APPALACHIAN POWER COMPANY
BEFORE THE
VIRGINIA STATE CORPORATION COMMISSION
CASE NO. PUR-2026-00012

APPLICATION FOR APPROVAL AND CERTIFICATION OF ELECTRICAL TRANSMISSION LINE

Altavista to Leesville Transmission Improvements Project

VOLUME 1 OF 2

Application, Testimony, Response to Guidelines, Exhibits, Siting Study and VDEQ Supplement

April 2026

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GLOSSARY OF TERMS AND ABBREVIATIONS

ACSR	Aluminum Conductor Steel Reinforced
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.
APCo	Appalachian Power Company (a unit of AEP)
Appalachian	Appalachian Power Company (a unit of AEP)
Application	Collectively refers to the application requesting Commission approval for the proposed Project, together with all of the supporting testimony, Response to Guidelines, VDEQ Supplement, tables, exhibits, attachments, figures and maps, etc.
cmil	circular mils
Code	Code of Virginia
Commission	Commonwealth of Virginia State Corporation Commission
Company	Appalachian Power Company (a unit of AEP)
Conductor sway	The distance from the overhead conductor at rest to the physical location of the conductor when displaced by wind.
Constraints	Specific areas that should be avoided to the extent reasonably practical during the route development and site selection process.
ELF	Extremely low frequency
EMF	Electric and Magnetic Fields or Electromagnetic Fields
Encroachment	Any structure or activity within an existing right-of-way that could interfere with the safe, reliable operation of transmission facilities is called an encroachment and is prohibited under the terms of a right-of-way.
Endpoints	The project starting and ending point(s) ("Project Endpoints"), which may include substations, switch stations, tap points, or other locations defined by the Company's planners and engineers.
Environmental Justice ("EJ")	The fair treatment and meaningful involvement of every person, regardless of race, color, national origin, income, faith, or disability, regarding the development, implementation, or enforcement of any environmental law, regulation, or policy (VA Code § 2.2-234).
EPRI	Electric Power Research Institute
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
Guidelines	VDHR Guidelines for Assessing Impacts of Proposed Electric Facilities on Historic Resources in the Commonwealth of Virginia (2008)
Hz	hertz
IARC	International Agency for Research on Cancer
IEEE	Institute of Electrical and Electronics Engineers
Incompatible Use	Any structure or activity in close proximity to a transmission line that could interfere with the safe, reliable operation of transmission facilities.
IPaC	Information for Planning and Consultation
IPP	Independent Power Producer
kHz	kilohertz
kV	kilovolt (1,000 volts)
kV/m	kilovolt/meter (a unit of measurement for electric fields)
Land Use	Describes the human use of the land and activities at a given location such as agricultural, residential, industrial, mining, commercial, and recreational uses. It differs from land cover which only describes the physical characteristics (summarized from EPA.gov).
LiDAR	Light Detection and Ranging imagery
mG	milligauss (a unit of measurement for magnetic fields)

MVA	megavolt ampere
MW	megawatt
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NIEHS	National Institute of Environmental Health Services
NLCD	National Land Cover Database
NRHP	National Register of Historic Places
NUG	Non-Utility Generator
ODEC	Old Dominion Electric Cooperative
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.
PJM	PJM Interconnection, L.L.C. - the RTO that coordinates the movement of wholesale electricity in parts of the Northeast, Mid-Atlantic and Midwest
POWER	POWER Engineers, Inc.
Project	Altavista to Leesville Transmission Improvements Project
Project Alternative	An alternative solution the Company's planners reviewed to address the Project needs but dismissed early at the conceptual stage (see Section I.E of the Response to Guidelines).
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.
QF	Qualifying Facilities
Response to Guidelines	Response to "Guidelines of Minimum Requirements for Transmission Line Applications Filed under Title 56 of the Code of Virginia"
ROW(s)	Right(s)-of-Way
RTEP	Regional Transmission Expansion Plan
RTO	Regional Transmission Organization
SCC	Virginia State Corporation Commission
SCENIHR	Scientific Committee on Emerging and Newly Identified Health Risks
SCHEER	Scientific Committee on Health, Environmental, and Emerging 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.
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.
Tap Point	The location where power is tapped from an existing transmission line to source a substation or customer.
TPL	Transmission Planning
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.
Transmission Line Extension	An electric transmission line from a tap point on an existing transmission line to a substation or customer.
U.S.	United States
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDEQ Supplement	The analysis included in this Application, which addresses the environmental and historic features associated with the Project
VDHR	Virginia Department of Historic Resources
VDOT	Virginia Department of Transportation

VOF	Virginia Outdoors Foundation
WHO	World Health Organization
WSP	WSP USA Inc.

EXECUTIVE SUMMARY

Appalachian Power Company ("Appalachian" or "Company"), a unit of American Electric Power Company, Inc. ("AEP"), seeks approval and certification of the Altavista to Leesville Transmission Improvements Project ("Project"), which involves rebuilding and extending certain 138-kilovolt ("kV") transmission lines and circuits owned by the Company to facilitate the interconnection of a 150-megawatt solar generation facility, PJM Interconnection, LLC ("PJM") Queue AE1-250, which will connect to the East Danville – Museville 138-kV Circuit. The Project is located in the Virginia Counties of Pittsylvania and Campbell and the Virginia Town of Altavista. It is classified as a PJM network upgrade project, as opposed to a baseline or supplemental project. This classification reflects the Project's purpose of enhancing the existing transmission system's capability to accommodate new generation resources and improve overall reliability.

With a proposed route of approximately 11 miles long, the Project generally involves:

(a) Rebuilding all of the Altavista – Leesville 138-kV Transmission Line (approximately four miles) and a portion of the Altavista – Lynchburg 138-kV Transmission Line (approximately one mile).

(b) Constructing approximately five miles of new transmission line to extend the Altavista – Leesville 138-kV Transmission Line between structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Leesville Substation.

(c) Relocating approximately one mile of the Opossum Creek – Smith Mountain 138-kV Transmission Line between existing structures 17-180 and 17-186 to create space for the extension of the Altavista – Leesville 138-kV Transmission Line.

The Project will address two critical contingency violations identified in a PJM Impact Study on AE1-250's effect on the existing transmission network and improve the network's overall reliability. The estimated cost of the Project is $45.2 million. Since the Project is classified as a PJM network upgrade project, AE1-250's developer, Virginia Electric and Power Company, is solely responsible for this cost. The proposed in-service date for the Project is November 2027.

To complete the Project, Appalachian will need to acquire new 100-foot-wide right-of-way ("ROW") that is partially overlapping, parallel to, or near existing ROW for approximately six miles of the proposed route. The remaining approximately five miles will be constructed within the Company's existing ROW, though that could change depending on the results of geotechnical and environmental surveys, landowner input, ROW negotiations, and final line design. The width of the ROW may also exceed 100 feet in places depending on safety, engineering, or operational requirements. If existing easement agreements are insufficient for the Project, then the Company plans to acquire supplemental easements.

Based on preliminary engineering, Appalachian anticipates primarily using single-circuit steel H-frame, steel 3-pole, and steel monopole structures for the Project. The anticipated heights of these proposed structures range between 70 and 150 feet above ground, with an average height of 95 feet.

Appalachian hired POWER Engineers, Inc. ("POWER"), to evaluate the existing Altavista – Leesville 138-kV Transmission Line and to conduct a routing study for the transmission line to be rebuilt between the Company's Leesville Substation and the existing Altavista Substation. POWER 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. The Company supports POWER's selection of the proposed route because it maximizes the use of existing ROW easements. On or about December 31, 2025, WSP USA, Inc. ("WSP") merged with POWER. As a result of the merger, studies and reports prepared by POWER have become an obligation of WSP.

In addition to engaging POWER 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. The Company is currently unaware of any opposition to the Project, but it will continue to engage with all affected landowners as the design is completed.

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF

APPALACHIAN POWER COMPANY **CASE NO. PUR-2026-00012**

for Approval and Certification of the Altavista to Leesville 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 Altavista to Leesville Transmission Improvements Project ("Project"). In support of this Application, Appalachian 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. Appalachian proposes to construct, own, operate, and maintain the Project, which involves rebuilding and extending certain 138-kilovolt ("kV") transmission lines and circuits owned by the Company to facilitate the interconnection of PJM Interconnection, LLC ("PJM") Queue AE1-250, a 150-megawatt solar generation facility that will connect to the East Danville – Museville 138-kV Circuit. The Project is located in the Virginia Counties of Pittsylvania and Campbell and the Virginia Town of Altavista. It is needed to address two critical contingency violations identified in a PJM Impact Study on AE1-250's effect on the existing transmission network once put in service and to improve the network's overall reliability. The Project is classified as a PJM network upgrade, rather than a baseline or supplemental project, which

reflects its purpose of enhancing the existing transmission system's capability to accommodate new generation resources and improve overall reliability.

3. The Project includes the following work:

- Rebuild approximately one mile of the existing Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and the Company's Otter Switch.

- Rebuild approximately four miles of the Altavista – Leesville 138-kV Transmission Line between the Altavista Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line.

- Construct approximately five additional miles of transmission line to extend the Altavista – Leesville 138-kV Transmission Line between existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Leesville Substation.

- Relocate approximately one mile of the Opossum Creek – Smith Mountain 138-kV Transmission Line between existing structures 17-180 and 17-186 to make space for the extended Altavista – Leesville 138-kV Transmission Line.

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

4. Appalachian is one of American Electric Power, Inc.'s ("AEP") seven utility units, which collectively provide electric service to over five million customers in 11 different states. Established in 1911, AEP's interconnected transmission system consists of a large and diverse combination of line, station, and telecommunication assets. AEP is obligated to manage and maintain this set of assets to provide a safe, adequate, reliable, flexible, efficient, cost-effective, and resilient transmission system that meets the needs of all customers while complying with standards established by the PJM Regional Transmission Organization and state and federal governments.

5. If approved, the Project would enable Appalachian not only to prevent the identified critical contingency violations related to AE1-250, but also to improve the overall long-term reliability of the Company's transmission system, thereby fulfilling the obligations that the Company and AEP have to their customers.

6. The proposed route of the Project is approximately 11 miles long. It begins at Appalachian's Otter Switch and ends at its Leesville Substation, both of which are located in Campbell County. The proposed filing corridor is typically 300 feet wide, though it expands up to 800 feet wide in places. The 100-foot-wide right-of-way ("ROW") will be located within this corridor depending on final engineering. The width of the ROW may exceed 100 feet in places depending on safety, engineering, or operational requirements.

7. Approximately five miles of the Project will be constructed within the ROW of one of Appalachian's existing transmission lines. The remaining six miles of the Project will be constructed parallel to or near one of Appalachian's existing transmission lines. Where the Project will be rebuilt or constructed following a greenfield alignment, the Company will require new ROW, which generally will be parallel to or overlapping existing ROWs. To the extent that existing easement agreements are insufficient, the Company plans to acquire supplemental easements for this portion of the Project. 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, or widening of the existing ROW, to account for conductor sway, which may also be addressed by acquiring supplemental easements.

8. In support of this Application, Appalachian is filing the testimony of the following professional engineers:

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

(b) Karrah Bouland, P.E., with regard to the transmission line engineering components of the Project.

(c) Mary Berkley, P.E., with regard to electric and magnetic field levels associated with the Project.

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

9. The Company is also filing: (a) Response to Guidelines; (b) a Siting Study and a Virginia Department of Environmental Quality ("VDEQ") Supplement prepared by the Company's siting and environmental consultants, POWER Engineers, Inc. and WSP USA Inc.; and (c) related tables, exhibits, attachments, and maps (including a digital geographic information system ("GIS") constraints map and GIS shapefiles of the Project via electronic filing).

10. Appalachian'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 the Company;

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

(c) The Project will address the identified critical contingency violations related to AE1-250, maintain reliability of the existing transmission network, and support

and facilitate economic development within Pittsylvania and Campbell Counties, the Town of Altavista, and the surrounding region.

11. The proposed in-service date for the Project is November 2027, in order to meet the back feed date of AE1-250's solar generation. Accordingly, the Company asks that the Commission expedite its consideration of this Application to the extent permitted under applicable law.

Appalachian 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;

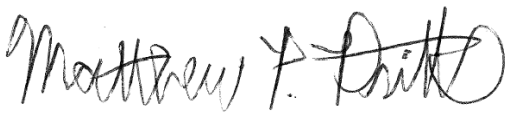
(d) That the Commission determine, as required by Virginia Code §§ 56-46.1 and 265.2, (1) that the Project is needed and that the public convenience and necessity require the construction of the Project by the Company; and (2) that the proposed route for the Project reasonably minimizes adverse impact 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; and

(f) That the Commission grant the Company 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

By: 
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APCo Exhibit No. ___

Witness: NCK

DIRECT TESTIMONY OF
NICOLAS C. KOEHLER, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00012

APCo 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 related to the Altavista to Leesville Transmission Improvements Project ("Project"). I am sponsoring Section I of the Response to Guidelines (Necessity for the Project), including the associated figures, confidential figures, and tables.

The proposed Project involves rebuilding and constructing approximately 11 miles of existing 138-kilovolt ("kV") transmission lines and circuits owned by Appalachian to facilitate the interconnection of PJM Interconnection, LLC ("PJM") Queue AE1-250. PJM Queue AE1-250 is a 150-megawatt ("MW") solar generation facility in Pittsylvania County, which will connect to the East Danville – Museville 138-kV Circuit. The associated PJM Impact Study identified two critical contingency violations once AE1-250 is placed in service. The violations are North American Electric Reliability Corporation ("NERC") Transmission Planning ("TPL") category P4 contingencies. The first contingency involves loss of the 138-kV circuit breaker "D1" at the Opossum Creek Substation. This failure results in the Opossum Creek – Redeye 138-kV Circuit being taken out of service, leading to an exceedance of the summer emergency rating for the Altavista Substation to Otter Switch line section of the Altavista – Lynchburg 138-kV Transmission line by 101.07%. The second contingency involves loss of the 138-kV circuit breaker "A2" at the Cloverdale Substation. This failure results in the Cloverdale – Smith Mountain 138-kV Circuit being taken out of service, leading to an exceedance of the summer emergency rating of the Altavista – Leesville 138-kV Circuit by 100.6%.

To address the critical contingency violations, PJM has identified the following Network Upgrades:

- Network Upgrade ID n6594.1: Required to increase the thermal capacity of the Altavista – Leesville 138-kV Circuit.

- Network Upgrade ID n5613: Required to increase the thermal capacity of the Altavista – New London 138-kV Circuit between the Altavista Substation and Otter Switch.

The purpose of the Project is to address the identified critical contingency violations associated with the AE1-250 interconnection in order to maintain reliability of the existing transmission network that serves customers in the region. The Project is located in Pittsylvania and Campbell Counties, and the Town of Altavista, Virginia.

The desired in-service date for the Project is November 2027. The total estimated cost of the Project is approximately $45.2 million, which will be funded entirely by the generation developer.

DIRECT TESTIMONY OF NICOLAS C. KOEHLER, P.E. FOR APPALACHIAN POWER COMPANY IN VIRGINIA S.C.C. CASE NO. PUR-2026-00012

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 Power Company ("Appalachian" or the "Company"). My business address is 8500 Smiths Mill Road, New Albany, Ohio 43054.

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

A: I received a Bachelor of Science – Electric 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 Power Company 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 the Company's Application to this Commission for approval and certification of the Project. Specifically, the Company proposes to undertake the following work:

- Rebuild approximately one mile of the existing Altavista – Lynchburg 138-kilovolt ("kV") kV Transmission Line between the Altavista Substation and the Company's Otter Switch. The proposed rebuild will be within Appalachian's existing right-of-way ("ROW") and named the Reusens – Altavista 138-kV Transmission Line.
- Rebuild approximately four miles of the Altavista – Leesville 138-kV Transmission Line between the Altavista Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line. The proposed rebuild will be within or near the existing ROW.
- Construct approximately five miles to extend the Altavista – Leesville 138-kV Transmission Line between existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Leesville Substation. Approximately 1.0 mile of the proposed transmission line will be within the Company's existing ROW and the remaining four miles will be constructed parallel to the existing Opossum Creek – Smith Mountain 138-kV Transmission Line.
- Relocate approximately one mile of the Opossum Creek – Smith Mountain 138-kV Transmission Line between existing structures 17-180 and 17-186 to make space for the proposed Altavista – Leesville 138-kV Transmission Line. The existing transmission line is proposed to be relocated approximately 50 feet northwest of the existing Opossum Creek – Smith Mountain 138-kV Transmission Line in partially

new ROW.

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

A: I am responsible for Section I, Necessity for the proposed Project and Exhibit 1, Transmission System Map.

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 proposed Altavista to Leesville Transmission Improvements Project (the "Project") will rebuild and construct roughly 11 miles of existing 138-kV line in Pittsylvania and Campbell Counties and the Town of Altavista to enable interconnection of PJM Queue AE1-250, a 150-megawatt ("MW") solar facility; it is needed to address critical North American Electric Reliability Corporation ("NERC") Transmission Planning ("TPL") P4 contingency violations identified in the PJM Impact Study for PJM Queue AE1-250.

Q. PLEASE DESCRIBE THE RESULTS OF THE PJM IMPACT STUDY AND THE INDENTIFIED CRITICAL CONTIGENCIES.

A: The PJM Impact Study found the existing system would be inadequate under specific NERC TPL Category P4 contingencies associated with the AE1-250 interconnection, resulting in two violations. PJM's modeling shows that a failure of the 138-kV breaker "D1" at the Opossum Creek Substation would take the Opossum Creek – Redeye 138-kV Circuit out of service. Under this post-contingency condition the thermal rating of the

Altavista – Otter 138-kV Circuit is exceeded by 101.07%. PJM's modeling also showed that a failure of the 138-kV breaker "A2" at the Cloverdale Substation would take the Cloverdale – Smith Mountain 138-kV Circuit out of service. Under this post-contingency condition, the thermal rating of the Altavista – Leesville 138-kV Circuit is exceeded by 100.6%. The identified violations represent a significant thermal overload and a reliability and non-compliance risk that must be mitigated before AE1-250 can be interconnected. The proposed Project serves to mitigate the reliability and non-compliance risks associated with these critical contingency violations.

Q: IS THE NEED FOR THE PROJECT DRIVEN BY PRESENT OR PROJECTED LOAD DEMAND?

A: No. The need is not driven by present or projected customer load growth, it is driven by the PJM AE1-250 generation interconnection. The Project is required to mitigate two identified post-contingency violations, meet PJM/NERC planning criteria, and allow the 150-MW solar facility to interconnect without creating an unacceptable reliability risk.

Q: PLEASE DESCRIBE THE OUTAGE CONSTRAINTS FOR THE PROJECT?

A: The existing transmission lines in the Project area are outage constrained and based on preliminary analysis, can only be taken out of service for a limited amount of time; therefore, the Project cannot be rebuilt entirely within the existing ROW. Due to both the overall length of the affected section and the double-circuit configuration of the line, the Opossum Creek – Smith Mountain 138-kV Transmission Line cannot be taken out of service on both circuits except in very short durations and specific seasons. As such, only a short section of that transmission line can be constructed within the existing ROW. The Altavista – Leesville 138-kV Transmission Line and the Altavista Substation to Otter

Switch line section of the Altavista – Lynchburg 138-kV Transmission Line are both single-circuit and, by comparison, shorter than affected section of the Opossum Creek – Smith Mountain 138-kV Transmission Line. As such, these transmission lines can be rebuilt in the existing ROW with the required work being completed during fall and spring outage windows. The Company's outage planners worked with the siting team, including transmission line engineers, to review areas where rebuilding on- and off-centerline could minimize Project risk. See witness Fraser's testimony for information regarding the Proposed Route, which largely rebuilds within or parallel to the existing ROW.

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

A: The proposed in-service date for the Project is November 2027. This will allow the Company to meet the back feed date of the AE1-250 solar generation facility.

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

A: The total estimated cost of the Project is $45.2 million.

Q: DOES THIS CONCLUDE YOUR TESTIMONY?

A: Yes.

APCo Exhibit No. ____
Witness: KB

DIRECT TESTIMONY OF
KARRAH BOULAND, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00012

APCo Exhibit No. ____
Witness: KB

SUMMARY OF DIRECT TESTIMONY OF KARRAH BOULAND, P.E.

My direct testimony supports the transmission line engineering aspects of Appalachian Power Company's ("Appalachian" or "the Company") Application and Response to Guidelines related to the Altavista to Leesville 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.
- Confidential Exhibit 3-C: Existing and Proposed Transmission Line Circuit Configurations.
- Exhibits 5 through 12: Existing and Proposed Transmission Line Structures.
- Confidential Exhibit 13-C: Construction and Outage Sequence.
- Confidential Exhibit 14-C: Digital copy of the Virginia Department of Transportation General Highway Maps for Campbell and Pittsylvania Counties 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 rebuilding the Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and the Company's Otter Switch, rebuilding the Altavista – Leesville 138-kV Transmission Line between the Altavista Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line, extending the Altavista – Leesville 138-kV Transmission Line between existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Leesville Substation, and relocating the Opossum Creek – Smith Mountain 138-kV Transmission Line approximately 50 feet north of its current alignment between existing structures 17-180 and 17-186.

My testimony also describes the existing and proposed transmission lines and circuits in the Project area. My testimony further summarizes the quantities, types, and height ranges of transmission structures that will be used for the Project. Approximately five miles of the Project's single-circuit transmission lines will be constructed within existing rights-of-way ("ROWs") in select areas. The remaining approximately six miles will be constructed in new ROW that is located generally parallel, partially overlapping, or near to existing Company transmission lines to minimize the duration of circuit outages.

DIRECT TESTIMONY OF KARRAH BOULAND, P.E. FOR APPALACHIAN POWER COMPANY IN VIRGINIA S.C.C. CASE NO. PUR-2026-00012

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

A: My name is Karrah Bouland and my job title is Technical Director, Civil Engineering in the Power & Energy Division of WSP USA Inc. ("WSP"). My business address is 1955 Sharonview Way, Suite 120, Indian Land, SC 29707. Effective on or about December 31, 2025, POWER Engineers, Inc. ("POWER") was merged with and into its affiliate WSP. As a result of the merger, WSP succeeded to all of POWER's rights and obligations by operation of law, which immediately became an obligation of WSP. As a result of the merger, studies and reports prepared by POWER have become an obligation of WSP.

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

A: I graduated from the University of North Carolina at Charlotte with a Bachelor of Science in Civil Engineering with an emphasis on Structural Engineering. I am a licensed professional engineer in the Commonwealth of Virginia. I worked for three years as a part-time engineering intern and in 2012 I was hired as a full-time transmission engineer at POWER. I was responsible for engineering and oversight of 69-kilovolt ("kV") through 500-kV transmission line projects, including new lines, rehabs, rebuilds, and temporary configurations. My capabilities include route design, siting, constructability

reviews, structure spotting, structure design, and foundation design. I now have the same role for WSP.

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 Altavista to Leesville Transmission Improvements Project (the "Project"). 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 the Owner's Engineer for the Company, my primary duties involve oversight of the engineering, design, material procurement, and other technical requirements associated with the construction of transmission lines related to the Project.

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.
- Confidential Exhibit 3-C: Existing and Proposed Transmission Line Circuit Configurations.
- Exhibits 5 through 12: Existing and Proposed Transmission Line Structures.

- Confidential Exhibit 13-C: Construction and Outage Sequence.
- Confidential Exhibit 14-C: Digital copy of Virginia Department of Transportation General Highway Maps for Campbell and Pittsylvania Counties 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 or parallel to a transmission right-of-way ("ROW") from an engineering and constructability standpoint. For more information on the route review process, please see Company witness Fraser's direct testimony.

Q: PLEASE DESCRIBE THE PROPOSED TRANSMISSION LINE AND CIRCUIT WORK.

A: The Company proposes the following transmission line and circuit work (see Exhibit 3-C):

- Rebuild the Altavista Substation to Otter Switch line section of the Altavista –

Lynchburg 138-kV Transmission Line which supports the Altavista – New London 138-kV Circuit. This proposed rebuild is approximately one mile long and will be entirely within the existing ROW. The wires and structures for this rebuild will be part of the Reusens – Altavista 138-kV Transmission Line, though the circuit name will remain unchanged.

- Rebuild the Altavista – Leesville 138-kV Transmission Line, which supports a portion of the Altavista – Leesville 138-kV Circuit, between the Altavista Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line. This proposed rebuild is approximately four miles long and will be largely within the existing ROW.
- Relocate approximately one mile of the Opossum Creek – Smith Mountain 138-kV Transmission Line, which currently supports the Opossum Creek – Redeye 138-kV Circuit and the Altavista – Leesville 138-kV Circuit in this line section, approximately 50 feet northwest of its current location between existing structures 17-180 and 17-186. This proposed relocation will be in partially new ROW. Following this relocation, this line section Opossum Creek – Smith Mountain 138-kV Transmission Line will be bifurcated to support a single-circuit six-wired Opossum Creek – Redeye 138-kV Circuit and the Altavista – Leesville 138-kV Circuit will be moved to new structures, described below.
- Construct approximately five miles to extend the Altavista – Leesville 138-kV Transmission Line, which will support the Altavista – Leesville 138-kV Circuit, between existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Leesville Substation. Approximately one mile of

this proposed extension will be constructed in the existing ROW of the relocated Opossum Creek – Smith Mountain 138-kV Transmission Line. The remaining four miles of this proposed extension will be constructed parallel to the Opossum Creek – Smith Mountain 138-kV Transmission Line in new ROW.

- Reconnect the relocated Opossum Creek – Smith Mountain 138-kV Transmission Line to the Redeye Extension 138-kV Transmission Line at existing structure 1351-1. The Redeye – Opossum Creek 138-kV Circuit will connect to the Redeye Extension 138-kV Transmission Line from proposed structure 17-184B to existing structure 1351-1. The Redeye – Smith Mountain 138-kV Circuit will connect to the Redeye Extension 138-kV Transmission Line from proposed structure 17-185A to existing structure 1351-1.
- Reconnect the Opossum Creek – Smith Mountain 138-kV Transmission Line at existing structures 17-180 and 17-186 to the relocated line section of the Opossum Creek – Smith Mountain 138-kV Transmission Line at proposed structures 17-181A and 17-185A, respectively.
- Terminate the extended Altavista – Leesville 138-kV Transmission Line, which supports the Altavista – Leesville 138-kV Circuit, into the Leesville Substation. This will require removing one span of wire between existing structure 259-203 on the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Leesville Substation.

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 low-reflective

(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 H-frame and three-pole structures for the proposed single-circuit Altavista – Leesville 138-kV Transmission Line. On the Altavista – Lynchburg 138-kV Transmission Line, Opossum Creek – Smith Mountain 138-kV Transmission Line, and sections of the Altavista – Leesville 138-kV Transmission Line, the Company anticipates using single-circuit steel monopole structures with braced posts or davit arms. The proposed structures are shown in detail in Exhibits 8 to 12 and the proposed transmission line circuit configurations are shown in Confidential Exhibit 3-C.

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

A: The proposed structures between the Altavista Substation and Structure 17-181 will be approximately 31 feet taller on average than the existing structures. The proposed structures between the Altavista Substation and Otter Switching Station will be 12 feet taller on average than the existing structures. The proposed structures are taller than the existing structures to meet current electrical clearance requirements. Where existing and proposed structure locations are not immediately adjacent, additional height may be needed to meet clearances in hilly terrain.

The proposed structures between existing structure 17-181 and structure 17-185 will be approximately nine feet shorter on average than the existing structures. The decrease in structure height is mainly due to the existing structures being vertically configured

double-circuit lattice towers and the proposed structures being horizontally configured single-circuit monopole structures.

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

A: Galvanized steel structures are a proven, durable, reliable, cost-effective, and efficient structure 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 and minimize the 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: WILL THE COMPANY EMPLOY LOW-COST AND EFFECTIVE MEANS TO IMPROVE THE AESTHETICS OF THE PROPOSED TRANSMISSION LINE?

A: The proposed structures are to be located in or near the existing ROW, similar in character to the existing structures therefore, aesthetic impacts are expected to be minimal. The Company chose galvanized steel for the proposed structures due to its durability and proven reliability in this region. A low-reflective (dulled) finish is used to reduce the visual presence of the new structures.

Q: WHAT IS YOUR OPINION ON THE PROPOSED ROUTE?

A: The engineering team supports the Siting Team's conclusion that the Proposed Route for the Project – which mainly uses the existing ROW, partially overlapping ROW, or ROW located parallel thereto due to outage constraints – 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 engineering team reasonably expects that it will be able to efficiently and effectively engineer, build, operate, and maintain the transmission line with minimal adverse impacts on the environment.

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

A: The ROW for the Project will generally be 100 feet wide in areas of new, supplemental, or existing easements.

Q: IS THERE ANY PART OF THE PROJECT THAT MAY REQUIRE MORE THAN A 100-FOOT-WIDE ROW?

A: Yes. Between existing structure 17-181 and 17-185, the Opossum Creek – Smith Mountain 138-kV Transmission Line will be relocated approximately 50 feet northwest of its current alignment to accommodate the construction of the extended Altavista – Leesville 138-kV Transmission Line. In this area, the two transmission lines will be constructed in a combined, approximately 150-foot-wide ROW. In addition, the ROW could be more than 100 feet wide in some locations, as needed to ensure compliance with safety requirements such as clearance for conductor sway to avoid encroachments and vegetation in long spans or as needed for the guy wires to support certain structures.

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 state's "General Permit for Discharges of Stormwater from Construction Activities." Additionally, portions of the line that are located in new ROW 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 13-C.

Q: DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A: Yes.

Exhibit No.___
Witness: MB

DIRECT TESTIMONY OF
MARY BERKLEY, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00012

Exhibit No.___
Witness: MB

SUMMARY OF DIRECT TESTIMONY OF MARY BERKLEY, P.E.

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 Altavista to Leesville Transmission Improvements Project (the "Project") involves rebuilding and constructing approximately 11 miles of 138-kilovolt ("kV") transmission lines. Assuming a 100-foot-wide right-of-way ("ROW"), my testimony summarizes the maximum electric and magnetic field ("EMF") levels expected to occur at the edge of the Project's 138-kV transmission line ROW. The maximum expected EMF levels at the edge of the ROW for this Project are 0.7 kilovolts per meter ("kV/m") and 52 milligauss ("mG"), as described in the testimony. The maximum existing EMF levels for the existing structures are 0.6 kV/m and 53 mG.

The maximum EMF levels, detailed in Section IV of the Response to Guidelines, for the proposed transmission line 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
MARY BERKLEY, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00012

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

A: My name is Mary Berkley. I am Director of Transmission Planning 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 CURRENT POSITION.

A: I received a Bachelor of Science and a Master of Science degree, both in Electrical Engineering, from The Ohio State University. I am a licensed professional engineer in the state of Ohio. My current position with AEPSC is Director of Transmission Planning. I joined AEPSC in 2016 as an Engineer Intern. In 2017, I became an Engineer Associate and then in 2019, I became an Engineer. Two years later, in 2021, I was promoted first to Senior Engineer and then to Supervisor. In 2024, I was promoted to Manager, and 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 electric and magnetic fields ("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 EMF 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 kilovolts per meter ("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 milligauss ("mG"). The EMF 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 over nine years of experience conducting, managing, and directing 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 congestion analysis, and for development and implementation of advanced technologies. I was an adjunct faculty member at The Ohio State University in Power Systems in 2019 and have spent three years leading the System Performance Analysis team of experts who perform EMF calculations and analysis at AEP.

Q: MS. BERKLEY, WHAT ARE THE CALCULATED MAXIMUM EMF LEVELS ASSOCIATED WITH THE PROPOSED 138-kV 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 and one existing double-circuit transmission line, and extending one existing single-circuit transmission line. The Project will result in three new or rebuilt single-circuit transmission lines. Assuming a 100-foot-wide right-of-way ("ROW"), the maximum EMF levels expected to occur at the edge of the ROW for the proposed Project are 0.7 kV/m and 52 mG, respectively. For an illustration of the Existing and Proposed Transmission Line Circuit Configurations for this Project, please see Confidential Exhibit 3-C in Volume 2. The maximum existing EMF levels for the existing structures on the rebuilt single-circuit transmission lines are 0.6 kV/m and 53 mG, respectively.

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 0.7 kV/m and 52 mG (assuming a 100-foot-wide ROW). Both 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 C95.1™-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 138-kV transmission lines, and the fact that the calculated maximum EMF levels at the edges of the ROW for the proposed line 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.

APCo Exhibit No. ____
Witness: DF

DIRECT TESTIMONY OF
DANIEL FRASER, P.E.
FOR APPALACHIAN POWER COMPANY
IN VIRGINIA S.C.C. CASE NO. PUR-2026-00012

APCo 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 the "Company") Application and Response to Guidelines for the Altavista to Leesville 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 2: Project Overview Map
- Exhibit 4: GIS Constraints Map
- Exhibit 15: Photo Simulations
- Exhibit 16: Public Notice Map
- Altavista to Leesville Transmission Improvements Project Siting Study (the "Siting Study")
- Virginia Department of Environmental Quality Supplement (the "VDEQ Supplement")

My testimony describes the process followed by the Siting Team, which included representatives from the Company and outside consultants, to identify the Proposed Route for the Project. Additionally, my testimony describes the rebuild of an approximately one-mile-long portion of the Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and the Company's Otter Switch that will occur entirely within Company owned right-of-way ("ROW").

The Siting Team used a traditional siting methodology that identified constraints and opportunities, evaluated the feasibility of rebuilding the transmission line within the existing ROW, gathered and incorporated feedback from stakeholders and landowners, conducted field reviews and analysis of alternative routes, and identified a Proposed Route. The Siting Study found that the Proposed Route for the Project is the most suitable alignment and reasonably avoids or minimizes adverse impacts to the human and natural environments by largely rebuilding within or near an existing transmission line ROW.

The Siting Team 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. My testimony describes the analysis performed to identify environmental justice communities, as defined in the Virginia Environmental Justice Act (§ 2.2-234 *et seq.* of the Code of Virginia) which found that the Project is not anticipated to have a disproportionately high or adverse impact on environmental justice communities. Additionally, the Company will continue to engage with all affected landowners throughout engineering and construction.

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-2026-00012

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

A: My name is Daniel Fraser and I am a Project Manager in the Earth and Environment business unit of WSP USA Inc. ("WSP"). My business address is 6641 West Broad Street, Suite 405, Richmond, Virginia 23230. Effective on or about December 31, 2025, POWER Engineers, Inc. ("POWER") was merged with and into its affiliate WSP. As a result of the merger, WSP succeeded to all of POWER's rights and obligations by operation of law, including the Agreement which immediately became an obligation of WSP.

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

A: Yes. POWER is an engineering and environmental consulting firm with about 4,000 employees across North America, including in Richmond, Virginia. POWER specializes in integrated solutions for clients in the power delivery, power generation, food and beverage, government, renewables and storage, campus energy, and oil and gas industries. POWER has successfully sited and/or permitted hundreds of transmission line projects covering thousands of miles of high-voltage transmission lines and associated facilities. Staff have extensive experience in the Commonwealth of Virginia and have previously supported or provided written testimony to this Commission for ten Appalachian Power Company ("Appalachian" or the "Company") projects, including:

- Abingdon 138-kilovolt ("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 a witness for the route development process and environmental analysis of the Company's applications for the Abingdon 138-kV Substation Transmission Project and the 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 development process and environmental analysis completed for the Altavista to Leesville Transmission Improvements Project ("Project") as part of the Company's Application to the Commission.

Q: WHICH SPECIFIC MATERIALS ARE YOU SPONSORING?

A: In Volume 1 of the Application, I am sponsoring:

- Sections II.A.1, 2, 3, and 9, Section III, and Section V of the Response to Guidelines
- Exhibit 2: Project Overview Map
- Exhibit 4: GIS Constraints Map
- Exhibit 15: Photo Simulations
- Exhibit 16: Public Notice Map
- Altavista to Leeville Transmission Improvements Project Siting Study (the "Siting Study")
- Virginia Department of Environmental Quality Supplement (the "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 SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A: I received a Bachelor of Science degree in Civil Engineering from Clemson University. I am a licensed professional engineer in the state of South Carolina. In 2016, I joined POWER as a transmission line engineer and have held various roles in transmission line engineering, environmental planning, and project management. In these roles, I have supported electric transmission projects in Florida, Indiana, Kentucky, Ohio, South Carolina, Tennessee, Texas, Virginia, West Virginia, and Maryland. Since 2021, I have overseen the work of POWER's technical staff members who are responsible for routing and siting transmission lines and substations, engaging stakeholders and landowners, and permitting electric transmission projects. I now have the same role for WSP.

Q: SPECIFICALLY, HOW IS THIS PRIOR EXPERIENCE APPLICABLE TO THE CURRENT PROJECT?

A: My experience engineering and siting electric transmission facilities has equipped me to determine the information and analyses necessary to develop a feasible transmission line route that minimizes impacts to the natural and human environments. I have an understanding of the opportunities and constraints, such as existing infrastructure, existing and future land uses, visual, recreational, and cultural resources, terrain, and geologic formations, which are common within the Project area. I have executed routing and siting studies for projects that crossed various land use types, including developed (densely populated or planned for development) and undeveloped (agricultural, forested, or mountainous) areas. I have applied this experience to the Project which crosses both developed and undeveloped areas in the Town of Altavista and Campbell and Pittsylvania

Counties, Virginia.

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

A: The Company retained POWER to evaluate the existing Altavista – Leesville 138-kV Transmission Line, complete a routing study, and evaluate the Proposed Route for the Project. As POWER's Project Manager, I led the Siting Team by planning and overseeing the following general activities:

- Identifying constraints and opportunities within the Project area.
- Incorporating feedback received from stakeholders and landowners within the Project area.
- Conducting field reviews and comparative analysis of study segments and alternative routes.
- Selecting 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, POWER, 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, which encompasses an approximately 27 square mile area in Campbell and Pittsylvania Counties and the Town of Altavista, 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. The Siting Study is included in Volume 1 of the Application.

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, which suggest that existing ROWs should be given priority when adding new transmission line facilities. 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 CONSTRAINTS AND OPPORTUNITIES ANALYSIS USED BY THE SITING TEAM.

A: Using available public data and the Company's technical routing criteria, the Siting Team identified constraints and opportunities within the Project study area. Constraints are specific areas that should be avoided to the extent practical during the route development process and opportunities are existing features of similar use that can be paralleled. The primary constraints for the Project were residential and commercial development in close proximity to existing transmission lines, specifically in the Town of Altavista, local and state conservation easements, existing high-voltage transmission lines, and the Roanoke River, a portion of which is designated as a Wild and Scenic River by the Virginia Department of Conservation and Recreation. The main opportunity features to parallel

within the study area were existing transmission line and transportation corridors, such as the Opossum Creek – Smith Mountain 138-kV Transmission Line, the Altavista – Leesville 138-kV Transmission Line, and U.S. Highway 29.

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

A: After identifying the constraints and opportunities within the Project study area, the Siting Team's methodology began by reviewing the existing ROWs and outage requirements with the Company's outage planners. During this initial review, it was determined that the section of the Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and the Company's Otter Switch could be constructed entirely within existing ROW during a single outage season. The transmission lines between the Altavista and Leesville Substations, however, are outage constrained, requiring a wider review of the Project study area in order to develop off centerline conceptual routes. These conceptual routes utilized the northern, southern, and central portions of with a review of existing ROWs and associated outage requirements with the Company's planners as summarized in Section II.A.9 of the Response to Guidelines. During this review, it was determined that duration of double-circuit electrical outages on the Opossum Creek – Smith Mountain 138-kV Transmission Line should be minimized (see Company witness Bouland's testimony). As such, rebuilding the Altavista – Leesville 138-kV Circuit on the Opossum Creek – Smith Mountain 138-kV Transmission Line entirely within the existing ROW was not a feasible solution for the Project. Company outage planners and transmission line engineers determined, however, that the Altavista – Leesville 138-kV Transmission Line could be rebuilt within existing ROW

during a single outage season. Following this assessment, the Siting Team developed a network of study segments comprised of study segments that utilize existing centerlines and ROWs, study segments that parallel an existing transmission line, and greenfield study segments.

Next, the Company engaged stakeholders, including local officials, and the communities crossed by the Project to gather feedback on the Project and study segments. Based on the feedback received and field reconnaissance, the Siting Team refined the study segments and developed alternative routes in the Project study area. The alternative routes were evaluated using a qualitative and quantitative analysis to compare potential impacts to the natural and human environment, land use and local communities, constructability, and engineering considerations. Finally, an alternative route was selected as the Proposed Route for the Project.

Q: WHY WERE ALTERNATIVE ROUTES NOT DEVELOPED FOR THE ALTAVISTA SUBSTATION TO OTTER SWITCH LINE SECTION OF THE ALTAVISTA – LYNCHBURG 138-KV TRANSMISSION LINE?

A: During the early stages of the Project, it was determined by Company transmission line engineers that the section of the Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and Otter Switch could be rebuilt entirely within the existing ROW within a single outage. This is possible due to the Company being able to deenergize the transmission line between Otter Switch and the Altavista Substation, while allowing the rest of the transmission line, and the Lynch Substation which is located adjacent to Otter Switch, to remain energized. During this outage period, the Altavista Substation will remain energized via a radial feed from the Altavista – Leesville 138-kV

Transmission Line.

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

A: Yes. The Siting Team's siting methodology evaluated constraint and opportunity areas within the entire Project area, which encompasses developed residential communities near the Town of Altavista as well as open agricultural fields, farmland, and forested areas with scattered residential and commercial development in Campbell and Pittsylvania Counties. The Siting Team also considered the feedback received from the community to determine where it was most practicable to rebuild the transmission line within, parallel to, or near the existing ROW while balancing engineering and outage requirements.

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

A: A typical 100-foot-wide ROW will be sited within an approximately 300-foot-wide filing corridor which will be expanded up to 800 feet in three areas as shown in Exhibit 4 (the "Filing Corridor"). 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 100 feet in either direction from the proposed centerline to optimize structure locations and accommodate landowner discussions. The Filing Corridor for the Project is depicted in Exhibit 4.

Because engineering is preliminary and field surveys have not yet been completed, the Filing Corridor is expanded in three locations. Two of the expanded

corridor locations are where two transmission lines are parallel to each other. Expanding the filing corridor in these locations allows the Company the flexibility for further discussions with affected landowners and additional surveys and engineering. The third location where the Filing Corridor is expanded is where the Proposed Route crosses U.S. Highway 29. The corridor is expanded in this location to include the existing crossing of U.S. Highway 29 by the Altavista – Leesville 138-kV Transmission Line. This expansion allows the Company the flexibility for further discussions with affected landowners and additional surveys and engineering to minimize potential impacts of the route diversion. As such, the filing corridor must be expanded to allow for flexibility in structure and line placement during final engineering to ensure operation safety standards are maintained. The final line route and structure locations will be determined after additional studies including, but not limited to, ground surveys, geotechnical and environmental studies, and additional interviews with landowners are completed.

Q: ARE THERE AREAS WHERE THE TRANSMISSION LINE CAN BE REBUILT WITH AN EXISTING ROW?

A: Yes. In total, approximately five miles of the approximately 11-mile-long Project (about 45%) is proposed to be rebuilt within the existing ROWs of the Altavista – Lynchburg 138-kV Transmission Line, the Altavista – Leesville 138-kV Transmission Line, and the Opossum Creek – Smith Mountain 138-kV Transmission Line to minimize new impacts to natural resources and residential development. Due to outage constraints along the double-circuit portion of the Opossum Creek – Smith Mountain 138-kV Transmission Line associated with electrical generation at Leesville Dam, the Altavista – Leesville 138-kV Circuit cannot be built entirely within the existing ROW. Therefore, the Siting

Team maximized using the existing ROW where feasible. These locations are discussed in more detail below.

Departing the Altavista Substation toward the north, the Proposed Route uses the existing ROW of the Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and the Company's Otter Switch. Company transmission line engineers and outage planners deemed this line section able to be constructed during a single outage window, allowing for the full reuse of the existing ROW, thereby limiting impacts to the surrounding human and natural environments.

Departing the Altavista Substation toward the west, the Proposed Route uses large portions of the existing Altavista – Leesville 138-kV Transmission Line ROW to connect to the Opossum Creek – Smith Mountain 138-kV Transmission Line near existing structure 17-181. Company transmission line engineers and outage planners determined that this portion of the Project could also be constructed during a single outage window, allowing for a near complete reuse of the existing ROW. As such, impacts to the surrounding community and natural environment are limited. Approximately 0.4 miles of the existing transmission line in this section will not be rebuilt within the existing ROW. This portion of the rebuild is detailed in the following question and answer.

The Proposed Route will utilize the existing ROW of the Opossum Creek – Smith Mountain 138-kV Transmission Line between existing structures 17-181 and 17-185. To accommodate the Proposed Route in this area, the Opossum Creek – Smith Mountain 138-kV Transmission Line will be relocated approximately 50 feet to the northwest in a new and adjoining ROW. This reconfigured portion of the Opossum Creek – Smith

Mountain 138-kV Transmission Line is part of the Proposed Route. More details on this reconfiguration are outlined in the following question and answer.

This reconfiguration of an existing transmission line to accommodate the Proposed Route was deemed feasible by Company transmission line engineers and outage planners and was determined to be the favorable alternative to adding two new greenfield transmission line crossings of the Roanoke River.

Q: PLEASE DESCRIBE THE PORTIONS OF THE TRANSMISSION LINE THAT WILL BE BUILT PARALLEL OR NEAR AN EXISTING ROW.

A: A total of approximately six miles of the Proposed Route for the Project is parallel to or near an existing transmission line ROW to minimize the duration of the double-circuit electrical outages that would be needed to rebuild the transmission line in the existing ROW. Along the Altavista – Leesville 138-kV Transmission Line rebuild section, the Proposed Route deviates from the existing transmission line ROW to avoid placing structures in Virginia Department of Transportation ("VDOT") ROW around the U.S. Highway 29 and State Route 626 (Lynch Mill Road) interchange. As outlined in the question and answer above, a portion of the Proposed Route will be built within the existing ROW of the Opossum Creek – Smith Mountain 138-kV Transmission Line, requiring the existing transmission line to be relocated approximately 50 feet to the northwest in new adjoining ROW. Existing structures 17-180 and 17-186 will be reconnected to the reconfigured portion of the Opossum Creek – Smith Mountain 138-kV Transmission Line, leaving the existing structures to the north and south along the transmission line unmodified. This reconfiguration will allow the Altavista – Leesville 138-kV Transmission Line and the Opossum Creek – Smith Mountain 138-kV

Transmission Line to be constructed in parallel and slightly overlapping ROWs, limiting impacts to landowners that are already crossed by the existing alignment of the Opossum Creek – Smith Mountain 138-kV Transmission Line. Additionally, this reconfiguration allowed the Company to avoid constructing two greenfield transmission line crossings of the Roanoke River and to avoid steep topography along the banks of the Roanoke River. Between existing structure 17-185 on the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Leesville Substation, the Proposed Route will parallel the Opossum Creek – Smith Mountain 138-kV Transmission Line to the south in adjoining ROWs. Constructing parallel to the Opossum Creek – Smith Mountain 138-kV Transmission Line allows the Proposed Route to limit impacts to the natural environment, such as crossing the Roanoke River at the location of an existing transmission line crossing, and limit further impacts to the human environment, such as crossing landowners who already have transmission line easements on their property. Refer to Exhibit 4 GIS Constraints Map for a depiction of the portions of the Proposed Route that deviate from the existing ROW. Where the Proposed Route is parallel to the existing transmission line, the existing and proposed ROWs are typically expected to be adjacent to each other. Refer to Company witness Bouland's testimony for additional information.

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, develop routes, 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 October 2024, the Company virtually met with local officials from Campbell and Pittsylvania Counties and the Town of Altavista to introduce the Project and obtain information to aid the route planning process. On October 23, 2024, the Siting Team contacted 36 representatives from local, state, and federal agencies as part of the data collection effort. Twenty responses from ten agencies were received. Copies of the agency letters, contact list, and correspondence are included in Attachment D to the Siting Study in Volume 1 of this Application.

On October 23, 2024, the Company announced the Project to the public and invited landowners to attend an in-person open house in the Project area or to view the virtual open house on the Project website. Notifications and open house invitations were mailed to 527 landowner addresses for properties within 500 feet of a study segment to promote the open house. Following feedback received after the initial in-person open house, the Company chose to host a second in-person open house to allow landowners to gain more information on the Project. To inform the community of the second in-person open house, notifications and open house invitations were again mailed to 527 landowner addresses for properties within 500 feet of a study segment to promote the second open house. Additionally, 240 doorhangers were distributed in the Windsong Drive and Northgate Road neighborhoods as these neighborhoods were identified as potentially not receiving the invitation for the first in-person open house. Following the open houses, the Siting Team corresponded with potentially affected landowners throughout 2024 and 2025 to gather additional feedback from the public.

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

A: Based on the size of the Project area, the Company initially elected to host one in-person open house in the Project area to gather landowner and community feedback. The first open house was held on November 13, 2024, from 5:00 to 7:00 p.m. at Altavista Elementary School (2190 Lynch Mill Road, Altavista, VA 24517). Following the first in-person open house, community members encouraged the Company to host a second in-person open house to allow landowners to gain more information on the Project. Additionally, some landowners reported not receiving the mailed notices announcing the in-person open house. Following this feedback, a second in-person open house was hosted on January 21, 2025, from 5:00 to 7:00 p.m. at the Altavista Area YMCA (718 7th Street, Altavista, VA 24517). At the open houses, representatives from the Siting Team provided information about the Project and were available to answer questions and collect comments. Study segments were displayed on printed maps at a scale of 1 inch equal to 200 feet for the public to view; comments from the community were recorded directly on the maps or on comment cards that were made available at the open houses. Additionally, the public was invited to review Project information and comment electronically through a virtual open house on the Project website. Many of the comments received from the public noted concerns over potential impacts to property values, specific features on landowners' properties, such as streams, barns, and wildlife, and feedback on the study segment locations. In total, 154 people attended the in-person open houses and 52 comments were received via comment cards, emails, or phone calls.

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 ("ACS") 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 five census tracts within one mile of the Project. These five census tracts are composed of nine CBGs. Applicable demographic data for the five census tracts and nine CBGs is provided in Section 4.2.6 of the Siting Study. Each of the five census tracts within one mile of the Project exceed the threshold of the EJ community criteria for low-income community set by the Commonwealth. Of these five census tracts, three are crossed by the Proposed Route. At the time of analysis, income data was only available at the census tract level. As such, CBGs were not analyzed for meeting low-income criteria. However, demographic data was available at the CBG level, allowing for a more resolute analysis. Of the nine CBGs located within one mile of the Project, two exceed the threshold of the EJ community for a population of color as defined by the Commonwealth. Of these two CBGs, one is crossed by the Proposed Route.

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 parallel to or near an existing transmission line ROW within these communities and other, non-EJ communities.

Relocating the Project from its current location would result in crossing other similar EJ communities and would not reduce or minimize potential impacts to the communities. 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 ENVIRONMENTAL JUSTICE COMMUNITIES AND OTHERS AFFECTED BY THE PROPOSED REBUILD PROJECT IN A MANNER THAT ALLOWS THEM TO MEANINGFULLY PARTICIPATE IN THE PROJECT?

A: Yes. The Company undertook multiple activities to encourage the meaningful engagement of all communities affected by the Project, including EJ communities. On two occasions, the Siting Team mailed notifications to 527 addresses inviting the public to provide feedback at an in-person open house, by mail, via the website, or by telephone. Additionally, 240 doorhangers were delivered in targeted neighborhoods to ensure that community members were informed of their invitation to the second in-person open house. 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: HOW DID THE SITING TEAM USE STAKEHOLDER AND PUBLIC INPUT DURING THE ROUTE DEVELOPMENT PROCESS?

A: Stakeholder and community feedback received by the Siting Team informed the route development at various stages of the process. Recommendations provided by state agencies, such as avoiding placing transmission structures in Virginia Department of Transportation ROW, were accommodated where reasonable. Where practical, study segments were refined to minimize impacts to affected landowners and avoid additional constraints identified by stakeholders and landowners. Alternative routes were evaluated considering specific comments from affected landowners.

Q: HOW DID THE SITING TEAM USE FIELD REVIEWS DURING THE ROUTE DEVELOPMENT PROCESS?

A: On multiple occasions, I reviewed accessible portions of the existing transmission line ROWs and Project area with members of the Siting Team. During these field reviews, the Siting Team confirmed the desktop constraint and opportunity data, evaluated potential structure locations, and reviewed specific locations of interest identified by the public.

Q: PLEASE COMPARE THE ALTERNATIVE ROUTES FOR THE PROJECT.

A: Considering the stakeholder feedback received, the study segments for the Project were refined and three alternative routes were developed. Alternative Route A generally uses or parallels an existing transmission line ROW to minimize environmental impacts, requiring the least amount of new ROW and impacting the least new landowners. However, Alternative Route A is the longest of the alternative routes at approximately 11.0 miles long. Alternative Route B is the shortest alternative route at approximately 9.6 miles long and uses a mix of existing ROW and new ROW, which helps to mitigate

impacts to the surrounding community and environment, though it introduces two new transmission line crossings of the Roanoke River. Alternative Route C is approximately 9.9 miles long and requires the most new ROW. While large portions of Alternative Route C cross undeveloped land, Alternative Route C adds two new transmission line crossings of the Roanoke River and bisects two residential neighborhoods in the Town of Altavista.

Q: WHICH ALTERNATIVE ROUTE WAS SELECTED?

A: The Siting Team selected Alternative Route A as the Proposed Route because it parallels or uses an existing ROW for its entire length. Paralleling or using an existing ROW minimizes potential new impacts to the surrounding communities and avoids new impacts to natural resources such as the Roanoke River. Though the longest in length, Alternative Route A minimizes new impacts to the human and natural environments and was generally supported by public input.

Q: PLEASE DESCRIBE THE PROPOSED ROUTE.

A: The Proposed Route for the Project is approximately 11 miles long between the Company's Otter Switch and the Leesville Substation, both of which are located in Campbell County. The Proposed Route is largely within, near, or parallel to an existing transmission line ROW to minimize impacts to the human and natural environments. Approximately five miles of the Proposed Route will be built with an existing ROW to minimize new impacts to natural resources and residential development. The remaining six miles of the Proposed Route is parallel to or near an existing transmission line ROW, also in an effort to reduce impacts to the surrounding human and natural environments.

The Proposed Route is further described in Section V of the Response to Guidelines and depicted in Exhibit 16.

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

A: There are no known conservation easements crossed by the Project.

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

A: In March of 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. After reviewing cultural resources for radial buffers of 0.5, 1.0, and 1.5 miles from the proposed ROW for the Project, WSP determined that there are no National Register of Historic Places ("NRHP") listed or eligible to be listed resources that will be crossed by the Project. Three archaeological resources are crossed by the proposed ROW for the Project, though all three resources have either not been formally evaluated by VDHR for NRHP-eligibility, or have been previously determined to be not eligible for NRHP listing by the VDHR.

Three NRHP listed resources, the Leesville Dam Archaeological Site (VDHR ID #44PY0030), Mount Airy (VDHR ID #009-0221), and Avoca (also referred to as the Col. Charles Lynch Homesite [VDHR ID #015-0378]) are located within 1.0 mile of the proposed ROW for the Project. The Leesville Dam Archaeological Site and Mount Airy are separated from the Proposed Route by approximately 0.5 miles and 1.0 mile, respectively. Both resources' viewshed of the Project are of where the Proposed Route

will be constructed in parallel to the existing Opossum Creek – Smith Mountain 138-kV Transmission Line, thereby limiting changes to the established viewshed of both resources. Avoca, also known as the Col. Charles Lynch Homesite, is located approximately 0.5 miles east of the Proposed Route in the Town of Altavista. Where the Project is visible to this resource the Proposed Route will be constructed within the existing ROWs of the Altavista – Leesville 138-kV Transmission Line and the Altavista – Lynchburg 138-kV Transmission Line. Additionally, this resource is currently located in close proximity to modern industrial sites, such as Abbott Laboratories and the Altavista Plant, indicating that the construction of the Proposed Route will not alter the established viewshed of the resource. For more information on these resources, please refer to Attachment 2.H.1 of the VDEQ Supplement.

Q. DESCRIBE THE POTENTIAL VISUAL IMPACTS OF THE PROJECT.

A. As detailed in Company witness Bouland's testimony, the Project will be constructed with steel three pole structures, steel H-frames, and steel monopole structures that generally will be taller than the existing structures. The proposed steel H-frames will replace wood H-frames and wood monopoles in generally the same location along the majority of the Proposed Route. When the Proposed Route enters the Altavista Substation, steel three pole structures will be utilized to orient the transmission line into the correct configuration to enter the substation. Because the structures will generally be replaced in the same location and dulled steel and non-specular conductor will be utilized, it is expected that the visual character of the Project area will be similar in character to the existing conditions.

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 proposed Altavista to Leesville Transmission Improvements Project (the "Project") involves rebuilding and constructing approximately 11 miles of 138-kilovolt ("kV") transmission lines and circuits owned by Appalachian Power Company ("Appalachian" or "Company") to facilitate the interconnection of PJM Interconnection, LLC ("PJM") Queue AE1-250. PJM Queue AE1-250 is a 150-megawatt ("MW") solar generation facility in Pittsylvania County, which will connect to the East Danville – Museville 138-kV Circuit. The associated PJM Impact Study identified two critical contingency violations once AE1-250 is placed in service. These violations are North American Electric Reliability Corp ("NERC") Transmission Planning ("TPL") category P4 contingencies. The first contingency involves loss of the 138-kV circuit breaker "D1" at the Opossum Creek Substation. This failure results in the Opossum Creek – Redeye 138-kV Circuit being taken out of service, leading to an exceedance of the summer emergency rating for the Altavista Substation to Otter Switch line section of the Altavista – Lynchburg 138-kV Transmission Line by 101.07%. The second contingency involves loss of the 138-kV circuit breaker "A2" at the Cloverdale Substation. This failure results in the Cloverdale – Smith Mountain 138-kV Circuit being taken out of service, leading to an exceedance of the summer emergency rating of the Altavista – Leesville 138-kV Circuit by 100.6%.

To address these critical contingency violations, PJM has identified the following network upgrades:

- Network Upgrade ID n6594.1: Required to increase the thermal capacity of the Altavista – Leesville 138-kV Circuit.
- Network Upgrade ID n5613: Required to increase the thermal capacity of the Altavista – New London 138-kV Circuit between the Altavista Substation and Otter Switch.

The purpose of the Project is to address the identified contingency violations associated with the AE1-250 interconnection in order to maintain reliability of the existing transmission network that serves customers in the region and allow for full delivery of the proposed generation interconnection for AE1-250. The Project is located in Pittsylvania and Campbell Counties, and the Town of Altavista, Virginia. A map of the Project and the Company's surrounding transmission system can be found as **Exhibit 1**.

Appalachian is part of American Electric Power's ("AEP") transmission system, which consists of approximately 40,000 miles of transmission lines, 3,600 stations, 5,000 power transformers, 8,000 circuit breakers, with 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.

If approved, the Project would enable Appalachian to maintain the overall long-term reliability of its transmission system and prevent the identified critical contingency violations from occurring, thereby adhering to AEP's obligation to its customers and allowing for the generation to connect to the system.

The Project consists of the following work for which the Appalachian is seeking Commission approval, as depicted in the Project Overview Map (**Exhibit 2):**

- Rebuild approximately 1.0 mile of the existing Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and the Company's Otter Switch. The proposed rebuild will be within Appalachian's existing right-of-way ("ROW") and named the Reusens – Altavista 138-kV Transmission Line.
- Rebuild approximately 4.0 miles of the Altavista – Leesville 138-kV Transmission Line between the Altavista Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line. The proposed rebuild will be within or near the existing ROW.
- Construct approximately 5.0 additional miles to extend the Altavista – Leesville 138-kV Transmission Line between existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Leesville Substation. Approximately 1.0 mile of the proposed transmission line will be within the Company's existing ROW and the remaining 4.0 miles will be constructed parallel to the existing Opossum Creek – Smith Mountain 138-kV Transmission Line.
- Relocate approximately 1.0 mile of the Opossum Creek – Smith Mountain 138-kV Transmission Line between existing structures 17-180 and 17-186 to make space for the proposed Altavista – Leesville 138-kV Transmission Line. The existing transmission line is proposed to be relocated approximately 50 feet northwest of the existing Opossum Creek – Smith Mountain 138-kV Transmission Line in partially new ROW.

Additionally, see **Confidential Exhibit 3-C**, which shows the existing and proposed transmission circuit configurations.

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:

The engineering justifications for the proposed Project are primarily centered around the need to upgrade existing facilities and enhance system reliability to facilitate the connection of a new generation source to the Applicant's system.

The Project is essential for addressing the identified contingency violations and ensuring that the transmission system can accommodate the 150 MW solar generation facility associated with PJM Queue AE1-250.

As the RTO, PJM is tasked with planning the expansion and enhancement of the PJM Transmission System on a regional level. As part of this responsibility, PJM manages the connection process for generators and new transmission facilities through the New Services Requests process. This includes coordinating the planning and reliability studies for the integration of new generation and transmission facilities, as well as overseeing the construction of necessary Interconnection Facilities and associated network upgrades.

Part of the connection process involves the entry into an Interconnection Construction Service Agreement. Pursuant to that Agreement, Appalachian (Interconnected Transmission Owner) is required to complete all Transmission Owner Interconnection Facilities and provide back feed to the Interconnection Customer's facilities in November 2027.

Please see response to 1.A above for additional information regarding the Project.

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:

The proposed Project is a result of future generation capacity requirements due to PJM Queue AE1-250 rather than projected future electrical load demand. In addition, no Appalachian load is served from either the Company's Leesville Substation or the Altavista Substation in relation to the Project. Old Dominion Electric Cooperative ("ODEC") is a wholesale customer with a delivery point served from the Company's Otter Switch; however, because the need for the Project is driven by future generation capacity and not load demand, ODEC's historical and future load demand is not considered relevant, and so it is not provided herein.

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:

The power flow modeling conducted by PJM as part of the AE1-250 Impact Study has revealed that the existing system is projected to be inadequate under specific contingency situations. Power flow simulation screenshots are unable to be replicated by the Company for the specific loading scenarios as the study model and associated results were created and established by PJM during their Independent Power Producer ("IPP") generation deliverability study process. Please reference the PJM Impact Study for results related to the specified network upgrades. Below is a description of the identified contingencies, as provided by PJM, along with the associated violations:

<u>Contingency 1:</u>

- Type: NERC TPL Category P4.
- Event: Circuit breaker failure of 138-kV circuit breaker "D1" at the Opossum Creek Substation.
- Affected Element: Opossum Creek – Redeye 138-kV Circuit.
- Impact: This contingency results in the Opossum Creek – Redeye Circuit being taken out of service.
- Violation: The thermal rating of the Altavista – Otter 138-kV line section is exceeded by 101.07%.

Contingency 2:

- Type: NERC TLP Category P4.
- Event: Circuit breaker failure of the 138-kV circuit breaker "A2" at the Cloverdale Substation.
- Affected Element: Cloverdale – Smith Mountain 138-kV Circuit.
- Impact: This contingency results in the Cloverdale – Smith Mountain 138-kV Circuit being taken out of service.
- Violation: The thermal rating of the Leesville – Altavista 138-kV Circuit is exceeded by 100.6%.

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:

No alternatives were requested or reviewed by PJM.

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 rebuild of portions of existing facilities on segments of the Altavista – Lynchburg 138-kV Transmission Line, the Altavista – Leesville 138-kV Transmission Line, and the Opossum Creek – Smith Mountain 138-kV Transmission Line. There will be no lines permanently taken out of service as part of the proposed Project.

The proposed rebuild of the indicated segments of the Altavista – Leesville 138-kV Transmission Line and the Opossum Creek – Smith Mountain 138-kV Transmission Line consists of the Altavista – Leesville 138-kV Circuit, which will be upgraded as follows by network upgrade n6594.1.

Existing Ratings

All existing ratings are based on 556.5 aluminum conductor steel reinforced ("ACSR") 26/7 "Dove" overhead conductor:

- Summer Normal: 205 megavolt-ampere ("MVA")
- Summer Emergency: 284 MVA
- Winter Normal: 258 MVA
- Winter Emergency: 320 MVA

Proposed Ratings

All proposed ratings are based on 1033 ACSR 54/7 "Curlew" overhead conductor:

- Summer Normal: 297 MVA
- Summer Emergency: 414 MVA
- Winter Normal: 375 MVA
- Winter Emergency: 465 MVA

The proposed rebuild of a segment of the Altavista – Lynchburg 138-kV Transmission line comprises a circuit section of the Altavista – Otter 138-kV Circuit, which will be upgraded by network upgrade n5613.

Existing Ratings

All existing ratings are based on 397.5 ACSR 26/7 "IBIS" overhead conductor:

- Summer Normal: 165 MVA
- Summer Emergency: 228 MVA
- Winter Normal: 208 MVA
- Winter Emergency: 256 MVA

Proposed Ratings

All proposed ratings are based on 795 ACSS 26/7 "Drake" overhead conductor:

- Summer Normal: 491 MVA
- Summer Emergency: 491 MVA
- Winter Normal: 518 MVA
- Winter Emergency: 518 MVA

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:

Please see **Exhibit 2**, Project Area Map.

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

Response:

The desired in-service date is November 2027, in order to meet the back feed date of AE1-250 solar generation.

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:

Estimated total cost of the Project is approximately $45.2 million, comprised of the following Project components:

- The Altavista – Leesville 138-kV Transmission Line rebuild and extension portion of the Project has a detailed cost estimate of $36.9 million.
- The Opossum Creek – Smith Mountain 138-kV Transmission Line rebuild portion of the Project has a detailed cost estimate of $5.5 million.
- The Altavista Substation to Otter Switch line section rebuild of the Altavista – Lynchburg 138-kV Transmission Line has a functional cost estimate of $2.8 million.

No alternatives were requested or reviewed by PJM. All costs will be paid for by the generation developer for AE1-250.

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 PJM network upgrade project, rather than a baseline or supplemental project. This classification reflects its role in enhancing the transmission system's capability to accommodate new generation resources and improve overall reliability.

Cost allocation is determined by PJM during their IPP study process. In general, new generators looking to connect within the same IPP queue study that contribute to the planning criteria violation resulting in a network upgrade are responsible for the cost, which is determined by the percent contribution. In this case, the developer for AE1-250 is solely responsible because it is the only contributor. Virginia Electric and Power Company, owned by Dominion Energy, is the developer for PJM IPP queue AE1-250 and is 100% responsible for the cost of both network upgrades as reported in PJM's Impact Study.

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:

See **Tables I-1** through **I-5**. The Project involves the rebuild of portions of several different transmission lines. The information provided below is applicable to the entirety of the transmission lines or the applicable circuits, and thus includes portions of the transmission lines or circuits not covered by the proposed Project.

Circuit Outage Cause Summary			
Altavista – Leesville 138-kV Circuit (01/01/2020 – 12/31/2024)			
Date	**Cause**	**Duration (Hours)**	**Customers Interrupted**
01/22/2020	Relay Misoperation	0	0
06/06/2020	Relay Misoperation	0	0
06/06/2020	Relay Misoperation	0	0
07/17/2020	Relay Misoperation	0	0
08/13/2020	Relay Misoperation	0	0
07/08/2021	Relay Misoperation	0	0
10/01/2022	Failed AC Circuit Equipment - Crossarm	9.37	0
10/12/2023	Relay Settings	6.20	0

Table I-1. Altavista - Leesville 138-kV Circuit Outage History

Circuit Outage Cause Summary			
Altavista – New London 138-kV Circuit (01/01/2020 – 12/31/2024)			
Date	**Cause**	**Duration (Hours)**	**Customers Interrupted**
08/20/2021	Lightning	0	0
06/24/2023	Vegetation Fall-in Outside ROW	53.03	0
01/13/2024	Vegetation Fall-in Outside ROW	51.28	0
08/26/2024	Vegetation Grow-in Outside ROW	0	0

Table I-2. Altavista - New London 138-kV Circuit Outage History

Appalachian (VA) Circuits Annual Outage Averages			
5 Years (01/01/2020 – 12/31/2024)			
Voltage (kV)	**# of Circuits**	**Frequency**	**Duration (Hours)**
138	118	1.24	3.25

Table II-3. Appalachian (VA) 138-kV Circuit Outages

Circuit Annual Outage Averages		
5 Years (01/01/2020 – 12/31/2024)		
Circuit Name	**Frequency**	**Duration (Hours)**
Altavista – Leesville 138-kV	1.60	3.11
Altavista – New London 138-kV	0.80	20.86

Table III-4. Project Circuits' Outage Averages

Line Maintenance History		
Year	**Work Performed**	**Cost ($)**
Altavista – Leesville 138-kV Transmission Line (01/01/20-12/31/20)		
2023	Emergency - Str. 167-181	$356,484.05
2023	Forestry - Reactive Program	$1,141,352.23
Opossum Creek – Smith Mountain 138-kV Transmission Line (01/01/20-12/31/24)		
2023	Str. Replacement	$49,740.23
2023	Str. Ground repair 17-118, 103, 124, 139	$14,190.64
2024	Str. Replacement 17-165, 166, 167, 168, 169	$648,414.91
2024	Str. Crossarm replacement 17-97, 99	$57,823.21
2024	Str. Replacement 17-61, 62, 63	$239,040.79
2024	Forestry - Hazard Tree	$539,607.69
2025	Comprehensive Inspection	$28,793.55
Altavista – Lynchburg 138-kV Transmission Line (01/01/20-12/31/24)		
2023	Broken Conductor Repair between Str 4A-171 and 4A-172	$91,216.22
2024	Emergency Outage. Str Crossarm Replacement 4A-165 and Tree Removal	$116,828.88
2024	Forestry – Cutting Trees Close to Minimum Approach Distance (MAD)	$84,515.90

Table IV-5. 5 Year Line Maintenance History

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:

N/A.

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 Federal Energy Regulatory Commission ("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:

N/A.

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:

N/A.

SECTION II. DESCRIPTION OF THE PROPOSED PROJECT

A. ROW

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

Response:

The Proposed Route for the Project is approximately 11 miles long and involves rebuilding the entirety of the Altavista – Leesville 138-kV Transmission Line and portions of the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Altavista – Lynchburg 138-kV Transmission Line. Approximately six miles of the Proposed Route will be constructed as greenfield 138-kV transmission line. The Proposed Route begins at the Company's Otter Switch and ends at the Company's Leesville Substation, both of which are located in Campbell County. The proposed filing corridor is typically 300 feet wide, though it is expanded up to 800 feet wide, within which the 100-foot-wide ROW will be located depending on final engineering. The width of the ROW may be more than 100 feet wide depending on safety, engineering, or operational requirements.

The Company identified three viable alternative routes to connect between the Company's Leesville Substation and the Altavista Substation, located in the Town of Altavista. The portion of the Project between the Altavista Substation and the Company's Otter Switch was deemed constructable within the existing ROW. As such, no alternative routes were developed for that portion of the Project. Alternative Routes A, B, and C were developed for the Project and, when combined with the existing ROW rebuild portion of the Project between the Altavista Substation and Otter Switch, are 11.0, 9.6, and 9.9 miles long, respectively. The route development process for the Project is described in detail in **Section II.A.9** of the Response to Guidelines and in the Siting Study found in Volume 1 of the Application.

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 Area Map is attached as **Exhibit 2**. Detailed GIS constraints mapping illustrating the Project in relation to existing facilities, various resources, and sensitive features is included as **Exhibit 4**. Furthermore, the Siting Study includes additional GIS maps and descriptions of the Project Area. A shapefile of the Proposed Route will be provided electronically to the Commission along with the Application.

In locations where the Project will be rebuilt in new ROW and the old ROW will be unused, it is anticipated that the unused portion of the existing ROW will be quitclaimed or otherwise relinquished as part of a supplemental agreement with the landowner. Approximately 4.0 miles of the Proposed Route will be constructed parallel to the Opossum Creek – Smith Mountain 138-kV Transmission Line in abutting ROWs totaling approximately 200 feet wide. Approximately 1.0 miles of the Proposed Route will be constructed in the existing ROW of the Opossum Creek – Smith Mountain 138-kV Transmission Line. In this 1.0-mile-long section of the Proposed Route, the Opossum Creek – Smith Mountain 138-kV Transmission Line will be relocated approximately 50 feet northwest of its existing alignment, resulting in both abutting ROWs totaling approximately 150 feet wide.

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**, Project Area 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:

Approximately 0.4 miles of the Project will be constructed in new ROW between the Altavista Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line to avoid placing structures within Virginia Department of Transportation ("VDOT") ROW, thereby limiting maintenance access to the proposed transmission line. Approximately 1.5 miles of the Opossum Creek – Smith Mountain 138-kV Transmission Line will be relocated approximately 50 feet northwest of its current alignment into new ROW to allow the construction of the Project. This relocation allows the reuse of existing ROW, preventing the need for the Project to introduce two new crossings of the Roanoke River.

Between the Leesville Substation and existing structure 17-185 on the Opossum Creek – Smith Mountain 138-kV Transmission Line, approximately 4.0 miles of the

Project will be constructed in parallel to the Opossum Creek – Smith Mountain 138-kV Transmission Line in new ROW. Due to the double-circuit configuration of the Opossum Creek – Smith Mountain 138-kV Transmission Line, and electric generation inputs at various points along the line, the transmission line cannot be taken out of service for long enough durations to rebuild the Altavista – Leesville 138-kV Circuit in the existing ROW, thereby necessitating the parallel construction in new ROW.

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 5 through 7** for the typical existing ROW cross sections.

(d) See **Exhibits 8 through 12** 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:

Areas where the transmission line will be rebuilt entirely within an existing ROW (approximately five miles) are subject to existing easements, dating from the 1940s to 1960s. Some of the existing easement agreements contain special provisions, such as limiting the location, number or types of structures permitted (e.g., wood vs. steel), and the Company intends to address these provisions as needed through the acquisition of supplemental easements. 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, or widening of the ROW width for conductor sway, that may be addressed by acquiring supplemental easements.

Approximately six miles of the Project will be constructed in new ROW, partially overlapping, parallel to, or near existing ROW. In these areas, the Company plans to acquire new ROW or supplement existing easements.

The ROW for the Project will generally be 100 feet wide in areas of new, supplemental, or existing 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 NERC 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.

<u>ROW Restoration</u>

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 for the Project below. For a detailed route development discussion, see the Siting Study and the associated maps included in Volume 1 of the Application. The direct testimony of Company witness Fraser further discusses route development. Also, see **Section V.A** of the Response to Guidelines for a detailed description of the Proposed Route.

   The Siting Team identified the Proposed Route by reviewing and evaluating three general routing concepts for the Study Area: routes traveling through the northern, southern, and central portions of the Study Area to connect the Company's Leesville Substation and the Altavista Substation. Once the end points were defined, the Siting Team undertook an iterative process that moved from routing concepts to increasingly refined study segments, alternative routes, and then the Proposed Route. During the early stages of the Project, it was determined by Company transmission line planner and engineers that the line section of the Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and the Company's Otter Switch could be rebuilt entirely within the existing ROW during a single outage. As such, this line section was not included in the Siting Study or route selection process.

   First, a Study Area was defined, and constraint data was collected. Next, three routing concepts connecting the Company's Leesville Substation, located in Campbell County, and the Altavista Substation, located in the Town of Altavista, were developed. These three routing concepts were carried forward and developed into an initial Study Segment Network comprised of 25 Study Segments, which were presented at public open houses; the Study Segment Network was later expanded to 26 Study Segments after the public comment period. Using stakeholder input and analysis and site visit evaluations, the Study Segment Network was refined into three alternative routes including two northern and one central. The Siting Team reviewed

and analyzed the three alternative routes based on resource and engineering constraints in the Study Area and arrived at Alternative Route A as the Proposed Route between the Company's Leesville Substation and the Altavista Substation. After the Proposed Route was announced, affected landowners were contacted. The vast majority of the affected landowners have been contacted as of August 2025.

The Proposed Route is the longest of the alternative routes and crosses the most parcels; however, it minimizes impact to the surrounding community by utilizing the most existing ROW. The Proposed Route has the fewest new landowners within the ROW compared to Alternative Routes B and C and avoids residential development. In addition, the Proposed Route has the fewest residences within 250 and 500 feet of centerline compared to Alternative Routes B and C. The Proposed Route minimizes potential visual impacts to the community by utilizing existing ROW or building parallel to an existing transmission line. Additionally, the Proposed Route crosses the Roanoke River parallel to an existing transmission line, limiting new visual impacts. Public stakeholder input generally favored building the proposed transmission line within or parallel to an existing ROW. For the reasons listed, the Proposed Route (Alternative Route A) for the Project is the most suitable route. As mentioned above, the line section of the Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and Otter Switch was not included in the route selection process. However, for the development of this Application to the Commission, this line section is included in the Proposed Route.

Based on the best information available, the alternative routes do not cross any known 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 Virginia Code. Given this, the Proposed Route does not cross any such conservation easements or open space easements.

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 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 state's "General Permit for Discharges of Stormwater from Construction Activities." The Company estimates that it will take approximately 17 months to engineer, procure material, and build the Project due to the size of the Project and availability of circuit outages if the Commission approves the Project.

The desired in-service date of the Project is November 2027. Access road reclamation, stabilization, and permit closeout will occur in 2028.

Where the Proposed Route is located within the existing ROW, circuit outages are needed on the Redeye – Smith Mountain 138-kV Circuit (the Leesville Substation to proposed structure 167-31), Altavista – Leesville 138-kV Circuit (Proposed structure 167-31 to the Altavista Substation), Opossum Creek – Redeye 138-kV Circuit (Existing structure 17-185 to 17-181), and Altavista – New London 138-kV Circuit (the Altavista Substation to Otter Switch) to remove and rebuild the transmission line.

Following the Commission's approval of the Project, engineering, RTO outage approvals, and ROW acquisition, the estimated construction sequence can be summarized briefly as follows (refer to **Confidential Exhibit 13-C**, Construction and Outage Sequence):

1. Begin work by constructing the Altavista – Leesville 138-kV Circuit "in the clear" between proposed structure 167-31 and proposed structure 167-51.
2. Construct the proposed Opossum Creek – Redeye 138-kV Circuit "in the clear" between proposed structures 17-181A to proposed structure 17-184B and install the foundation for proposed structure 17-185A. Take an outage on Opossum Creek – Redeye 138-kV Circuit to reconnect the circuit between proposed structure 17-184B and existing structure 1351-1 and between existing structure 17-180 and proposed structure 17-181A. Re-energize the Opossum Creek – Redeye 138-kV Circuit. Take an outage on the Altavista – Leesville 138-kV Circuit and the Redeye – Smith Mountain 138 – kV Circuit, install proposed structure 17-185A, remove the span between existing structure 259-203 and the Leesville Substation, and bifurcate (six-wire) the Redeye – Smith Mountain 138-kV Circuit. Re-energize the Redeye – Smith Mountain 138-kV Circuit (keep the Altavista – Leesville 138-kV Circuit de-energized).
3. Take an outage at the Altavista – New London 138-kV Circuit between the Altavista Substation and Otter Switch. Construct the spans then re-energize the Altavista – New London 138-kV Circuit.
4. Maintain an outage on the Altavista – Leesville 138-kV Circuit to remove the required remaining existing structures, construct new structures, build new spans between proposed structure 167-31 to the Altavista Substation, and install the span between 167-51 to the Leesville Substation. When complete, energize the new Altavista – Leesville-138-kV Circuit.

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 the Siting Study and Virginia Department of Environmental Quality ("VDEQ") Supplement prepared by the Siting Team, included in Volume 1 of this Application. Additionally, see **Section III** of this Response to Guidelines.

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 Proposed Route is located in Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia. The Company provides transmission service to the Project area, which is served by Southside Electric Cooperative, Inc., and Virginia Electric and Power Company. Approximately 8.0 miles of the Project are within the service territory of Southside Electric and approximately 3.0 miles of the Project are within the service territory of Virginia Electric. Southside Electric and Virginia Electric are not opposed to the Project through their service territories.

b. Provide three (3) color copies of the 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 digital copies of the VDOT General Highway Map for Campbell and Pittsylvania Counties, which include inserts of the Town of Altavista, to the Commission Staff with this Application in lieu of providing three hard copies. Reduced copies of these maps are included in **Confidential Exhibit 14-C** to this Application. These maps include the proposed Project and 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 rebuilds of the Altavista – Leesville 138-kV, Opossum Creek – Smith Mountain 138-kV, and Altavista – Otter 138-kV Transmission Lines will be single-circuit transmission lines, with each circuit composed of a three-phase design with a nominal phase-to-phase voltage of 138 kV. The existing double-circuit Opossum Creek – Smith Mountain 138-kV Line between existing structure 17-185 and existing structure 259-203 will be converted to a bifurcated (six-wired) single-circuit configuration. A voltage upgrade is not anticipated for the Project. The overall ratings for each line section are provided in **Section I** of this Response to Guidelines.

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:

For the Altavista – Leesville 138-kV Transmission Line the proposed three-phase 138-kV circuit will consist of 1,033,500 circular mils ("cmil") aluminum conductor steel reinforced ("ACSR") "Curlew" conductors with 54/7 stranding (1.244-inch diameter). One conductor will be installed per phase. The circuit will typically be arranged in a horizontal configuration.

For the Reusens – Altavista 138-kV Transmission Line between the Altavista Substation and Otter Switch the proposed three-phase 138-kV circuit will consist of 795,000 cmil aluminum conductor steel supported ("ACSS") "Drake" conductors with 26/7 stranding (1.108-inch diameter). One conductor will be installed per phase. The circuit will typically be arranged in a vertical configuration.

For the Opossum Creek – Smith Mountain138-kV Transmission Line the proposed three-phase 138-kV circuit will consist of 1,272,000 cmil ACSR "Pheasant" conductors with 54/19 stranding (1.382-inch diameter). One conductor will be installed per phase. The circuit will typically be arranged in a vertical configuration.

For the Altavista – Leesville 138-kV Transmission Line the proposed single-circuit transmission line will typically use one 7 #10 Alumoweld ground wire (0.306-inch diameter) and one 144-fiber, 0.646-inch diameter Optical Ground Wire ("OPGW") for lightning protection. The OPGW is composed of aluminum clad steel strands surrounding a stainless-steel tube containing fiber optic strands used for utility operations and communication. 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.

For the Reusens – Altavista 138-kV Transmission Line between the Altavista Substation and Otter Switch the proposed single-circuit transmission line section will typically use one 7 #8 Alumoweld ground wire (0.385-inch diameter) and one 144-fiber, 0.646-inch diameter OPGW for lightning protection. The OPGW is composed of aluminum clad steel strands surrounding a stainless-steel tube containing fiber optic strands used for utility operations and communication.

For the Opossum Creek – Smith Mountain 138-kV Transmission Line the proposed single-circuit transmission line section will typically use one 144-fiber, 0.646-inch diameter OPGW for lightning protection. 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:**

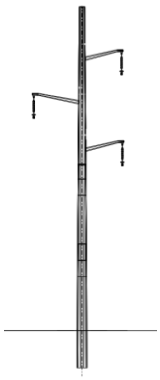
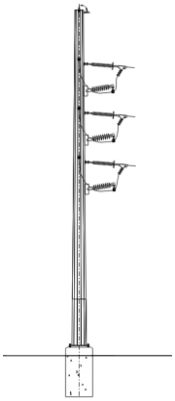
    a. **Mapping that identifies each portion of the preferred route.**
    b. **The rationale for the selection of the structure type.**
    c. **The number of each type of structure and the length of each portion of the ROW.**
    d. **The structure material and rationale for the selection of such material.**
    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.**

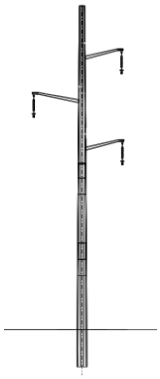
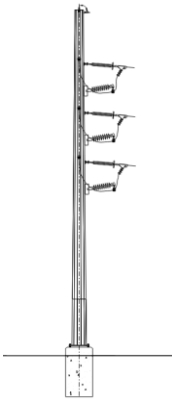
Response:

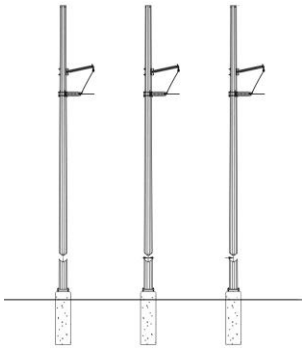
Final structure types will be determined during final engineering, which includes ground surveys and geotechnical studies. Nevertheless, based on preliminary engineering, the Company anticipates primarily using single-circuit steel H-frame, steel 3-pole, and steel monopole structures for the rebuilt 138-kV transmission line. Proposed structure types and quantities of installations can be found in **Table II-1** below. All values and figures in **Table II-1** below are approximations based on best available data until a detailed design has been finalized.

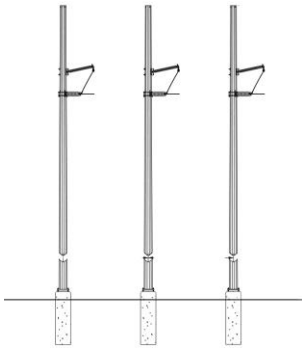
Table II-1

Proposed Structures

Structure Type	 **138-kV H-Frame** See **Exhibit 8**	 **138-kV Monopole w/ Davit Arms** See **Exhibit 9**	 **138-kV Custom Monopole Dead-End** See **Exhibit 10**
a. Mapping that identifies each portion of the preferred route.	See **Exhibit 4**	See **Exhibit** 4	See **Exhibit 4**
b. Rationale for the selection of the structure type.	The proposed 138-kV H-frame structure is best suited for long to extra-long spans in mountainous or agricultural areas.	The proposed 138-kV davit arm monopole structure is best suited for medium to long spans in developed or constrained areas.	The proposed 138-kV dead-end monopole structure is best suited for tap spans into substations, heavy line angle locations, breaking wire tension, and developed or constrained areas.
c-1. Estimated number of each type of structure.	31	5	16
c-2. Estimated length of each portion of the ROW.	5.4 miles	0.7 miles	2.6 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. A low reflective (dulled) finish was selected to reduce visual impacts.	Galvanized steel was chosen for its durability and proven reliability in this region. A low reflective (dulled) finish was selected to reduce visual impacts.	Galvanized steel was chosen for its durability and proven reliability in this region. A low reflective (dulled) finish was selected to reduce visual impacts.
e. Foundation material.	Direct Embedded (15 ft average depth)	Direct embedded (15ft average depth)	Drilled concrete pier (30 ft average depth) 1 ft typical concrete pier reveal height above grade.

Structure Type	 **138-kV H-Frame** See **Exhibit 8**	 **138-kV Monopole w/ Davit Arms** See **Exhibit 9**	 **138-kV Custom Monopole Dead-End** See **Exhibit 10**
f. Average width at cross arms.	32 ft to 40 ft	18 ft	N/A
g. Average width at the base.	15.5 ft to 20 ft wide 3 ft Diameter Poles	3 ft Diameter Pole	5 ft Diameter Pole 6 ft Diameter Concrete Pier
h-1. Approximate average height of structures (above ground).	95 ft	100 ft	110 ft
h-2. Approximate typical structure height range (above ground).	75 ft to 115 ft	95 ft to 100 ft	70 ft to 150 ft
i. Average span length.	950 ft	750 ft	850 ft
j. Minimum conductor-to-ground clearances under maximum operating conditions.	24.6 ft	24.6 ft	24.6 ft

Structure Type	 **138-kV Monopole w/ Braced Post** See **Exhibit 11**	 **138-kV Custom 3-Pole** See **Exhibit 12**
a. Mapping that identifies each portion of the preferred route.	See **Exhibit 4**	See **Exhibit 4**
b. Rationale for the selection of the structure type.	The proposed 138-kV braced post structure is best suited for short to medium spans in developed or constrained areas.	The proposed 138-kV three-pole dead-end structure is best suited for tap spans into substations, heavy line angle locations, and breaking wire tension. The proposed 138-kV three-pole running angle structure is best suited for light to medium line angles, and where a dead-end structure is not needed.
c-1. Estimated number of each type of structure.	5	10
c-2. Estimated length of each portion of the ROW.	0.6 miles	1.5 miles
d-1. Structure material.	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. A low reflective (dulled) finish was selected to reduce visual impacts.	Galvanized steel was chosen for its durability and proven reliability in this region. A low reflective (dulled) finish was selected to reduce visual impacts.
e. Foundation material.	Direct embedded (13 ft average depth)	Drilled concrete pier (20 ft average depth) 1 ft typical concrete pier reveal height above grade.
f. Average width at cross arms.	11.3 ft (distance between wire attachments)	N/A
g. Average width at the base.	3 ft Diameter Pole	31 ft to 50 ft wide 6 ft Diameter Concrete Pier
h-1. Approximate average height of structures (above ground).	75 ft	95 ft
h-2. Approximate typical structure height range (above ground).	65 ft to 80 ft	85 ft to 115 ft

Structure Type	 **138-kV Monopole w/ Braced Post** See **Exhibit 11**	 **138-kV Custom 3-Pole** See **Exhibit 12**
i. Average span length.	750 ft	800 ft
j. Minimum conductor-to-ground clearances under maximum operating conditions.	24.6 ft	24.6 ft

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:

   The anticipated heights of the proposed structures on the Project range between 70 and 150 feet, with an average structure height of 95 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 4**, the 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 5 through 7** for photographs of existing structures, **Exhibits 8 through 12** for representations of proposed structures, and **Exhibit 15** for photo simulations representing the final condition following the completion of the Project.

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:

No new substations are included within the scope of the Project.

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

The Siting Study and the VDEQ Supplement included in Volume 1 of this Application 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 Map is included as **Exhibit 2** and a more detailed GIS constraints map, which illustrates the various resources and sensitive features relative to the proposed Project, is included as **Exhibit 4**. Furthermore, the Siting Study (included in Volume 1 of the Application) 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 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 is located in Campbell and Pittsylvania Counties and the Town of Altavista, Virginia. The Project area consists of rolling terrain in the Piedmont physiographic province of Virginia. Open agricultural fields and forested areas with scattered residential and commercial development are common in the Study Area, although more dense development exists in the northeast of the Project area in the Town of Altavista. The Project crosses the Roanoke River, a navigable water of the United States, as well as 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 in Volume 1 of the Application.

The Company evaluated three alternative routes:

- Alternative Route A (selected as Proposed Route): There are 47 dwellings located within 500 feet; 17 dwellings within 250 feet; 3 dwellings within 100 feet of the centerline; and no dwellings within the ROW of the alternative route. Approximately 71 acres of farmland and approximately 88 acres of forested land are within the typical 100-foot-wide ROW of Alternative Route A.
- Alternative Route B: There are 48 dwellings located within 500 feet; 17 dwellings within 250 feet; 3 dwellings within 100 feet of the centerline; and no dwellings within the ROW of the alternative route. Approximately 66 acres of farmland and approximately 69 acres of forested land are within the typical 100-foot-wide ROW of Alternative Route B.
- Alternative Route C: There are 64 dwellings located within 500 feet; 20 dwellings within 250 feet; 1 dwelling within 100 feet of the centerline of the alternative route; and no dwellings within the ROW of Alternative Route C. Approximately 80 acres of farmland

and approximately 101 acres of forested land are within the typical 100-foot-wide ROW of Alternative Route C.

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

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 Project involved significant public engagement efforts, as outlined in the Siting Study included in Volume 1 of the Application. 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 data for the route development process. Letters and maps describing the Project were sent to 36 local, state, and federal representatives on October 23, 2024, and a total of 20 responses from 10 agencies were received. Agency correspondence and Project reviews were used to develop, modify, and analyze study segments and alternative routes. A full list of agencies receiving a letter and map and the responses received are included in the Siting Study in Volume 1 of the Application.

The Company met virtually with local officials from Campbell and Pittsylvania Counties and the Town of Altavista in October 2024, to introduce the Project and obtain information to aid the route planning process. In addition to meetings with local and state officials, the Siting Team gathered input from the public during the route development process.

The Project was publicly announced with a news release and launch of a Project-specific website on October 23, 2024. A virtual open house was posted to the Project website with information related to the Project need, transmission line engineering and design, ROW activities, and construction process. The Siting Team sent notifications to 527 landowners to announce the Project and invite them to attend an in-person open house meeting. The Company hosted an in-person public open house on November 13, 2024, from 5:00 to 7:00 p.m. at Altavista Elementary School (2190 Lynch Mill Road). Following the initial in-person public open house, community members encouraged the Company to host a second in-person public open house to allow landowners to gain more information on the Project. Additionally, some landowners reported not receiving the mailed notices announcing the initial in-person public open house. Upon receiving this feedback, the Company hosted a second in-person public open house on January 21, 2025, from 5:00 to 7:00 p.m. at the Altavista Area YMCA (718 7th Street). The Company notified 527 landowners by mail of the second open house and delivered 240 doorhangers to potentially impacted landowners in target neighborhoods.

These open houses provided a platform for direct interaction with the community, allowing stakeholders to voice their concerns and offer input on the proposed routes. The feedback

These open houses provided a platform for direct interaction with the community, allowing stakeholders to voice their concerns and offer input on the proposed routes. The feedback received was substantial, with 182 comments collected from the community, which were instrumental in refining the proposed routes and addressing public concerns.

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, LiDAR survey, and field reconnaissance, there are two outbuildings, such as barns, sheds, and garages, that are within the typical 100-foot-wide ROW of the Proposed Route. 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.

Buildings within the ROW of the Proposed Route are identified in **Exhibit 4**, GIS Constraints Map. The Company will continue to coordinate with affected landowners during final engineering.

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 will primarily use or parallel the existing ROWs of the Altavista – Lynchburg 138-kV Transmission Line, the Altavista – Leesville 138-kV Transmission Line, and the Opossum Creek – Smith Mountain 138-kV Transmission Line for the entire length of the Proposed Route. The existing transmission line ROWs are cleared and have been in use since the 1940s and 1960s and are typically 100 feet wide.

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 Siting Team considers potential impacts to existing and future land uses that may not be compatible with transmission facilities. The Project is located in Campbell and Pittsylvania Counties and the Town of Altavista, and the Company reviewed the various land use plans adopted in each locality. At the start of the route development process, the Company met with officials from Campbell and Pittsylvania Counties and the Town of Altavista to discuss existing and future land use plans in the Project area. No potential conflicts between the Project and any specific land use plans were identified by the localities.

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:

   After reviewing available planning documents and meeting with officials of the affected localities, the Siting Team determined the ROW of the Proposed Route does not cross any designated important farmlands in Campbell and Pittsylvania Counties or the Town of Altavista.

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:

Per the *Guidelines for Assessing Impacts of Proposed Electric Facilities on Historic Resources in the Commonwealth of Virginia* (2008) (the "Guidelines"), issued by the Virginia Department of Historic Resources ("VDHR"), the Company contracted with WSP USA Inc. to complete a Pre-Application Analysis for the proposed Project (see Attachment 2.H.1 to the VDEQ Supplement included in Volume 1 of the Application).

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

   Response:

   There are no National Register of Historical Places ("NRHP") listed resources within or adjacent to the proposed 100-foot ROW or within the filing corridor for the Project. See the Pre-Application Analysis in the VDEQ Supplement in Volume 1 of the Application for additional details.

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 VDHR;**

   Response:

   There are no Virginia Landmark Register-listed or VDHR determined eligible resources within or adjacent to the proposed 100-foot ROW or within the filing corridor.

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

   Response:

   None.

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:

   None.

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 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:

   None.

10. **Any state scenic river;**

    Response:

    None.

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

    Response:

    In the Town of Altavista, near the Altavista Substation, the existing Altavista – Leesville 138-kV Transmission Line and the Proposed Route traverse across a parcel of land owned by the Campbell County School Board. The Altavista Elementary School is located on the parcel of land and is located approximately 300 feet south of the existing ROW, and of the Proposed Route. A forested area creates a buffer between the school and the transmission line. This forested buffer will remain in place.

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:

    None.

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 conflicts with federally defined airspace are expected. Nonetheless, the two Federal Aviation Administration-registered airports, Kinman Airport (3VG5) and English Airport (18VA) were identified within 20,000 linear feet of the Project. Any portion of the Project that is within 20,000 linear feet of an airport and/or reaches a height of 200 feet above ground level requires a 7460 Airspace Study be submitted to the Federal Aviation Administration. No helipads were identified within 20,000 linear feet 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:

State Route 43 (Bedford Highway) is a Virginia Scenic Byway that travels east to west through the Study Area, beginning at the State Route 43 (Bedford Highway)/U.S. Highway 29 interchange, just west of the Town of Altavista. The Proposed Route crosses State Route 43 (Bedford Highway) in three locations. The first two crossings use existing crossing locations of the Altavista – Leesville 138-kV Transmission Line. By utilizing two existing transmission line crossing locations, the visual character of the scenic byway is not expected to be altered. The third crossing of State Route 43 (Bedford Highway) by the Proposed Route is parallel to the Opossum Creek – Smith Mountain 138-kV Transmission Line, just north of the Roanoke River. By the Proposed Route crossing State Route 43 (Bedford Highway) parallel to an existing transmission line crossing, any impacts to the visual character of the scenic byway are expected to be minimal.

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

Response:

The Company coordinated with various federal, state, and local agencies and/or officials early in the route development process to inform them of the Project and obtain relevant information. A full list of this coordination is included in the Siting Study in Volume 1 of the Application.

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

Response:

No non-governmental organizations were identified throughout the route development

process. After the first public open house meeting, the Altavista Area Powerline Coalition, a private citizen group, was organized in response to routing options that would ultimately become Alternative Route C. To ensure equitable communication, and in addition to public open house meeting invites that were mailed to residents within the Project area, the Company contacted leadership of the Altavista Area Powerline Coalition and directly invited the coalition's members to attend the second public open house meeting. Additionally, the Company undertook outreach efforts to solicit information and gain feedback on the Project from the general public within the Project area. The input received on the Project was used in the route development process and is summarized in the Siting Study in Volume 1 of the Application.

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.
- Subaqueous Bed Permit from the Virginia Marine Resources Commission.
- Virginia Water Protection Permit from the VDEQ.
- United States Army Corps of Engineers Nationwide Permit 57 for impacts to waters of the United States under Section 404 of the Clean Water Act and spanning of navigable waters under Section 10 of the Rivers and Harbors Act of 1899.
- Surveys and coordination with the United States Fish and Wildlife Service and the Virginia Department of Wildlife Resources for potential occurrence of federally and state-protected species.
- Consultation with the VDHR under *Section 106 of the National Historic and Preservation Act of 1966* for potential impacts to historic properties.
- Local building permits where applicable for the Project.

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 right-of-way ("ROW"). 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 ROW after the new line is operational.

Response:

The following is an analysis of EMF associated with the transmission line components of the Project.

The transmission line rebuild portion of this project consists of the following:

- A single-circuit transmission line from proposed structure 4A-199A to proposed structure 4A-192A, replacing existing structures 4A-199 through 4A-192 on the Altavista to Otter Switch line section of the Altavista – Lynchburg 138-kV Transmission Line.
- A single-circuit transmission line from proposed structure 167-1 to proposed structure 167-25, replacing existing structures 167-181/23 through 167-181/1 on the Altavista – Leesville 138-kV Transmission Line.
- A single-circuit transmission line from proposed structure 17-181A to proposed structure 17-185A, replacing existing structures 17-181 through 17-185 on the Opossum Creek – Smith Mountain 138-kV Transmission Line.

The transmission line extension portion of this project consists of extending the single-circuit Altavista – Leesville 138-kV Transmission Line from proposed structure 167-25 to proposed structure 167-51.

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 2030 projected system conditions. Daily/hourly loads will fluctuate below these levels. All calculations were obtained at the height of 3.28 feet (1.0 meter) above ground using the Electric Power Research Institute's ("EPRI") EMF Workstation computer program.

Assuming a 100-foot-wide ROW, the maximum EMF levels expected to occur at the edge of the ROW for the proposed Project are 0.7 kilovolt/meter ("kV/m") and 52 milligauss ("mG"). The maximum EMF levels expected to occur at the edge of the ROW of the existing line are 0.6 kV/m and 53 mG.

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 ["Hz"] 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	21.4 - 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]

Most 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).

[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).

[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. (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. (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:

A description of the Proposed Route is provided below. The requested public notice map is included as **Exhibit 16**.

The Proposed Route will rebuild and extend Appalachian's 1960s era Altavista – Leesville 138-kV Transmission Line, rebuild a portion of Appalachian's 1940s era Altavista – Lynchburg 138-kV Transmission Line, and relocate a portion of Appalachian's 1960s era Opossum Creek – Smith Mountain 138-kV Transmission Line. The Proposed Route consists of two sections totaling approximately 11.0 miles and is largely within or parallel to the existing ROW of the transmission lines between Otter Switch in Campbell County, the Altavista Substation in the Town of Altavista, and the Company's Leesville Substation in Campbell County.

The Proposed Route begins at the Company's existing Otter Switch in Campbell County (1895 Dearing Ford Road) and departs south, traveling for approximately 0.9 miles in existing ROW and crossing U.S. Highway 29 before entering Altavista Substation in the Town of Altavista (2414 Lynch Mill Road). From here, the Proposed Route departs Altavista Substation to the northwest, traveling for approximately 0.7 miles in existing ROW. Just east of U.S. Highway 29, the Proposed Route turns northwest and travels approximately 0.3 miles to cross U.S. Highway 29 in new ROW before turning west and traveling for approximately 0.2 miles in new ROW, crossing State Route 714 (Lynch Mill Road). From here, the Proposed Route continues west for approximately 2.4 miles in existing ROW, crossing State Route 1318 (Oak Ridge Drive), State Route 626 (Lynch Road), a Norfolk Southern Railway Company railroad, State Route 43 (Bedford Highway) twice, Saddle Road, and State Route 628 (Bishop Creek Road) twice.

From this point, the Proposed Route turns southwest and travels for approximately 1.1 miles to near the Redeye Substation in the existing ROW of the Opossum Creek – Smith Mountain 138-kV Transmission Line. As part of the Proposed Route, approximately 1.1 miles of the Opossum Creek – Smith Mountain 138-kV Transmission Line will be relocated to the northwest of its existing location and will be constructed and operated in overlapping ROW. From the Redeye solar facility, the Proposed Route turns slightly south and parallels the southern side of the Opossum Creek – Smith Mountain 138-kV Transmission Line in new ROW for approximately 1.6 miles, crossing State Route 43 (Bedford Highway) for a third time, the Roanoke River, and a second Norfolk Southern Railway Company railroad. After crossing the railroad, the Proposed Route turns slightly west to continue paralleling the southern side of the Opossum Creek – Smith Mountain 138-kV Transmission Line for approximately 2.4 miles, crossing State Route 924 (Pocket Road), the Roanoke River a second time, and State Route 718 (Taylor Ford Road). After crossing State Route 718

(Taylor Ford Road) and traveling for approximately 0.3 miles, the Proposed Route turns south and enters the Company's Leesville Substation in Pittsylvania County (1621 Taylor Ford Road).

The Proposed Route will be built primarily using single-circuit H-frame structures and single-circuit monopole structures; however, final structure types will be dependent on engineering and terrain. Based on preliminary engineering, Appalachian anticipates primarily using galvanized steel H-frame and monopole structures with low-reflective finish for the Proposed Route. The anticipated heights of the proposed structures range between 70 and 150 feet, with an average proposed structure height of 95 feet. These anticipated heights for the proposed structures are necessary to meet current design standards. The Proposed Route will be built near or within an existing ROW that is typically 100 feet wide; however, this may vary along the route depending on engineering needs, topography, and specific parcel uses and configurations. The final structure heights and ROW requirements will be determined during final engineering and after additional studies are conducted including, but not limited to, ground surveys, geotechnical and environmental studies, and additional interviews with landowners.

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 locations:

Staunton River Memorial Library
500 Washington Street
Altavista, VA 24517

Campbell County Public Library
684 Village Highway
Rustburg, VA 24588

Pittsylvania County Public Library
24 Military Drive
Chatham, VA 24531

This Application, exhibits, and maps are also digitally available on the Project website: www.AppalachianPower.com/Altavista-Leesville.

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

- 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 Field Office
- United States House of Representatives, 5th District (John J. McGuire III) *

State

- Virginia Department of Agriculture and Consumer Services
- Virginia Department of Aviation
- Virginia Department of Conservation and Recreation
- Virginia Department of Energy
- Virginia Department of Environmental Quality*
- Virginia Department of Forestry
- Virginia Department of Health, Office of Drinking Water
- Virginia Department of Historic Resources
- Virginia Department of Transportation, Bristol District
- Virginia Department of Wildlife Resources
- Virginia Marine Resources Commission
- Virginia Outdoors Foundation
- Senate of Virginia, 8th District (Mark J. Peake) *
- Senate of Virginia, 9th District (Tammy Brankley Mulchi) *
- Virginia House of Delegates, District 48 (Eric J. Phillips) *
- Virginia House of Delegates, District 51 (Eric Zehr) *

Local

- Campbell County, Board of Supervisors (Tom Lawton, Board Chair)
- Campbell County, Board of Supervisors (Charlie A. Watts, II, Vice Chair)
- Campbell County, Administrator (Frank Rogers) **
- Campbell County, Attorney (F.E. “Tripp” Isenhour, II)
- Pittsylvania County, Board of Supervisors (Robert M. Tucker, Jr., Board Chair)

- Pittsylvania County, Board of Supervisors (William "Vic" Ingram, Vice Chair)
- Pittsylvania County, Administrator (Vincent Shorter) **
- Pittsylvania County, Attorney (Matthew W. Evans)
- Town of Altavista, Mayor (Reggie Bennett)
- Town of Altavista, Town Manager (Gary Shanaberger) **
- Town of Altavista, Attorney (John J. Eller, Jr.)

Notes

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

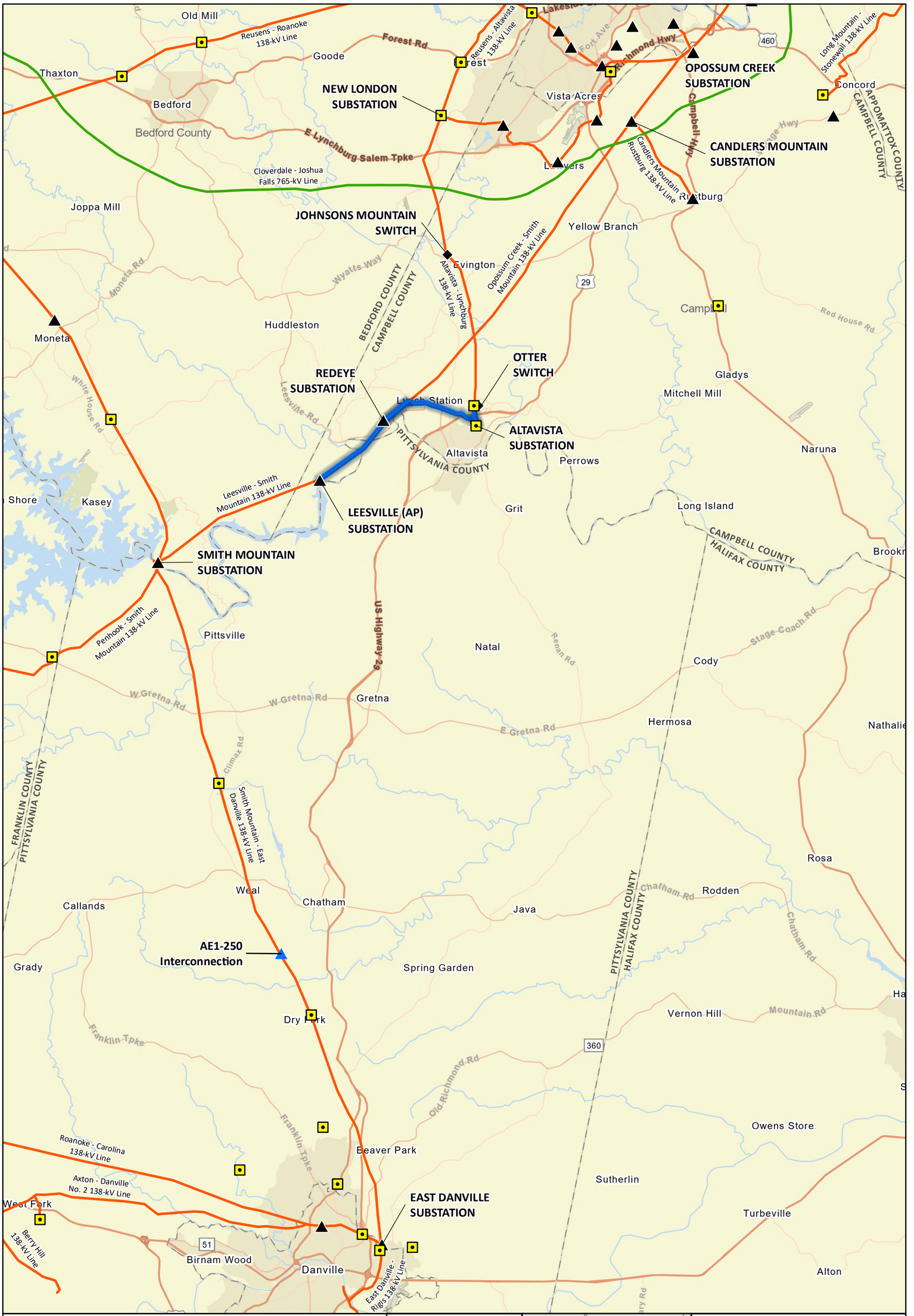
*** The Company will distribute a hard copy of the Application and related materials to these officials.*

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 virtually with local officials from Campbell and Pittsylvania Counties, and the Town of Altavista, in October 2024 to introduce the Project and aid the route planning process. The local officials were advised at the time of the Company's plans to file an application with the SCC for approval of the Project.

EXHIBIT 1: TRANSMISSION SYSTEM MAP



Existing Substation (AEP)
Non-AEP Existing Substation
Existing Switch (AEP)
AE1-250 Interconnection
Proposed Project
Existing 138-kV Transmission Line (AEP)
Existing 765-kV Transmission Line (AEP)

Pittsylvania, Campbell, Bedford, Halifax, Appomattox, Henry and Franklin Countyies and City of Danville, Virginia

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

February 18, 2026



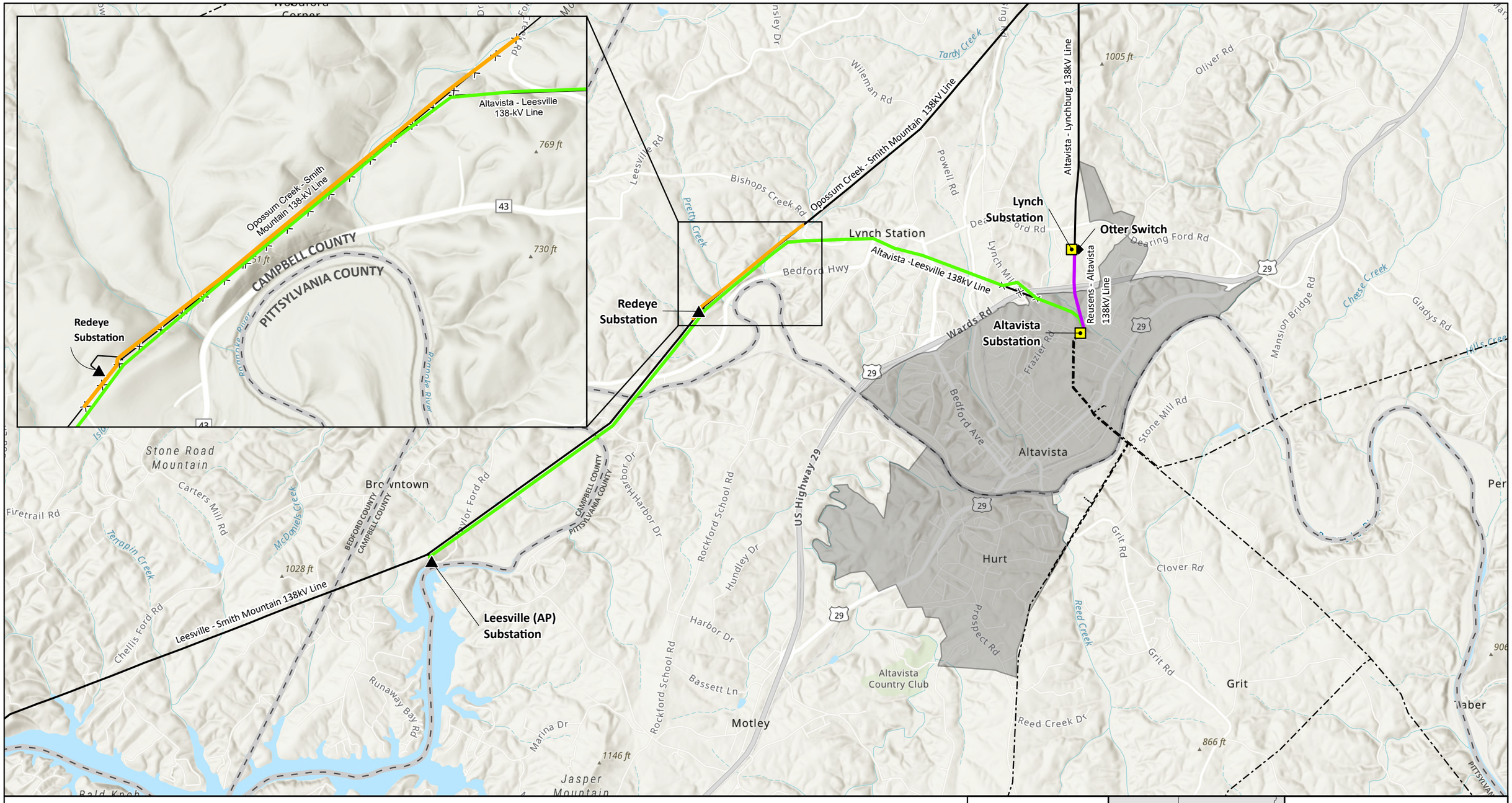
Exhibit 1: Transmission System Map

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 2 4 6 8
Miles

EXHIBIT 2: PROJECT OVERVIEW MAP



- Existing Substation (AEP)
- Existing Switch (AEP)
- Non-AEP Existing Substation
- Rebuild/Extend Altavista - Leesville 138-kV Line (Seeking SCC Approval)
- Rebuild Reusens - Altavista 138-kV Line (Seeking SCC Approval)
- Rebuild Opossum Creek - Smith Mountain 138kV Line (Seeking SCC Approval)
- Existing Transmission Line to be Removed
- Existing Transmission Line (AEP)
- Non-AEP Transmission Line
- City/Town/Municipal Area
- County Boundary

Town of Altavista,
Campbell and Pittsylvania Counties,
Virginia

NAD 1983 StatePlane Virginia South
FIPS 4502 Feet
Lambert Conformal Conic

February 18, 2026

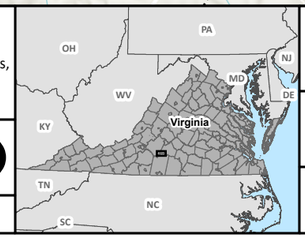


Exhibit 2: Project Overview

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 1 2
Miles

EXHIBIT 3: EXISTING AND PROPOSED TRANSMISSION LINE CIRUCIT CONFIGURATIONS

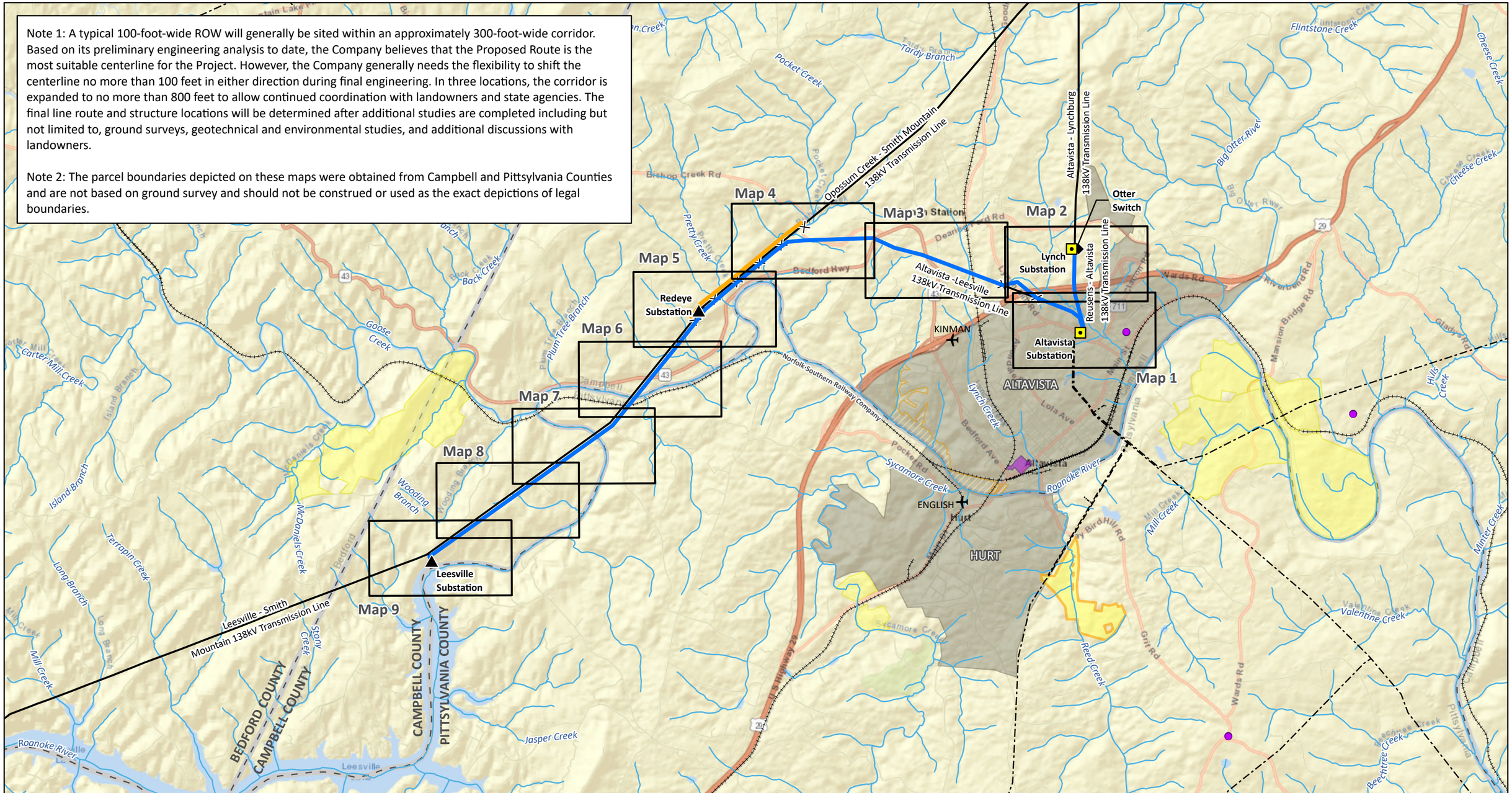
CONFIDENTIAL INFORMATION

SEE VOLUME 2: CONFIDENTIAL APPENDIX – EXHIBIT 3-C FOR EXISTING AND PROPOSED TRANSMISSION LINE CIRCUIT CONFIGURATIONS

EXHIBIT 4: GIS CONSTRAINTS MAP

Note 1: A typical 100-foot-wide ROW will generally be sited within an approximately 300-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 100 feet in either direction during final engineering. In three locations, the corridor is expanded to no more than 800 feet 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 Campbell and Pittsylvania Counties and are not based on ground survey and should not be construed or used as the exact depictions of legal boundaries.



- Existing APCo Substation
- Existing APCo Switch
- Existing Non-AEP Substation
- Proposed Route (Seeking SCC Approval)
- Existing Transmission Line to be Reconfigured (Seeking SCC Approval)
- Existing APCo Transmission Line to be Removed
- Existing APCo Transmission Line
- Non-AEP Transmission Line
- Historic Site (NRHP)
- Airport
- River
- Highway
- Railroad
- Historic District (NRHP)
- State Land Easement
- VOF Easement
- State Conservation Easement
- City/Town/Municipal Boundary
- County Boundary

Town of Altavista, Campbell and Pittsylvania Counties, Virginia

NAD 1983 StatePlane Virginia South FIPS 4502 Feet Lambert Conformal Conic

March 26, 2026



Exhibit 4: GIS Constraints Map

INDEX

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 1 2
Miles

See Notes 1 and 2 on the Index Map

Note 3: The expanded corridor includes two transmission lines parallel to each other, and allows the Company the flexibility for further discussions with affected landowners and additional surveys and engineering to minimize potential impacts.

Note 4: The expanded corridor will allow the Company the flexibility for further discussions with affected landowners and additional surveys and engineering to minimize potential impacts of the route diversion.

Exist. Str. 167-181/18
Exist. Ht. 68.3'

Prop. Str. 167-6
Prop. Ht. 112'

Prop. Str. 4A-196B
Prop. Ht. 87'

Exist. Str. 4A-196A
Exist. Ht. 63.0'

MAP 2

SEE NOTE 4

New Beginnings Baptist Church

Altavista - Leesville 138-kV Transmission Line

Exist. Str. 167-181/21
Exist. Ht. 64.1'

Prop. Str. 4A-197A
Prop. Ht. 73'

Exist. Str. 4A-197
Exist. Ht. 56.0'

138-kV Transmission Line

Reusens - Altavista

Exist. Str. 167-181/19A
Exist. Ht. 67.9'

Prop. Str. 167-4
Prop. Ht. 109'

Exist. Str. 4A-198A
Exist. Ht. 80.0'

Prop. Str. 167-5
Prop. Ht. 86'

Prop. Str. 167-3
Prop. Ht. 92'

Prop. Str. 4A-198B
Prop. Ht. 78'

Altavista Elementary School

Exist. Str. 167-181/20A
Exist. Ht. 66.8'

Prop. Str. 167-2
Prop. Ht. 77'

Prop. Str. 167-1
Prop. Ht. 82'

Lynch Mill Rd

Exist. Str. 167-181/22
Exist. Ht. 64.3'

Exist. Str. 167-181/23
Exist. Ht. 43.8'

Ogden Rd

Sourwood Ln

SEE NOTE 3

Avoca Museum

Norfolk Southern Railway Company

Avondale Dr

Edgewood Ave

Elm Cir

Altavista Substation

Prop. Str. 4A-199A
Prop. Ht. 67'

Clarion Rd

Lakewood Dr

Dogwood Ln

Exist. Str. 4A-199
Exist. Ht. 39.0'

29

Frazier Rd

Valley View Dr

Doss St

TOWN OF ALTAVISTA

Melinda Dr

Riverview Dr

Toddsbury Rd

CAMPBELL COUNTY

Proposed Structures: 167-1 to 4A-199A
Existing Structures: 4A-199 to 167-181/23

- Existing Non-AEP Substation
- Existing Structure to be Removed
- Proposed Structure
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on existing centerline)
- Proposed Reusens - Altavista 138-kV Transmission Line to be Rebuilt (on existing centerline)
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on new centerline)
- Existing APCo Transmission Line to be Removed
- Existing APCo Transmission Line
- Proposed Right-of-Way
- Filing Corridor
- Historic Site (NRHP)
- Cell Tower (FAA)
- Place of Worship
- School
- Stream (3DHP)
- Wetland (NWI)
- Waterbody (3DHP)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- Highway
- Railroad
- County Boundary
- City/Town/Municipal Area
- Map Tile

Town of Altavista,
Campbell County,
Virginia

NAD 1983 StatePlane Virginia South
FIPS 4502 Feet
Lambert Conformal Conic

March 26, 2026

BEDFORD COUNTY
CAMPBELL COUNTY
PITTSYLVANIA COUNTY
Altavista, VA
43
29

Exhibit 4: GIS Constraints Map

Map 1 of 9

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 500 1,000
Feet

See Notes 1 and 2 on the Index Map

Note 4: The expanded corridor will allow the Company the flexibility for further discussions with affected landowners and additional surveys and engineering to minimize potential impacts of the route diversion.

Exist. Str. 4A-191A
Exist. Ht. 99.7'

Lynch Substation

Otter Switch

Altavista - Lynchburg 138-kV Transmission Line

Prop. Str. 4A-192A
Prop. Ht. 82'

Exist. Str. 4A-192
Exist. Ht. 47.5'

Prop. Str. 4A-193A
Prop. Ht. 66'

Prop. Str. 4A-194B
Prop. Ht. 73'

Exist. Str. 4A-193
Exist. Ht. 46.9'

Prop. Str. 4A-195B
Prop. Ht. 78'

Exist. Str. 4A-194A
Exist. Ht. 70.3'

Reusens - Altavista 138-kV Transmission Line

Exist. Str. 4A-195A
Exist. Ht. 70.4'

Exist. Str. 4A-196A
Exist. Ht. 63'

Prop. Str. 4A-196B
Prop. Ht. 87'

Prop. Str. 167-6
Prop. Ht. 112'

Exist. Str. 167-181/18
Exist. Ht. 68.3'

Exist. Str. 167-181/17
Exist. Ht. 62.8'

Altavista - Leesville 138-kV Transmission Line

Prop. Str. 167-7
Prop. Ht. 86'

SEE NOTE 4

Prop. Str. 167-8
Prop. Ht. 97'

Lynch Mill Rd

Merritt Ln

Innovation Dr

Glarion Rd

TOWN OF ALTAVISTA

Cedar Creek Run

MAP 3

MAP 1

29

Proposed Structures: 167-6 to 4A-196B
Existing Structures: 4A-191A to 167-181/18

- Existing Non-AEP Substation
- Existing Switch (AEP)
- Existing Structure to be Removed
- Proposed Structure
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on existing centerline)
- Proposed Reusens - Altavista 138-kV Transmission Line to be Rebuilt (on existing centerline)
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on new centerline)
- Existing APCo Transmission Line to be Removed
- Existing APCo Transmission Line
- Proposed Right-of-Way
- Filing Corridor
- Stream (3DHP)
- Waterbody (3DHP)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- Highway
- City/Town/Municipal Area
- Map Tile

Town of Altavista,
Campbell County,
Virginia

NAD 1983 StatePlane Virginia South
FIPS 4502 Feet
Lambert Conformal Conic

March 26, 2026

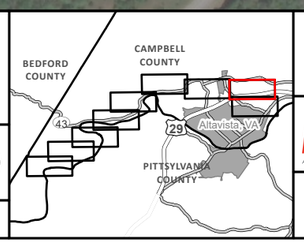


Exhibit 4: GIS Constraints Map

Map 2 of 9

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 500 1,000
Feet

See Notes 1 and 2 on the Index Map

Note 4: The expanded corridor will allow the Company the flexibility for further discussions with affected landowners and additional surveys and engineering to minimize potential impacts of the route diversion.

Exist. Str. 167-181/6
Exist. Ht. 70.0'

Prop. Str. 167-19
Prop. Ht. 82'

Prop. Str. 167-18
Prop. Ht. 104'

Prop. Str. 167-17
Prop. Ht. 82'

Prop. Str. 167-16
Prop. Ht. 105'

Prop. Str. 167-15
Prop. Ht. 95'

Prop. Str. 167-14
Prop. Ht. 83'

Prop. Str. 167-13
Prop. Ht. 77'

Prop. Str. 167-12
Prop. Ht. 113'

Prop. Str. 167-11
Prop. Ht. 104'

Prop. Str. 167-10
Prop. Ht. 95'

Prop. Str. 167-9
Prop. Ht. 92'

SEE NOTE 4

Exist. Str. 167-181/6A
Exist. Ht. 70.0'

Exist. Str. 167-181/7
Exist. Ht. 70.0'

Exist. Str. 167-181/8
Exist. Ht. 49.4'

Exist. Str. 167-181/9
Exist. Ht. 63.0'

Exist. Str. 167-181/10
Exist. Ht. 64.0'

Exist. Str. 167-181/11
Exist. Ht. 48.9'

Exist. Str. 167-181/12
Exist. Ht. 54.5'

Exist. Str. 167-181/13
Exist. Ht. 68.9'

Exist. Str. 167-181/14
Exist. Ht. 67.8'

Exist. Str. 167-181/15
Exist. Ht. 68.3'

Exist. Str. 167-181/16
Exist. Ht. 54.1'

Bedford Hwy
Wileman Rd
Mount Hermon Rd
Mount Hermon Church
Mount Hermon Cemetery
Saddle Rd
Altavista - Leesville 138-kV Transmission Line
Lynch Creek
Lynch Rd
Cedar Creek Run
Windsong Dr
Northgate Rd
Northgate Ct
Norfolk Southern Railway Company
MAP 4
MAP 2
43
29

Proposed Structures: 167-9 to 167-19
Existing Structures: 167-181/6 to 167-181/16

- Existing Structure to be Removed
- Proposed Structure
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on existing centerline)
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on new centerline)
- Existing APCo Transmission Line to be Removed
- Existing APCo Transmission Line
- Proposed Right-of-Way
- Filing Corridor
- Cemetery
- Place of Worship
- Stream (3DHP)
- Wetland (NWI)
- Waterbody (3DHP)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Habitable Building (within Filing Corridor)
- Non-Habitable Building (within Filing Corridor)
- Parcel Boundary (within Filing Corridor)
- Highway
- Scenic Byway
- Railroad
- Map Tile

Campbell County, Virginia

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Lambert Conformal Conic

March 26, 2026

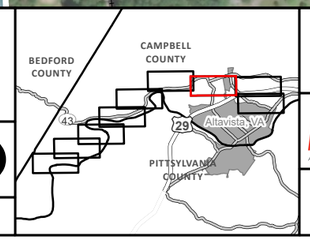


Exhibit 4: GIS Constraints Map

Map 3 of 9

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 500 1,000
Feet

See Notes 1 and 2 on the Index Map

Note 3: The expanded corridor includes two transmission lines parallel to each other, and allows the Company the flexibility for further discussions with affected landowners and additional surveys and engineering to minimize potential impacts.

Bishop Creek
Pocket Creek
Opossum Creek - Smith Mountain 138-kV Transmission Line
Altavista - Leesville 138-kV Transmission Line
Exist. Str. 17-180
Exist. Ht. 63'
Prop. Str. 17-181A
Prop. Ht. 122'
Exist. Str. 17-181
Exist. Ht. 118.2'
SEE NOTE 3
Prop. Str. 17-182A
Prop. Ht. 147'
Prop. Str. 17-182B
Prop. Ht. 112'
Prop. Str. 17-183A
Prop. Ht. 100'
Prop. Str. 167-24
Prop. Ht. 113'
Prop. Str. 167-25
Prop. Ht. 120'
Prop. Str. 167-26
Prop. Ht. 127'
Prop. Str. 167-27
Prop. Ht. 122'
Prop. Str. 167-28
Prop. Ht. 100'
Exist. Str. 17-182
Exist. Ht. 106.7'
Exist. Str. 17-183
Exist. Ht. 118.8'
Prop. Str. 167-22
Prop. Ht. 73'
Exist. Str. 167-181/3
Exist. Ht. 60.8'
Prop. Str. 167-23
Prop. Ht. 95'
Exist. Str. 167-181/2
Exist. Ht. 57.1'
Exist. Str. 167-181/1
Exist. Ht. 47.5'
Exist. Str. 167-181/4
Exist. Ht. 85.0'
Prop. Str. 167-20
Prop. Ht. 95'
Exist. Str. 167-181/6
Exist. Ht. 70.0'
Prop. Str. 167-21
Prop. Ht. 77'
Exist. Str. 167-181/5
Exist. Ht. 60.0'
Prop. Str. 167-19
Prop. Ht. 82'
MAP 5
MAP 3
43
Bedford Hwy
Old Pocket Rd
Northgate

Proposed Structures: 167-19 to 17-183A
Existing Structures: 167-181/1 to 17-183

- Existing Structure to be Removed
- Existing Structure to Remain
- Proposed Structure
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on existing centerline)
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on new centerline)
- Existing Opossum Creek - Smith Mountain 138-kV Transmission Line to be Reconfigured
- Existing APCo Transmission Line to be Removed
- Existing APCo Transmission Line
- Proposed Right-of-Way
- Filing Corridor
- Stream (3DHP)
- Wetland (NWI)
- Waterbody (3DHP)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- Highway
- Scenic Byway
- Map Tile

Campbell County, Virginia

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Lambert Conformal Conic

March 26, 2026

BEDFORD COUNTY
CAMPBELL COUNTY
PITTSYLVANIA COUNTY
Altavista, VA
43
29

Exhibit 4: GIS Constraints Map

Map 4 of 9

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 500 1,000
Feet

See Notes 1 and 2 on the Index Map

Note 3: The expanded corridor includes two transmission lines parallel to each other, and allows the Company the flexibility for further discussions with affected landowners and additional surveys and engineering to minimize potential impacts.

Prop. Str. 17-183A
Prop. Ht. 100'

Exist. Str. 17-183
Exist. Ht. 118.8'

Prop. Str. 167-28
Prop. Ht. 100'

Prop. Str. 17-183B
Prop. Ht. 100'

Prop. Str. 167-29
Prop. Ht. 100'

Prop. Str. 17-184A
Prop. Ht. 102'

Exist. Str. 17-184
Exist. Ht. 130'

SEE NOTE 3

Prop. Str. 167-30
Prop. Ht. 97'

Prop. Str. 17-184B
Prop. Ht. 122'

Prop. Str. 17-185A
Prop. Ht. 115'

1351-1

Redeye Extension
138-kV Transmission Line

Redeye
Substation

Exist. Str. 17-185
Exist. Ht. 133.5'

Prop. Str. 167-31
Prop. Ht. 132'

Exist. Str. 17-186
Exist. Ht. 97.9'

Prop. Str. 167-32
Prop. Ht. 95'

Opossum Creek - Smith Mountain
138-kV Transmission Line

MAP 6

Prop. Str. 167-33
Prop. Ht. 77'

MAP 4

Roanoke River

Bishop Creek

Pretty Creek

Bedford Hwy

43

PITTSYLVANIA COUNTY
CAMPBELL COUNTY

Proposed Structures: 17-183A to 167-33
Existing Structures: 17-183 to 17-186

- Existing APCo Substation
- Existing Structure to be Removed
- Existing Structure to Remain
- Proposed Structure
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on new centerline)
- Existing Opossum Creek - Smith Mountain 138-kV Transmission Line to be Reconfigured
- Existing APCo Transmission Line to be Removed
- Existing APCo Transmission Line
- Proposed Right-of-Way
- Filing Corridor
- Stream (3DHP)
- Wetland (NWI)
- Waterbody (3DHP)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- Highway
- Scenic Byway
- County Boundary
- Map Tile

Campbell County, Virginia

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Lambert Conformal Conic

March 26, 2026

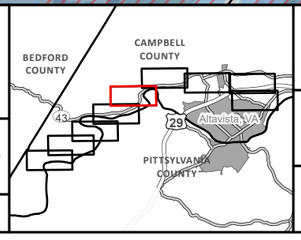


Exhibit 4: GIS Constraints Map

Map 5 of 9

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 500 1,000
Feet

See Notes 1 and 2 on the Index Map

Prop. Str. 167-33
Prop. Ht. 77'

Prop. Str. 167-34
Prop. Ht. 95'

Prop. Str. 167-35
Prop. Ht. 104'

Prop. Str. 167-36
Prop. Ht. 104'

Prop. Str. 167-37
Prop. Ht. 104'

Prop. Str. 167-38
Prop. Ht. 104'

MAP 5

MAP 7

Bedford Hwy

43

CAMPBELL COUNTY

PITTSYLVANIA COUNTY

Norfolk Southern Railway Company

Roanoke River

Opossum Creek - Smith Mountain 138-kV Transmission Line

Proposed Structures: 167-33 to 167-38

- Proposed Structure
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on new centerline)
- Existing APCo Transmission Line
- Proposed Right-of-Way
- Filing Corridor
- Stream (3DHP)
- Wetland (NWI)
- Waterbody (3DHP)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Habitable Building (within Filing Corridor)
- Non-Habitable Building (within Filing Corridor)
- Parcel Boundary (within Filing Corridor)
- Highway
- Scenic Byway
- Railroad
- County Boundary
- Map Tile

Campbell & Pittsylvania Counties, Virginia

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Lambert Conformal Conic

March 26, 2026

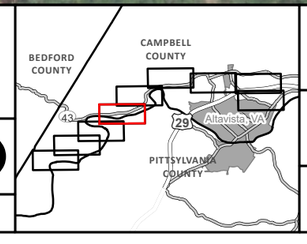


Exhibit 4: GIS Constraints Map

Map 6 of 9

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 500 1,000
Feet

See Notes 1 and 2 on the Index Map

Prop. Str. 167-38
Prop. Ht. 104'

Prop. Str. 167-39
Prop. Ht. 97'

Prop. Str. 167-40
Prop. Ht. 82'

Prop. Str. 167-41
Prop. Ht. 77'

Prop. Str. 167-42
Prop. Ht. 86'

Prop. Str. 167-43
Prop. Ht. 95'

Goose Creek
Norfolk Southern Railway Company
Wooding Branch
Roanoke River
Opossum Creek - Smith Mountain 138-kV Transmission Line
MAP 6
MAP 8
Pocket Rd
Harbor Dr
PITTSYLVANIA COUNTY
CAMPBELL COUNTY

Proposed Structures: 167-38 to 167-43

- Proposed Structure
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on new centerline)
- Existing APCo Transmission Line
- Proposed Right-of-Way
- Filing Corridor
- Stream (3DHP)
- Wetland (NWI)
- Waterbody (3DHP)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- Railroad
- County Boundary
- Map Tile

Campbell & Pittsylvania Counties, Virginia

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Lambert Conformal Conic

March 26, 2026

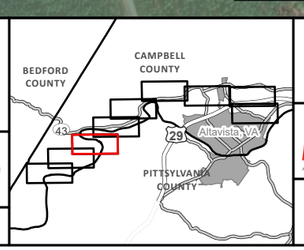


Exhibit 4: GIS Constraints Map

Map 7 of 9

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 500 1,000
Feet

See Notes 1 and 2 on the Index Map

Wooding Branch

Taylor Ford Rd

Slush Branch

Opossum Creek - Smith Mountain 138-kV Transmission Line

MAP 9

MAP 7

Prop. Str. 167-43
Prop. Ht. 95'

Prop. Str. 167-44
Prop. Ht. 95'

Prop. Str. 167-45
Prop. Ht. 77'

Prop. Str. 167-46
Prop. Ht. 77'

Prop. Str. 167-47
Prop. Ht. 77'

Prop. Str. 167-48
Prop. Ht. 77'

CAMPBELL COUNTY

PITTSYLVANIA COUNTY

Roanoke River

Proposed Structures: 167-43 to 167-48

- Proposed Structure
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on new centerline)
- Existing APCo Transmission Line
- Proposed Right-of-Way
- Filing Corridor
- Stream (3DHP)
- Wetland (NWI)
- Waterbody (3DHP)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Non-Habitable Building (within Filing Corridor)
- Parcel Boundary (within Filing Corridor)
- County Boundary
- Map Tile

Campbell & Pittsylvania Counties, Virginia

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Lambert Conformal Conic

March 26, 2026

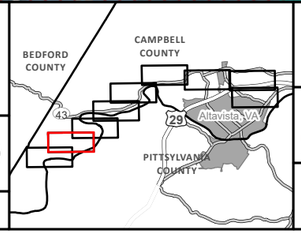


Exhibit 4: GIS Constraints Map

Map 8 of 9

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 500 1,000
Feet

See Notes 1 and 2 on the Index Map

Prop. Str. 167-47
Prop. Ht. 77'

Prop. Str. 167-48
Prop. Ht. 77'

MAP 8

Prop. Str. 167-49
Prop. Ht. 92'

Opossum Creek - Smith Mountain 138-kV Transmission Line

Prop. Str. 167-50
Prop. Ht. 93'

Prop. Str. 167-51
Prop. Ht. 92'

Taylor Ford Rd

CAMPBELL COUNTY

PITTSYLVANIA COUNTY

Roanoke River

Leesville - Smith Mountain 138-kV Transmission Line

Leesville Substation

Proposed Structures: 167-47 to 167-51

- Existing APCo Substation
- Proposed Structure
- Proposed Altavista - Leesville 138-kV Transmission Line to be Rebuilt (on new centerline)
- Existing APCo Transmission Line
- Proposed Right-of-Way
- Filing Corridor
- Stream (3DHP)
- Waterbody (3DHP)
- Floodway (FEMA)
- 100 Year Floodplain (FEMA)
- Parcel Boundary (within Filing Corridor)
- County Boundary
- Map Tile

Campbell & Pittsylvania Counties, Virginia

NAD 1983 StatePlane Virginia South FIPS 4502 Feet
Lambert Conformal Conic

March 26, 2026

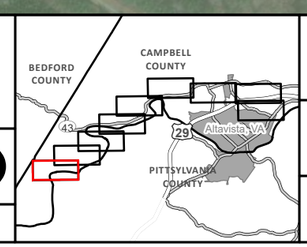


Exhibit 4: GIS Constraints Map

Map 9 of 9

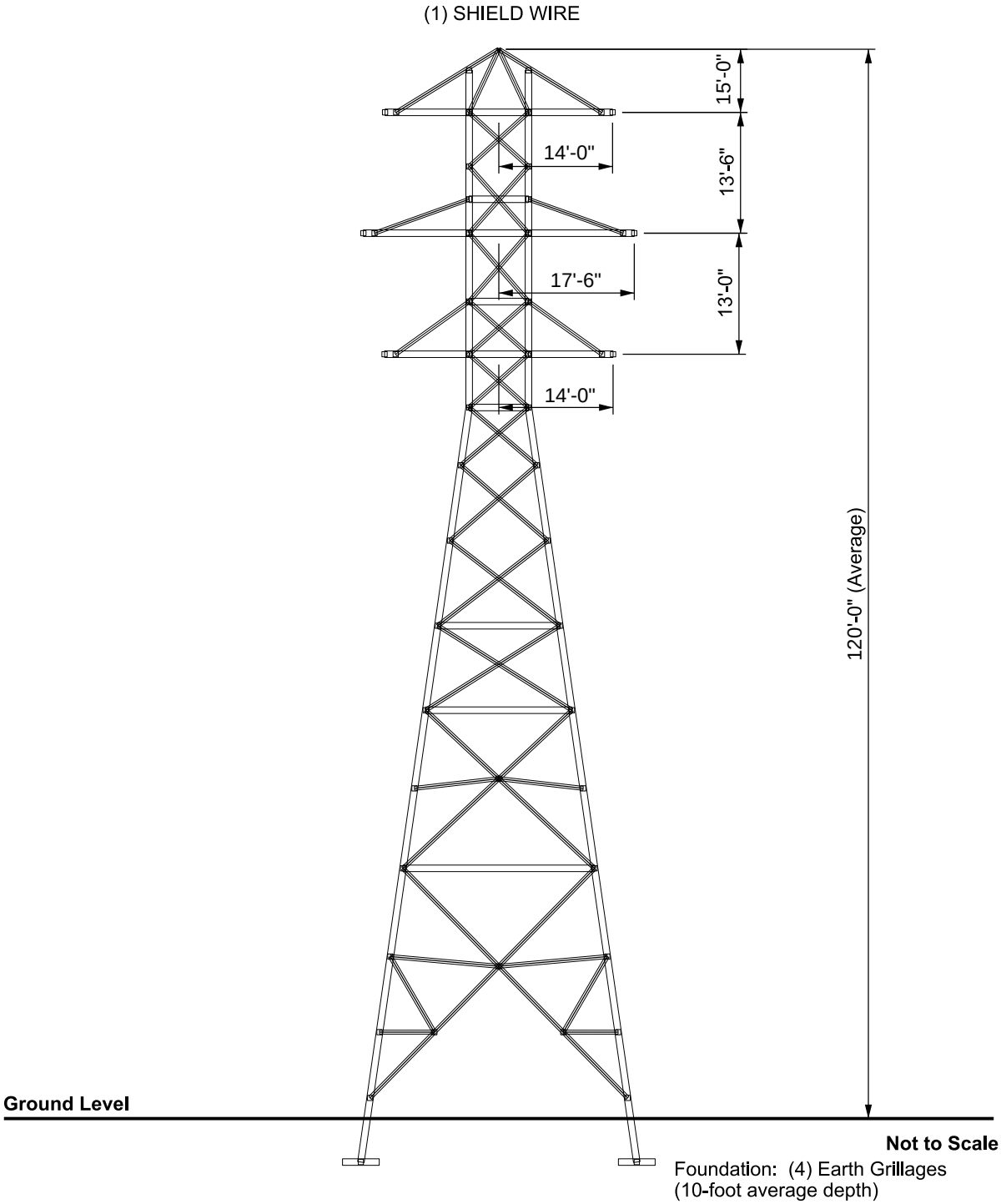
APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

0 500 1,000
Feet

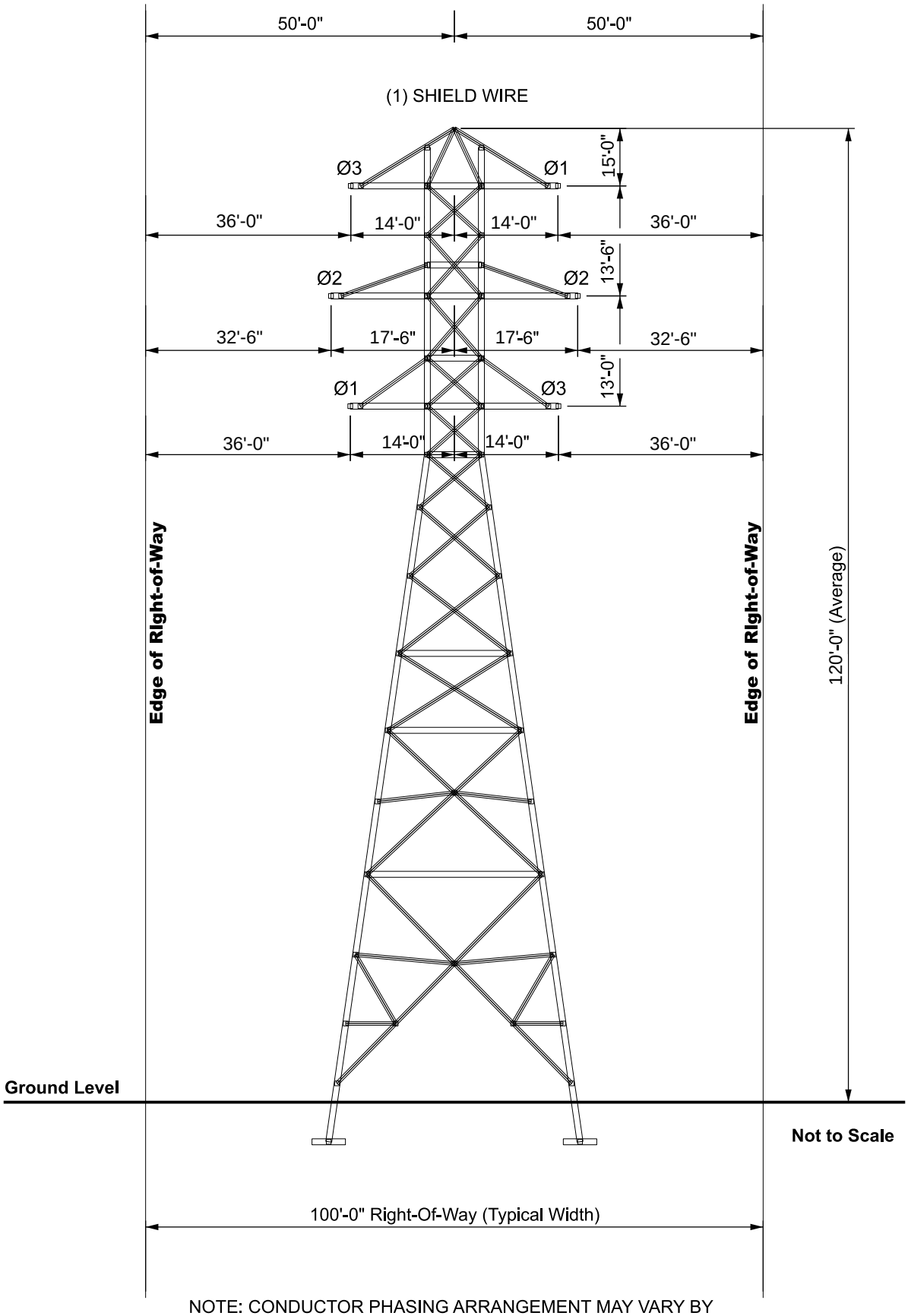
EXHIBIT 5: EXISTING STEEL LATTICE TOWER DEAD-END (DOUBLE CIRCUIT)

STEEL LATTICE TOWER DEAD-END (DOUBLE CIRCUIT)



TYPICAL SCHEMATIC

STEEL LATTICE TOWER DEAD-END (DOUBLE CIRCUIT)



NOTE: CONDUCTOR PHASING ARRANGEMENT MAY VARY BY CIRCUIT. THE PHASING SHOWN ABOVE IS REPRESENTATIVE OF THE PREDOMINATE ARRANGEMENT ONLY

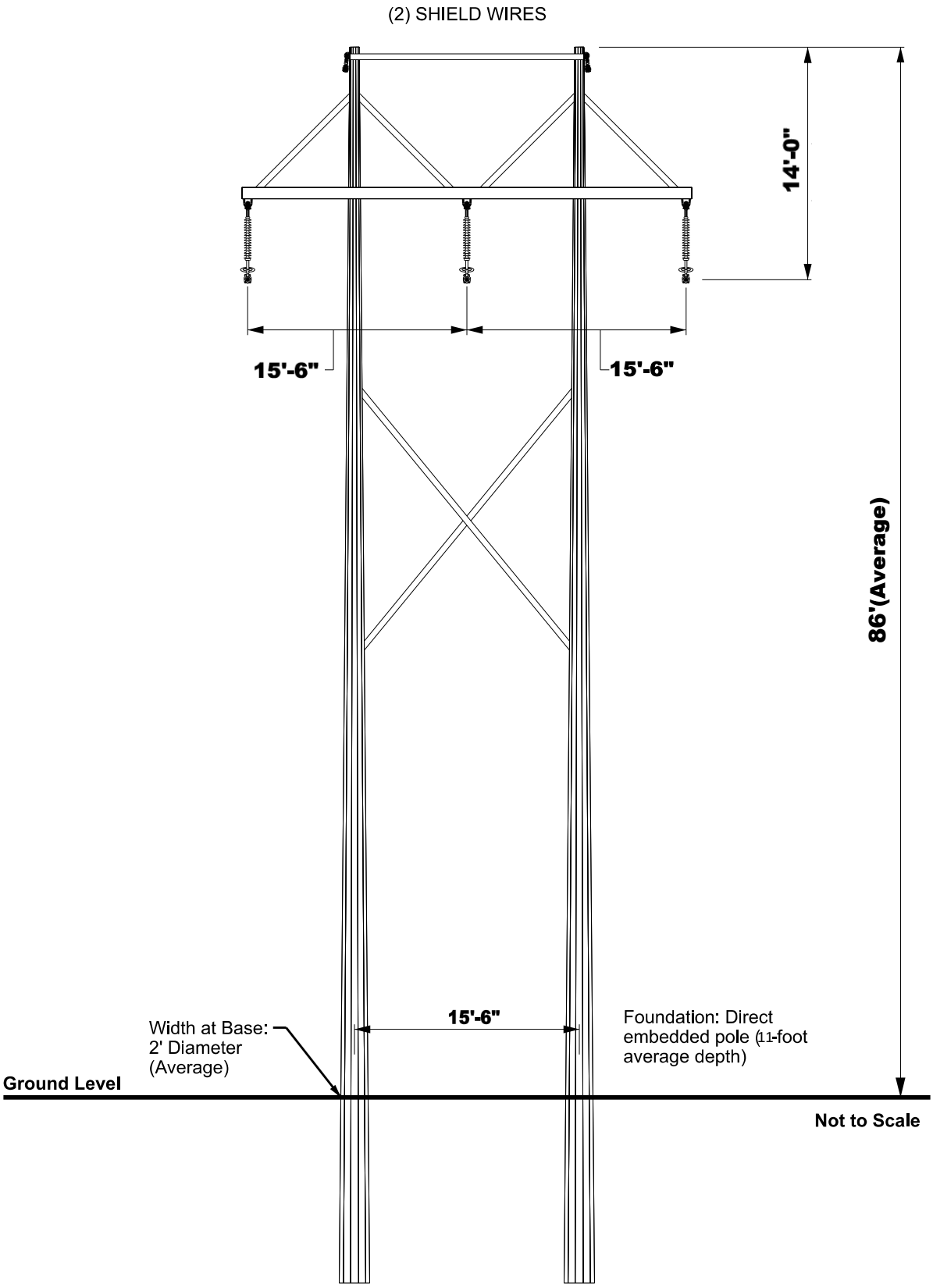
TYPICAL RIGHT-OF-WAY CROSS SECTION

STEEL LATTICE TOWER DEAD-END (DOUBLE CIRCUIT)

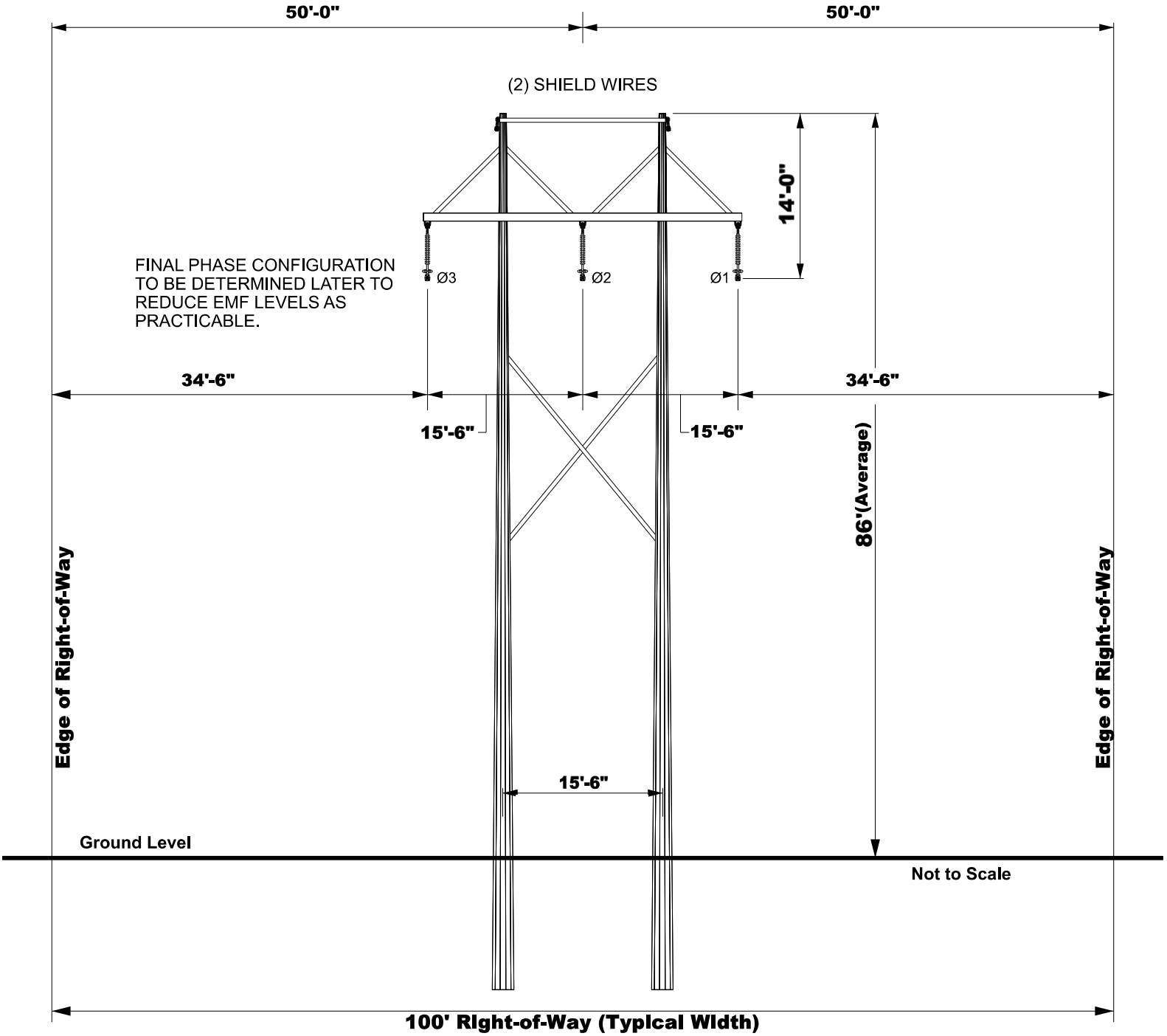


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

EXHIBIT 6: EXISTING WOOD H-FRAME (SINGLE CIRCUIT)



TYPICAL SCHEMATIC



TYPICAL RIGHT-OF-WAY CROSS SECTION

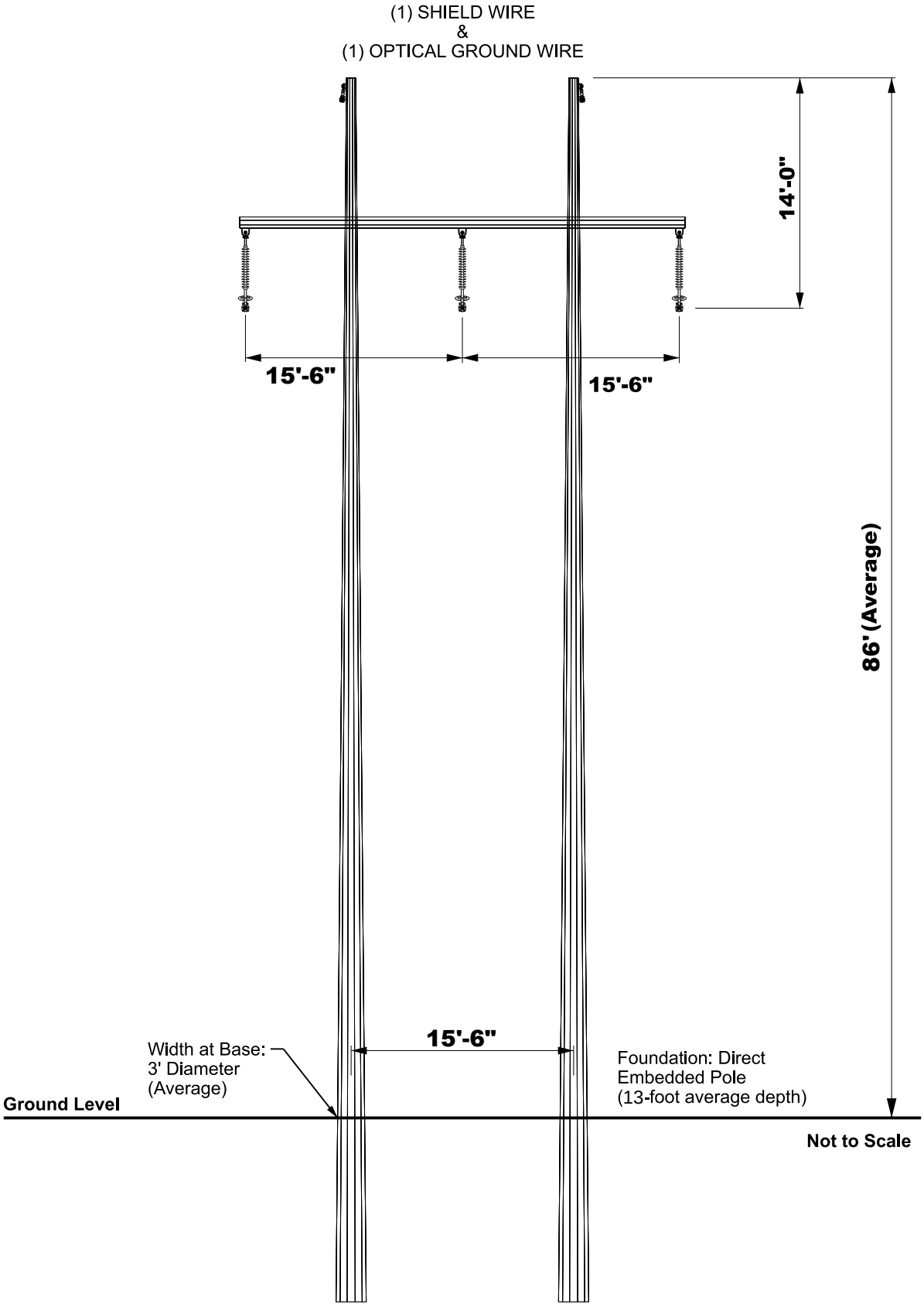


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

EXHIBIT 7: EXISTING STEEL H-FRAME (SINGLE CIRCUIT)

EXISTING 138-kV TRANSMISSION STRUCTURES (Page 1 of 3)

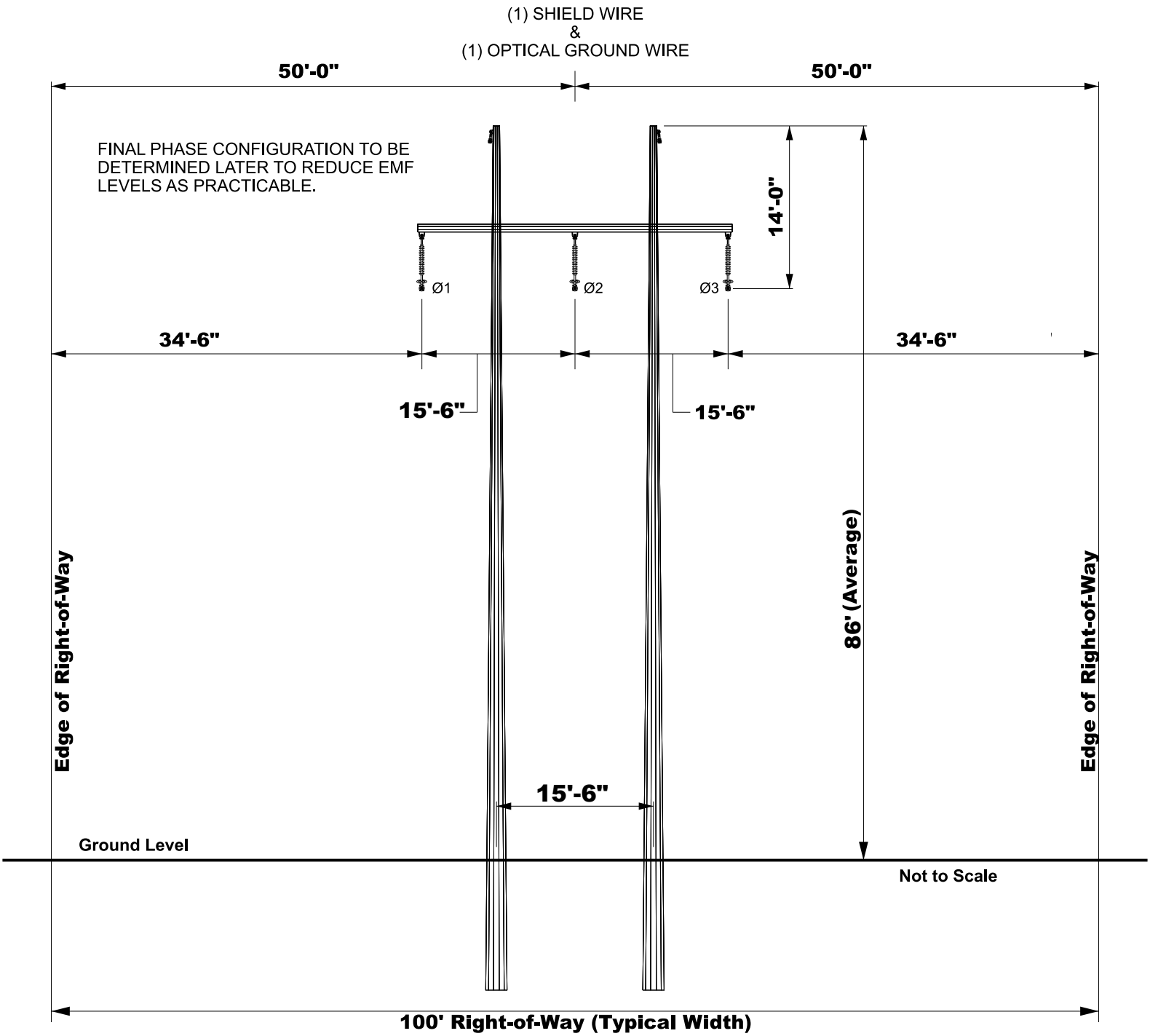
STEEL H-FRAME (Single Circuit)



TYPICAL SCHEMATIC

EXISTING 138-kV TRANSMISSION STRUCTURES (Page 2 of 3)

STEEL H-FRAME (Single Circuit)



TYPICAL RIGHT-OF-WAY CROSS SECTION

STEEL H-FRAME (Single Circuit)

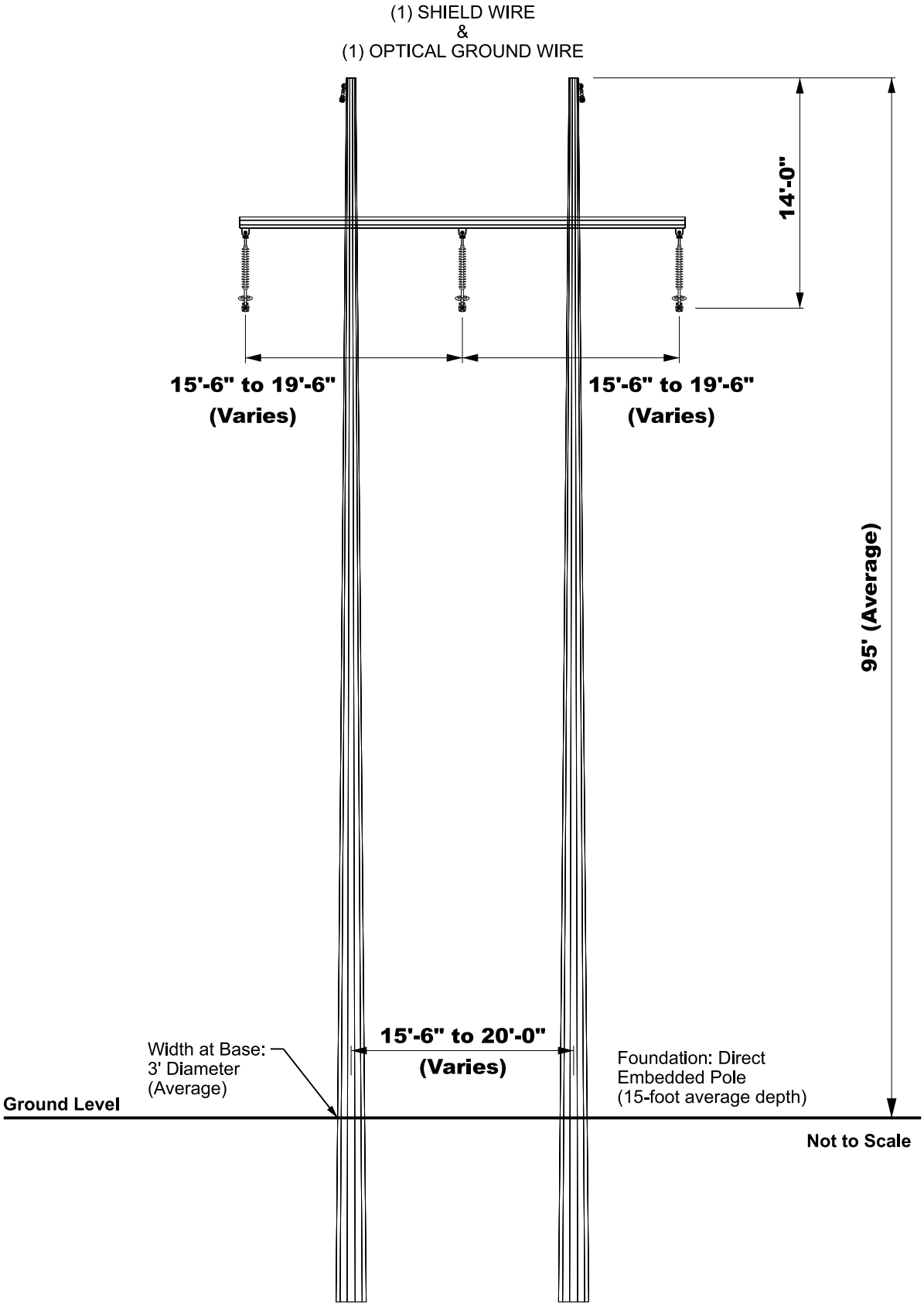


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

EXHIBIT 8: PROPOSED STEEL H-FRAME (SINGLE CIRCUIT)

PROPOSED 138-kV TRANSMISSION STRUCTURES (Page 1 of 3)

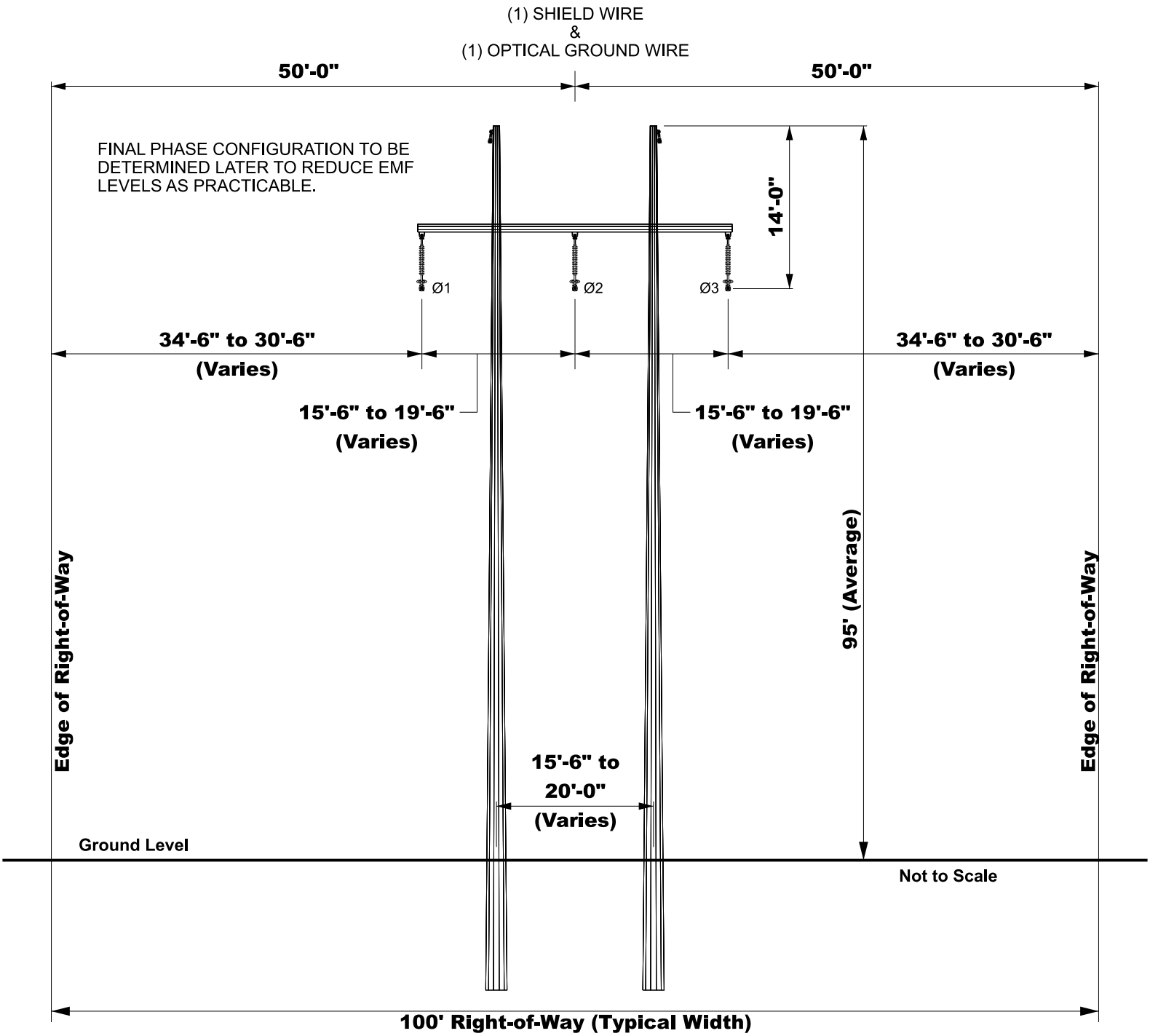
STEEL H-FRAME (Single Circuit)



TYPICAL SCHEMATIC

PROPOSED 138-kV TRANSMISSION STRUCTURES (Page 2 of 3)

STEEL H-FRAME (Single Circuit)



TYPICAL RIGHT-OF-WAY CROSS SECTION

STEEL H-FRAME (Single Circuit)

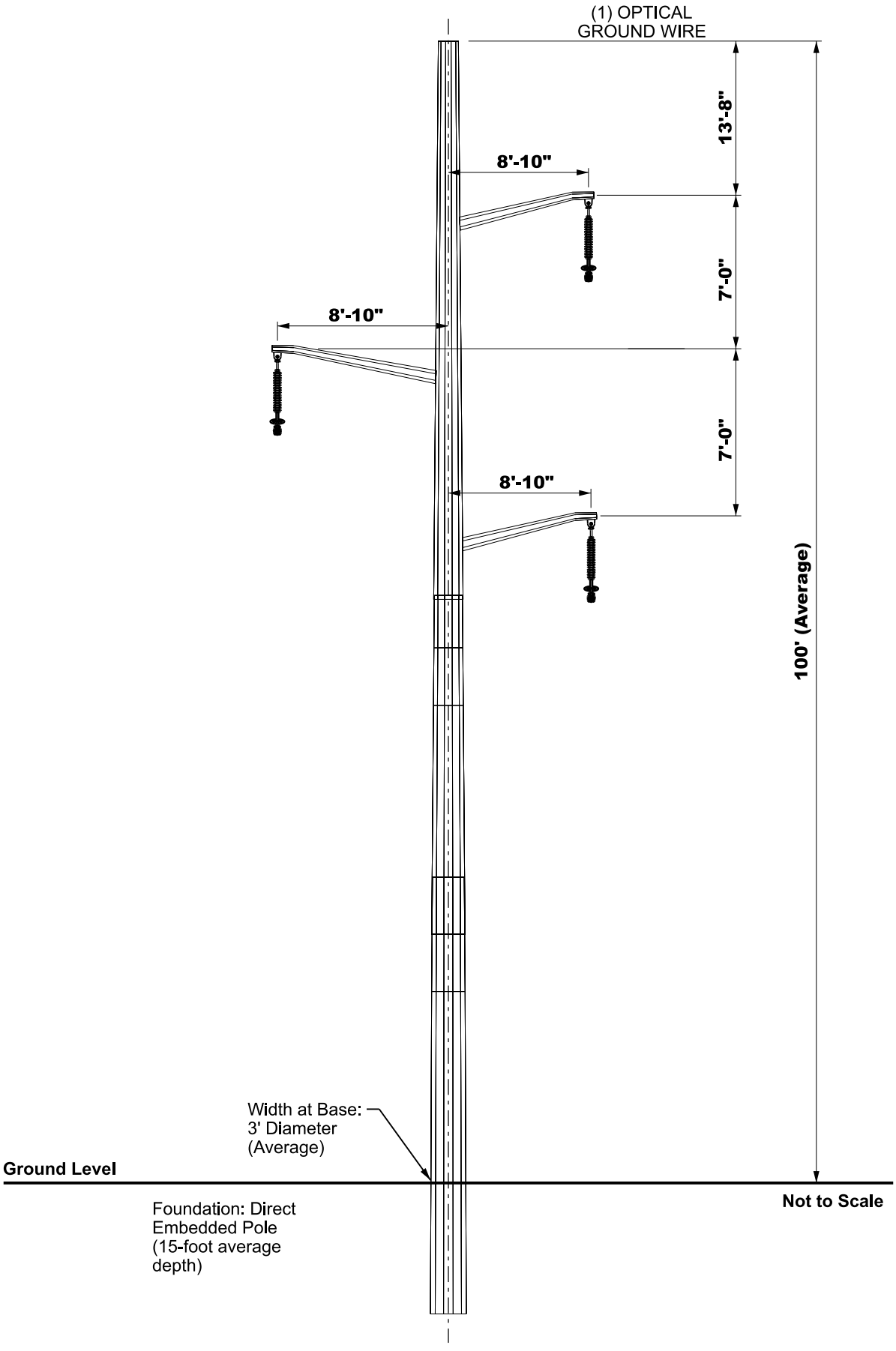


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above)

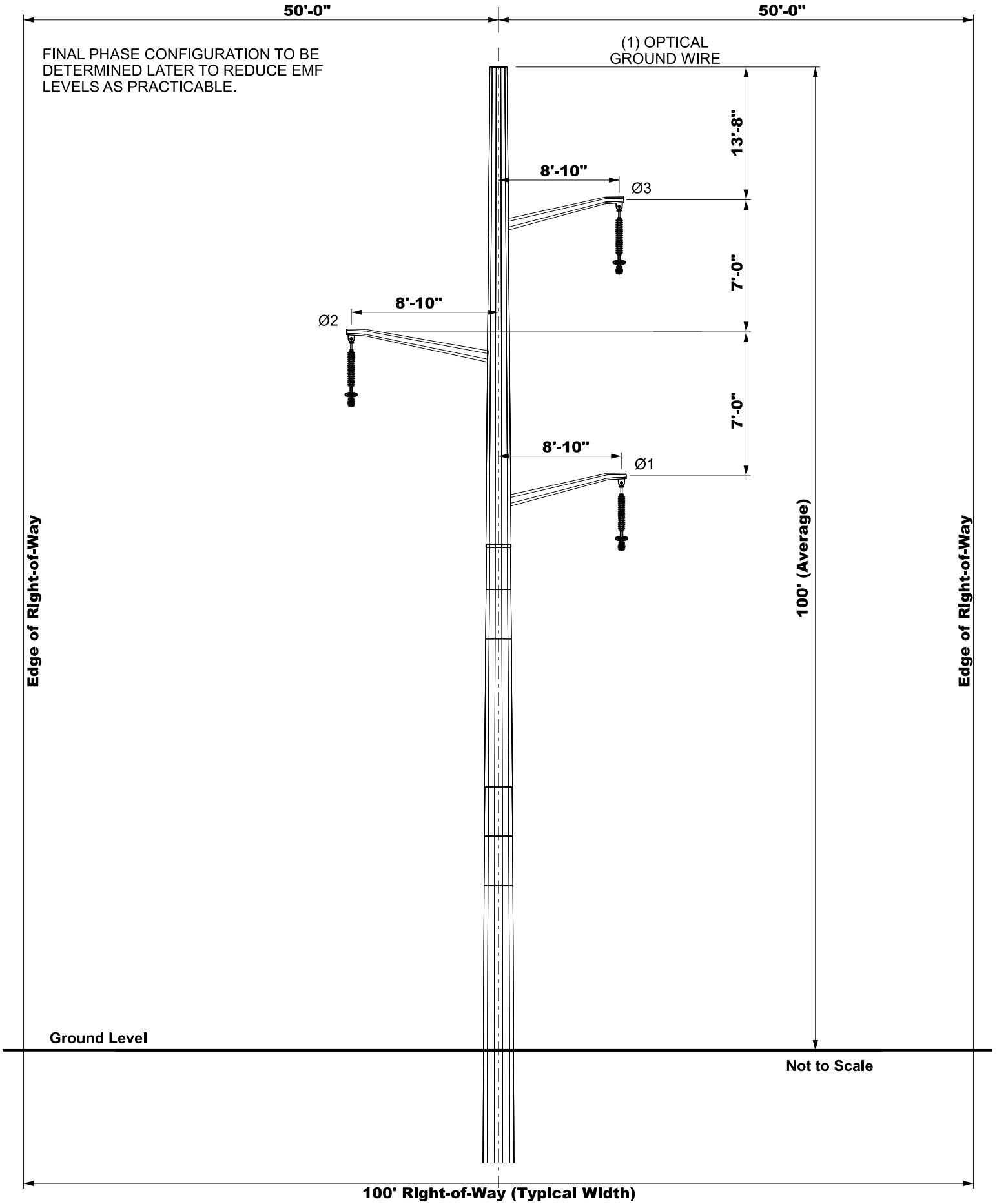
EXHIBIT 9: PROPOSED STEEL MONOPOLE WITH DAVIT ARMS (SINGLE CIRCUIT)

STEEL MONOPOLE WITH DAVIT ARMS (Single Circuit)



TYPICAL SCHEMATIC

STEEL MONOPOLE WITH DAVIT ARMS (Single Circuit)



TYPICAL RIGHT-OF-WAY CROSS SECTION

STEEL MONOPOLE WITH DAVIT ARMS (Single Circuit)

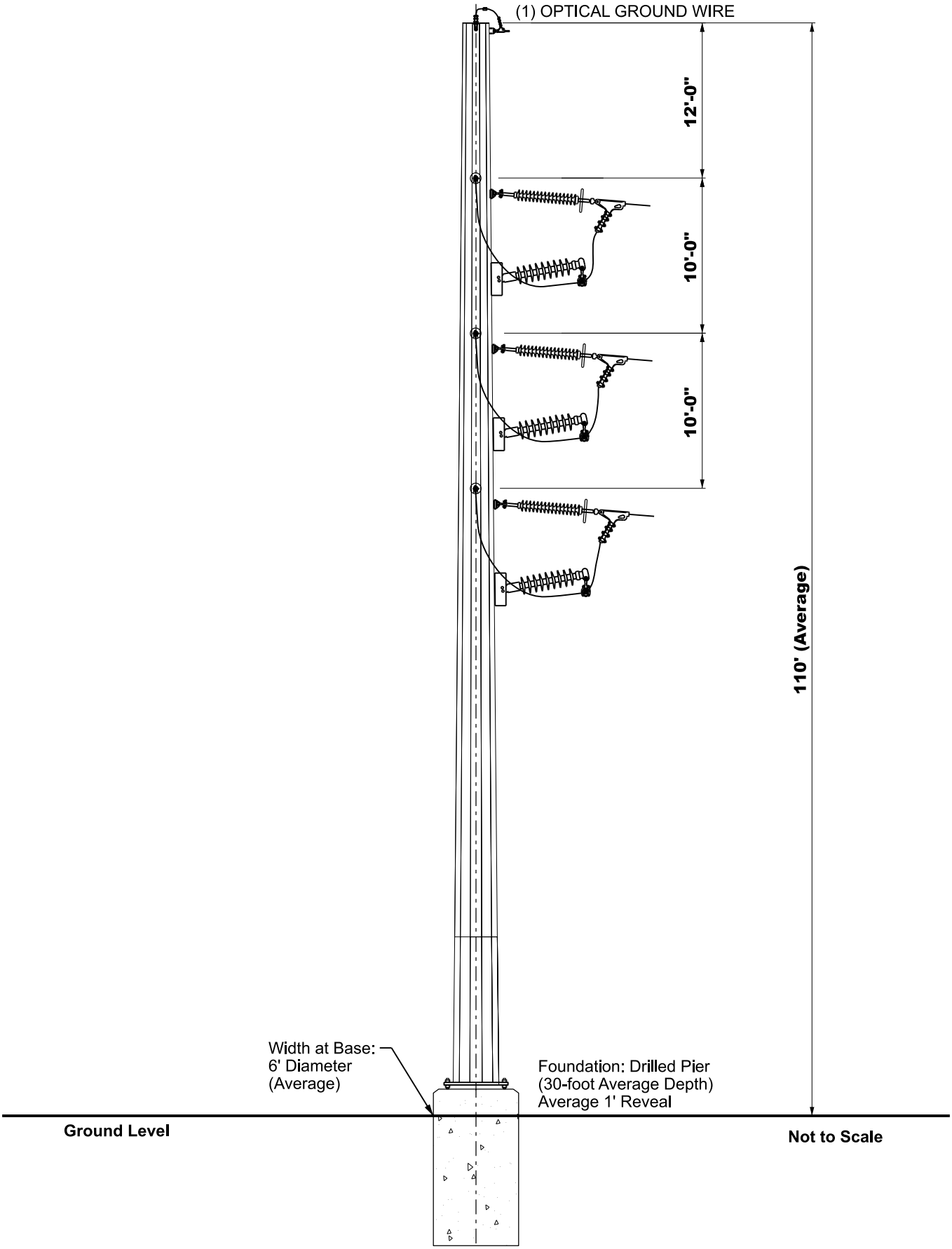


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above)

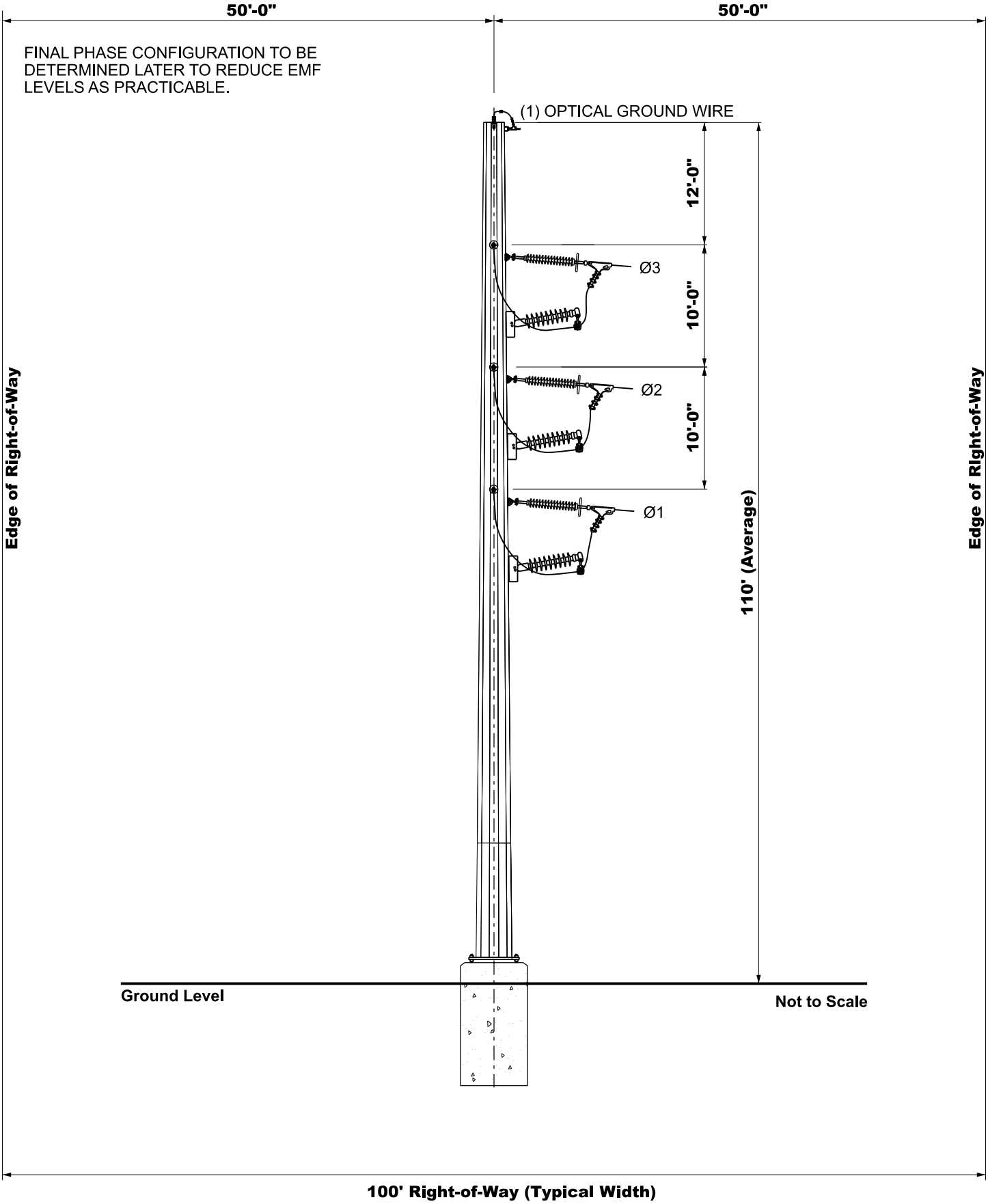
EXHIBIT 10: PROPOSED STEEL MONOPOLE DEAD-END (SINGLE CIRCUIT)

STEEL MONOPOLE DEAD-END (SINGLE CIRCUIT)



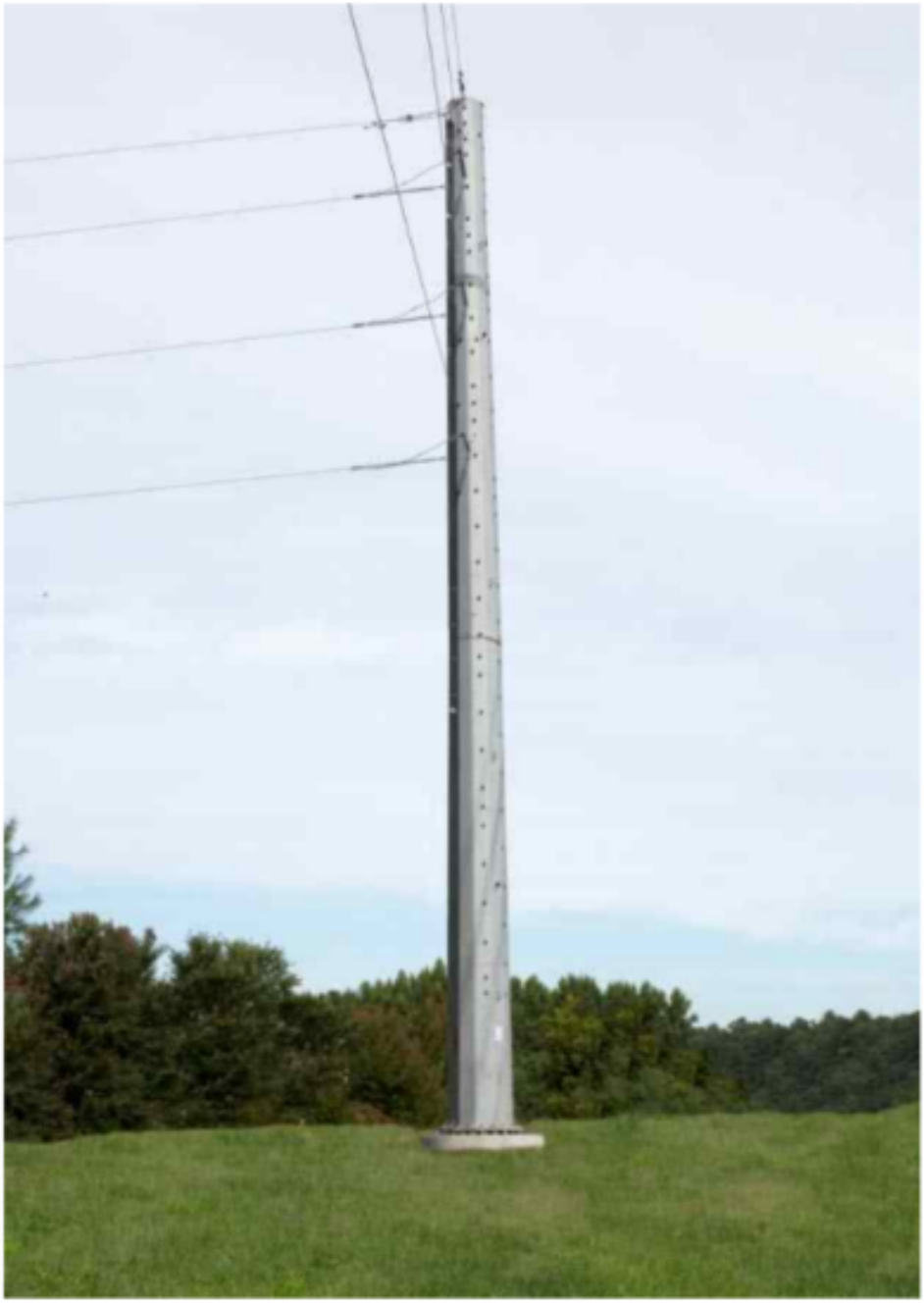
TYPICAL SCHEMATIC

STEEL MONOPOLE DEAD-END (SINGLE CIRCUIT)



TYPICAL RIGHT-OF-WAY CROSS SECTION

STEEL MONOPOLE DEAD-END (SINGLE CIRCUIT)

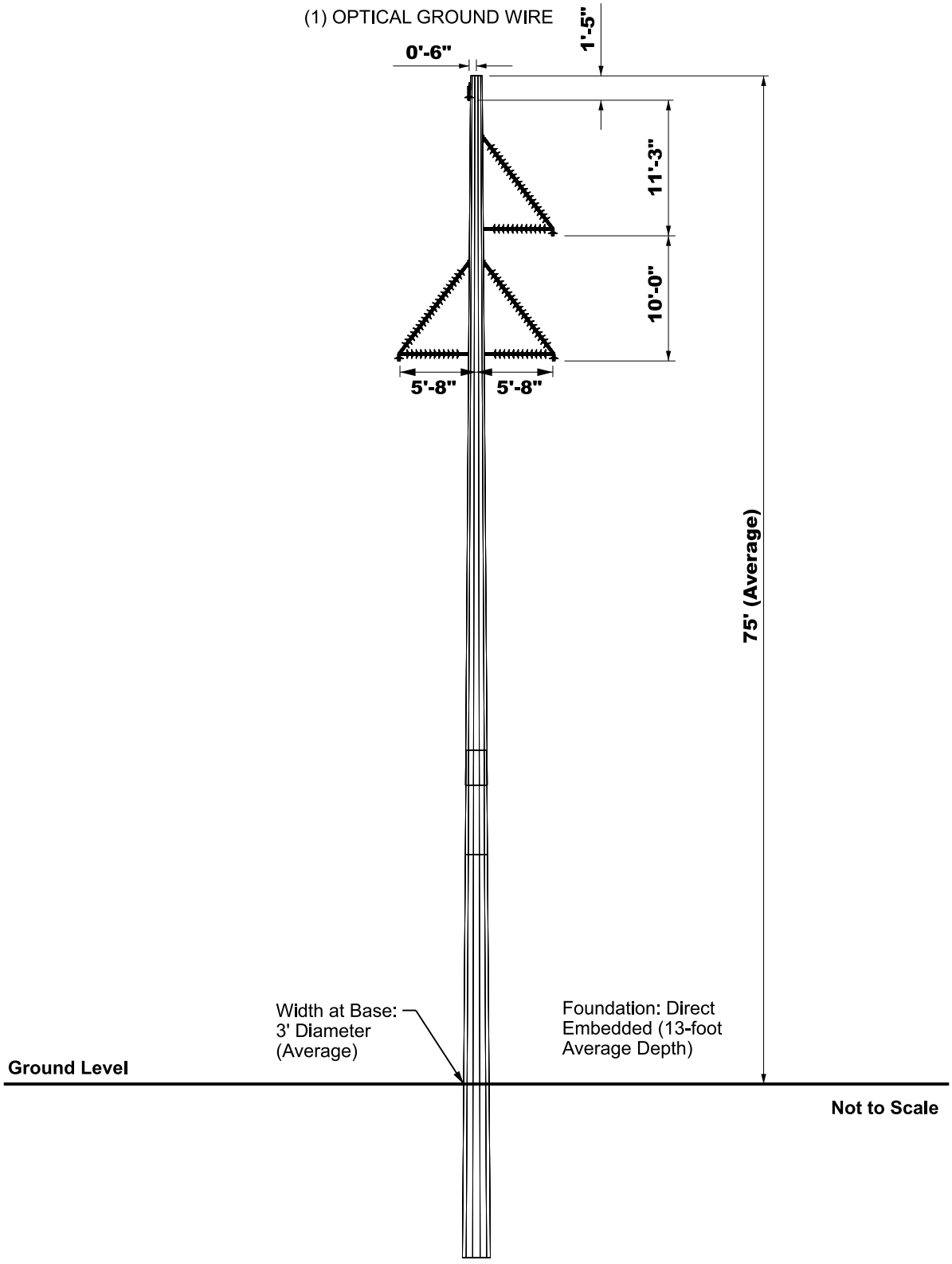


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above)

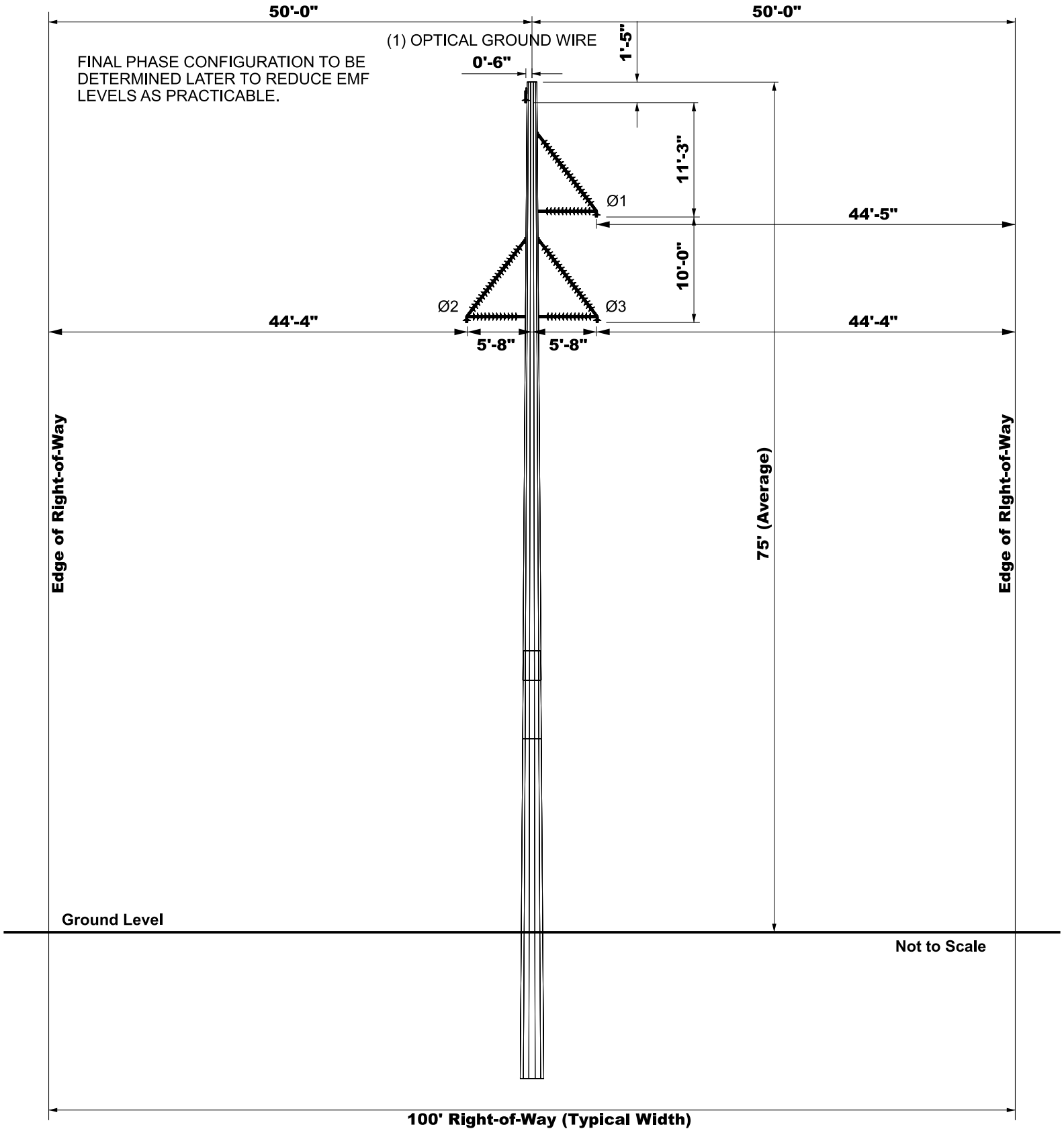
EXHIBIT 11: PROPOSED STEEL MONOPOLE WITH BRACED POSTS (SINGLE CIRCUIT)

STEEL MONOPOLE WITH BRACED POSTS (Single Circuit)



TYPICAL SCHEMATIC

STEEL MONOPOLE WITH BRACED POSTS (Single Circuit)



TYPICAL RIGHT-OF-WAY CROSS SECTION

STEEL MONOPOLE WITH BRACED POSTS (Single Circuit)

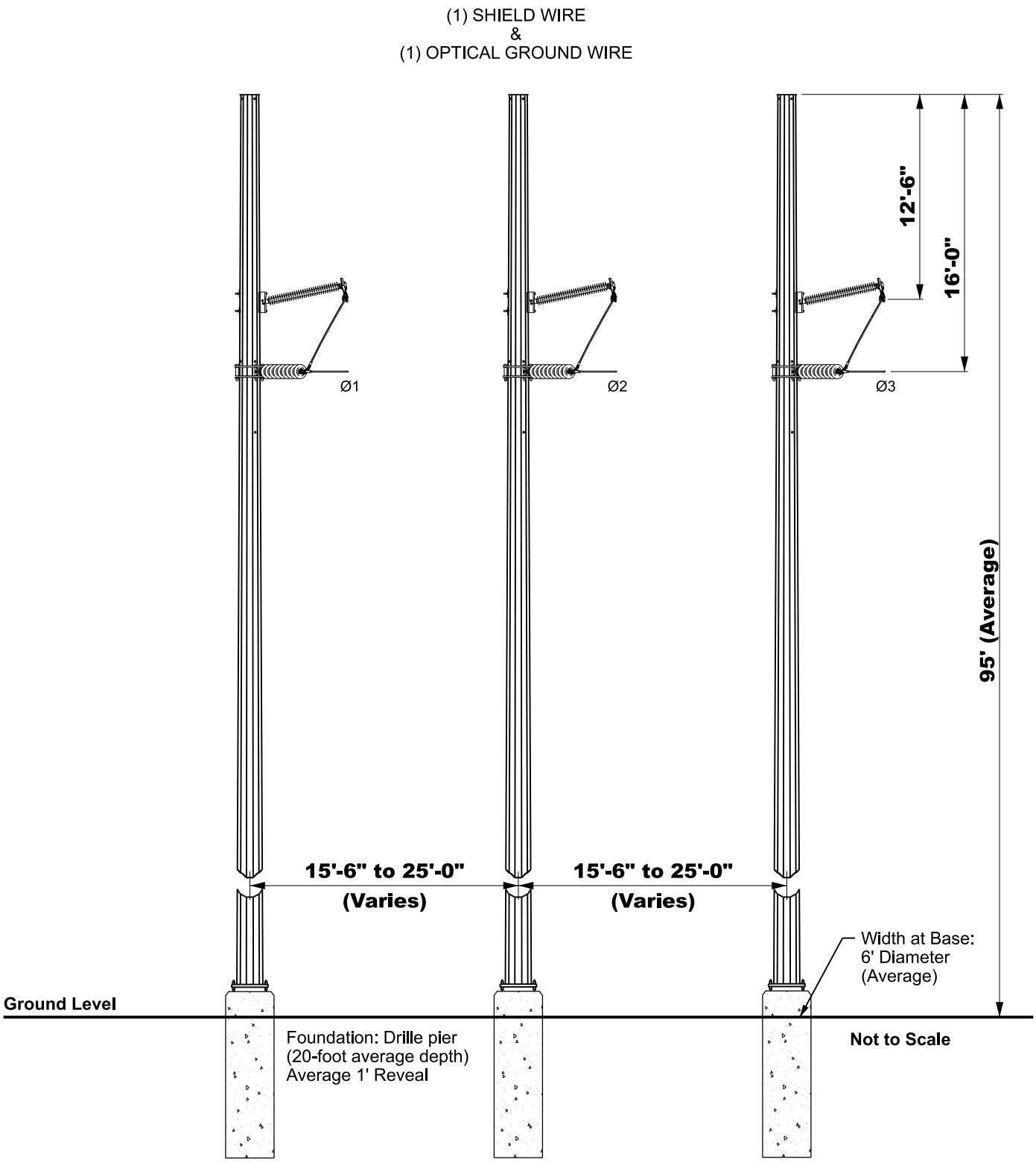


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above)

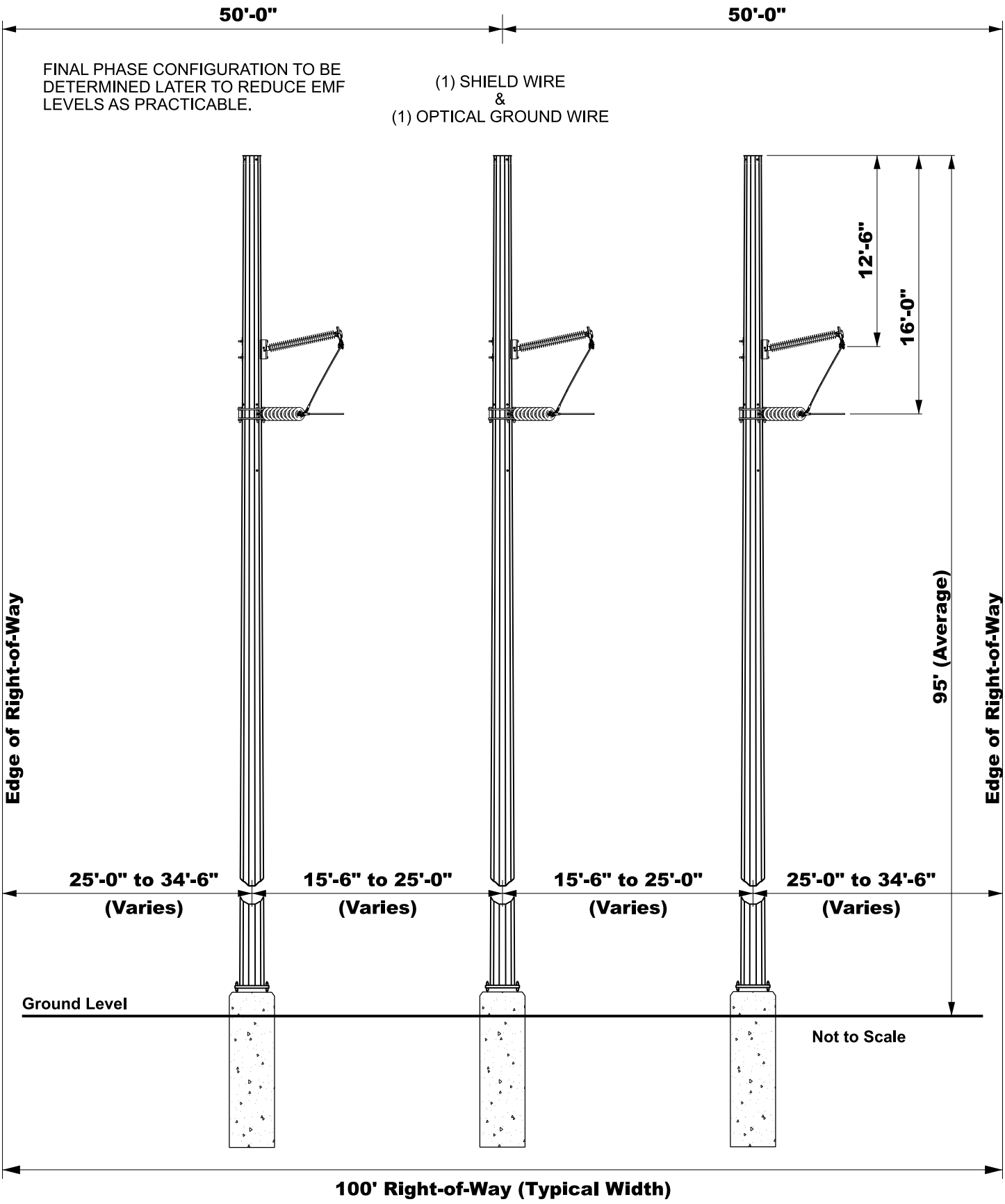
EXHIBIT 12: PROPOSED STEEL THREE-POLE (SINGLE CIRCUIT)

STEEL THREE-POLE STRUCTURE (Single Circuit)



TYPICAL SCHEMATIC

STEEL THREE-POLE STRUCTURE (Single Circuit)



TYPICAL RIGHT-OF-WAY CROSS SECTION

STEEL THREE-POLE DEAD-END (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 13: CONSTRUCTION AND OUTAGE SEQUENCE

CONFIDENTIAL INFORMATION

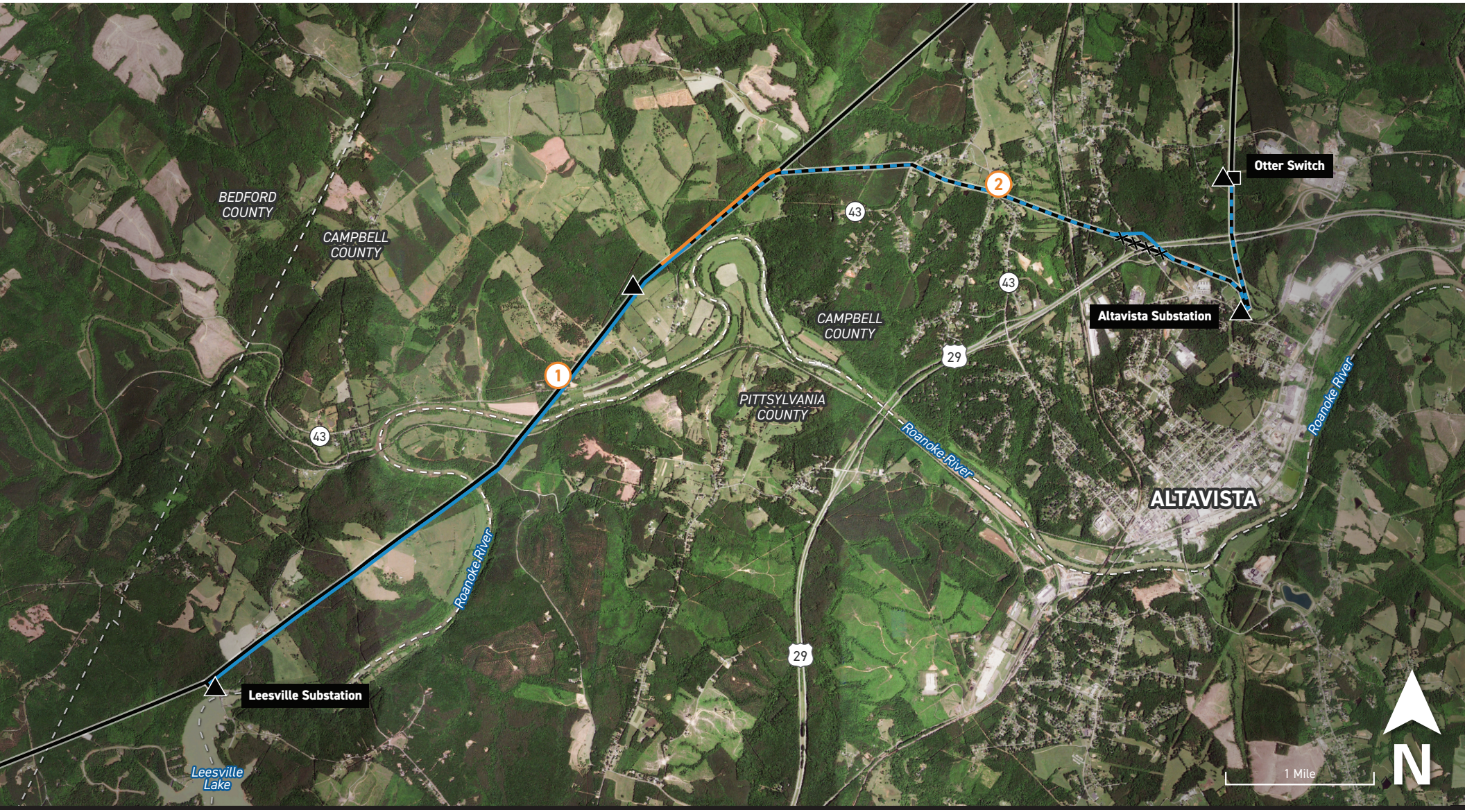
SEE VOLUME 2: CONFIDENTIAL APPENDIX – EXHIBIT 13-C FOR CONSTRUCTION AND OUTAGE SEQUENCE

EXHIBIT 14: VDOT HIGHWAY MAPS AND EXISTING TRANSMISSION FACILITIES

CONFIDENTIAL INFORMATION

SEE VOLUME 2: CONFIDENTIAL APPENDIX – EXHIBIT 14-C FOR VDOT HIGHWAY MAPS AND EXISTING TRANSMISSION FACILITIES

EXHIBIT 15: PHOTO SIMULATIONS



Altavista-Leesville

Transmission Improvements Project

Viewpoint Location Map

- Existing Transmission Line
- Transmission Line to be Reconfigured
- Proposed Route for Transmission Line (In or Near Existing Right-of-Way)
- Transmission line to be Removed
- Proposed Route for Transmission Line
- Existing Substation
- Existing Switch Station
- Photo Viewpoint Location

APPALACHIAN POWER
An AEP Company



Existing Conditions



Proposed Conditions

The visual simulation is an approximation using the best available data. Final engineering and construction details are not complete.

Altavista-Leesville

Transmission Improvements Project

Viewpoint 1

Date: 6/4/2025
Time: 3:18 p.m.
Viewing Direction: Southwest

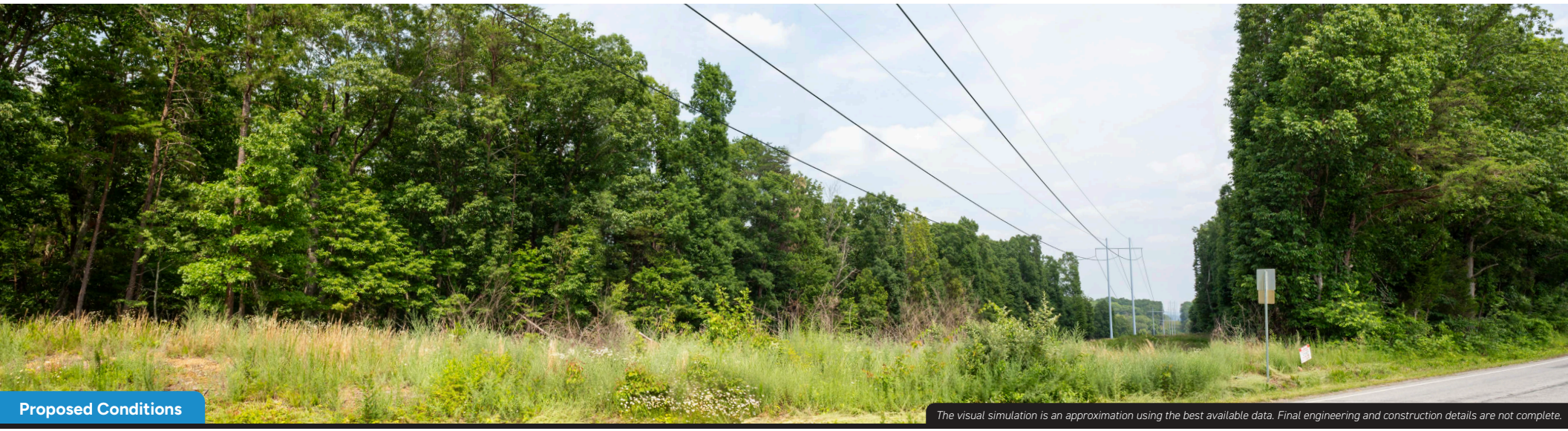
- Existing Transmission Line
- Proposed Route for Transmission Line
- (1) Photo Viewpoint Location



APPALACHIAN POWER
An AEP Company



Existing Conditions



Proposed Conditions

The visual simulation is an approximation using the best available data. Final engineering and construction details are not complete.

Altavista-Leesville

Transmission Improvements Project

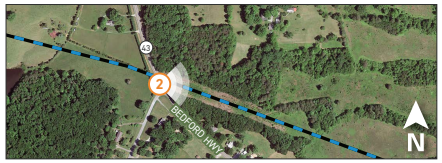
Viewpoint 2

Date: 6/4/2025
Time: 2:19 p.m.
Viewing Direction: East

Existing Transmission Line

Proposed Route for Transmission Line (In or Near Existing Right-of-Way)

② Photo Viewpoint Location

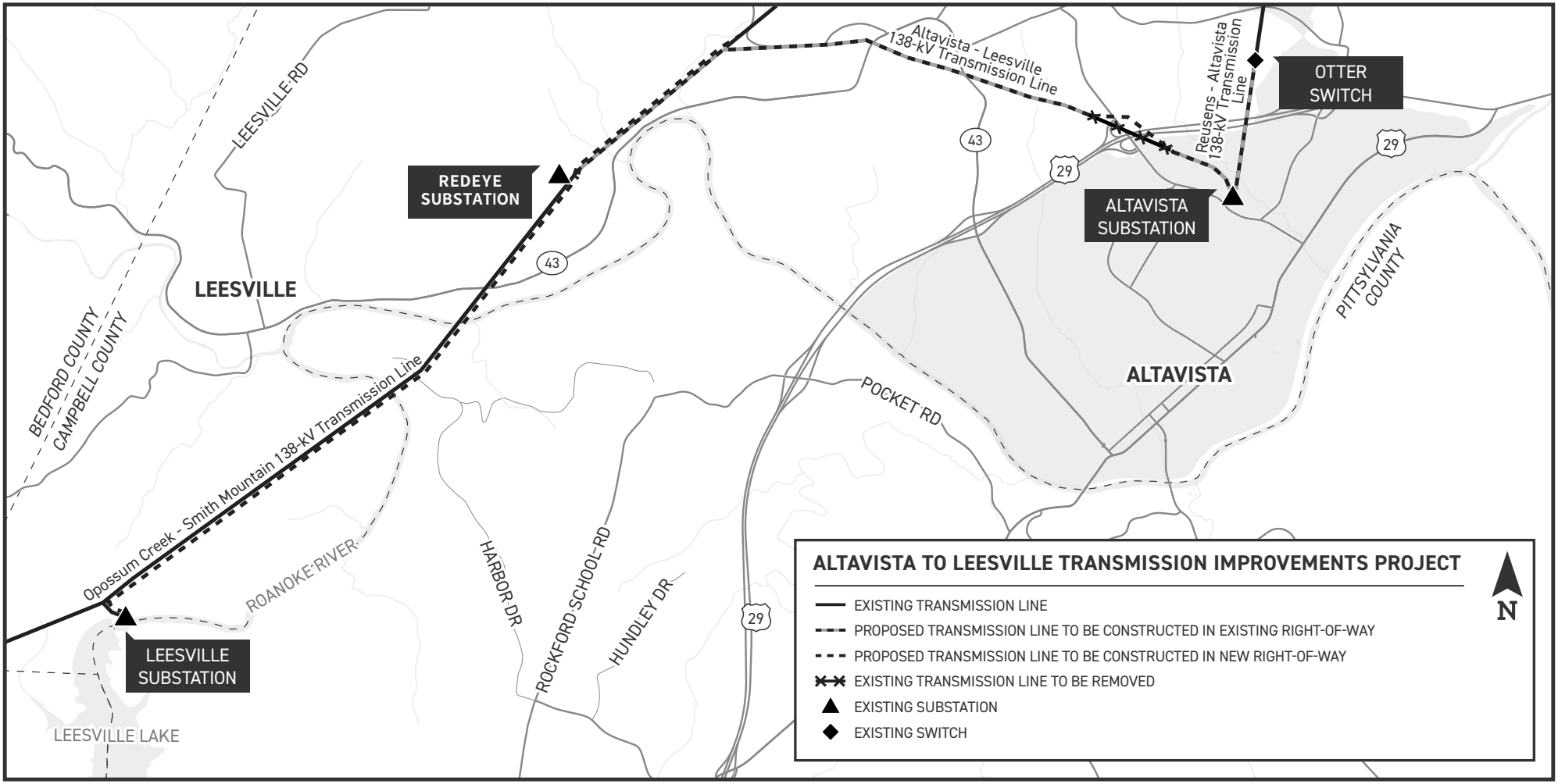


APPALACHIAN POWER
An AEP Company

EXHIBIT 16: PUBLIC NOTICE MAP

ALTAVISTA TO LEESVILLE
TRANSMISSION IMPROVEMENTS PROJECT

APPALACHIAN POWER
An AEP Company



Siting Study

Altavista to Leesville Transmission Improvements Project

SCC Case No. PUR-2026-00012

Prepared for:

APPALACHIAN POWER
An AEP Company

Prepared by:

POWER ENGINEERS
MEMBER OF WSP

August 2025

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Key Terminology

Alternative Routes	Assemblage of Study Segments that form routes for analysis and comparison.
Conceptual Routes	Initial routes for the project that adhere to a series of general siting and technical guidelines.
Constraints	Specific areas that should be avoided to the extent reasonably practical during the route development and site selection process.
Diversion	A minor adjustment to the existing route where no other alternative is considered.
Endpoints	The project starting and ending point(s) (Project Endpoints), which may include substations, switch stations, tap points, or other locations defined by the Company's planners and engineers.
Environmental Justice	"The fair treatment and meaningful involvement of every person, regardless of race, color, national origin, income, faith, or disability…" (EPA.gov).
Land Use	Describes the human use of the land and activities at a given location such as agricultural, residential, industrial, mining, commercial, and recreational uses. It differs from land cover which only describes the physical characteristics (summarized from EPA.gov).
Opportunity Features	Areas or existing linear features along which the transmission line may have less disruption to area land uses and the natural and cultural environment.
Project	The proposed rebuild of approximately one mile of transmission line between the Company's Altavista Substation and Otter Switch and construction and rebuild of approximately nine miles of transmission line between the Altavista Substation and the Company's Leesville Substation.
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.
Siting Team	A multidisciplinary team of experts, in transmission line routing, environmental impact assessment, impact mitigation, engineering, construction management, etc., that works together to develop the Project's transmission line routes.
Study Area	The territory in which line route alternatives can be sited to feasibly meet the Project's functional requirements and, at the same time, minimize environmental impacts and Project costs.

Study Segments	Study Segments are partial alignments that when combined form a complete route.
Study Segment Network	The assemblage of study segments between project endpoints.
Substation	Substations 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.
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.

ACRONYMS

AEP	American Electric Power (parent company for Appalachian Power Company)
CBG	Census Block Group
EJ	Environmental Justice
FEMA	Federal Emergency Management Agency
GIS	Geographic information system
GPS	Global positioning system
kV	Kilovolt
NERC	North American Electric Reliability Corporation
NCED	National Conservation Easement Database
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NRCS	National Resources Conservation Service of the U.S. Department of Agriculture
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
ROW	Right-of-way
SSURGO	Soil Survey Geographic Database
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VDOT	Virginia Department of Transportation

1.0 INTRODUCTION

1.1 Project Description

American Electric Power (AEP) and its affiliated operating company, Appalachian Power Company (Appalachian or the Company), are proposing to rebuild a portion of the existing Altavista – Otter 138-kilovolt (kV) **Transmission Line** and the entire existing Altavista – Leesville 138-kV Transmission Line in Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia. The Altavista – Leesville Transmission Improvements Project (the Project) will rebuild approximately one mile of transmission line in the existing right-of-way (ROW) between the Altavista **Substation** and the Company's Otter Switch; additionally, the Company will construct approximately 5 miles of transmission line between the Leesville Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line in a mixture of new and existing ROW, and rebuild approximately 4 miles of transmission line between existing structure 17-181 and the Altavista Substation in existing ROW. The Project will also rebuild an approximately 1-mile-long portion of the Opossum Creek – Smith Mountain 138-kV Transmission Line, which will be reconfigured to allow the construction of the Project.

The Project will increase transmission capacity required by PJM Interconnection, LLC (PJM) for a planned 150-megawatt solar generation facility in Pittsylvania County, Virginia. Additionally, the Project will replace 1940s and 1960s-era transmission lines with modern equipment and greater transmission capacity, which in turn will enhance reliability of the transmission system. See **Figure 1** and **Attachment A, Outreach Fact Sheet**.

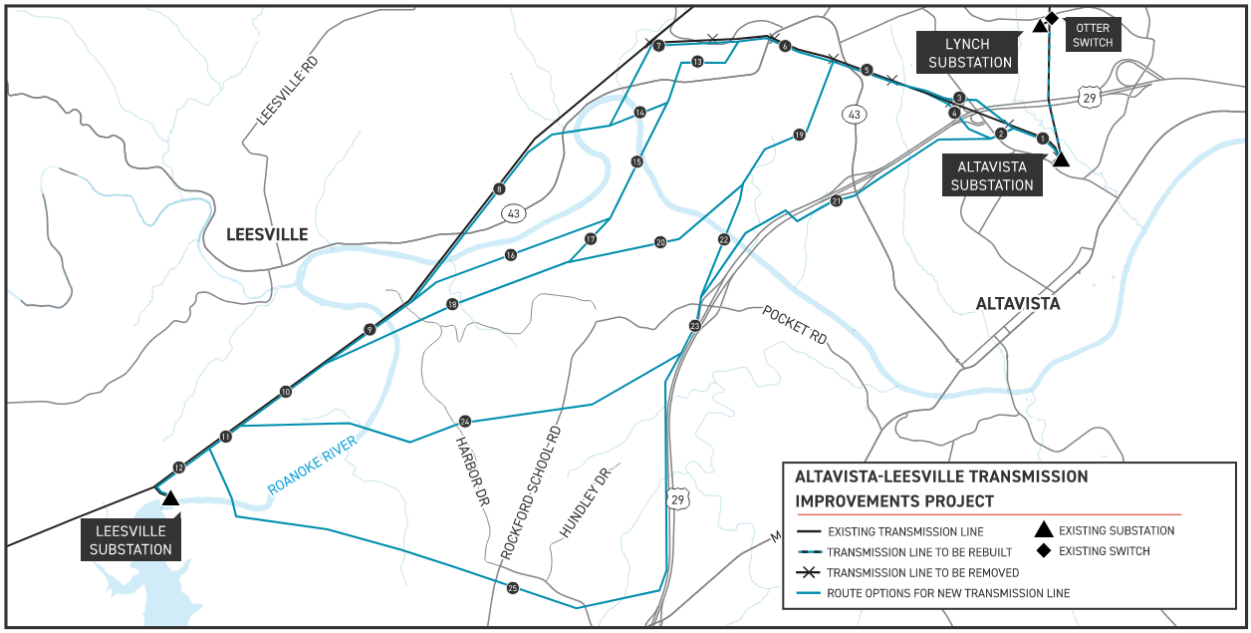


Figure 1. Project Location Map

1.2 Proposed Transmission Facilities Description

The Project will primarily be built using steel monopoles and steel H-frame structures (**Figure 2**), replacing the existing 1960s wood H-frame structures. The proposed structure heights are anticipated to range from 70 to 150 feet tall. The average height of the proposed structures is 95 feet, which is approximately 25 feet taller than the average height of the existing structures to meet current design standards. Heights of the proposed structures will vary along the route depending on the topography and constraints. To meet long-term maintenance and safety criteria, the Project will use a typical ROW width of approximately 100 feet; however, this may vary along the route depending on Project needs, topography, and specific parcel uses and configurations. The final structure heights and ROW requirements will be determined during final engineering and after additional studies are conducted including, but not limited to, ground surveys, geotechnical and environmental studies, and additional interviews with landowners.

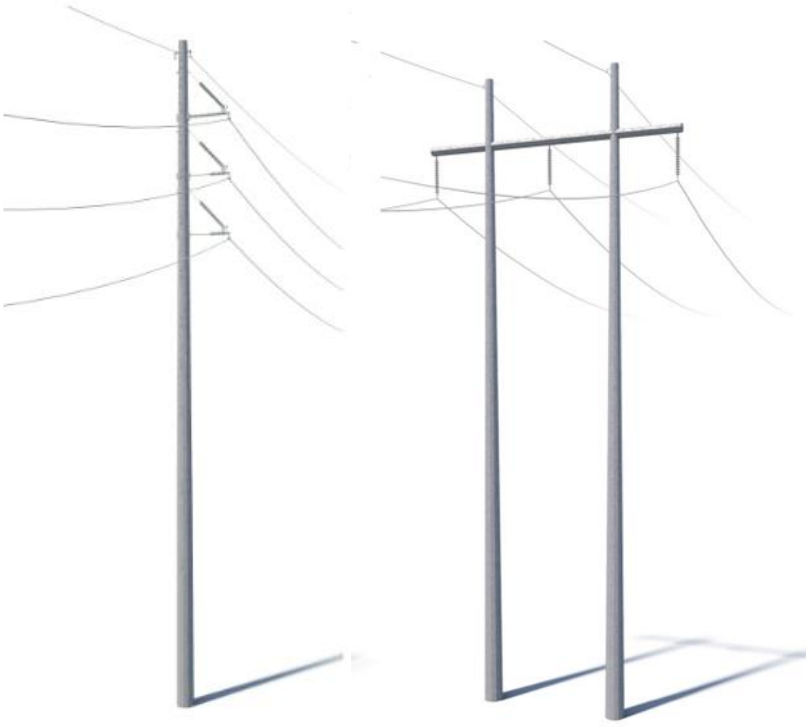


Figure 2. Typical Proposed Transmission Line Structures (Steel Monopole and Steel H-frame)

1.3 Proposed Construction Activities Description

Ground surveying and environmental field surveys/studies are necessary to prepare for transmission line construction. Typical transmission line construction activities include ROW clearing, erosion and sediment control installation, access road construction, crane pad grading, foundation installation, structure assembly and erection, conductor and shield wire installation,

and restoration after construction is completed (**Figure 3**). Construction activities sometimes create temporary inconveniences such traffic delays and detours, brief electrical outages to customers, increased heavy equipment traffic, dust, and noise.

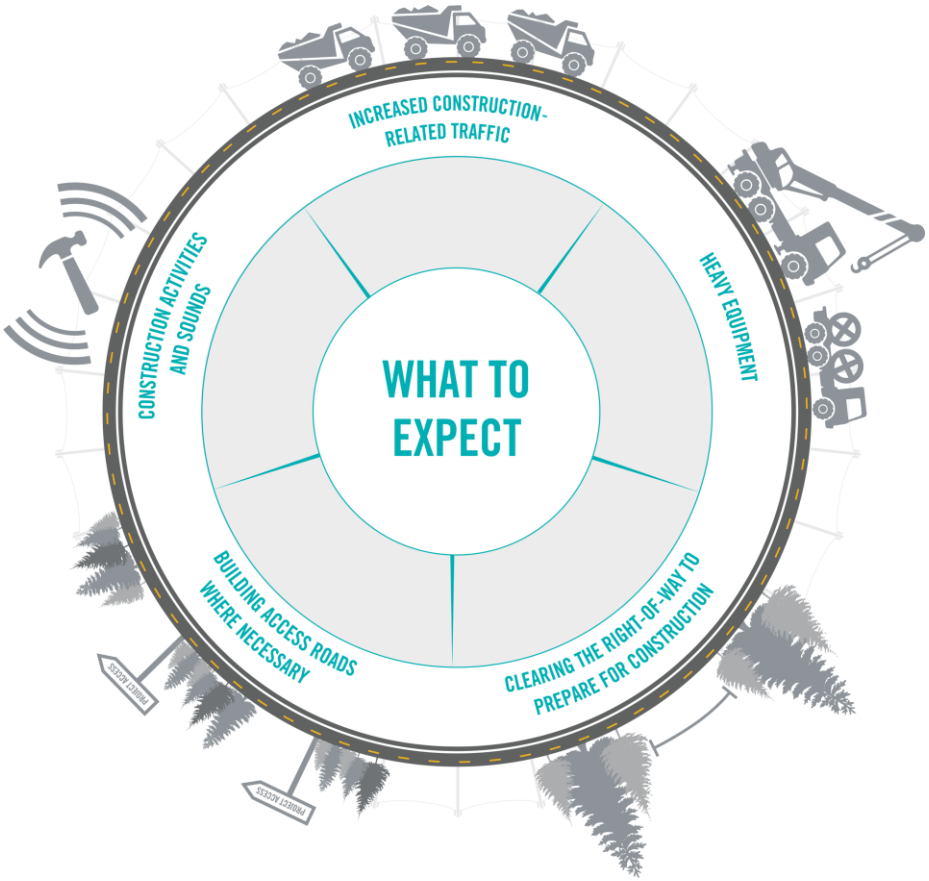


Figure 3. Typical Transmission Line Construction Activities

The Company will make every effort to be respectful of the natural and human environment during construction. All work will be conducted in accordance with applicable federal, state, and/or local requirements. General maintenance after construction includes periodic ROW vegetative management and inspections to ensure safe and reliable transmission line operation.

1.4 Project Timeline and Overview of Regulatory Approvals

The Company initiated the routing process in April 2024, with the development of **Conceptual Routes**, followed by the development of **Study Segments** between May and June 2024. The Study Segments were reviewed in the field between July and November 2024. Following field reviews, the Study Segments were refined and presented to the public during open houses in November 2024 and January 2025. **Alternative Routes** for the Project were determined in March 2025 and the **Proposed Route** for the Project was selected in April 2025.

The Company plans to file the Altavista – Leesville Transmission Improvements Project with the Virginia State Corporation Commission (SCC or the Commission) to obtain a Certificate of Public Convenience and Necessity prior to construction. Pending the acquisition of all required federal, state, and/or local permits, construction is expected to begin in late 2026 to meet a late 2027 in-service date. One mile of 138-kV transmission line will be rebuilt between the Altavista Substation and Otter Switch; however, Study Segments were not developed for this portion of the Project because it will be built entirely in the existing ROW of the Altavista – Lynchburg 138-kV Transmission Line.

1.5 Goal of the Siting Study

The goal of the Altavista – Leesville Transmission Improvements Project Siting Study (**Siting Study**) is to gain an understanding of the **Constraints and Opportunity Features** in the **Study Area** to facilitate the development of Study Segments, evaluate potential impacts associated with the Study Segments, and identify a Proposed Route and one or more Alternative Routes. The Proposed Route is the route that: (1) is most consistent with the siting guidelines (see Section 2.4); (2) reasonably avoids or minimizes adverse impacts on the natural and human environments; (3) avoids or minimizes special design requirements and unreasonable costs; and (4) can be constructed, operated and maintained in a safe, timely, and reliable manner. This Siting Study describes the route development process and rationale for the Proposed Route selection.

2.0 ROUTE DEVELOPMENT PROCESS

2.1 Siting Team

The route development process was initiated in April 2024 when a siting team was assembled. It included Company employees and external consultants with diverse expertise including transmission line and substation siting, distribution planning, impact assessment for natural and human environments, impact mitigation, engineering, construction management, project management, ROW, and public relations (the "**Siting Team**").

The Siting Team works together to develop siting criteria, identify siting Constraints and Opportunity Features, collect and analyze environmental and design data, solicit stakeholder input, coordinate with resource and permitting agencies, develop and revise Study Segments and Alternative Routes, and analyze and report on the Proposed Route selection.

2.2 Route Development Process Overview

Initial route development efforts start with identifying the **Project Endpoints.** Endpoints may include substations, switch stations, tap points, or other locations defined by the Company's planners and engineers. Next, Constraints and Opportunity Features are identified within the Study Area, which encompasses the Project Endpoints and area in between. The initial Constraints and Opportunity Features are identified using readily available public data sources and supplemented with stakeholder input and field inspections.

Once the Project Endpoints, Study Area and Constraints and Opportunity Features are identified, the Siting Team develops an array of Conceptual Routes for the Project, adhering to a series of general siting and technical guidelines.

Where two or more of these Conceptual Routes intersect, Study Segments are formed between two common points of intersection. Together, the assemblage of Study Segments is referred to as the **Study Segment Network**.

As route development progresses, the Siting Team continues to evaluate new data (e.g., public and stakeholder input and field inspections) and modifies Study Segments in the network, if necessary, to develop a refined Study Segment Network. Eventually, Alternative Routes are developed by assembling Study Segments that reasonably meet the siting guidelines into individual routes to be analyzed further. Assessment and comparison of Alternative Routes are undertaken by considering potential natural and cultural resources, land uses, and engineering and construction concerns. Ultimately, through a quantitative and qualitative analysis and comparison of Alternative Routes, the Siting Team identifies a Proposed Route, which is the route

that best meets Siting Study goals (Section 1.5). An overview of the route development process is depicted in **Figure 4**.

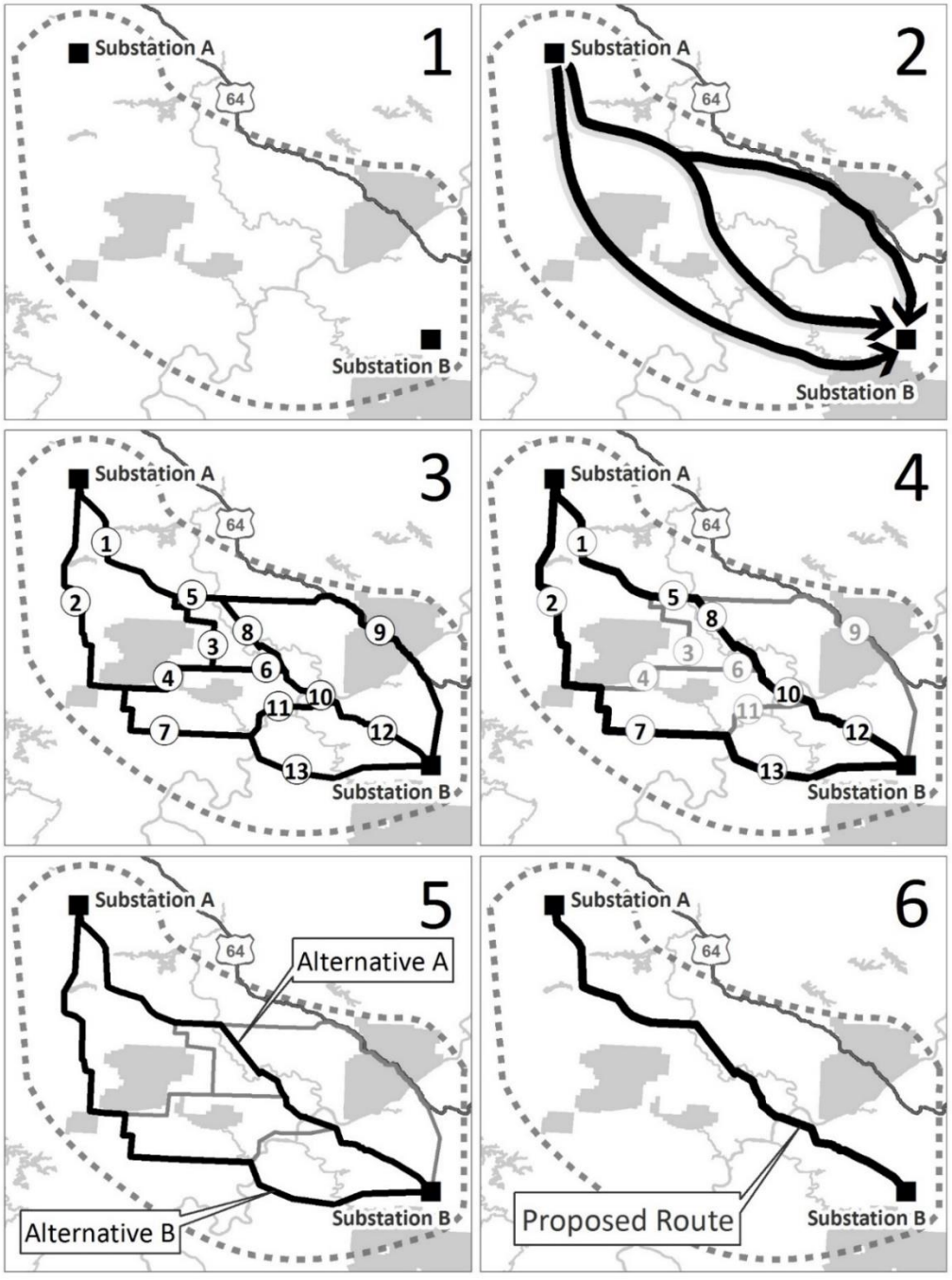


Figure 4. Typical Transmission Line Routing Process

This figure shows the route development process and does not depict routes or segments related to this Project.

2.3 Data Collection

Data within the Project Study Area was reviewed and collected for existing and historic land uses, natural resources, cultural resources, transportation facilities, and existing utility and linear features. A detailed table of data sources used for this study is provided in **Attachment B, GIS Data Sources** and **Attachment C, Data Collection Summary.** The Siting Team collected and reviewed the data, as described in the following sections, to support the Siting Study.

2.3.1 Geographic Information System Data Collection

Aerial photography is an important tool for route selection. The primary sources of aerial imagery used in the route identification, analysis, and selection effort for the Project include:

- Google Earth (multiple years)
- Esri World Imagery (multiple years)
- National Agricultural Imagery Program (multiple years)
- Virginia Base Mapping Program (2024)

Updated information, such as the location of new residences and other Constraints, was annotated to the photography by either paper maps (at the public meetings) and transferred into the Geographic Information System (GIS) or entered directly into GIS as identified during field inspections. Additionally, LiDAR imagery of the existing transmission lines in the Project area was used to identify building and structure locations.

Existing GIS datasets obtained from many sources, including federal, state, and local governments, were used extensively during the Siting Study. A significant portion of this information was gathered from official agency GIS data access websites, while some was directly supplied by government agencies. Additionally, the Siting Team created information by digitizing data from paper-based maps, interpreting aerial photos, conducting stakeholder interviews, and performing field inspections.

GIS data sources vary with respect to their accuracy and precision. For this reason, GIS-based calculations and maps presented throughout this study should be considered reasonable approximations of the resource or geographic feature they represent and not absolute measures or counts. The data and calculations presented in this study allow for relative comparisons among Project alternatives.

2.3.2 Federal, State and Local Government Coordination

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 data for the route development process. On October 23, 2024, the Company contacted 36 agency representatives from 21

federal, state, and local agencies. As of December 19, 2024, a total of 19 responses from 9 agencies were received. Copies of agency correspondence are included as **Attachment D**.

Other stakeholders and individual landowners were also identified and contacted as part of the siting process. Input received from landowner meetings and public open houses was used in the development and modification of line routes and is discussed further in Section 3.0.

2.3.3 Field Reconnaissance

Siting Team members conducted field inspections within the Study Area throughout the siting process. Team members examined Study Segments from public roads and other points of public access and correlated observed features to information shown on aerial photography, United States Geological Survey (USGS) 7.5-minute topographic maps, road maps, and GIS sources. Some key features (i.e., residences, outbuildings, places of worship, cemeteries, and commercial and industrial areas) were identified from desktop reviews and mapped in GIS before field inspections. These features were field verified and added to the GIS database using tablets running GIS software supported by real-time Global Positioning System (GPS). Field visits provided the Siting Team with a high-level understanding of the Project area and the opportunity to review the constructability and potential impacts of the proposed transmission line.

2.3.4 Public and Stakeholder Input

The consideration of public and stakeholder input is critical to the route development process. Landowners and stakeholders provide information and recommendations to aid the Siting Team in the development and refinement of Study Segments and Alternative Routes. More information on how public and stakeholder input was used for the Project can be found in Section 3.6.

2.4 Siting Guidelines

2.4.1 General Guidelines

To the extent reasonable and practical, the Siting Team used the following general siting guidelines to guide Study Segment and Alternative Route development:

- Avoid or minimize new crossings of large lakes, rivers and large wetland complexes, critical and protected habitats, and other unique or distinct natural resources.
- Avoid or minimize habitat fragmentation in unfragmented areas and impacts on designated areas of biodiversity concern.
- Maximize the separation distance from and/or minimize impact on dwellings and community facilities, cemeteries, schools, daycare facilities, hospitals, historic resources, and designated landmarks.

- Avoid or minimize visibility from designated scenic resources.
- Avoid or minimize conflict with existing land uses and future development with a proposed plan, schedule, and permitting process underway.
- Consider using or paralleling existing ROWs or other linear features and infrastructure when feasible. When paralleling existing facilities, however, reliability and associated mitigation requirements must be evaluated.
- Consider paralleling property lines, land use breaks, and land cover edges.
- Consider stakeholder input.
- Minimize environmental impact and construction/maintenance costs by selecting shorter, direct routes.
- Consider safety with respect to construction, maintenance, and operation of the facilities.
- Consider construction concerns such as access, road traffic control, outages, pipeline mitigations, railroad interactions, existing telecommunication line and distribution line conflicts, etc.
- Consider routes through terrain and land use where economical construction and environmental best management practices can be employed.
- Minimize environmental impact by considering routes that minimize the overall length of access roads, length on steep slopes, and waterbody crossings.
- Promote the fair treatment and meaningful involvement of every person, regardless of race, color, national origin, income, faith, or disability.

2.4.2 Technical Guidelines

Technical guidelines are driven by the physical characteristics and engineering limitations of the structures and lines themselves, design criteria necessary to meet AEP design standards, North American Electric Reliability Corporation (NERC) reliability standards, National Electric Safety Code (NESC) standards, and industry best practices for construction. The technical guidelines were informed by: (1) the technical expertise of engineers and other industry professionals responsible for the reliable, safe and economical construction, operation, and maintenance of electric system facilities; (2) NERC reliability standards as implemented by PJM (the regional transmission organization that monitors the electric grid in 13 states); and (3) industry best practices.

The Siting Team considered the following technical guidelines during Study Segment and Alternative Route development to the extent practical:

- Minimize the duration of outages on the Altavista – Leesville 138-kV Circuit and avoid concurrent outages on the Altavista – Leesville, Opossum Creek – Redeye, and Redeye – Smith Mountain 138-kV circuits.
- Minimize crossing higher voltage lines.
- Maintain a minimum of 100 feet of centerline-to-centerline separation when paralleling 138 kV or lower voltage transmission lines.
- When paralleling existing transmission lines, verify no reliability issues are introduced by locating to lines adjacent to each other.
- Minimize line angles greater than 65 degrees.
- Minimize structures on steep slopes (generally, this is more than 20% slopes for angle structures and more than 30% for tangent structures), particularly if guy wires are required for construction.
- Locate proposed lines near future load growth areas.

3.0 ALTERNATIVE ROUTE IDENTIFICATION

3.1 Project Endpoints

The Project Endpoints include the existing the Altavista Substation, located in the Town of Altavista, Virginia, and the Company's existing Leesville Substation, located in Pittsylvania County, Virginia. The Project also includes rebuilding an approximately one-mile-long section of transmission line between the Altavista Substation and the Company's existing Otter Switch located in Campbell County, Virginia.

3.2 Study Area Description

The Study Area is the territory in which line route alternatives can be sited to feasibly meet the Project's functional requirements and reasonably minimizes environmental impacts and Project costs. The boundaries of the Study Area were determined by the geographic area encompassing the Project Endpoints and were intended to encompass practical Conceptual Routes between these Endpoints. Given these considerations, the Siting Team identified a Study Area encompassing approximately 27 square miles in Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia. (**Attachment E, Map 1**). The Study Area is generally bounded by the eastern edge of the Town of Altavista to the east, Redeye Solar to the northwest, Pittsylvania Wayside Park to the southeast, and Leesville Lake to the southwest. The Study Area consists of rolling terrain in the Piedmont physiographic province of Virginia. Open agricultural fields and forested areas with scattered residential and commercial development are common in the Study

Area, although more dense development exists in the northeast of the Study Area in the Town of Altavista (**Figure 5** and **Figure 6**).



Figure 5. Undeveloped Land in Campbell County, Virginia



Figure 6. Residential and Commercial Development in the Town of Altavista, Virginia

3.3 Constraints and Opportunity Features

The Siting Team identified and mapped siting Constraints and Opportunity Features within the Study Area as described below and shown on **Attachment E, Map 1**.

3.3.1 Constraints

Constraints are specific areas that should be avoided to the extent practical during the route development process. Using readily available public data sources, the Siting Team initially identified large Constraints during the beginning of the route development process including, but not limited to, the following:

- Populated areas, including towns, small villages, urban areas, and other high concentrations of residential, commercial and industrial development areas.
- National Register of Historic Places (listed and eligible).
- Recreational areas such as parks and large recreational reservoirs.
- Rivers, streams, wetlands, flood zones or unique natural resource features, and critical habitat areas.
- Designated federal or state forests, parks, state game lands, and other natural and conservation areas.
- Future land use plans and developments.

The Study Area includes the following larger Constraints: residential and commercial development close to the existing transmission lines, specifically in the Town of Altavista; local and state conservation easements; existing high voltage transmission lines; and the Roanoke River, a portion of which is designated as a Wild and Scenic River by the Virginia Department of Conservation and Recreation.

As the Siting Team developed Study Segments, smaller site-specific Constraints were identified using readily available public data sources, stakeholder input, and field inspections. Through the route development process (described in Section 2.0), the Study Segments were adjusted to avoid small Constraints where feasible, including, but not limited to, individual residences, outbuildings and barns, and site-specific future land use plans.

3.3.2 Opportunity Features

Opportunity Features are typically existing corridors, areas or edges where a transmission line would be a compatible land use or its presence would be reduced by an existing linear feature. Opportunity Features typically considered include other linear infrastructure and utility corridors, rail lines, and roads, but may also include land cover edges, unused portions of industrial or

commercial areas, or parcel boundaries. The main siting opportunities identified within the Study Area were existing transmission lines and transportation corridors, such as the Opossum Creek – Smith Mountain 138-kV Transmission Line, the Altavista – Leesville 138-kV Transmission Line, and U.S. Highway 29.

3.4 Routing Concepts

Conceptual Routes were developed that connected the Project Endpoints along opportunity corridors identified by the Siting Team. These corridors included, but were not limited to, paralleling the existing Opossum Creek – Smith Mountain 138-kV Transmission Line and Altavista – Leesville 138-kV Transmission Line in the western and northern portions of the Study Area and paralleling U.S. Highway 29 in the central portion of the Study Area (**Attachment E, Map 2**). A total of three Conceptual Routes were developed. Routing concepts were not developed to the west of the Opossum Creek – Smith Mountain 138-kV Transmission Line due to the double circuit outages required to cross the existing transmission line.

The Siting Team reviewed the eastern portion of the Study Area in an attempt to develop an eastern Conceptual Route but noted multiple Constraints, including dense residential and commercial development, specifically near the Town of Altavista. Additionally, numerous high voltage transmission lines operated by Virginia Electric and Power Company (Dominion) are located in the eastern portion of the Study Area, requiring extensive coordination to obtain outages to ensure safe construction of the proposed transmission line. Finally, steep slopes above the Roanoke River and two conservation easements in the southeastern portion of the Study Area would require significant additional line length when compared to the other Conceptual Routes that were developed. Given these Constraints, the Siting Team did not develop Conceptual Routes in this portion of the Study Area.

3.5 Study Segment Development

Study Segments are partial alignments connecting the Project Endpoints within the Study Area. The Siting Team developed the Study Segments shown on **Attachment E, Map 3** based on the route development process and criteria described in Section 2.0 to meet the Project's functional requirements and, at the same time, minimize environmental and socioeconomic impacts and project costs. The Study Segments are evaluated and refined after public and stakeholder input as described in Section 3.7.

- Study Segments 1, 5, 6, and 7 parallel the south side of the existing Altavista – Leesville 138-kV Transmission Line between the Altavista Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line. Paralleling the

existing line in a new ROW allows the line to be rebuilt without an outage on the existing Altavista – Leesville 138-kV Circuit.

- Study Segments 2, 3, and 4 divert north and south around the U.S. Highway 29 and State Route 626 (Lynch Mill Road) interchange to avoid potential conflicts with multiple highway ramps, and to avoid placing a structure in Virginia Department of Transportation (VDOT) ROW.

- Study Segments 8, 9, 10, 11, and 12 parallel the southeast side of the Opossum Creek – Smith Mountain 138-kV Transmission Line. Study Segment 8 diverts from this parallel alignment to avoid crossing a steep side slope north of the Roanoke River.

- Study Segments 13, 14, 15, 16, 17, and 18 parallel other opportunities within the Study Area such as parcel boundaries, local roads, and a railroad. These Study Segments avoid steep slopes between the Roanoke River and the Opossum Creek – Smith Mountain 138-kV Transmission Line.

- Study Segment 19 turns south from the Segment Endpoints of Study Segments 5 and 6, and crosses through a forested area between the Windsong Drive and Northgate Court Neighborhoods west of U.S. Highway 29 and connects to Study Segments 20 and 22.

- Study Segment 20 crosses the Roanoke River through agricultural fields before turning southwest and traveling across mixed agricultural and residential parcels to connect to Study Segments 17 and 18.

- Study Segment 22 offers an alternative crossing of the Roanoke River to Study Segment 20, crossing the river through undeveloped forest lands to parallel the west side of U.S. Highway 29.

- Study Segments 21, 23, and 25 parallel U.S. Highway 29 from State Route 626 (Lynch Mill Road) to approximately 0.5 miles north of State Route 638 (Harbor Drive) where Study Segment 25 turns west and parallels parcel lines across rural timber lands to the Company's existing Leesville Substation.

3.6 Public and Stakeholder Input

Once initial Study Segments were developed, the Company invited the public to provide comments and feedback on the Project.

3.6.1 Public Communications and in-person Open House

The Project was publicly announced with a news release on October 23, 2024.

Landowners within a 1,000-foot corridor (500 feet on either side of a Study Segment) were notified of the Project and of the upcoming public open house. Landowner addresses were obtained from Campbell and Pittsylvania Counties. Mailings were sent to 527 landowner addresses and included a postcard, letter, Project fact sheet, and a comment card with prepaid postage return envelope.

The Company hosted an in-person public open house on November 13, 2024, from 5:00 to 7:00 p.m. at Altavista Elementary School (2190 Lynch Mill Road, Altavista, VA 24517). The Company presented the Study Segments for the Project at the open house to gather landowner and community feedback. Various stations were set up at the open house that provided information related to the engineering and design of structures, Project need, ROW activities, and construction process.

Printed maps at a scale of 1 inch = 200 feet were provided at the open house for the public to review and were used to record comments concerning sensitive resources in the local environment and feedback on the Study Segments. Members of the Siting Team greeted attendees, answered questions about the Project, and aided attendees in locating their property or other notable features on the maps showing existing infrastructure and Study Segments. Open house attendees were encouraged to document the location of their houses, buildings, places of business, or other sensitive resources on the maps.



Figure 7. Public Open House Attendees Review Project Information on November 13, 2024

Following the in-person public open house, community members encouraged the Company to host a second in-person public open house to allow landowners to gain more information on the Project. Additionally, some landowners reported not receiving the mailed notices announcing the in-person public open house. Upon receiving this feedback, the Company hosted a second in-person public open house on January 21, 2025, from 5:00 to 7:00 p.m. at the Altavista Area YMCA (718 7th Street, Altavista, VA 24517). Using feedback gathered from the first in-person public open house, a refined Study Segment Network was developed for the second in-person public open house (**Attachment E, Map 4**). Changes made to the Study Segment Network are discussed in Section 3.7. Notifications for the second in-person open house included the following activities:

- Mailings were sent to 527 landowner addresses on January 8, 2025. The outreach mailing included a postcard, letter, Project fact sheet, and a comment card with prepaid postage return envelope.
- Doorhangers were distributed to 240 landowners in the Windsong Drive and Northgate Road neighborhoods on January 6 and 7, 2025, by Company ROW agents. The doorhangers included information about the time, date, and location of the second in-person public open house, as well as information on how to provide feedback on the Project.



Figure 8. Attendees Discuss the Project at the Public Open House on January 21, 2025

In total, 154 people attended the in-person public open houses, with 89 people attending the November 13, 2024 open house and 65 people attending the January 21, 2025 open house.

3.6.2 Project Website and Virtual Open House

A Project-specific website was launched concurrently with the Project announcement on October 23, 2024 (www.appalachianpower.com/altavista-leesville). The Project website includes updates and news releases, an interactive map, fact sheet, and Project timeline. A virtual open house was posted to the Project website where landowners could engage with similar content to that presented at the in-person public open houses. Information related to the Project need, transmission line engineering and design, ROW activities, and construction process was presented in audio and visual format. In addition to comment cards collected at the open house, questions and comments were accepted on the Project website.

3.6.3 Other Stakeholder Input

In October 2024, the Company met with representatives from Campbell and Pittsylvania Counties and the Town of Altavista. During these meetings, the Company reviewed the Project need and scope, including expected structure types and heights, ROW requirements, and Project timeline, and received input on the Study Segment Network.

In November 2024, and ahead of the first in-person public open house, the Company met with a private developer with plans to construct a residential community near the intersection of U.S. Highway 29 and State Route 43 (Bedford Avenue). During this meeting, the Company shared the Study Segment Network and received input from the developer that the Project would impact their ability to develop the property.

In December 2024, the Company met with staff members of VDOT to discuss areas of interest noted in their response to the Company's October 2024 request for input. During this meeting, the Company reviewed specific local and state road crossings and discussed best practices for traffic mitigation and access road location.

3.6.4 Consideration of Public and Stakeholder Input

During the two public open houses, a total of 130 comments were written on aerial map books. Additionally, 52 comments were submitted to the Company via phone, email, mailed-in comment cards, and the Project website. Following the open houses, comments left in the Project map books were digitized and entered into the Project's GIS database. Likewise, comments received via phone, email, mailed-in comment cards, and the Project website were entered in the Project's GIS database. Comments included impacts to property values, specific features on landowners' property (streams, barns, wildlife, etc.), and feedback on the Study Segment locations.

Upon reviewing the comments, the Siting Team incorporated the information, where applicable, when reviewing, revising, and comparing Study Segments as described in Section 3.7.

3.7 Study Segment Evaluation and Refinement

Study Segments were evaluated and refined using public and stakeholder input, updated mapping, and additional field inspections in an attempt to avoid or minimize impacts to Study Area resources. As a result, some Study Segments were modified or added as described below.

- After the first in-person public open house, Study Segment 25 was shifted to better parallel parcel lines north of the Roanoke River to avoid bisecting an agricultural field (**Attachment E, Map 4**).

- Following the conclusion of the public comment phase of the Project, Study Segment 26 was developed after Company transmission line engineers and outage planners confirmed that the existing Opossum Creek – Smith Mountain 138-kV Transmission Line could be reconfigured without taking concurrent outages on the double circuit line (**Figure 9**). By splitting the double circuit line onto separate structures and acquiring additional ROW north of the existing transmission line, the Siting Team determined Study Segment 26 was constructable.

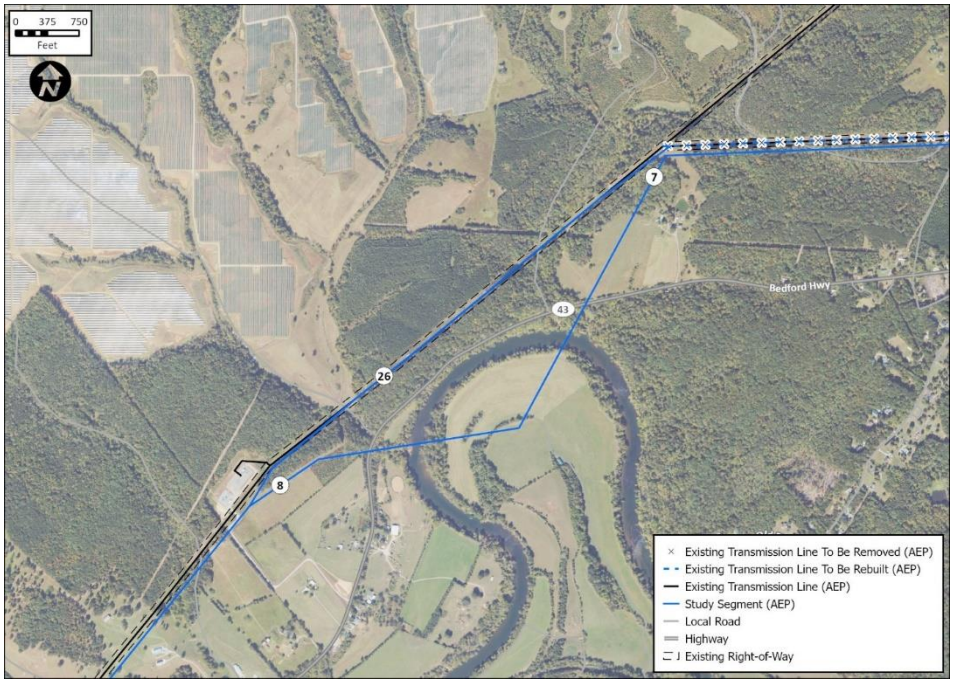


Figure 9. Study Segment 26 is within the ROW of the Existing Opossum Creek - Smith Mountain 138-kV Transmission Line for Approximately 1.0 mile

- Following the conclusion of the public comment phase of the Project, Study Segments 1, 5, and 6 were modified to utilize the existing ROW of the Altavista – Leesville 138-kV Transmission Line after Company transmission line engineers and outage planners

confirmed that the Altavista – Leesville 138-kV Transmission Line could be rebuilt during a single fall outage season (**Figure 10**).

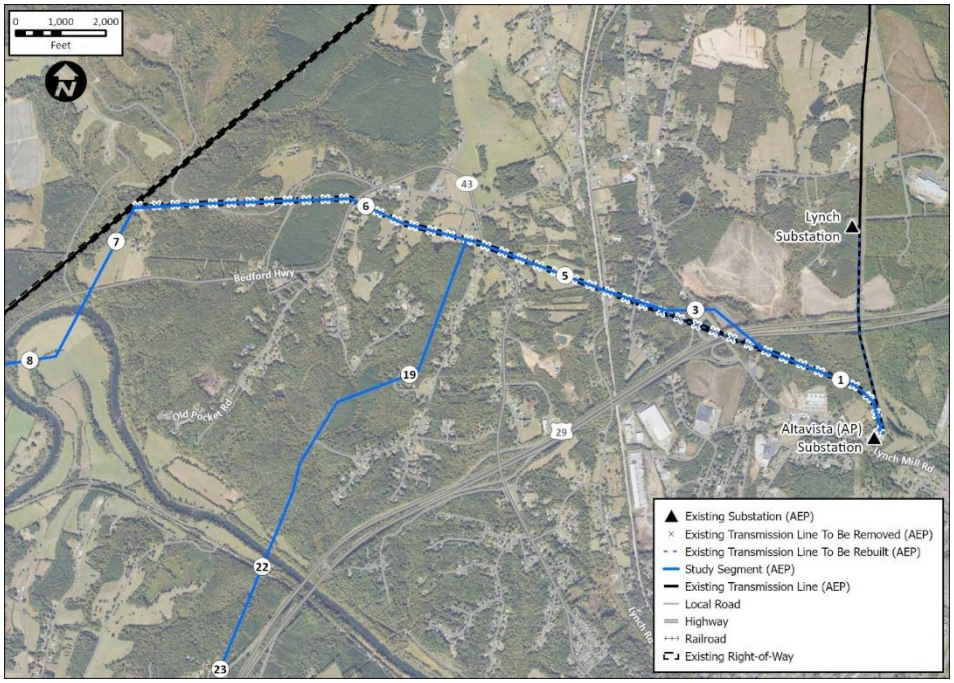


Figure 10. Study Segments 1, 5, and 6 Adjusted to use the Existing ROW of the Existing Altavista - Leesville 138-kV Transmission Line

The Siting Team met frequently throughout the route development process, continually reviewing, modifying, and dismissing Study Segments based on field inspections, engineering requirements, and stakeholder input. Study Segment dismissals are described below.

- Study Segment 21 was dismissed following the first in-person public open house after a landowner made the Company aware of a private airstrip that was crossed by the Study Segment. Additionally, a private developer provided construction plans and site drawings to the Siting Team that showed a planned residential community that would be impacted by the Study Segment. Comments received during the first open house and from local stakeholders supported dismissing Study Segment 21.

- Study Segments 2 and 4 were dismissed following the first in-person public open house in preference of Study Segment 3, which avoids crossing the U.S. Highway 29 and State Route 626 (Lynch Mill Road) interchange. Crossing the interchange would require extensive traffic control during construction. Additionally, a private developer provided construction plans and site drawings to the Siting Team indicating a planned storage facility that would be impacted by Study Segment 4.

- Study Segment 13 was dismissed after the second in-person public open house in favor of Study Segment 7, which allows for a longer section of transmission line to be constructed in existing ROW, while also limiting heavy line angles and bisecting parcels. As a result of this dismissal, Study Segments 14, 15, 16, and 17 were also dismissed. Additionally, feedback received during the open houses supported dismissing Study Segments 14 and 15.

- Study Segments 18 and 20 were dismissed based on community input in favor of Study Segments that parallel parcel lines and existing infrastructure corridors, namely the Opossum Creek – Smith Mountain 138-kV Transmission Line and U.S. Highway 29.

- Study Segment 25 was dismissed in favor of Study Segment 24, which minimized the line length, heavy line angles, and bisecting parcel lines.

3.8 Alternative Routes

At the end of the Study Segment Network review process, the Siting Team compiled the Study Segments into three Alternative Routes for analysis and comparison. These Alternative Routes are described in the following sections and are shown in more detail on **Attachment E, Map 5**.

3.8.1 Alternative Route A

Alternative Route A generally rebuilds the Altavista – Leesville 138-kV Transmission Line in existing ROW and parallels the Opossum Creek – Smith Mountain 138-kV Transmission Line from existing structure 17-186 to the Leesville Substation. Alternative Route A includes relocating a portion of the Altavista – Leesville 138-kV Transmission Line at the U.S. Highway 29 and State Route 626 (Lynch Mill Road) interchange as well as the Opossum Creek – Smith Mountain 138-kV Transmission Line near the Redeye Substation to avoid steep slopes and two new Roanoke River crossings.

3.8.2 Alternative Route B

Alternative Route B rebuilds the Altavista – Leesville 138-kV Transmission Line in existing ROW before crossing the Roanoke River two times to avoid modifying the Opossum Creek – Smith Mountain 138-kV Transmission Line or building on steep slopes. The Alternative Route then parallels the Opossum Creek – Smith Mountain 138-kV Transmission Line between the Redeye Substation and the Leesville Substation.

3.8.3 Alternative Route C

Alternative Route C rebuilds the Altavista – Leesville 138-kV Transmission Line in the existing ROW between the Altavista Substation and State Route 43 (Bedford Avenue), before turning south between Windsong Drive and Northgate Court and crossing the Roanoke River. On the south side of the river, Alternative Route C briefly parallels U.S. Highway 29 before turning southwest through undeveloped timber lands and crossing the Roanoke River once more. Following this final river crossing, Alternative Route C parallels the Opossum Creek – Smith Mountain 138-kV Transmission Line to the Leesville Substation.

4.0 ALTERNATIVE ROUTE COMPARISON

The Alternative Routes comparison provides a quantitative and qualitative analysis of potential impacts to local communities, the environment and cultural resources, as well as engineering and constructability concerns. The Alternative Routes were reviewed in detail and compared using a combination of information collected in the field, GIS data sources, public input, supporting documents, and the collective knowledge and experience of the Siting Team.

4.1 Natural Environment

The natural environment includes water, soil, sensitive species, and wildlife habitat. Potential impacts are based on publicly available maps and data as well as coordination with federal, state and local agencies. The Siting Study goal is to avoid or minimize impacts on the natural environment to the extent practicable during construction, operation, and maintenance of the transmission facilities. A comparison of the natural environment considerations for the Alternative Routes is presented in **Table 1**.

4.1.1 Geological, Soil, and Water

Resource Characteristics

The Study Area varies topographically, with low, rolling hills prevalent in the southern and central portions of the Study Area and steep slopes common in the north. The most prominent hydrogeographic resource in the Study Area is the Roanoke River. Tributaries of the Roanoke River are also found throughout the Study Area. A review of National Wetland Inventory (NWI) data indicates that wetlands are common within the Study Area, however they are mainly centered around the Roanoke River and its tributaries. Constructability and geotechnical challenges are discussed in Section 4.3. Water Resources and are identified in **Attachment E, Map 1**.

Alternative Route Comparison

Given the prominence of the Roanoke River within the Study Area, each of the Alternative Routes must cross it at least two times. Alternative Route A crosses the Roanoke River in two locations, both of which are parallel to the existing Opossum Creek – Smith Mountain 138-kV Transmission Line. Alternative Route B crosses the Roanoke River in four locations, two of which are in the same location as Alternative Route A. The other two crossings of the Roanoke River are not parallel or near any existing linear features. The two additional crossings compared to the other Alternative Routes increase the amount of floodplain crossed by the ROW and the acres of riparian buffers within the ROW. Alternative Route C crosses the Roanoke River in two locations, but unlike Alternative Route A, neither of the crossing locations are parallel or near any existing linear features.

4.1.2 Wildlife Habitat and Sensitive Species

Resource Characteristics

In April 2024, the Company utilized the United State Fish and Wildlife Service Information for Planning and Consultation (IPaC) web tool to research federal and state endangered species in the Study Area. Based on the IPaC, two bat species, the federally listed endangered northern long-eared bat and the federally proposed endangered tricolored bat, have the potential to occur in the Study Area. Additionally, the Roanoke logperch, a federally listed endangered fish which is found in the Roanoke River, was identified in the Study Area by the IPaC. No federally or state-listed mussel species were noted to occur within the Study Area. Likewise, there are no critical habitats found within the Study Area.

Alternative Route Comparison

The occurrence of two endangered and proposed endangered bat species necessitates field surveys prior to the construction of any of the Alternative Routes and/or adhering to certain time of year restrictions. Alternative Route C, which requires the largest amount of tree clearing for new ROW, would be the most impacted by these restrictions. Similarly, due to the occurrence of an endangered fish species within the Roanoke River, adherence to any sediment and erosion control plans is necessary, especially when working in and around the banks of the Roanoke River. Alternative Route B, which has the most crossings of the Roanoke River, would require the most coordination with federal and local agencies and may increase potential impacts to wildlife habitat and protected species.

Table 1. Natural Environment Evaluation Criteria				
ALTERNATIVE ROUTE	**UNIT**	**A**	**B**	**C**
General				
Length	miles	9.7	8.7	9.0
Water Resources				
Total streams crossed	count	13	9	10
High/Exceptional/Special Protection streams crossed	count	0	0	0
Riparian buffers crossed by ROW	acres	1.6	2.1	1.4
Forested wetlands in the ROW (NWI)	acres	0.7	1.1	0.0
River crossings	count	2	4	2
Length of river crossings	feet	504	1,012	421
FEMA-designated floodplain crossed by ROW	acres	11.6	13.0	4.6
Geological and Soil Resources				
Prime and unique farmland foil in the ROW[1]	acres	11.3	14.7	13.6
Wildlife and Habitat				
Tree clearing required in the ROW	acres	82.6	62.0	94.3
Farmland of statewide importance in the ROW[2]	acres	65.6	59.8	73.3
Length of clearing parallel to existing linear infrastructure	miles	6.8	4.6	1.5

Notes:
[1] Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops.
[2] Soils that do not meet the prime farmland category but are still recognized for their productivity by states may qualify as soils of statewide importance.

4.2 Human Environment

The human environment includes the use of the land and activities at a given location such as agricultural, forestry, residential, industrial, mining, commercial, institutional, scenic assets, and recreational uses. A goal of the Siting Study is to avoid or minimize conflicts with existing and proposed land uses that are not compatible with a new transmission line. A comparison of the human environment considerations for the Alternative Routes is presented at the end of this section in **Table 5.**

4.2.1 Existing and Proposed Developed Land Use

Resource Characteristics

Residential and commercial development is scattered throughout the Study Area, with the highest concentration in the north of the Study Area in the Town of Altavista. In November of 2024, members of the Siting Team met with a developer proposing a multifamily residential community along U.S. Highway 29 in the Town of Altavista. Additionally, and also in November of 2024, members of the Siting Team communicated with a local business that was planning to construct a storage facility also in the Town of Altavista. During the public outreach phase of the Project, landowners and stakeholders provided various information regarding land use plans to the Siting Team. These plans included, among other things, proposed residences and the expansion of a commercial camping and recreation facility.

Alternative Route Comparison

Using information gathered during the public outreach phase of the Project, the Siting Team eliminated or modified Study Segments that directly impacted known proposed developments. As such, none of the Alternative Routes impede any known proposed development; however, all Alternative Routes cross through residential communities near the Town of Altavista.

4.2.2 Agricultural and Forestry Resources

Resource Characteristics

Much of the soil within the Study Area meets the criteria required to be classified as farmland of statewide importance or prime farmland. As such, agriculture is common throughout the Study Area. Specifically, managed timber operations are common in the central and southern portions of the Study Area, with limited presence in the northern portion of the Study Area due to comparatively dense residential and commercial development near the Town of Altavista.

Alternative Comparison

Alternative Routes A and B limit the number of new impacts to agricultural operations by paralleling the existing Opossum Creek – Smith Mountain 138-kV Transmission Line and using portions of the existing Altavista – Leesville 138-kV Transmission Line ROW. Alternative Route B, however, does introduce more new impacts than Alternative Route A due to a deviation of the line route into an agricultural field along the Roanoke River. Alternative Route C, which has the least parallel and existing ROW sections, introduces the largest number of impacts to agricultural operations by traversing through portions of the Study Area that are heavily utilized in managed timber operations.

4.2.3 Recreation and Conservation Lands

Resource Characteristics

Conservation and recreation lands are sparse in the Study Area. South of the Town of Altavista, there is a Virginia Department of Conservation and Recreation easement along the Roanoke River. Additionally, there are three Virginia Outdoors Foundation conservation easements in the Study Area, though all are located greater than 1 mile from any Alternative Route. In the Town of Altavista, there are numerous town-owned parks, but none are anticipated to be impacted by the Project. During the public outreach phase of the Project, the Siting Team was made aware of a tract of land south of U.S. Route 43 (Bedford Highway) along the Roanoke River that was privately managed for hunting. Additionally, the Siting Team was informed of a privately owned camping facility near Leesville Lake that had intentions of expanding. No Study Segments that intersected either property were developed into Alternative Routes.

Alternative Route Comparison

No known recreation or conservation lands are crossed by any of the Alternative Routes.

4.2.4 Historic and Archaeological Resources

Resource Characteristics

A total of 11 listed or eligible to be listed National Register of Historic Places (NRHP) resources were identified within 1.0 mile of the Alternative Routes. The NRHP architectural resources are identified in **Table 2.** Archaeological resources are identified in **Table 3** but are excluded from the Project mapping to protect those resources.

Table 2. Historic Architectural Resources within 1.0 mile (NRHP-Listed and Eligible)				
Resource No.	**Distance from Alternative Route A**	**Distance from Alternative Route B**	**Distance from Alternative Route C**	**NRHP Status**
009-0221	0.94	0.94	0.94	Listed
071-0108	0.57	0.57	0.57	Listed
015-0378	0.45	0.45	0.45	Listed
015-0364	0.54	0.54	0.54	Eligible
015-5543	0.96	0.96	-	Eligible

Table 3. Archaeological Resources within 1.0 mile (NRHP-Listed and Eligible)				
Resource No.	**Distance from Alternative Route A**	**Distance from Alternative Route B**	**Distance from Alternative Route C**	**NRHP Status**
44PY0030	0.57	0.57	0.57	Listed
44PY0302	0.92	0.92	0.92	Eligible
44CP0278	0.76	0.76	0.76	Eligible
44CP0283	0.12	0.31	-	Eligible
44CP0112	0.04	0.09	-	Eligible
44CP0008	0.20	0.25	-	Eligible

Alternative Route Comparison

None of the Alternative Routes intersect any listed or eligible architectural or archaeological resources. The closest resource, NRHP archaeological resource 44CP0112, is located approximately 0.04 miles and 0.09 miles from the centerlines of Alternative Route A and Alternative Route B, respectively. Based on preliminary engineering, it is not anticipated that NRHP archaeological resource 44CP0112 will be crossed by the ROW of Alternative Route A or B. As such, no direct impacts are anticipated to these cultural resources.

4.2.5 Scenic Resources

Resource Characteristics

Aesthetics are defined as a mix of landscape visual character, the context in which the landscape is viewed (view/user groups), and the scenic integrity of the landscape. This Siting Study reviewed the potential visibility and visual impact of the Alternative Routes through landscape character assessment and field inspections.

Visual character encompasses the patterns of landform (topography), vegetation, land use, and aquatic resources (i.e., lakes, streams, and wetlands). Multiple elements influence visual character, such as natural systems, human interactions, and land use. In natural settings, the visual character attributes are natural elements such as forested mountains or scenic rivers and lakes, whereas rural or pastoral/agricultural settings may include manmade elements such as fences, walls, barns and outbuildings, and occasional residences. In a more developed setting, the visual character may include commercial or industrial buildings, manicured lawns, pavement, and other infrastructure.

The Siting Team observed two distinctive landscapes within the Study Area: the northern portion of the Study Area is characterized by residential and commercial development centered around the Town of Altavista (**Figure 6)**, and the southern and central portions of the Study Area are characterized by large managed timber tracts with smaller crop and cattle operations spread throughout (**Figure 11**). The Roanoke River is a defining scenic resource in the Study Area, traversing west to east, through the Study Area. Additionally, State Route 43 (Bedford Highway), a Virginia Scenic Byway, bisects the Study Area, roughly following portions of the Roanoke River before entering the Town of Altavista.



Figure 11. Managed Timber Operation in Pittsylvania County

Viewer/User Groups

Many factors can alter the visual character resulting from the construction of a transmission line, with the viewer being one of them. A viewer's assessment of visual impact is shaped by their expectations, activities, and frequency of viewing the line. Within the Study Area, there are three types of viewers: residents, commuters and travelers, and recreational users.

Residents may view the line from their yards or homes, while driving on local roads, or during other daily activities. The sensitivity of residents to the visual impact of the line may be mitigated by frequent exposure to existing transmission lines and other dissonant features already within the viewshed. Commuters and travelers are people who travel past the transmission line on their way to other destinations. Typically, drivers will have limited views of the transmission line where vegetation or buildings provide screening and where the line crosses high above the road surface. Under these conditions, commuters and travelers will likely have a relatively low visual perception of the line because they are typically moving and have a short duration of visual exposure to the line. Recreational users primarily include residents and visitors involved in recreational activities. Scenery and visual quality may or may not be an important recreational experience for these viewers. For some recreational users, scenery may be an important part of their experience as their activities may include attentiveness to views of the landscape for long periods. Such viewers may also have a high appreciation for visual quality and high sensitivity to visual change.

Scenic Integrity and Visual Absorption

Scenic integrity is the degree by which the landscape character deviates from a natural or natural-appearing landscape in line, form, color, and texture. In general, natural and natural-appearing landscapes have the greatest scenic integrity. As human-made incongruities are added to the landscape, the scenic integrity diminishes. Some landscapes have a greater ability to absorb alterations with limited reduction in scenic integrity. The landscape character and complexity, as well as environmental factors, influence its ability to absorb changes. A new transmission line next to an existing line provides less contrast, and therefore can be better absorbed into that landscape than introducing a new transmission line in a previously undeveloped area. Scenic integrity refers to the degree of intactness and wholeness of the landscape character. New transmission and substation facilities are more likely to "blend in" with surroundings where existing facilities exist and would not change the integrity of the landscape.

Alternative Route Comparison

State Route 43 (Bedford Highway) is a Virginia Scenic Byway that travels east to west through the Study Area, beginning at the State Route 43 (Bedford Highway)/U.S. Highway 29 interchange, just west of the Town of Altavista. Alternative Route A crosses State Route 43 (Bedford Highway) in two locations, both of which are parallel to the existing Opossum Creek – Smith Mountain 138-kV Transmission Line. Alternative Route B shares crossings of State Route 43 (Bedford Highway) with Alternative Route A, though it has two additional crossings, both of which are not parallel or near existing linear features. Alternative Route C crosses State Route 43 (Bedford Highway) one time in the existing ROW of the Altavista – Leesville 138-kV Transmission Line.

4.2.6 Environmental Justice

Resource Characteristics

It is the Company's long-standing practice in its route development process to avoid or reasonably minimize impacts to the human environment, which includes Environmental Justice (EJ) communities (community of low-income or color) and fence line communities within the meaning of the Virginia Environmental Justice Act (§ 2.2-234 et seq. of the Code of Virginia), or the "Act."

The Siting Team reviewed data from the 2020 Decennial Census and 2023 American Community Survey from the United States Census Bureau. The Company reviewed the Project by examining census tract and census block group (CBG) data. Per the available Census Bureau data, there are five census tracts within 1.0 mile of the centerline of Alternative Routes A, B, and C. These five census tracts are composed of nine CBGs, five of which are crossed by the Alternative Routes for the Project (**Table 4**). The results of the datasets are provided in Table 4, and the census tracts and CBGs identified are depicted in **Attachment E, Map 6**.

Alternative Route Comparison

Five census tracts, composed of nine CBGs, were identified within 1.0 mile of the Alternative Routes (**Attachment E, Map 6**). Of these five census tracts, four are crossed by at least one of the Alternative Routes for the Project. Each of the census tracts crossed by an Alternative Route exceed the threshold of the "EJ Community" criteria for a low-income community as defined by the Act (the percentage of low-income residents exceed 30 percent).

Income data was only available at the census tract level. As such, individual CBGs were not analyzed for meeting the criteria of a low-income community; however, demographic data was available at the CBG level, allowing for a more resolute analysis. Of the nine CBGs located within 1.0 mile of the Alternative Routes, two exceeded the threshold of the "EJ community" criteria for populations of color as defined by the Act (the percentage of people of color exceeds the average percentage of people of color in the Commonwealth). Of the two CBGs, one is crossed by the Alternative Routes for the Project (**Attachment E, Map 6**).

The Siting Team sought to obtain meaningful involvement from all potentially affected groups through various methods. Public involvement efforts included: gathering landowner input on the Study Segments at the public in-person open houses, refining and rerouting the Study Segments while considering landowner preferences, meeting with individual landowners throughout the siting process, and other efforts outlined in Section 3.6. Each of the Alternative Routes cross EJ communities along portions of their length, and no one route would bear disproportionate impacts to such communities more than the others. The Company will continue to engage all

affected landowners, including EJ communities as defined in the Act, throughout the duration of the Project.

Table 4. Demographics Data Table								
Census Tract	CBG	CBG Crossed by Alternative Route (Yes/No)	Crossed by Alternative Route	County	Population		% people of color[3]	% low income[1]
					CBG[2]	Census Tract[4]		
Virginia					*8,631,393[2]*		*40%*	*10%[4]*
305.01	510190305012	N		Bedford County	738	4,190	15%	51%
206	**510310206002**	**Y**	**A, B, C**	**Campbell County**	**1,341**	**3,604**	**22%**	**53%**
	510310206003	**Y**	**A, B, C**		**1,534**		**16%**	
207	510310207001	N		**Campbell County**	1,105	**3,378**	13%	**33%**
	510310207002	N			1,003		55%	
	510310207003	**Y**	**A, B, C**		**1,270**		**42%**	
102	511430102001	N		**Pittsylvania County**	799	**4,117**	22%	**43%**
	511430102003	**Y**	**B, C**		**1,749**		**28%**	
103.01	**511430103011**	**Y**	**A, B, C**	**Pittsylvania County**	**1,225**		**23%**	**52%**

Notes: CBG = Census Block Group

[1] Per the Virginia Environmental Justice Act, "Low-income community" means any census block group in which 30 percent or more of the population is composed of people with low income, and used in the comparative analysis.

[2] Virginia and CBG Population (U.S. Census Bureau 12/18/2020).

[3] Per the Virginia Environmental Justice Act, "People of color" are individuals who identify as belonging to one or more of the following groups: Black, African American, Asian, Pacific Islander, Native American, other non-white race, mixed race, Hispanic, Latino, or linguistically isolated.

[4] Income levels and Census Tract Population (American Community Survey 12/9/2024).

Bold text indicates populations which meet the criteria for an EJ community, as defined in the Virginia Environmental Justice Act, and are crossed by an Alternative Route.

Gray shaded cells indicate reference population.

Green shaded cells indicate identified minority populations as defined in the Virginia Environmental Justice Act.

Yellow shaded cells indicate identified low-income populations as defined in the Virginia Environmental Justice Act.

Table 5. Human Environment Evaluation Criteria				
Alternative Route	**Unit**	**A**	**B**	**C**
General				
Length	miles	9.7	8.7	9.0
Number of parcels[1] crossed	count	74	72	74
Existing landowners within ROW	count	25	24	17
New landowners within ROW	Count	18	22	32
Residential				
Barns, outbuildings, sheds, garages and silos in the ROW	count	2	2	1
Residences/single-family dwellings within 250 feet of centerline	count	15	15	20
Residences/single-family dwellings within 500 feet of centerline	count	46	47	64
Commercial/Industrial				
Businesses/commercial buildings within 500 feet of the centerline	count	1	1	1
Agricultural				
Pasture/rangeland crossed in ROW (based on NLCD data)	acres	34.8	43.6	11.7
Community/Recreational Facilities				
Schools within 1,000 feet of centerline	count	1	1	1
Places of worship within 1,000 feet of centerline	count	2	2	1
Scenic byway crossings	count	3	5	1
Cultural Resources				
NRHP-listed and eligible architectural resources within one mile of the centerline	count	5	5	4

Notes:
[1] The number of parcels crossed refers to the number of individual plots of owned land recorded by each county. The number of landowners within the ROW represent the number of individual landowners, who each may own one or more parcels.
[2] Multifamily dwellings include townhomes, condominiums, apartment complexes, and duplexes.
[3] Commercial development includes retail, service, office, restaurants, and lodging establishments.

4.3 Constructability

Constructability is the ability to efficiently and cost effectively engineer, acquire ROW for, construct, operate, and maintain the proposed transmission line. Major factors include safety, steep topography, condensed ROWs, heavy angles, access, ability to parallel or use existing ROWs, features, proximity to major highways, etc. A comparison of the constructability considerations for the Alternative Routes is presented at the end of this section in **Table 6.**

4.3.1 Engineering

Potential engineering and construction challenges are important to consider when siting a transmission line. Heavy angles, steep topography, nearby communication towers, antennae, and airfields along with narrow ROW alignments are all elements that could ultimately require extensive or non-standard engineering and lead to increases in impacts and overall cost.

The proximity to existing roadway, transmission, and gas pipeline infrastructure could also pose potential engineering and construction challenges. As with paralleling existing infrastructure, crossing over transmission lines, distribution lines, and pipelines may require specialized construction techniques and scheduled outages on the existing lines, specifically along the Opossum Creek – Smith Mountain 138-kV Transmission Line. The Company attempted to minimize engineering challenges during route development.

Alternative Comparison

Each of the Alternative Routes have unique engineering challenges. Alternative Route A involves reconfiguring an approximately 1.0-mile-long portion of the Opossum Creek – Smith Mountain 138-kV Transmission Line so that the proposed Project can be constructed in the existing ROW. Additionally, Alternative Route A uses almost the entirety of the existing ROW for the Altavista – Leesville 138-kV Transmission Line. Constructing both of these sections of line will require extensive engineering and planning of circuit outages to maintain stability of the transmission system. Alternative Route B also uses almost the entirety of the existing ROW for the Altavista – Leesville 138-kV Transmission Line, and thereby, shares outage considerations with Alternative Route A. Additionally, Alternative Route B has two additional crossings of the Roanoke River compared to the other Alternative Routes; if structures are required to be placed in the floodplain at any of the Alternative Route crossings of the Roanoke River, deep foundations are more likely to be needed. Alternative Route C will require the shortest outage durations because it uses the least amount of the existing ROWs. However, Alternative Route C has the most heavy angles of any of the Alternative Routes, which necessitates the most dead-end structures to be engineered and increases costs. Both Alternative Route A and B have similar amounts of heavy angles,

limiting differences in both non-standard design requirements and costs to purchase non-standard structures.

4.3.2 Topographic and Geotechnical

The Study Area is located within the Piedmont physiographic region of Virginia, which is characterized by rolling hills with the occasional higher peak. The topography of the Study Area generally exhibits these characteristics, with gentle slopes common in the southern and central portions of the Study Area and more distinct slopes common in the northern portion of the Study Area. Furthermore, the terrain on both sides of the Roanoke River is frequently steep.

Alternative Comparison

Alternative Routes A and B both contend with steep slopes along the banks of the Roanoke River, specifically along the portion of the river that parallels U.S. Route 43 (Bedford Highway). Alternative Route A follows a prominent ridgeline above the Roanoke River and U.S. Route 43 (Bedford Highway), displacing the existing Opossum Creek – Smith Mountain 138-kV Transmission Line which will be rebuilt to northwest and parallel to the proposed transmission line in new ROW. To avoid steep terrain, Alternative Route B turns east to cross U.S. Route 43 (Bedford Highway) and the Roanoke River into a low peninsula within the Roanoke River. To exit this peninsula, Alternative Route B turns north to again cross the Roanoke River and U.S. Route 43 (Bedford Highway) before rejoining the alignment of Alternative Route A. Alternative Route C avoids steep terrain by crossing the Roanoke River at a location where the topography is more characterized by rolling hills.

4.3.3 Access Roads

Access roads are prevalent throughout the Study Area due to existing transmission and distribution lines, as well as the numerous managed timber operations.

Alternative Routes Comparison

Alternative Route A, with its large parallel or in existing ROW sections, will be able to be constructed and maintained almost entirely with existing access roads, negating the need for new access to be constructed. Alternative Route B will be able to utilize a similar amount of the existing access roads, however, the **Diversion** across the Roanoke River and into private farmland will require new access for construction and maintenance. Alternative Route C, which utilizes the least parallel or in existing ROW sections, will require the newest access to be constructed. Additionally, portions of Alternative Route C parallel U.S. Highway 29, which is a limited access highway. As such, access roads will need to be constructed from non-limited access roads, increasing costs and landowner coordination.

4.3.4 Right-of-Way

The Company attempted to minimize the route length and number of parcels crossed to reduce ROW acquisition costs. Where possible and practical, the Company considered using existing transmission ROWs, paralleling existing electric lines, or paralleling other infrastructure such as roadways and railways. The presence of the Opossum Creek – Smith Mountain 138-kV Transmission Line and the Altavista – Leesville 138-kV Transmission Line presented opportunities to parallel and utilizing existing ROWs, both of which limit the amount of new landowners impacted by ROW requirements.

Alternative Comparison

Each of the Alternative Routes parallel the existing Opossum Creek – Smith Mountain 138-kV Transmission Line and utilize the existing ROW of the Altavista – Leesville 138-kV Transmission Line in varying amounts. Alternative Route A utilizes the longest sections of parallel and in existing ROW routing. As a result, the number of landowners requiring ROW who do not currently have an easement for a transmission line on their property is lower compared to the other Alternative Routes. In the case of Alternative Route C, the number of new landowners from which ROW will be required is nearly double that of Alternative Route A. Overall, Alternative Route A minimizes ROW impacts to landowners.

Table 6. Constructability Evaluation Criteria				
ALTERNATIVE ROUTE	**UNIT**	**A**	**B**	**C**
General				
Length	miles	9.7	8.7	9.0
Transportation Resources				
U.S. highways crossed	count	1	1	1
State highways crossed	count	3	5	1
Local roads and streets crossed	count	7	7	7
Railroads crossed	count	2	2	2
Utility Resources				
Communication towers within 1,000 feet of the centerline	count	0	0	1
Engineering and Geotechnical Considerations				
Steep slopes crossed by ROW (>20%), percent of total length	miles	35.4	24.3	27.2
Heavy angles, greater than 30 degrees	count	5	6	10
Rights-of-Way Rebuild/Parallel				
Existing 138 kV transmission lines paralleled	miles	5.2	3.9	0.9
Existing 138 kV transmission lines rebuilt	miles	3.9	2.7	1.3
Interstate highways, U.S. highways, State highways, and local roads	miles	0	0	0.2
Total length paralleled	miles	5.2	3.9	1.1
Total percentage paralleled	percent	53.6	44.8	12.2
Total length rebuilt	miles	3.9	2.7	1.3
Total percentage rebuilt	percent	40.2	31.0	14.4

5.0 IDENTIFICATION OF THE PROPOSED ROUTE

The goal in selecting a suitable route for the Project is to minimize overall impacts on natural and human environments while avoiding indirect routes, unreasonable costs, and special design requirements. However, in practice, it is not usually possible to optimally minimize all potential impacts at all times. There are often inherent tradeoffs in potential impacts to every siting decision. For example, in heavily forested study areas, the route that avoids the most developed areas will likely require the greatest amount of forest clearing, while the route that has the least impact on vegetation and wildlife habitats often impacts more residences or farmlands. Thus, an underlying goal of a Siting Study is to reach a reasonable balance between minimizing potential impacts on one resource versus increasing the potential impacts on another.

Following an extensive data gathering, route development, and comparative analysis process, the Siting Team identified Alternative Route A as the Proposed Route for the Project, shown in **Attachment E, Map 7**. The rationale for selecting the Proposed Route is derived from an accumulation of siting decisions made throughout the process, Siting Team knowledge and experience, public and regulatory agencies' comments, and the comparative analysis of potential impacts. The following summarizes the Proposed Route selection.

The Siting Team undertook an iterative process that moved from routing concepts to increasingly refined Study Segments and Alternative Routes. First, a Study Area was defined and constraint data was collected (**Attachment E, Map 1**). Next, three Conceptual Routes were developed that connected the Altavista and Leesville Substations via opportunity corridors that were identified by the Siting Team (**Attachment E, Map 2**). All routing concepts were carried forward and developed into a Study Segment Network, comprised of twenty-six 138-kV Study Segments (**Attachment E, Maps 3 and 4 and Figures 9 and 10**). Using stakeholder input and analysis, field reconnaissance, and preliminary engineering review, the Study Segment Network was refined into three Alternative Routes (**Attachment E, Map 5**). The Siting Team reviewed and analyzed the three Alternative Routes based on the natural and human environment and engineering Constraints in the Study Area and arrived at a Proposed Route for the Altavista – Leesville 138-kV Transmission Line (**Attachment E, Map 7**).

The Proposed Route for the Altavista – Leesville 138-kV Transmission Line is the most suitable route, minimizing impacts to residences and environmentally sensitive resources, such as the Roanoke River, agricultural farms and fields, streams, and wetlands. It also addresses landowner input by largely paralleling the existing Opossum Creek – Smith Mountain 138-kV Transmission Line and rebuilding in the existing Altavista – Leesville 138-kV Transmission Line ROW. Alternative Route A requires the least amount of new ROW compared to the other Alternative Routes, while also crossing the least number of new landowners with ROW. Paralleling the existing ROW also

allows the use of existing access roads which limits further impact on the natural and human environment. Additionally, Alternative Route A limits the environmental and visual impacts of crossing the Roanoke River by paralleling the existing Opossum Creek – Smith Mountain 138-kV Transmission Line at both crossings compared to the other Alternative Routes which both introduce new crossings of the Roanoke River.

The Proposed Route begins at the Altavista Substation in the Town of Altavista (2424 Lynch Mill Road) and departs the Altavista Substation to the north, traveling for approximately 0.7 miles in existing ROW. Just east of U.S. Highway 29, the Proposed Route turns northwest and travels approximately 0.3 miles to cross U.S. Highway 29 in new ROW before turning west and traveling for approximately 0.2 miles in new ROW, crossing State Route 714 (Lynch Mill Road). From here, the Proposed Route continues west for approximately 2.4 miles in existing ROW, crossing State Route 1318 (Oak Ridge Drive), State Route 626 (Lynch Road), a Norfolk Southern Railway Company railroad, State Route 43 (Bedford Highway) twice, Saddle Road, and State Route 628 (Bishop Creek Road) twice.

From this point, the Proposed Route turns southwest and travels for approximately 1.1 miles to the Redeye solar facility, in the existing ROW of the Opossum Creek – Smith Mountain 138-kV Transmission Line. Approximately 1.1 miles of the Opossum Creek – Smith Mountain 138-kV Transmission Line will be relocated to the northwest of the Proposed Route and constructed and operated in new parallel and abutting ROW. From the Redeye solar facility, the Proposed Route turns slightly south and parallels the southern side of the Opossum Creek – Smith Mountain 138-kV Transmission Line in new ROW for approximately 1.6 miles, crossing State Route 43 (Bedford Highway) for a third time, the Roanoke River, and a second Norfolk Southern Railway Company railroad. After crossing the railroad, the Proposed Route turns slightly west to continue paralleling the southern side of the Opossum Creek – Smith Mountain 138-kV Transmission Line for approximately 2.4 miles, crossing State Route 924 (Pocket Road), the Roanoke River a second time, and State Route 718 (Taylor Ford Road). After crossing State Route 718 (Taylor Ford Road) and traveling for approximately 0.3 miles, the Proposed Route turns south and enters the Company's Leesville Substation (1621 Taylor Ford Road).

The Company sought to obtain meaningful involvement from the community and make route adjustments to minimize impacts, where reasonable and practical. After the Siting Team identified the Proposed Route, mailings were sent out, the Project website was updated, and Company ROW agents began contacting potentially affected landowners. The purpose of this outreach was to inform them about the final route, gather additional feedback, make reasonable adjustments, and obtain permission to survey for future field studies. As of August 14, 2025, the vast majority of the affected landowners have been contacted.

Collectively, the Siting Team believes the Proposed Route: (1) has been well vetted with affected landowners; (2) is most consistent with federal and state siting guidelines; (3) reasonably avoids or minimizes adverse impacts on area land uses and the visual, natural and cultural environment; (4) avoids or minimizes special design requirements and unreasonable costs; and (5) can be constructed, operated, and maintained in a safe, timely, and reliable manner.

Attachment A: Outreach Fact Sheet



ALTAVISTA - LEESVILLE TRANSMISSION IMPROVEMENTS PROJECT

Appalachian Power representatives plan to upgrade the local power grid in Campbell and Pittsylvania counties. Crews plan to begin construction in late 2026 and for the project to be in service by late 2027.

WHAT

The project involves:

- Rebuilding approximately 1 mile of 138-kilovolt (kV) transmission line in or near the existing right-of-way.
- Building approximately 9 miles of 138-kV transmission line.*

This project requires approval by the Virginia State Corporation Commission (SCC).

* The project team is reviewing route options to build the proposed 9-mile power line. Company representatives do not build all route options. Rather, they select one route to build based on public feedback and feasibility.

WHY

The project:

- Increases the transmission system capacity required for the planned Blue Ridge Solar (BRS) 150-megawatt solar generation facility in Pittsylvania County.
- Replaces aging 1960s-era transmission lines with equipment capable of conducting a greater amount of electricity.
- Enhances the Altavista/Leesville area system reliability and reduces outages for customers.

WHERE

The project area includes:

- Campbell County
- Pittsylvania County
- Town of Altavista

2024

PROJECT ANNOUNCEMENT & OPEN HOUSE
Fall 2024

RIGHT-OF-WAY COMMUNICATIONS BEGIN
Late 2024

2025

SECOND OPEN HOUSE
Early 2025

PROPOSED ROUTE ANNOUNCEMENT
Spring 2025

FILE APPLICATION WITH THE SCC*
Summer 2025

2026

ANTICIPATED APPROVAL FROM THE SCC*
Summer 2026

TREE CLEARING & ACCESS ROAD CONSTRUCTION BEGINS
Late 2026

2027

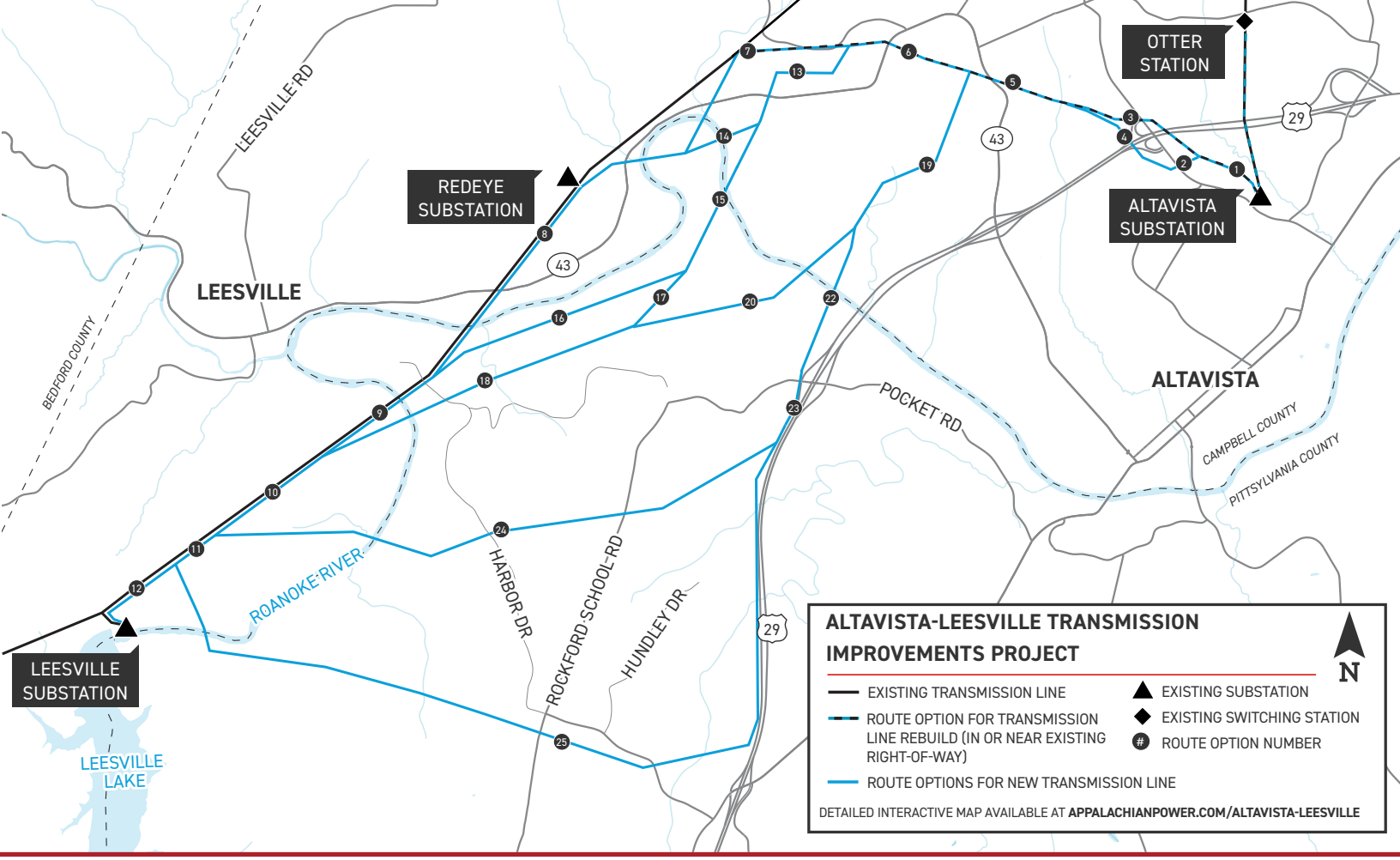
TRANSMISSION LINE CONSTRUCTION BEGINS
Early 2027

PROJECT IN SERVICE
Late 2027

2028

CLEANUP AND REMOVAL CONCLUDES
Early 2028

*Virginia State Corporation Commission Timeline subject to change.

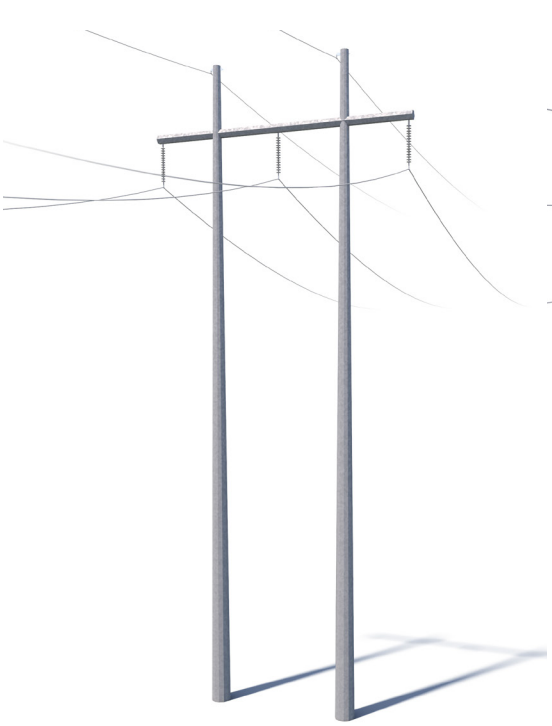


TYPICAL STRUCTURES

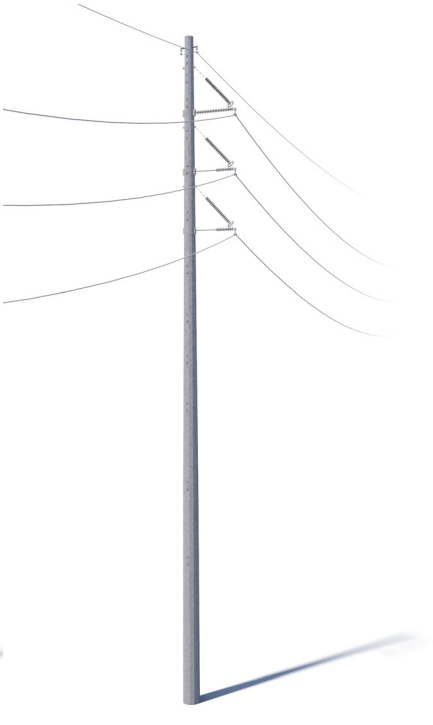
Crews plan to install steel H-frame and single-pole structures.

At select locations, crews may use lattice towers and three-pole steel structures to meet engineering needs. Proposed structures are an average of 30 feet shorter than the existing lattice towers and 20 feet taller than the existing H-frame structures.

Proposed heights for H-frame structures: 60-105 feet*
Proposed heights for single-pole structures: 70-115 feet*
Right-of-way width: Approximately 100 feet*



Steel H-Frame



Steel Single-Pole

*Exact structure, height, and right-of-way requirements may vary.

WE VALUE YOUR INPUT. PLEASE SEND COMMENTS AND QUESTIONS TO:
FORD CARSON · PROJECT OUTREACH SPECIALIST
APCO_OUTREACH@AEP.COM · 833-313-3743
APPALACHIANPOWER.COM/ALTAVISTA-LEESVILLE

APPALACHIAN POWER
An AEP Company

01/08/2025

Attachment B: GIS Data Sources

Attachment B. GIS Data Sources		
SITING CRITERIA	**SOURCE**	**DESCRIPTION**
Land Use		
Number of parcels crossed by the ROW	Campbell and Pittsylvania County (2024)	Count of the number of parcels crossed by the ROW.
Number of residences within 500 feet of the route centerline	Virginia Geographic Information Network (VGIN) (2024)	Count of the number of residences within the ROW and within 500 feet of potential routes.
Number of commercial buildings within 500 feet of the route centerline	Digitized from VGIN (2024)	Count of the number of commercial buildings within the ROW and within 500 feet of potential routes.
Land use acreage and distance crossed by the ROW and acreage within 50 feet of the route centerline	U.S. Geological Survey (USGS) National Land Cover Database (NLCD) 2023. MRLC. Retrieved from https://www.mrlc.gov/data	The NLCD (2023) compiled by the Multi-Resolution Land Characteristics (MRLC) Consortium includes 15 classes of land cover from Landsat satellite imagery.
Acres of conservation easements crossed	National Conservation Easement Database (NCED) (2024) Virginia Department of Conservation and Recreation (2024) Virginia Outdoor Foundation (2024) The Protected Areas Database of the United States (PAD-US) (2022)	Private conservation easements crossed by the routes from the NCED which consists of voluntarily reported conservation easement information from land trusts and public agencies.
Acres of agricultural district land crossed	The Protected Areas Database of the United States (PAD-US) (2022)	Protected land that is devoted exclusively to agricultural production or devoted to and qualified for compensation under a federal land retirement or conservation program that is at least 10 acres in size, or produces an average yearly gross income of at least $2,500 during a 3-year period.
Number of archeological resources within the ROW and within 1.0 mile	Virginia Cultural Resources Information System (2024)	Previously identified archeological resources listed or eligible on the National Register of Historic Places.

Attachment B. GIS Data Sources		
SITING CRITERIA	**SOURCE**	**DESCRIPTION**
		(NRHP) acquired through Virginia Cultural Resources Information System (2024).
Number of historic architectural resources within the ROW, within 1.0 mile	Virginia Cultural Resources Information System (2024) National Register of Historic Places (2022)	Previously identified historic architectural resource sites and districts listed or eligible on the NRHP acquired through Virginia Cultural Resources Information System (2024).
Institutional uses (schools, places of worship and cemeteries) within 1000 feet of the route centerline	U.S. Geological Survey's GNIS (2024)	This dataset includes the locations of cemeteries, churches, hospitals, parks, and schools. Features within 1000 feet of potential routes were field verified.
Natural Environment		
Forest clearing within the ROW	U.S. Geological Survey (USGS). 2024. National Land Cover Database (NLCD) 2023. MRLC. Retrieved from https://www.mrlc.gov/data	Acres of forest within the ROW.
Number of National Hydrography Dataset (NHD) stream and waterbody crossings within the ROW	USGS (2024)	The NHD is a comprehensive set of digital spatial data prepared by the USGS that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells.
Acres of National Wetland Inventory (NWI) wetland crossings within the ROW	U.S. Fish and Wildlife Service (USFWS) (2024)	The NWI produces information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats.
Acres of 100-year floodplain crossing within the ROW	U.S. Federal Emergency and Management Agency (FEMA) (2024)	Acres of 100-year floodplain within the ROW.
Miles of public lands crossed by the route	The Protected Areas Database of the United States (PAD-US) (2022)	Miles of federal, state and local lands crossed by the ROW.
Threatened, endangered, rare or sensitive species	Virginia Department of Wildlife Resources Wildlife Review Map Service (2023)	Known occurrences; locations of potential habitat based on land use.

Attachment B. GIS Data Sources		
SITING CRITERIA	**SOURCE**	**DESCRIPTION**
occurrence within the Project vicinity		
Percent of prime farmland soils and soils of statewide importance within the ROW	USDA-NRCS SSURGO Database (2024)	Percent of soil associations crossed by the ROW characterized as prime farmland or farmland of statewide importance.
Technical		
Route length	Measured in GIS	Length of route in miles.
Number and severity of angled structures	Developed in GIS	Anticipated number of angled structures less than 3 degrees, 3 to 45 degrees and more than 45 degrees based on preliminary design.
Number of road crossings	USGS Transportation Dataset (2024)	Count of federal, state and local roadway crossings.
Number of transmission line crossings	Appalachian Power Company (2024)	Number of high voltage (100 kV or greater) transmission lines crossed by the ROW.
Distance of steep slopes crossed	Derived from seamless Digital Elevation Models (DEMs) obtained from the U.S. Geologic Survey (2024)	Miles of slope greater than 20 percent crossed by the routes.
Length of transmission line parallel	Appalachian Power Company (2024)	Miles of the route parallel to existing high voltage transmission lines.
Length of road parallel	USGS Transportation Dataset (2024)	Miles of the route parallel to existing roadways.

Attachment C: Data Collection Summary

Attachment C. Data Collection Summary	
Data Source	**Description**
GIS Data	See Attachment B.
Field Inspections	Siting Team members conducted field inspections throughout the Study Area and along the proposed Study Segments in July, September, and November 2024.
Federal Agencies	• USFWS using the IPaC tool [April 2024]. • United States Geological Survey (USGS) NHD and USFWS NWI databases. • Agency letters sent on October 23, 2024.
State Agencies	• VDHR's VCRIS database review [April 2024]. • USFWS online databases for sensitive species and habitats [April 2024]. • Agency letters sent on October 23, 2024.
Local Agencies/Officials	• Local Officials – virtual briefing to local officials from Campbell and Pittsylvania Counties and the Town of Altavista by the Siting Team in October 2024. • VDOT – virtual briefing of VDOT engineers by the Siting Team in December 2024.

Outreach Efforts	• Mailings sent to 527 landowner addresses on October 23, 2024. The outreach mailings included:
	  ○ A postcard
	  ○ Letter
	  ○ Project factsheet
	  ○ Comment card with prepaid postage return envelope
	• Mailings sent to 527 landowner addresses on January 8, 2025. The outreach mailings included:
	  ○ A postcard
	  ○ Letter
	  ○ Project factsheet
	  ○ Comment card with prepaid postage return envelope
	• Doorhangers distributed to 240 landowners in target neighborhoods on January 6 and 7, 2025.

Open House(s)	Two in-person public open houses on November 13, 2024, and January 21, 2025, to gather landowner and community feedback.
Website and Mailed-In Comments	A total of 182 comments returned to the Company via map book comments, comment cards, emails, or phone calls as of January 31, 2025.

Attachment D: Agency Correspondence

ALTAVISTA – LEESVILLE TRANSMISSION IMPROVEMENTS PROJECT					
JURISDICTION	**FULL NAME**	**TITLE**	**ORGANIZATION**	**DATE NOTICE SENT**	**DATE RESPONSE RECEIVED**
Local	Frank Rogers	County Administrator	Campbell County	10/23/2024	No response received
Local	Dave Arnold	Assistant County Administrator	Pittsylvania County	10/23/2024	No response received
Local	Vincent Shorter	Acting County Administrator	Pittsylvania County	10/23/2024	No response received
Local	Gary Shanaberger	Town Manager	Town of Altavista	10/23/2024	No response received
State	Amy Martin	Manager, Wildlife Information and Environmental Services	Virginia Department of Wildlife Resources	10/23/2024	No response received
State	Wil Ordnorff	Karst Protection Coordinator	Virginia Department of Conservation and Recreation – Natural Heritage Program	10/23/2024	10/24/2024
State	René Hypes	Environmental Review Coordinator	Virginia Department of Conservation and Recreation – Natural Heritage Program	10/23/2024	10/24/2024 10/31/2024 11/19/2024 12/19/2024
State	Rob Evans	Natural Area Protection Manager	Virginia Department of Conservation and Recreation – Natural Heritage Program	10/23/2024	10/24/2024
State	Michelle Henicheck	Senior Wetland Ecologist	Virginia Department of Environmental Quality – Central Office	10/23/2024	11/25/2024
State	Bettina Rayfield	Manager	Virginia Department of Environmental Quality – Office of Environmental Impact Review	10/23/2024	10/29/2024
State	Robert Weld	Regional Director	Virginia Department of Environmental Quality – Blue Ridge Regional Office	10/23/2024	No response received
State	Nelson Dail	VWP Permit Manager	Virginia Department of Environmental Quality – Blue Ridge Regional Office	10/23/2024	No response received
State	Randy Owen	Chief of Habitat Management	Virginia Marine Resources Commission – Habitat Management	10/23/2024	No response received

ALTAVISTA – LEESVILLE TRANSMISSION IMPROVEMENTS PROJECT					
JURISDICTION	**FULL NAME**	**TITLE**	**ORGANIZATION**	**DATE NOTICE SENT**	**DATE RESPONSE RECEIVED**
State	Rachel Meyers	Manager	Virginia Department of Agriculture and Consumer Services – Office of Agriculture and Forestry Development	10/23/2024	No response received
State	Roger Kirchen	Director, Review & Compliance Division	Virginia Department of Historic Resources – Division of Review and Compliance	10/23/2024	10/24/2024 11/22/2024
State	Martha Little	Deputy Director, Conservation	Virginia Outdoors Foundation	10/23/2024	11/1/2024
State	Patrick Sweatt	Conservation Specialist	Virginia Outdoors Foundation	10/23/2024	No response received
State	Clint Folks	Forestland Conservation Coordinator	Virginia Department of Forestry	10/23/2024	No response received
State	William Butler	Area Forester, Campbell County	Virginia Department of Forestry – Rustburg Office	10/23/2024	No response received
State	Drew Arnn	Area Forester, Pittsylvania County	Virginia Department of Forestry – Chatham Office	10/23/2024	No response received
State	Rusty Harrington	Chief Planner	Virginia Department of Aviation	10/23/2024	No response received
State	Watson Felts	Deputy Director, Flight Operations	Virginia Department of Aviation	10/23/2024	No response received
State	Matt Heller	State Geologist	Virginia Department of Energy – Geology and Mineral Resources	10/23/2024	No response received
State	Ray Weiland, P.E.	Deputy Field Director	Virginia Department of Health – Office of Drinking Water	10/23/2024	No response received
State	Dwayne Roadcap	Office Director	Virginia Department of Health – Office of Drinking Water	10/23/2024	11/08/2024
State	Christopher Winstead	District Engineer	Virginia Department of Transportation – Lynchburg District	10/23/2024	10/23/2024 11/20/2024
State	Rick Youngblood	District Planner	Virginia Department of Transportation – Lynchburg District	10/23/2024	No response received
State	Robert Brown	Residency Administrator	Virginia Department of Transportation – Appomattox Residency	10/23/2024	No response received

ALTAVISTA – LEESVILLE TRANSMISSION IMPROVEMENTS PROJECT					
JURISDICTION	**FULL NAME**	**TITLE**	**ORGANIZATION**	**DATE NOTICE SENT**	**DATE RESPONSE RECEIVED**
State	Jay Craddock	Residency Engineer	Virginia Department of Transportation – Halifax Residency	10/23/2024	No response received
Federal	Jennifer Serafin	Chief, Wester Section	U.S. Army Corps of Engineers – Norfolk District	10/23/2024	No response received
Federal	Marie Kennington-Gardiner	Eastern Regional Administrator	Federal Aviation Administration	10/23/2024	10/24/2024
Federal	Adam Ortiz	Regional Administrator	U.S. Environmental Protection Agency – Region 3	10/23/2024	10/29/2024
Federal	Cindy Schulz	Field Office Supervisor	U.S. Fish & Wildlife Service – Virginia Ecological Services	10/23/2024	No response received
Federal	Edwin Martinez-Martinez	State Conservationist	U.S. Department of Agriculture – Natural Resources Conservation Service	10/23/2024	No response received
Federal	John Harper	State Soil Scientist	U.S. Department of Agriculture – Natural Resources Conservation Service	10/23/2024	10/24/2024 10/25/2024
Federal	John Simkins	Team Lead, Planning and Environment	U.S. Department of Transportation – Federal Highway Administration, Virginia Division	10/23/2024	No response received

POWER ENGINEERS, INC.
6641 W. BROAD STREET
SUITE 405
RICHMOND, VA 23230 USA

PHONE 406-698-1198

October 7, 2024

Subject: Appalachian Power Company: Altavista – Leesville Transmission Line Rebuild Project in Pittsylvania and Campbell Counties, and the Town of Altavista, Virginia

Dear:

Appalachian Power Company (Appalachian Power) is proposing the Altavista – Leesville Transmission Line Rebuild Project, which will rebuild approximately nine miles of existing transmission line in Pittsylvania and Campbell Counties, and the town of Altavista, Virginia (Project). Appalachian Power contracted POWER Engineers, Inc. (POWER) to prepare the Certificate of Public Convenience and Necessity application to the Virginia State Corporation Commission for the Project. On behalf of Appalachian Power, POWER is requesting your input on the information provided.

The Project will rebuild an approximately eight-mile-long portion of the existing Altavista – Leesville 138-kilovolt Transmission Line between Dominion Energy Virginia's existing Altavista Substation and Appalachian Power's existing Leesville Substation. Appalachian Power plans to acquire new right-of-way for the entire eight-mile-long rebuild. The Project will also rebuild an approximately one-mile-long portion of the existing Altavista – Lynchburg 138- kilovolt Transmission Line between Dominion Energy Virginia's Altavista Substation and Appalachian Power's Otter Switch. Appalachian Power plans to rebuild this one-mile-long portion of transmission line within the existing right-of-way. The Project Study Area is shown in **Attachment 1**.

Appalachian Power and POWER are requesting input from you on the Project so that any specific comments can be considered. We appreciate your input, and your feedback will be incorporated into the filing to the Virginia State Corporation Commission. Appalachian Power plans to file the Project with the State Corporation Commission in the summer of 2025. Please distribute this notification to staff members who may be involved with this Project for review and comment.

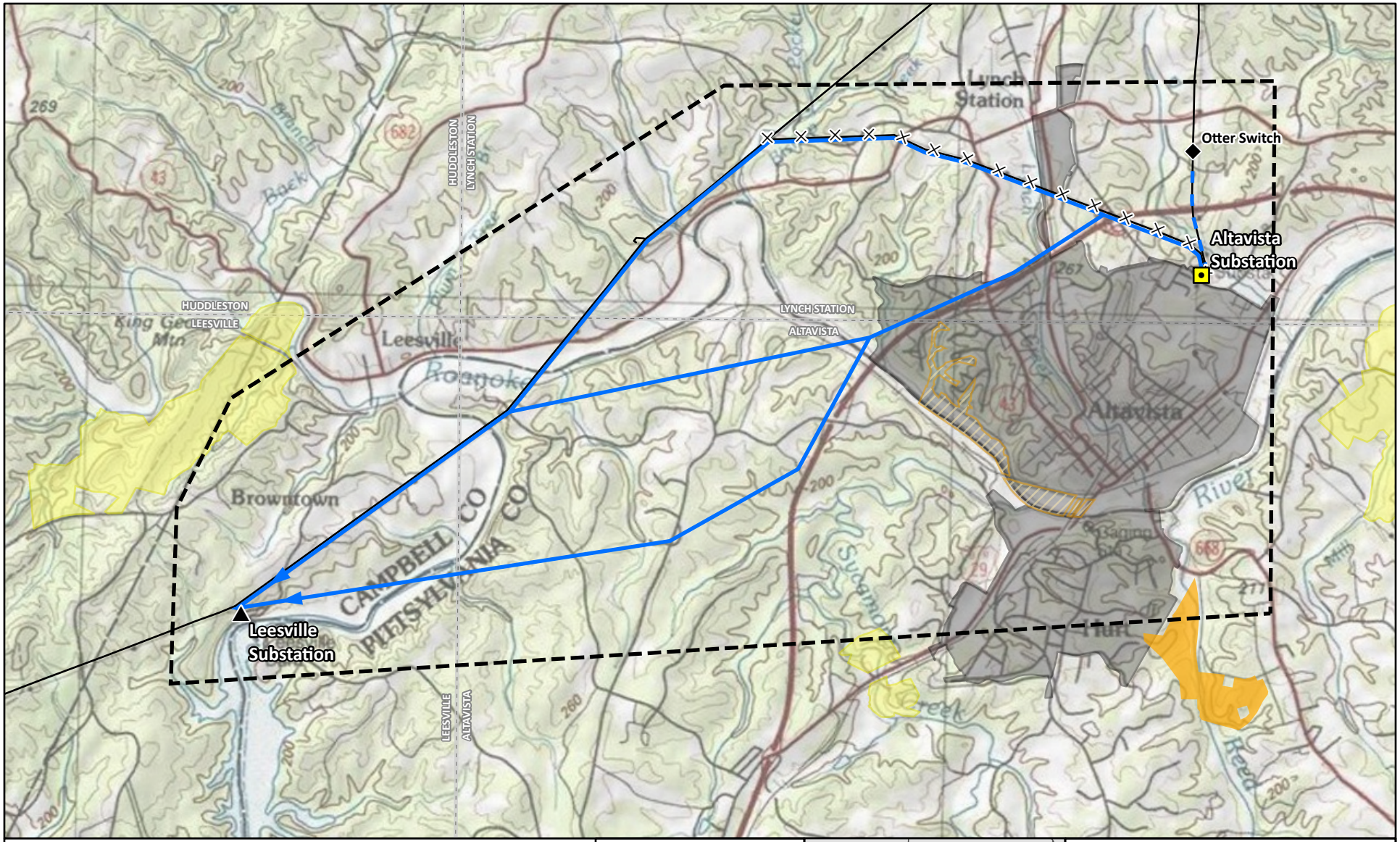
I look forward to receiving your comments and feedback regarding the Project. Please feel free to contact me via email at brendan.mcloughlin@powereng.com or by phone at 804-877-0121.

Sincerely,

Brendan McLoughlin

Brendan McLoughlin
Environmental Planner

Enclosure: Attachment 1 – Project Study Area

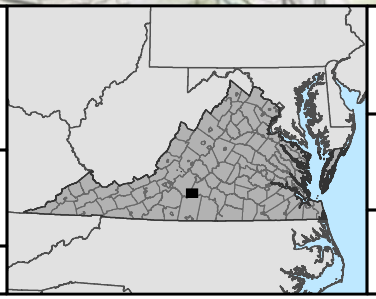


- Existing Substation (AEP)
- Non-AEP Substation
- Existing Switch Station (AEP)
- Conceptual Route
- Existing Transmission Line to be Rebuilt
- Existing Transmission Line to be Removed
- Existing Transmission Line (AEP)
- Conservation and Recreation Easement (VDCR)
- State Land Easement
- Land Easement (VOF)
- City/Town/Municipal Limit
- USGS Topo Quad Boundary
- Study Area

Towns of Altavista and Hurt, Campbell and Pittsylvania Counties, Virginia

NAD 1983 State Plane
Virginia South
FIPS 4502 Feet

October 23, 2024



Project Study Area

Altavista-Leesville Transmission Line Rebuild Project

APPALACHIAN POWER
An AEP Company

POWER ENGINEERS

0 1 2
Miles

Town of Altavista Virginia
Treasured Past, Innovative Future.

P.O. Box 420
510 Seventh Street
Altavista, VA 24517
Phone (434) 369-5001
Fax (434) 369-4369

December 30, 2024

Appalachian Power Company
Ford Carson, Project Outreach Specialist
P.O. Box 2021
Roanoke, Virginia 24022

Dear Mr. Carson,

I am writing to you on behalf of the Altavista Town Council to express our support for the Altavista Area Powerline Coalition.

It is our understanding that the Coalition's position is to ensure the powerline is placed in the best route that affects the least amount of people negatively. We agree with and support that position and are hopeful that AEP will give the Coalition the same consideration that you gave the Town of Altavista. The community briefing at the Altavista Elementary School and the Town Council update were very helpful. We would encourage AEP to continue this community outreach.

We recognize that Appalachian Power has an obligation to provide a consistent power supply and to upgrade equipment in response to demand and as you complete your design plans, we encourage you to pursue a route that takes residential impacts into consideration and minimizes adverse effects.

Please do not hesitate to reach out if you have any questions.

In partnership,

Mayor Michael Mattox
Altavista Town Council

CC: Reggie Bennett, Vice-Mayor Town of Altavista; James Higginbotham, Altavista Town Council; Tracy Emerson, Altavista Town Council; Tim George, Altavista Town Council; Scott Lowman, Altavista Town Council; and Wayne Mitchell, Altavista Town Council; and Gary Shanaberger, Town Manager.

From:	Orndorff, Wil (DCR)
To:	McLoughlin, Brendan
Cc:	Fraser, Daniel; Aaron C Fahey; Craig E Pritt; Tyler Q Emery
Subject:	[EXTERNAL] Re: Altavista - Leesville Transmission Line Rebuild Project
Date:	Thursday, October 24, 2024 2:39:35 PM
Attachments:	Outlook-pqphsufq.png

CAUTION: This Email is from an **EXTERNAL** source. **STOP**. **THINK** before you CLICK links or OPEN attachments.

No cave or karst issues in these counties.

Hopefully you are also running these projects through DCR Office of Environmental Review - https://www.dcr.virginia.gov/natural-heritage/ereview [dcr.virginia.gov]

thanks,

Wil Orndorff
Karst Protection Coordinator
Division of Natural Heritage
Virginia Department of Conservation and Recreation
600 E. Main Street, 24th Floor
Richmond, VA 23219
804-786-7951 | 540-230-5960 (cell)

Wil.Orndorff@dcr.virginia.gov

From: Hypes, Rene (DCR)
To: McLoughlin, Brendan
Cc: Fraser, Daniel; Aaron C Fahey; Craig E Pritt; Tyler Q Emery
Subject: [EXTERNAL] RE: Altavista - Leesville Transmission Line Rebuild Project
Date: Thursday, October 24, 2024 6:58:45 AM
Attachments: image001.jpg

CAUTION: This Email is from an **EXTERNAL** source. **STOP**. **THINK** before you CLICK links or OPEN attachments.

Thank you, Mr. McLoughlin, for submitting the project for review. To initiate the project review process, we also need a completed information services order form [dcr.virginia.gov] that can be filled out online and submitted directly to us. Please attach the map and the project description to the form.

Thank you and let me know if you have any questions.

Rene'

Rene' Hypes
Project Review Coordinator
Department of Conservation and Recreation
Division of Natural Heritage
600 East Main Street, 24th Floor
Richmond, Virginia 23219
804-371-2708 I rene.hypes@dcr.virginia.gov

From: nhreview (DCR)
To: McLoughlin, Brendan
Subject: [EXTERNAL] Altavista - Leesville Transmission Line Rebuild Project
Date: Thursday, October 31, 2024 12:52:55 PM
Attachments: Outlook-41a3buph.png

CAUTION: This Email is from an **EXTERNAL** source. **STOP**. **THINK** before you CLICK links or OPEN attachments.

Good afternoon,

We received your request for review of the above referenced project from DEQ. If you would like comments from DCR-Natural Heritage a completed Information Services Order Form is required. The form can be found at the following link:

http://www.dcr.virginia.gov/natural-heritage/nhserviceform/ [dcr.virginia.gov]

Please let me know if you have any questions.

Thank you,

Barbara Gregory
Project Review Assistant, Senior
Division of Natural Heritage
Virginia Department of Conservation and Recreation
600 E. Main Street, 24th Floor
Richmond, VA 23219
804-225-2821 | Barbara.gregory@dcr.virginia.gov



From:	nhreview (DCR)
To:	McLoughlin, Brendan
Cc:	dgif-ESS Projects (DWR)
Subject:	[EXTERNAL] Altavista - Leesville Transmission Line Improvements Project
Date:	Thursday, December 19, 2024 1:21:29 PM
Attachments:	Outlook-lj43qsbu.png 91607, PEI, Altavista - Leesville Transmission Line Improvements Project.pdf 32500383, 91607, PEI, Altavista - Leesville Transmission Line Improvements Project Invoice.pdf

CAUTION: This Email is from an **EXTERNAL** source. **STOP**. **THINK** before you CLICK links or OPEN attachments.

Mr. McLoughlin:

Please find attached the DCR-DNH comments and invoice for the above referenced project. The comments are in pdf format and can be printed for your records. Also species rank information is available at http://www.dcr.virginia.gov/natural-heritage/help [dcr.virginia.gov] for your reference.

Along with our comments there is an invoice for our services. Please submit a copy of the invoice with payment to the Treasurer of Virginia, Department of Conservation and Recreation, Finance, 600 East Main Street [maps.google.com], 24th Floor Richmond, VA 23219. Payment is due within 30 days of the invoice date. Late payment may result in the suspension of project review service for future projects. **To pay the invoice by credit card, please click here [dcr.virginia.gov] for the DCR credit card payment portal weblink or copy http://www.dcr.virginia.gov/payment-verification [dcr.virginia.gov] into your browser. It will take approximately 24 hours for the invoice to be available for payment in the online system.**

Please send a confirmation e-mail upon receipt of our comments. Thank you for the opportunity to provide this information.

Nicki Gustafson (*she/her*)
Project Review Assistant
Division of Natural Heritage
Virginia Department of Conservation and Recreation
600 E. Main Street, 24th Floor
Richmond, VA 23219
804-625-3979 | nicki.gustafson@dcr.virginia.gov

Travis A. Voyles
Secretary of Natural and Historic Resources

Matthew S. Wells
Director

Andrew W. Smith
Chief Deputy Director

Frank N. Stovall
Deputy Director for Operations

Darryl Glover
Deputy Director for Dam Safety, Floodplain Management and Soil and Water Conservation

Laura Ellis
Deputy Director for Administration and Finance

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

December 19, 2024

Brendan McLoughlin
POWER Engineers, Inc.
6641 West Broad Street, Suite 405
Richmond, VA 23230

Re: Altavista - Leesville Transmission Line Improvements Project

Dear Mr. McLoughlin:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information in our files, the Leesville Dam - Roanoke River Stream Conservation Site (SCS) is located within the project area. SCSs encompass stream/river reaches, waterbodies, and terrestrial contributing areas containing or associated with aquatic or semi-aquatic resources, including upstream and downstream reaches and tributaries up to 3-km stream distance from the aquatic resources. The size and dimensions of an SCS are based on the hydrology of the waterway and surrounding landscape, taking into consideration dam locations and whether the waterway is tidal. SCSs are also given a biodiversity significance ranking (B-rank) based on the rarity, quality, and number of element occurrences they contain. The Leesville Dam - Roanoke River SCS has been given a B-rank of B2, which represents a site of high significance. The natural heritage resource associated with this SCS is:

Percina rex	Roanoke Logperch	G1G2/S1S2/LE/LE

The Roanoke Logperch is endemic to the Roanoke and Chowan River drainages in Virginia (Burkhead and Jenkins, 1991) and inhabits medium and large, warm and usually clear rivers with sandy to boulder spotted bottoms (NatureServe, 2009). Please note that this species is classified as endangered by the United States Fish and Wildlife Service (USFWS) and the Virginia Department of Wildlife Resources (VDWR).

The Roanoke logperch is threatened by channelization, siltation, impoundment, pollution, and de-watering activities (Burkhead & Jenkins, 1991).

The Roanoke River has been designated by the VDWR as a “Threatened and Endangered Species Water” for the Roanoke Logperch.

In addition, according to DCR’s predicted suitable habitat modeling and review by a DCR biologist, there is a potential for the Orangefin Madtom (*Noturus gilberti*, G2/S2/SOC/LT) to occur in the Roanoke River within the project area if suitable habitat exists on site.

The Orangefin Madtom is native to the Roanoke and James River systems of North Carolina and Virginia (NatureServe, 2009). The Orangefin madtom inhabits moderate to strong riffles and runs having little or no silt in moderate-gradient, intermontane and upper Piedmont streams. This species is an intersticine dweller, found in or near cavities formed by rubble and boulders (Jenkins and Burkhead, 1993). Please note that this species is currently classified as a species of concern (not a legal designation) by the United States Fish and Wildlife Service (USFWS) and as threatened by the Virginia Department of Wildlife Resources (VDWR).

Threats to the Orangefin madtom include channelization, siltation, various forms of chronic pollution, catastrophic chemical spills, impoundment, dewatering, and bait-seining (NatureServe, 2009). Its low reproductive rate and short life span (Simonson 1997, Simonson and Neves 1992, Simonson 1987) exacerbate these threats (Burkhead and Jenkins 1991).

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations, establishment/enhancement of riparian buffers with native plant species and maintaining natural stream flow where the transmission line crosses or is adjacent to the Roanoke River.

Due to the legal status of the Roanoke Logperch and Orangefin madtom, DCR recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDWR, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570). Due to the legal status of the Roanoke Logperch, DCR also recommends coordination with the US Fish and Wildlife Service (USFWS) to ensure compliance with protected species legislation.

If tree removal occurs outside of the existing right-of-way (ROW) the proposed project will impact multiple Ecological Cores **(C3, C4 and C5)** as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla). Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map.

Ecological Cores are areas of at least 100 acres of continuous interior, natural cover that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Interior core areas begin 100 meters inside core edges and continue to the deepest parts of cores. Cores also provide the natural, economic, and quality of life benefits of open space, recreation, thermal moderation, water quality (including drinking water recharge and protection, and erosion prevention), and air quality (including sequestration of carbon, absorption of gaseous pollutants, and production of oxygen). Cores are ranked from C1 to C5 (C5 being the least significant) using nine prioritization criteria, including the habitats of natural heritage resources they contain.

Impacts to cores occur when their natural cover is partially or completely converted permanently to developed land uses. Habitat conversion to development causes reductions in ecosystem processes, native biodiversity, and habitat quality due to habitat loss; less viable plant and animal populations; increased predation; and increased introduction and establishment of invasive species.

DCR recommends avoidance of impacts to cores. When avoidance cannot be achieved, DCR recommends minimizing the area of impacts overall and concentrating the impacted area at the edges of cores, so that the most interior remains intact.

Furthermore, DCR recommends the development and implementation of an invasive species plan to be included as part of the maintenance practices for the ROW. The invasive species plan should include an invasive species inventory for the project area based on the current DCR Invasive Species List (https://www.dcr.virginia.gov/natural-heritage/document/nh-invasive-plant-list-2023.pdf) and methods for treating the invasives. DCR also recommends the ROW restoration and maintenance practices planned include appropriate revegetation using native species in a mix of grasses and forbs, robust monitoring and an adaptive management plan to provide guidance if initial revegetation efforts are unsuccessful or if invasive species

outbreaks occur.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit a completed order form and project map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

A fee of $125.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24th Floor, Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The U.S. Fish and Wildlife Service (USFWS) utilizes an online project review process (https://www.fws.gov/office/virginia-ecological-services/virginia-field-office-online-review-process) to facilitate compliance with the Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884) (ESA), as amended. The process enables users to 1) follow step-by-step guidance; 2) access information that will allow them to identify threatened and endangered species, designated critical habitat, and other Federal trust resources that may be affected by their project; and 3) accurately reach determinations regarding the potential effects of their project on these resources as required under the ESA. If you have questions regarding the online review process, please contact Jackie Luu at jackie_luu@fws.gov.

The Virginia Department of Wildlife Resources (VDWR) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed https://services.dwr.virginia.gov/fwis/ or contact Lee Brann at Lee.Brann @dwr.virginia.gov.

Should you have any questions or concerns, feel free to contact me at 804-625-3979. Thank you for the opportunity to comment on this project.

Sincerely,



Nicki Gustafson
Natural Heritage Project Review Assistant

Cc: Hannah Schul, VDWR

Literature Cited

Burkhead, N.M. and R.E. Jenkins. 1991. Roanoke logperch. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. p. 395-397.

Jenkins, R. E., and N. M. Burkhead. 1993. Freshwater fishes of Virginia. American Fisheries Society, Bethesda, Maryland.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: June 21, 2010).

Simonson, T. D. 1987. Distribution, ecology, and reproductive biology of the orangefin madtom (Noturus gilberti). M.S. Thesis, Virginia Polytechnic Institute & State University, Blacksburg.

Simonson, T. D. 1997. Orangefin madtom. Pages 15-16 in E. F. Menhinick and A. L. Braswell, editors. Endangered, threatened, and rare fauna of North Carolina. Part IV. A reevaluation of the freshwater fishes. Occasional Papers of the North Carolina Museum of Natural Sciences and the North Carolina Biological Survey No. 11.

Simonson, T. D., and R. J. Neves. 1992. Habitat suitability and reproductive traits of the orangefin madtom NOTURUS GILBERTI (Pisces: Ictaluridae). American Midland Naturalist 127:115-24.

From: Evans, Rob (DCR)
To: McLoughlin, Brendan; Hypes, Rene (DCR)
Cc: Fraser, Daniel; Aaron C Fahey; Craig E Pritt; Tyler Q Emery
Subject: [EXTERNAL] RE: Altavista - Leesville Transmission Line Rebuild Project
Date: Thursday, October 24, 2024 12:07:22 PM
Attachments: image001.gif

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I believe you are reaching me in error. Copying Rene Hypes who may be who you should be communicating with on this.

Thanks,

Rob Evans
Natural Area Protection Manager
Virginia Department of Conservation and Recreation
600 E. Main Street, 24th Floor
Richmond, VA 23219
919 -748-0225 | rob.evans@dcr.virginia.gov



From: Henicheck, Michelle (DEQ)
To: McLoughlin, Brendan
Subject: [EXTERNAL] RE: Altavista - Leesville Transmission Line Rebuild Project
Date: Monday, November 25, 2024 11:06:49 AM
Attachments: image001.png
DEQ.OEIR.SCC.MOA.WIC.pdf

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Hi Brendan,

My apologies for not sending this to you sooner but we are in the process of transitioning to a new boss and things have been a little hectic.

I need more information in order to review your project. Please review the required information in the appendix of the attached document needed for review. I will review your project ASAP as soon as I receive the necessary information.

Please let me know if you have any questions.

Thanks,

Michelle

Michelle Henicheck, PWS
Sr. Wetland Ecologist
VA Dept of Environmental Quality
[deq.virginia.gov]
1111 East Main Street
Richmond, VA 23219
Phone: 804-965-4329

DISCLAIMER
This electronic version is for informational purposes only and is not an official document of the Commission. An official copy may be obtained from the Clerk of the Commission, Document Control Center.

MEMORANDUM OF AGREEMENT

The Department of Environmental Quality ("Department"), on behalf of the State Water Control Board ("Board"), and the State Corporation Commission ("Commission") enter into this memorandum of agreement ("Agreement"), pursuant to § 62.1-44.155 D 2 of the Code of Virginia ("Code"), regarding consultation on wetland impacts ("Wetland Impacts Consultation").

1 Section 62.1-44.155 D 2 of the Code requires the Board and the Commission to "develop a memorandum of agreement pursuant to §§ 56-46.1, 56-265.2.56-265.2:l and 56-580 [of the Code] to ensure that consultation on wetland impacts occurs prior to siting determinations" by the Commission for "[f]acilities and activities of utilities and public service companies."

2 When the Commission receives an application for certification of facilities under §§ 56-46.1, 56-265.2, 56-265.2:l or 56-580 of the Code, the Department will consult with appropriate governmental agencies, prepare a Wetland Impacts Consultation including a summary of findings and any recommendations for the Commission's consideration that resulted from the Department's consultation, and provide the Wetland Impacts Consultation to the Commission pursuant to this Agreement. Although not required, the applicant may initiate consultation with the Department prior to filing an application with the Commission.

3 The Commission's Staff will notify the Department in writing within five (5) business days of receiving an application for certification of facilities pursuant to §§ 56-46.1, 56-265.2, 56-265.2:l or 56-580 of the Code. No later than ten (10) business days after receipt of the wetland impact analysis information contained in the application, the Department will advise the Commission's Staff and the applicant in writing as to:

A. the completeness of the information received necessary to conclude the Wetland Impacts Consultation (the Appendix to this Agreement provides guidance on the information the Department has determined it may need in order to conclude the Wetlands Impacts Consultation); and

B. the estimated length of time required to conclude the Wetland Impacts Consultation.

If the Department determines the wetland impacts analysis information contained in an application is incomplete, within ten (IO) business days of notifying the applicant the Department will notify the Commission's Staff in writing and include a listing of the information needed to initiate the Wetland Impacts Consultation. The Department and the Commission's Staff may confer from time to time on these matters.

4 In accordance with the above:

A. No later than sixty (60) calendar days after receipt of the complete wetland impacts analysis information contained in the application, the Department will submit to the Commission's Staff in writing:

(i) a notification that the Wetland Impacts Consultation has been completed; or

(ii) a notification that the Wetland Impacts Consultation has been suspended due to matters discovered during the review. The notification will include a description of the information needed to resume the review.

B. Enclosed in the written notification described in 4.A.(i), above, for all completed Wetland Impacts Consultations the Department will submit a written report to the Commission which includes:

(i) the Wetland Impacts Consultation, a summary of findings, and any recommendations for the Commission's consideration which resulted from the review; and

(ii) a list of any Virginia Water Protection permits and approvals required for the proposed facility, in accordance with § 62.1-44.155 of the Code, which were identified during the Wetland Impacts Consultation.

5 Consistent with § 62.1-44.155 of the Code, the Department and the Board may request assistance from agencies of the Commonwealth, including the Department of Game and Inland Fisheries, the Department of Conservation and Recreation, the Virginia Marine Resources Commission, the Department of Health, the Department of Historic Resources, and any other interested and affected parties, as well as federal agencies including the Norfolk District Corps of Engineers and the U.S. Fish and Wildlife Service, as needed to complete the Wetland Impacts Consultation.

6 If requested by the Commission's Staff, one or more members of the Department's Staff will appear as a witness at the Commission's evidentiary hearing to testify regarding the activities of the Department with respect to the Wetland Impacts Consultation.

7 If requested by the Commission's Staff, the Department will endeavor to provide, or seek to coordinate from other governmental entities, expert assistance to the Commission's Staff on issues regarding the Wetland Impacts Consultation.

Robert G. Burnley

Robert G. Burnley, Director 07/15/2003
Department of Environmental Quality

Hullihen Williams Moore

Hullihen Williams Moore, Chairman 07/11/2003
State Corporation Commission

Clinton Miller

Clinton Miller, Commissioner 07/11/2003
State Corporation Commission

Theodore V. Morrison, Jr. 07/11/2003

Theodore V. Morrison, Jr., Commissioner
State Corporation Commission

APPENDIX

GUIDANCE DOCUMENT

The following provides guidance on the information that will need to be submitted to the Department of Environmental Quality ("DEQ) in order for the DEQ to conclude the Wetland Impacts Consultation.

For all alternatives under consideration by the applicant: A desktop survey of actual and potential impacts to wetlands and streams must be conducted for all proposed routes and facility locations. Reference materials to be consulted include aerial photographs (infrared if available), U.S.G.S. topographic maps, USFWS National Wetland Inventory Maps, NRCS Soil Surveys, and any other pertinent available information. For each alternative, the type and extent of wetland and stream impacts, both permanent and temporary, should be summarized in the text of the report, and shown on maps. Based on the information provided, the applicant may be asked to field verify certain areas for one or more alternatives only if appropriate and feasible. A summary of why the proponent selected the preferred alternative and why the other alternatives were dismissed should be included.

Additional information for the preferred alternative only: In addition to the above information, documentation from the Department of Game and Inland Fisheries and the Department of Conservation and Recreation Natural Heritage Program concerning potential impacts to federal or state listed threatened or endangered species must be submitted, to include any recommendations for surveys that should be conducted. Documentation from the Department of Historic Resources concerning any historic properties that could be impacted must be submitted, to include any recommendations for surveys that should be conducted. Documentation from either the affected locality(ies) or directly from the Chesapeake Bay Local Assistance Department regarding any potential impacts to Chesapeake Bay Resource Protection Areas or Resource Management Areas, must be submitted only if the Chesapeake Bay ordinances of the affected locality(ies) are applicable to the project under consideration. Based on the information provided, DEQ may consult with and consider the comments of the Norfolk District Corps of Engineers and the U.S. Fish and Wildlife Service.

DEQ, in consultation with other federal and state resource agencies as appropriate, will provide recommendations to the proponent as to any additional avoidance and minimization measures that should be explored and their preliminary comments on the proponent's preferred alternative.

From:	Fulcher, Valerie (DEQ)
To:	administration@campbellcountyva.gov (administration@campbellcountyva.gov); vaden.hunt@pittgov.org; glshanaberger@altavistava.gov; dgif-ESS Projects (DWR); Tignor, Keith (VDACS); DCR-PRR Environmental Review (DCR); Churchill, Nikolas (DEQ); Ballou, Thomas (DEQ); Lovain, Ava (DEQ); Harlow, Kevin (DEQ); Lasher, Terrance J. (DOF); Folks, Clint (DOF); Heller, Matthew (Energy); EIR Coordination (VDOT); Kristie Eberly; Alec Brener; ImpactReview (impactreview@vof.org)
Cc:	McLoughlin, Brendan
Subject:	[EXTERNAL] NEW SCOPING Altavista-Leesville Transmission Line Rebuild
Date:	Tuesday, October 29, 2024 11:28:26 AM
Attachments:	Altavista Leesville Scoping Reponse.pdf Altavista Leesville Scoping Request.pdf

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Good morning—attached is a request for scoping comments on the following:

> **Appalachian Power Company: Altavista – Leesville Transmission Line Rebuild Project in Pittsylvania and Campbell Counties, and the Town of Altavista, Virginia**

If you choose to make comments, please send them directly to the project sponsor (brendan.mcloughlin@powereng.com). DEQ-OEIR will coordinate a review when the environmental document is completed.

DEQ-OEIR's scoping response is also attached.

If you have any questions regarding this request, please email our office at eir@deq.virginia.gov.

Valerie

Valerie

Valerie A. Fulcher, CAP, OM, Admin/Data Coordinator Senior
Department of Environmental Quality
Environmental Enhancement - Office of Environmental Impact Review
1111 East Main Street
Richmond, VA 23219
PHONE NUMBER: 804-659-1550
Email: Valerie.Fulcher@deq.virginia.gov
https://www.deq.virginia.gov/permits-regulations/environmental-impact-review [deq.virginia.gov]

For program updates and public notices please subscribe to the Environmental Impact Review Public Notices
Bulletin: https://public.govdelivery.com/accounts/VADEQ/subscriber/new [public.govdelivery.com]

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

www.deq.virginia.gov

Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

October 29, 2024

Brendan McLoughlin
POWER Engineers, Inc
Via email: brendan.mcloughlin@powereng.com

RE: Appalachian Power Company: Altavista – Leesville Transmission Line Rebuild Project in Pittsylvania and Campbell Counties, and the Town of Altavista, Virginia
Scoping Response

Dear Mr. McLoughlin:

This letter is in response to the scoping request for the above-referenced project.

As you may know, the Department of Environmental Quality, through its Office of Environmental Impact Review (DEQ-OEIR), is responsible for coordinating Virginia's review of environmental impacts for electric power generating projects and power line projects in conjunction with the licensing process of the State Corporation Commission.

DOCUMENT SUBMISSIONS

In order to ensure an effective coordinated review of the environmental impact analysis may be sent directly to OEIR. We request that you submit one electronic to eir@deq.virginia.gov (25 MB maximum) or make the documents available for download at a website, file transfer protocol (ftp) site or the VITA LFT file share system (Requires an "invitation" for access. An invitation request should be sent to eir@deq.virginia.gov.). The required "Wetlands Impact Consultation" can be sent directly to Michelle Henicheck at michelle.henicheck @deq.virginia.gov or at the address above.

ENVIRONMENTAL REVIEW UNDER VIRGINIA CODE 56-46.1

While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the environmental impact analysis document. Accordingly, we have coordinated your request with the following state agencies and those localities and Planning District Commissions, including but not limited to:

Department of Environmental Quality:

- DEQ Regional Office
- Air Division
- Office of Wetlands and Stream Protection
- Office of Local Government Programs

- Division of Land Protection and Revitalization
- Office of Stormwater Management
- Office of Environmental Justice

Department of Conservation and Recreation
Department of Health
Department of Agriculture and Consumer Services
Department of Wildlife Resources
Virginia Marine Resources Commission
Department of Historic Resources
Virginia Energy
Department of Forestry
Department of Transportation

DATA BASE ASSISTANCE

Below is a list of databases that may assist you in the preparation of a NEPA document:

- DEQ Online Database: Virginia Environmental Geographic Information Systems

  Information on Permitted Solid Waste Management Facilities, Impaired Waters, Petroleum Releases, Registered Petroleum Facilities, Permitted Discharge (Virginia Pollution Discharge Elimination System Permits) Facilities, Resource Conservation and Recovery Act (RCRA) Sites, Water Monitoring Stations, National Wetlands Inventory:
  - www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx

- DEQ Virginia Coastal Geospatial and Educational Mapping System (GEMS)

  Virginia's coastal resource data and maps; coastal laws and policies; facts on coastal resource values; and direct links to collaborating agencies responsible for current data:
  - https://www.deq.virginia.gov/?splash=https%3a%2f%2fgaia.vcu.edu%2fportal%2fapps%2fsites%2f%23%2fgemsmaps&___isexternal=true

- MARCO Mid-Atlantic Ocean Data Portal

  The Mid-Atlantic Ocean Data Portal is a publicly available online toolkit and resource center that consolidates available data and enables users to visualize and analyze ocean resources and human use information such as fishing grounds, recreational areas, shipping lanes, habitat areas, and energy sites, among others.

  - http://portal.midatlanticocean.org/visualize/#x=-73.24&y=38.93&z=7&logo=true&controls=true&basemap=Ocean&tab=data&legends=false&layers=true

- DHR Data Sharing System.

  Survey records in the DHR inventory:

  - www.dhr.virginia.gov/archives/data_sharing_sys.htm

- DCR Natural Heritage Search

  Produces lists of resources that occur in specific counties, watersheds or physiographic regions:
  - www.dcr.virginia.gov/natural_heritage/dbsearchtool.shtml

- Wetland Condition Assessment Tool (WetCAT)
  - https://www.deq.virginia.gov/our-programs/water/wetlands-streams/wetcat

- DWR Fish and Wildlife Information Service

  Information about Virginia's Wildlife resources:
  - http://vafwis.org/fwis/

- Total Maximum Daily Loads Approved Reports
  - https://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx

- Virginia Outdoors Foundation: Identify VOF-protected land
  - http://vof.maps.arcgis.com/home/index.html

- Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Database: Superfund Information Systems

  Information on hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL:
  - www.epa.gov/superfund/sites/cursites/index.htm

- EPA RCRAInfo Search

  Information on hazardous waste facilities:
  - www.epa.gov/enviro/facts/rcrainfo/search.html

- Total Maximum Daily Loads Approved Reports
  - https://www.deq.virginia.gov/our-programs/water/water-quality/tmdl-development/approved-tmdls

- EPA Envirofacts Database

  EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:
  - www.epa.gov/enviro/index.html

- EPA NEPAssist Database

  Facilitates the environmental review process and project planning:
  http://nepaassisttool.epa.gov/nepaassist/entry.aspx

If you have questions about the environmental review process, please feel free to contact me. I hope this information is helpful to you.

Sincerely,



Bettina Rayfield, Program Manager
Environmental Impact Review and Long Range Priorities
Virginia Department of Environmental Quality
804-659-1915
bettina.rayfield@DEQ.virginia.gov
Central Office
1111 E. Main Street, Suite 1400
Richmond, Virginia 23219
804-698-4000

From: Kirchen, Roger (DHR)
To: McLoughlin, Brendan
Cc: Fraser, Daniel; Aaron C Fahey; Craig E Pritt; Tyler Q Emery; Bellville-marrion, Jennifer (DHR)
Subject: [EXTERNAL] RE: Altavista - Leesville Transmission Line Rebuild Project
Date: Thursday, October 24, 2024 9:18:21 AM

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I've forwarded your request to Jenny Bellville-Marrion who leads our review of transmission line projects.

Roger W. Kirchen
Director, Review and Compliance Division
p: 804-482-6091
e: roger.kirchen@dhr.virginia.gov

From: Bellville-marrion, Jennifer (DHR)
To: McLoughlin, Brendan
Subject: [EXTERNAL] Re: Altavista - Leesville Transmission Line Rebuild Project
Date: Friday, November 22, 2024 9:05:09 AM
Attachments: Outlook-b0lgpjrq.png
Outlook-A black le.png
Outlook-A logo of .png
Outlook-A black an.png
Outlook-A black bi.png
Outlook-Title _lin.png
2024-5354 Altavista – Leesville Transmission Line Rebuild Project _Public Notice.pdf

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Mr. McLoughlin,

Thank you for requesting comments from the Department of Historic Resources on the referenced project. Please see the attached letter for our comments and print for your files. No hardcopy will follow. If you have any questions concerning these comments or require any further assistance, please contact me.

Sincerely,

Jenny Bellville-Marrion
Archaeologist - Review and Compliance
Department of Historic Resources

[facebook.com]
[instagram.com]
[linkedin.com]
[twitter.com]

Email jennifer.bellville-marrion@dhr.virginia.gov
Phone 804-482-8091

2801 Kensington Ave, Richmond, VA 23221
www.dhr.virginia.gov [dhr.virginia.gov]

COMMONWEALTH of VIRGINIA

Travis A. Voyles
Secretary of Natural and Historic Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director
Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

November 22, 2024

Brendan McLoughlin
POWER ENGINEERS, INC.
6641 W. Broad Street
Suite 405
Richmond, VA 23230

Re: Altavista – Leesville Transmission Line Rebuild Project
Pittsylvania and Campbell Counties, and Altavista
DHR File No. 2024-5154

Dear Mr. McLoughlin

We have received your request for comments on the project referenced above. The undertaking, as presented, involves the rebuild approximately nine miles of existing transmission line. Our comments are provided as technical assistance to Appalachian Power. We have not been notified by any state or federal agency of their involvement in this project; however, we reserve the right to provide additional comment pursuant to the National Historic Preservation Act, if applicable.

Based on the submission, Appalachian Power plans to prepare an application for a certificate of public convenience and necessity (CPCN) from the State Corporation Commission (SCC). Typically, we recommend that Appalachian Power follow the *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* developed by DHR to assist project proponents in developing transmission line projects that minimize impacts to historic resources.

Typically, we recommend that the project proponent establish a study area for each route alternative under consideration and gather information on known resources. A qualified cultural resources consultant in the appropriate discipline should perform an assessment of impact for each known historic resource present within the proposed study area.

Once the route alternatives have been finalized, DHR recommends that full archaeological and architectural surveys be performed to determine the effect of the project on all historic resources listed in or eligible for listing in the National Register. This process involves the identification and recordation of all archaeological sites and structures greater than 50 years of age, the evaluation of those resources for listing in the National Register, determining the degree of impact of the project on eligible resources, and developing a plan to avoid, minimize, or mitigate any negative impacts. Comments received from the public or other stakeholder

regarding impacts to specific historic resources should be addressed as part of this survey and assessment process.

Thank you for seeking our comments on this project. If you have any questions at this time, please do not hesitate to contact me at jennifer.bellville-marrion@dhr.virginia.gov.

Sincerely,



Jenny Bellville-Marrion, Project Review Archaeologist
Review and Compliance Division

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

Eastern Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

From: ImpactReview
To: McLoughlin, Brendan
Cc: Martha Little; Harry Hibbitts
Subject: [EXTERNAL] RE: Altavista - Leesville Transmission Line Rebuild Project
Date: Friday, November 1, 2024 3:25:55 PM
Attachments: Martha Little.pdf

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Mr. McLoughlin,

The Virginia Outdoors Foundation has reviewed the project referenced above. Based on the attached document, it appears that this project will not encroach on any existing or proposed VOF open-space easements.
Please contact VOF again for further review if the project area changes or if this project does not begin within 24 months. Thank you for considering conservation easements.

In the future, please send requests for VOF review directly to: ImpactReview@vof.org.

Thanks,
Mike

Mike Hallock-Solomon, AICP
GIS Manager

Virginia Outdoors Foundation | vof.org [vof.org]
t. 804-337-9780
mhallock-solomon@vof.org

From: Warren, Arlene (VDH)
To: McLoughlin, Brendan
Cc: Roadcap, Dwayne (VDH)
Subject: [EXTERNAL] Altavista - Leesville Transmission Line Rebuild Project Review Response
Date: Friday, November 8, 2024 11:16:32 AM

CAUTION: This Email is from an **EXTERNAL** source. **STOP**. **THINK** before you CLICK links or OPEN attachments.

Project #: N/A
Project Name: Altavista - Leesville Transmission Line Rebuild Project
UPC #: N/A
Location: Pittsylvania, Campbell Cos & Town of Altavista

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems **must be verified by the local utility.**

The following public groundwater wells are located within a 1-mile radius of the project site (wells within a 1,000-foot radius are formatted in **bold**:

PWS ID Number	City/County	System Name	Facility Name
5031312	**CAMPBELL CO**	**ELPIS CENTER**	**WELL NO.1**
5031050	**CAMPBELL CO**	**ALTAVISTA, TOWN OF**	**MCMINNIS SPRING**
5143342	**PITTSYLVANIA CO**	**LEESVILLE LAKE CAMPGROUND**	**WELL NO.1**
5143940	**PITTSYLVANIA CO**	**WOODROAM SUBDIVISION**	**WELL NO.1**
5143881	PITTSYLVANIA CO	WAYSIDE ACRES SUBDIVISION # 2	WELL NO.1
5143880	PITTSYLVANIA CO	WAYSIDE ACRES SUBDIVISION # 1	WELL NO. 2

The following surface water intakes are located within a 5-mile radius of the project site:

PWS ID Number	System Name	Facility Name
5031050	ALTAVISTA, TOWN OF	STAUNTON RIVER
5031050	ALTAVISTA, TOWN OF	REED CREEK
5031150	CAMPBELL COUNTY CENTRAL SYSTEM	BIG OTTER RIVER

The project is within the watershed of the following public surface water sources (facilities where the project falls within 5-miles of the intake **and** is within the intake's watershed are formatted in **bold**):

PWS ID Number	System Name	Facility Name
5031050	**ALTAVISTA, TOWN OF**	**STAUNTON RIVER**
5031050	**ALTAVISTA, TOWN OF**	**REED CREEK**
5117310	CLARKSVILLE, TOWN OF	KERR RESERVOIR INTAKE

5031050	ALTAVISTA, TOWN OF	STAUNTON RIVER
5117707	ROANOKE RIVER SERVICE AUTHORITY	LAKE GASTON INTAKE

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

Well(s) within a 1,000-foot radius from project site should be field marked and protected from accidental damage during construction.

Materials should be managed while on site and during transport to prevent impacts to nearby surface water.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene F. Warren
GIS Program Support Technician
Mobile 804-389-2167 (office/cell/text)
Email arlene.warren@vdh.virginia.gov
VDH, Office of Drinking Water
109 Governor Street, 6th Floor
Richmond, VA 23219

PS: To ensure that your request has been received and reviewed in a timely matter, please direct all future requests of this nature directly to odwreview@vdh.virginia.gov

From: Winstead, Chris (VDOT)
To: McLoughlin, Brendan
Cc: Fraser, Daniel; Aaron C Fahey; Craig E Pritt; Tyler Q Emery
Subject: [EXTERNAL] Re: Altavista - Leesville Transmission Line Rebuild Project
Date: Wednesday, October 23, 2024 7:43:34 PM

CAUTION: This Email is from an **EXTERNAL** source. **STOP**. **THINK** before you CLICK links or OPEN attachments.

Brendan,

Good evening - I am writing to acknowledge receipt. I will work with key members of my team to review your information and respond within the next 30 days. Please advise if you need something sooner. We seek to maintain a positive relationship with AEP and value our partnership especially during storm and incident response.

Sincerely,

Chris

Get Outlook for iOS [aka.ms]

From: Winstead, Chris (VDOT) <Chris.Winstead@vdot.virginia.gov>
Sent: Wednesday, November 20, 2024 11:58 AM
To: McLoughlin, Brendan
Cc: Fraser, Daniel; Aaron C Fahey; Craig E Pritt; Tyler Q Emery; Brown, Robert G. (VDOT); Brown, Daniel J., P.E. (VDOT); Craddock, Joseph (VDOT); Harter, Gerry (VDOT); Casto, Brian J., P.E. (VDOT); Witt, Bryan S., P.E. (VDOT); Martin, Kenneth C. (VDOT); Bowen, Ryan (VDOT)
Subject: [EXTERNAL] Re: Altavista - Leesville Transmission Line Rebuild Project

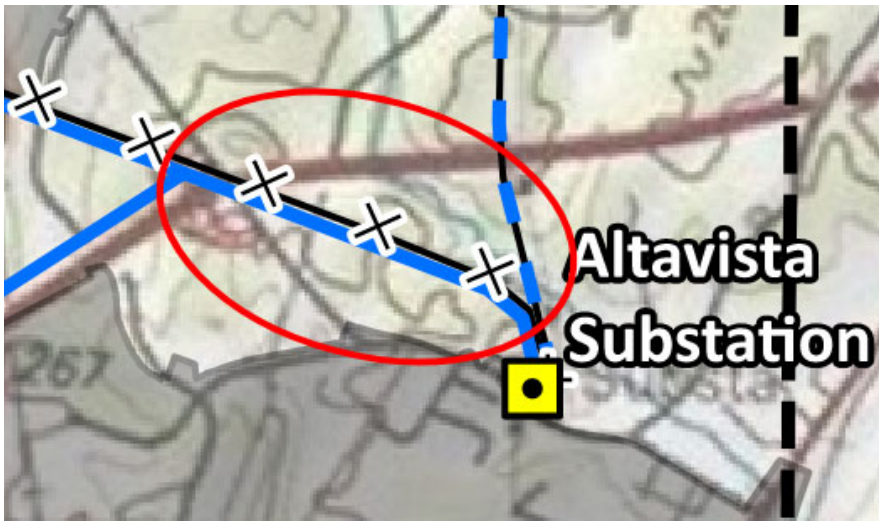
CAUTION: This Email is from an **EXTERNAL** source. **STOP**. **THINK** before you CLICK links or OPEN attachments.

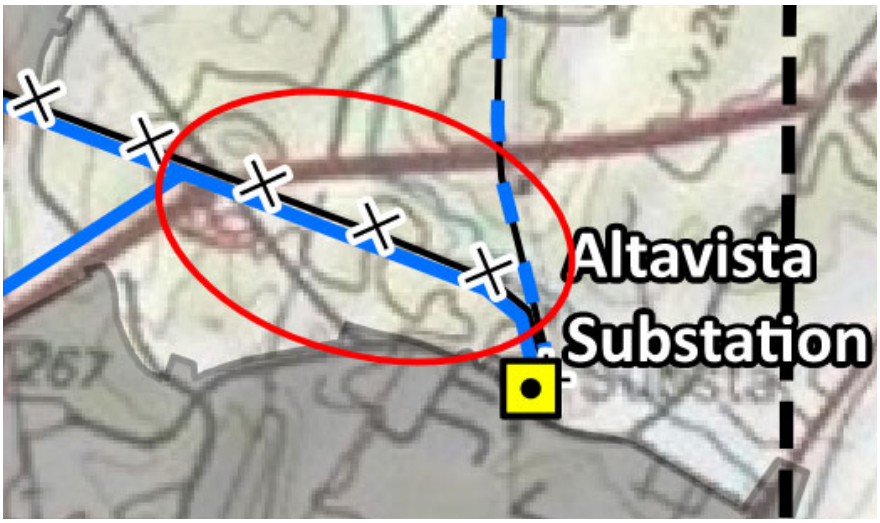
Dear Brendan,

Good afternoon - Thank you for the opportunity to review this information. Please find below our comments/feedback. Please work with Jay Craddock (copied) for any work in Pittsylvania County and Daniel Brown (copied) for any work in Campbell County. Please let me know if you have any concerns or questions.

1. VDOT Structure and Bridge considerations: Ryan Bowen, P.E. laid out on the topo map our structures in the vicinity of the proposed AEP lines, see email below.

Currently there is an existing conflict at the bridge structure on Rte. 714 over Rte. 29 Bypass in Campbell County (**B8**) with the existing transmission line crossing over the existing structure. The map provided seemed to indicate that this section of transmission line to be removed, circled below. We would like to confirm if this conflict would be eliminated as the new proposed blue line continues south from the same interchange.





One of the new proposed transmission lines is shown to go south adjacent to the Rte. 29 corridor (SBL side). There are several bridge structures **B7** (Rte. 29 SBL over NS Railway and Rte. 626, Campbell County), **B6** (Rte. 43 over Rte. 29, Campbell County), **B5** (2 bridges, Rte. 29 over Roanoke River and NS Railway, Pittsylvania County Line), and **B4** (Rte. 924 over Rte. 29, Pittsylvania County) along the same proposed corridor. We request that the proposed transmission line along this section of Rte. 29 be located to avoid direct conflicts with these structures. We also recommend that the proposed transmission line along the Rte. 29 corridor be located at least fifty (50) feet away from the existing bridge structures to allow us to maintain these structures in the future.

2. VDOT has completed a review of the subject study area in Campbell County and offers the following comments:

- All proposed construction entrances that will be used to access areas off VDOT right of way need to be identified with plans for each. Stopping sight distance for each location shall be shown. If stopping sight distance is not obtainable, flagging operations shall be used to facilitate the safe use of the entrance. Each of these entrances will require a VDOT permit.
- Minimum clearance of overhead crossings of VDOT Roadways is 21 feet for limited access highways and 18 feet for all other roadways.
- Provide adequate traffic control for all crossings of state roadways in accordance with the latest version of the Virginia Work Area Protection Manual. VDOT Appomattox Residency's MOT Notes and Transportation Operations document is attached. This shall be provided with all plans.

- Aerial crossings of two-lane roadways can be handled using TTC-23.2 - Lane Closure on a Two-Lane Roadway Using Flaggers.
- It appears the only four or more lane aerial crossing is of the Route 29 Bypass. This will require a slow roll operation with a site-specific traffic control plan that must be approved by VDOT Lynchburg District Traffic Engineering division (example attached).

- Please note that parallel installation of utilities within limited access roadways shall follow the provisions of 24VAC30-151-310. [law.lis.virginia.gov]
- Include the VDOT Lynchburg District Standard Utility Notes with all plans (attached).

Please submit plans for the construction entrances and utility design before submitting a VDOT LUP-A. VDOT will accept the LUP-A once all plans are approved.

3. Operations feedback - Based on the limited details of the full scope of the project, the only standard comments Operations would have at this point is stressing the need to coordinate with us regarding the potential traffic control for the work zones (closures, slow rolls, etc) that are typically done for these types of aerial projects. Also, any structures should be outside of the clear zone of our roadways or if unavoidable, protected by guardrail. Any structures/lines should not interfere with or block the view of our traffic control devices and should maintain proper height over our roadways. Admittedly I don't know what the proper height is for OH lines but for traffic signals we try to maintain at least 15 feet above the roadway. My guess is these transmission lines will be high.

4. Feedback from Jay Craddock, L.S., P.E. regarding work proposed in Pittsylvania County - No concerns with any of the conceptual routes shown in Pittsylvania County. The letter states that they will be acquiring new right of way for the entire length of the line, so the only impact to VDOT will be the crossing of some secondary roads. Of course, they will need work with us to get their road crossings permitted once they settle on a route and utilize the appropriate traffic control.

Sincerely,

Chris

Chris Winstead, P.E.
District Engineer/Lynchburg District
Virginia Department of Transportation
434-856-8173
Chris.Winstead@VDOT.Virginia.gov

From: Kennington-Gardiner, Marie (FAA)
To: McLoughlin, Brendan
Cc: Maddox, David (FAA); Nelson, Kelly R (FAA)
Subject: [EXTERNAL] FW: Altavista - Leesville Transmission Line Rebuild Project
Date: Thursday, October 24, 2024 1:30:46 PM
Attachments: Marie Kennington-Gardiner.pdf

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Mr. McLoughlin,
I believe you may have meant to submit this to our OE team. There is a formal process for submission of these items that they can step you through.
Please feel free to reach back if you have any further questions.
Regards,

Marie Kennington-Gardiner
USDOT /Federal Aviation Administration
Regional Administrator, Eastern Region
Phone 718-553-3000
Cell 718-344-4208

From:	Maddox, David (FAA)
To:	McLoughlin, Brendan
Cc:	Nelson, Kelly R (FAA); Kennington-Gardiner, Marie (FAA)
Subject:	[EXTERNAL] RE: Altavista - Leesville Transmission Line Rebuild Project
Date:	Thursday, October 24, 2024 2:01:55 PM
Attachments:	image001.png Notice Criteria Tool - Desk Reference Guide V_2014.2.0.pdf Getting Started - Desk Reference Guide V_2016.1.0.pdf Add a new Case Off Airport - Desk Reference Guide V_2016.3.0.pdf

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Good afternoon Mr. McLoughlin,

Thanks for bringing your upcoming project to our attention.

The Obstruction Evaluation Group (OEG) conducts aeronautical studies to determine whether a proposed structure(s) would affect safety of flight or efficiency or capacity of airports.

Once you have designs finalized, and considering a start some time after Summer 2025, There are steps you can do now.

- Use the Notice Criteria Tool on the FAA site oeaaa.faa,gov to determine whether the poles/towers in the project need to be filed. I have attached instructions. The tool will advise you whether you need to file notice.

- If you do, please use the attached instructions to establish an account on the FAA site, and file notice for the poles/towers.

Please be sure to file notice at least 45 days prior to your projected start date. Any cranes used in the construction that will be taller than the poles/towers must be filed as well.

If you have any questions, please feel free to contact me or Kelly Nelson, the Specialist for cases in Virginia.

Thanks

David Maddox
Obstruction Evaluation Group (AJV-A5)
AJV-A510 Team Manager
(202) 267-4525
http://oeaaa.faa.gov [oeaaa.faa.gov]

From:	Willson, Matthew (he/him/his)
To:	McLoughlin, Brendan
Cc:	Davis, Jamie; Fraser, Daniel; Aaron C Fahey; Craig E Pritt; Tyler Q Emery
Subject:	[EXTERNAL] Altavista - Leesville Transmission Line Rebuild Project
Date:	Tuesday, October 29, 2024 9:23:16 AM
Attachments:	image006.jpg image008.png image009.png image007.png image001.jpg Adam Ortiz.pdf

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Mr. Mcloughlin,

Thank you for your letter (attached) addressed to EPA Region 3 Administrator Adam Ortiz, dated October 23, 2024, regarding Appalachian Power Company's Altavista – Leesville Transmission Line Rebuild Project. I am a NEPA reviewer for EPA and will be responding on behalf of EPA region 3. It is unclear from your letter if NEPA applies to this project. Please explain what type of review you are asking for, under what regulatory context and when you would like to receive feedback. In your response, please let us know if this project is subject to NEPA under 40 CFR 1500.1.

Please note that EPA Region 3's NEPA program has a new way to receive NEPA documents (e.g. NOI, EA, pre NEPA technical reports) electronically to our office.
Please use R3NEPA@epa.gov to submit these types of NEPA documents to Region 3.

EPA has the follow general scoping comments for you to consider should the NEPA process occur and federal funds or permitting are involved. We would be happy to provide a full scoping review and comments should the project trigger NEPA.

- If this project involves the discharge of dredged and/or fill material into waters of the United States, a Section 404 Clean Water Act (CWA) permit may be needed from the Army Corps of Engineers and/or state regulatory agency. Be advised that EPA may review such applications pursuant to its responsibilities under CWA Section 404 and may provide comments to the Corps to assure consistency with the CWA Section 404(b)(1) Guidelines (Guidelines) (40 C.F.R. Part 230). A premise of the Guidelines is that no discharge of dredged or fill material may be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded.
- EPA notes that certain populations (e.g., low-income and/or people of color populations) may face elevated susceptibility to impacts that may affect other populations less severely. Therefore, EPA encourages the Project to address the potential for adverse impacts in areas of potential EJ concern even if less vulnerable areas may face similar environmental conditions.
- EPA recommends that the Project conduct EJ analyses with the most current available data; perform comprehensive community outreach; and identify opportunities for impact avoidance, minimization, and/or mitigation as needed to limit adverse impacts. EPA recommends the use of the EJSCREEN tool. EJSCREEN is a publicly accessible online mapping system that combines environmental and demographic data to enable analyses of populations

who may experience adverse environmental impacts. In addition to data concerning communities of color and low-income populations, the tool provides demographic data regarding linguistic isolation, education, and age, all of which may enhance EJ-related analyses and outreach. The EJSCREEN tool is available at https://www.epa.gov/ejscreen [epa.gov].

- EPA encourages the Project to provide notices of public meetings, notices of informational events, and/or other related resources at frequently visited community locations. These locations may include, but may not be limited to, schools, faith centers, community centers, barbershops, salons, and medical centers.

Please contact me if you have any questions or would like further clarification.
Thank you,

Matthew Willson
NEPA Specialist- NEPA & Technical Assistance Branch
Environmental Justice, Community Health, & Environmental Review Division
EPA Region 3 [intranet.epa.gov] Philadelphia, PA
 [facebook.com]  [twitter.com]
Phone: 215-814-5795
Email: willson.matthew@epa.gov
Pronouns: He/Him

Please submit NEPA documents for EPA review to R3NEPA@epa.gov

From:	Harper, John - FPAC-NRCS, VA
To:	McLoughlin, Brendan
Cc:	Fraser, Daniel; Aaron C Fahey; Craig E Pritt; Tyler Q Emery; Jacques, Louise - FPAC-NRCS, VA
Subject:	[EXTERNAL] RE: [External Email]Altavista - Leesville Transmission Line Rebuild Project
Date:	Thursday, October 24, 2024 7:31:37 AM
Attachments:	John Harper.pdf

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Brendan,
Where your project does not have existing right of ways, you will need to fill out the CPA-106 form for the Farmland Protection Policy Act (link Below) for corridor conversion.

Please send the form and documentation to Louise Jacques cc'd above.
Have a great day.

CPA-106.pdf [nrcs.usda.gov]

J. David Harper
State Soil Scientist
State Resource Inventory Coordinator
State Climate Smart POC
Farmland Protection Policy Act Coordinator
Soil Carbon Monitoring Network POC
1606 Santa Rosa Road, Suite 209
Richmond, Virginia 23229
804-287-1647

From: Jacques, Louise - FPAC-NRCS, VA
To: Harper, John - FPAC-NRCS, VA; McLoughlin, Brendan
Cc: Fraser, Daniel; Aaron C Fahey; Craig E Pritt; Tyler Q Emery
Subject: [EXTERNAL] RE: [External Email]Altavista - Leesville Transmission Line Rebuild Project
Date: Friday, October 25, 2024 7:51:30 AM

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Hi Brendan:

In addition to Dave's request, I will also need either a prime farmland report from NRCS Web Soil Survey (I am happy to show you how to generate that if you are unaware) or a shapefile for the requested area. Unfortunately, it is very difficult to determine the requested area from a topo map alone.

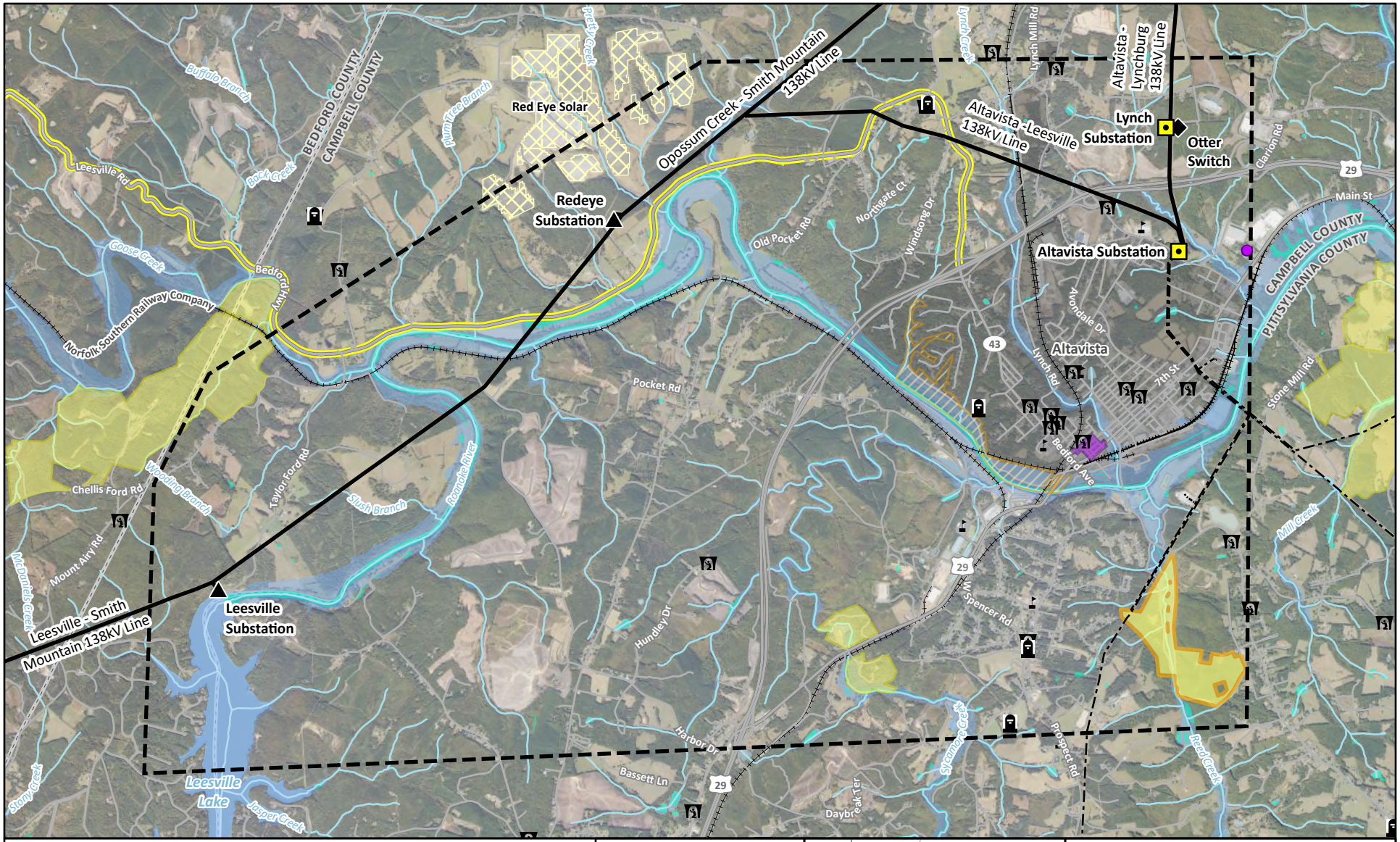
Web Soil Survey - Home [websoilsurvey.nrcs.usda.gov]

Again: Please feel free to reach out if you have any questions.

Sincerely,

Louise Jacques
Resource Soil Scientist
USDA-NRCS VA
Farmville, VA
Office: 434-392-4171 X121
Cell: 434-808-5956
louise.jacques@usda.gov

Attachment E: Route Development Maps



Existing Substation (AEP)
Switch Station (AEP)
Non-AEP Substation
Historic Site (NRHP)
Cemetery
Place of Worship
School
Existing Transmission Line (AEP)

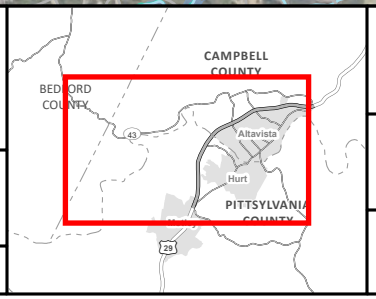
Non-AEP Transmission Line
Local Road
Highway
Scenic Byway
Railroad
Stream (NHD)
Wetland (NWI)
Floodplain (FEMA)
Waterbody (NHD)

Land Conservation Easement (VOF)
State Land Easement (PAD-US)
State Conservation Easement (PAD-US)
Historic Site/District (NRHP)
Solar Project (USGS)
City/Town/Municipal Limit
County Boundary
Study Area

Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia

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

September 17, 2025



Attachment E, Map 1
Study Area and Constraints

APPALACHIAN POWER
An AEP Company

Altavista - Leesville Transmission Improvements Project

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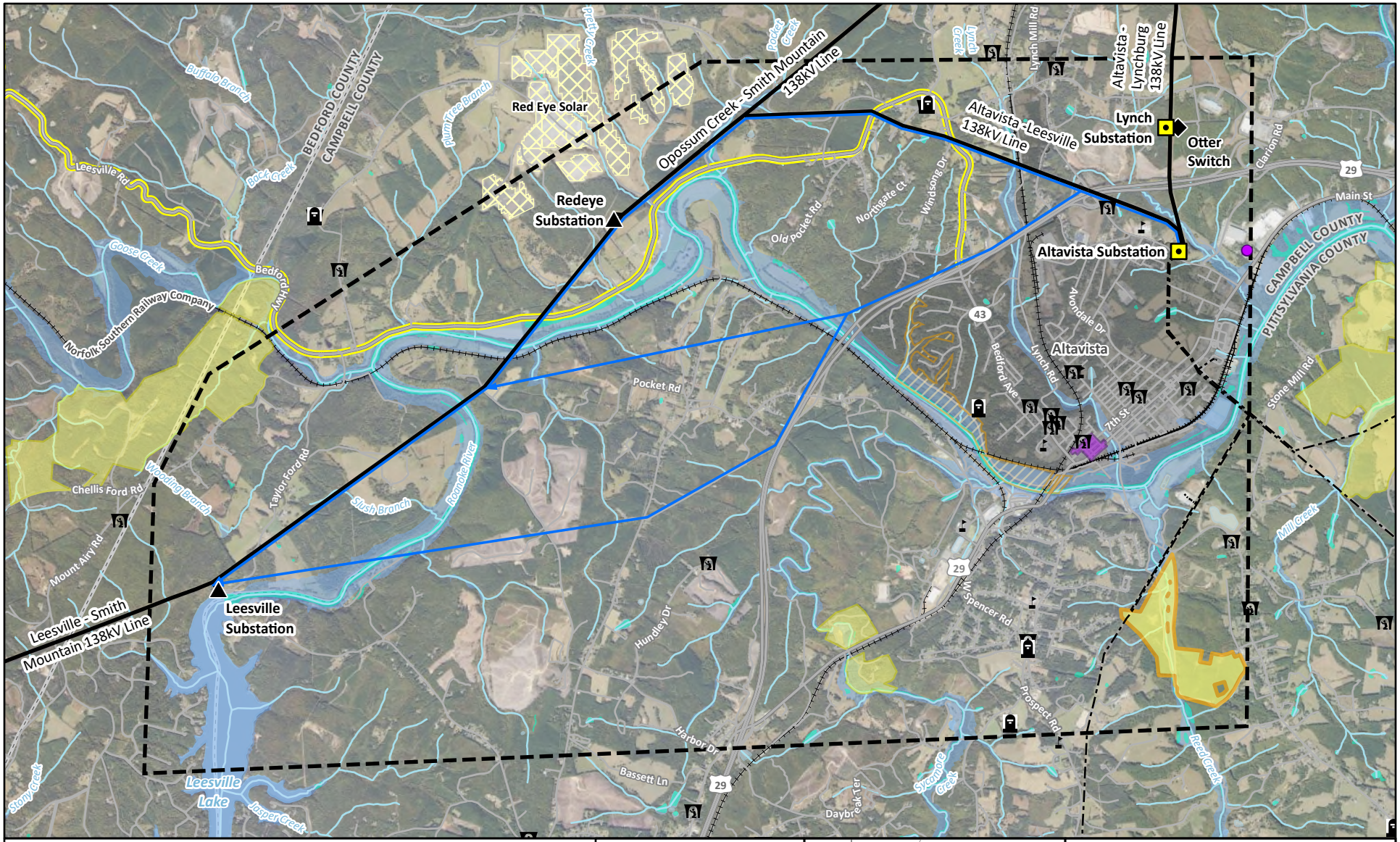


Existing Substation (AEP)
Existing Switch (AEP)
Non-AEP Substation
Historic Site (NRHP)
Cemetery
Place of Worship
School
Conceptual Route (AEP)

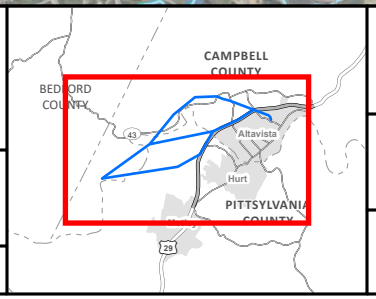
Existing Transmission Line (AEP)
Non-AEP Transmission Line
Local Road
Highway
Scenic Byway
Railroad
Stream (NHD)
Wetland (NWI)
Floodplain (FEMA)

Waterbody (NHD)
Land Conservation Easement (VOF)
State Conservation Easement (PAD-US)
State Conservation Easement (PAD-US)
Historic Site/District (NRHP)
Solar Project (USGS)
City/Town/Municipal Limit
County Boundary
Study Area

Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia

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

September 17, 2025



Attachment E, Map 2
Conceptual Routes

APPALACHIAN POWER
An AEP Company

Altavista - Leesville Transmission Improvements Project

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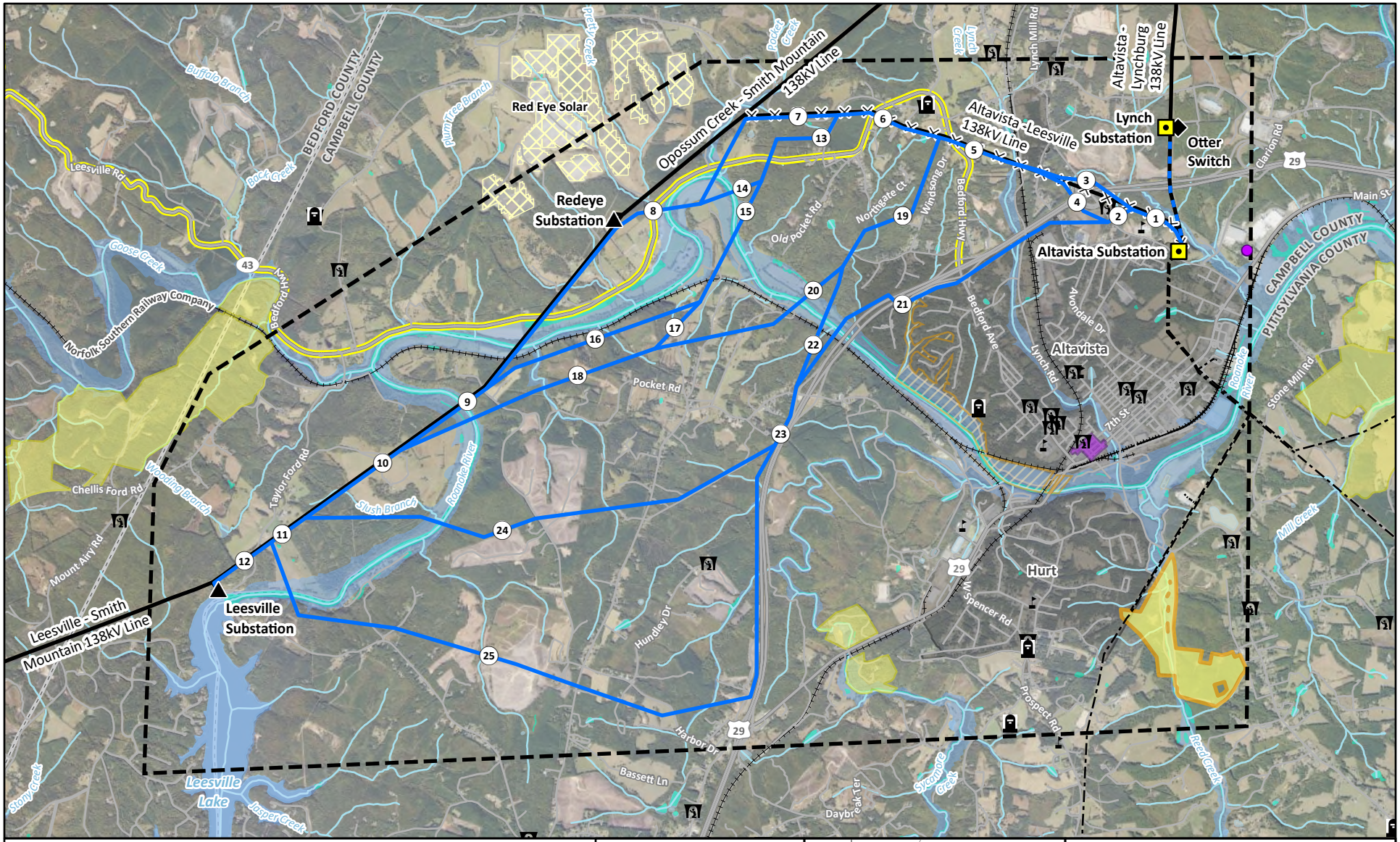


Existing Subtation (AEP)
Existing Switch (AEP)
Non-AEP Substation
Historic Site (NRHP)
Cemetery
Place of Worship
School
Study Segment (AEP)
Existing Transmission Line To Be Rebuilt (AEP)

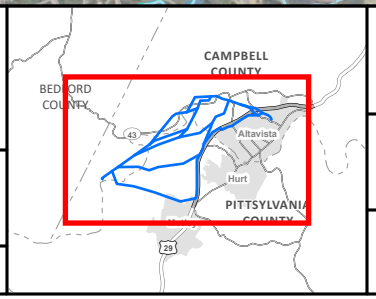
Existing Transmission Line To Be Removed (AEP)
Existing Transmission Line (AEP)
Non-AEP Transmission Line
Local Road
Highway
Scenic Byway
Railroad
Stream (NHD)
Wetland (NWI)
Floodplain (FEMA)

Waterbody (NHD)
Land Conservation Easement (VOF)
State Conservation Easement (PAD-US)
State Land Easement (PAD-US)
Historic Site/District (NRHP)
Solar Project (USGS)
City/Town/Municipal Limit
County Boundary
Study Area

Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia

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

September 17, 2025



Attachment E, Map 3
Initial Study Segments

APPALACHIAN POWER
An AEP Company

Altavista - Leesville Transmission Improvements Project

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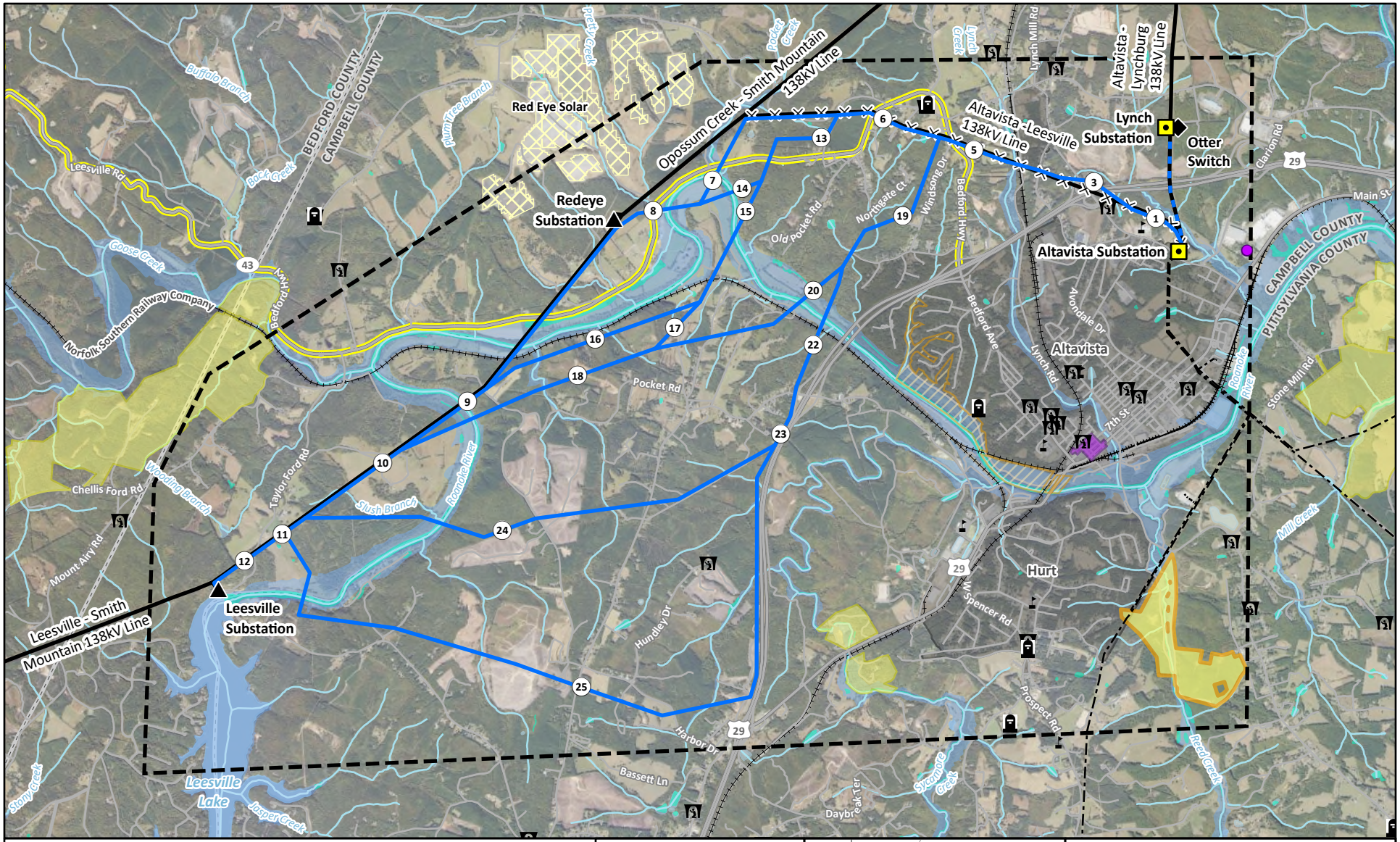
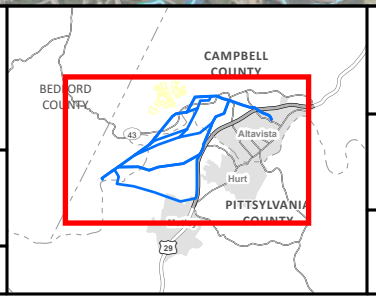


- Existing Subtation (AEP)
- Existing Switch (AEP)
- Non-AEP Substation
- Historic Site (NRHP)
- Cemetery
- Place of Worship
- School
- Study Segment (AEP)
- Existing Transmission Line To Be Rebuilt (AEP)
- Existing Transmission Line To Be Removed (AEP)
- Existing Transmission Line (AEP)
- Non-AEP Transmission Line
- Local Road
- Highway
- Scenic Byway
- Railroad
- Stream (NHD)
- Wetland (NWI)
- Floodplain (FEMA)
- Waterbody (NHD)
- Land Conservation Easement (VOF)
- State Land Easement (PAD-US)
- State Conservation Easement (PAD-US)
- Historic Site/District (NRHP)
- Solar Project (USGS)
- City/Town/Municipal Limit
- County Boundary
- Study Area

Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia

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

September 17, 2025



Attachment E, Map 4
Revised Study Segments

APPALACHIAN POWER
An AEP Company

Altavista - Leesville Transmission Improvements Project

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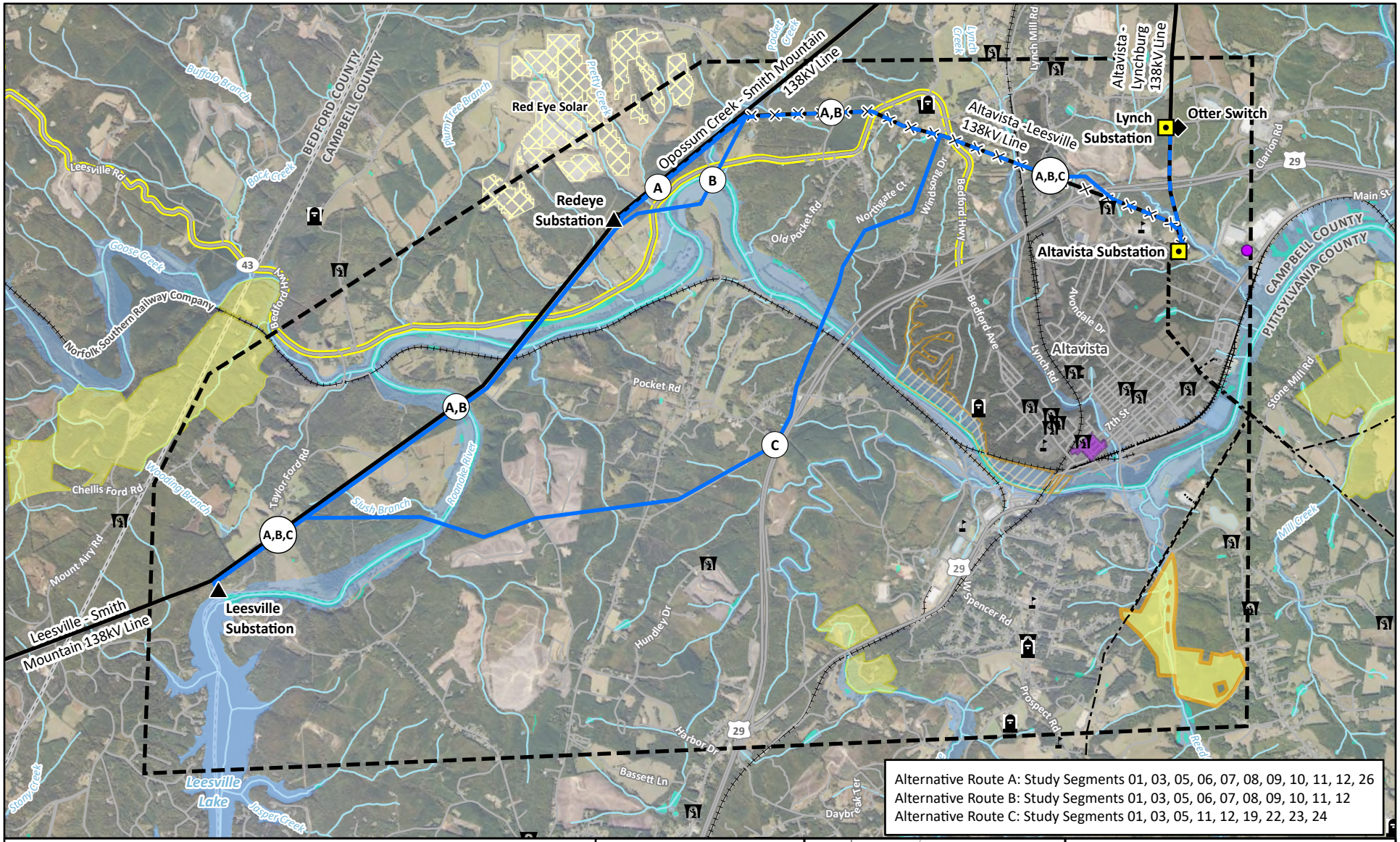
Red Eye Solar
Redeye Substation
Opossum Creek - Smith Mountain 138kV Line
Altavista - Leesville 138kV Line
Altavista - Lynchburg 138kV Line
Lynch Substation
Otter Switch
Altavista Substation
Altavista
Leesville Substation
Leesville - Smith Mountain 138kV Line
Leesville Lake
A
B
C
A,B
A,B,C
Alternative Route A: Study Segments 01, 03, 05, 06, 07, 08, 09, 10, 11, 12, 26
Alternative Route B: Study Segments 01, 03, 05, 06, 07, 08, 09, 10, 11, 12
Alternative Route C: Study Segments 01, 03, 05, 11, 12, 19, 22, 23, 24
Existing Substation (AEP)
Existing Switch (AEP)
Non-AEP Substation
NRHP Structure
Cemetery
Place of Worship
School
Alternative Route (AEP)
Existing Alignment to be Rebuilt (AEP)
Existing Transmission Line To Be Removed (AEP)
Existing Transmission Line
Local Road
Highway
Scenic Byway
Railroad
Stream (NHD)
Wetland (NWI)
Floodplain (FEMA)
Waterbody (NHD)
Land Conservation Easement (VOF)
State Land Easement (PAD-US)
State Conservation Easement (PAD-US)
NRHP Historic District
Solar Project (USGS)
City/Town/Municipal Limit
County Boundary
Study Area
Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia
NAD 1983 StatePlane Virginia South FIPS 4502 Feet
North American 1983 Lambert Conformal Conic
September 17, 2025
CAMPBELL COUNTY
BEDFORD COUNTY
PITTSYLVANIA COUNTY
Attachment E, Map 5
Alternative Routes
APPALACHIAN POWER
An AEP Company
Altavista - Leesville Transmission Improvements Project
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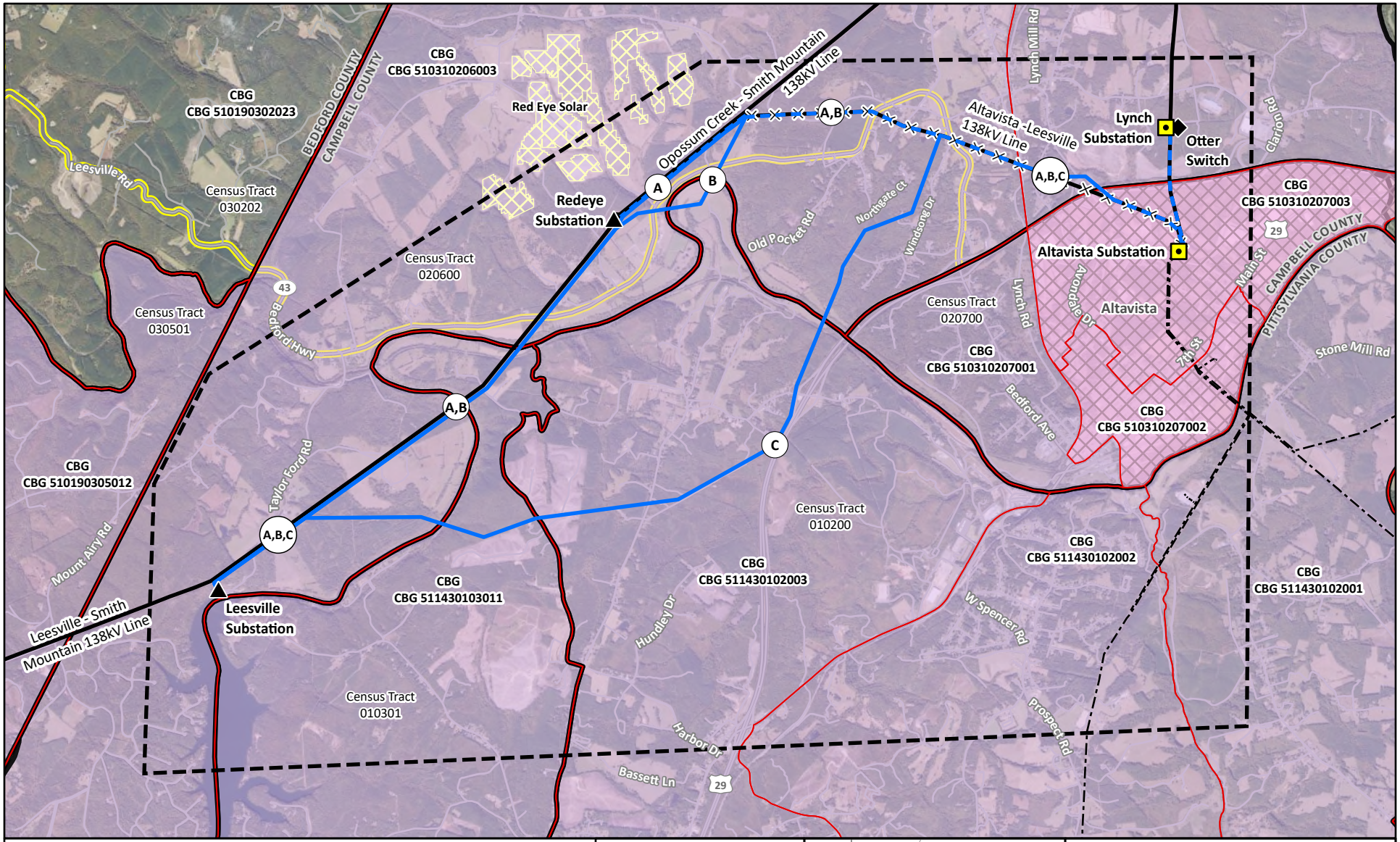


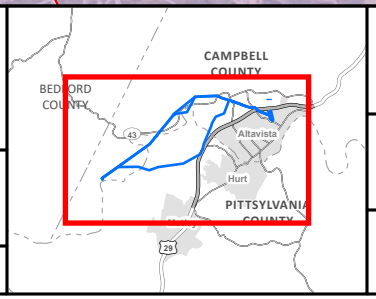
Existing Substation (AEP)
Existing Switch (AEP)
Non-AEP Substation
Alternative Route (AEP)
Existing Alignment to be Rebuilt (AEP)
Existing Transmission Line To Be Removed (AEP)
Existing Transmission Line
Non-AEP Transmission Line
Highway
Scenic Byway

CBG Exceeds State Threshold for Population of Color
CBG Does Not Exceed State Threshold
Census Tract Exceeds State Threshold for Population of Low Income
Census Tract Does Not Exceed State Threshold
City/Town/Municipal Limit
Solar Project (USGS)
County Boundary
Study Area

Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia

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

September 17, 2025



Attachment E, Map 6
Environmental Justice

APPALACHIAN POWER
An AEP Company

Altavista - Leesville Transmission Improvements Project

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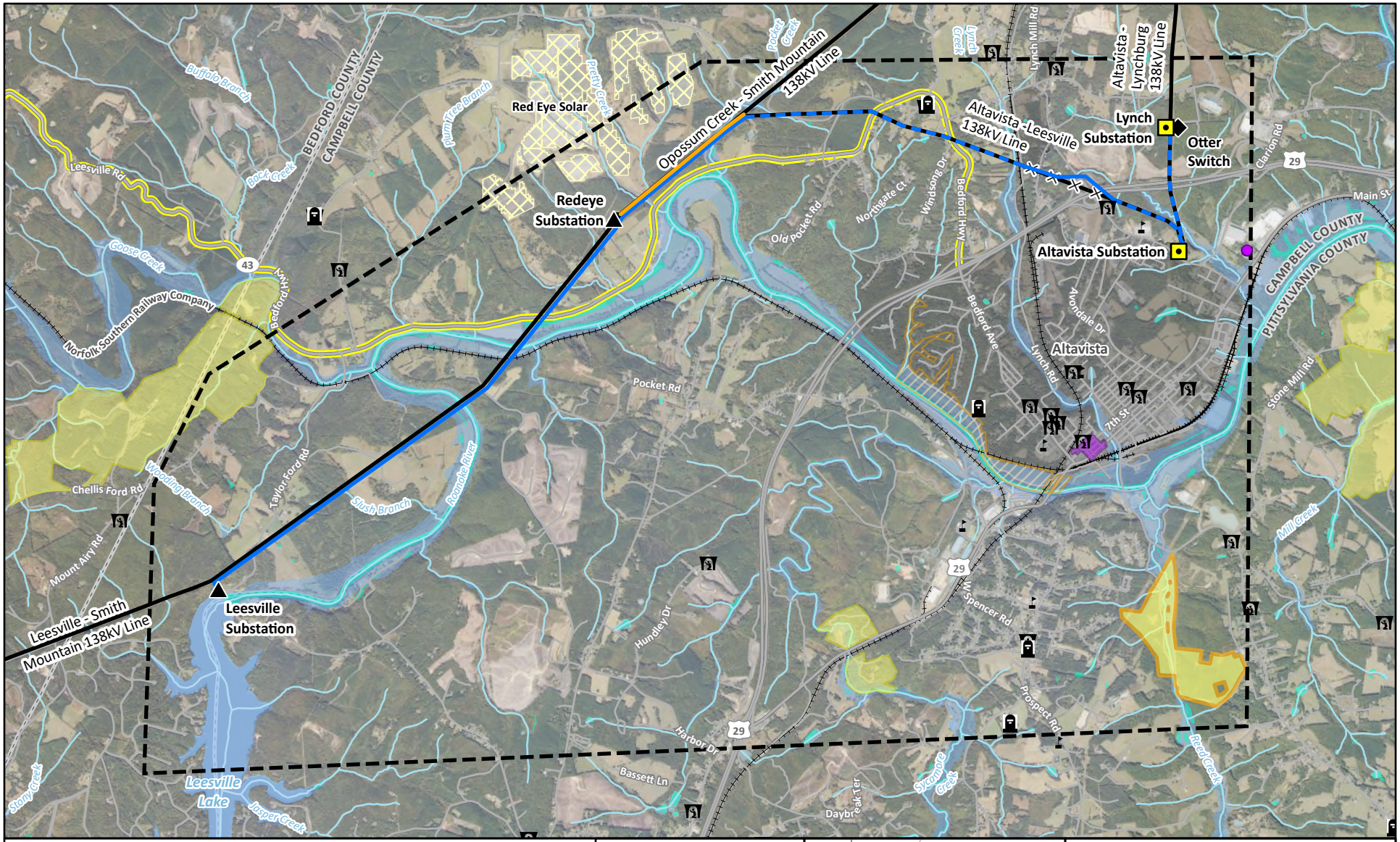
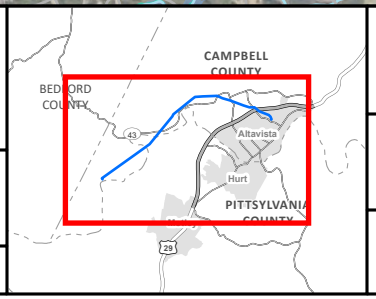


- Existing Substation (AEP)
- Existing Switch (AEP)
- Non-AEP Substation
- Historic Structure (NRHP)
- Cemetery
- Place of Worship
- School
- Proposed Route (AEP)
- Existing Alignment to be Rebuilt (AEP)
- Existing Transmission Line to be Reconfigured (AEP)
- Existing Transmission Line To Be Removed (AEP)
- Existing Transmission Line (AEP)
- Local Road
- Highway
- Scenic Byway
- Railroad
- Stream (NHD)
- Wetland (NWI)
- Floodplain (FEMA)
- Waterbody (NHD)
- State Land Easement (PAD-US)
- Land Conservation Easement (VOF)
- State Conservation Easement (PAD-US)
- Historic Site/District (NRHP)
- Solar Project (USGS)
- City/Town/Municipal Limit
- County Boundary
- Study Area

Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia

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

September 17, 2025



Attachment E, Map 7
Proposed Route

APPALACHIAN POWER
An AEP Company

Altavista - Leesville Transmission Improvements Project

0 1 2
Miles

Appalachian Power Company

Altavista to Leesville Transmission Improvements Project

SCC Case No. PUR-2026-00012
Campbell and Pittsylvania Counties and the Town of Altavista, Virginia

Virginia Department of Environmental Quality Supplement

March 2026

US-PE-0251151/0251128-001

Based on coordination with the Virginia Department of Environmental Quality (VDEQ), WSP USA, Inc. on behalf of Appalachian Power Company has developed this VDEQ Supplement to facilitate review and analysis of the Altavista to Leesville Transmission Improvements Project by the VDEQ and other relevant agencies.

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Attachment 2.F.1: USFWS IPaC Report
Attachment 2.H.1: VDHR Pre-Application Analysis

Abbreviations

Abbreviation	Description
Appalachian	Appalachian Power Company
BMP	best management practice
Company	Appalachian Power Company
FAA	Federal Aviation Administration
GIS	Geographic Information System
HUC	Hydrologic Unity Code
IPaC	Information for Planning and Consultation
kV	kilovolt
NPL	National Priority List
NRCS	Natural Resources Conservation Service's
NRHP	National Register of Historic Places
POWER	POWER Engineers, Inc.
Project	Altavista to Leesville Transmission Improvements Project
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
SCC	State Corporation Commission
SSURGO	Soil Survey Geographic Database
TRI	Toxics Release Inventory
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VDACS	Virginia Department of Agriculture and Consumer Services
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDHR	Virginia Department of Historic Resources
VDOT	Virginia Department of Transportation
VDWR	Virginia Department of Wildlife Resources
WERMS	Wildlife Environmental Review Map Service
WSP	WSP USA Inc.

1. Project Description

The Altavista to Leesville Transmission Improvements Project (Project) involves rebuilding and constructing approximately 11.0 miles of existing 138-kilovolt (kV) transmission lines and circuits owned by Appalachian Power Company ("Appalachian" or "Company") in Campbell and Pittsylvania Counties and the Town of Altavista, Virginia. The Project will rebuild approximately 1.0 mile of transmission line in the existing right-of-way (ROW) between the Altavista Substation and the Company's Otter Switch; additionally, the Project will construct approximately 5.0 miles of transmission line between the Leesville Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kV Transmission Line in new ROW, and rebuild approximately 4.0 miles of transmission line between existing structure 17-181 and the Altavista Substation in existing ROW. The Project will also rebuild an approximately 1.0-mile-long portion of the Opossum Creek – Smith Mountain 138-kV Transmission Line, which will be reconfigured to allow the construction of the Project. The Project will facilitate the interconnection of PJM Interconnection, LLC Queue AE1-250 in Pittsylvania County, Virginia. Additionally, the Project will replace 1940s- and 1960s-era transmission lines with modern equipment and greater transmission capacity, which in turn will enhance reliability of the transmission system.

The transmission line will be built primarily using single-circuit steel H-frame structures and single-circuit monopole structures; however, final structure types will be dependent on engineering and terrain. Based on preliminary engineering, Appalachian anticipates primarily using galvanized steel H-frame and monopole structures with a low-reflective finish for the Project. The anticipated heights of the proposed structures range between 70 and 150 feet, with an average proposed structure height of 95 feet. These anticipated heights for the proposed structures are necessary to meet current design standards. The Project will be built near or within an existing ROW that is typically 100 feet wide; however, this may vary along the route depending on Project needs, topography, and specific parcel uses and configurations. The final structure heights and ROW requirements will be determined during final engineering and after additional studies are conducted including, but not limited to, ground surveys, geotechnical and environmental studies, and additional interviews with landowners.

The Company's application to the Virginia State Corporation Commission (SCC), describes the overall need and necessity for the Project (SCC Case No. PUR-2026-00012).

2. Environmental Analysis

In a letter dated October 23, 2024, the Company and POWER Engineers, Inc. (POWER), a wholly owned subsidiary of WSP USA Inc. (WSP), requested input from 36 representatives of local, state, and federal agencies regarding the Project. Nineteen responses to the Project were received from representatives of nine agencies and are included in Attachment D to the Altavista – Leesville Transmission Improvements Project Siting Study (Sting Study). POWER also obtained relevant environmental data from field verification (see Section H), online databases, and other publicly available sources. Effective on or about December 31, 2025, POWER was merged with and into its affiliate WSP. As a result of this merger, WSP succeeded to all of POWER's rights and obligations by operation of law, which immediately became an obligation of WSP.

A. Air Quality

The Project does not involve the construction or expansion of any thermal emission generating sources and therefore no direct operational emissions from the Project are anticipated. During construction, emissions from heavy equipment and dust could occur but would be kept to a minimum. No permanent impacts on air quality are anticipated, and temporary impacts will only last for the duration of the construction phase. The Company does not expect to burn cleared material but, if burning becomes necessary, the Company will coordinate with the responsible locality to obtain permits and will comply with conditions imposed by the locality. The Company's tree-clearing methods can be found in Section II.A.7 of the Response to Guidelines.

B. Water Source

No water source is required for the operation of the transmission line. The Project is located in the Upper Roanoke sub-basin (Hydrologic Unity Code [HUC] 8 03010101). The Project is located in four sub-watersheds: Old Womans Creek – Leesville Lake (HUC12 030101011302); Bishop Creek – Roanoke River (HUC12 030101011303); Little Sycamore Creek – Sycamore Creek (HUC12 030101011304); and Reed Creek – Roanoke River (HUC12 030101011305).

A response to a request for comment was received from the Virginia Department of Health's Office of Drinking Water on November 8, 2024. In their response, the agency listed public groundwater wells within 1,000 feet and surface water intakes within five miles of the Project, recommended erosion and sediment controls on the Project site, and recommended coordination with local water utility providers prior to beginning construction activities to confirm the locations of public water distribution systems and sanitary sewage collection systems.

The Company and POWER submitted a project review request to the Virginia Department of Conservation and Recreation (VDCR) Virginia Natural Heritage Program and a response was received on December 19, 2024. Per the VDCR response, the Leesville Dam – Roanoke River Stream Conservation Site is located within the Project area. The Leesville Dam – Roanoke River Stream Conservation Site has been given a B2 biodiversity rank, indicating a site of high biodiversity. Also noted in the VDCR response was that the Roanoke River has been designated as a "Threatened and Endangered Species Water" by the Virginia Department of Wildlife Resources (VDWR) for the Roanoke Logperch, an endangered species as classified by the United States Fish and Wildlife Service (USFWS). Additionally, the Orangefin Madtom, a threatened species as classified by the VDWR may also be present in the Roanoke River. Given the potential for these species to exist within the Roanoke River, and the assigned B-2 biodiversity rank, the VDCR recommended strict adherence to erosion and sediment control plans during construction, as well as maintaining riparian buffers and natural stream flow where the proposed transmission line crosses or is adjacent to the Roanoke River.

Neither the United States Army Corps of Engineers (USACE) or the Virginia Marine Resources Commission provided comments regarding the Project.

Responses from the Virginia Department of Health's Office of Drinking Water, VDCR, and the VDEQ regarding water sources are included in Attachment D of the Siting Study. Coordination and review with the VDEQ, USACE, and Virginia Marine Resources Commission will be conducted during the Project's environmental studies.

C. Discharge of Cooling Waters

No discharge of cooling waters is associated with the Project.

D. Tidal and Non-tidal Wetlands

No tidal wetlands are associated with the Project.

A desktop wetland and stream delineation report was prepared in November 2025 to identify potential wetlands and streams crossed by the Project. The desktop features were identified within the typical 100-foot-wide ROW of the approximately 11.0-mile-long Project and the three alternative routes considered. The results of the desktop review are briefly summarized below. Refer to the VDEQ's *Desktop Wetland and Stream Delineation Report* for the Project in Attachment 2.D.1 for additional detail.

Potential streams and wetlands were assigned a probability of low, moderate, or high potential of being a regulated resource if a field verification were to be completed. Table 1 describes the criteria used to assign the probability of an identified feature within the proposed and alternative route ROWs.

Table 1: Wetland and Stream Evaluation Criteria

Probability	Wetland Assessment criteria	Stream Assessment Criteria
High	Aerial imagery (color and CIR) and/or topography combined with **two** other indicators such as NWI wetlands, hydric soils, or 3DHP stream/regulated floodplain.	Streams identified with 3DHP and aerial imagery (color and CIR) or topography.
Moderate	Aerial imagery (color and CIR) and/or topography combined with one other indicator such as NWI wetlands, hydric soils, or 3DHP stream/regulated floodplain.	Either (1) streams identified with aerial imagery (color and CIR) and topography; or (2) aerial imagery or topography combined with one other indicator, such as NWI riverine features or county or city stream data.
Low	Areas identified as wetland with topography and aerial photography only.	Areas identified as streams with topography or aerial photography only.

Notes: CIR = color-infrared; NWI = National Wetland Inventory; 3DHP = United States Geological Survey's 3D Hydrography Program.

Alternative Route A was selected as the Proposed Route for the Project as it is located within or parallel to an existing transmission line ROW. Similarly, Alternative Route B is primarily located within or parallel to an existing transmission line ROW; however, the route would require two additional crossings of the Roanoke River, which is a Traditionally Navigable River. Alternative Route C is not within or parallel to an existing transmission line ROW for the majority of the route. Refer to the Siting Study for additional discussion of the reasoning for the Proposed Route.

The proposed Alternative Route A for the Project extends approximately 11.0 miles. Within the proposed Alternative Route A ROW, the desktop wetland and stream delineation identified 44 potential wetlands (totaling 15.50 acres) and 64 potential streams (totaling 8,200 linear feet). The results of the desktop delineation for Alternative Route A are shown in the table below.

Table 2: Alternative Route A Wetland and Stream Evaluation Summary

High			
	PEM	3	1.77 acres
	PSS	1	0.61 acres
	PFO	9	4.29 acres
	PUB	0	0.00 acres
	Streams	15	2,402 feet
Moderate			
	PEM	9	3.37 acres
	PSS	1	0.17 acres
	PFO	17	5.03 acres

Table 2: Alternative Route A Wetland and Stream Evaluation Summary

	PUB	0	0.00 acres
	Streams	13	1,783 feet
Low			
	PEM	3	0.05 acres
	PSS	1	0.21 acres
	PFO	0	0.00 acres
	PUB	0	0.00 acres
	Streams	36	4,015 feet
	Wetland Total	**44**	**15.50 acres**
	Stream Total	**64**	**8,200 feet**

Alternative Route B for the Project extends approximately 9.6 miles. Within the proposed Alternative Route B ROW, the desktop wetland and stream delineation identified 40 potential wetlands (totaling 13.88 acres) and 55 potential streams (totaling 6,522 linear feet). The results of the desktop delineation for Alternative Route B are shown in the table below.

Table 3: Alternative Route B Wetland and Stream Evaluation Summary

Probability Level	Water of the United States Type	Number of Occurrences	Acreage or Feet Right-of-Way
High			
	PEM	1	0.30 acres
	PSS	1	0.61 acres
	PFO	8	2.94 acres
	PUB	0	0.00 acres
	Streams	14	1,961 feet
Moderate			
	PEM	8	4.54 acres
	PSS	0	0.00 acres
	PFO	17	5.22 acres
	PUB	0	0.00 acres
	Streams	11	1,217 feet
Low			
	PEM	4	0.06 acres
	PSS	1	0.21 acres
	PFO	0	0.00 acres
	PUB	0	0.00 acres
	Streams	30	3,344 feet
	Wetland Total	**40**	**13.88 acres**
	Stream Total	**55**	**6,522 feet**

Alternative Route C for the Project extends approximately 9.9 miles. Within the proposed Alternative Route C ROW, the desktop wetland and stream delineation identified 27 potential

wetlands (totaling 7.60 acres) and 62 potential streams (totaling 7,008 linear feet). The results of the desktop delineation for Alternative Route C are shown in the table below.

Table 4: Alternative Route C Wetland and Stream Evaluation Summary

Alternative Route C: Desktop Wetland and Stream Delineation Results			
Probability Level	**Water of the United States Type**	**Number of Occurrences**	**Acreage or Feet Right-of-Way**
High			
	PEM	1	0.30 acres
	PSS	1	0.61 acres
	PFO	4	0.86 acres
	PUB	0	0.00 acres
	Streams	13	1,663 feet
Moderate			
	PEM	6	1.31 acres
	PSS	0	0.00 acres
	PFO	12	4.27 acres
	PUB	0	0.00 acres
	Streams	13	1,918 feet
Low			
	PEM	2	0.04 acres
	PSS	1	0.21 acres
	PFO	0	0.00 acres
	PUB	0	0.00 acres
	Streams	36	3,427 feet
	Wetland Total	**27**	**7.60 acres**
	Stream Total	**62**	**7,008 feet**

Based on a review of the desktop delineation, the Proposed Route between the Company's existing Leesville Substation and the Altavista Substation, and the Altavista Substation and the Company's existing Otter Switch will result in minimal impacts. The Proposed Route will largely be rebuilt within or parallel to the existing 100-foot-wide ROW, so new impacts to any stream or wetland features that are crossed can likely be minimized or avoided during construction. Additionally, high probability streams, including the Bishop Creek and the Roanoke River, are crossed at or directly adjacent to the existing crossing locations. Further discussion of the route selection is included in the Siting Study.

Strategic siting of transmission structures/foundations and construction access roads should minimize impacts to regulated resources. In most cases, wetlands and streams can be spanned by a transmission line; however, ROW clearing may still result in permanent conversion of forested wetlands, depending on canopy height. Impacts to wetlands from access roads and

clearing equipment can be minimized through the use of temporary timber matting. In some cases, temporary timber mat bridges can also be used to span stream channels.

E. Solid and Hazardous Waste

A geographic information system (GIS) database search was conducted to identify solid and hazardous waste sites near the Project. The database search included the United States Environmental Protection Agency's (USEPA's) National Priority List (NPL); the USEPA's Superfund Enterprise Management System; the USEPA's Resource Conservation and Recovery Act (RCRA) Information System; the USEPA's Toxics Release Inventory (TRI); the VDEQ's Solid Waste Management Facilities; and the VDEQ's Voluntary Remediation Program.

The USEPA's Superfund NPL online mapper and Superfund Enterprise Management System database (database last updated September 2025) identified no NPL sites within 1.0 mile of the Project. The RCRA database (database last updated in August 2025 for Campbell and Pittsylvania Counties and the Town of Altavista) includes information on facilities that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA. Facilities are classified as large quantity generators, small quantity generators, or conditionally exempt small quantity generators depending on the amount of waste they handle. The USEPA's RCRA database identified:

- 85 active RCRA sites in Campbell County
- 59 active RCRA sites in Pittsylvania County
- 16 active RCRA sites in the Town of Altavista

The closest active RCRA facility to the Project is adjacent to the Proposed Route but will not be crossed by the Project.

The TRI database (database last updated in August 2025) includes information about toxic chemical releases and pollution prevention activities reported by industrial and federal facilities. The TRI database identified:

- 16 TRI facilities in Campbell County
- 19 TRI facilities in Pittsylvania County
- 7 TRI facilities in the Town of Altavista

The closest TRI site to the Project is located approximately 0.3 miles away and will not be crossed by the Project. In addition, one facility registered in the Voluntary Remediation Program database (last updated in July 2025) is within 1.0 mile of the Project.

There is one refuse collection site that is operating and located in Campbell County. The Campbell County Regional Landfill is located approximately 11.6 miles northwest of the Project. There are two refuse collection sites that are operating and located in Pittsylvania County. The

Pittsylvania County Sanitary Landfill is located approximately 23.0 miles south of the Project. There are no refuse collection sites that are operating or located in the Town of Altavista.

Care will be taken to operate and maintain construction equipment to prevent any fuel or oil spills. Any waste created by the construction crews will be disposed of in a proper manner and recycled where appropriate and will be further detailed in the Company's stormwater pollution prevention plan. The Project predominantly crosses pasturelands and forested areas and will be rebuilt largely within or near the existing ROW. The Company will comply with the stormwater pollution prevention plan.

F. Natural Heritage, Threatened and Endangered Species

A USFWS Information for Planning and Consultation (IPaC) resource list was generated to verify potential occurrences of threatened and endangered species and has been included as Attachment 2.F.1 to this supplement. Two USFWS-listed or proposed species were identified to potentially occur within the vicinity of the Proposed Route and are summarized in Table 5.

Table 5: USFWS IPaC Identified Species

Probability	Wetland Assessment criteria
Northern long-eared bat (*Myotis septentrionalis*)	Federally Endangered
Monarch butterfly (*Danaus plexippus*)	Proposed Threatened

In a letter received from the VDCR's Division of Natural Heritage on December 19, 2024, ecological core areas were identified throughout the Project area. VDCR defines ecological cores as areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species and are numerically ranked based on their ecological integrity and relative contribution to the ecosystem and natural heritage systems in the area. The VDCR identified C3, C4, and C5 core areas within the Project area, indicating "High" to "General" levels of ecological integrity. The Project will be constructed largely within or near an existing ROW which aligns with the VDCR recommendation to undertake efforts to minimize fragmentation of ecological core areas and retain natural corridors to allow movement between fragments. The VDCR recommends the following maintenance practices for the ROW as preventative measures to protect potential habitats of state-listed species and minimize impacts to ecological cores:

- Invasive species plan including invasive species inventory for the Project based on the current VDCR Invasive Species List from VDCR's website; methods for treating the invasive species.

- ROW restoration and revegetation including native species in a mix of grasses and forbs; monitoring and adaptive management plan for unsuccessful restoration efforts.

There were no State Natural Area Preserves noted under VDCR's jurisdiction in the Project vicinity. Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the VDCR, the VDCR represents the VDACS in comments regarding potential impacts on state-listed, threatened, and endangered plant and insect species.

A review of the VDWR's spatial dataset, Wildlife Environmental Review Map Service (WERMS), was used to identify sensitive species results within a 5.0-mile buffer of the Proposed Route. Two listed or proposed listed species were identified by the VDWR WERMS dataset and are shown in Table 6 below. The Project does not intersect with any little brown bat (*Myotis lucifugus*), tri-colored bat (*Perimyotis subflavus*), or northern long-eared bat habitat or roost tree locations according to the VDWR WERMS and the Northern Long-eared Bat, Tri-colored Bat, and Little Brown Bat Consultation Tool; however, the VDWR Consultation Tool shows that the Project intersects the consultation range for the northern long-eared bat. The VDWR WERMS data and the Center for Conservation Biology's Bald Eagle Nest Locator were used to determine the location of documented bald eagle (*Haliaeetus leucocephalus*) nests within the vicinity of the Proposed Route. The closest bald eagle nest documented by the Center for Conservation Biology's Bald Eagle Nest Locator is approximately 11.4 miles west of the Leesville Substation along Smith Mountain Lake (verified 2019). The VDWR WERMS data identified two bald eagle nests, previously documented in 2007, approximately 0.5 mile from the Proposed Route along the Roanoke River. None of the previously identified bald eagle nests are within the immediate vicinity of the Proposed Route; however, if previously unidentified bald eagle nests are observed near the Project, the USFWS eagle guidance recommends that a 660-foot buffer between Project activities and eagle nests be maintained.

Table 6: VDWR-Listed Species

Probability	Wetland Assessment criteria
Roanoke logperch (*Percina rex*)	Federally Threatened
Spirit supercoil (*Paravitrea hera*)	State Endangered

The Company will coordinate with the VDWR, the USFWS, and the VDCR as appropriate to minimize impacts on these resources during the environmental permitting phase of the Project.

G. Erosion and Sediment Control

The Company submits their erosion and sediment control specifications for construction and maintenance of electric utility lines annually to the VDEQ for all upcoming projects. The approved erosion and sediment control specifications will be implemented for all transmission facility construction related to the Project, which includes, but is not limited to, transmission line

construction, structure erection, substation upgrades inside the existing fence, construction of new or upgrade of existing access roads, when practicable. In addition, a site-specific erosion and sediment control plan will be prepared for the Project as required by the VDEQ.

H. Archaeological, Historic, Scenic, Cultural or Architectural Resources

In March 2026, WSP conducted a Pre-Application Analysis of cultural resources for the Project in support of the Application. The background research conducted as part of this analysis was designed to identify all previously recorded cultural resources using the tiered study areas outlined within 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* (2008). Archival research of previously recorded historic resources and field reconnaissance was part of the analysis and is summarized in Table 7 below.

Table 7: Previously Recorded Historic Resources in Project Area

Radial Buffer from Project (miles)	Considered Resources	Resource Name (VDHR ID)
0.0 to 1.5	National Historic Landmarks	None
0.0 to 1.0	National Register of Historic Places (NRHP) (listed) (e.g., Historic Landscapes, Battlefields, Rural Historic District)	Leesville Dam Archaeological Site (44PY0030) Mount Airy (009-0221) Avoca, Col. Charles Lynch Homesite (015-0378)
0.0 to 0.5	NRHP-eligible (Determined by VDHR)	None
0.00 (within ROW)	Archaeological sites	Staunton River Barite Mine (44PY0247) Unnamed (44CP0286) Unnamed (44CP0287)

H.1 National Register of Historic Places-Listed Resources within 1.0 mile of the Project

The **Leesville Dam Archaeological Site (VDHR # 44PY0030)** is located on the south bank of the Roanoke River, approximately 0.5 miles from the Proposed Route. Forested land separates the resource from the Proposed Route, though the proposed transmission line runs along an elevated landform. At its closest point to the resource the Proposed Route will be constructed in

parallel with an existing transmission line, minimizing visual changes to the landscape as seen from the resource.

Mount Airy (VDHR # 009-0221) is located approximately 1.0 mile north of the Proposed Route along a private road. Due to elevation at which the resource sits, the Proposed Route will be visible from the front yard of the resource. However, at its closest point to the resource, the Proposed Route will be constructed in parallel with an existing transmission line, minimizing visuals changes to the landscape as seen from the resource.

Avoca, or **The Col. Charles Lynch Homesite** is located approximately 0.5 miles east of the Proposed Route within the Town of Altavista. Due to the elevation of the resource relative to the Project, the Proposed Route will be visible from the backyard of the resource. The resource has intervening views of modern industrial sites (Abbott Laboratories and Altavista Plant) and has views and vistas of existing utility infrastructure. As such, no impacts to the visual characteristics of the resource are anticipated.

H.2 Archaeological Resources within the Project ROW

With regards to archaeology, there are three previously recorded archaeological resources located within or crossed by the Project ROW. The **Staunton River Barite Mine (VDHR # 44PY0247)** was determined not eligible for National Register of Historic Places (NRHP) listing by the VDHR. The other two resources, both of which are unnamed, have not been formally evaluated by the VDHR for NRHP-eligibility. Refer to Attachment 2.H.1 for the Pre-Application Analysis for historical resources.

I. Chesapeake Bay Preservation Areas

Construction, installation, operation, and maintenance of electric transmission lines are conditionally exempt from the Chesapeake Bay Preservation Act as stated in the exemption for public utilities, railroads, public roads, and facilities in 9 VAC 25-830-150. Appalachian will meet applicable conditions.

J. Wildlife Resources

As noted in Section 2.F, two federally listed species were identified by the USFWS to potentially occur within the vicinity of the Project. Twp state-listed species were identified by the VDWR to potentially occur in the vicinity of the Project. Appalachian will coordinate with the appropriate agencies to determine whether surveys are necessary and to minimize impacts to wildlife resources. The Project will be constructed within or near the existing ROW to the extent feasible and thus minimizes habitat fragmentation and tree clearing to the extent possible.

K. Recreation, Agricultural, and Forest Resources

The general character of the Project area is characterized predominantly by forested, agricultural, pasture, and commercially developed land uses and residential areas. The Project will be constructed largely within or near an existing 100-foot-wide ROW. As a result, impacts to recreation, agricultural, and forest resources are anticipated to be minimal.

Under the Virginia Open-Space Land Act, any public body can acquire title or rights to real property to provide means of preservation of open-space land as conservation easements. A response was received from the Virginia Outdoors Foundation on November 1, 2024, stating that there are no existing or proposed Virginia Outdoors Foundation easements that will be impacted by the Project.

There are no existing Virginia Department of Forestry conservation easements crossed by the Project area according to their publicly available database.

The Project does not cross any local or state parks.

The Proposed Route crosses approximately 60 acres of farmland of statewide importance[1] and approximately 11 acres of prime and unique farmland soil[2] at or near existing locations. These designations are based on soil characteristics and established by the United States Department of Agriculture's (USDA) Natural Resources Conservation Service's (NRCS) Soil Survey Geographic Database (SSURGO) data. Nevertheless, impacts on agricultural land from the Project are expected to be minimal. The permanent loss of soils or farmable land would be generally limited to the structure foundation locations. As the ROW has been in use since the 1960s, it is not expected that the Project will permanently impact farmland, as most farming uses currently co-exist with the transmission line.

The transmission line will largely be rebuilt within or near an existing ROW and is anticipated to have minimal impacts to forested resources. The Company's tree-clearing methods use the Virginia Department of Forestry's best management practices (BMPs) for water quality. Specific sections of the BMPs that are pertinent to transmission line clearing operations include:

- Equipment Maintenance and Litter
- Harvest Closure (rehabilitation of the ROW after construction)
- Revegetation of Disturbed Areas

The Company will utilize the above BMPs for the Project. Further discussion of ROW clearing, rehabilitation and maintenance can be found in Section II.A.7 of the Response to Guidelines in Volume 1 of the Application.

[1] Prime farmland is land that has the best combination of physical and chemical characteristics for producing crops (based on USDA-NRCS SSURGO data).
[2] Soils that do not meet the prime farmland category but are still recognized for their productivity by states may qualify as soils of statewide importance (based on USDA-NRCS SSURGO data).

L. Use of Pesticides and Herbicides

When herbicides are used to maintain the Company's transmission ROW, they are registered with the USEPA and with the VDACS. All herbicides will be used in accordance with label and manufacturer directions. Regarding herbicide applications (additionally, see Section II.A.7 of the Response to Guidelines in Volume 1 of the Application):

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

M. Geology and Mineral Resources

According to the Department of Energy Division of Geology and Mineral Resources Interactive Geologic Map, the Project is in the Piedmont physiographic province of Virginia. According to the Division of Geology and Mineral Resources' Interactive Geologic Map, no sinkholes are present within the Proposed Route ROW. The Virginia Department of Energy did not offer comment on the Project

N. Transportation Infrastructure

The Project will be constructed largely within or parallel to an existing ROW and the Proposed Route crosses existing transportation infrastructure at or near existing locations. The Project crosses United States Highway 29, State Route 43, six State Roads (626, 628, 714, 718, 924, 1318), and approximately 10 county and local roads. The Proposed Route crosses two railroads at or near existing transmission line crossings. On December 18, 2024, the Company met with representatives of the Virginia Department of Transportation (VDOT) to gain feedback on the Project. The VDOT representatives requested that the Company avoiding placing structures in VDOT ROW near the U.S. Highway 29 and Lynch Mill Road (State Route 626) interchange. Additionally, VDOT confirmed there are no active or planned projects within the Project area. The Company will coordinate with VDOT during the design and permitting phase of the Project to determine the extent of land use permits and traffic control plans, as needed for the Project.

The Project crosses State Route 43 in three locations. State Route 43 is a Virginia Scenic Byway that travels east to west through the Project area, beginning at the State Route 43/U.S. Highway 29 interchange, just west of the Town of Altavista. The first two crossings of State

Route 43 by the Project use existing crossing locations of the Altavista – Leesville 138-kV Transmission Line. By utilizing two existing transmission line crossing locations, the visual character of the scenic byway is not expected to be altered. The third crossing of State Route 43 by the Project is parallel to the Opossum Creek – Smith Mountain 138-kV Transmission Line, just north of the Roanoke River. By the Project crossing State Route 43 parallel to an existing transmission line crossing, any impacts to the visual character of the scenic byway are expected to be minimal.

The Federal Aviation Administration's (FAA) website was reviewed to identify airports within 10 miles of the Project. Based on this review, three airports or heliports were identified:

- Kinman (3VG5) - approximately 0.7 miles from the Project
- English (18VA) - approximately 2.2 miles from the Project
- New London (W90) - approximately 8.8 miles from the Project

The Company will use the FAA's Notice Criteria Tool to review proposed structure locations and identify structures that must be filed with the FAA. The Company will coordinate with the Virginia Department of Aviation and FAA as necessary to obtain all appropriate approvals.

Attachment 2.D.1: Desktop Wetland and Stream Delineation Report

Appalachian Power Company

Altavista to Leesville Transmission Improvements Project

SCC Case No. PUR-2026-00012
Campbell and Pittsylvania Counties and the Town of Altavista, Virginia

Virginia Department of Environmental Quality Desktop Wetland and Stream Delineation Report

March 2026

US-PE-0251151/0251128-002

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Abbreviations

Abbreviation	Description
3DHP	3D Hydrography Program
Appalachian	Appalachian Power Company
CIR	Color Infrared
Company	Appalachian Power Company
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
kV	kilovolt
NFHL	National Flood Hazard Layer
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service's
NWI	National Wetland Inventory
PEM	Palustrine Emergent Wetland
Project	Altavista to Leesville Transmission Improvements Project
PSS	Palustrine Scrub-Shrub Wetland
PUB	Palustrine Unconsolidated Bottom Wetland
ROW	right-of-way
SCC	State Corporation Commission
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VBMP	Virginia Base Mapping Program
VGIN	Virginia Geographic Information Network
WSP	WSP USA Inc.

1. Introduction

With the Altavista to Leesville Transmission Improvements Project (Project), Appalachian Power Company ("Appalachian" or "Company") is planning to rebuild and construct approximately 11 miles of existing transmission lines in Campbell and Pittsylvania Counties, and the Town of Altavista, Virginia. The Project will rebuild approximately one mile of transmission line in the existing right-of-way (ROW) between the Altavista Substation and the Company's Otter Switch; additionally, the Company will construct approximately 5.0 miles of transmission line between the Leesville Substation and existing structure 17-181 on the Opossum Creek – Smith Mountain 138-kilovolt (kV) Transmission Line in new ROW, and rebuild approximately 4.0 miles of transmission line between existing structure 17-181 and the Altavista Substation in existing ROW. The Project will also rebuild an approximately 1.0-mile-long portion of the Opossum Creek – Smith Mountain 138-kV Transmission Line, which will be reconfigured to allow the construction of the Project. A Project Location Map is provided as Attachment A. The Project will increase transmission capacity required by PJM Interconnection, LLC for a planned 150-megawatt solar generation facility in Pittsylvania County, Virginia. Additionally, the Project will replace 1960s-era transmission lines with modern equipment and greater transmission capacity, which in turn will enhance reliability of the transmission system.

The transmission line will be built primarily using single-circuit steel H-frame structures and single-circuit monopole structures; however, final structure types will be dependent on engineering and terrain. Based on preliminary engineering, Appalachian anticipates primarily using galvanized steel H-frame and monopoles with a low-reflective finish for the Project. The anticipated heights of the proposed structures range from 70 to 150 feet, with an average proposed structure height of 95 feet. These anticipated heights for the proposed structures are necessary to meet current design standards. The Project will be built near or within an existing ROW that is typically 100 feet wide; however, this may vary along the route depending on Project needs, topography, and specific parcel uses and configurations. The final structure heights and ROW requirements will be determined during final engineering and after additional studies are conducted including, but not limited to, ground surveys, geotechnical and environmental studies, and additional landowner interviews.

Appalachian contracted WSP USA Inc. (WSP), to prepare this Desktop Wetland and Stream Delineation Report for inclusion in the Altavista to Leesville Transmission Improvements Project's Application for a Certificate of Public Convenience and Necessity, to be filed with the Virginia State Corporation Commission (SCC), which approves or denies such applications. This report is included as Attachment 2.D.1 in the Virginia Department of Environmental Quality Supplement (SCC Case No. PUR-2026-00012).

The purpose of the Desktop Wetland and Stream Delineation Report is to identify potential federally and state regulated waters within the proposed 100-foot-wide ROW. A siting effort was

undertaken to determine the alignments for the Project. Three alternative routes (e.g., A, B, and C) were identified between the Company's Leesville Substation and the Altavista Substation as further detailed in the Siting Study. The Proposed Route for the Project consists of Alternative Route A, which builds the transmission line within or near an existing transmission line ROW, and rebuilds approximately 1.0 mile of existing transmission line within the existing ROW between the Altavista Substation and the Company's Otter Switch. This report includes a description of the methodologies WSP used to determine the location and size of potential regulated waters within the Project's ROW and guidance regarding probability of encountering the identified features during a field verification.

2. Methods

2.1 Data Sources and Background Information

WSP reviewed various mapping sources and geographic information system (GIS) data in order to identify areas where wetlands or streams could potentially be located within the proposed Project's ROW. The GIS data and mapping sources reviewed include the following:

- United States Geological Survey (USGS), United States Elevation Data (USGS 2021).
- Virginia Geographic Information Network (VGIN) Virginia Base Mapping Program (VBMP) color orthoimagery (VGIN 2022).
- Color Infrared (CIR) aerial imagery and orthophotography (VBMP 2022 and 2023).
- Google Earth color aerial photography, including historical aerial data (1985, 1994, 2002 to 2003, 2005 to 2008, 2011, 2014 to 2015, 2017, 2020 to 2021, and 2024).
- 3D Hydrography Program (3DHP) stream and river data (USGS 2025).
- United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping (USFWS 2024).
- United States Department of Agriculture's (USDA's) Natural Resources Conservation Service (NRCS) Soil Surveys of the Pittsylvania County and the City of Danville and Campbell County and City of Lynchburg, Virginia (USDA-NRCS 1994 and 1977).
- USDA-NRCS Web Soil Survey (USDA-NRCS 2025).
- Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) data (FEMA 2024).
- Esri Terrain with Labels Basemap (Esri 2016).

2.2 Wetland Definitions

Federal regulations define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (United States Environmental Protection Agency [USEPA] 2025).

Under normal circumstances, three parameters must be present for an area to be considered a wetland: hydrophytic vegetation, wetland hydrology, and hydric soils. Applicable technical guidance that defines these parameters and provides criteria for the evaluation of associated data and field indicators is provided in the *1987 Wetland Delineation Manual* (Environmental

Laboratory 1987) and t*he Regional Supplement to the United States Army Corps of Engineers (USACE) Wetland Delineation Manual, Eastern Mountains and Piedmont Region*, (Version 2.0) (USACE 2012).

Using the data sources outlined above, WSP identified areas that could potentially satisfy the three parameters required to meet the definition of a wetland provided by the USACE.

Aerial imagery and NWI mapping for the Project were used to determine potential habitat type of the desktop delineated wetlands. NWI maps use the Classification of Wetlands and Deepwater Habitats of the United States to classify wetland habitat types (Cowardin et al. 1979). This classification system is hierarchical and defines five major systems: Marine, Estuarine, Riverine, Lacustrine, and Palustrine. The Palustrine system is the only type of wetland system likely to be present within the study area and is defined as including all nontidal wetlands dominated by trees, shrubs, persistent emergent herbaceous plants, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean driven-derived salts is below 0.5% (Cowardin et al. 1979). Cowardin wetland types likely to be encountered along the proposed ROW fall into the following four classifications:

- **Palustrine Emergent (PEM) Wetlands.** Emergent wetlands are typically characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is usually present for most of the growing season in most years.
- **Palustrine Scrub-Shrub (PSS) Wetlands.** Scrub-shrub wetlands are typically characterized by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions.
- **Palustrine Forested (PFO) Wetlands.** Forested wetlands are usually characterized by woody vegetation that is 20 feet tall or taller. These wetlands typically possess an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer.
- **Palustrine Unconsolidated Bottom (PUB) Wetlands**. Unconsolidated bottom wetlands include all wetland and deepwater habitats with at least 25% cover of particles smaller than stones and a vegetative cover less than 30%.

2.3 Stream Definitions

Streams are described by the USEPA as channels that are natural or artificial open areas that connect two bodies of water and may have water flowing in them continuously or periodically. They are further placed into three general stream habitat types:

- **Perennial Streams**. These channels are relatively permanent waters that typically have water throughout the year except during extreme drought. Most of the water comes from smaller upstream waters or groundwater while runoff from rainfall or other precipitation is supplemental.

- **Intermittent Streams**. These channels are relatively permanent waters that flow a considerable portion of the time but cease to flow occasionally or seasonally.
- **Ephemeral Streams**. These channels are non-relatively permanent waters, which have flowing water only during and for a short duration after precipitation events in a typical year. Ephemeral streambeds are located above the groundwater table year-round and are often described as headwater streams.

WSP used aerial imagery, orthophotography, topographic mapping, and 3DHP datasets to determine the location of potential streams. Stream habitat types were not identified during this desktop delineation; however designated 3DHP streams are likely to be intermittent or perennial channels.

2.4 Wetland and Stream Data Interpretation

To assess the probability for streams and wetlands to occur along the proposed ROW of the transmission line route, WSP biologists utilized available desktop data for this report.

2.4.1 Aerial Imagery and Topographic Mapping

The CIR aerial imagery (VBMP 2022 and 2023), current and historical aerial photography (Google Earth 1985, 1994, 2002 to 2003, 2005 to 2008, 2011, 2014 to 2015, 2017, 2020 to 2021, and 2024; VGIN 2022), USGS topographic data (USGS 2021), and Esri world terrain base mapping (Esri 2016) were used to help determine the location and size of potential wetland and stream resources within the Project ROW. The USGS topographic contour lines were used to identify potential drainage areas ranging from small headwater streams to larger perennial streams. The contour lines were also used to determine areas of flat or depressed terrain where water is more likely to pool for a sufficient duration that allows development of the three required wetland parameters.

Several years of aerial imagery were reviewed for signs of potential wetland and stream resources such as apparent drainage lines, areas with changes in vegetation, and areas with apparent water ponding. CIR aerial imagery was also reviewed, which provides a higher level of contrast compared to traditional aerial photography since it renders the scene in colors not normally seen by the human eye. Open water and saturated areas are typically depicted as black or dark blue since they do not reflect much light in the infrared spectrum (Minnesota IT Services n.d.). Areas with a shift in vegetation (as observed between wetland and upland boundaries) are more apparent on CIR aerial imagery as areas with dead or stressed vegetation appear in lighter shades of red and pink, and areas with actively photosynthesizing vegetation appear bright red. Aerial imagery was also used to estimate the desktop delineated wetland's Cowardin classification. The CIR aerial imagery is used on the Desktop Wetland and Stream Delineation maps included in Attachment B.

2.4.2 National Wetland Inventory Dataset

WSP reviewed NWI mapping to help identify potential wetland areas. NWI maps were published by the USFWS and depict probable wetland areas based on stereoscopic analysis of high-altitude aerial photographs and analysis of infrared bands from remotely sensed imagery. Therefore, NWI mapping reflects conditions during the specific year and season the data was acquired and should not be considered precise, field-verified wetlands (USFWS 2024). NWI mapping was also used to estimate the desktop delineated wetland's Cowardin classification. NWI mapping is included on the Desktop Wetland and Stream Delineation maps included in Attachment B.

2.4.3 3D Hydrography Program

The 3DHP (USGS 2025) was used to identify potential and known streams. 3DHP is a comprehensive set of digital spatial data representing surface waters that is derived from previous national hydrography sets that includes the National Hydrography Dataset (NHD), the Watershed Boundary Dataset, and the NHDPlus High Resolution. The 3DHP includes a three-dimensional hydrography network generated from and integrated with elevation data from the 3D Elevation Program to better represent stream gradients and channel conditions, along with waterbodies, hydrologic units, hydrologically enhanced elevation and other surfaces, and more consistent and accurate attributes (Anderson et al. 2024). Although not field verified, the 3DHP data shows the general locations of streams, rivers, and open waters, and provides insight into the general location of waters (USGS 2025). 3DHP mapping is included on the Desktop Wetland and Stream Delineation maps included in Attachment B.

2.4.4 National Flood Hazard Layer Floodplain Dataset

The FEMA NFHL dataset was reviewed to identify floodplain boundaries. The FEMA NFHL dataset (FEMA 2024) provides digital spatial data representing floodplains associated with recorded streams (see Section 2.4.3, USGS 3DHP streams) as well as riverine mapping. Floodplain boundaries are divided into flood insurance rate zones that are rated between 100-year and 500-year floodplains. Both 100-year and 500-year are considered areas of moderate flood hazard. All remaining areas fall under the terms of minimal flood hazard (FEMA 2024). Floodplain mapping is included on the Desktop Wetland and Stream Delineation maps included in Attachment B.

2.4.5 Soil Survey Mapping

USDA-NRCS digital soil survey data for Pittsylvania County and the City of Danville and Campbell County and City of Lynchburg, Virginia were used to locate areas of hydric soils, which are typically found in wetlands (USDA-NRCS 1994 and 1977). The NRCS soil survey groups soil map units into three categories; non-hydric soil units, soil units with hydric soil inclusions, and units that contain all hydric soils. Areas that contain hydric or hydric inclusion

map units have a greater probability of supporting wetlands relative to those mapped as non-hydric soil units. Hydric soil units are identified on the map sheets included in Attachment B. There are five hydric soil areas mapped within the Project ROW.

2.5 Wetland and Stream Data Evaluation

Potential streams and wetlands were assigned a probability of low, moderate, or high potential of being a regulated resource if a field verification were to be done. Tables 1 and 2 show the criteria used to assign the probability of an identified feature within the proposed ROW.

Table 1: Wetland Evaluation Criteria

Wetland Probability	Assessment Criteria
High	Aerial imagery (color and CIR) and/or topography combined with two other indicators such as NWI wetlands, hydric soils, or a 3DHP streams/regulated floodplain.
Moderate	Aerial imagery (color and CIR) and/or topography combined with one other indicator such as NWI wetlands, hydric soils, or a 3DHP streams/regulated floodplain.
Low	Areas identified as wetland with topography and aerial photography only.

Table 2: Stream Evaluation Criteria

Stream Probability	Assessment criteria
High	Streams identified with 3DHP and aerial imagery (color and CIR) or topography.
Moderate	Either (1) streams identified with aerial imagery (color and CIR) and topography; or (2) aerial imagery or topography combined with one other indicator, such as NWI riverine features or county or city stream data.
Low	Areas identified as streams with topography or aerial photography only.

3. Results and Discussion

The results of the Desktop Wetland and Stream Delineation are presented for potential wetlands and streams in Tables 3 and 4, respectively. Figures showing the location of desktop delineated wetlands and streams along the three alternative routes are included in Attachment B. Due to overlap of centerlines, some stream and/or wetland features are included in multiple alternative routes.

The desktop delineation assumed a 100-foot-wide ROW for the proposed Project's alternatives to assess potential acreage of wetlands and linear feet of streams between the Company's Leesville Substation and the Altavista Substation, and the Altavista Substation and the Company's Otter Switch. Due to limitations in aerial photography and available data, the probability and estimated number of occurrences provided below are for planning purposes and likely do not represent the full extent of potentially jurisdictional aquatic resources that may be identified during a field study.

The Company evaluated three alternative routes located near the Roanoke River in Campbell and Pittsylvania Counties, and the Town of Altavista. Generally, the alternative routes are located west of the Town of Altavista and cross multiple headwater valleys and named streams, including the Roanoke River. Alternative Routes A, B, and C are located between the Leesville Substation and the Company's Otter Switch and are 11.0, 9.6, and 9.9 miles, respectively (Attachment B, Map Tiles 1 to 32). Resource probabilities and the estimated total of wetlands and streams within the ROW for each alternative route are provided below

Table 3: Desktop Wetland Delineation Results

Wetland Types and Classifications		Alternative Route A (Proposed Route)		Alternative B		Alternative Route C	
		Number of Wetland Occurrences	Acreage within ROW	Number of Wetland Occurrences	Acreage within ROW	Number of Wetland Occurrences	Acreage within ROW
High	PEM	3	1.77	1	0.30	1	0.30
	PSS	1	0.61	1	0.61	1	0.61
	PFO	9	4.29	8	2.94	4	0.86
Moderate	PEM	9	3.37	8	4.54	6	1.31
	PSS	1	0.17	0	0.00	0	0.00
	PFO	17	5.03	17	5.22	12	4.27
	PUB	0	0.00	0	0.00	0	0.00
Low	PEM	3	0.05	4	0.06	2	0.04
	PSS	1	0.21	1	0.21	1	0.21
	PFO	0	0.00	0	0.00	0	0.00
	PUB	0	0.00	0	0.00	0	0.00
Total		**44**	**15.50**	**40**	**13.88**	**27**	**7.60**

Table 4: Desktop Stream Delineation Results

Stream Types	Alternative Route A (Proposed Route)		Alternative B		Alternative Route C	
	Number of Stream Occurrences	Linear Feet within ROW	Number of Stream Occurrences	Linear Feet within ROW	Number of Stream Occurrences	Linear Feet within ROW
High	15	2,402	14	1,961	13	1,663
Moderate	13	1,783	11	1,217	13	1,918
Low	36	4,015	30	3,344	36	3,427
Total	**64**	**8,200**	**55**	**6,522**	**62**	**7,008**

3.1 Alternative Route A (Proposed Route)

Alternative Route A is 11.0 miles long and crosses multiple named streams and headwater valleys in Campbell and Pittsylvania Counties and the Town of Altavista, Virginia (Attachment B, Map Tiles 1 to 20). It is generally located within the existing Altavista – Leesville 138-kV Transmission Line ROW and parallels the Opossum Creek – Smith Mountain 138-kV Transmission Line from existing structure 17-186 to the Leesville Substation. Alternative Route A includes relocating a portion of the Altavista – Leesville 138-kV Transmission Line at the U.S. Highway 29 and State Route 626 Lynch Mill Road interchange as well as the Opossum Creek – Smith Mountain 138-kV Transmission Line near the Redeye Substation to avoid steep slopes and two new Roanoke River Crossings. The ROW for Alternative Route A contains an estimated total of 44 wetlands (totaling 15.50 acres) and 64 streams (totaling 8,200 linear feet). Additional details on the probability of the identified features are included below.

High Probability

Thirteen high probability wetlands (totaling 6.67 acres) were identified within the ROW of Alternative Route A (Attachment B, Map Tiles 1 to 2, 5, 8 to 9, and 12 to 16). In addition, 15 high probability streams are estimated within the ROW for a total of 2,402 linear feet in length (Attachment B, Map Tiles 1, 4 to 5, 8 to 10, 12 to 16, and 18).

Moderate Probability

Twenty-seven moderate probability wetlands (totaling 8.57 acres) were identified within the ROW of Alternative Route A (Attachment B, Map Tiles 1, 4, and 8 to 18). In addition, 13 moderate probability streams are estimated within the ROW for a total of 1,783 linear feet in length (Attachment B, Map Tiles 1 to 2, 4, 6, 8 to 11, and 16 to 20).

Low Probability

Four low probability wetlands (totaling 0.26 acre) were identified within the ROW of Alternative Route A (Attachment B, Map Tiles 5, 17 and 19). In addition, 36 low probability streams are estimated within the ROW for a total of 4,015 linear feet in length (Attachment B, Map Tiles 2 to 11, 13 to 15, and 18 to 20).

3.2 Alternative Route B

Alternative Route B is 9.6 miles long and crosses multiple named streams and headwater valleys in Campbell and Pittsylvania Counties and the Town of Altavista, Virginia (Attachment B, Map Tiles 1 to 20). It is generally located within the existing Altavista – Leesville 138-kV Transmission Line ROW before crossing the Roanoke River two times to avoid modifying the Opossum Creek – Smith Mountain 138-kV Transmission Line or building on steep slopes. Alternative Route B then parallels the Opossum Creek – Smith Mountain 138-kV Transmission Line between the Redeye Substation and the Leesville Substation. The ROW for Alternative

Route B contains an estimated total of 40 wetlands (totaling 13.88 acres) and 55 streams (totaling 6,522 linear feet). Additional details on the probability of the identified features are included below.

High Probability

Ten high probability wetlands (totaling 3.85 acres) were identified within the ROW of Alternative Route B (Attachment B, Map Tiles 1 to 2, 5, and 12 to 16). In addition, 14 high probability streams are estimated within the ROW for a total of 1,961 linear feet in length (Attachment B, Map Tiles 1, 4 to 5, 8 to 16, and 18).

Moderate Probability

Twenty-five moderate probability wetlands (totaling 9.76 acres) were identified within the ROW of Alternative Route B (Attachment B, Map Tiles 1, 4, and 9 to 18). In addition, 11 moderate probability streams are estimated within the ROW for a total of 1,217 linear feet in length (Attachment B, Map Tiles 1 to 2, 4, 6, 8 to 9, and 16 to 20).

Low Probability

Five low probability wetlands (totaling 0.27 acre) were identified within the ROW of Alternative Route B (Attachment B, Map Tiles 5, 9, 17, and 19). In addition, 30 low probability streams are estimated within the ROW for a total of approximately 3,344 linear feet in length (Attachment B, Map Tiles 2 to 8, 13 to 15, and 18 to 20).

3.3 Alternative Route C

Alternative Route C is 9.9 miles long and crosses multiple named streams and headwater valleys in Campbell and Pittsylvania Counties and the Town of Altavista, Virginia (Attachment B, Map Tiles 1 to 6, and 18 to 32). It is generally located within the existing Altavista – Leesville 138-kV Transmission Line ROW between the Altavista Substation and State Route 43 (Bedford Avenue), before turning south between Windsong Drive and Northgate Court. On the south side of the river, the route briefly parallels U.S. Highway 29 before turning southwest through undeveloped timber lands and crossing the Roanoke River once more. Following this final river crossing, the route parallels the Opossum Creek – Smith Mountain 138-kV Transmission Line to the Leesville Substation. The ROW for Alternative Route C contains an estimated total of 27 wetlands (totaling 7.60 acres) and 62 streams (totaling 7,008 linear feet). Additional details on the probability of the identified features are included below.

High Probability

Six high probability wetlands (totaling 1.77 acre) were identified within the ROW of Alternative Route C (Attachment B, Map Tiles 1 to 2, 5, 24, and 31 to 32). In addition, 13 high probability streams are estimated within the ROW for a total of 1,663 linear feet in length (Attachment B, Map Tiles 1, 4 to 5, 22 to 25, 27 to 29, and 31).

Moderate Probability

Eighteen moderate probability wetlands (totaling 5.58 acres) were identified within the ROW of Alternative Route C (Attachment B, Map Tiles 1, 4, 22 to 25, 28 to 29, and 31 to 32). In addition, 13 moderate probability streams are estimated within the ROW for a total of 1,918 linear feet in length (Attachment B, Map Tiles 1 to 2, 4, 6, 19 to 21, 24 to 25, 28, and 31).

Low Probability

Three low probability wetlands (totaling 0.25 acre) were identified within the ROW of Alternative Route C (Attachment B, Map Tiles 5 and 19). In addition, 36 low probability streams are estimated within the ROW for a total of 3,427 linear feet in length (Attachment B, Map Tiles 2 to 6, 18 to 24, and 26 to 31).

4. Conclusion

A summary of the desktop wetland and stream resources identified for the Project is provided in Table 5. The Proposed Route for the Project is composed of the one-mile rebuild within the existing ROW of the Altavista – Lynchburg 138-kV Transmission Line between the Altavista Substation and Otter Switch and Alternative Route A between the Altavista and Leesville Substations.

There are three alternative routes between the Company's Leesville Substation and the Company's Otter Switch. Alternative Route A, which was selected as the Proposed Route, includes an estimated 44 wetlands with a total combined area of 15.50 acres and crosses 64 streams with a total combined linear footage of 8,200 feet. Alternative Route B includes an estimated 40 wetlands with a combined total of 13.88 acres and crosses 55 streams with a total combined linear footage of 6,522 feet. Alternative Route C includes an estimated 27 wetlands with a total combined of 7.60 acres and crosses 62 streams with a total combined linear footage of 7,008 feet.

The three alternative routes cross a similar number of high, moderate, and low probability streams. Alternative Routes A and B have a higher number of wetlands compared to Alternative C; however, this may be the result of Alternative Routes A and B being associated with previous disturbances due to an existing ROW whereas Alternative Route C is not. While three alternative routes cross a similar number of high, moderate, and low probability streams, Alternative Route B would require two additional crossings of the Roanoke River, which is a Traditionally Navigable Water. Overall, Alternative Route A (11.0 miles) is longer than Alternative Route B (9.6 miles) and Alternative Route C (9.9 miles); however, Alternative Route A would likely result in fewer environmental impacts as it is located within the existing Altavista – Leesville 138-kV and Reusens – Altavista 138-kV Transmission Line ROWs and parallels the existing Opossum Creek – Smith Mountain 138-kV Transmission Line ROW, which was preferred by the public and follows federal and state guidelines.

Strategic siting of transmission structures/foundations and construction access roads should minimize impacts to regulated resources. During the engineering design, regulated resources will be avoided to the extent feasible and those features that cannot be avoided will be impacted to the minimum area required. In most cases, wetlands and streams can be spanned by a transmission line; however, ROW clearing may still result in permanent conversion of forested wetlands depending on canopy height. Impacts to wetlands from access roads and clearing equipment can be minimized through the use of temporary timber matting. In some cases, temporary timber mat bridges can also be used to span stream channels. Any impacts to regulated resources will be permitted with the USACE, Virginia Department of Environmental Quality, and the Virginia Marine Resources Commission, as applicable.

The results of this Desktop Wetland and Stream Delineation are intended solely for use as an indication of probable wetlands and streams within the proposed and alternative ROWs associated with the Project. This analysis is designed for planning purposes only and does not represent the results of an on-the-ground wetland and stream field delineation. Accurate determination of regulated resource boundaries is only possible through field delineations of wetlands and streams utilizing the USACE wetland delineation manual (Environmental Laboratory 1987), the applicable regional supplement (USACE 2012), and other appropriate regulatory guidance.

Table 5: Summary of Desktop Wetland and Stream Delineations

Types	Alternative Route A (Proposed Route)		Alternative B		Alternative Route C	
	Number of Occurrences	Acreage/Linear Footage within ROW	Number of Occurrences	Acreage/Linear Footage within ROW	Number of Occurrences	Acreage/Linear Footage within ROW
Wetland	44	15.50	40	13.88	27	7.60
Stream	64	8,200	55	6,522	62	7,008

5. References

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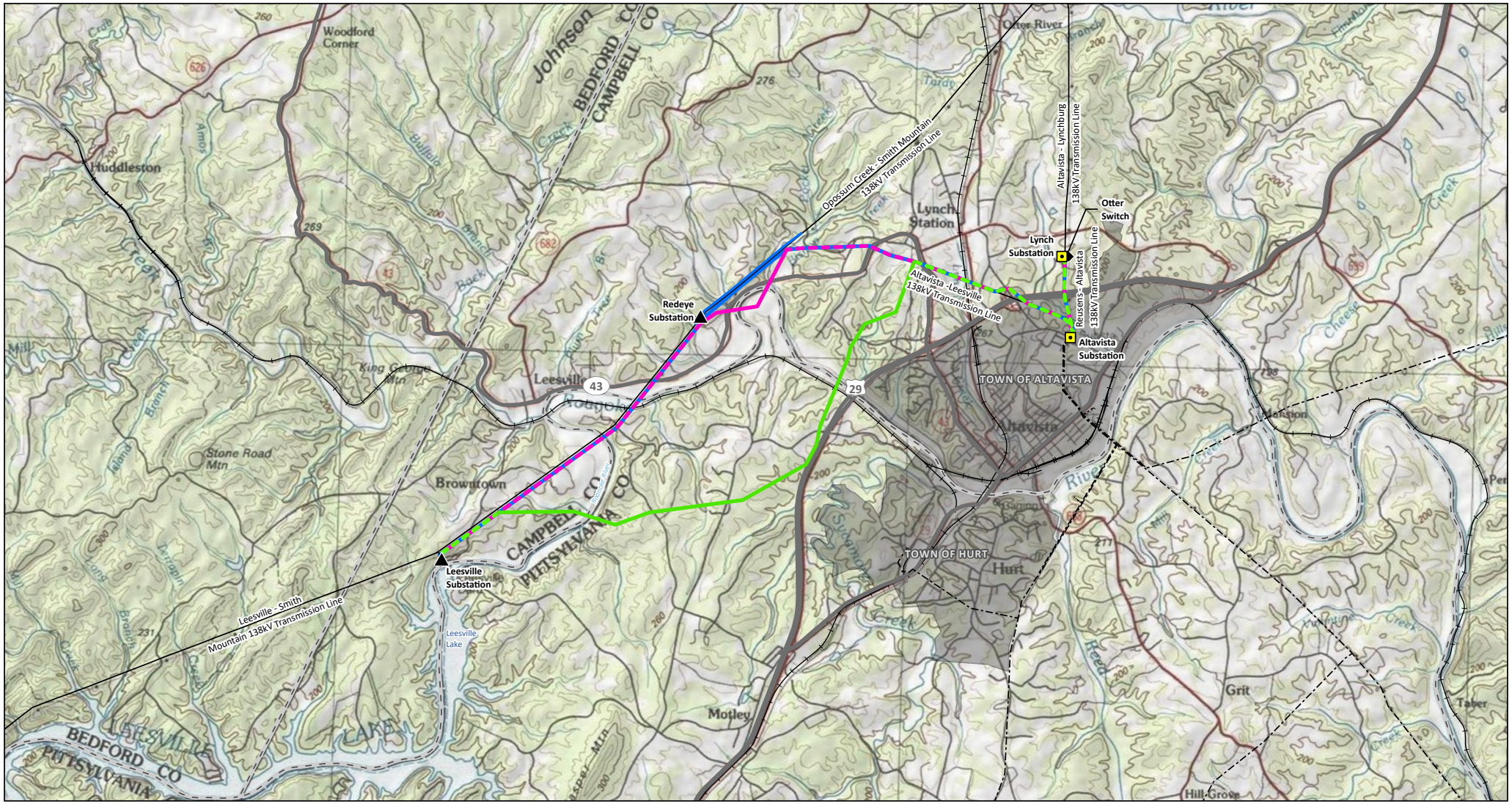
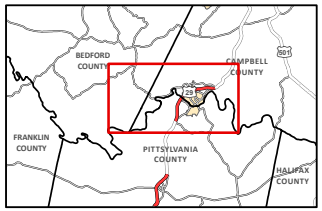
Attachment A: Project Location Map





- Proposed Route (Alternative Route A)
- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- Proposed Route (Alternatative Route A), Alternative Route B
- Alternative Route B
- Alternative Route C
- APCo Existing Substation
- APCo Existing Switch
- Non - AEP Existing Substation
- Existing Non-APCo Transmission Line
- Existing Transmission Line
- Highway
- Railroad
- Town Boundary
- County Boundary

Town of Altavista, Campbell and Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 2

Miles

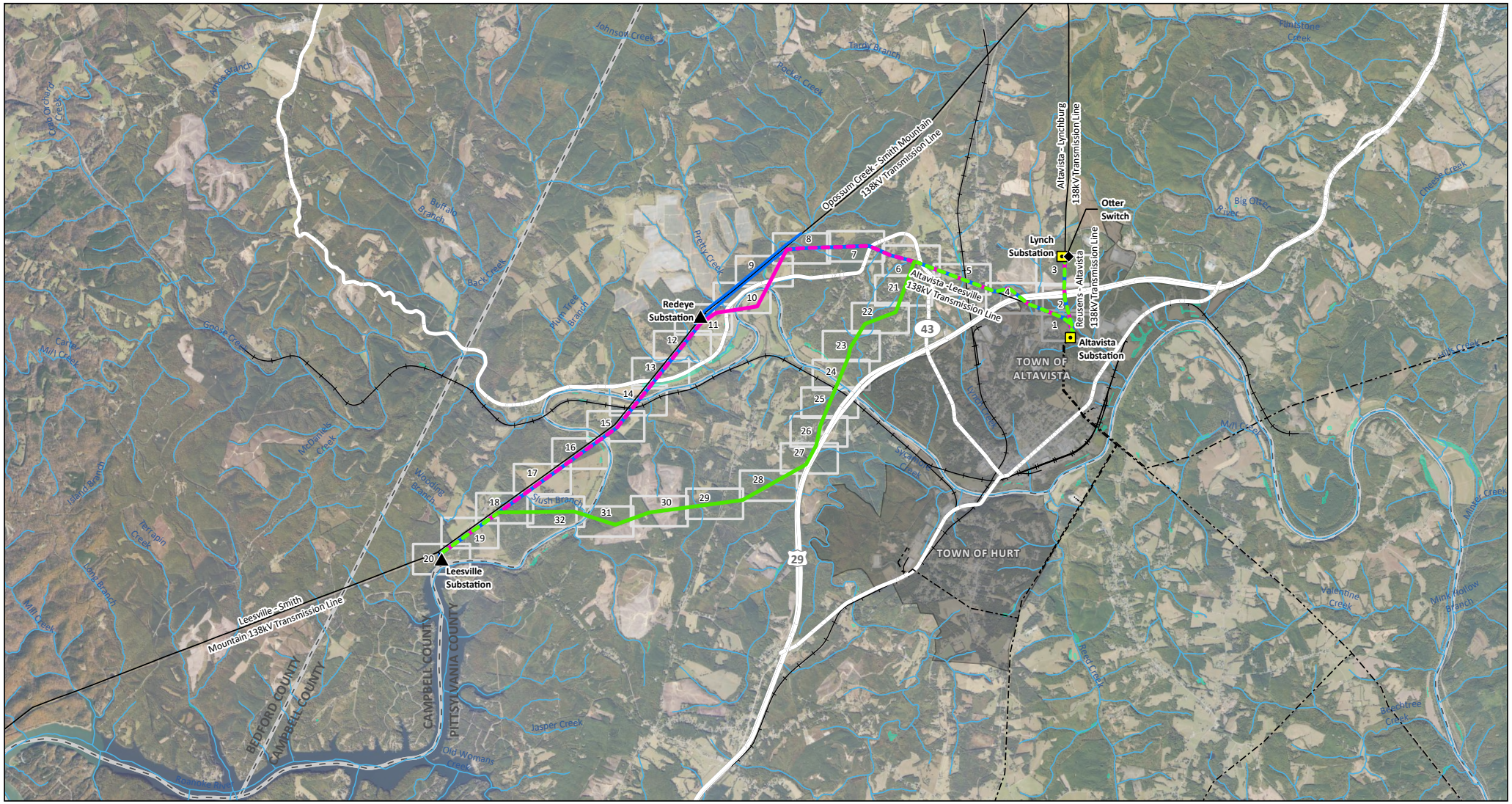
1" = 1 miles

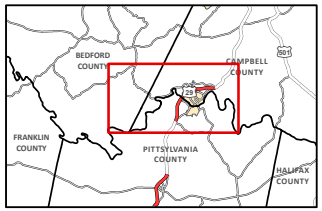
Attachment A: Project Location Map

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

Attachment B: Desktop Stream and Wetland Delineation Map





- APCo Existing Substation
- APCo Existing Switch
- Non - AEP Existing Substation
- Proposed Route (Alternative Route A)
- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- Proposed Route (Alternative Route A), Alternative Route B
- Alternative Route B
- Alternative Route C
- Existing Non-APCo Transmission Line
- Highway
- Railroad
- Stream (3DHP)
- Wetland (NWI)
- Town Boundary
- County Boundary

Town of Altavista, Campbell and Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 2

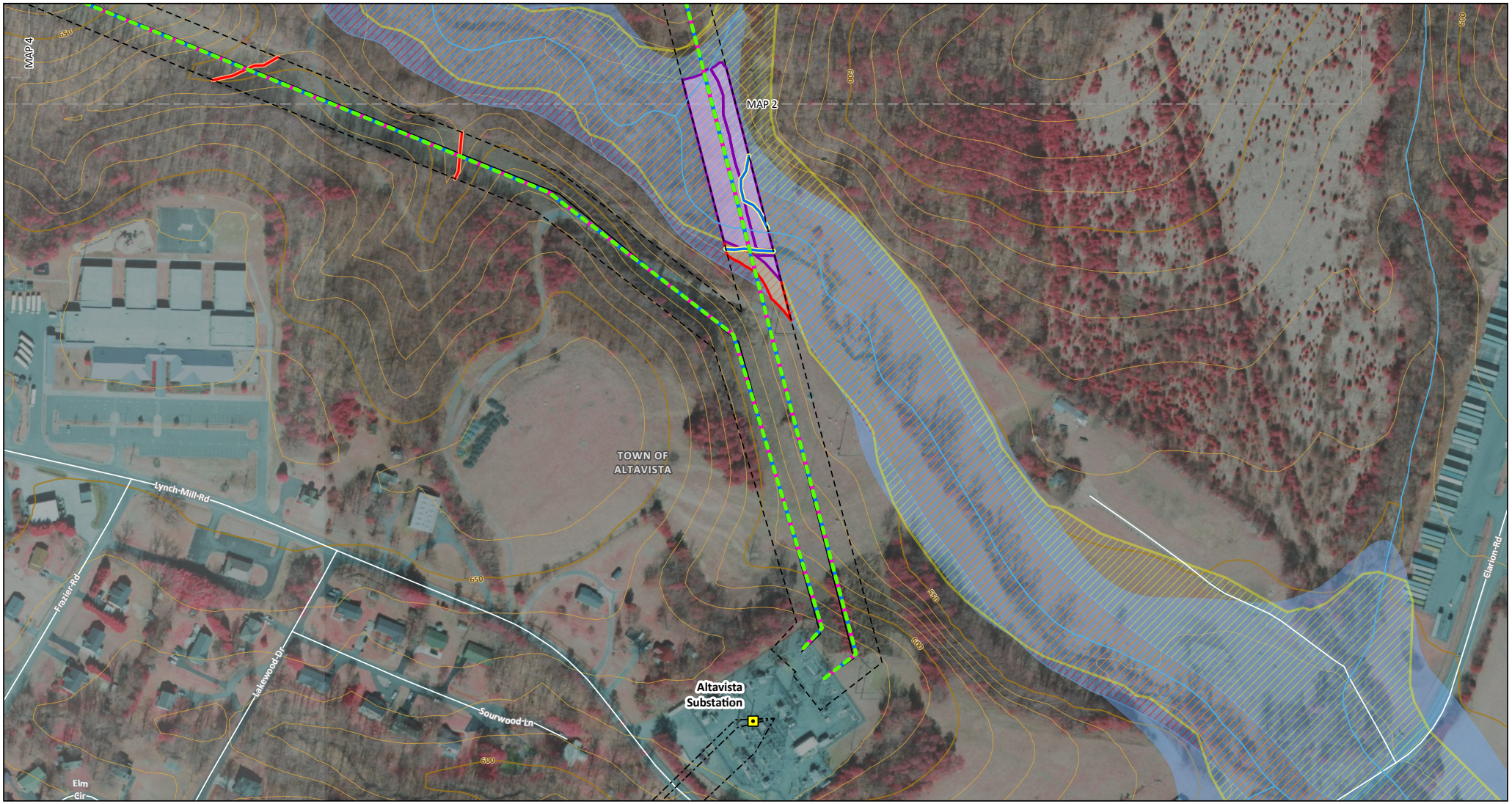
Miles

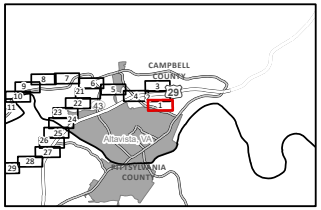
1" = 1 miles

Attachment B: Desktop Stream and Wetland Delineation Index

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- High Probability Stream
- Moderate Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Non - AEP Existing Substation
- Existing Non-APCo Transmission Line
- Existing Transmission Line
- Road
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Town Boundary
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Town of Altavista, Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

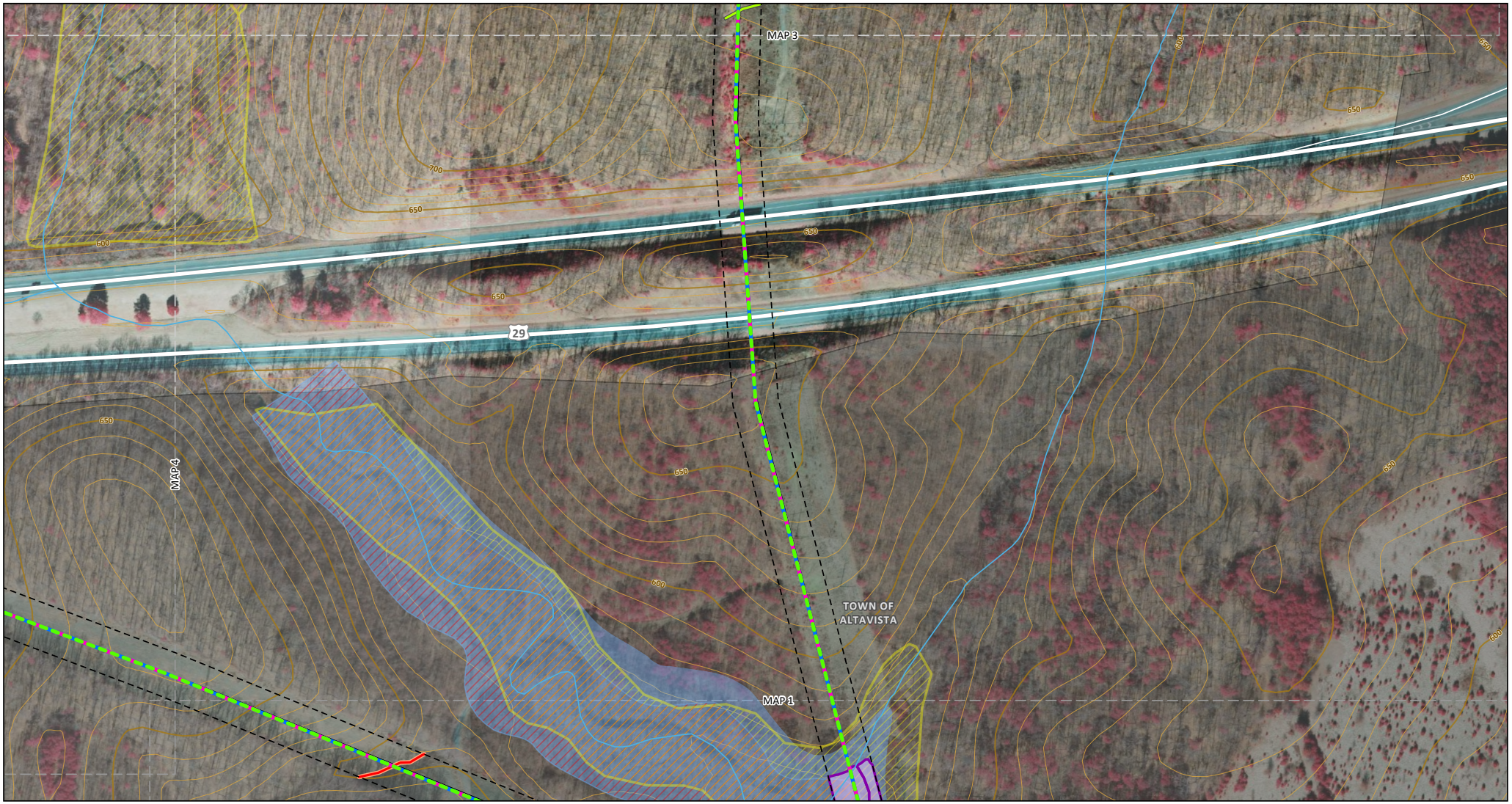
Feet

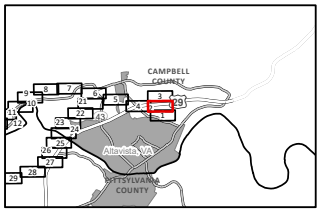
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 1 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- Moderate Probability Stream
- Low Probability Stream
- High Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Highway
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Town Boundary
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Town of Altavista, Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

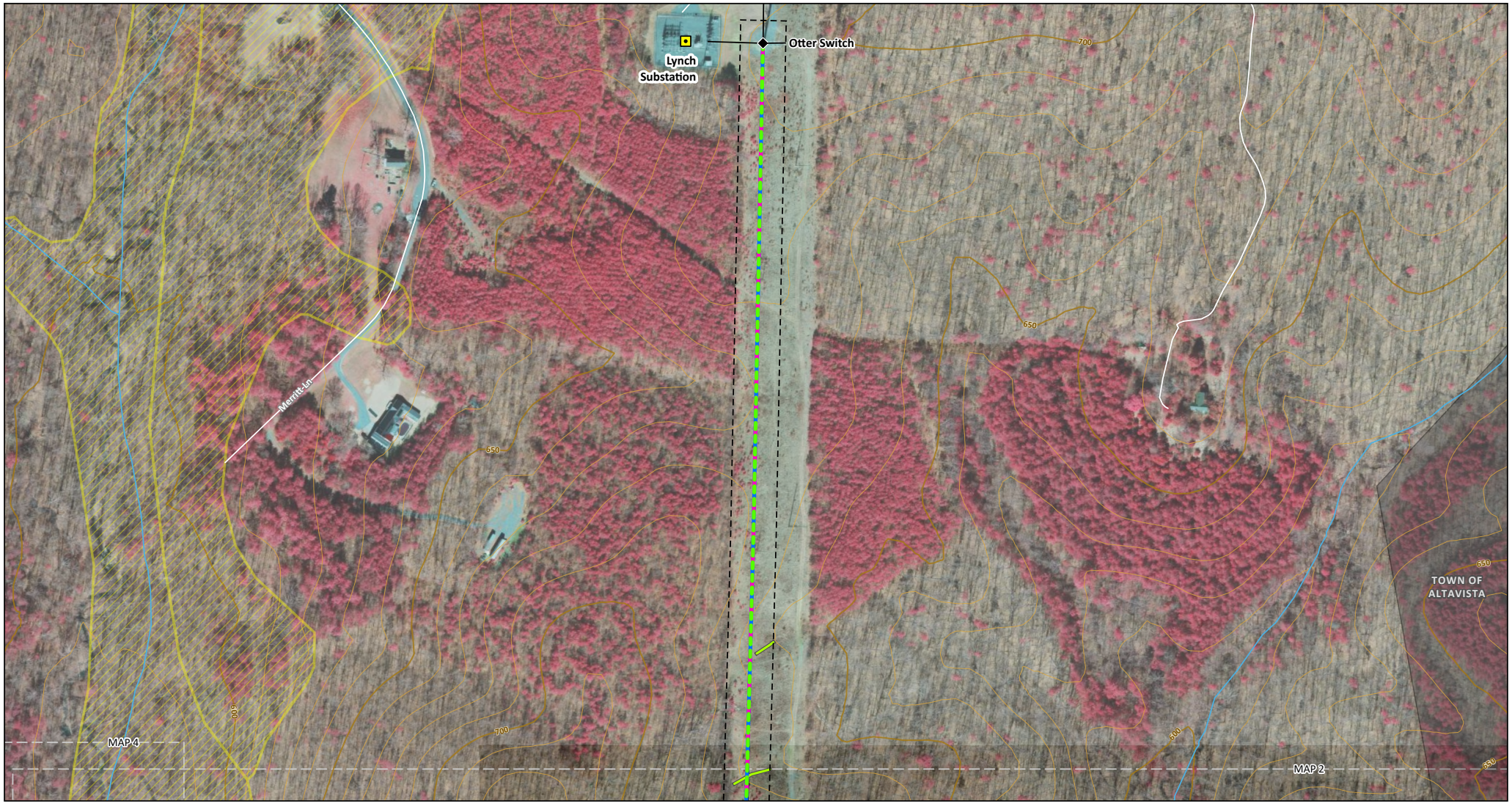
Feet

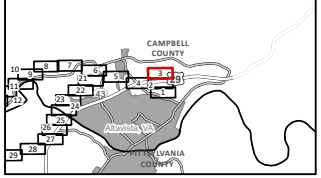
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 2 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- Low Probability Stream
- Proposed Right-of-Way (100')
- APCo Existing Switch
- Non - AEP Existing Substation
- Existing Transmission Line
- Road
- Stream (3DHP)
- Hydric Soil
- Town Boundary
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Town of Altavista,
Campbell County,
Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

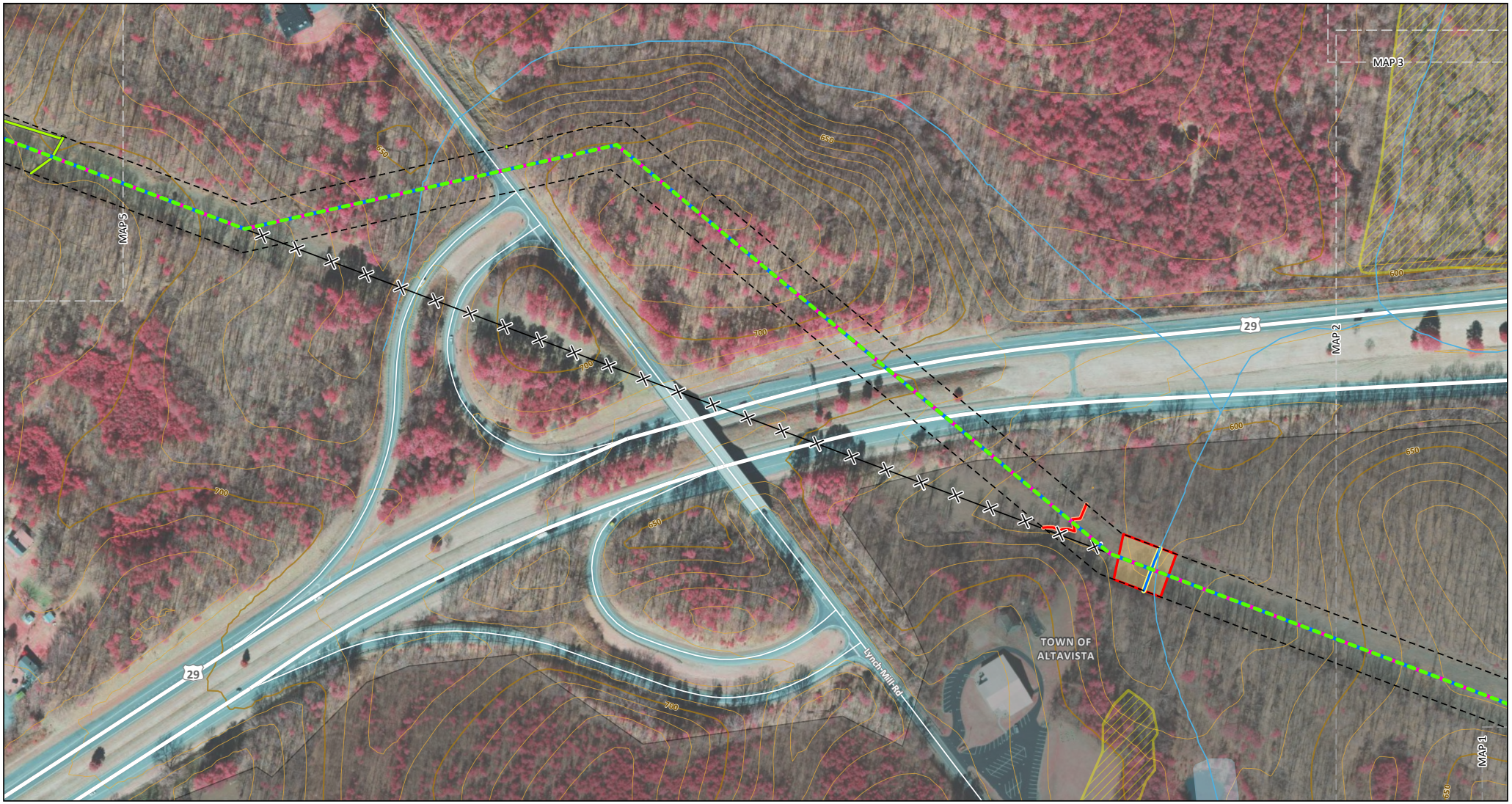
Feet

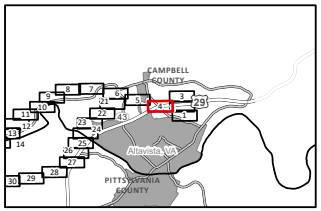
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 3 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville
Transmission Improvements
Project





- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- High Probability Stream
- Moderate Probability Stream
- Low Probability Stream
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Existing Alignment to be Removed
- Existing Transmission Line
- Road
- Highway
- Stream (3DHP)
- Hydric Soil
- Town Boundary
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Town of Altavista, Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

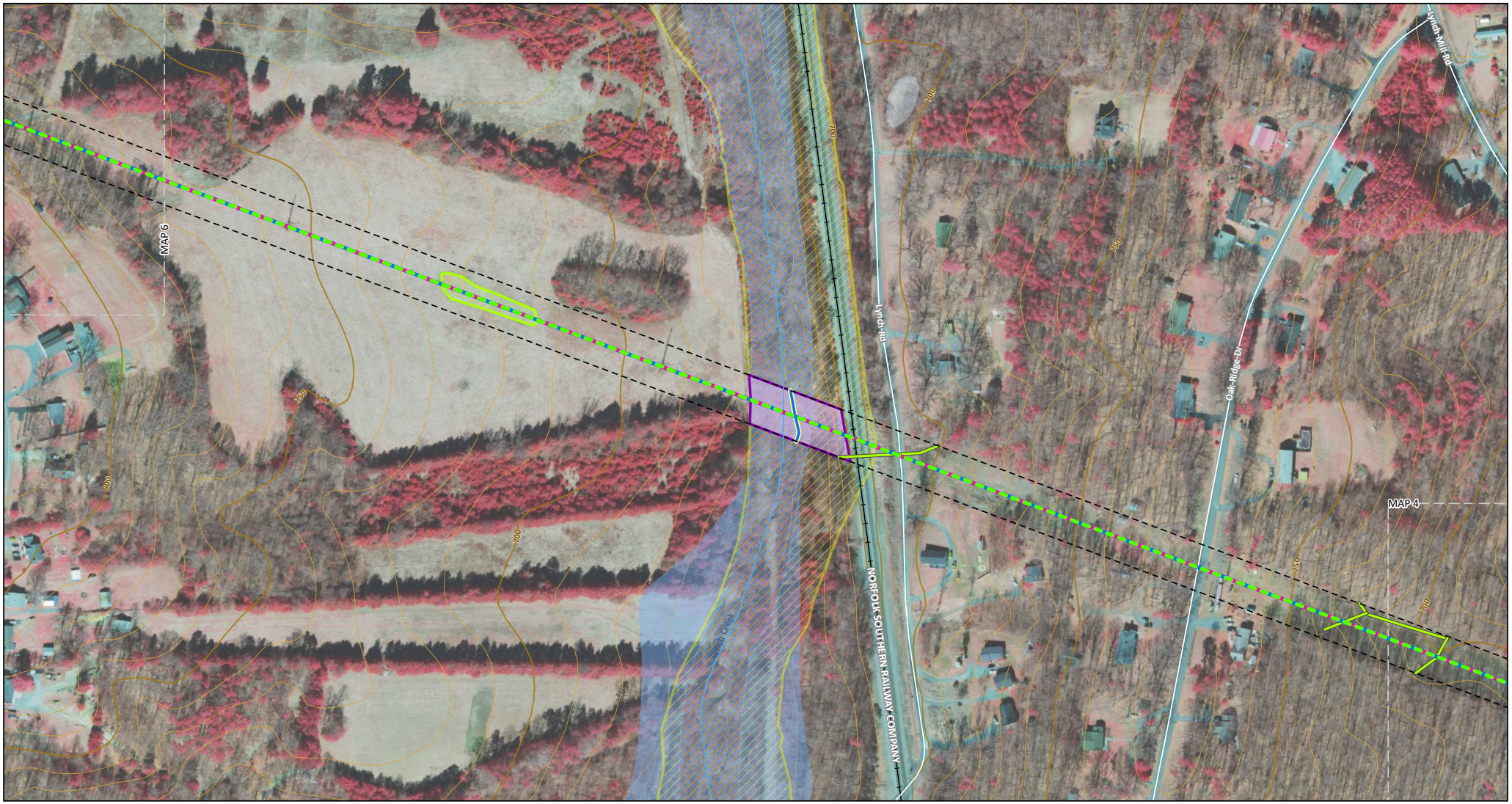
Feet

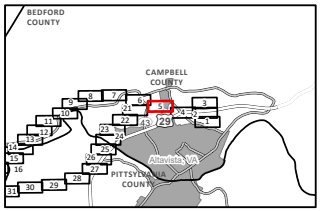
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 4 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- High Probability Stream
- Low Probability Stream
- High Probability Wetland
- Low Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Highway
- Railroad
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

Feet

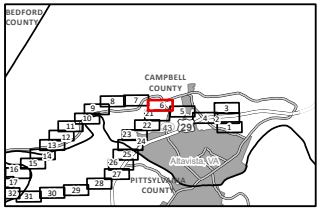
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 5 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- Proposed Route (Alternative Route A), Alternative Route B
- Alternative Route C
- Moderate Probability Stream
- Low Probability Stream
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Highway
- Stream (3DHP)
- Hydric Soil
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

Feet

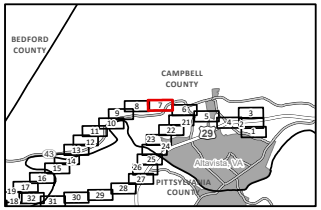
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 6 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B
- Low Probability Stream
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Highway
- Stream (3DHP)
- Hydric Soil
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

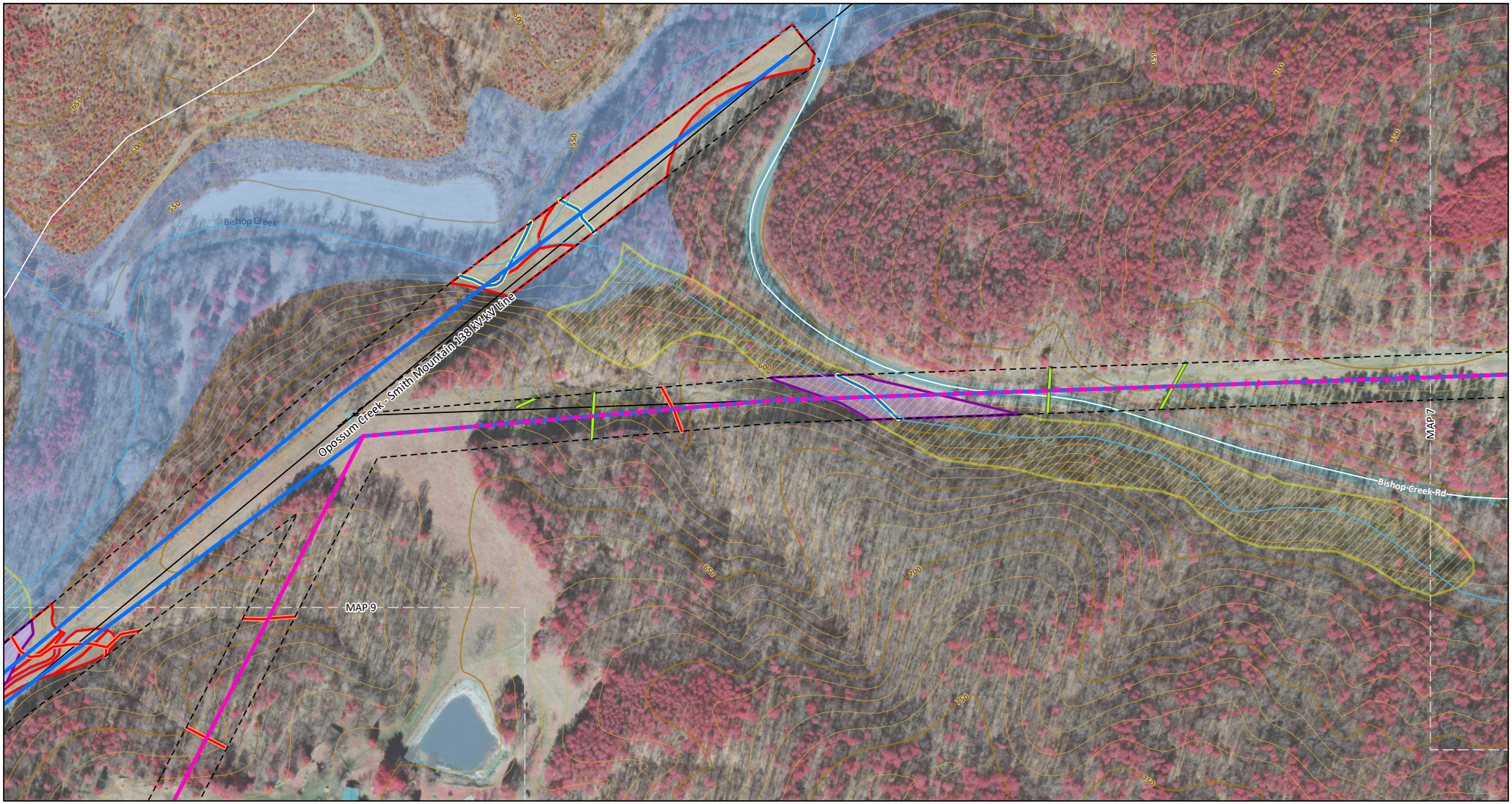
Feet

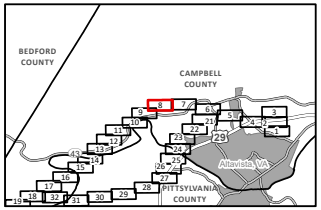
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 7 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A)
- Proposed Route (Alternative Route A), Alternative Route B
- Alternative Route B
- High Probability Stream
- Moderate Probability Stream
- Low Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Hydric Soil
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

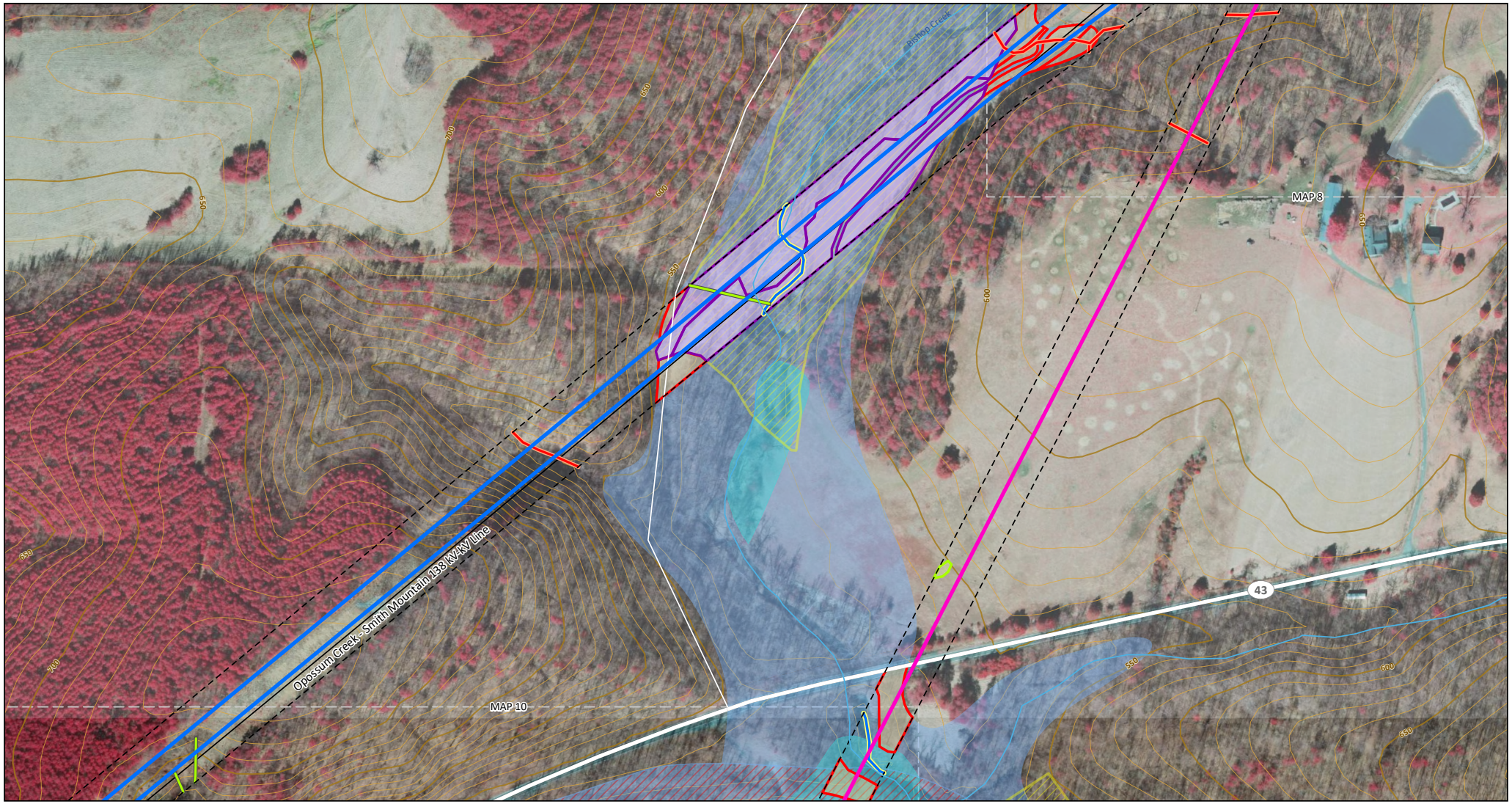
Feet

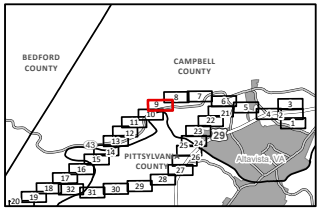
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 8 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A)
- Alternative Route B
- High Probability Stream
- Moderate Probability Stream
- Low Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Low Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Highway
- Stream (3DHP)
- Wetland (NWI)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

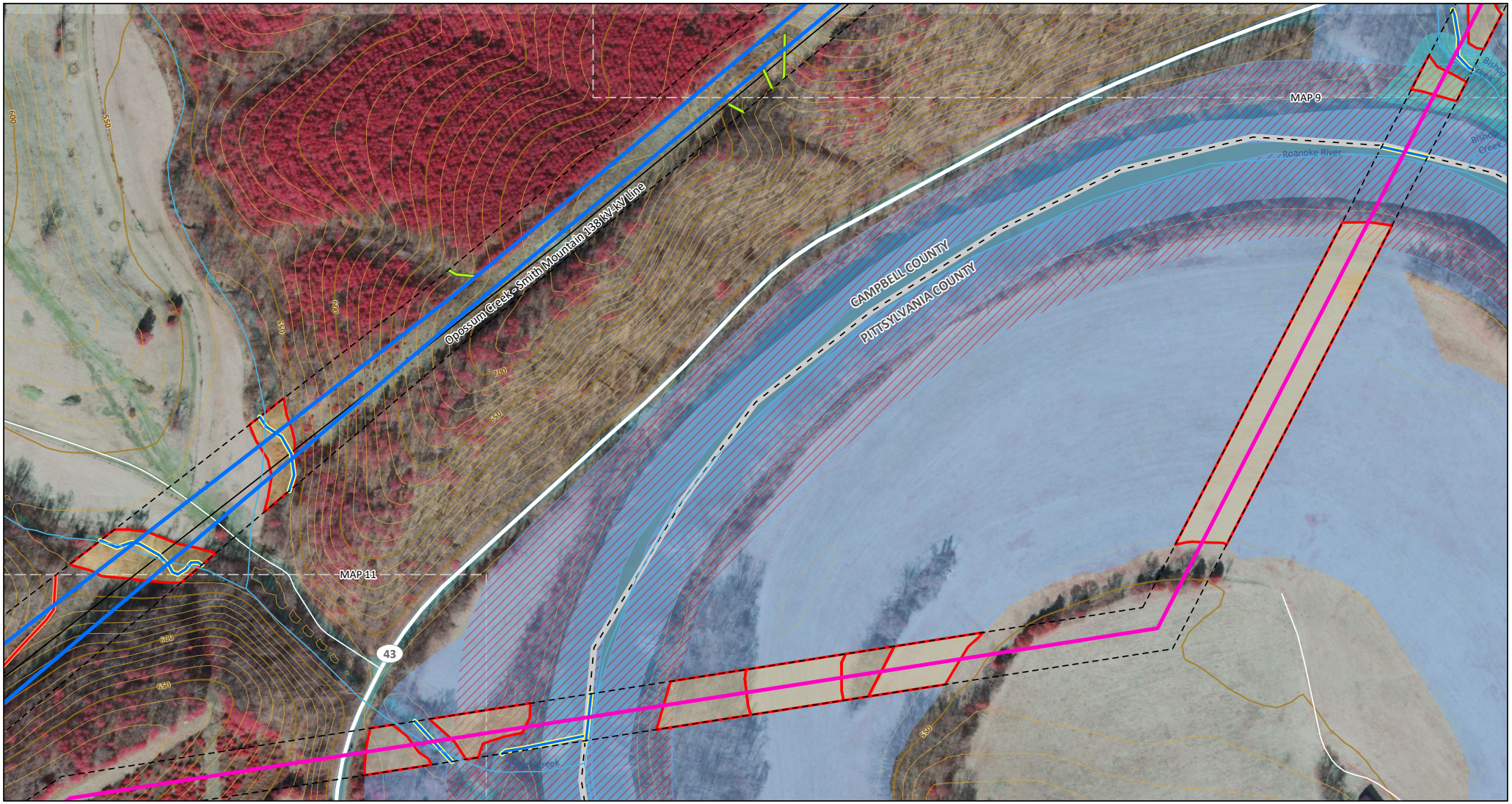
Feet

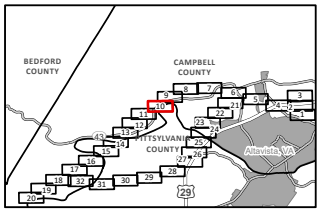
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 9 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A)
- Alternative Route B
- High Probability Stream
- Moderate Probability Stream
- Low Probability Stream
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Highway
- Stream (3DHP)
- Wetland (NWI)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Campbell & Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

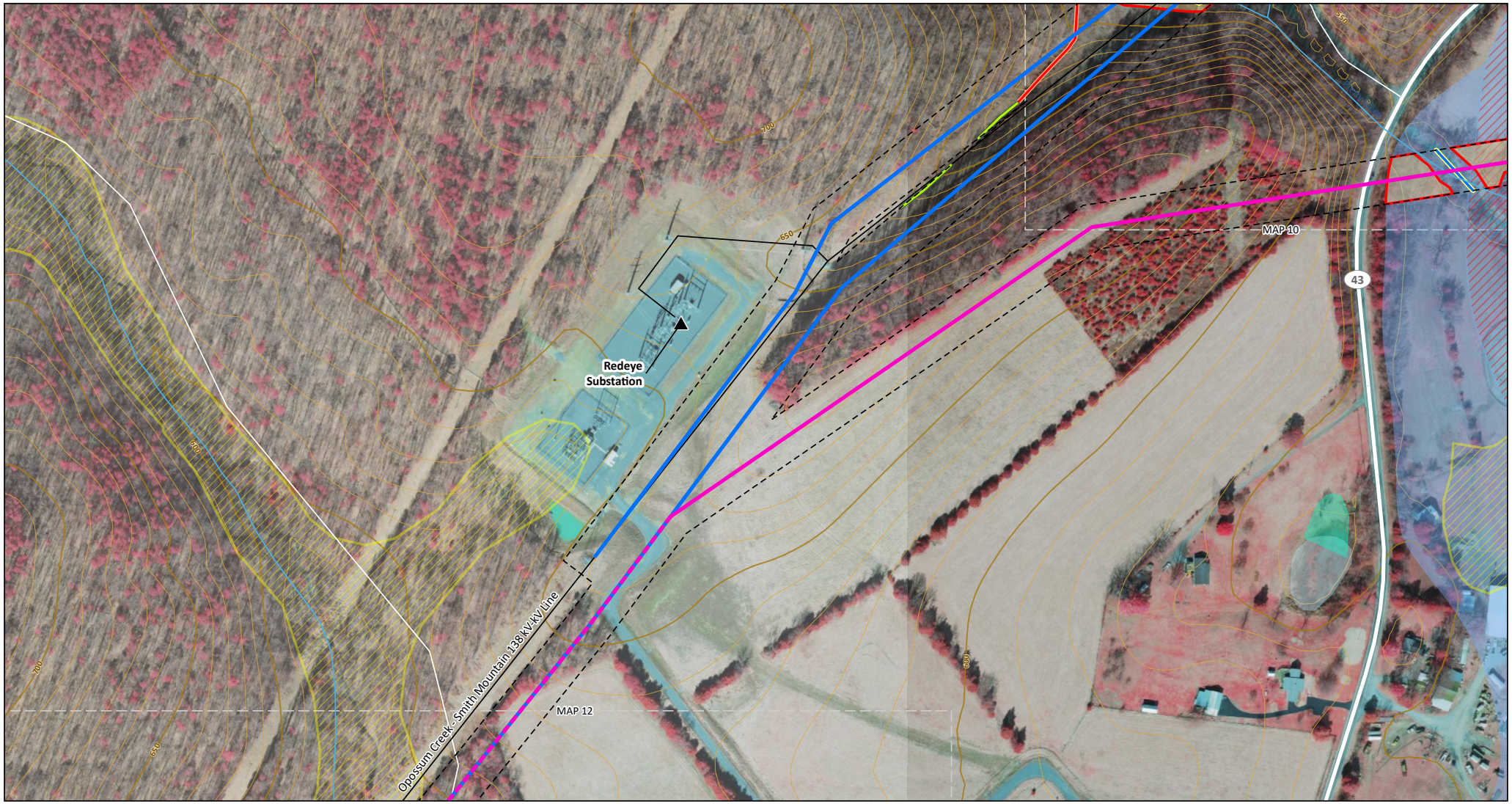
Feet

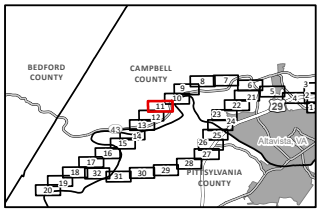
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 10 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A)
- Proposed Route (Alternative Route A), Alternative Route B
- Alternative Route B
- High Probability Stream
- Moderate Probability Stream
- Low Probability Stream
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- APCo Existing Substation
- Existing Transmission Line
- Road
- Highway
- Stream (3DHP)
- Wetland (NWI)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

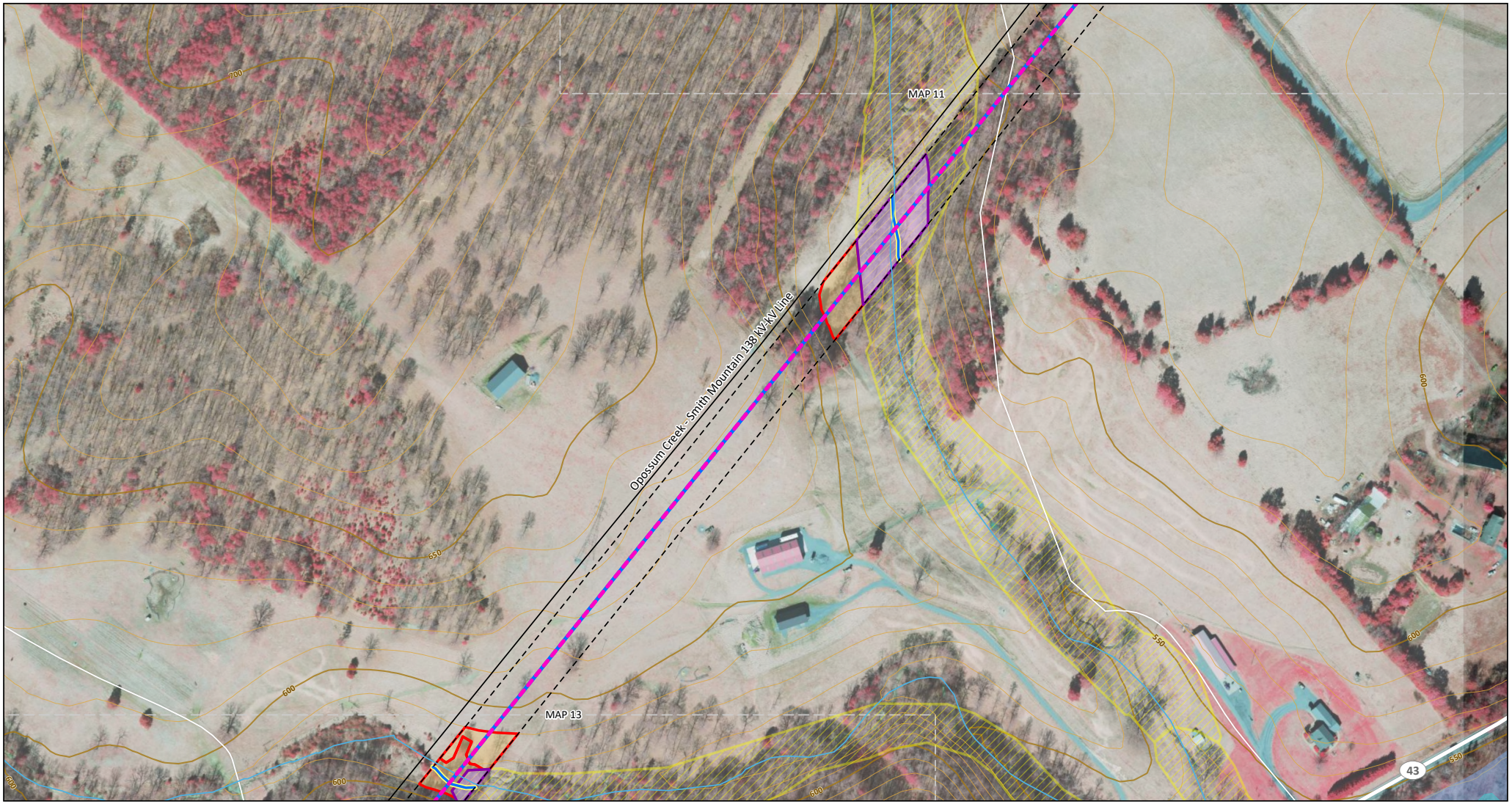
Feet

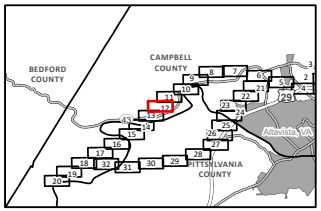
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 11 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B
- High Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Highway
- Stream (3DHP)
- Wetland (NWI)
- 100-year Floodplain (FEMA)
- Hydric Soil
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

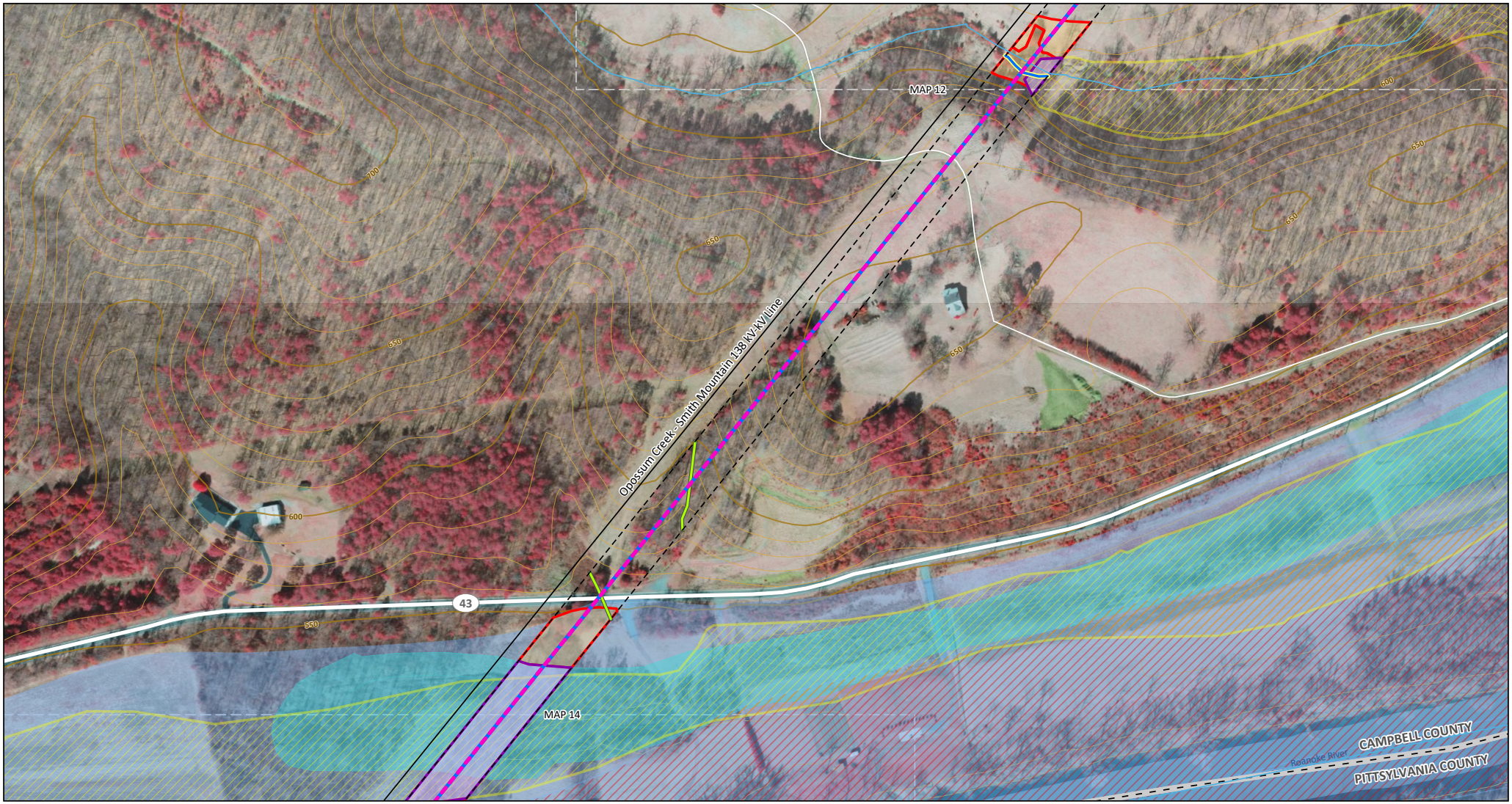
Feet

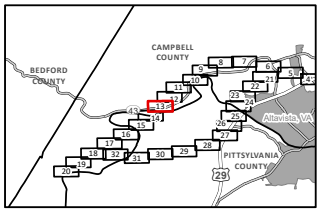
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 12 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B
- High Probability Stream
- Low Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Highway
- Stream (3DHP)
- Wetland (NWI)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Campbell & Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

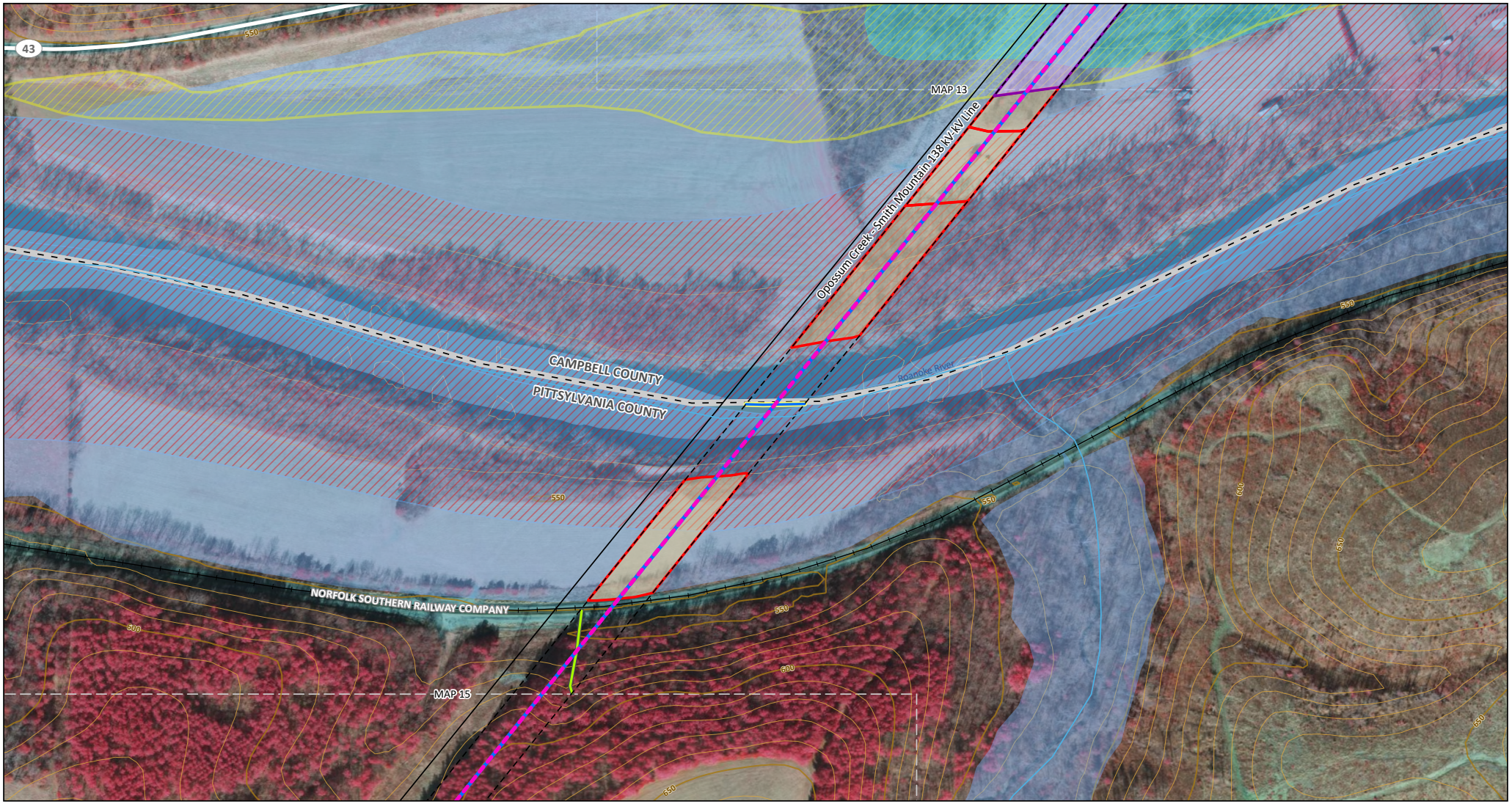
Feet

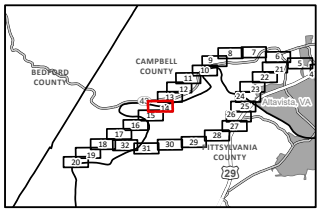
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 13 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B
- High Probability Stream
- Low Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Highway
- Railroad
- Stream (3DHP)
- Wetland (NWI)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Campbell & Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

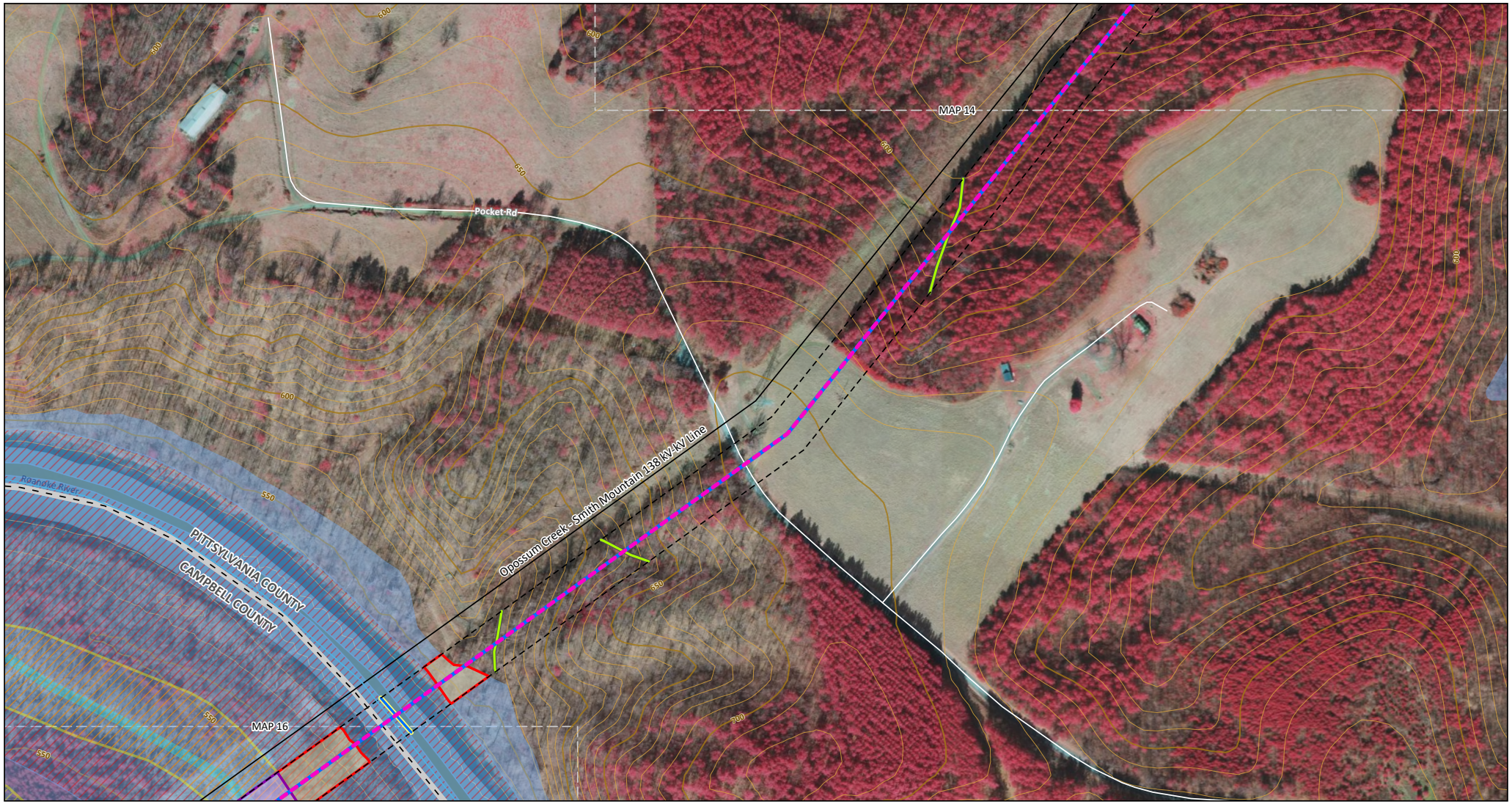
Feet

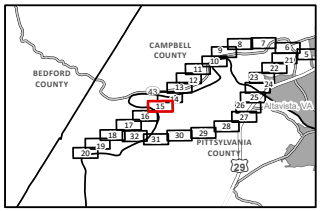
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 14 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B
- High Probability Stream
- Low Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Stream (3DHP)
- Wetland (NWI)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Campbell & Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

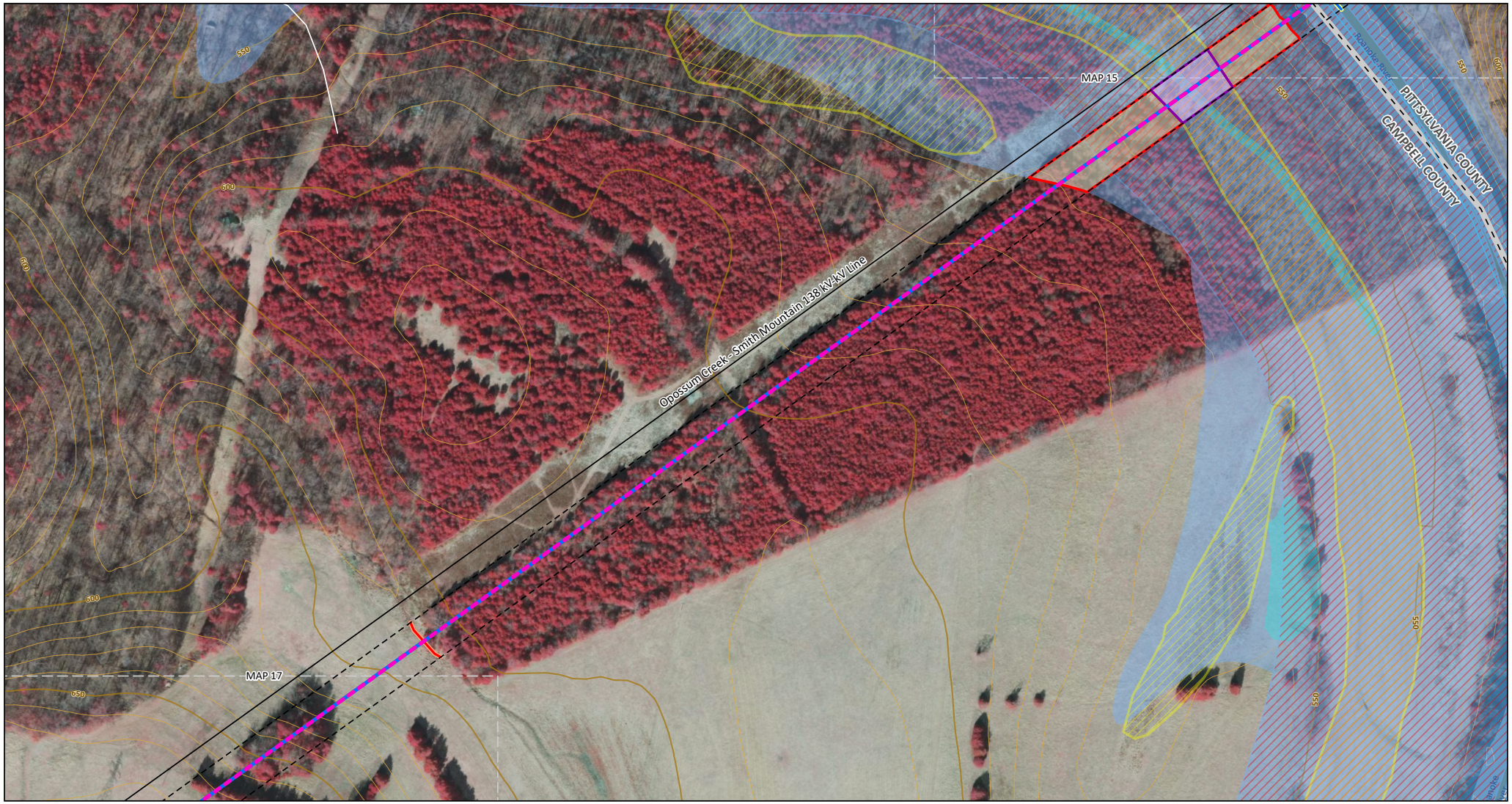
Feet

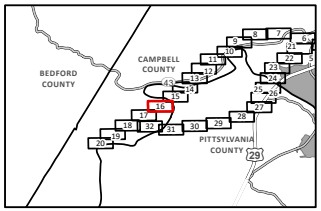
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 15 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B
- High Probability Stream
- Moderate Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Stream (3DHP)
- Wetland (NWI)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Campbell & Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

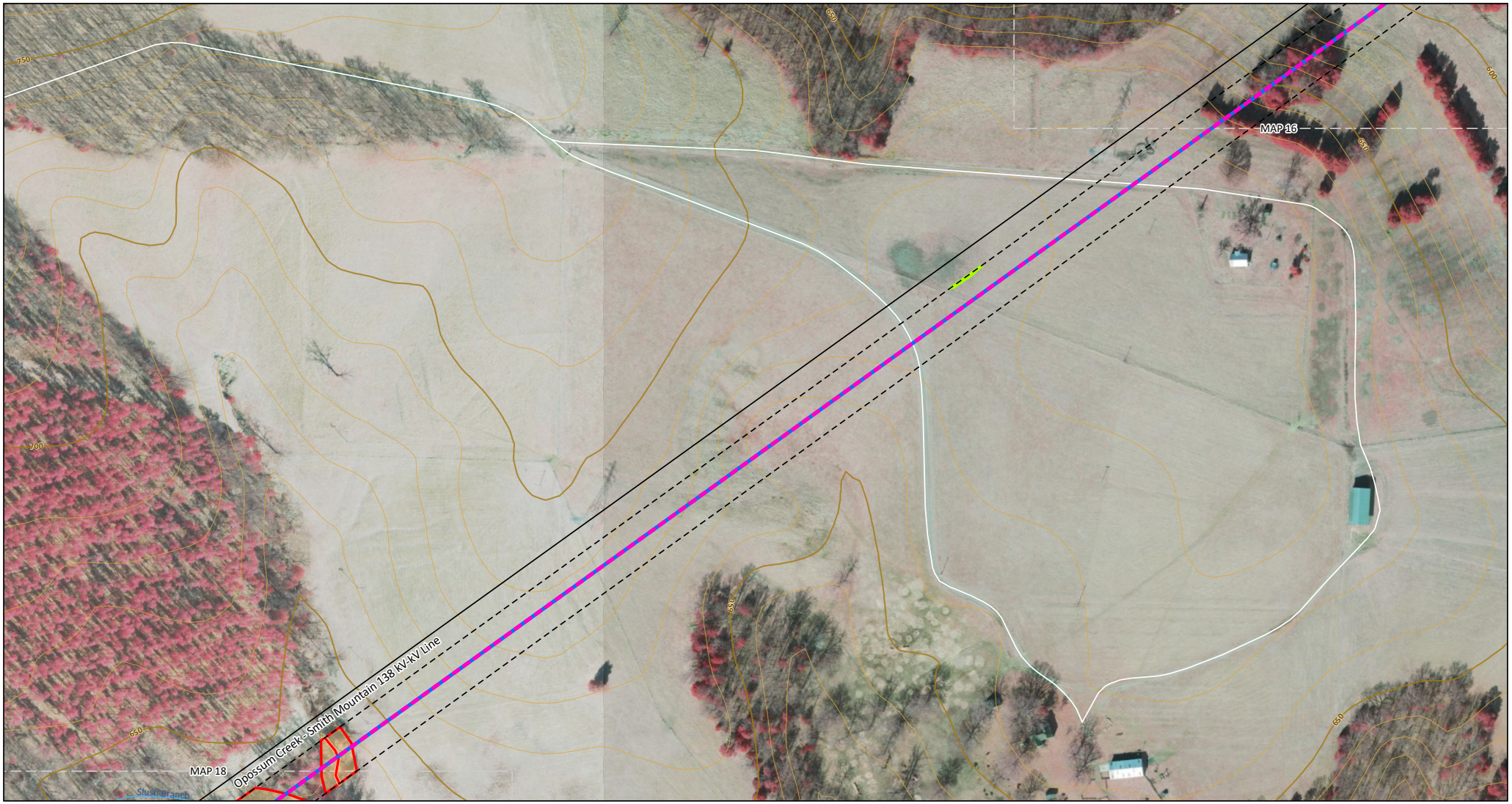
Feet

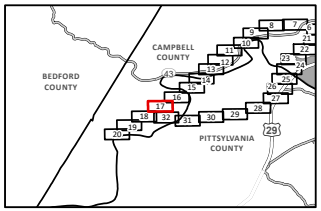
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 16 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B
- Moderate Probability Stream
- Moderate Probability Wetland
- Low Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Stream (3DHP)
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

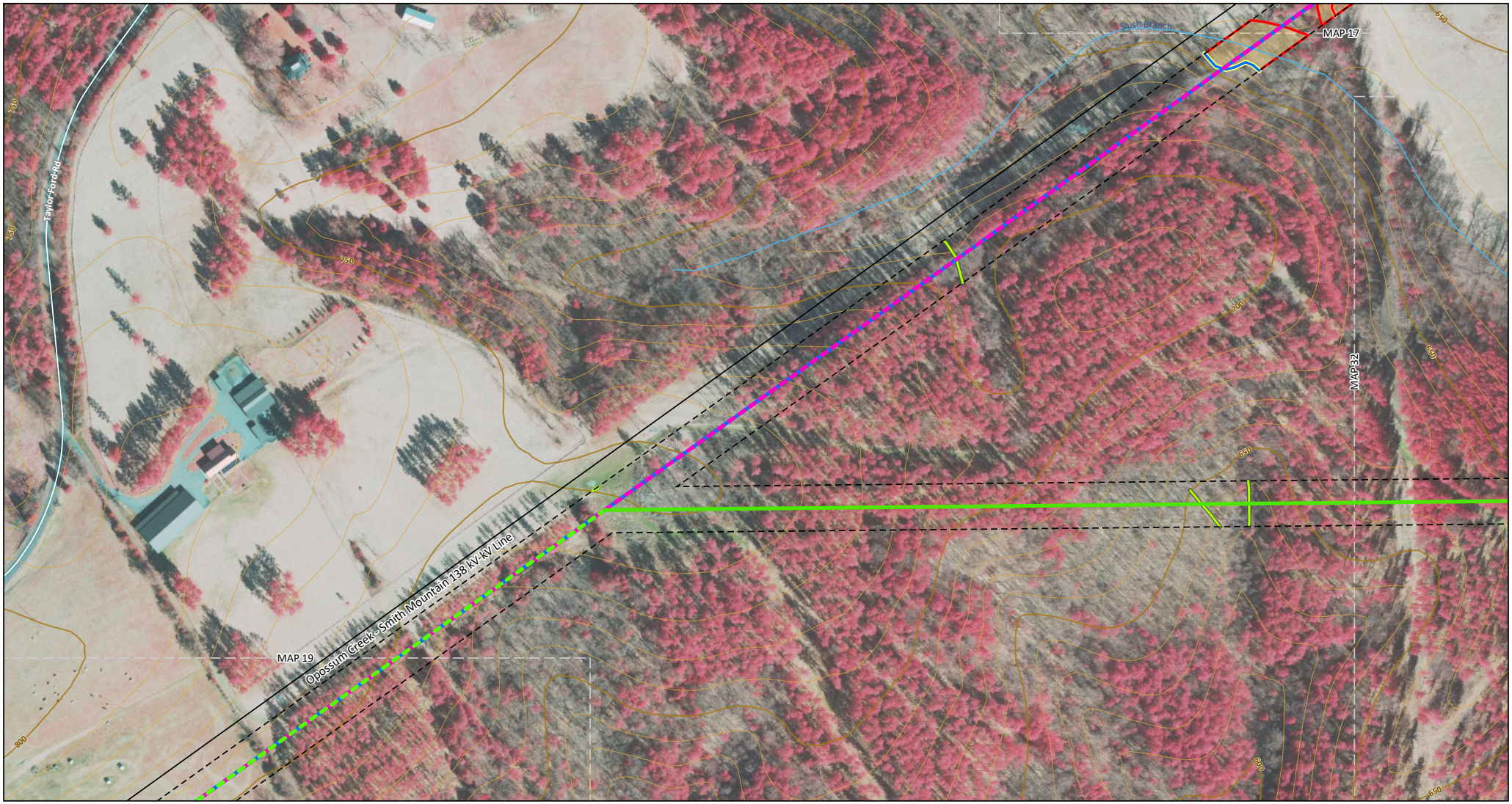
Feet

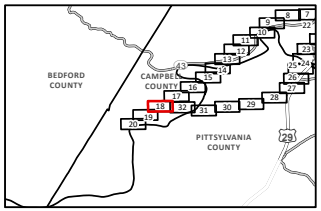
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 17 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- Proposed Route (Alternative Route A), Alternative Route B
- Alternative Route C
- High Probability Stream
- Moderate Probability Stream
- Low Probability Stream
- Moderate Probability Wetland
- Low Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Stream (3DHP)
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

Feet

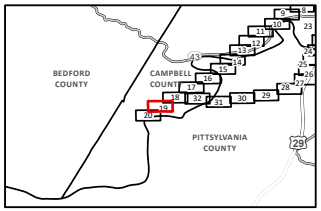
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 18 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- Moderate Probability Stream
- Low Probability Stream
- Low Probability Wetland
- Proposed Right-of-Way (100')
- Existing Transmission Line
- Road
- Stream (3DHP)
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

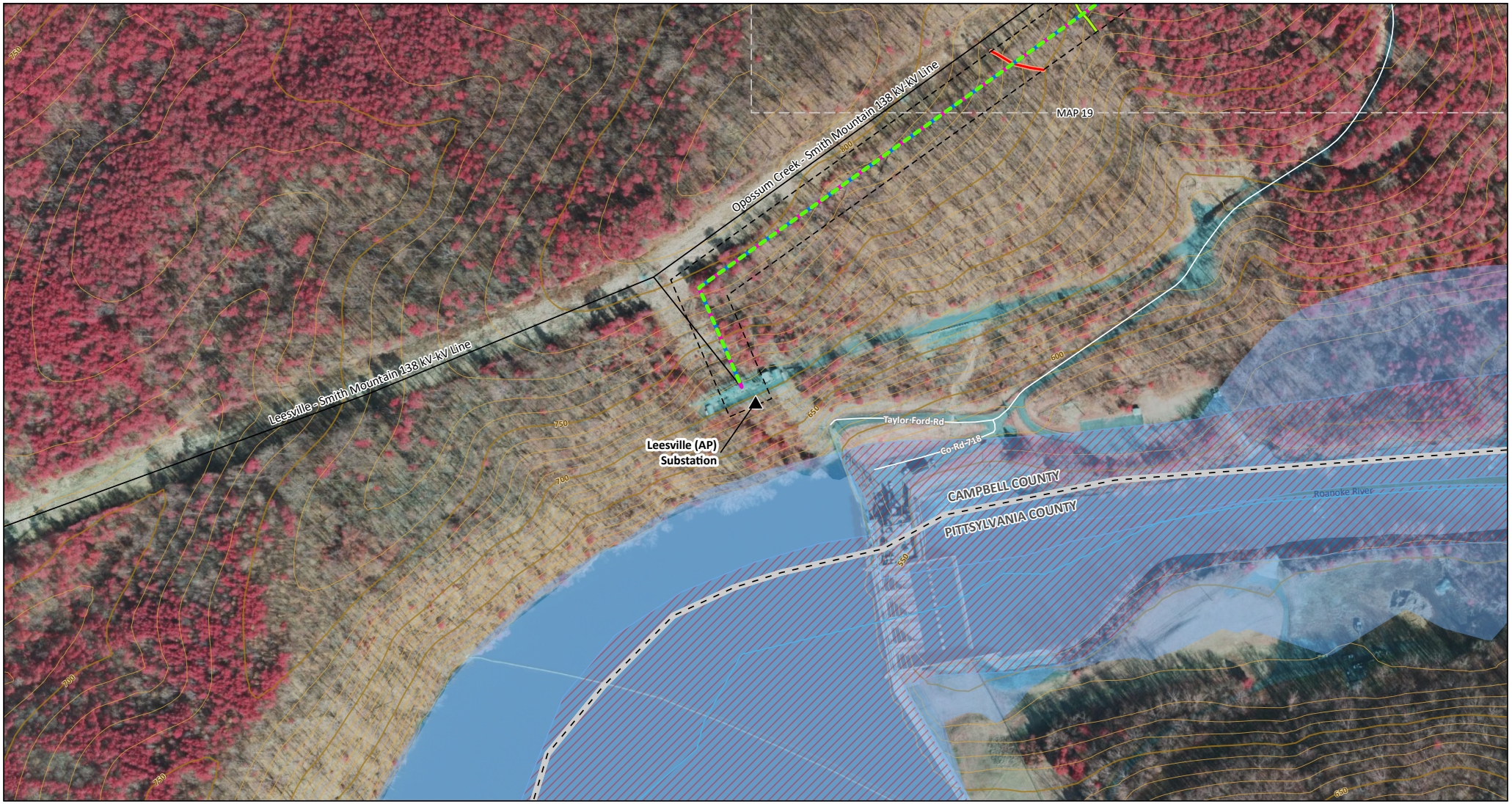
Feet

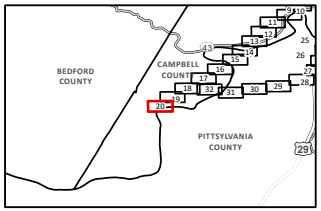
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 19 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Proposed Route (Alternative Route A), Alternative Route B, Alternative Route C
- Moderate Probability Stream
- Low Probability Stream
- Proposed Right-of-Way (100')
- APCo Existing Substation
- Existing Transmission Line
- Road
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Campbell & Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

Feet

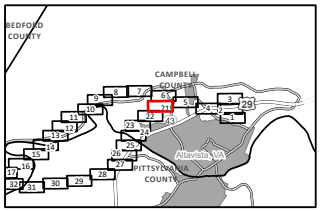
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 20 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- Moderate Probability Stream
- Low Probability Stream
- Proposed Right-of-Way (100')
- Road
- Highway
- Stream (3DHP)
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

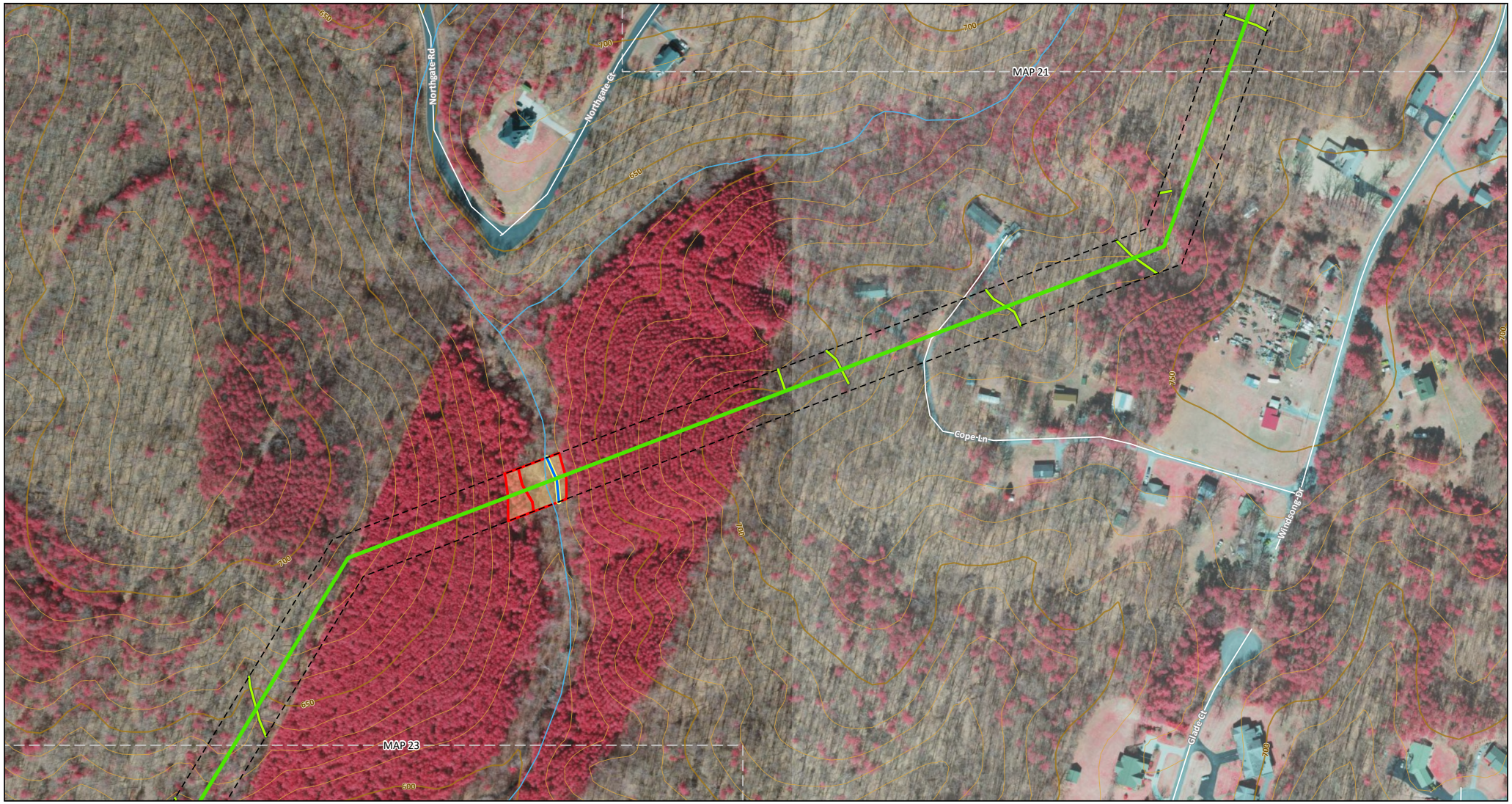
Feet

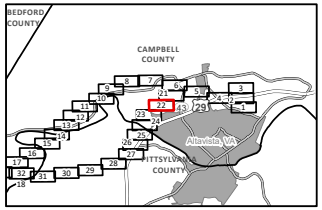
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 21 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- High Probability Stream
- Low Probability Stream
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Road
- Stream (3DHP)
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

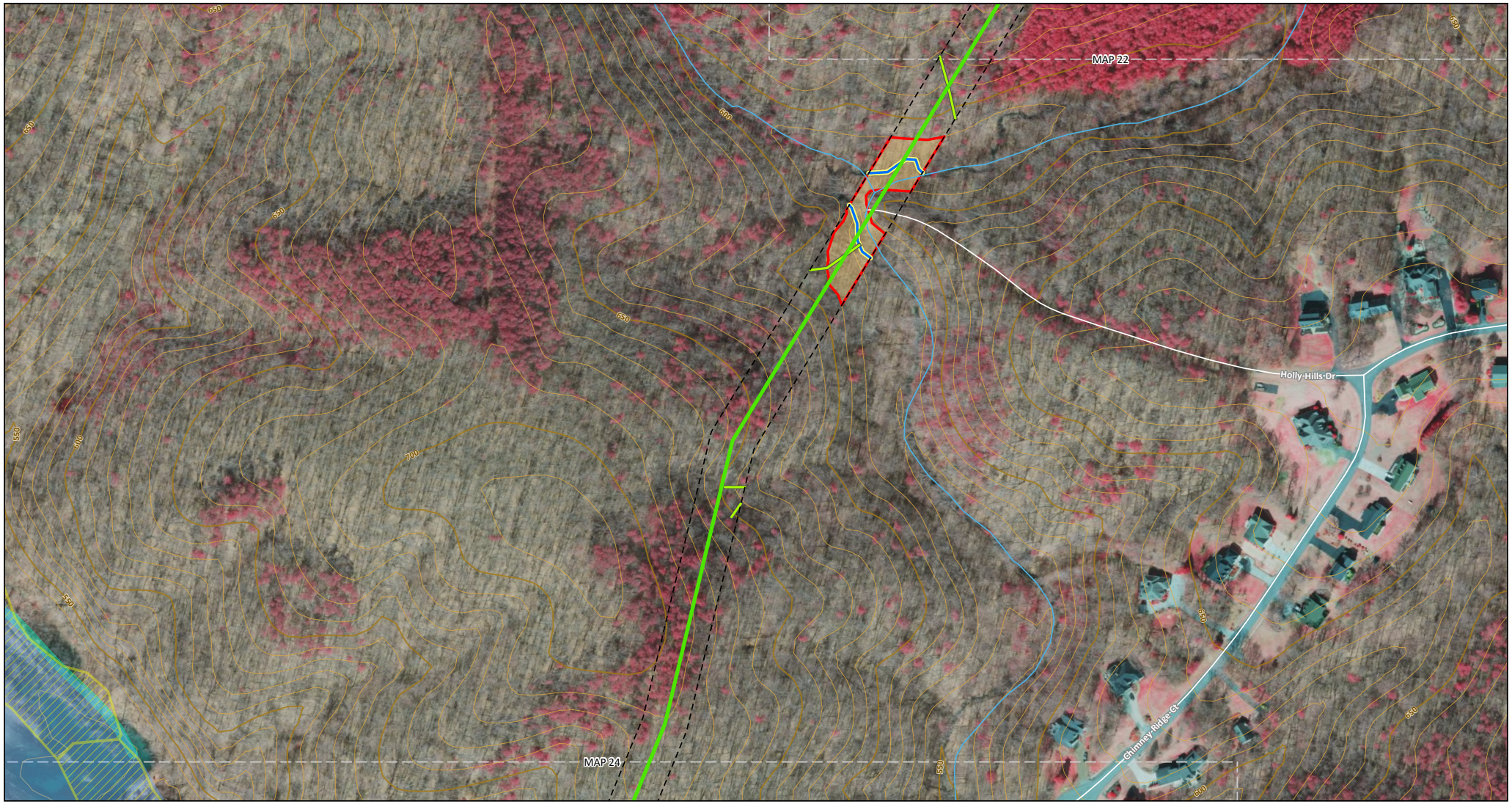
Feet

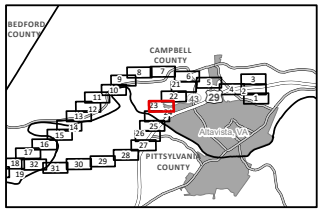
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 22 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- High Probability Stream
- Low Probability Stream
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Road
- Stream (3DHP)
- Wetland (NWI)
- 100-year Floodplain (FEMA)
- Hydric Soil
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Campbell County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

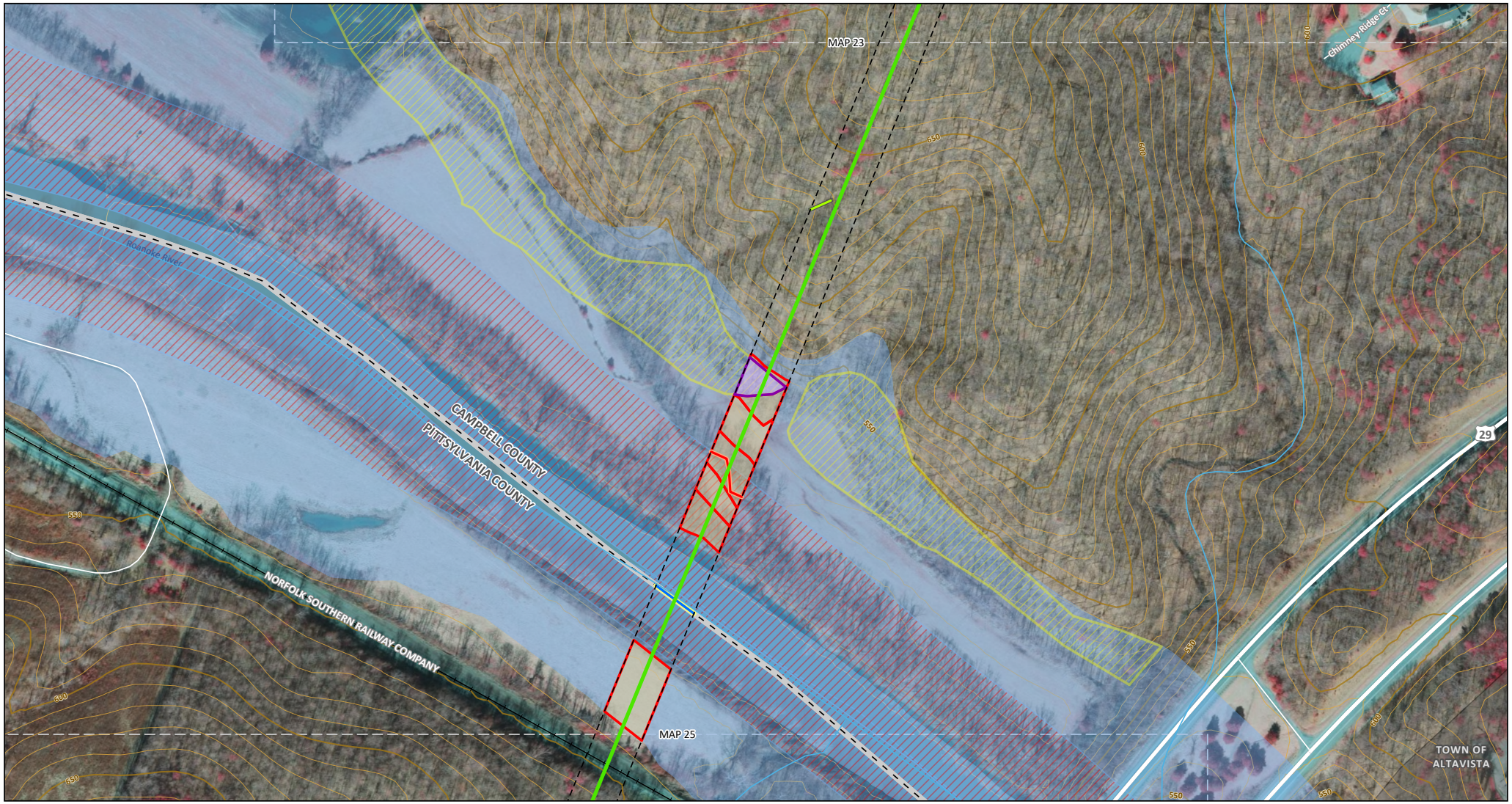
Feet

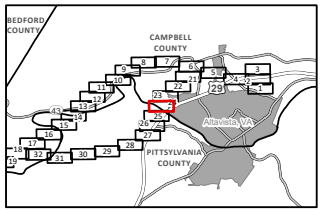
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 23 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- High Probability Stream
- Moderate Probability Stream
- Low Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Road
- Highway
- Railroad
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Town Boundary
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Town of Altavista,
Campbell & Pittsylvania Counties
Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400
Feet

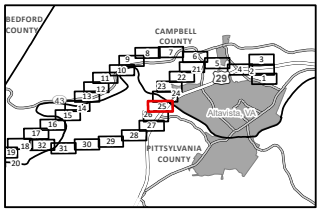
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 24 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville
Transmission Improvements
Project





- Alternative Route C
- High Probability Stream
- Moderate Probability Stream
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Road
- Highway
- Railroad
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Town Boundary
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Town of Altavista,
Campbell & Pittsylvania Counties
Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

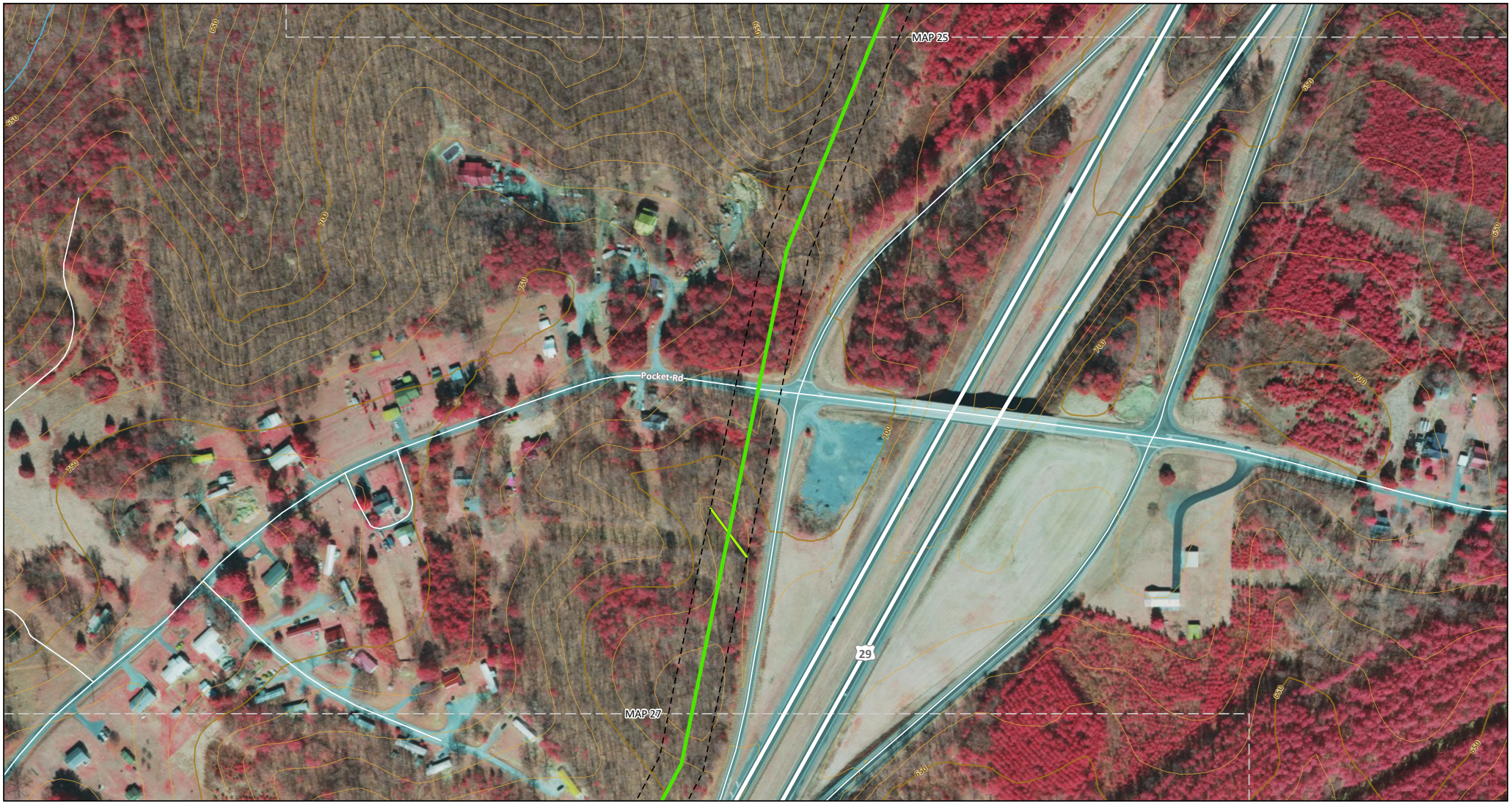
0 200 400
Feet

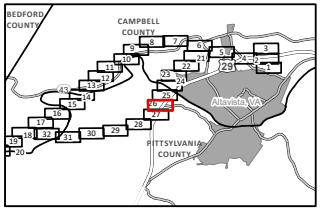
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 25 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville
Transmission Improvements
Project





- Alternative Route C
- Low Probability Stream
- Proposed Right-of-Way (100')
- Road
- Highway
- Stream (3DHP)
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Pittsylvania County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

Feet

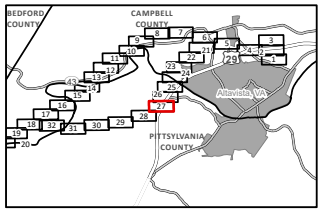
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 26 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- High Probability Stream
- Low Probability Stream
- Proposed Right-of-Way (100')
- Road
- Highway
- Stream (3DHP)
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Pittsylvania County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

Feet

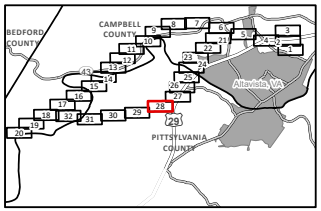
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 27 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- High Probability Stream
- Moderate Probability Stream
- Low Probability Stream
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Road
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Pittsylvania County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

Feet

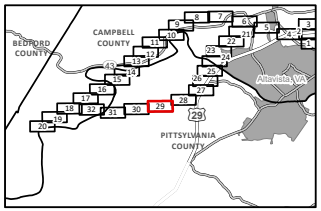
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 28 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- High Probability Stream
- Low Probability Stream
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Road
- Stream (3DHP)
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Pittsylvania County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

Feet

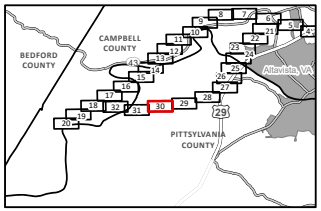
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 29 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- Moderate Probability Stream
- Low Probability Stream
- Proposed Right-of-Way (100')
- Road
- Map Tile
- Index Contour (50')
- Intermediate Contour (10')

Pittsylvania County, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

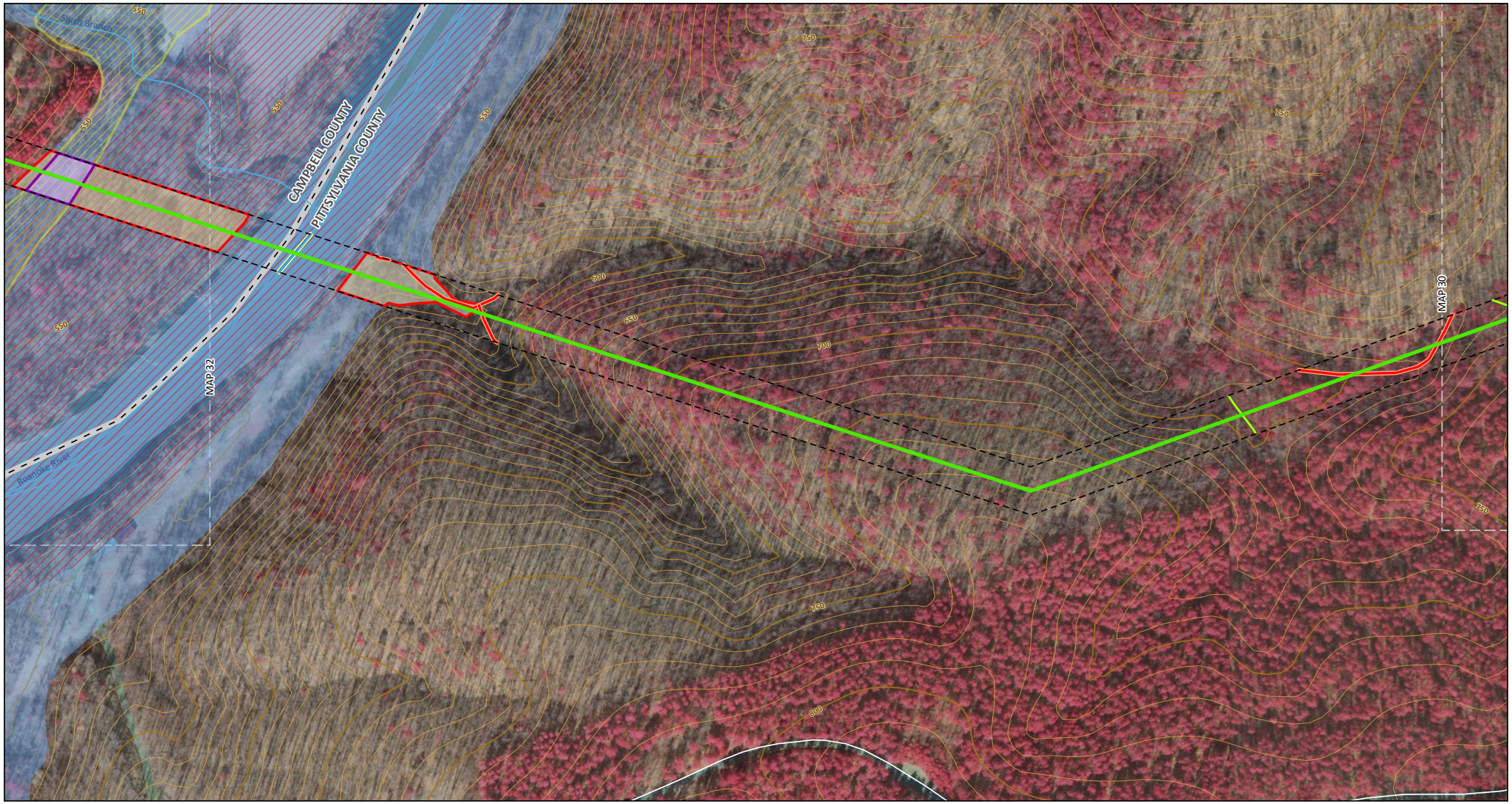
Feet

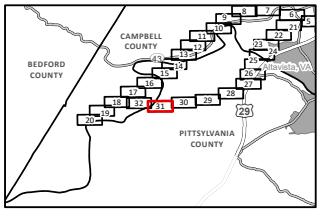
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 30 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- High Probability Stream
- Moderate Probability Stream
- Low Probability Stream
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Road
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Campbell & Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

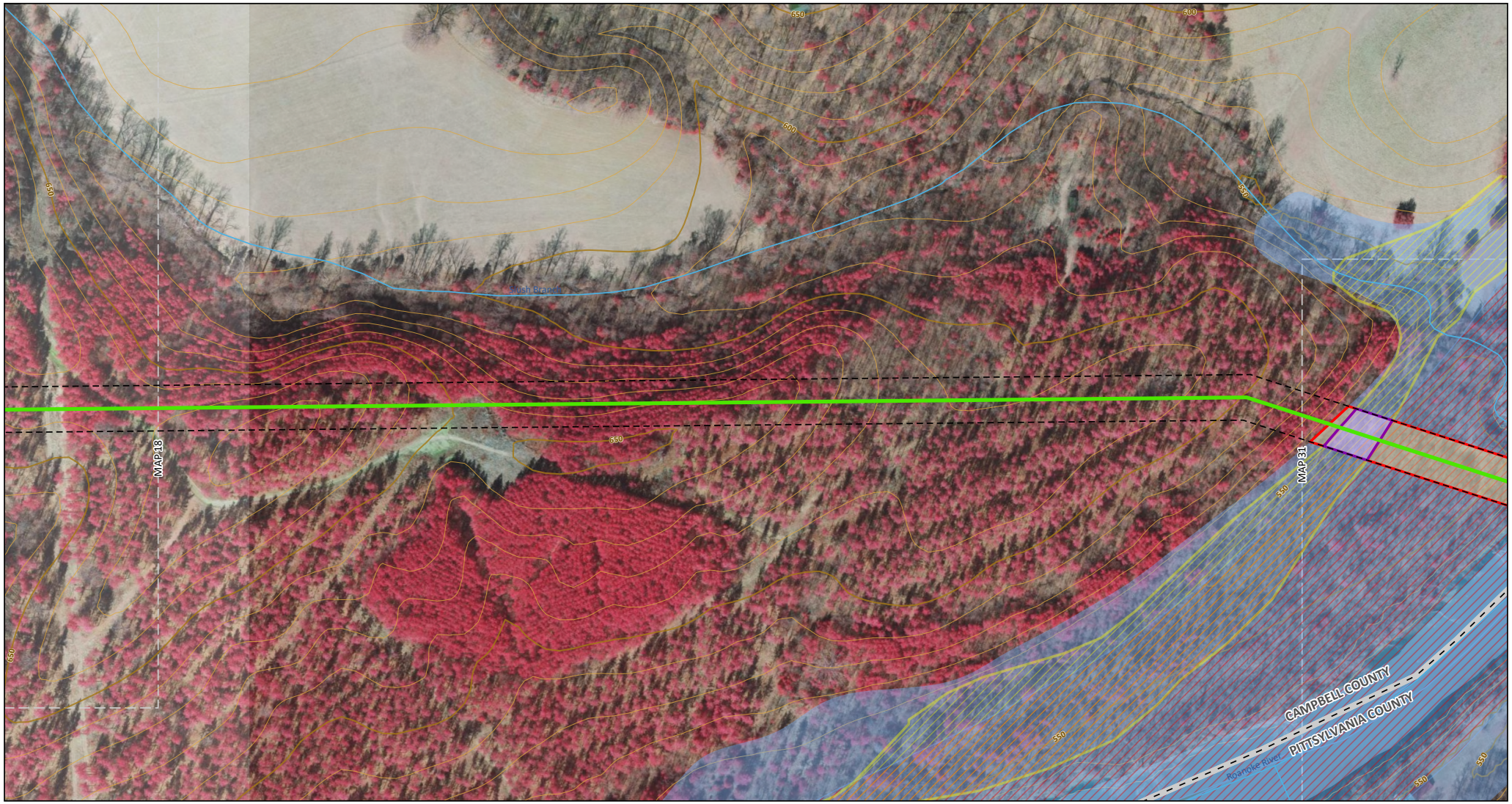
Feet

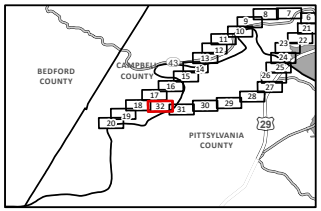
1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 31 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project





- Alternative Route C
- High Probability Wetland
- Moderate Probability Wetland
- Proposed Right-of-Way (100')
- Stream (3DHP)
- 100-year Floodplain (FEMA)
- Floodway (FEMA)
- Hydric Soil
- Map Tile
- County Boundary
- Index Contour (50')
- Intermediate Contour (10')

Campbell & Pittsylvania Counties, Virginia

Date: 2/13/2026; Author: pwr_creed; Project: 251128

0 200 400

Feet

1" = 200'

Attachment B:
Desktop Stream and Wetland Delineation
Map 32 of 32

APPALACHIAN POWER
An AEP Company

Altavista to Leesville Transmission Improvements Project

Attachment 2.F.1: USFWS IPaC Report

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Campbell and Pittsylvania counties, Virginia



Local office

Virginia Ecological Services Field Office

(804) 693-6694

6669 Short Lane
Gloucester, VA 23061-4410

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., *placing a dam upstream of a fish population even if that fish does not occur at the dam site*, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NOT FOR CONSULTATION

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

NOT FOR CONSULTATION

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON

NOT FOR CONSULTATION

Bald Eagle Haliaeetus leucocephalus — Breeds Sep 1 to Jul 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

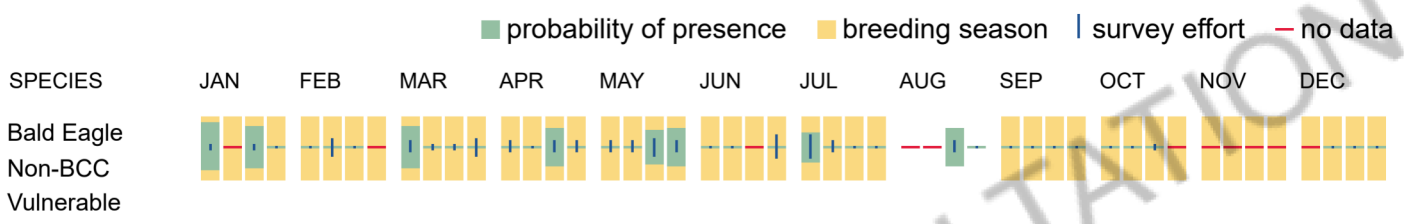
NOT FOR CONSULTATION

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in

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your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

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Chimney Swift Chaetura pelagica — Breeds Mar 15 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Chuck-will's-widow Antrostomus carolinensis — Breeds May 10 to Jul 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Eastern Whip-poor-will Antrostomus vociferus — Breeds May 1 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Grasshopper Sparrow Ammodramus savannarum perpallidus — Breeds Jun 1 to Aug 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8329

Kentucky Warbler Geothlypis formosa — Breeds Apr 20 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prairie Warbler Setophaga discolor — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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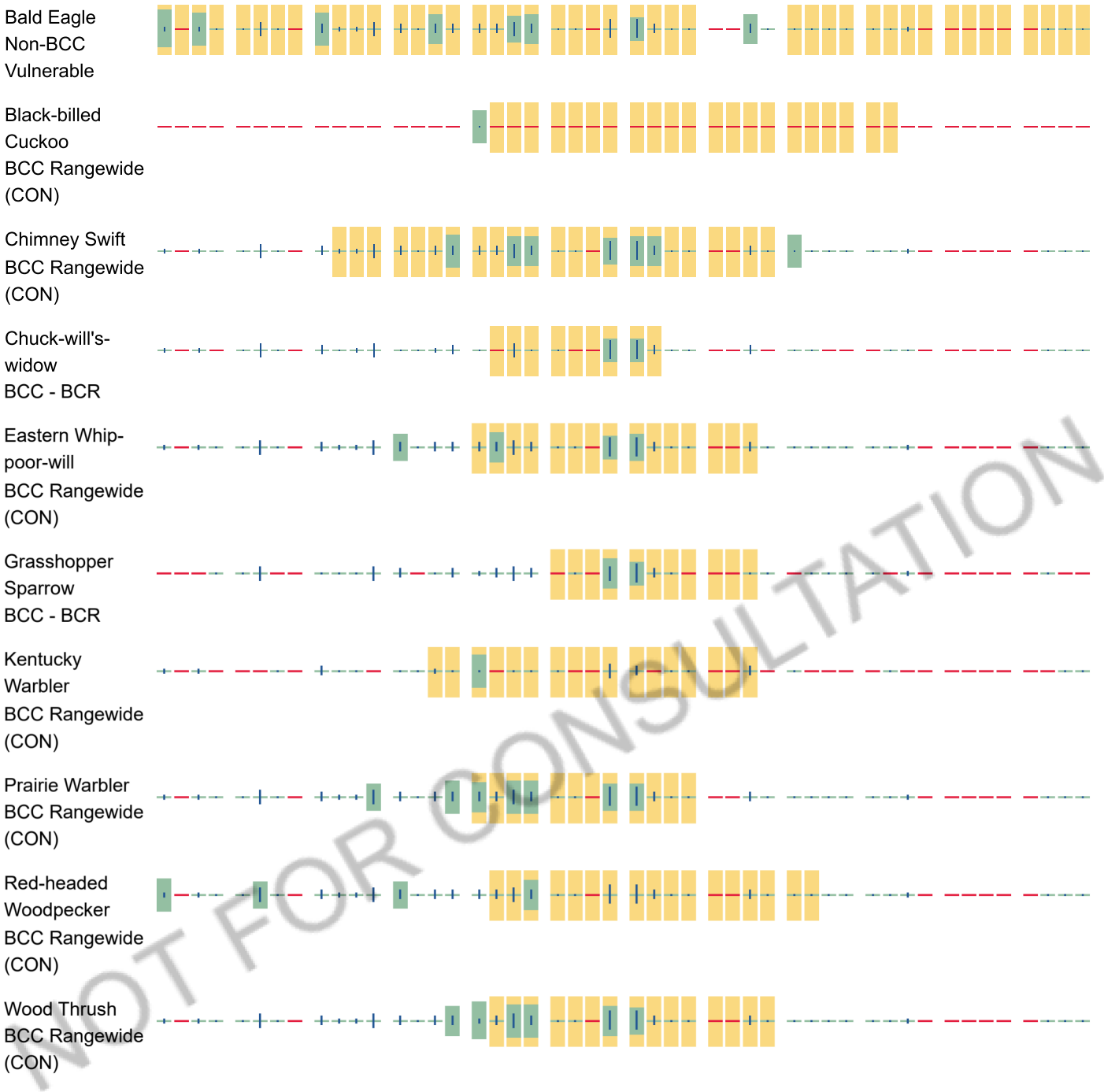
■ probability of presence ■ breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC



NOT FOR CONSULTATION

Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

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The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND
- PEM1A

FRESHWATER FORESTED/SHRUB WETLAND
- PFO1A

RIVERINE
- R2UBH
- R5UBH
- R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

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Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Attachment 2.H.1: VDHR Pre-Application Analysis

SENSITIVE INFORMATION REGARDING ARCHAEOLOGICAL RESOURCES IS BEING WITHHELD AS PUBLIC DISCLOSURE OF SUCH INFORMATION IS PROHIBITED UNDER 16 U.S.C. SECTION 470HH

SEE VOLUME 2: CONFIDENTIAL APPENDIX – ATTACHMENT 2.H.1 FOR VDHR PRE-APPLICATION ANALYSIS FOR CULTURAL RESOURCES