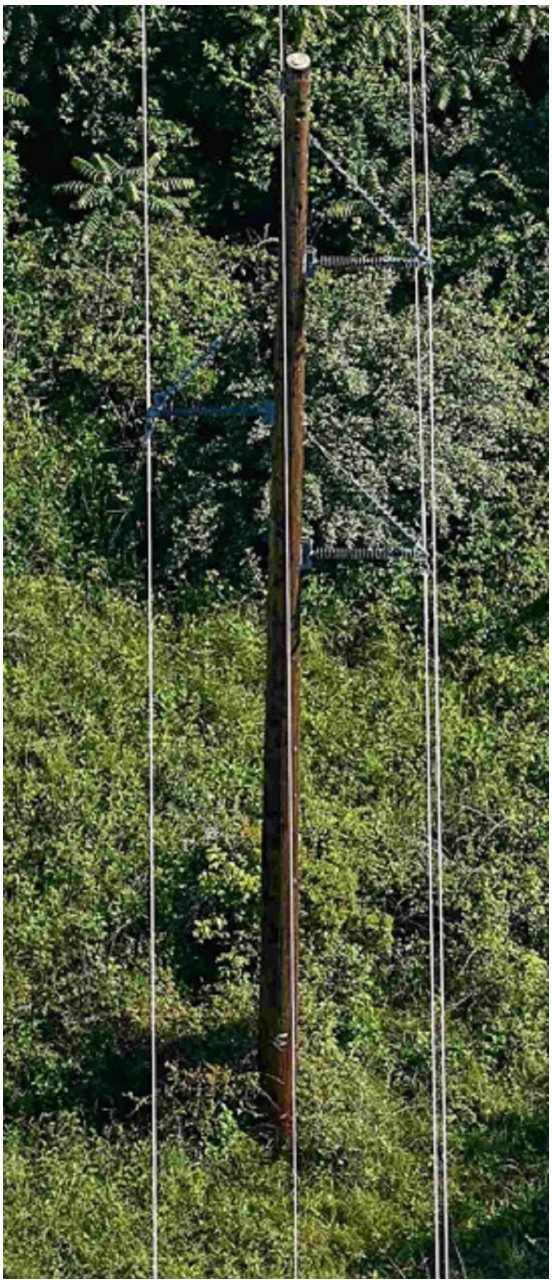
EXISTING 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing 138-kV Alternating Braced-post Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing 138-kV Alternating Braced-post Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

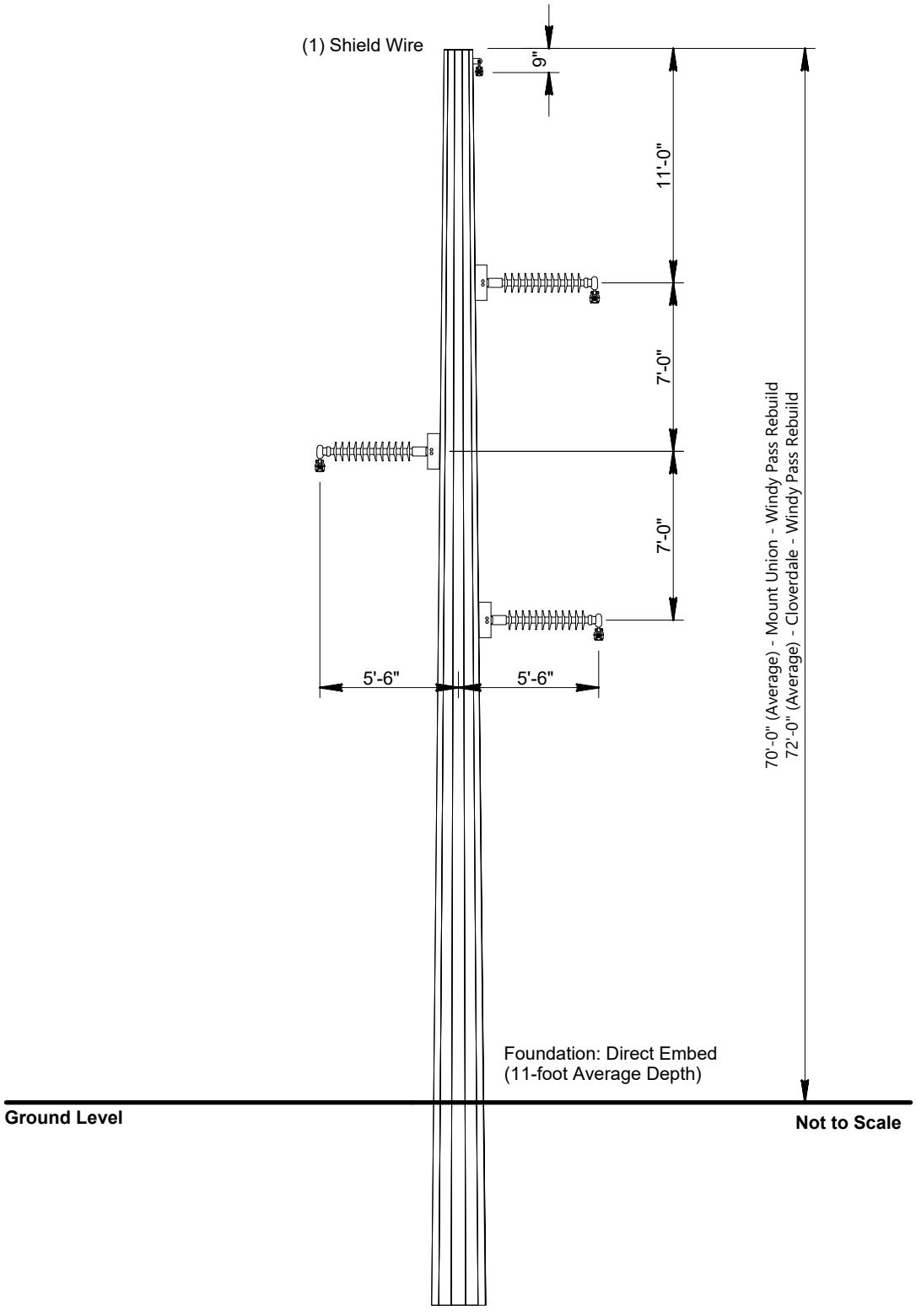
Note: The material for the existing typical structure is wood (as shown above).

EXHIBIT 5: EXISTING 138-kV SUSPENSION ALTERNATING HORIZONTAL POST MONOPOLE IN 80-FOOT ROW

EXHIBIT 5

EXISTING 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing 138-kV Alternating Horizontal Post Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)

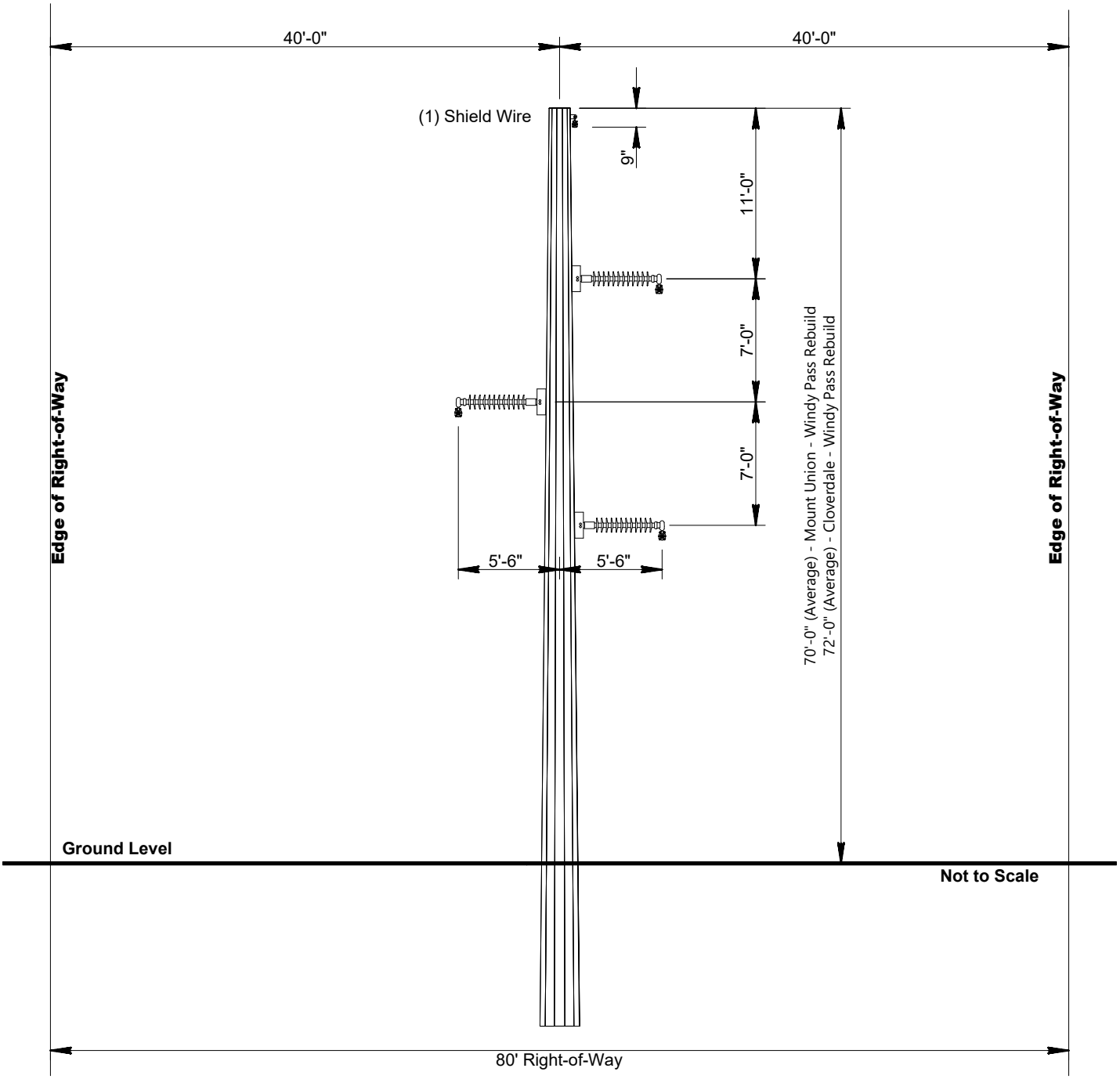


TYPICAL SCHEMATIC

EXHIBIT 5

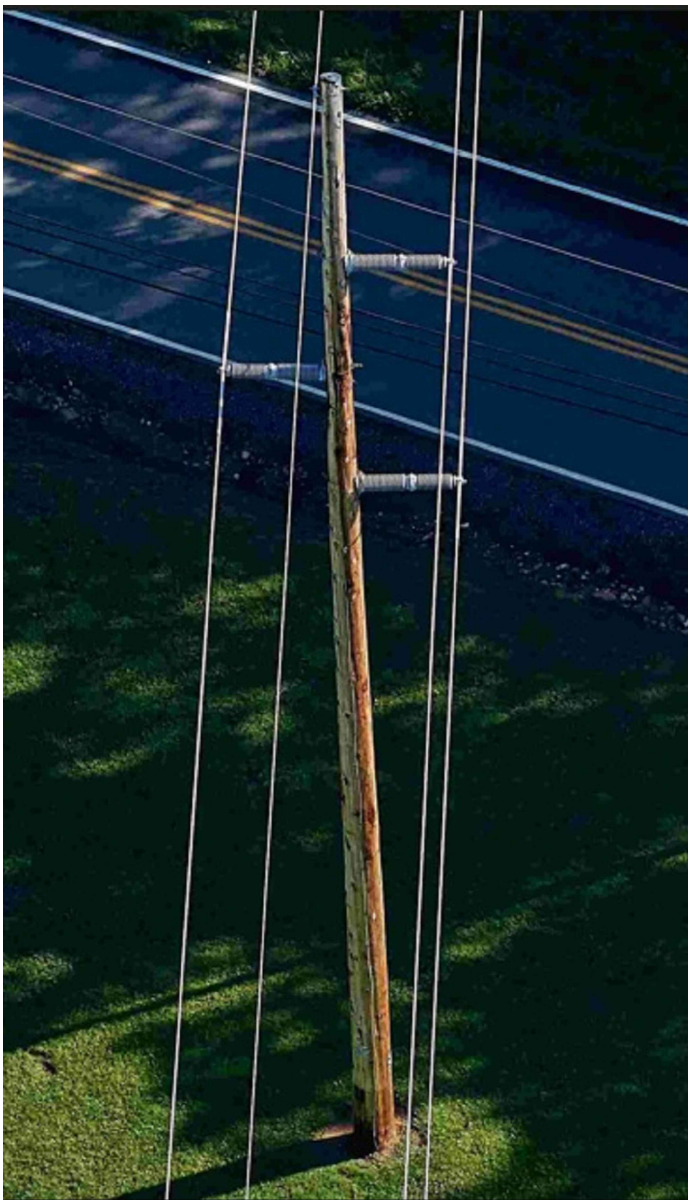
EXISTING 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing 138-kV Alternating Horizontal Post Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing 138-kV Alternating Horizontal Post Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

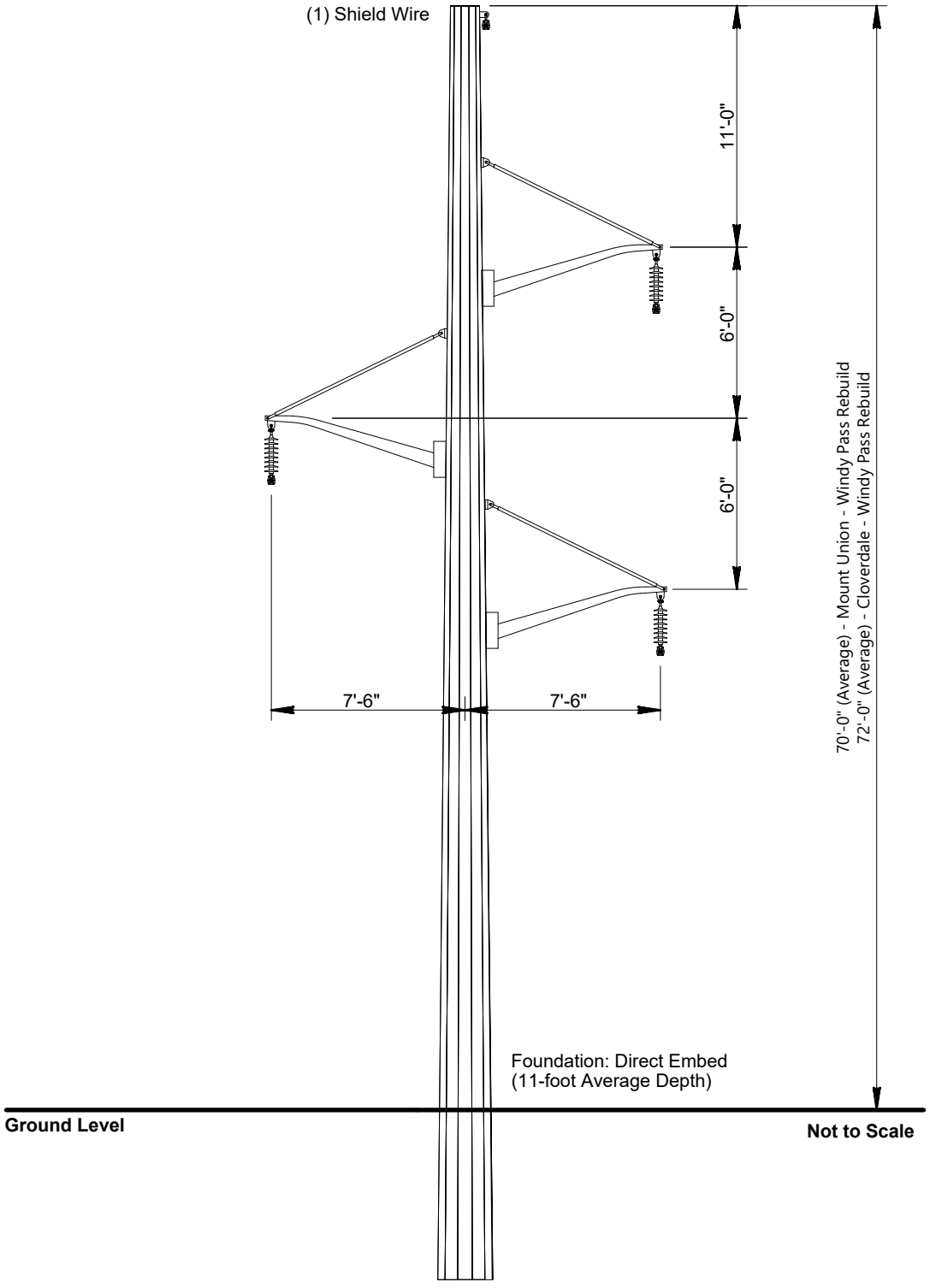
Note: The material for the existing typical structure is wood (as shown above).

EXHIBIT 6: EXISTING 138-kV SUSPENSION ALTERNATING DAVIT ARM MONOPOLE IN 80-FOOT ROW

EXHIBIT 6

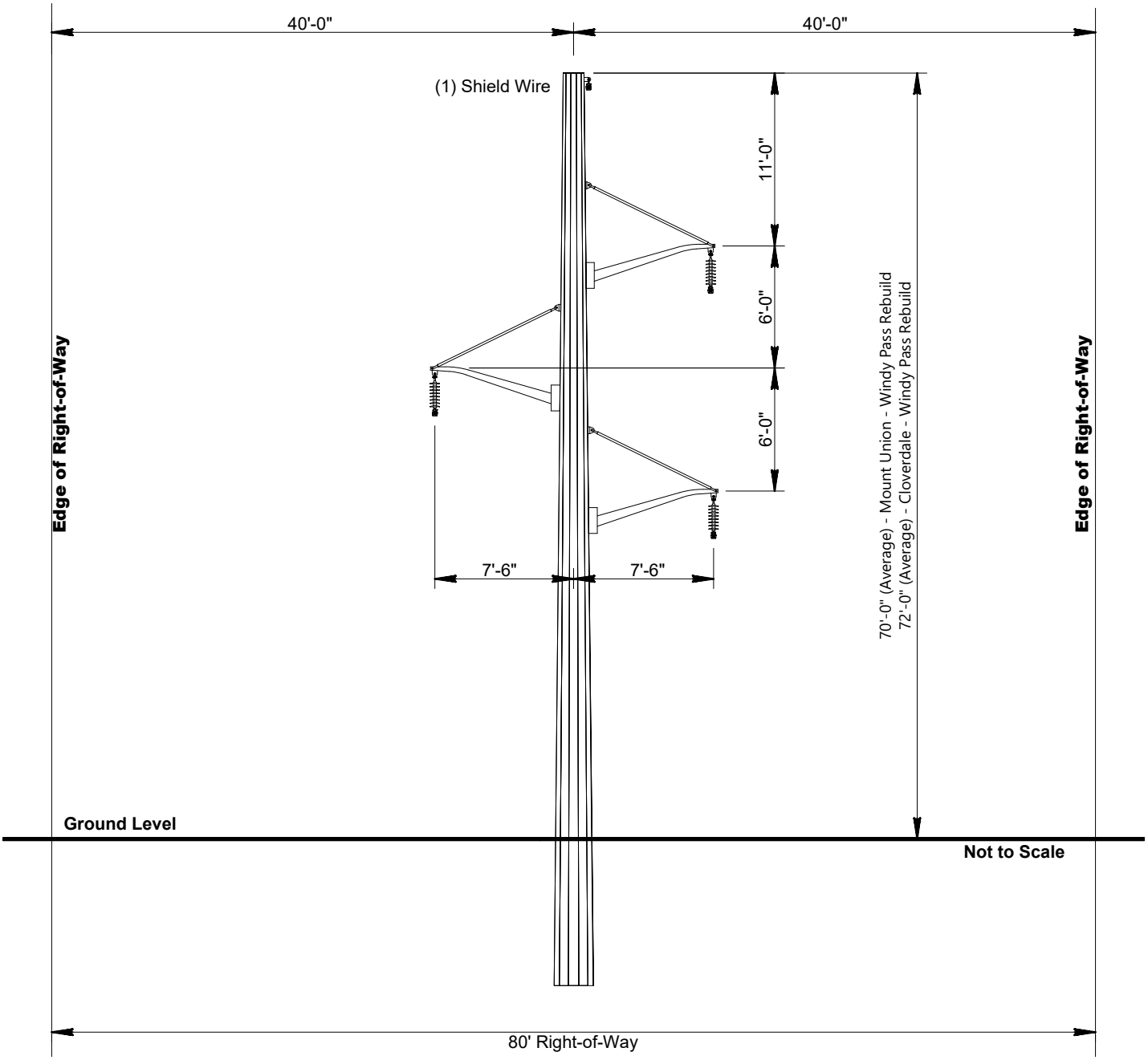
EXISTING 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing 138-kV Alternating Horizontal Post Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



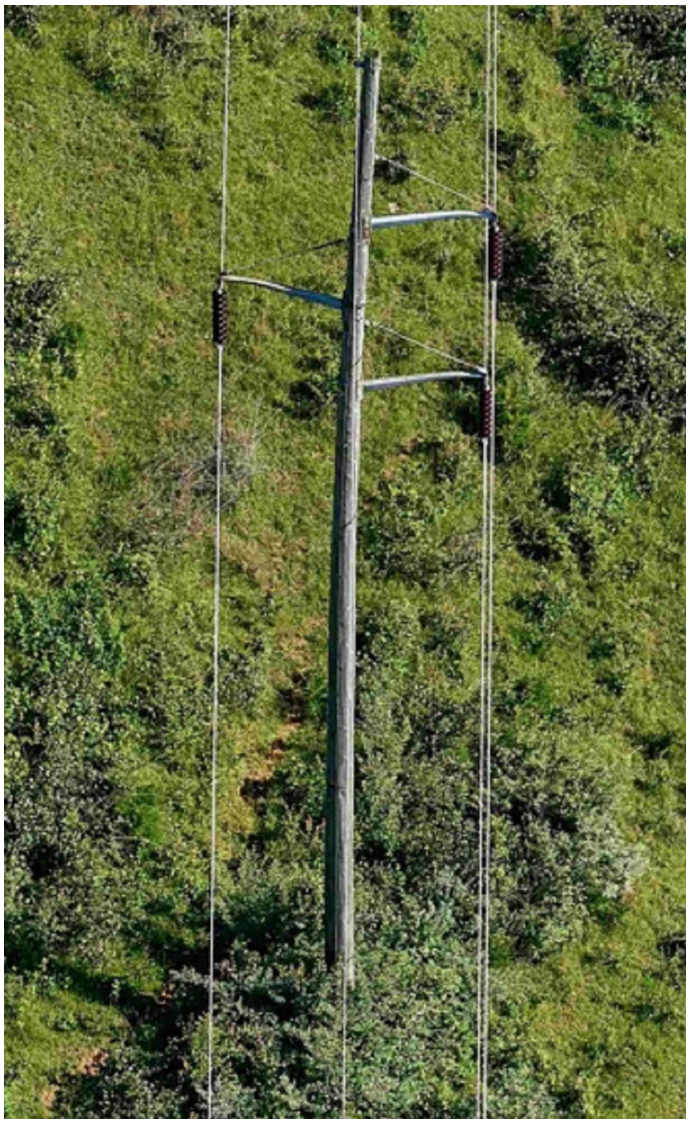
TYPICAL SCHEMATIC

Existing 138-kV Alternating Horizontal Post Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing 138-kV Alternating Horizontal Post Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

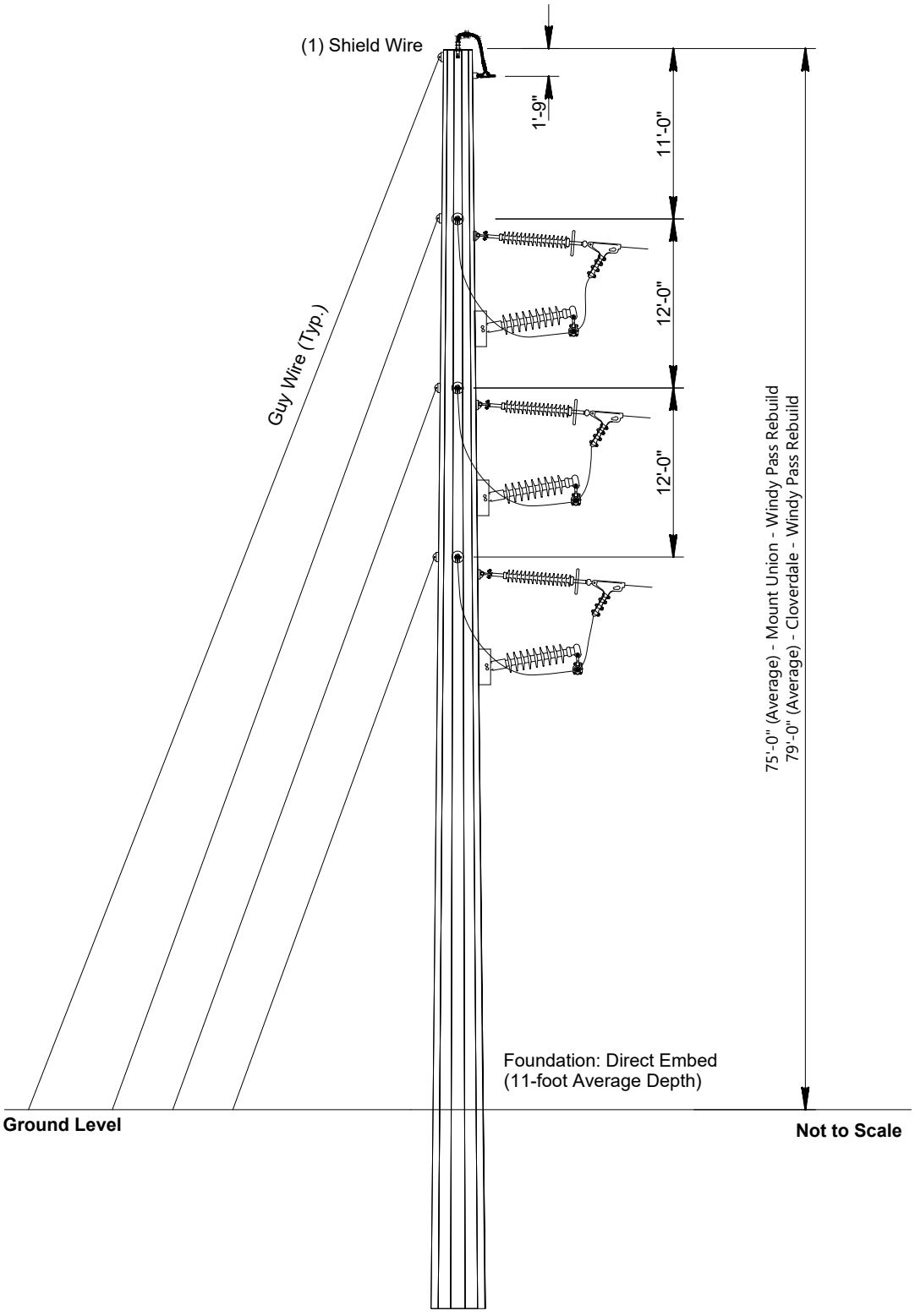
Note: The material for the existing typical structure is wood (as shown above).

EXHIBIT 7: EXISTING 138-kV DEAD-END GUYED MONOPOLE IN 80-FT ROW

EXHIBIT 7

EXISTING 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing 138-kV Dead-end Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)

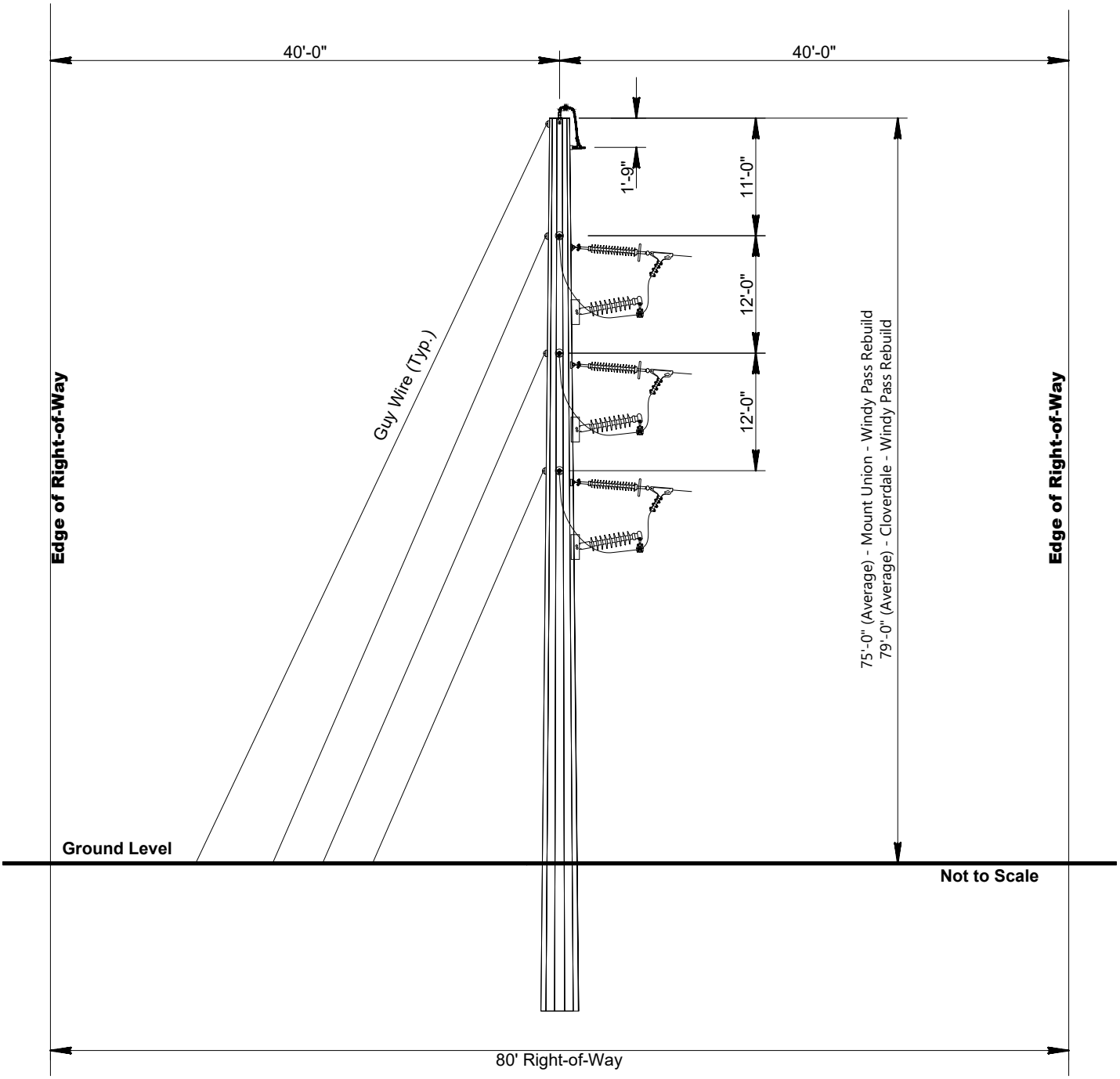


TYPICAL SCHEMATIC

EXHIBIT 7

EXISTING 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing 138-kV Dead-end Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing 138-kV Dead-end Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

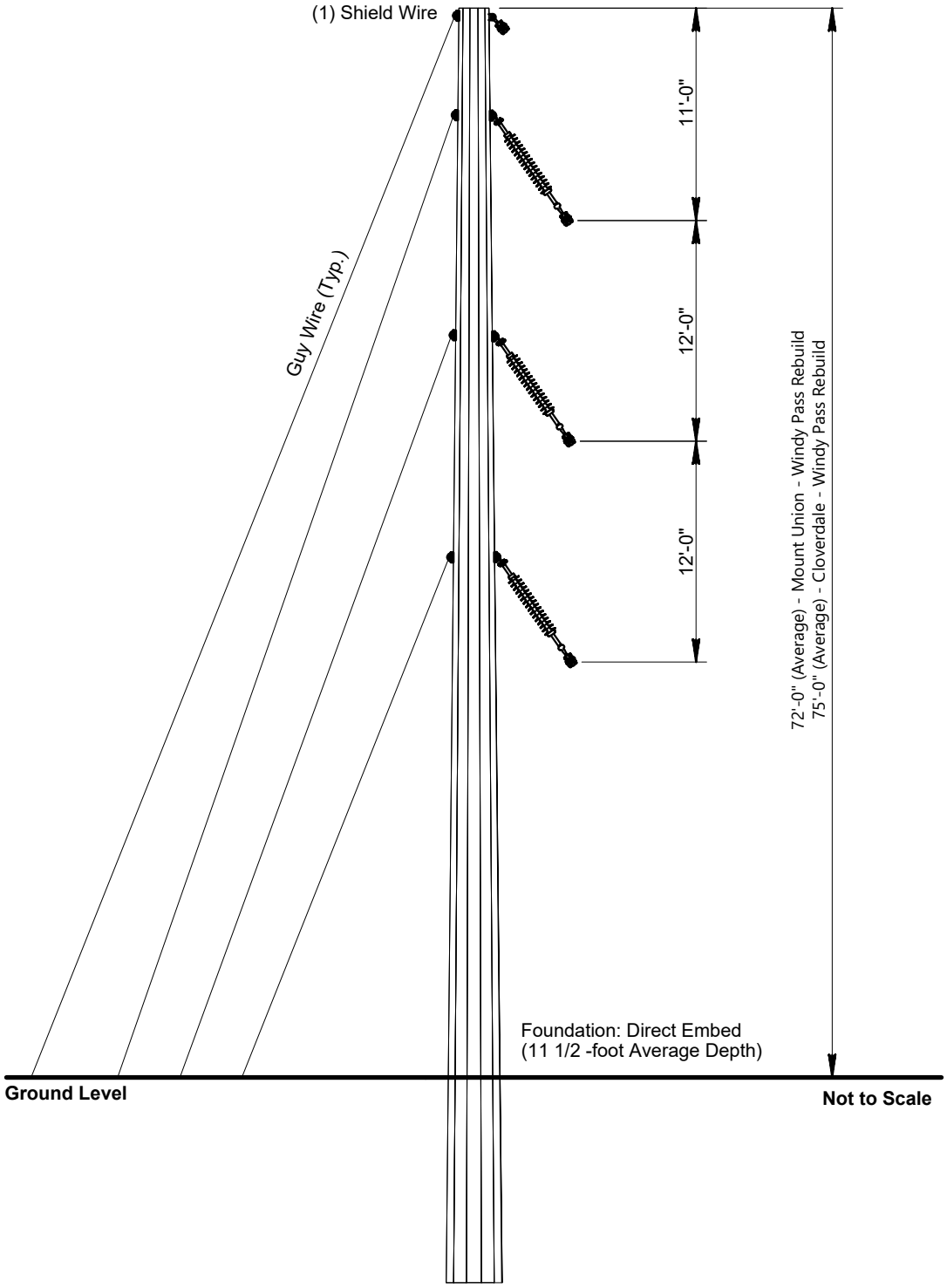
Note: The material for the existing typical structure is wood (as shown above).

EXHIBIT 8: EXISTING 138-kV RUNNING ANGLE GUYED MONOPOLE IN 80-FOOT ROW

EXHIBIT 8

EXISTING 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing 138-kV Running Angle Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)

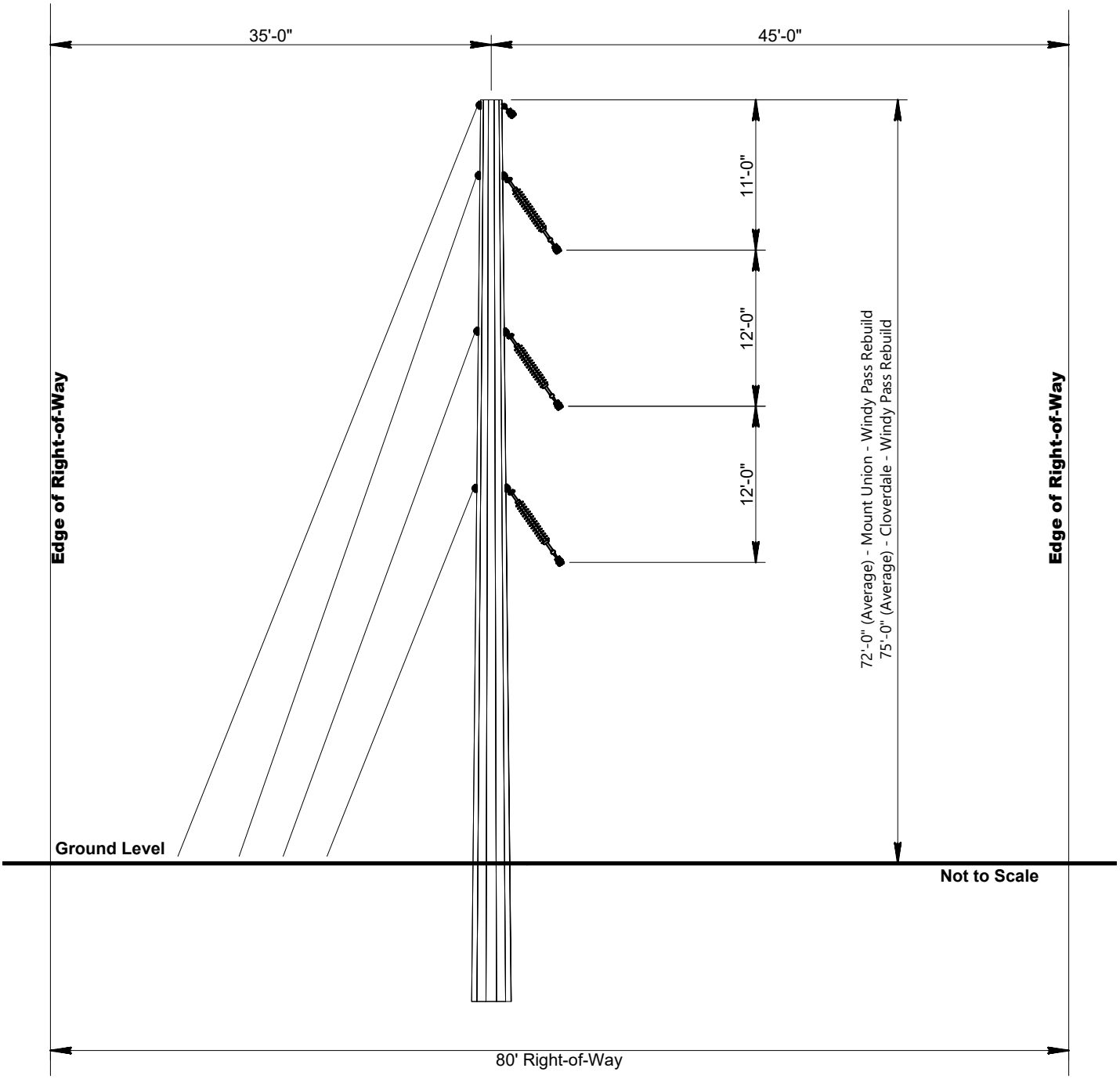


TYPICAL SCHEMATIC

EXHIBIT 8

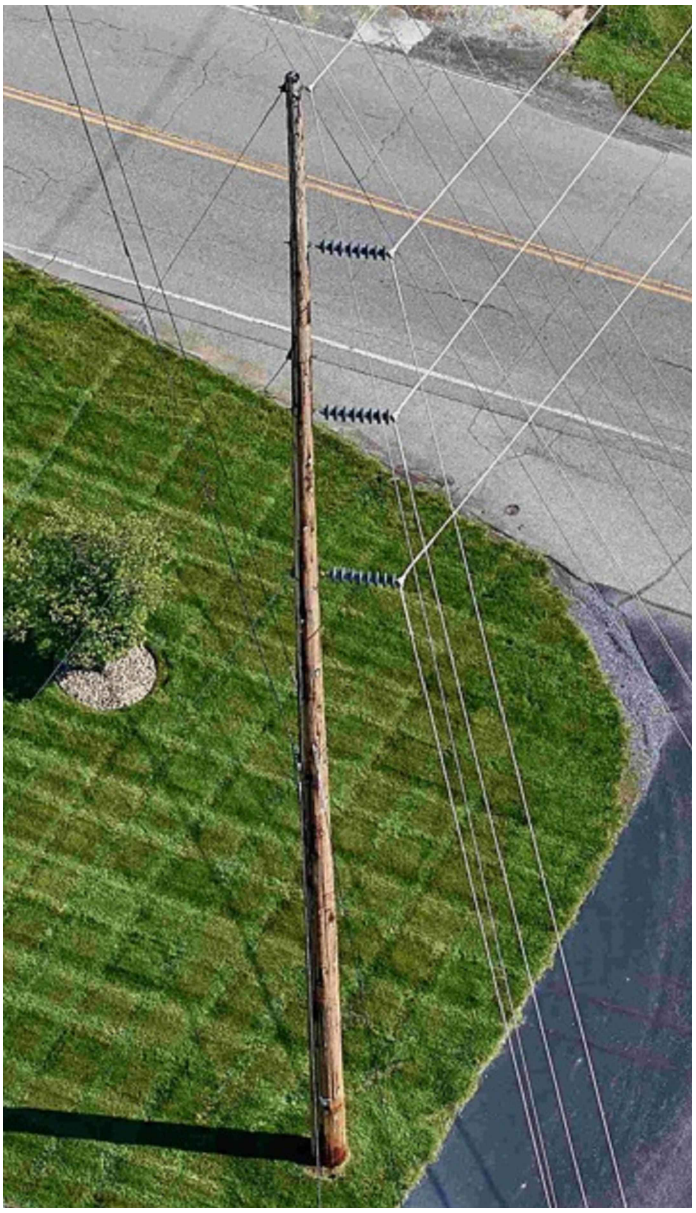
EXISTING 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing 138-kV Running Angle Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing 138-kV Running Angle Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)

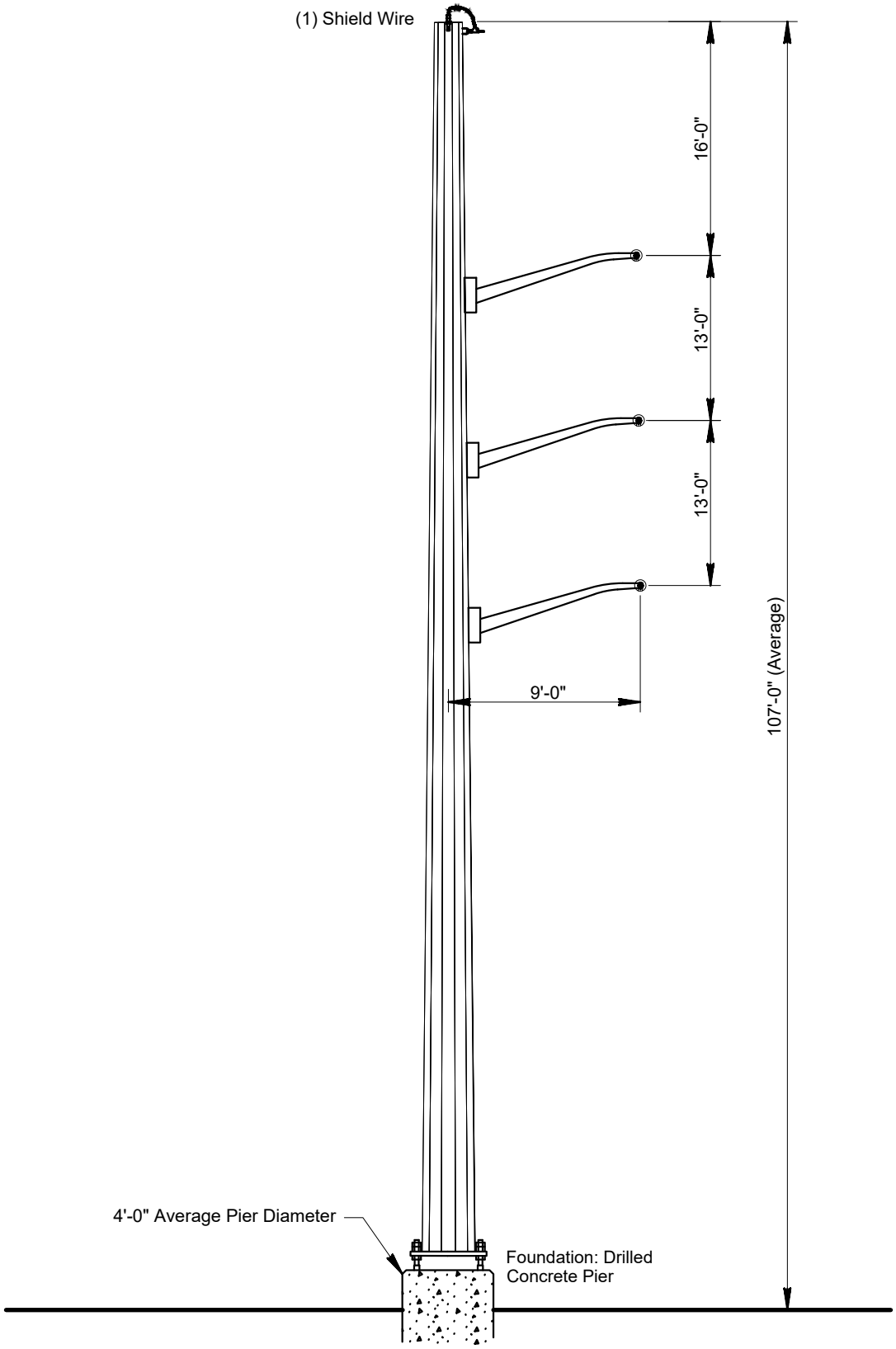


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The material for the existing typical structure is wood (as shown above).

EXHIBIT 9: EXISTING 138-kV DEAD-END DAVIT ARM MONOPOLE IN 80-FOOT ROW

Existing 138-kV Dead-end Davit Arm Monopole in 80-foot ROW (SINGLE CIRCUIT)

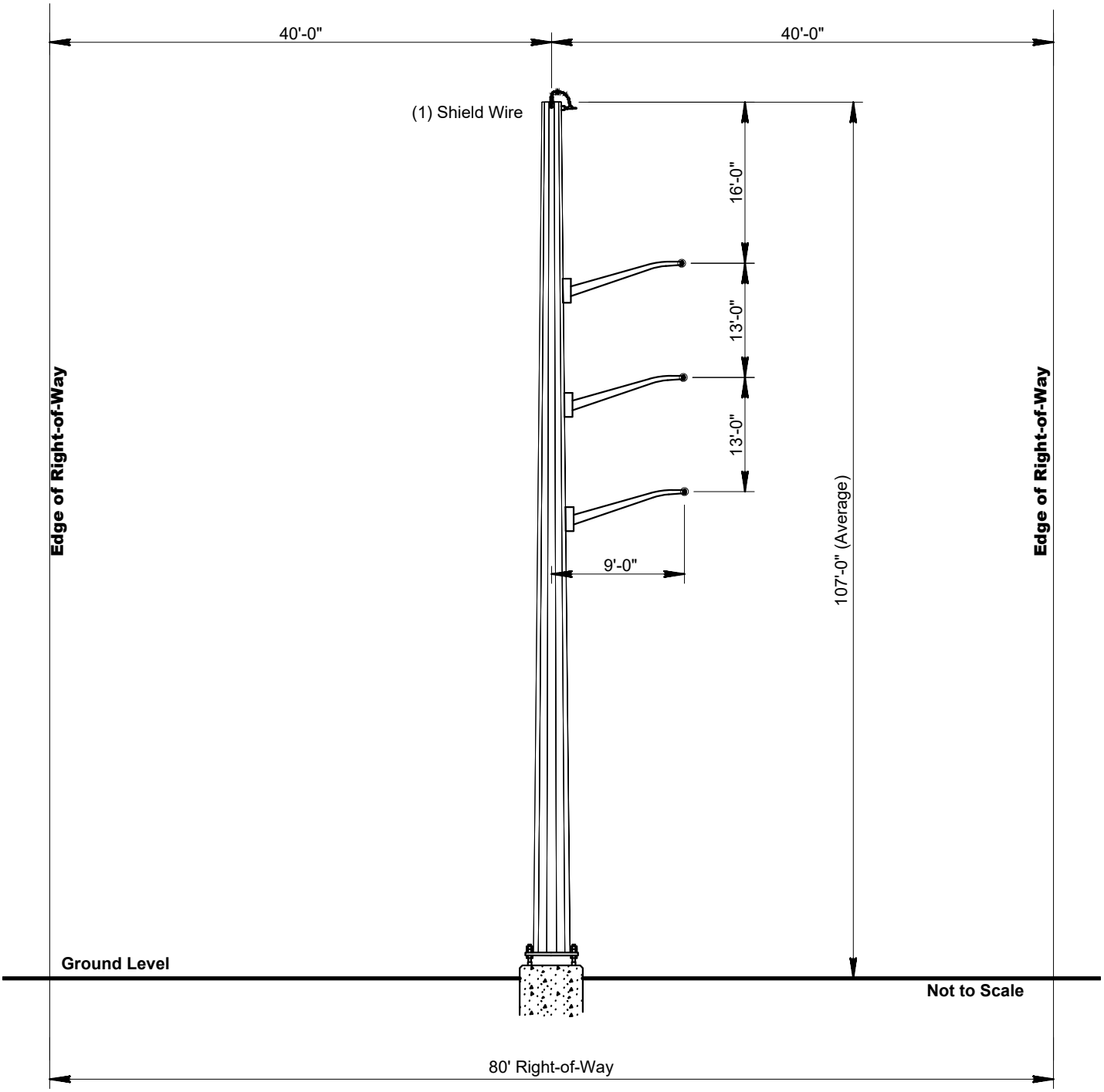


TYPICAL SCHEMATIC

EXHIBIT 9

EXISTING 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing 138-kV Dead-end Davit Arm Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing 138-kV Dead-end Davit Arm Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

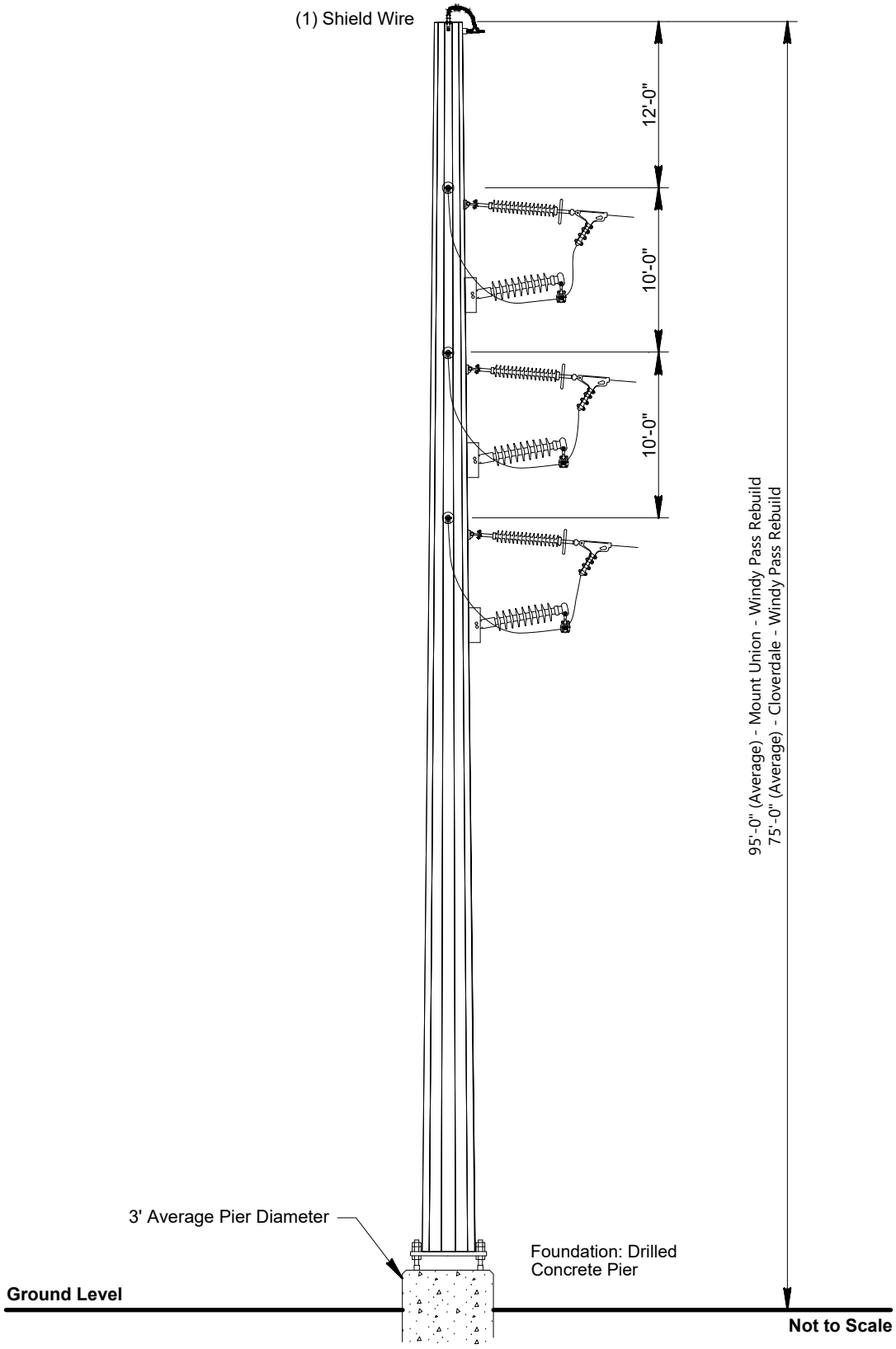
Note: The material for the typical existing structure is galvanized steel with a dulled finish (as shown above).

EXHIBIT 10: EXISTING 138-kV DEAD-END MONOPOLE IN 80-FOOT ROW

EXHIBIT 10

EXISTING 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing 138-kV Dead-end Monopole in 80-foot ROW (SINGLE CIRCUIT)

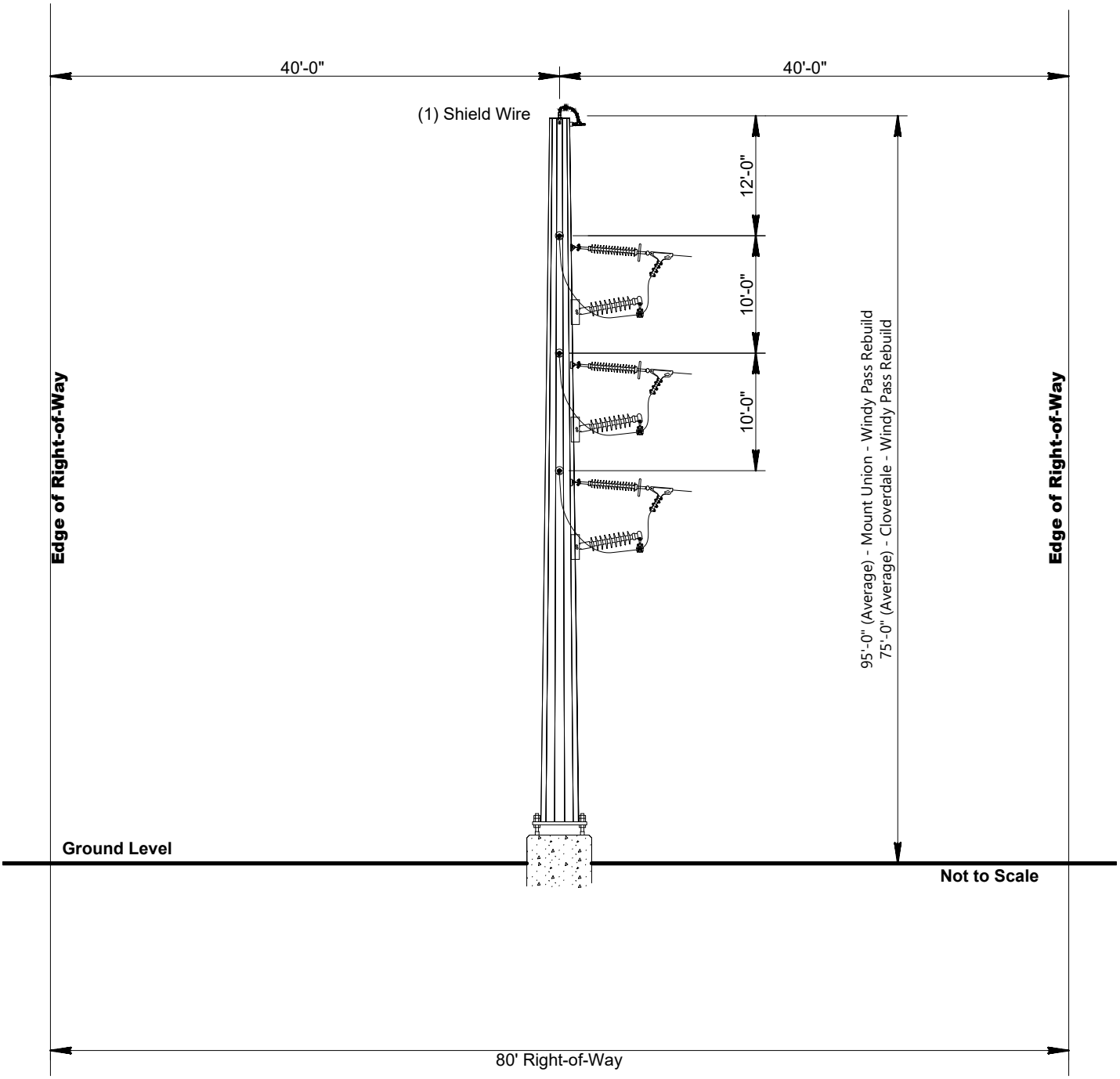


TYPICAL SCHEMATIC

EXHIBIT 10

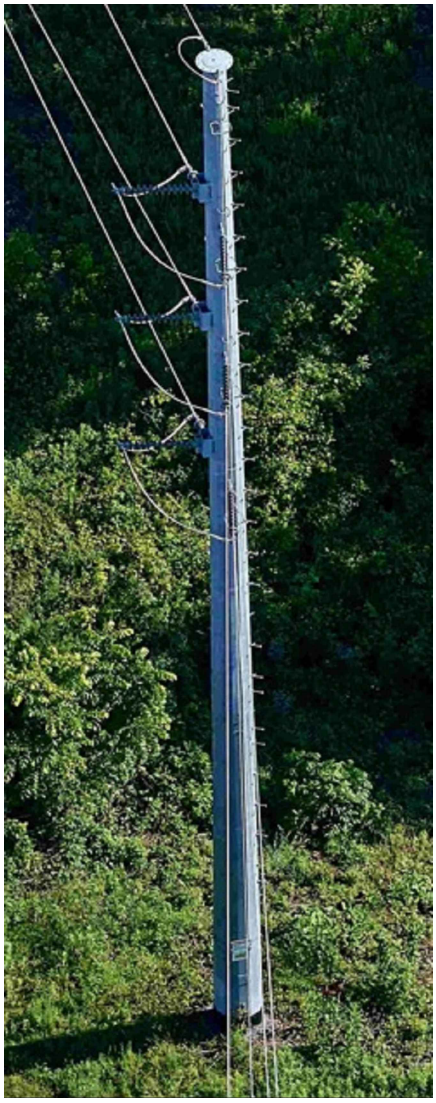
EXISTING 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing 138-kV Dead-end Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing 138-kV Dead-end Monopole in 80-foot ROW (SINGLE CIRCUIT)

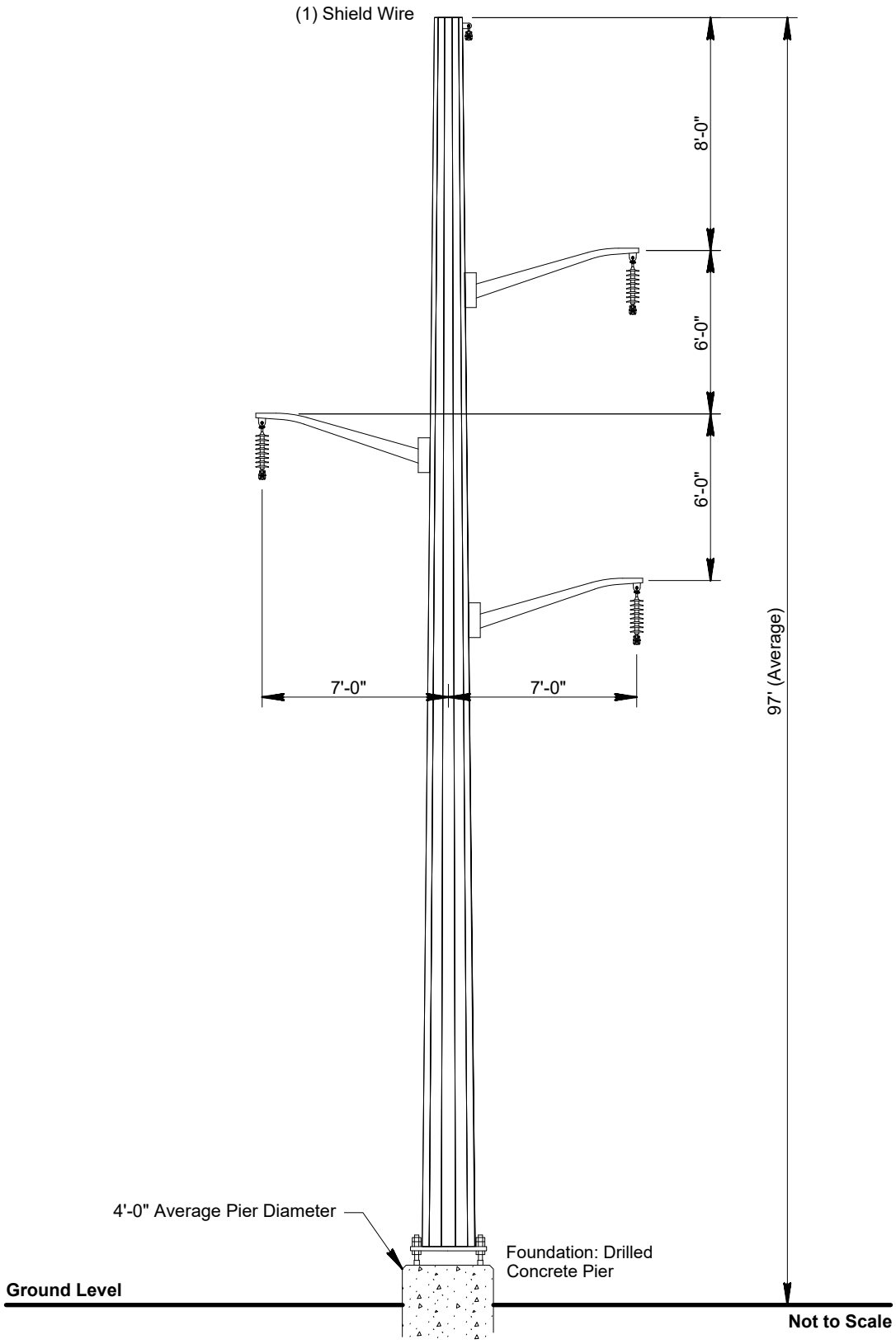


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The material for the typical existing structure is galvanized steel with a dulled finish (as shown above).

EXHIBIT 11: EXISTING 138-kV SUSPENSION ALTERNATING DAVIT ARM MONOPOLE IN 80-FOOT ROW

Existing 138-kV Alternating Davit Arm Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)

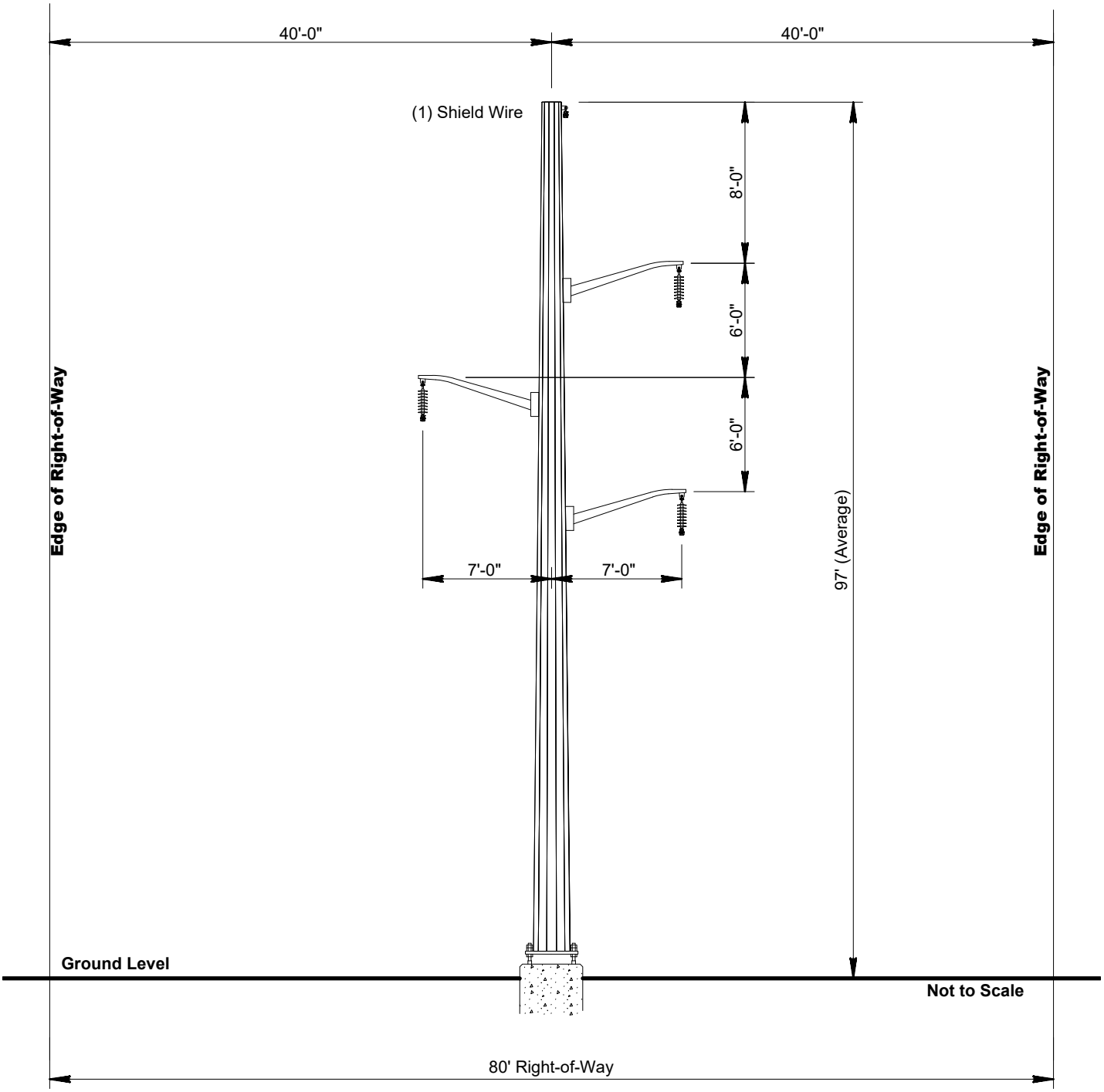


TYPICAL SCHEMATIC

EXHIBIT 11

EXISTING 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing 138-kV Alternating Davit Arm Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing 138-kV Alternating Davit Arm Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

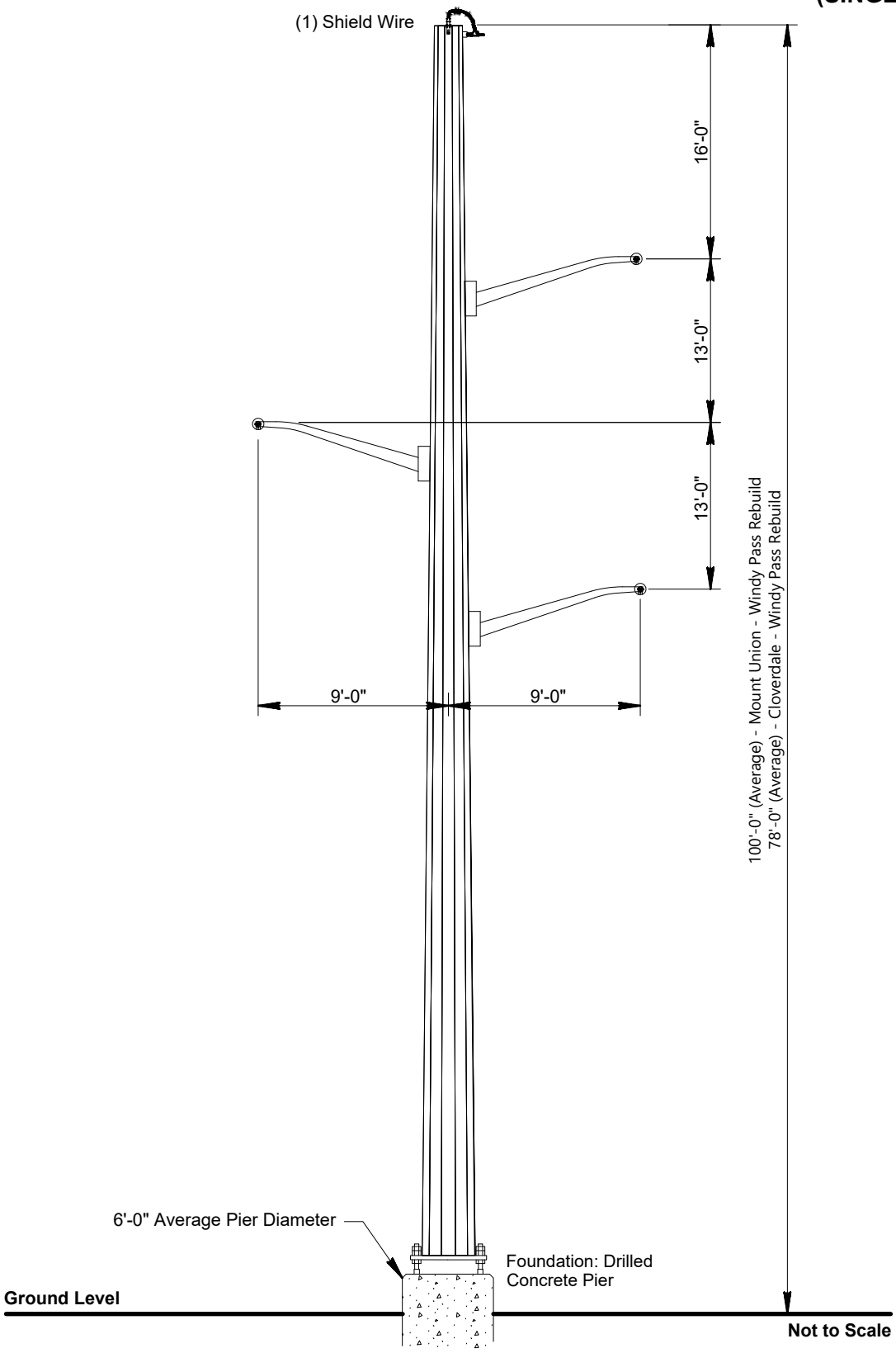
Note: The material for the typical existing structure is galvanized steel with a dulled finish (as shown above).

EXHIBIT 12: EXISTING AND PROPOSED 138-kV DEAD-END ALTERNATING DAVIT ARM MONOPOLE IN 80-FOOT ROW

EXHIBIT 12

EXISTING 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing and Proposed 138-kV Dead-end Alternating Davit Arm Monopole in 80-foot ROW (SINGLE CIRCUIT)

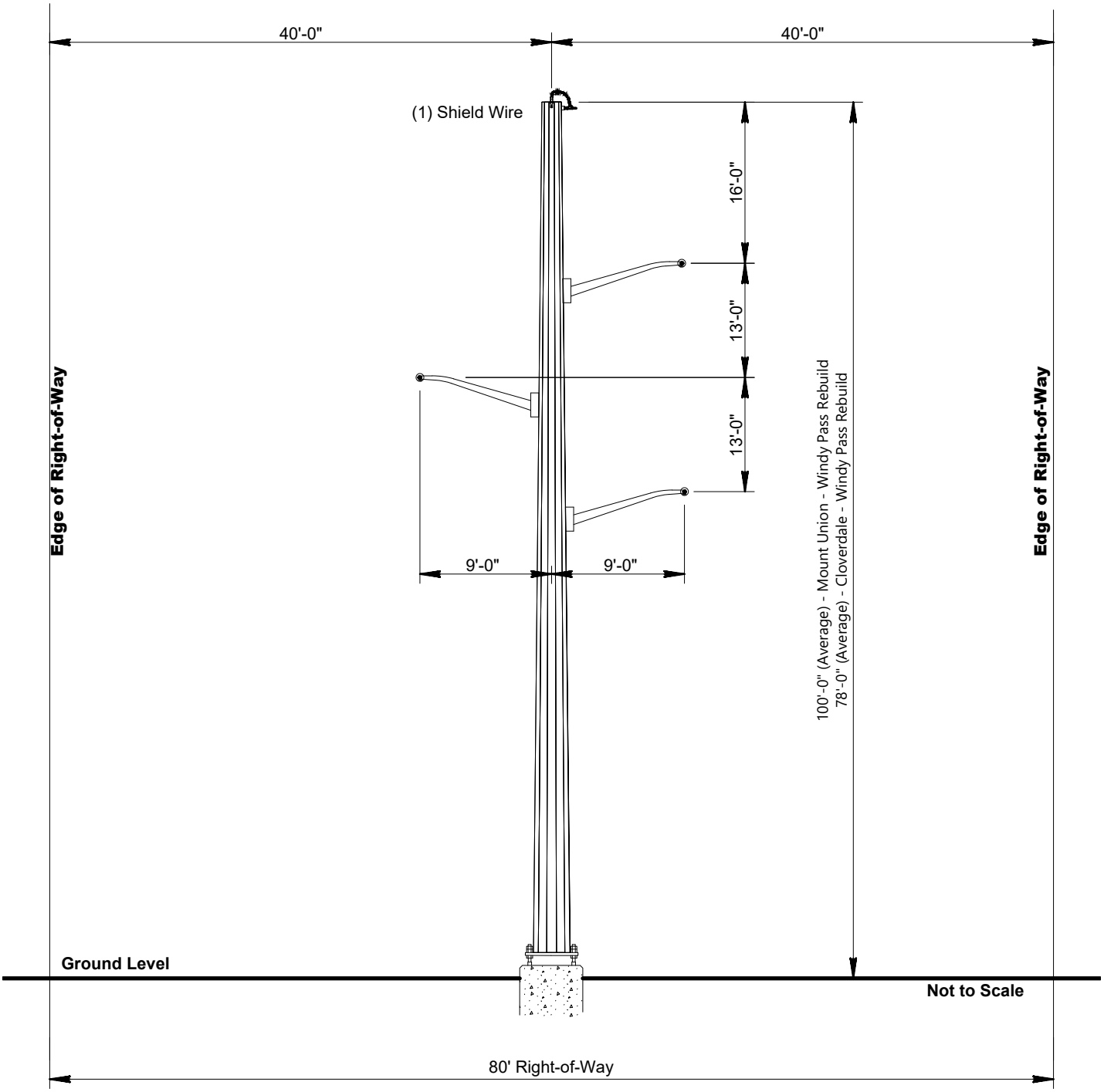


TYPICAL SCHEMATIC

EXHIBIT 12

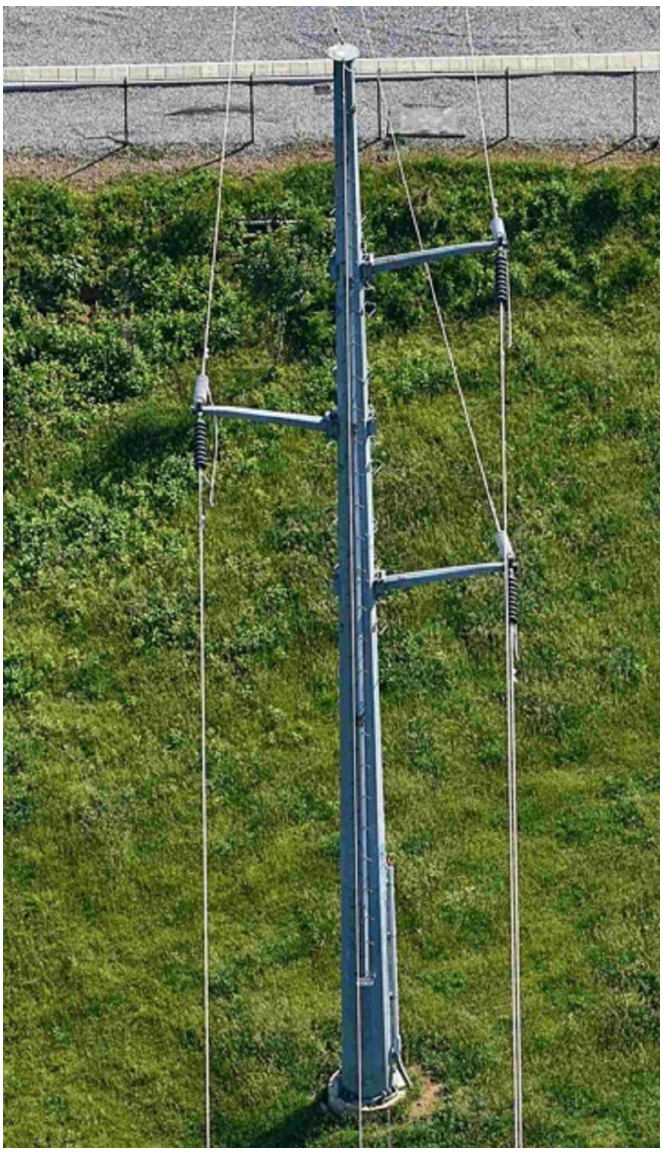
EXISTING 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing and Proposed 138-kV Dead-end Alternating Davit Arm Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing and Proposed 138-kV Dead-end Alternating Davit Arm Monopole in 80-foot ROW (SINGLE CIRCUIT)

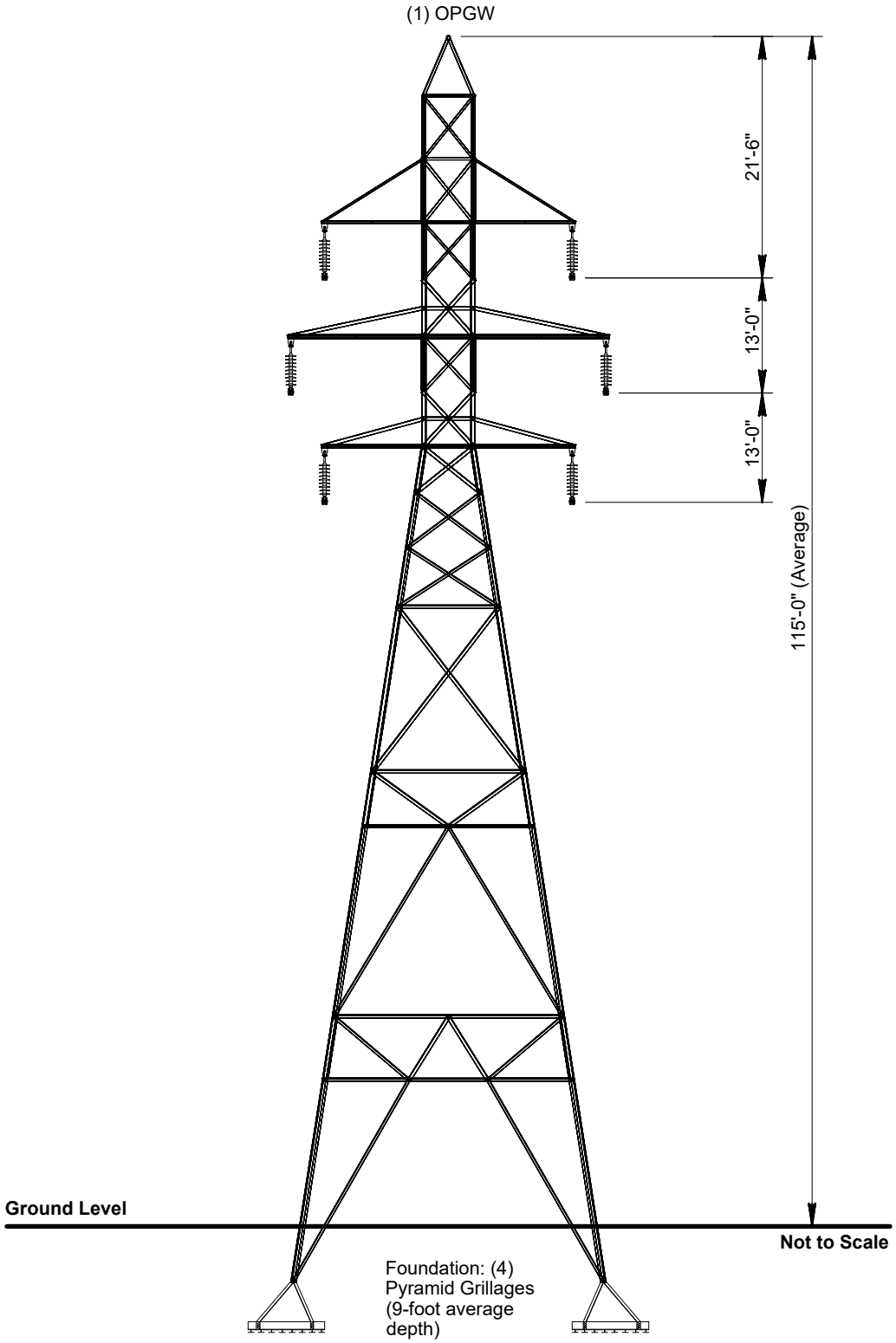


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The material for the typical existing structure is galvanized steel with a dulled finish (as shown above).

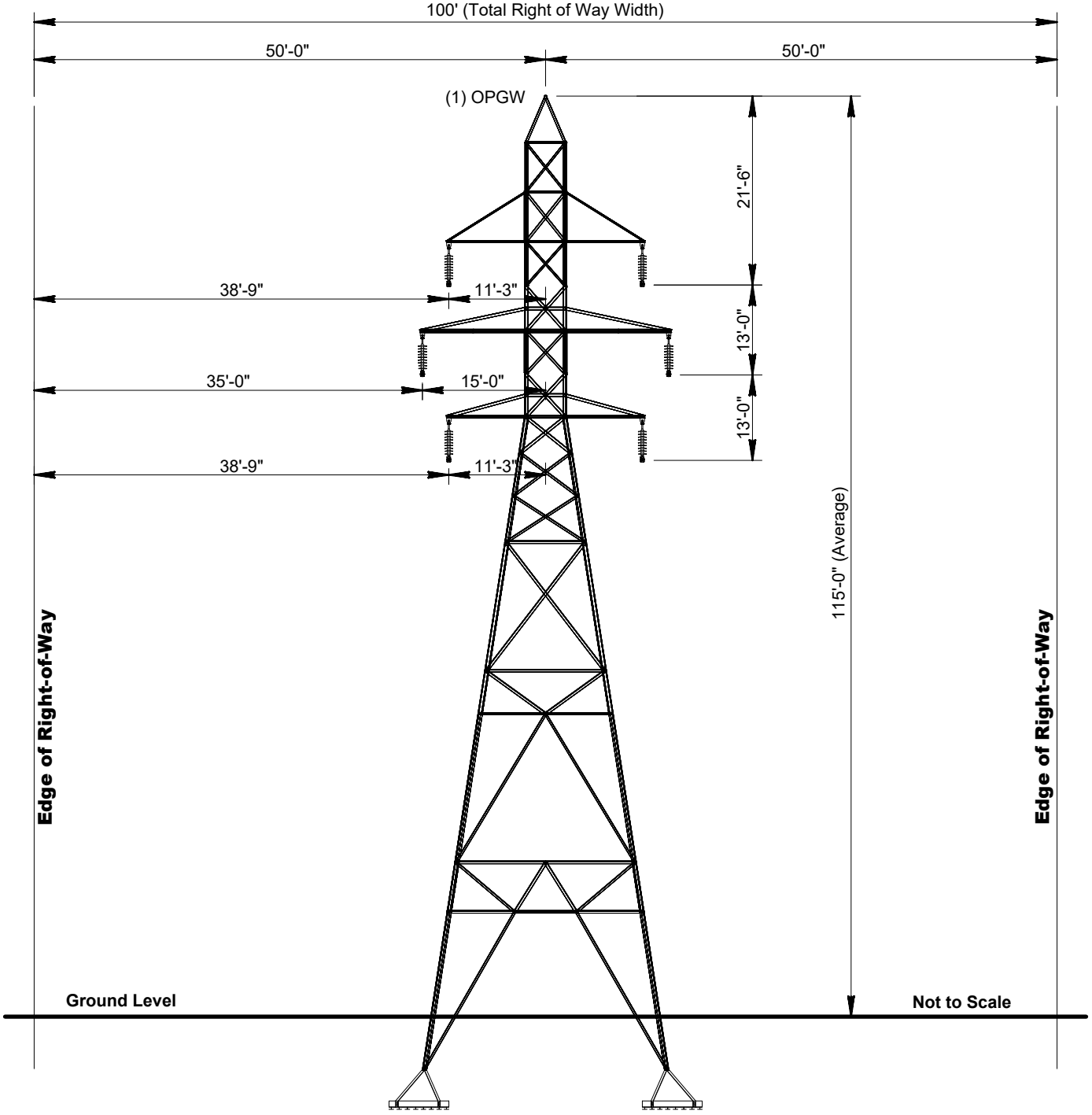
EXHIBIT 13: EXISTING AND PROPOSED 138-kV DEAD-END LATTICE TOWER IN 100-FOOT ROW

Existing and Proposed 138-kV Dead-end Lattice Tower in 100-foot ROW (DOUBLE CIRCUIT)



TYPICAL SCHEMATIC

Existing and Proposed 138-kV Dead-end Lattice Tower in 100-foot ROW (DOUBLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing and Proposed 138-kV Dead-end Lattice Tower in 100-foot ROW (DOUBLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

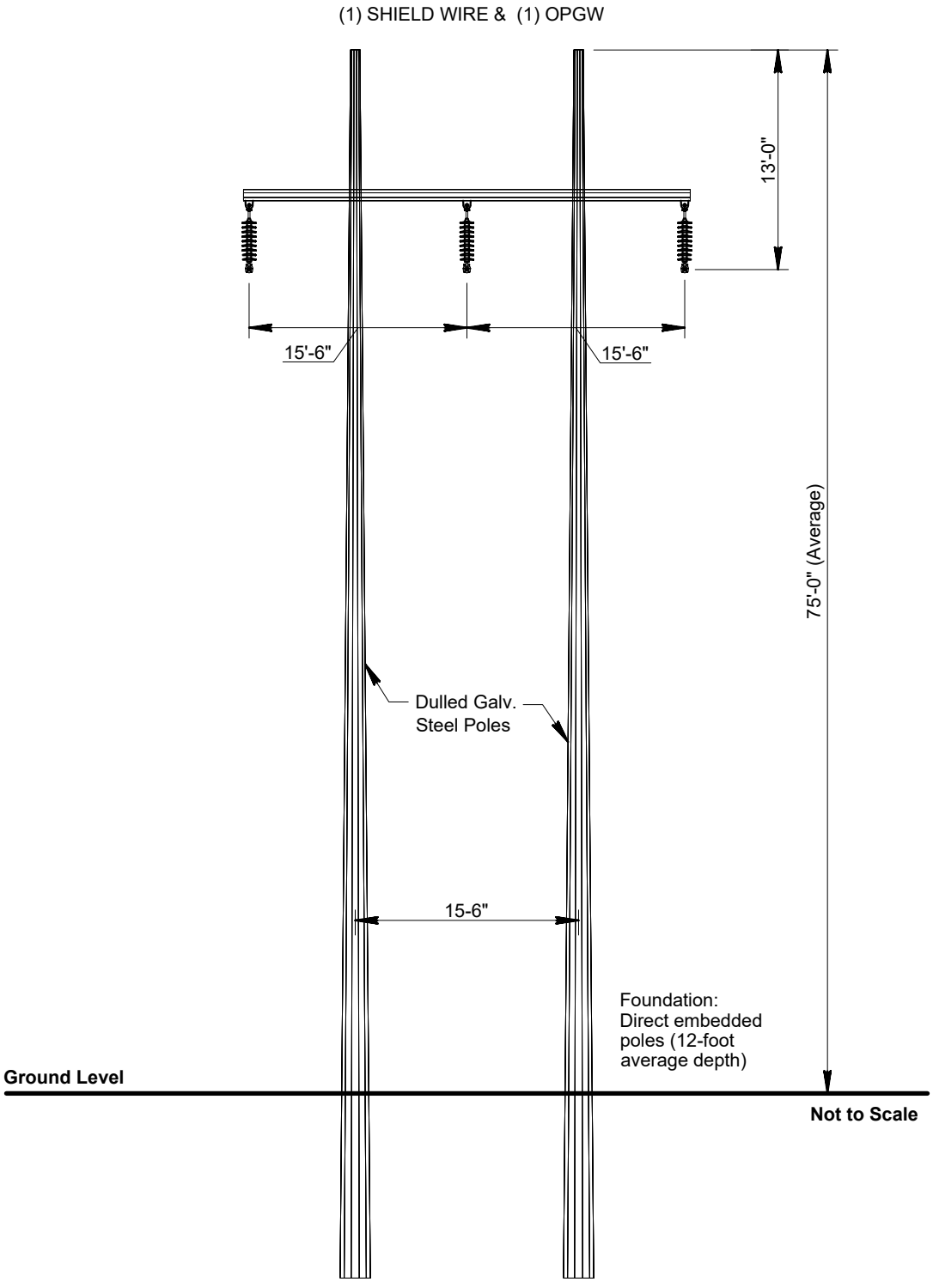
Note: The material for the existing and proposed typical structures is dulled galvanized steel (as shown above).

EXHIBIT 14: EXISTING AND PROPOSED 138-kV SUSPENSION H-FRAME IN 100-FOOT ROW

EXHIBIT 14

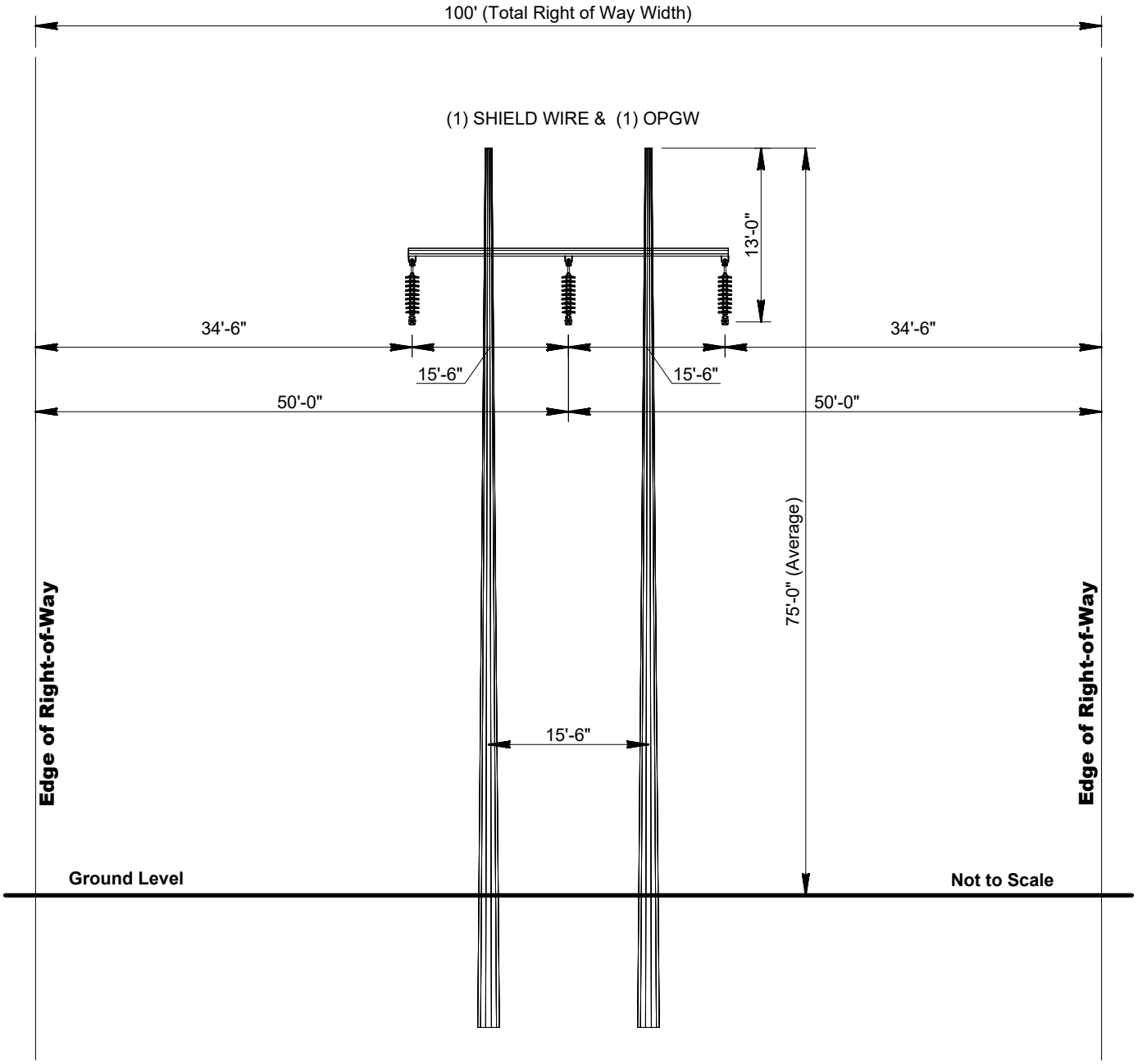
EXISTING & PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing and Proposed 138-kV Suspension H-Frame in 100-foot ROW (SINGLE CIRCUIT)



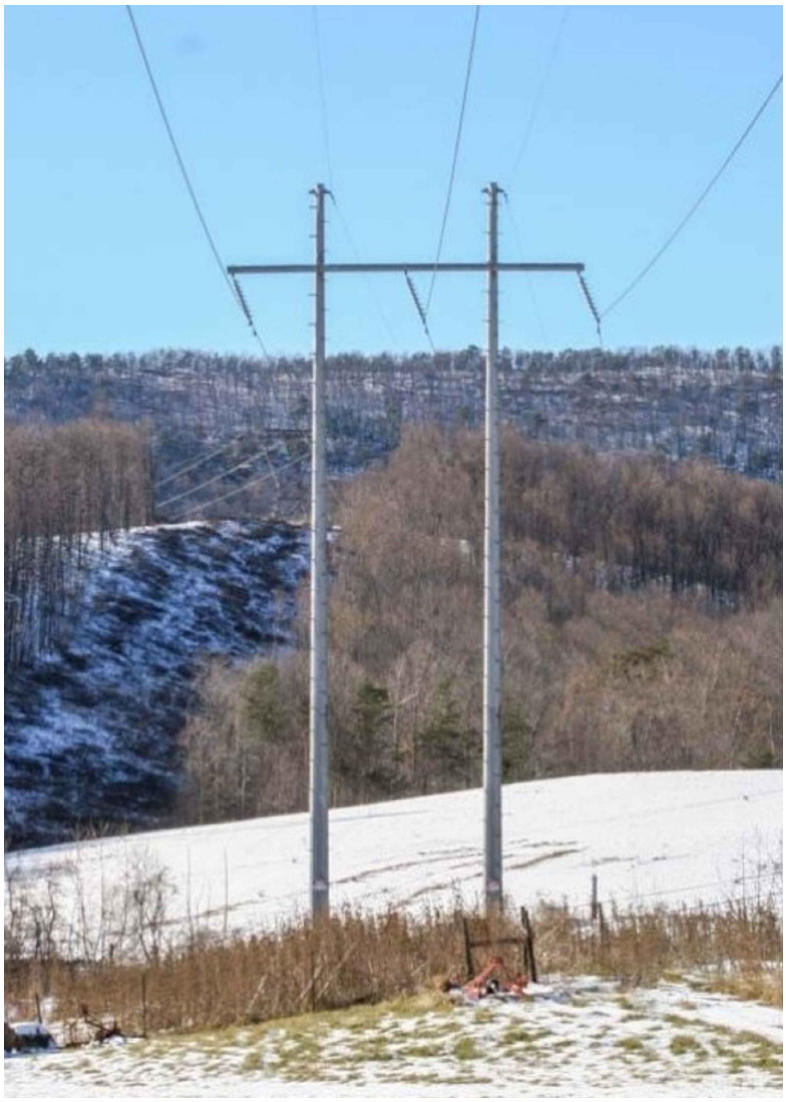
TYPICAL SCHEMATIC

Existing and Proposed 138-kV Suspension H-Frame in 100-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing and Proposed 138-kV Suspension H-Frame in 100-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

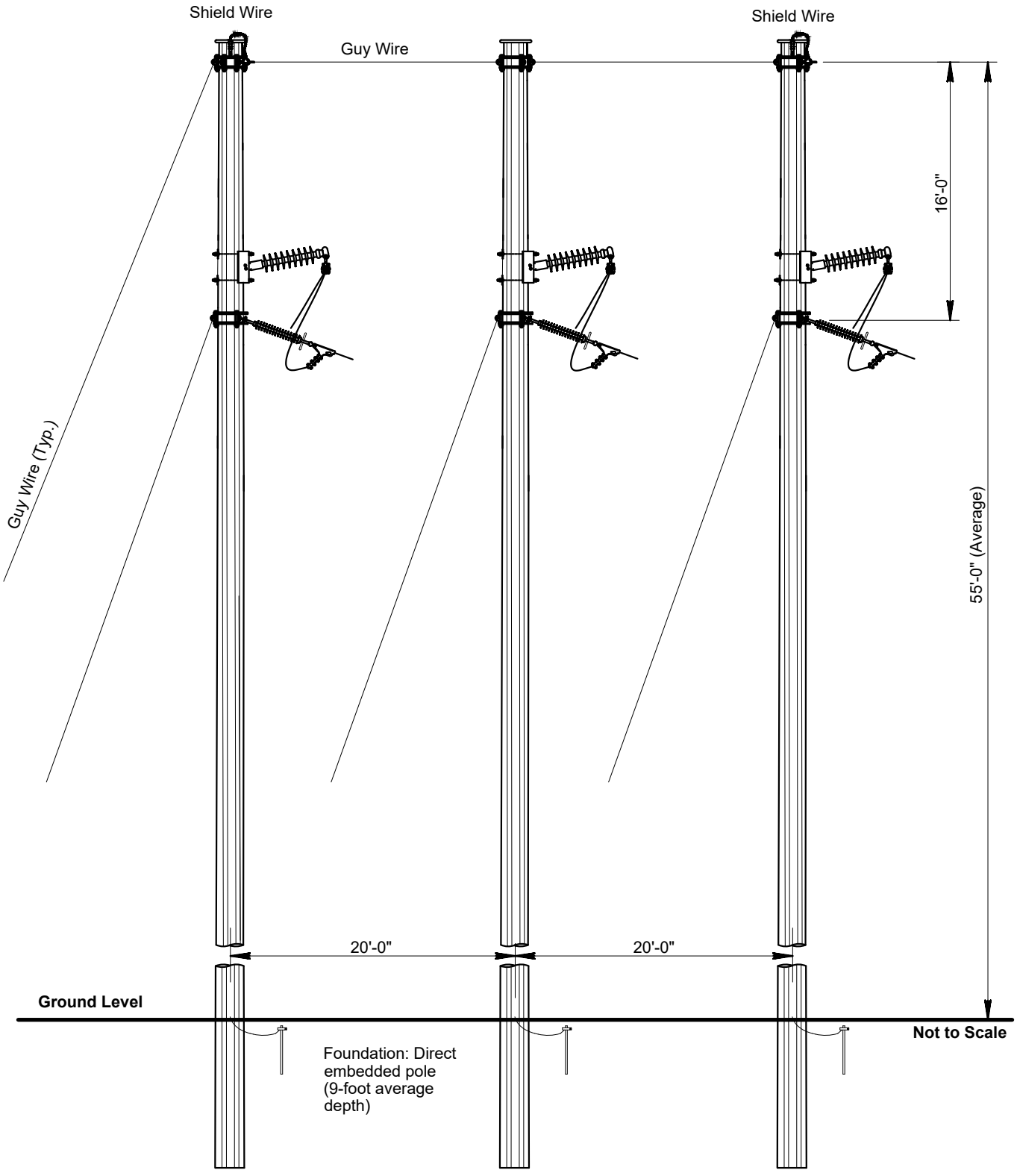
Note: The material for the proposed typical structure is dulled galvanized steel (as shown above).

EXHIBIT 15: EXISTING AND PROPOSED 138-kV DEAD-END GUYED 3-POLE IN 100-FOOT ROW

EXHIBIT 15

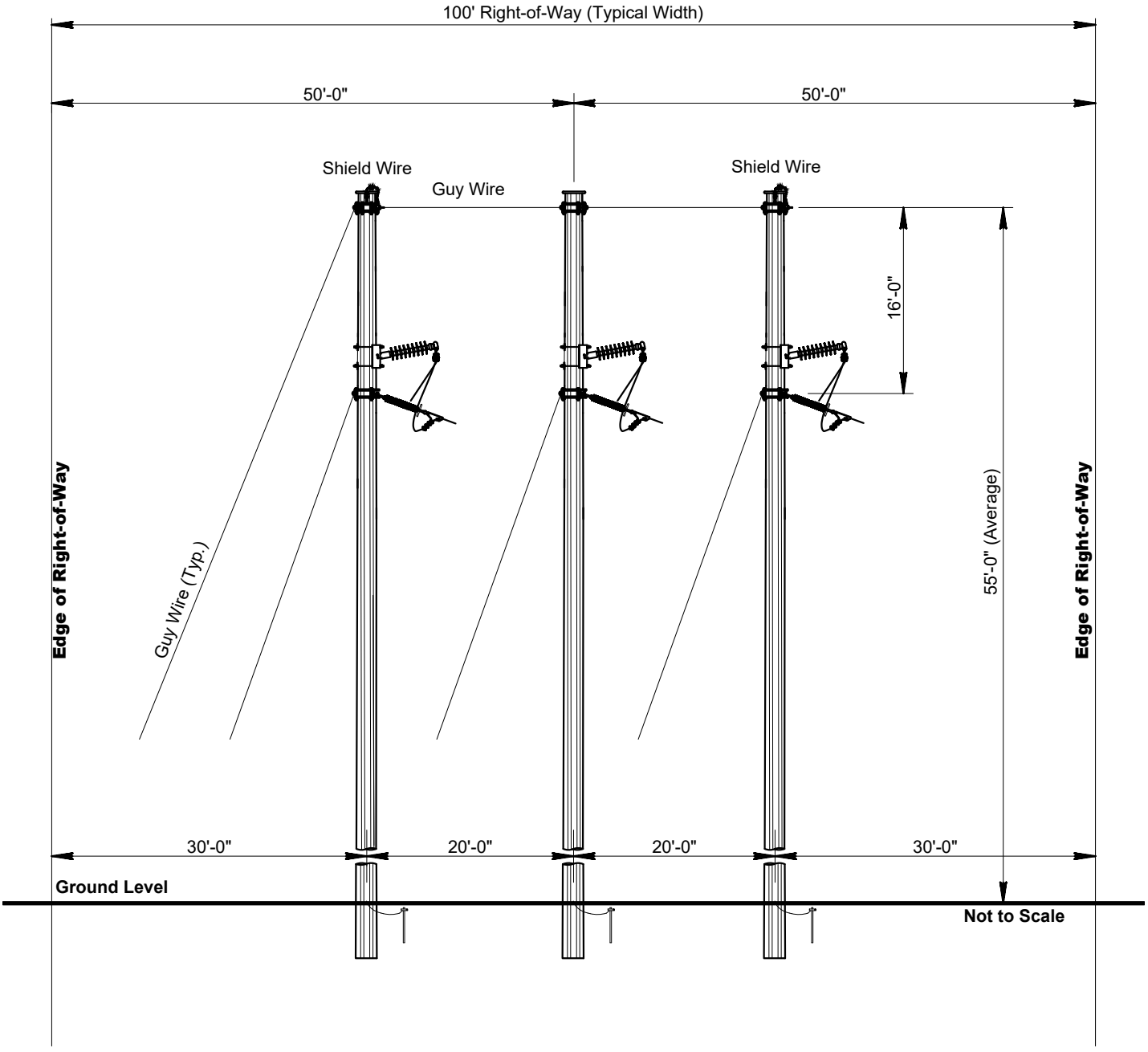
EXISTING & PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing and Proposed 138-kV Dead-end Guyed 3-Pole in 100-foot ROW (SINGLE CIRCUIT)



TYPICAL SCHEMATIC

Existing and Proposed 138-kV Dead-end Guyed 3-Pole in 100-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing and Proposed 138-kV Dead-end Guyed 3-Pole in 100-foot ROW (SINGLE CIRCUIT)



COMPARABLE STRUCTURE PHOTOGRAPH

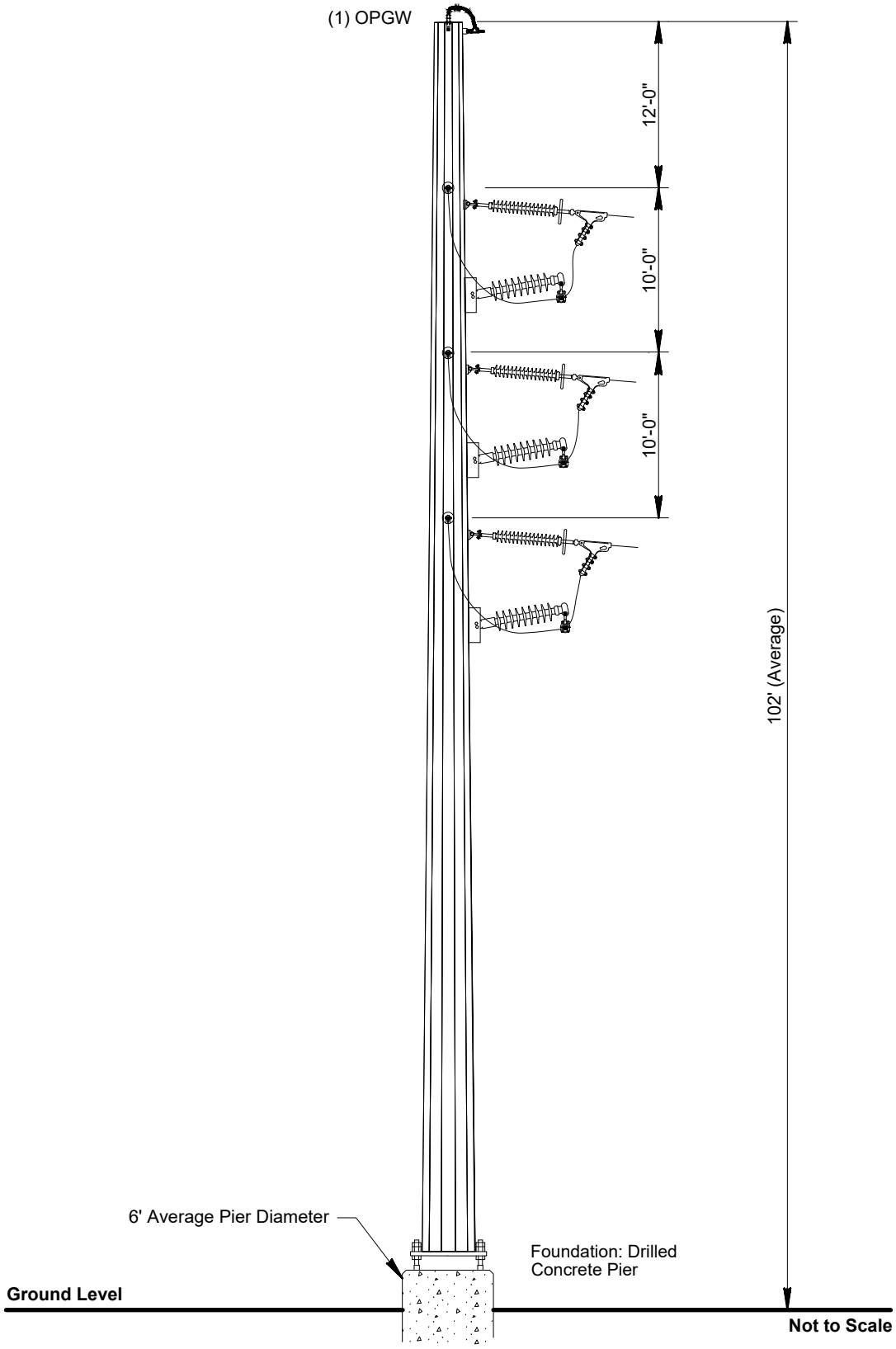
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 16: EXISTING AND PROPOSED 138-kV DEAD-END MONOPOLE IN 100-FOOT ROW

EXHIBIT 16

EXISTING & PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Existing and Proposed 138-kV Dead-end Monopole in 100-foot ROW (SINGLE CIRCUIT)

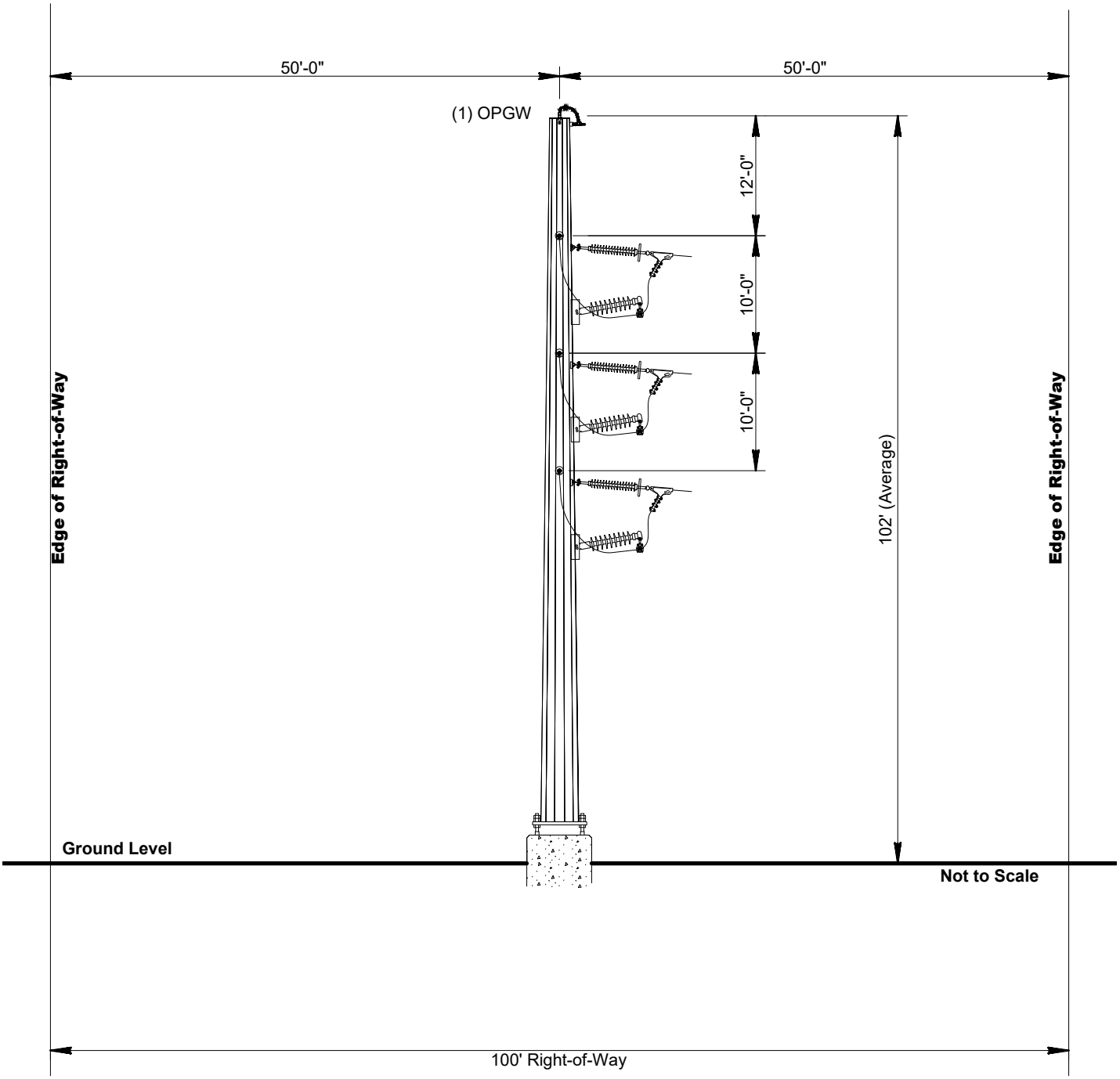


TYPICAL SCHEMATIC

EXHIBIT 16

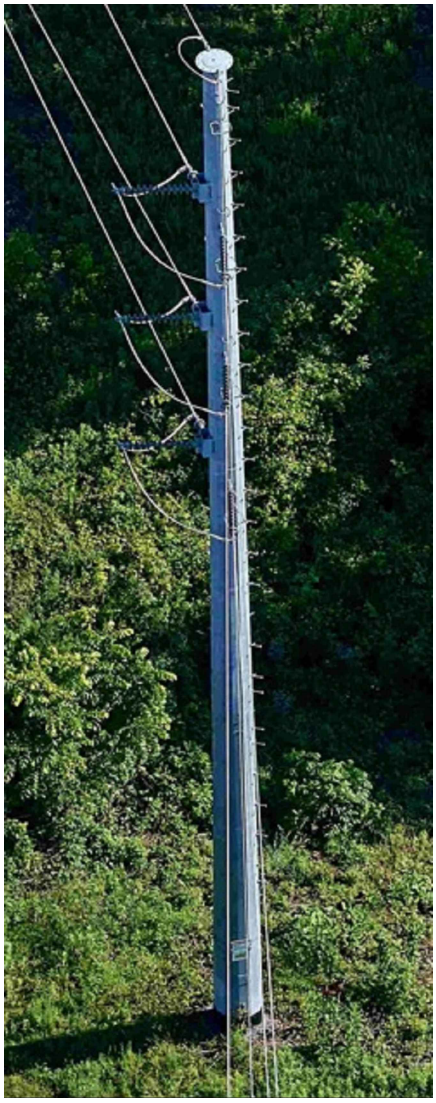
EXISTING & PROPOSED 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Existing and Proposed 138-kV Dead-end Monopole in 100-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Existing and Proposed 138-kV Dead-end Monopole in 100-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

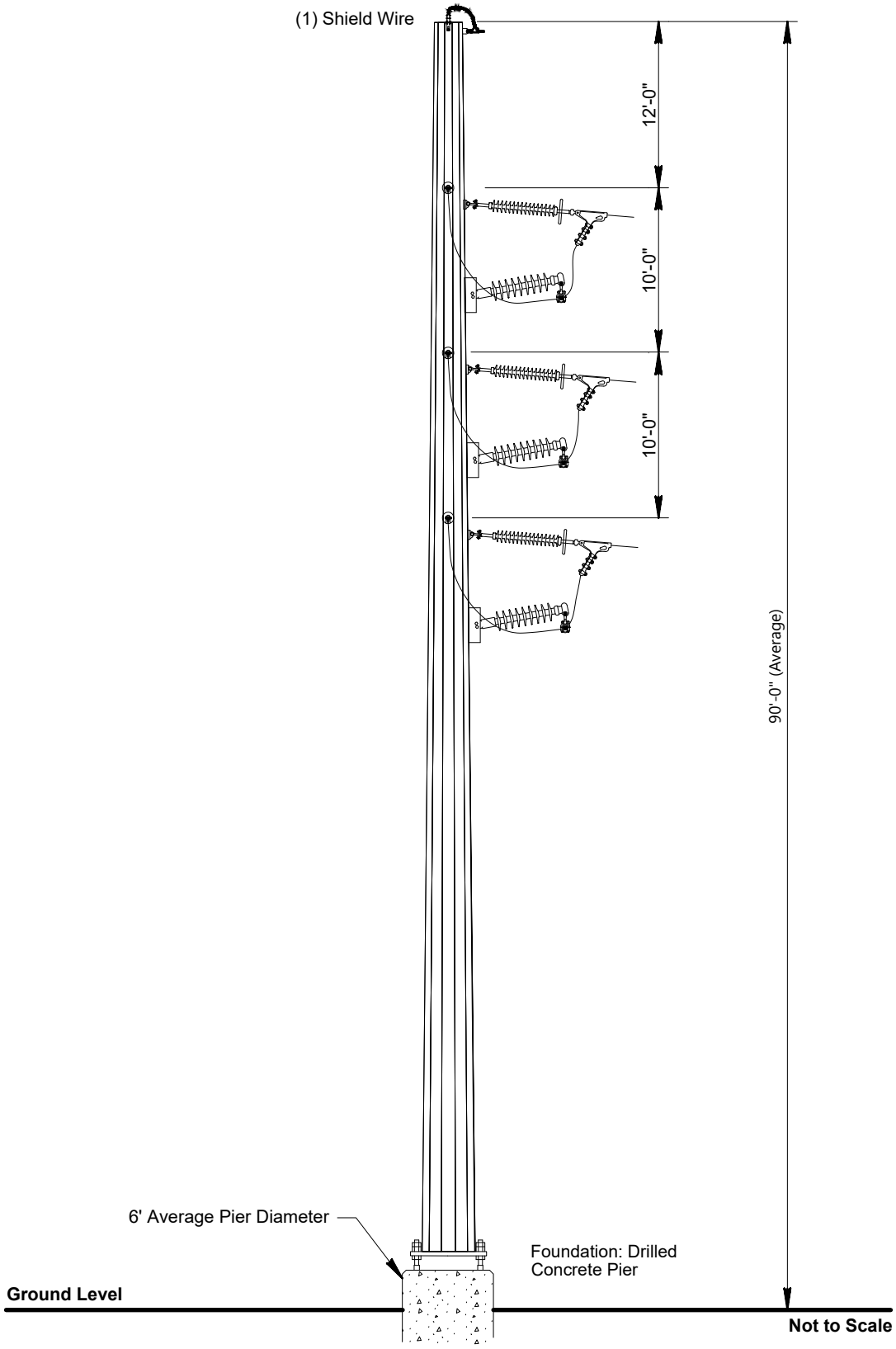
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 17: PROPOSED 69-kV DEAD-END MONOPOLE IN 80-FOOT ROW

EXHIBIT 17

PROPOSED 69kV TRANSMISSION STRUCTURES (Page 1 of 3)

Proposed 69-kV Dead-end Monopole in 80-foot ROW (SINGLE CIRCUIT)

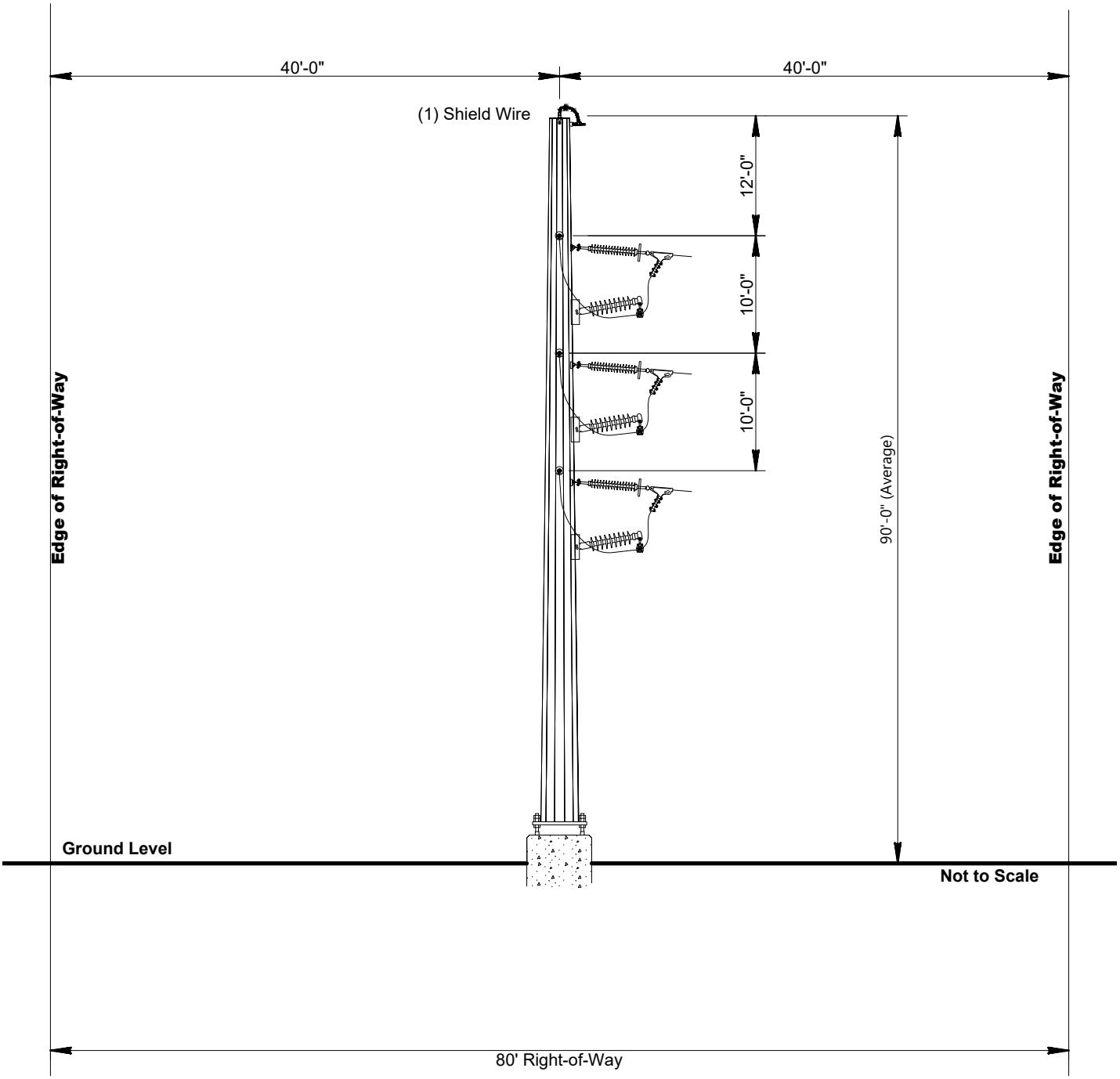


TYPICAL SCHEMATIC

EXHIBIT 17

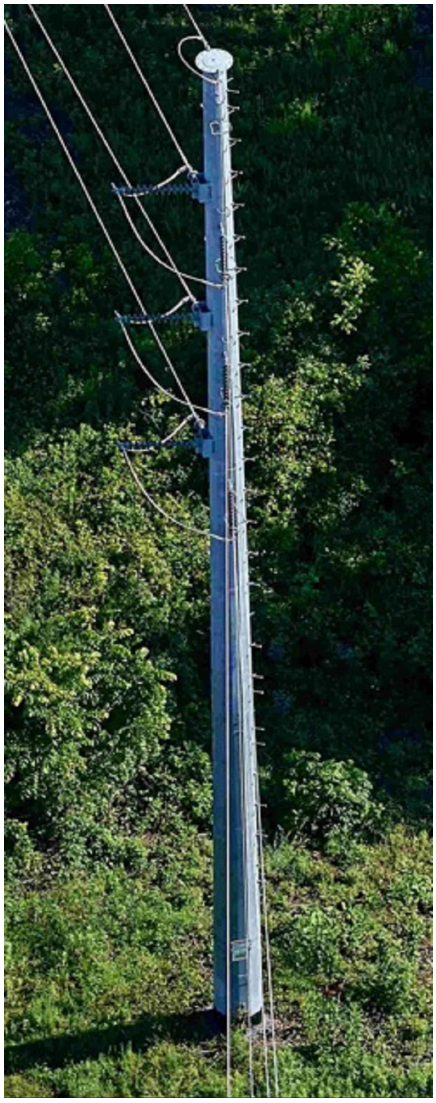
PROPOSED 69kV TRANSMISSION STRUCTURES (Page 2 of 3)

Proposed 69-kV Dead-end Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Proposed 69-kV Dead-end Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

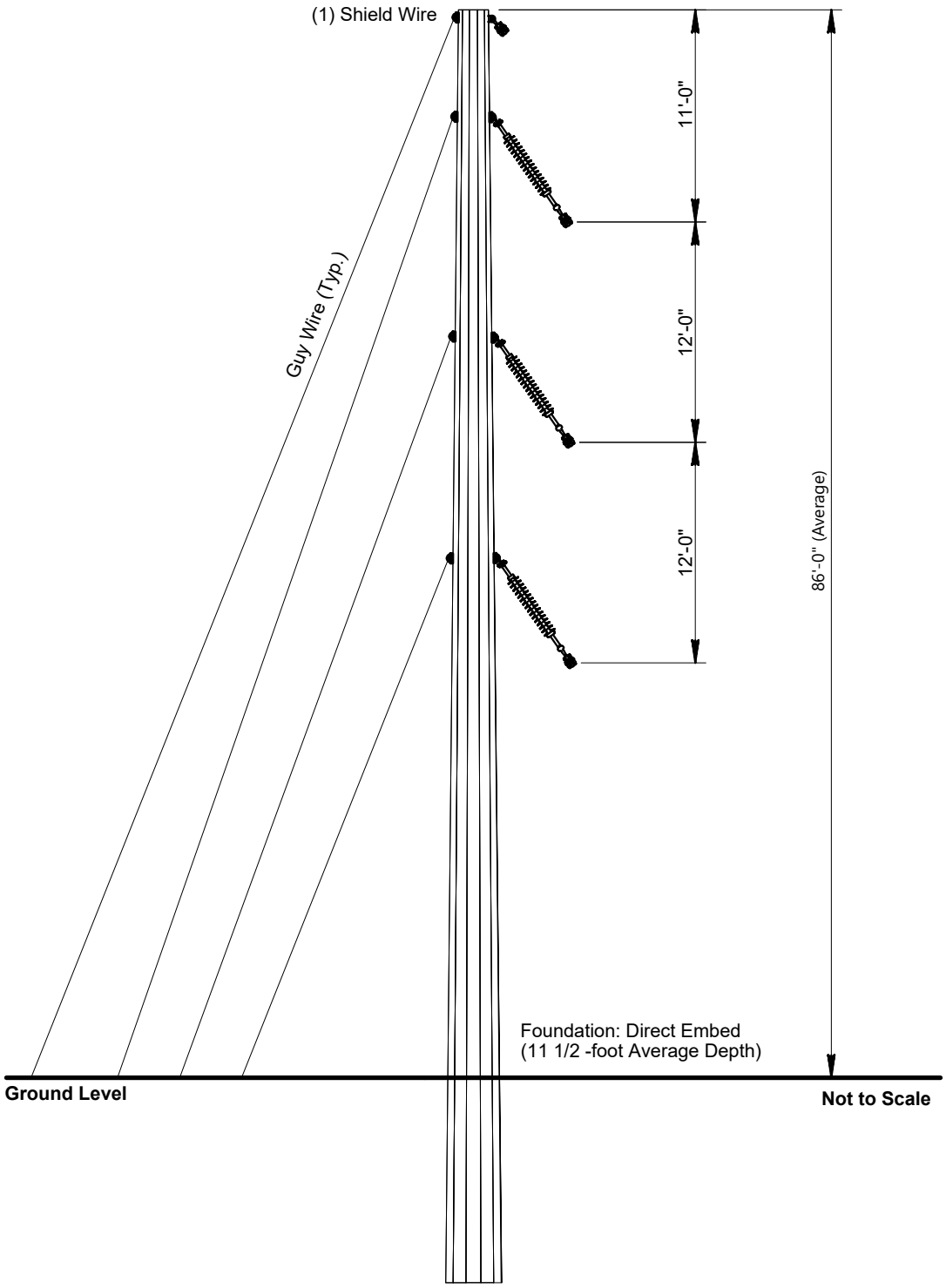
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 18: PROPOSED 69-kV RUNNING ANGLE GUYED MONOPOLE IN 80-FOOT ROW

EXHIBIT 18

PROPOSED 69kV TRANSMISSION STRUCTURES (Page 1 of 3)

Proposed 69-kV Running Angle Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)

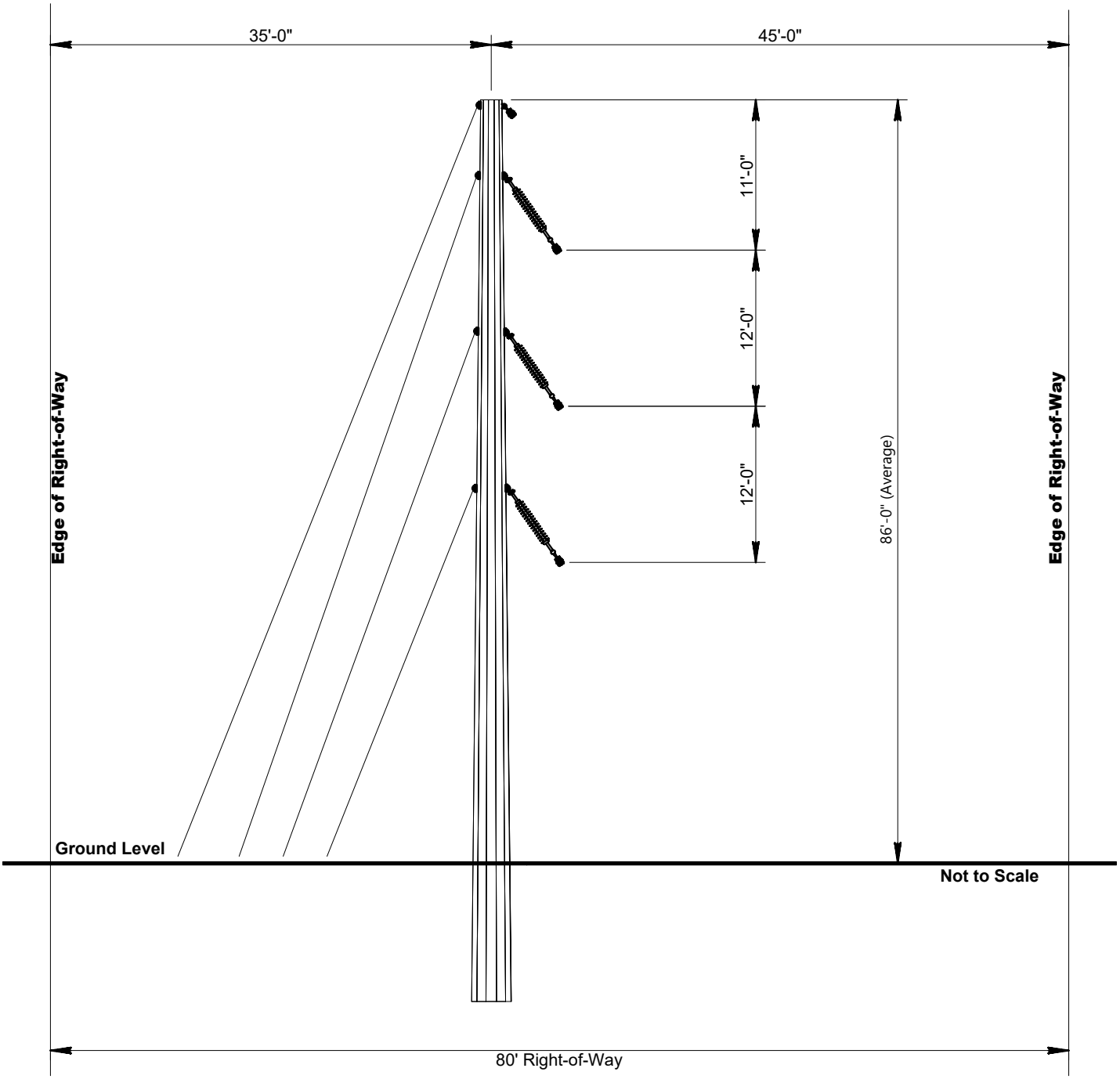


TYPICAL SCHEMATIC

EXHIBIT 18

PROPOSED 69kV TRANSMISSION STRUCTURES (Page 2 of 3)

Proposed 69-kV Running Angle Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Proposed 69-kV Running Angle Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)

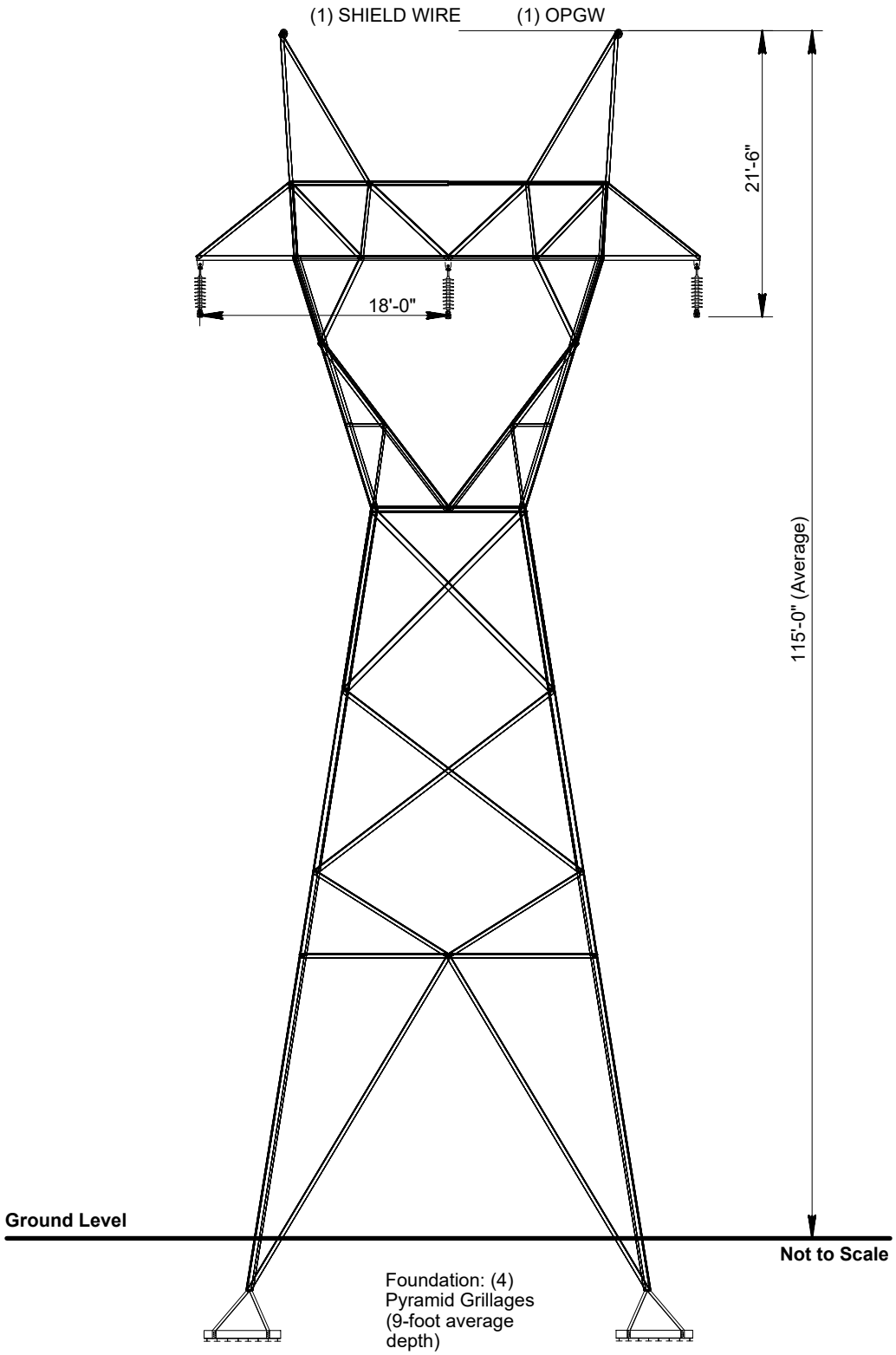


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be galvanized steel (as shown above).

EXHIBIT 19: PROPOSED 138-kV DEAD-END LATTICE TOWER IN 100-FOOT ROW

Proposed 138-kV Dead-end Lattice Tower in 100-foot ROW (SINGLE CIRCUIT)

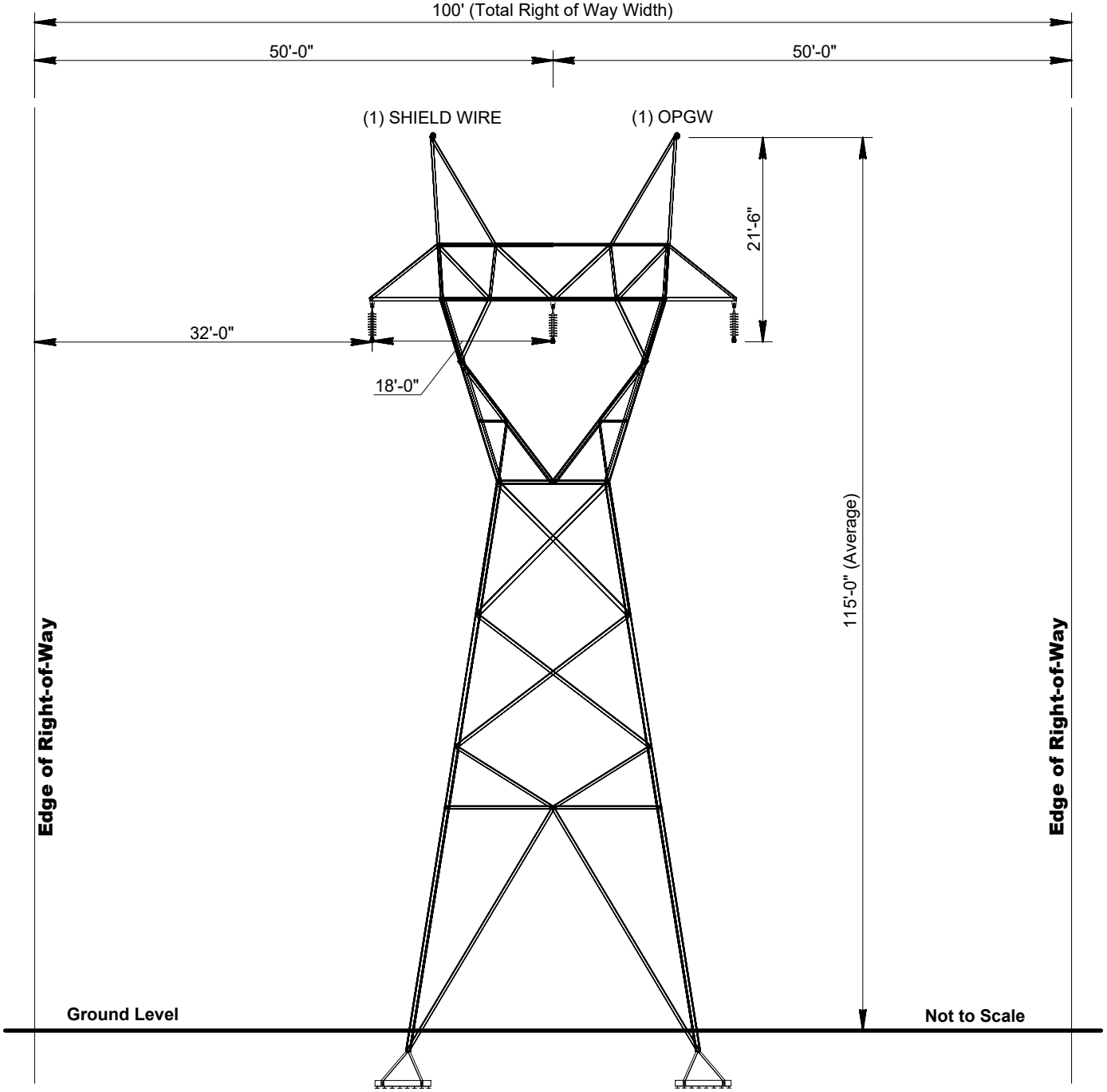


TYPICAL SCHEMATIC

EXHIBIT 19

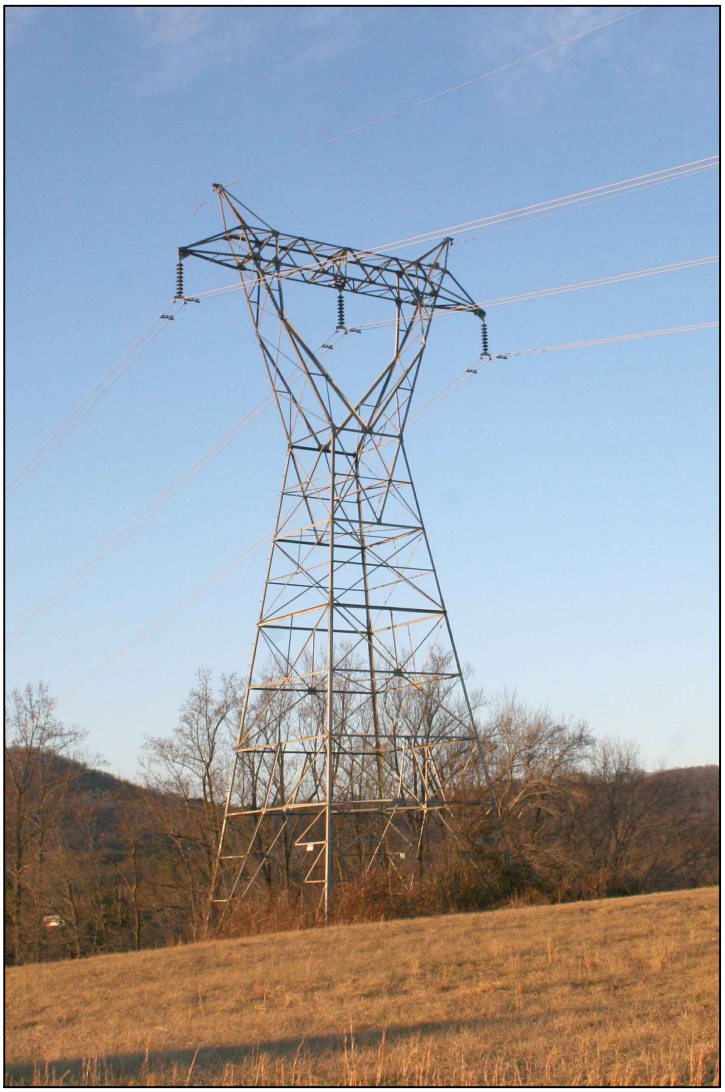
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Proposed 138-kV Dead-end Lattice Tower in 100-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Proposed 138-kV Dead-end Lattice Tower in 100-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

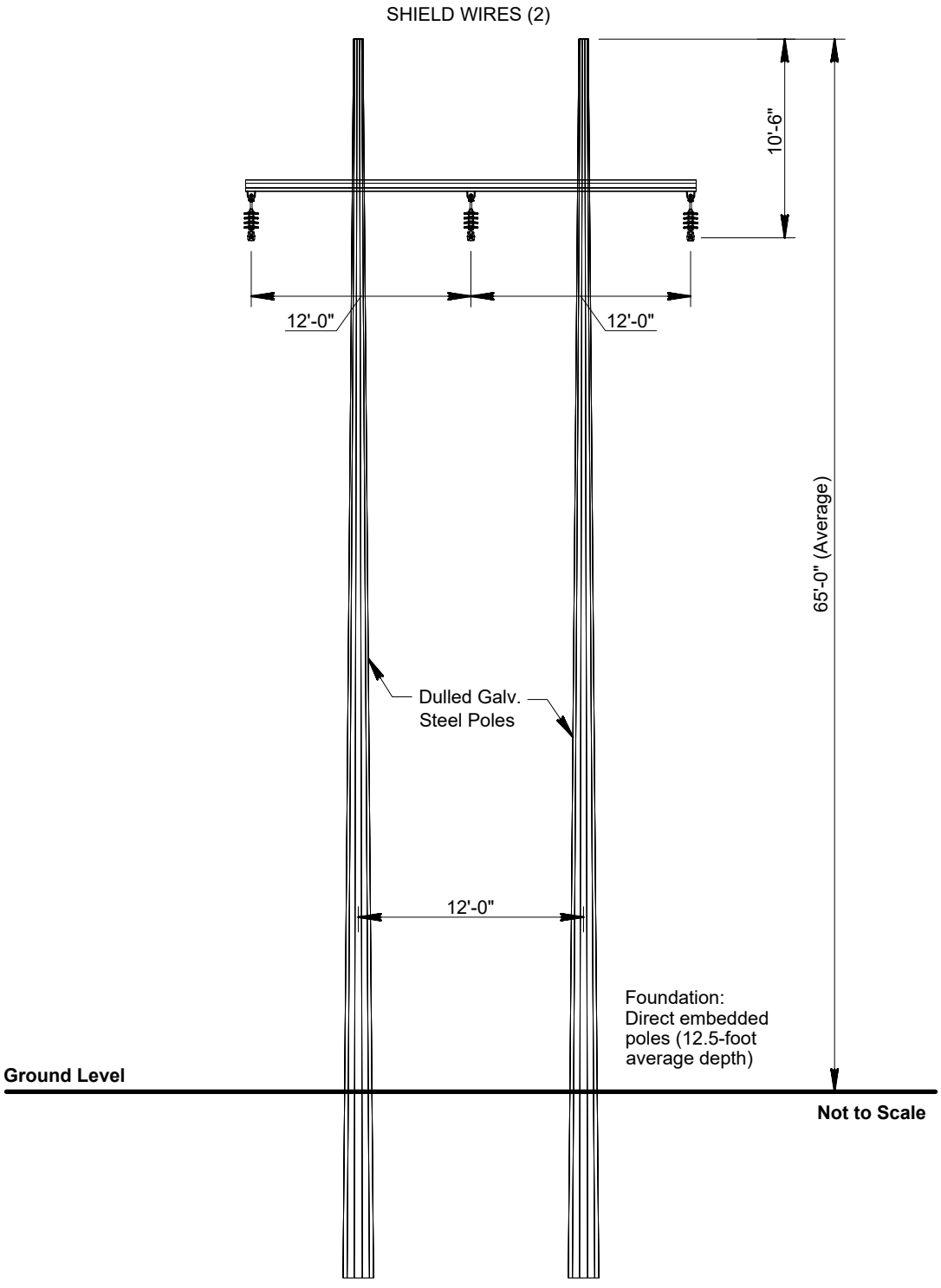
Note: The material for the existing and proposed typical structures is dulled galvanized steel (as shown above).

EXHIBIT 20: PROPOSED 138-kV SUSPENSION H-FRAME IN 80-FOOT ROW

EXHIBIT 20

PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Proposed 138-kV Suspension H-Frame in 80-foot ROW (SINGLE CIRCUIT)

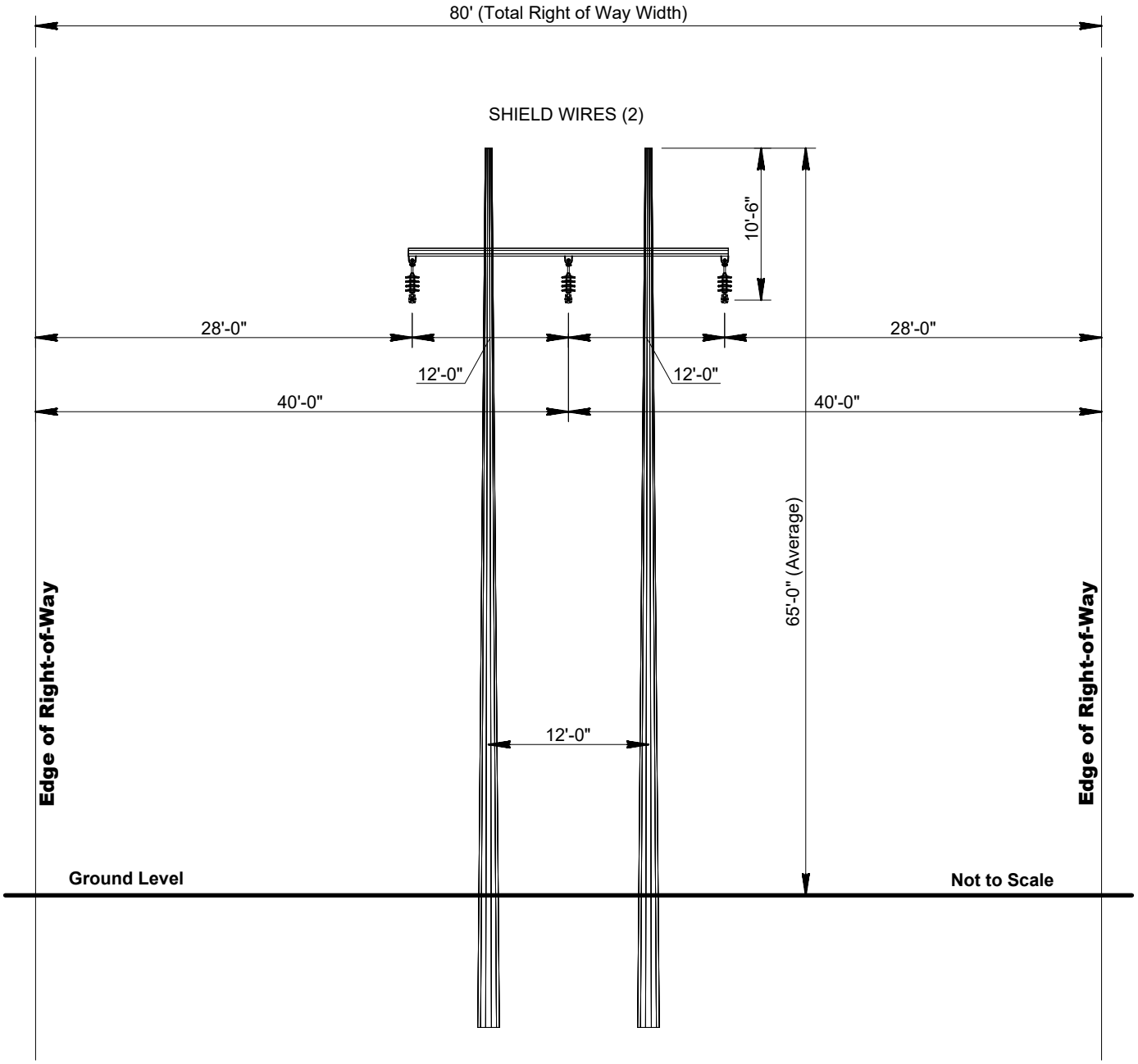


TYPICAL SCHEMATIC

EXHIBIT 20

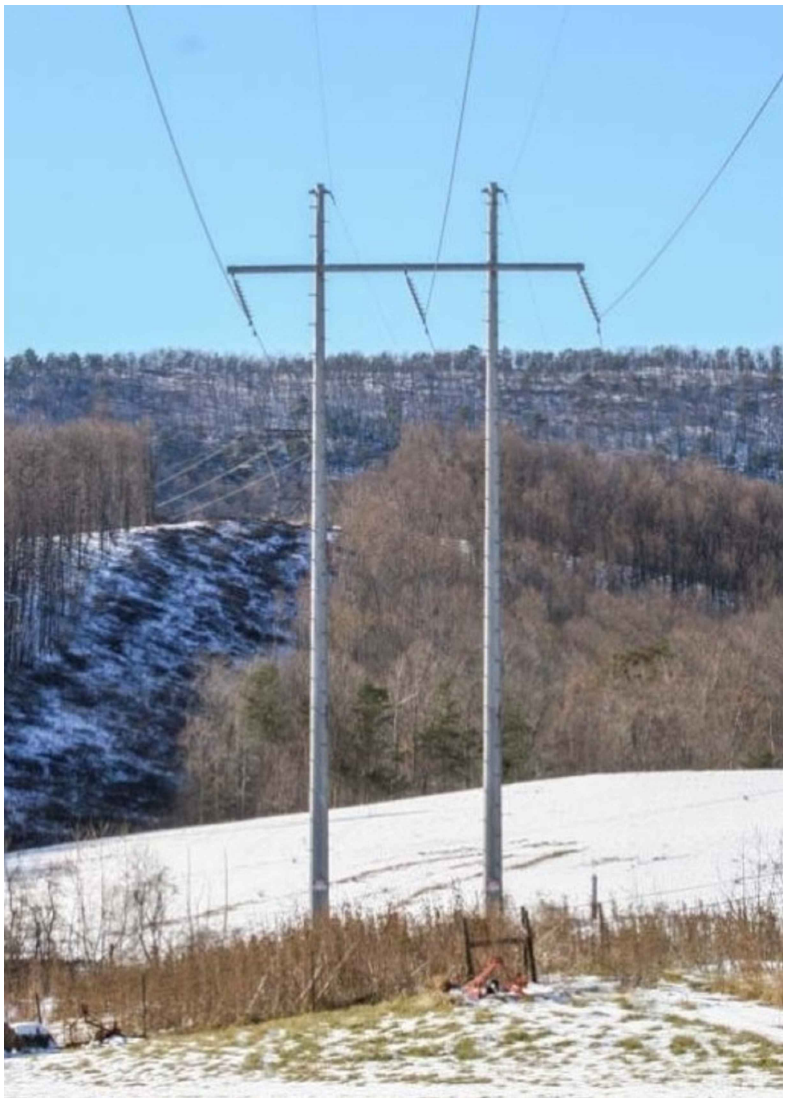
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Proposed 138-kV Suspension H-Frame in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Proposed 138-kV Suspension H-Frame in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

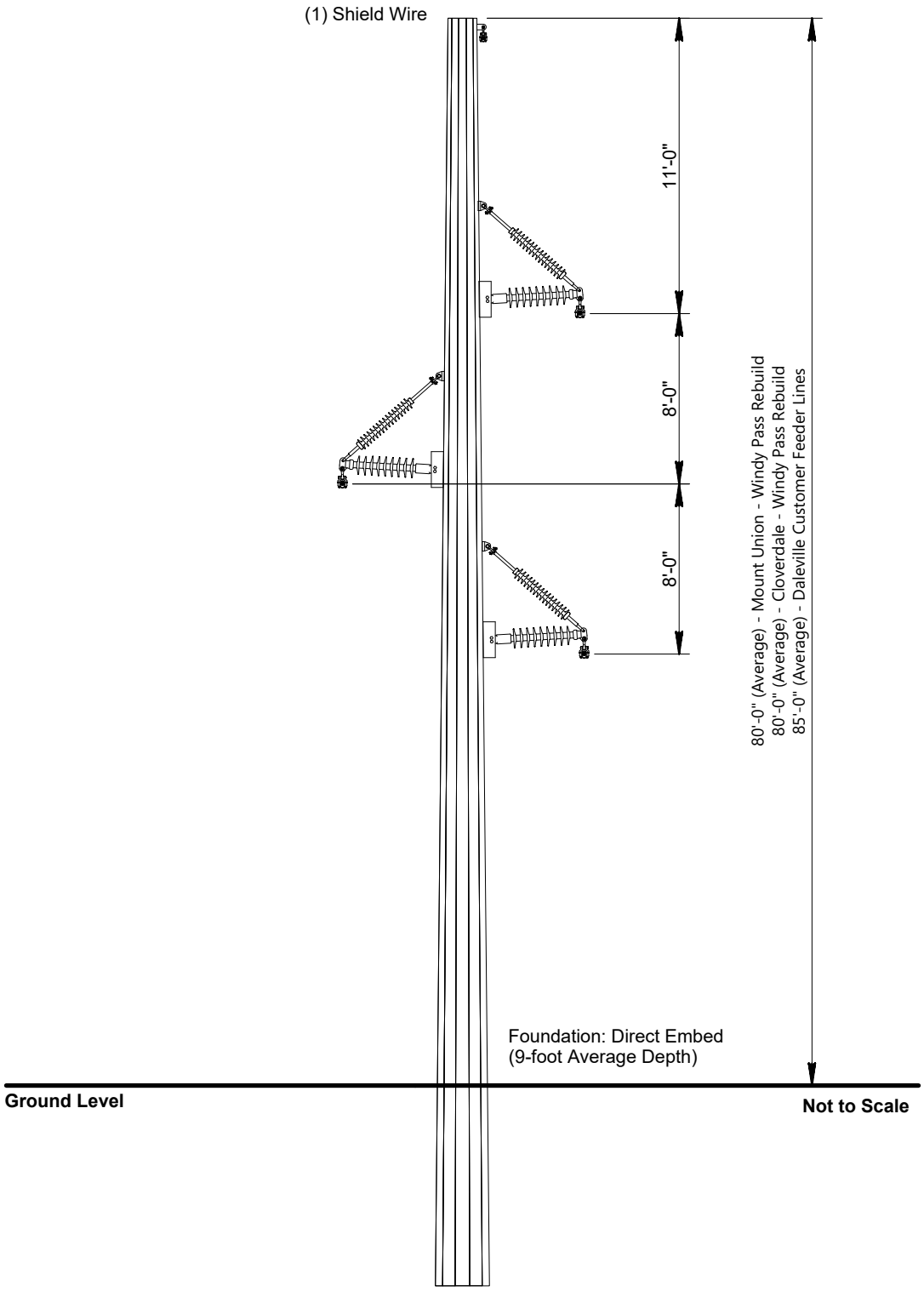
Note: The material for the proposed typical structure is dulled galvanized steel (as shown above).

EXHIBIT 21: PROPOSED 138-kV SUSPENSION MONOPOLE IN 80-FOOT ROW

EXHIBIT 21

PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Proposed 138-kV Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)

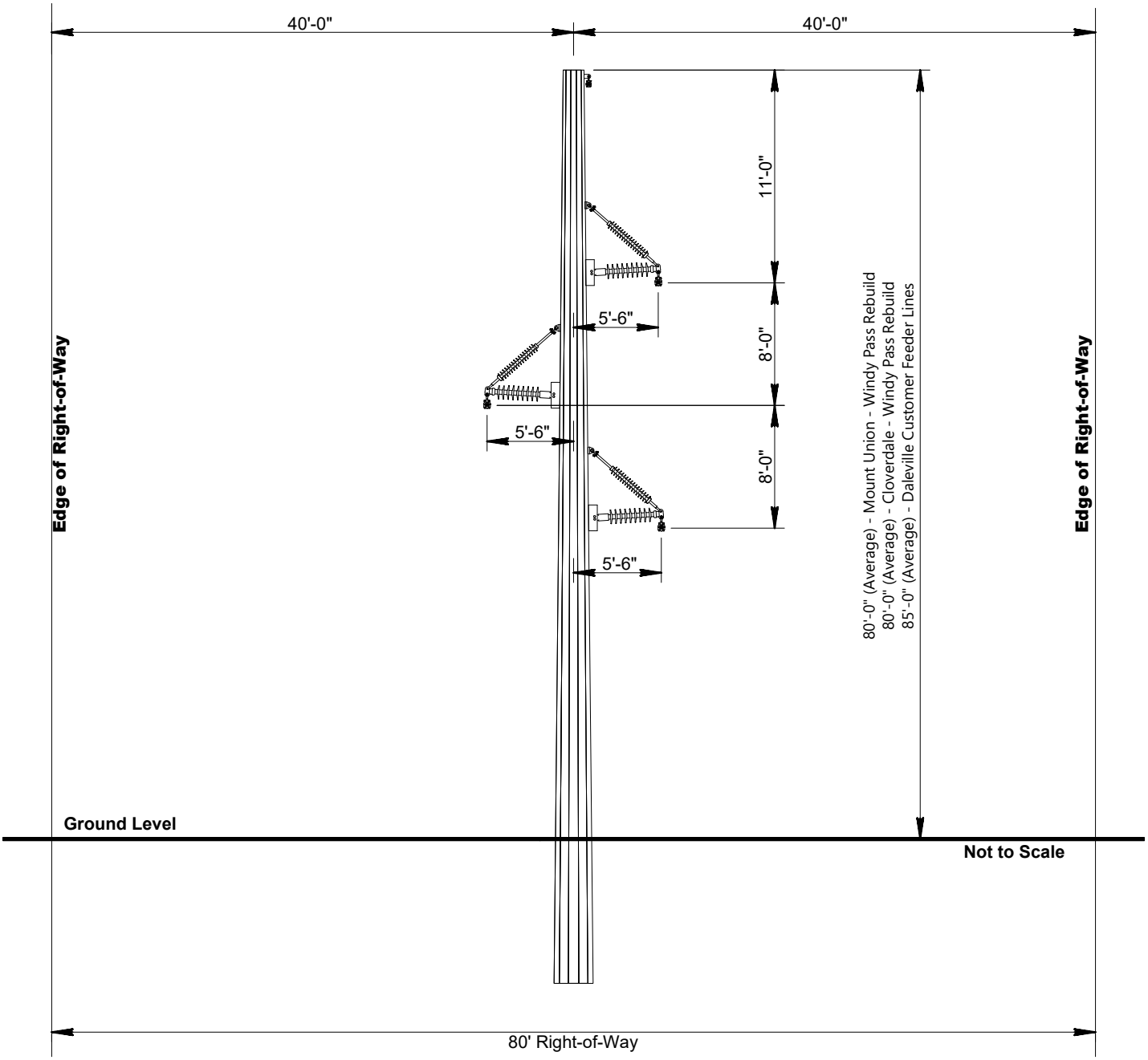


TYPICAL SCHEMATIC

EXHIBIT 21

PROPOSED 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Proposed 138-kV Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Proposed 138-kV Suspension Monopole in 80-foot ROW (SINGLE CIRCUIT)

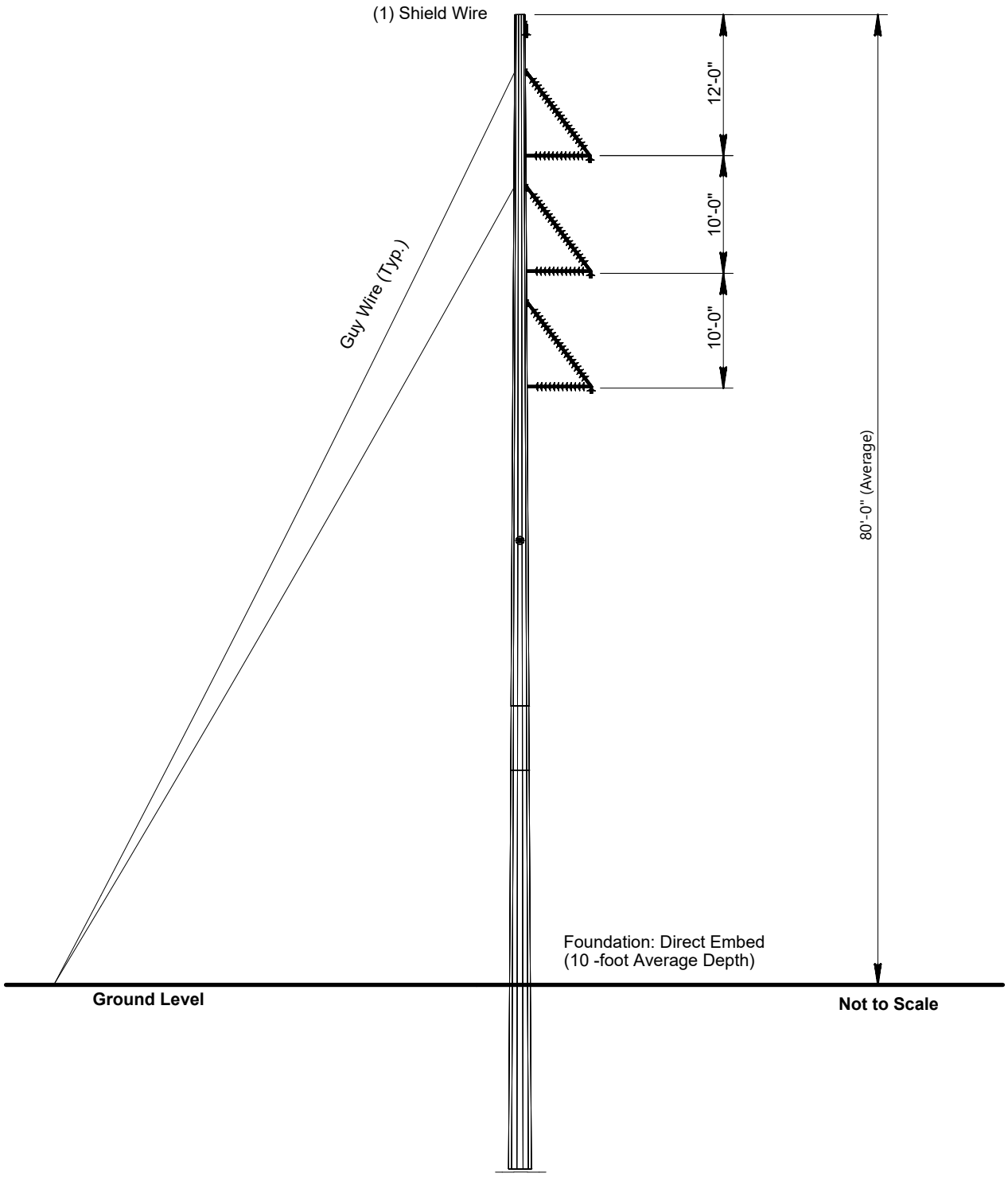


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be dulled galvanized steel (as shown above).

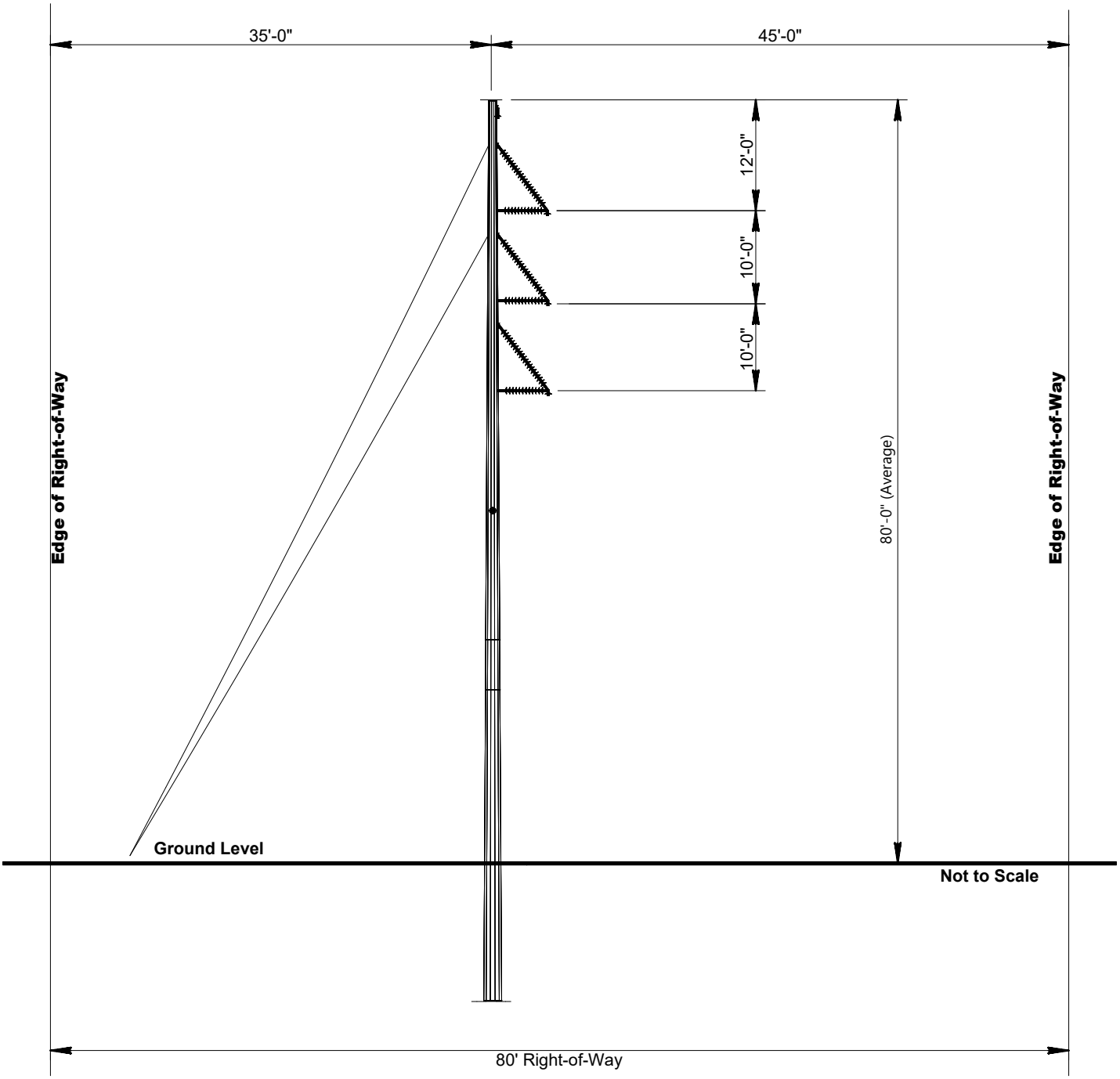
EXHIBIT 22: PROPOSED 138-kV RUNNING ANGLE GUYED BRACED-POST MONOPOLE IN 80-FOOT ROW

Proposed 138-kV Running Angle Braced-post Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL SCHEMATIC

Proposed 138-kV Running Angle Braced-post Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Proposed 138-kV Running Angle Braced-post Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)

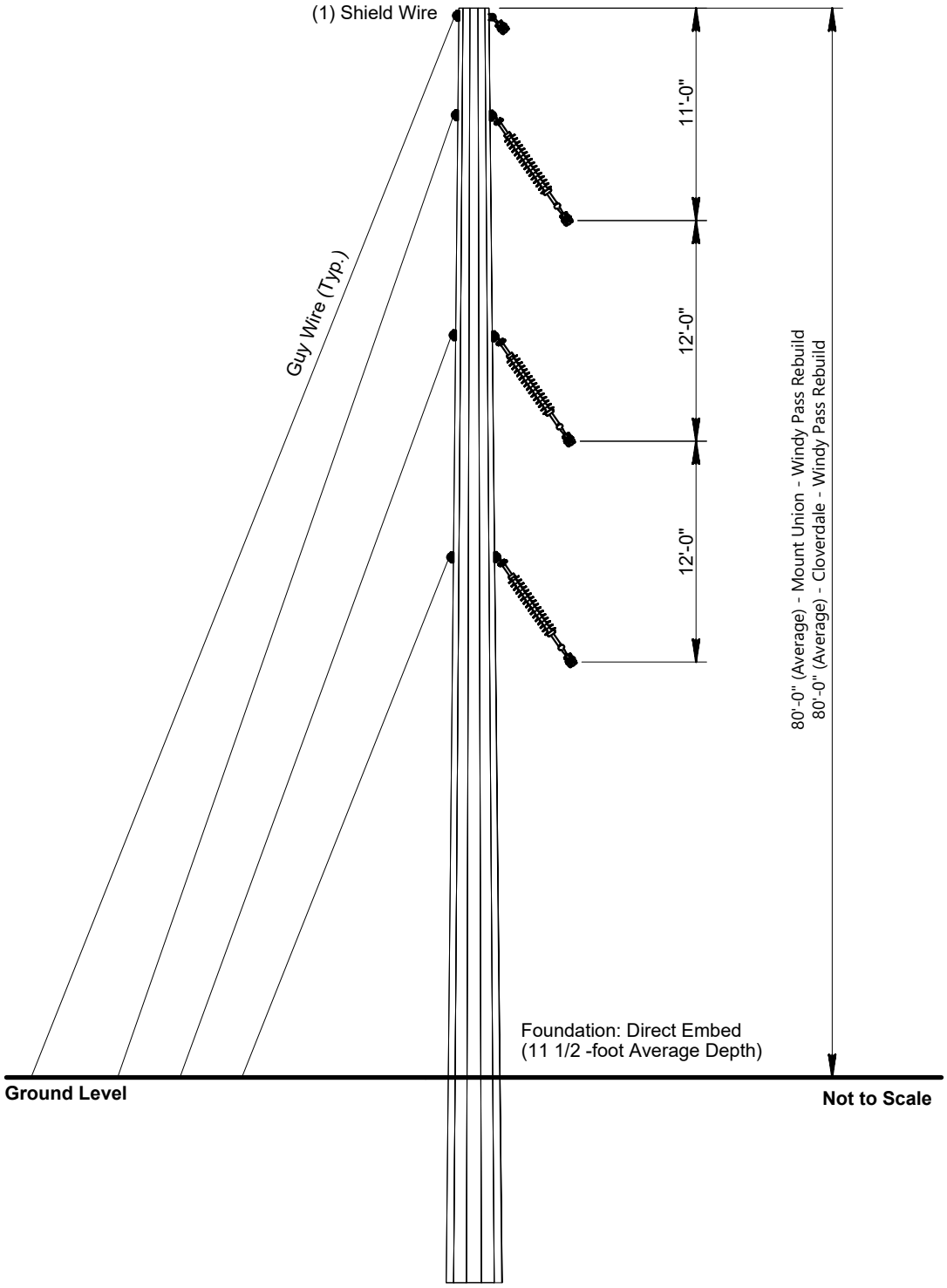


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be galvanized steel (as shown above).

EXHIBIT 23: PROPOSED 138-kV RUNNING ANGLE GUYED MONOPOLE IN 80-FOOT ROW

Proposed 138-kV Running Angle Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)

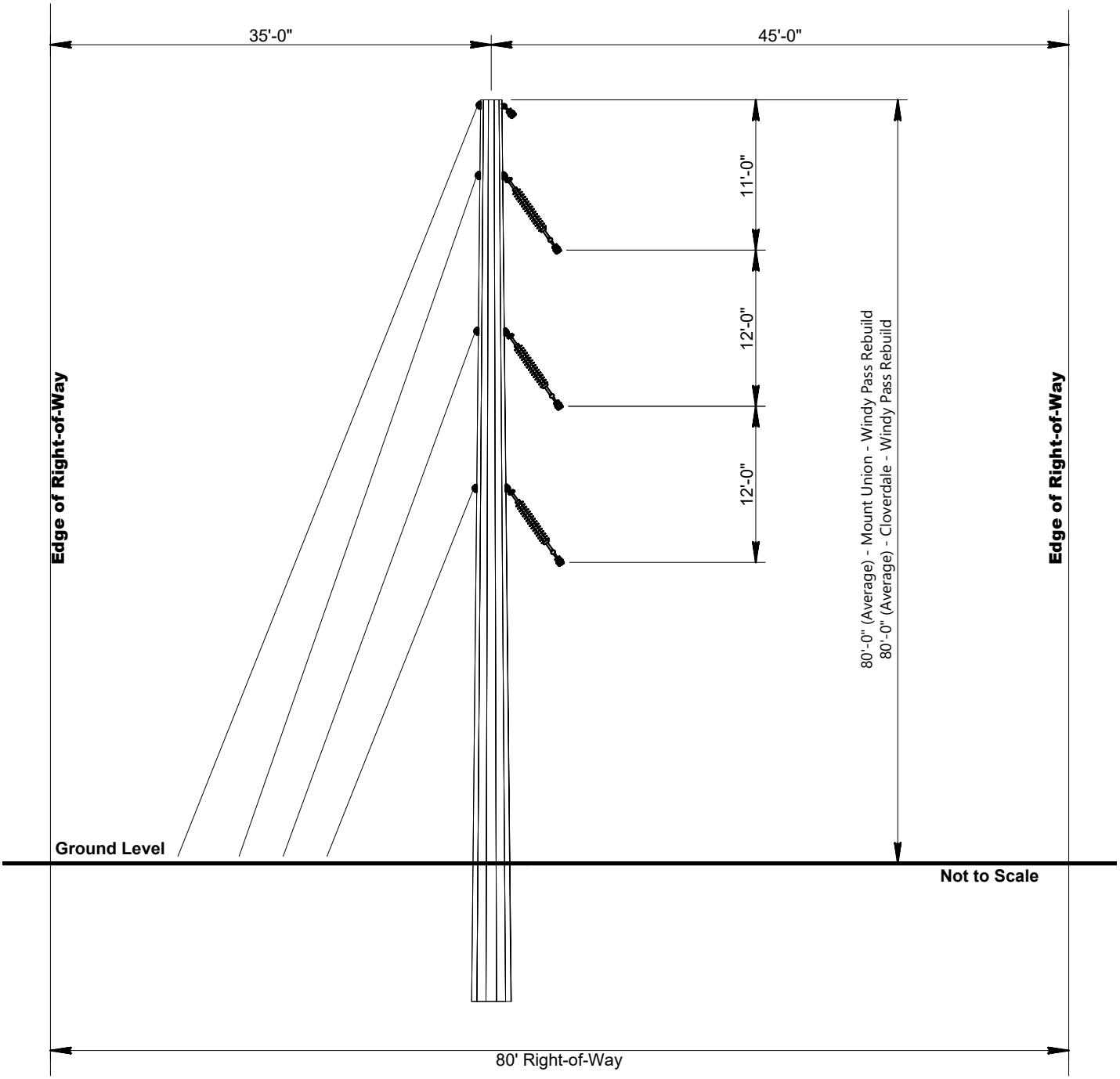


TYPICAL SCHEMATIC

EXHIBIT 23

PROPOSED 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Proposed 138-kV Running Angle Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Proposed 138-kV Running Angle Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

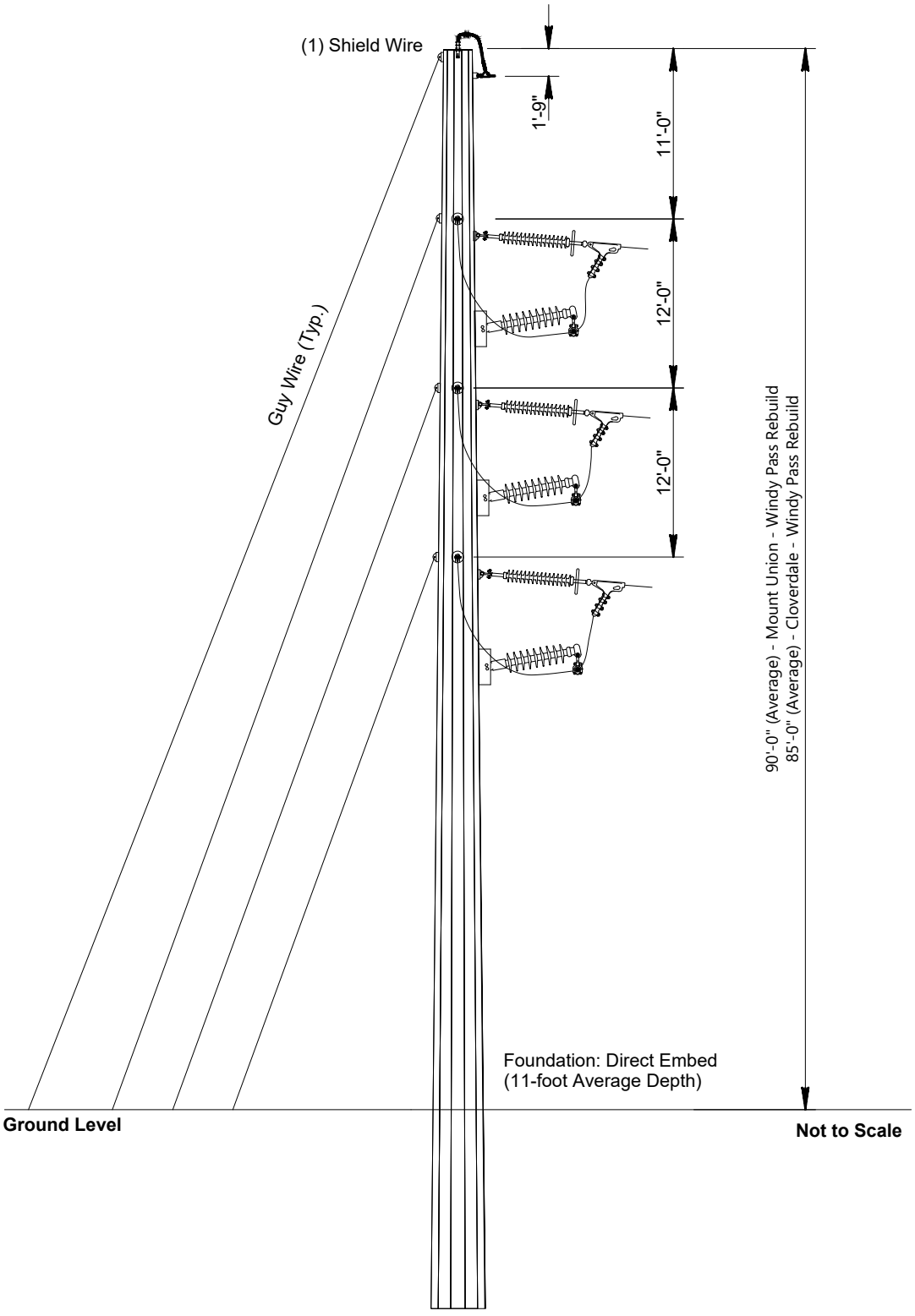
Note: The proposed material for the typical structure will be galvanized steel (as shown above).

EXHIBIT 24: PROPOSED 138-kV DEAD-END GUYED MONOPOLE IN 80-FOOT ROW

EXHIBIT 24

PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Proposed 138-kV Dead-end Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)

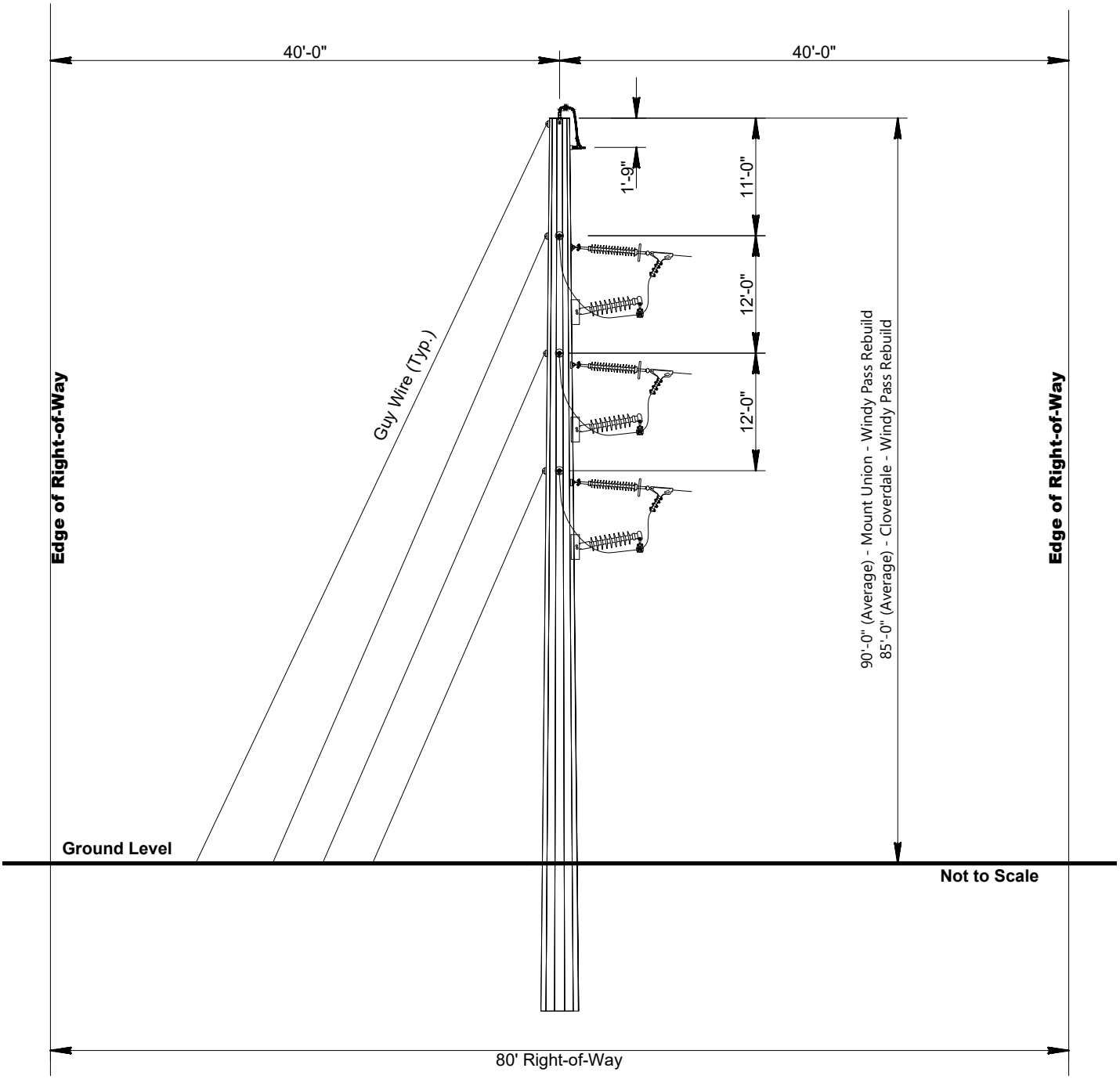


TYPICAL SCHEMATIC

EXHIBIT 24

PROPOSED 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Proposed 138-kV Dead-end Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Proposed 138-kV Dead-end Guyed Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

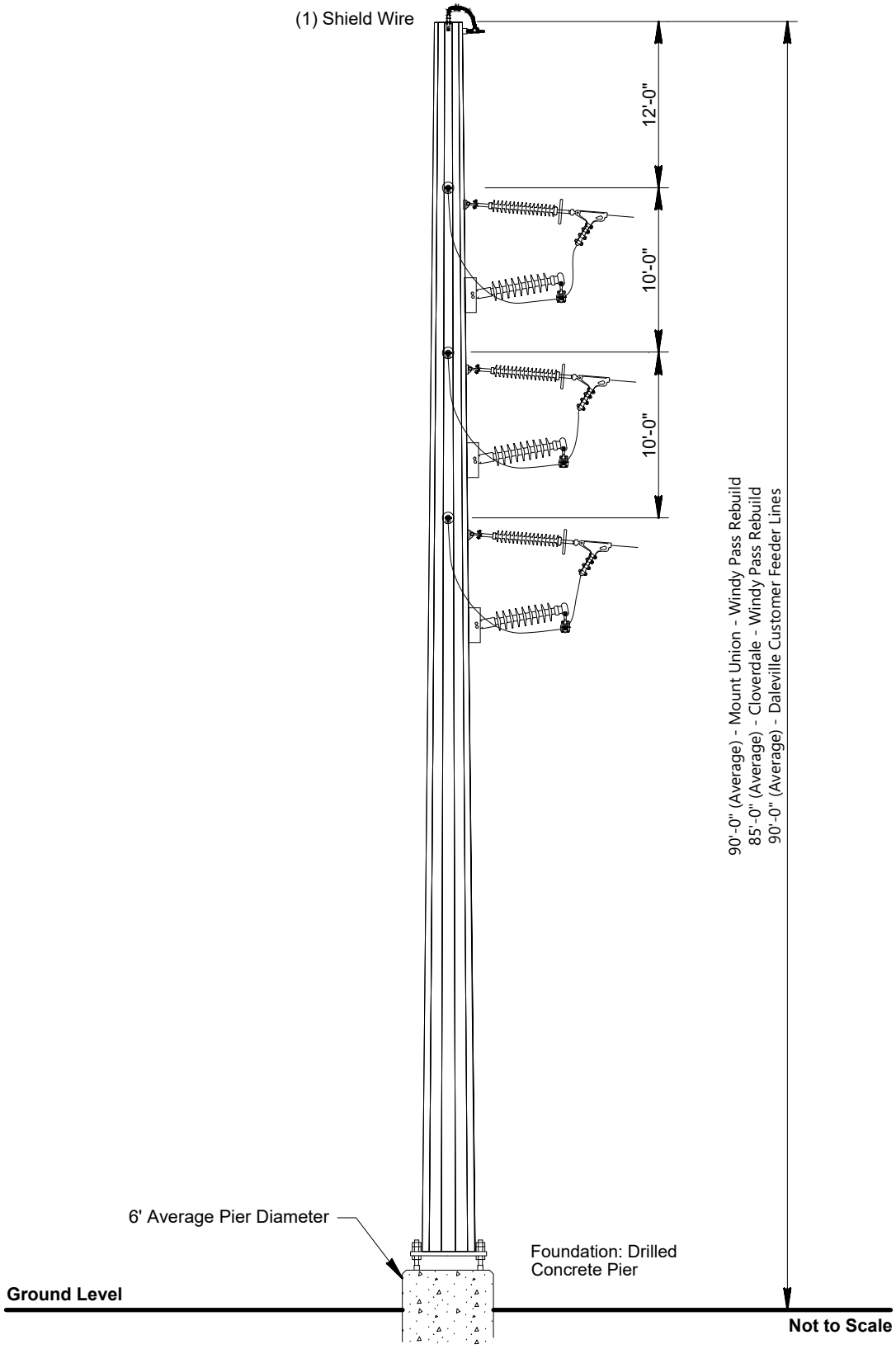
Note: The proposed material for the typical structure will be dulled galvanized steel (as shown above).

EXHIBIT 25: PROPOSED 138-kV DEAD-END MONOPOLE IN 80-FOOT ROW

EXHIBIT 25

PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)

Proposed 138-kV Dead-end Monopole in 80-foot ROW (SINGLE CIRCUIT)

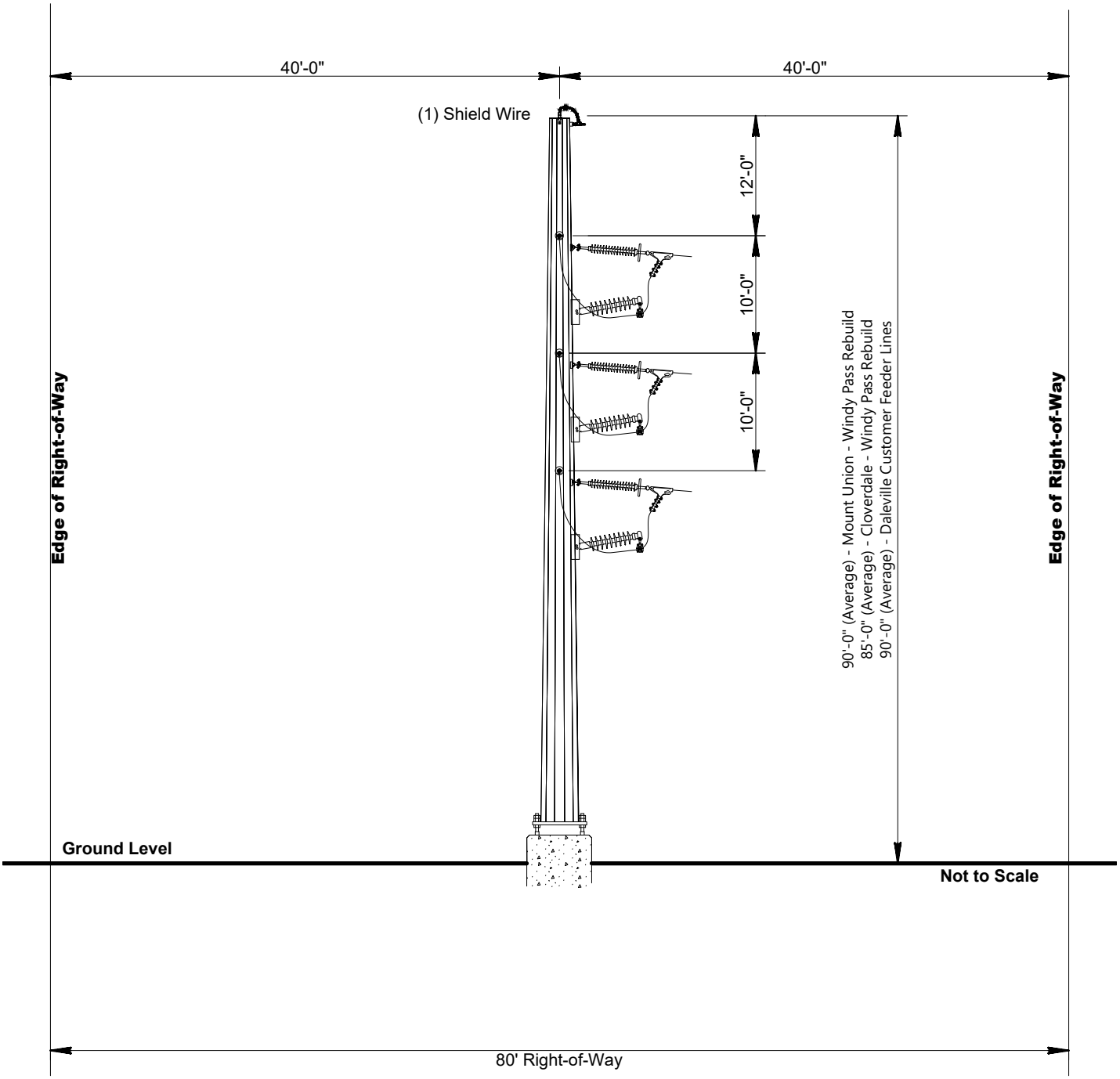


TYPICAL SCHEMATIC

EXHIBIT 25

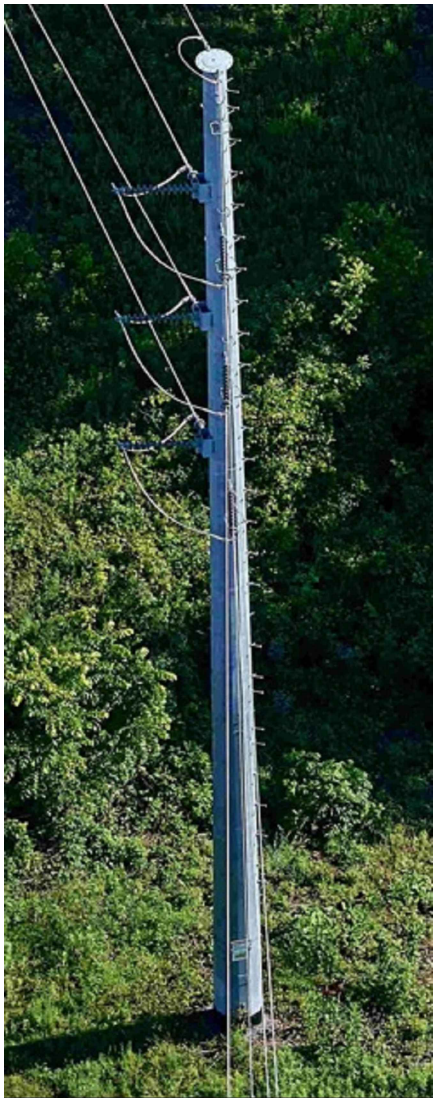
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 2 of 3)

Proposed 138-kV Dead-end Monopole in 80-foot ROW (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

Proposed 138-kV Dead-end Monopole in 80-foot ROW (SINGLE CIRCUIT)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

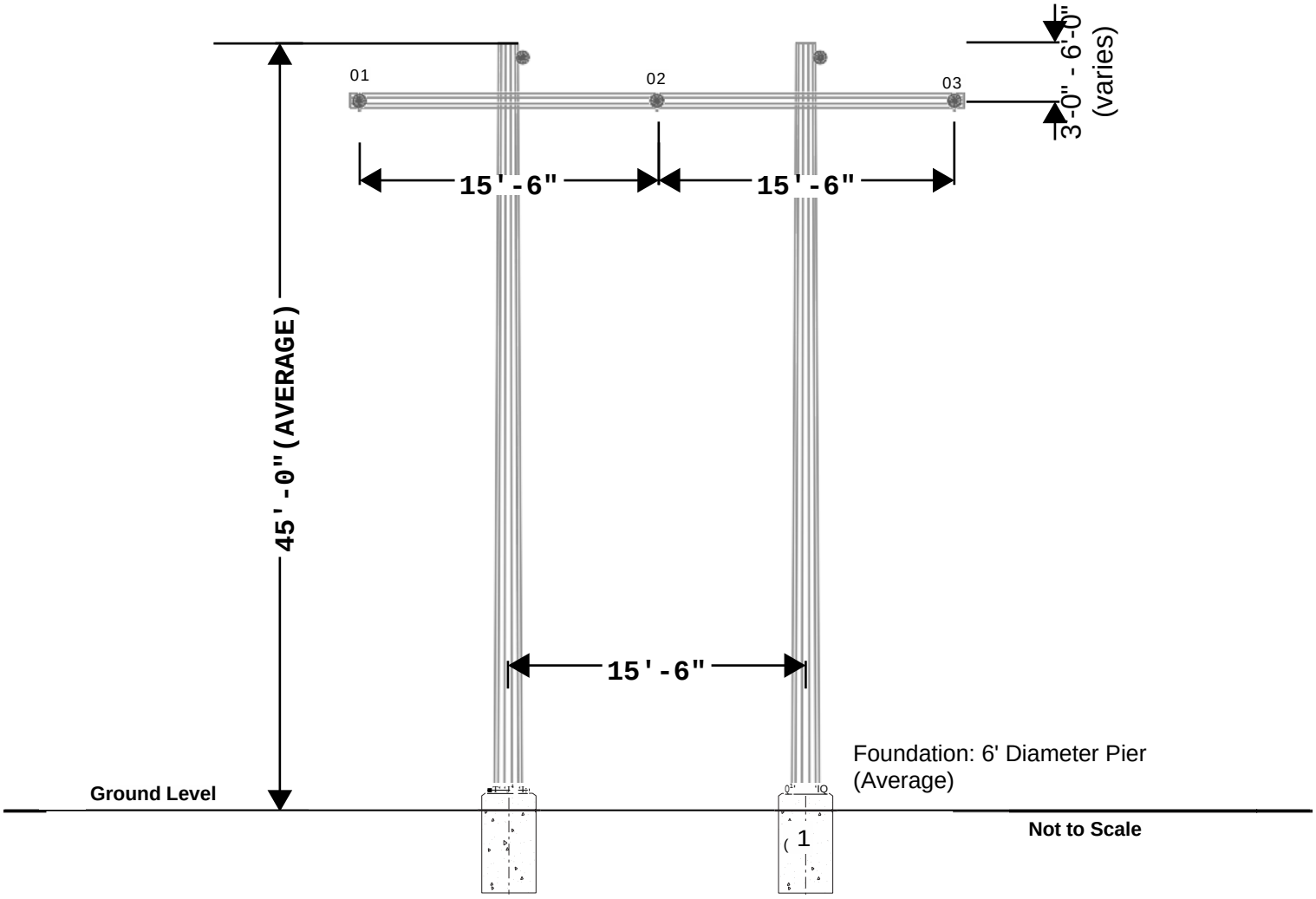
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 26: PROPOSED 138-kV DEAD-END H-FRAME IN 80-FOOT ROW

138-kV Dead-end H-Frame (Single Circuit)

FINAL PHASE CONFIGURATION TO BE DETERMINED LATER TO REDUCE EMF LEVELS AS PRACTICABLE.

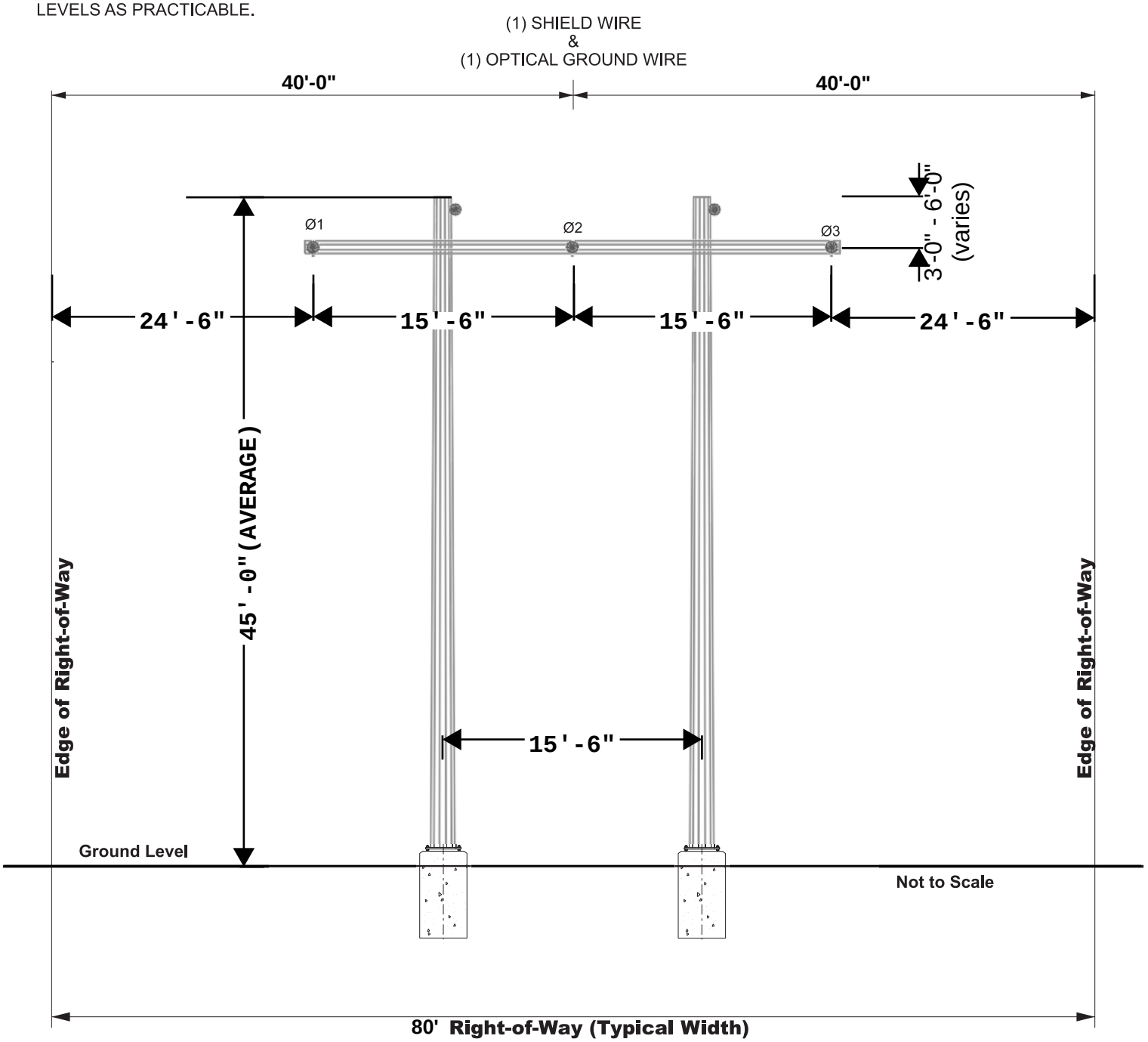
(1) SHIELD WIRE
&
(1) OPTICAL GROUND WIRE



TYPICAL SCHEMATIC

138-kV Dead-end H-Frame (Single Circuit)

FINAL PHASE CONFIGURATION TO BE DETERMINED LATER TO REDUCE EMF LEVELS AS PRACTICABLE.



TYPICAL RIGHT-OF-WAY CROSS SECTION

138-kV Dead-end H-Frame (Single Circuit)



COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

ACTUAL CONDUCTORS ARE SINGLE CONDUCTORS PER PHASE. NOT TWO BUNDLE AS SHOWN.

Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above)

EXHIBIT 27: CONSTRUCTION AND OUTAGE SEQUENCE

CONFIDENTIAL INFORMATION

SEE VOLUME 3: CONFIDENTIAL APPENDIX – EXHIBIT 27-C FOR CONSTRUCTION AND OUTAGE SEQUENCE

EXHIBIT 28: VDOT HIGHWAY MAPS AND EXISTING TRANSMISSION FACILITIES

CONFIDENTIAL INFORMATION

SEE VOLUME 3: CONFIDENTIAL APPENDIX – EXHIBIT 28-C FOR VDOT HIGHWAY MAPS AND EXISTING TRANSMISSION FACILITIES

EXHIBIT 29: PHOTO SIMULATIONS

Daleville Area

Transmission Improvements Project

Viewpoint Location Map

- Existing Substation (AEP)
- Photo Viewpoint Location
- Substation to be Built (AEP)
- Existing Alignment to be Upgraded (in or near existing right-of-way) (AEP)
- Transmission Line to be Built (AEP)

APPALACHIAN POWER
An AEP Company

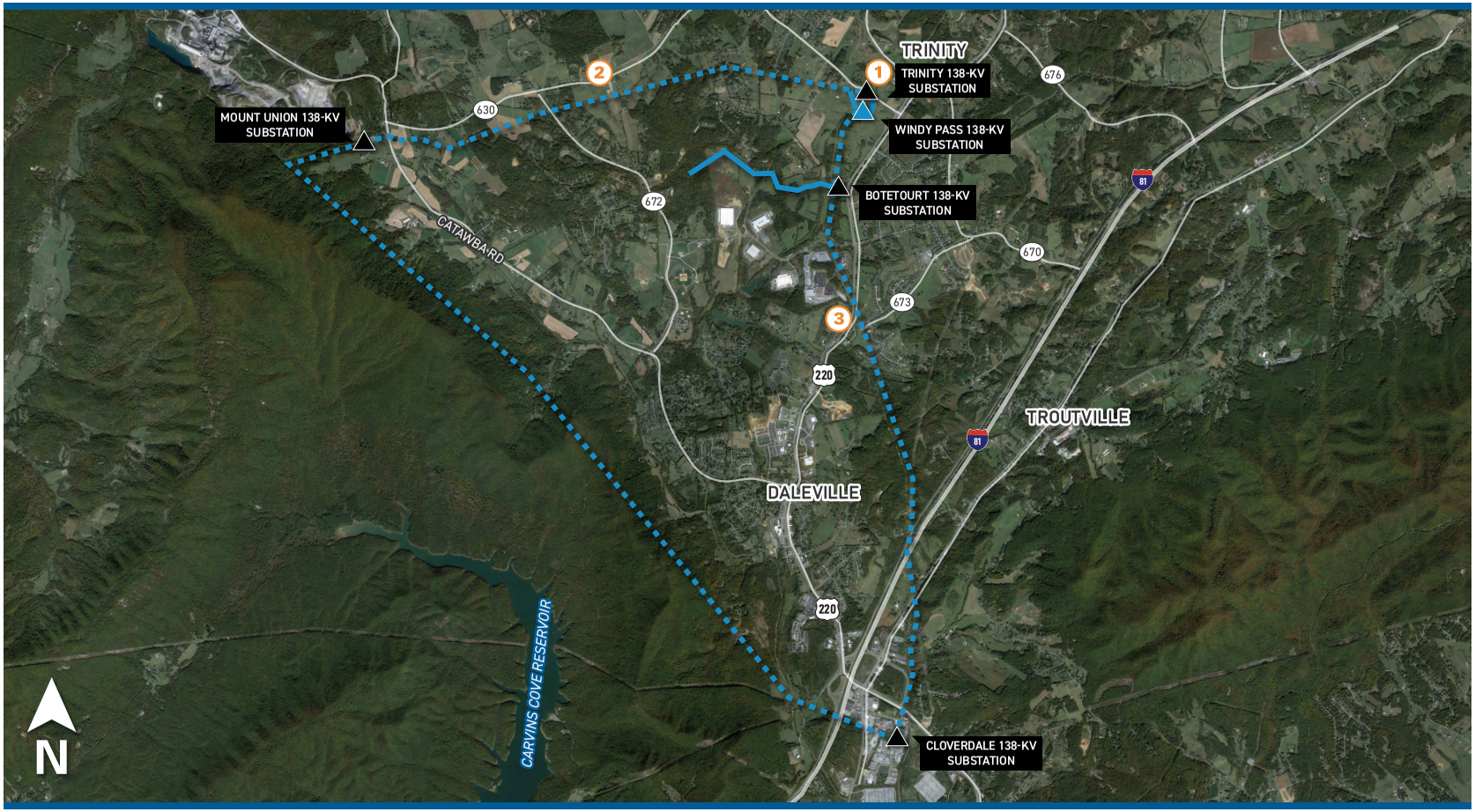


Exhibit 29
Photo Simulations
Page 1 of 4

Daleville Area

Transmission Improvements Project

Viewpoint 1

Date: 6/2/2026 Time: 8:20 a.m.
Viewing Direction: West



1 Photo Viewpoint Location
Existing Substation (AEP)
Substation to be Built (AEP)
Transmission Line to be Built (AEP)
Existing Alignment to be Upgraded (in or near existing right-of-way) (AEP)

The visual simulation is an approximation using the best available data. Final engineering, permitting, and construction details are not complete.

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An AEP Company



Existing Conditions



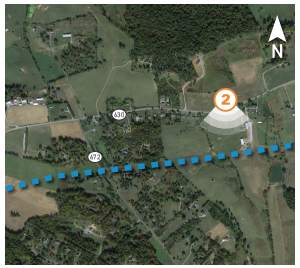
Proposed Conditions

Daleville Area

Transmission Improvements Project

Viewpoint 2

Date: 6/2/2026 Time: 9:11 a.m.
Viewing Direction: South



② Photo Viewpoint Location

Existing Alignment to be Upgraded (in or near existing right-of-way) (AEP)

The visual simulation is an approximation using the best available data. Final engineering, permitting, and construction details are not complete.

APPALACHIAN POWER
An AEP Company



Existing Conditions



Proposed Conditions

Daleville Area

Transmission Improvements Project

Viewpoint 3

Date: 6/2/2026 Time: 11:06 a.m.
Viewing Direction: Northeast



③ Photo Viewpoint Location
Existing Alignment to be Upgraded (in or near existing right-of-way) (AEP)

The visual simulation is an approximation using the best available data. Final engineering, permitting, and construction details are not complete.

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An AEP Company

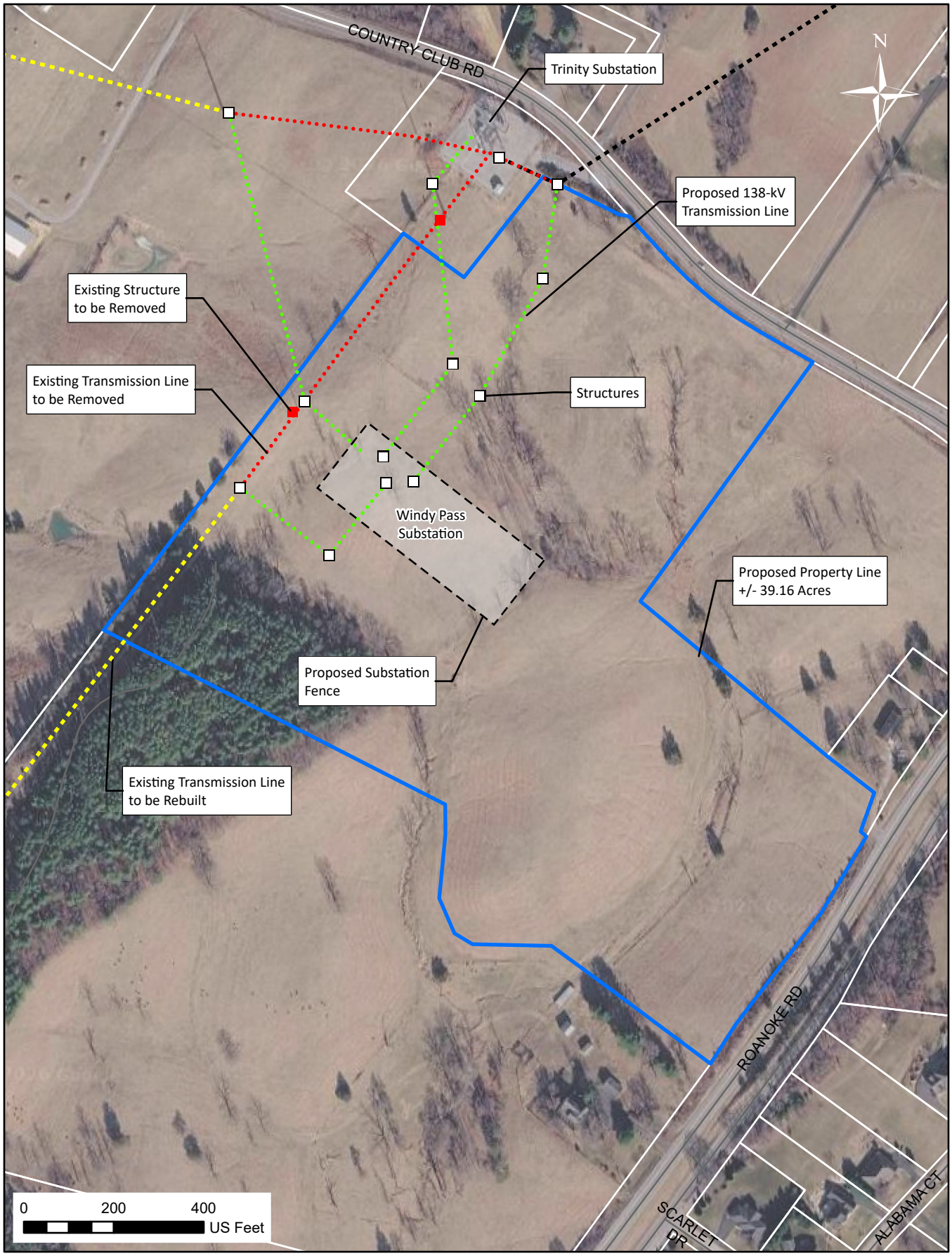


Existing Conditions



Proposed Conditions

EXHIBIT 30: PROPOSED WINDY PASS SUBSTATION LOCATION, LAYOUT, ONE LINE, AND PHOTOGRAPHS



WINDY PASS
SUBSTATION LOCATION MAP

CONFIDENTIAL INFORMATION

EXHIBIT 30-C: PROPOSED WINDY PASS LAYOUT

PAGE 2 OF 5

CONFIDENTIAL INFORMATION

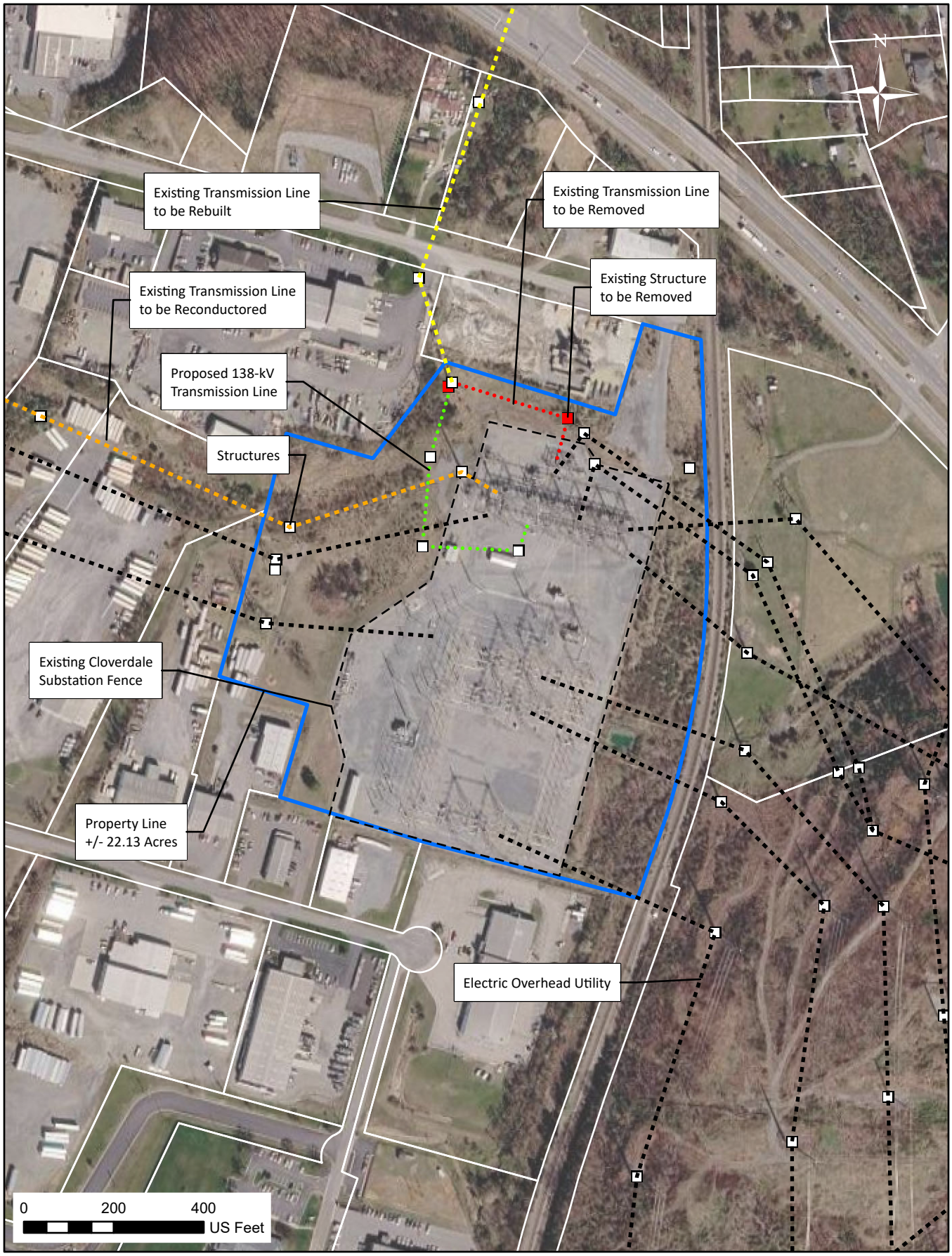
EXHIBIT 30-C: PROPOSED WINDY PASS ONE LINE DRAWING

PAGE 3 OF 5





EXHIBIT 31: CLOVERDALE SUBSTATION LOCATION, LAYOUT, ONE LINE, AND PHOTOGRAPH



CLOVERDALE
SUBSTATION LOCATION MAP

CONFIDENTIAL INFORMATION

EXHIBIT 31-C: CLOVERDALE LAYOUT

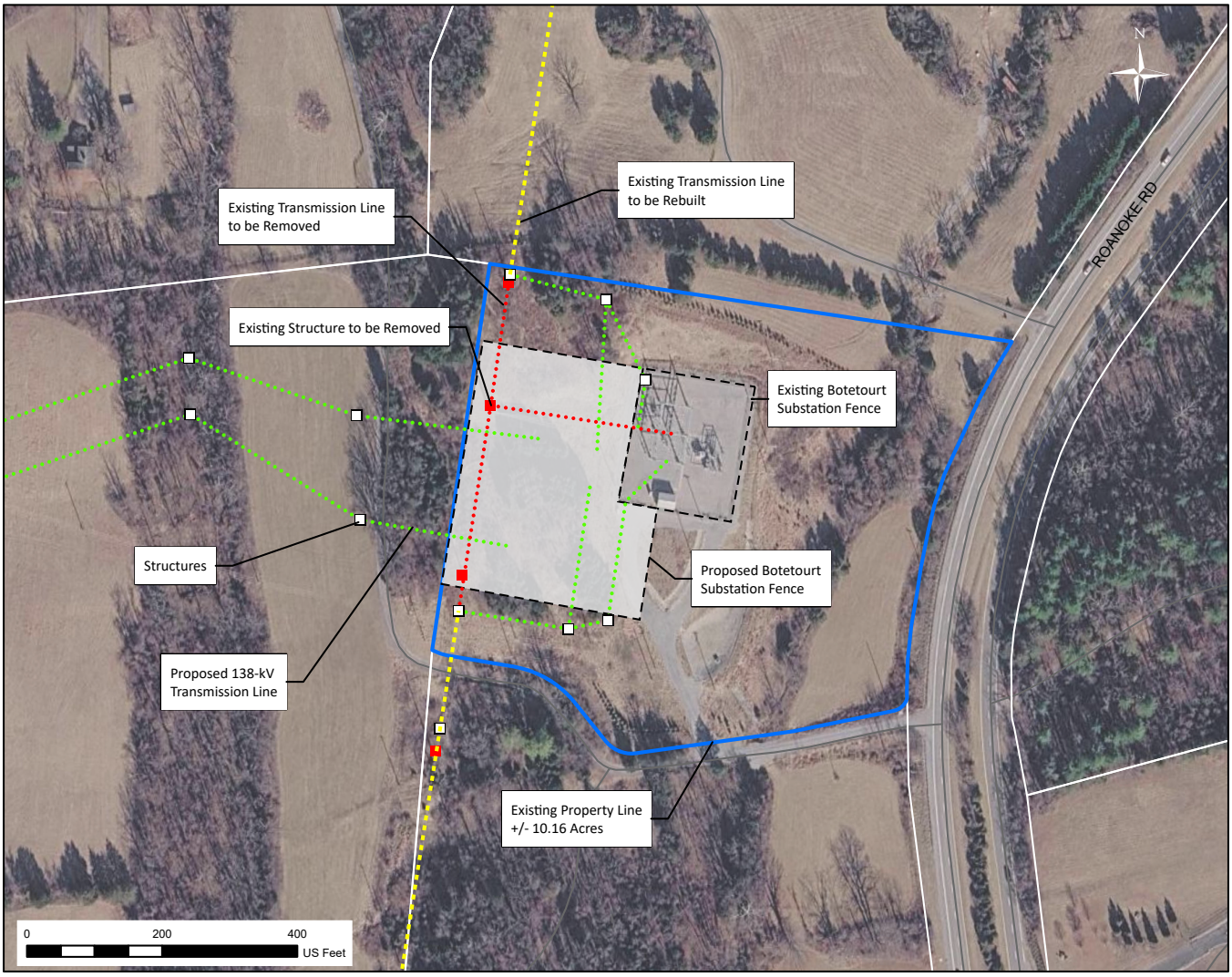
PAGE 2 OF 4

CONFIDENTIAL INFORMATION

EXHIBIT 31-C: CLOVERDALE ONE LINE DRAWING



EXHIBIT 32: BOTETOURT SUBSTATION LOCATION, LAYOUT, ONE LINE, AND PHOTOGRAPH



BOTETOURT
SUBSTATION LOCATION MAP

CONFIDENTIAL INFORMATION

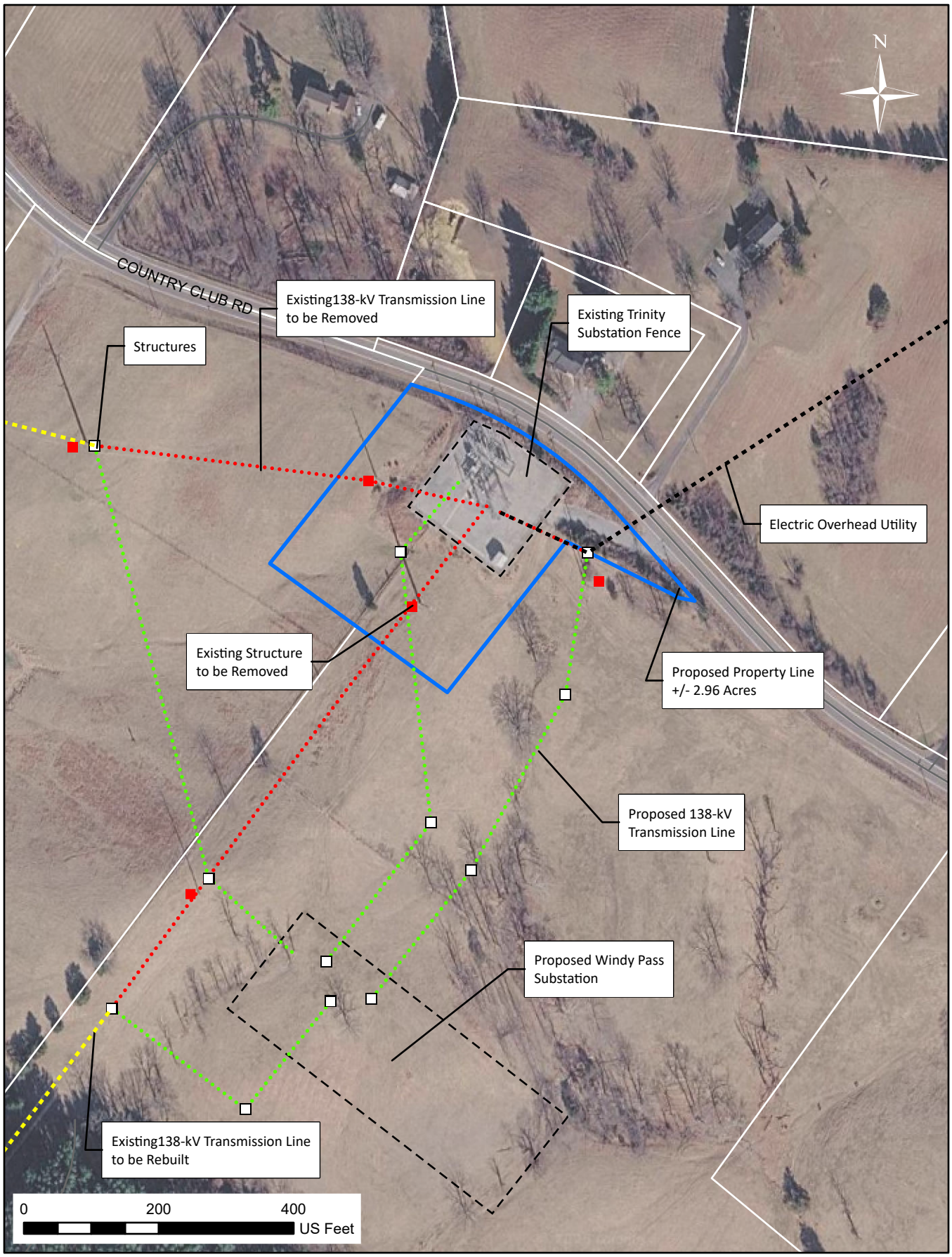
EXHIBIT 32-C: BOTETOURT SUBSTATION LAYOUT

CONFIDENTIAL INFORMATION

EXHIBIT 32-C: BOTETOURT SUBSTATION ONE LINE DRAWING
PAGE 3 OF 4


NOTICE
NO PARKING!
DANGER
OPEN
EXCAVATION
APPALACHIAN
POWER
An AEP Company
BOTETOURT STATION
4219 ROANOKE ROAD
DALEVILLE, VA 24083

EXHIBIT 33: TRINITY SUBSTATION LOCATION, LAYOUT, ONE LINE, AND PHOTOGRAPH



TRINITY
SUBSTATION LOCATION MAP

CONFIDENTIAL INFORMATION

EXHIBIT 33-C: TRINITY SUBSTATION LAYOUT

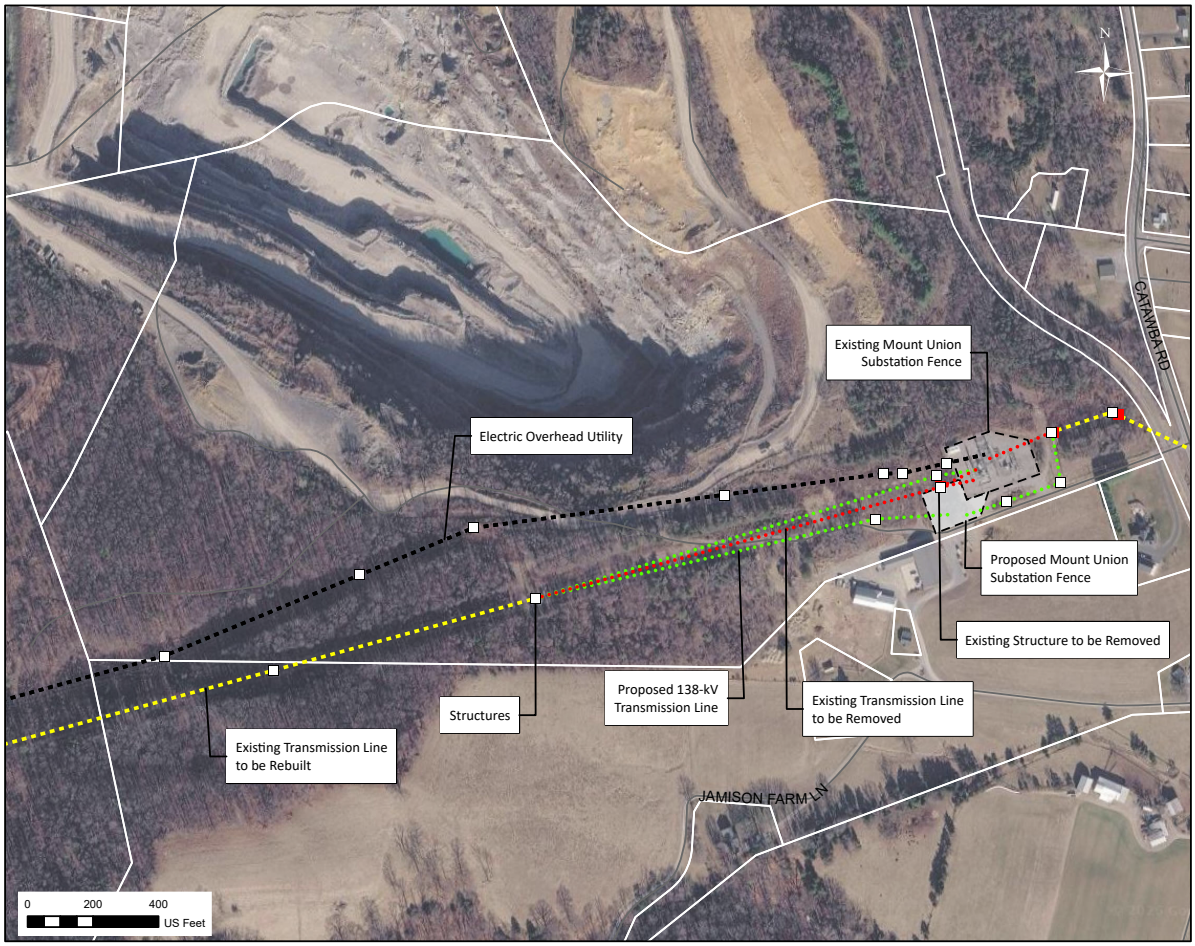
PAGE 2 OF 4

CONFIDENTIAL INFORMATION

EXHIBIT 33-C: TRINITY SUBSTATION ONE LINE DRAWING
PAGE 3 OF 4



EXHIBIT 34: MOUNT UNION SUBSTATION LOCATION, LAYOUT, ONE LINE, AND PHOTOGRAPH



MOUNT UNION
SUBSTATION LOCATION MAP

CONFIDENTIAL INFORMATION

EXHIBIT 34-C: MOUNT UNION SUBSTATION LAYOUT

PAGE 2 OF 4

CONFIDENTIAL INFORMATION

EXHIBIT 34-C: MOUNT UNION SUBSTATION ONE LINE DRAWING

PAGE 3 OF 4



EXHIBIT 35: PUBLIC NOTICE MAP

Daleville Area
Transmission Improvements Project

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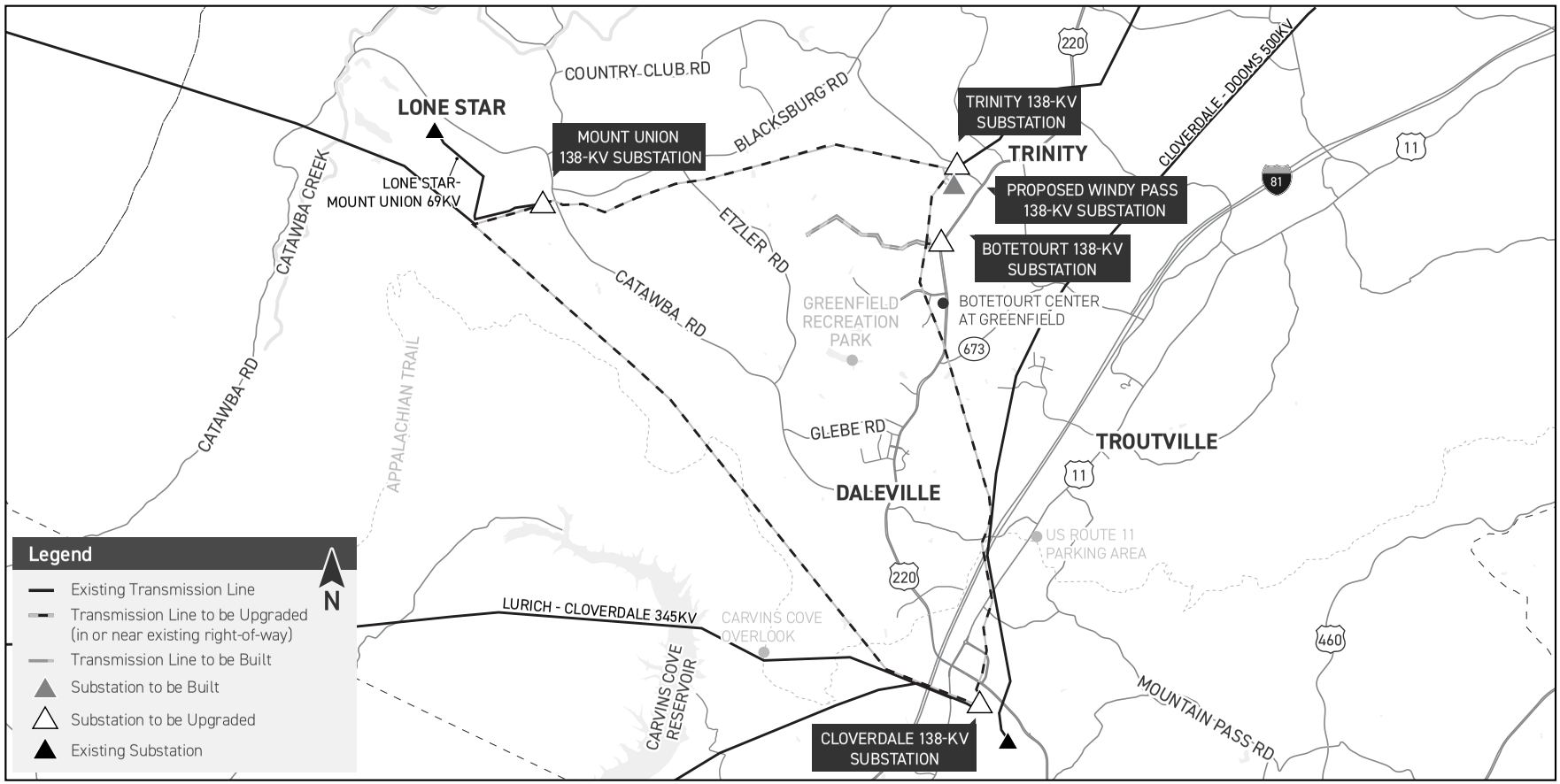


Exhibit 35
Public Notice Map
Page 1 of 1