COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
VIRGINIA ELECTRIC AND POWER COMPANY	)	Case No. PUR-2020-00239
	)	
For approval and certification of electric	)	
transmission facilities: Chesterfield-Allied 230 kV	)	
Transmission Line #2049 Partial Rebuild Project	)	

IDENTIFICATION, SUMMARIES AND TESTIMONY OF DIRECT WITNESSES OF VIRGINIA ELECTRIC AND POWER COMPANY

Bao Pham

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Ryan Joyce

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

Nancy Reid

Witness Direct Testimony Summary
Direct Testimony
Appendix A: Background and Qualifications

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Bao Pham

Title: Engineer III – Electric Transmission Planning

Summary:

Company Witness Bao Pham sponsors those portions of the Appendix describing the Company's transmission system and need for, and benefits of, the proposed Rebuild Project, as follows:

- Section I.B: This section details the engineering justifications for the proposed project.
- Section I.C: This section describes the present system and details how the proposed project will effectively satisfy present and projected future load demand requirements.
- Section I.D: This section describes critical contingencies and associated violations due to the inadequacy of the existing system.
- Section I.E: This section explains feasible project alternatives.
- Section I.H: This section provides the desired in-service date of the proposed project and the estimated construction time.
- Section I.J: This section provides information about the project if approved by the RTO.
- Section I.K: Although not applicable to the proposed project, this section provides outage history and maintenance history for existing transmission lines if the proposed project is a rebuild and is due in part to reliability issues.
- Section I.M: Although not applicable to the proposed project, this section contains information for transmission lines interconnecting a non-utility generator.
- Section I.N: Although not applicable to the proposed project, this section, when applicable, provides 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.
- Section II.A.10: This section provides details of the construction plans for the proposed project, including requested and approved line outage schedules.

Additionally, Company Witness Pham co-sponsors the following portions of the Appendix:

- Section I.A (co-sponsored with Company Witness Ryan Joyce): This section details the primary justifications for the proposed project.
- Section I.F (co-sponsored with Company Witness Ryan Joyce): This section describes any lines or facilities that will be removed, replaced or taken out of service upon completion of the proposed project and normal and emergency ratings of the facilities.
- Section I.G (co-sponsored with Company Witness Nancy Reid): This section provides a system map for the affected area.
- Section II.A.3 (co-sponsored with Company Witness Nancy Reid): This section provides color maps of existing or proposed rights-of-way in the vicinity of the proposed project.

A statement of Mr. Pham's background and qualifications is attached to his testimony as Appendix A.

DIRECT TESTIMONY
OF
BAO PHAM
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00239

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Bao Pham, and I am an Engineer III in the Electric Transmission Planning Department of Dominion Energy Virginia. My office is located at 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for planning the Company's electric transmission system for voltages of 69 kilovolt ("kV") through 500 kV.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain the structural integrity and reliability of its transmission system in compliance with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Dominion Energy Virginia proposes to rebuild within existing right-of-way or on Company-owned property, an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project").

The purpose of my testimony is to describe the Company's transmission system and the

need for, and benefits of, the proposed Rebuild Project. I sponsor Sections I.B, I.C, I.D, I.E, I.H, I.J, I.K, I.M, I.N, and II.A.10 of the Appendix. I also co-sponsor Sections I.A and I.F with Company Witness Ryan Joyce; and Sections I.G and II.A.3 with Company Witness Nancy Reid.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
BAO PHAM

Bao Pham received a Bachelor of Science degree in Electrical Engineering from Virginia Polytechnic Institute and State University in 2008. He has 12 years of experience with the Company in Electrical Transmission. In 2008, he began working full time in the Transmission Substation Engineering department. From 2010 to 2015, he worked in the Transmission System Operation Center. Since 2015, Mr. Pham worked in the Transmission Planning department.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Ryan Joyce

Title: Engineer II – Electric Transmission Line Engineering

Summary:

Company Witness Ryan Joyce sponsors those portions of the Appendix providing an overview of the design characteristics of the transmission facilities for the proposed Rebuild Project, and discussing electric and magnetic field levels, as follows:

- Section I.I: This section provides the estimated total cost of the proposed project.
- Section I.L: This section provides photographs illustrating the deterioration of structures and associated equipment as applicable.
- Section II.A.5: This section provides drawings of the right-of-way cross section showing typical transmission lines structure placements.
- Section II.B.1 to II.B.4: These sections provide the line design and operational features of the proposed project.
- Section II.C: Although not applicable to the proposed project, this section describes and furnishes a one-line diagram of the substation associated with the proposed project, if needed.
- Section IV: This section provides analysis on the health aspects of electric and magnetic field levels.

Additionally, Company Witness Joyce co-sponsors the following portions of the Appendix:

- Section I.A (co-sponsored with Company Witness Bao Pham): This section details the primary justifications for the proposed project.
- Section I.F (co-sponsored with Company Witness Bao Pham): This section describes any lines or facilities that will be removed, replaced or taken out of service upon completion of the proposed project and normal and emergency ratings of the facilities.
- Section II.B.5 (co-sponsored with Company Witness Nancy Reid): This section provides the mapping and structure heights for the existing overhead structures.

A statement of Mr. Joyce's background and qualifications is attached to his testimony as Appendix A.

DIRECT TESTIMONY
OF
RYAN JOYCE
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00239

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Ryan Joyce, and I am an Engineer II in the Electric Transmission Line Engineering Department of the Company. My business address is 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for the estimating and conceptual design of high voltage transmission line projects from 69 kilovolt ("kV") to 500 kV.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain the structural integrity and reliability of its transmission system in compliance with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Dominion Energy Virginia proposes to rebuild within existing right-of-way or on Company-owned property, an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project").

The purpose of my testimony is to describe the design characteristics of the transmission facilities for the proposed Rebuild Project, and also to discuss electric and magnetic field ("EMF") levels. I sponsor Sections I.I, I.L, II.A.5, II.B.1 to II.B.4, II.C, and IV of the Appendix. I also co-sponsor Section I.A and Section I.F of the Appendix with Company Witness Bao Pham; and Section II.B.5 with Company Witness Nancy Reid.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
RYAN JOYCE

Ryan Joyce received a Bachelor of Science degree in Mechanical Engineering from Virginia Polytechnic Institute and State University in 2014. From August 2017 to present, Mr. Joyce has held various engineering titles with the Company in the Electric Transmission Engineering department. Prior to working in the Transmission Engineering department, Mr. Joyce held positions in the Company's Transmission Equipment Asset department from December 2014 to August 2017.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Nancy Reid

Title: Siting and Permitting Specialist

Summary:

Company Witness Nancy Reid sponsors those portions of the Appendix providing an overview of the design of the route for the proposed Rebuild Project, and related permitting, as follows:

- Section II.A.1: This section provides the length of the proposed corridor and viable alternatives to the proposed project.
- Section II.A.2: This section provides a map showing the route of the proposed project in relation to notable points close to the proposed project.
- Section II.A.4: This section explains why the existing right-of-way is not adequate to serve the need, to the extent applicable.
- Sections II.A.6 to II.A.8: These sections provide detail regarding the right-of-way for the proposed project.
- Section II.A.9: This section describes the proposed route selection procedures and details alternative routes considered.
- Section II.A.11: This section details how the construction of the proposed project follows the provisions discussed in Attachment 1 of the Transmission Appendix Guidelines.
- Section II.A.12: This section identifies the counties and localities through which the proposed project will pass and provides General Highway Maps for these localities.
- Section II.B.6: This section provides photographs of existing facilities, representations of proposed facilities, and visual simulations.
- Section III: This section details the impact of the proposed project on scenic, environmental, and historic features.
- Section V: This section provides information related to public notice of the proposed project.

Additionally, Ms. Reid co-sponsors the following portion of the Appendix:

- Section I.G (co-sponsored with Company Witness Bao Pham): This section provides a system map for the affected area.
- Section II.A.3 (co-sponsored with Company Witness Bao Pham): This section provides color maps of existing or proposed rights-of-way in the vicinity of the proposed project.
- Section II.B.5 (co-sponsored with Company Witness Ryan Joyce): This section provides the mapping and structure heights for the existing overhead structures.

Finally, Ms. Reid sponsors the DEQ Supplement filed with the Application.

A statement of Ms. Reid's background and qualifications is attached to her testimony as Appendix A.

DIRECT TESTIMONY
OF
NANCY REID
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2020-00239

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company").

A. My name is Nancy Reid, and I am a Siting and Permitting Specialist for Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company"). My business address is 10900 Nuckols Road, Glen Allen, Virginia 23060. A statement of my qualifications and background is provided as Appendix A.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for identifying appropriate routes for transmission lines and obtaining necessary federal, state, and local approvals and environmental permits for those facilities. In this position, I work closely with government officials, permitting agencies, property owners, and other interested parties, as well as with other Company personnel, to develop facilities needed by the public so as to reasonably minimize environmental and other impacts on the public in a reliable, cost-effective manner.

Q. What is the purpose of your testimony in this proceeding?

A. In order to maintain the structural integrity and reliability of its transmission system in compliance with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Dominion Energy Virginia proposes to rebuild within existing right-of-way or on Company-owned property, an approximately 2.9-mile section of the

existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project").

The purpose of my testimony is to provide an overview of the route and permitting for the proposed Rebuild Project. As it pertains to routing and permitting, I sponsor Sections II.A.1, II.A.2, II.A.4, II.A.6, II.A.7, II.A.8, II.A.9, II.A.11, II.A.12, II.B.6, III, and V of the Appendix. I also sponsor the DEQ Supplement filed with the Application, and co-sponsor Sections I.G and II.A.3 with Company Witness Bao Pham, and Section II.B.5 of the Appendix with Company Witness Ryan Joyce.

Q. Has the Company complied with Va. Code § 15.2-2202 E?

A. Yes. In accordance with Va. Code § 15.2-2202 E, a letter was sent to the Chesterfield County Administrator, Dr. Joseph Casey, on August 19, 2020, advising of the Company's intention to file this Application and inviting the County to consult with the Company about the Rebuild Project. A copy of this letter is included as Appendix Attachment V.D.1.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.

APPENDIX A

BACKGROUND AND QUALIFICATIONS
OF
NANCY REID

Nancy R. Reid earned her Bachelor's degree from Christopher Newport University in environmental biology with a minor in chemistry and her Master's degree in safety and Environmental Management from Columbia Southern University. Her past work experience includes working for the City of Franklin and Southampton County as the Environmental Specialist where she developed the areas stormwater management and permitting programs. Mrs. Reid joined Dominion Energy in 2017 as an Environmental Compliance Coordinator where she assisted in developing the environmental program for the most efficient combined-cycle gas plant in the country and is now a Sitting and Permitting Specialist for Electric Transmission.

Mrs. Reid has previously submitted pre-filed testimony to the Virginia State Corporation Commission.

BEFORE THE
STATE CORPORATION COMMISSION
OF VIRGINIA

APPLICATION OF
VIRGINIA ELECTRIC AND POWER COMPANY
FOR APPROVAL OF ELECTRIC FACILITIES

Allied-Chesterfield 230 kV Transmission Line #2049 Partial Rebuild

Application No. 300

DEQ Supplement

Case No. PUR-2020-00239

Based upon consultations with the Virginia Department of Environmental Quality ("DEQ"), Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") has developed this DEQ Supplement to facilitate review and analysis of the proposed Rebuild Project by DEQ and other relevant agencies.

1. Project Description

In order to maintain the structural integrity and reliability of its transmission system in compliance with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards, Dominion Energy Virginia proposes to rebuild within existing right-of-way or Company-owned property, an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia ("Rebuild Project"). Specifically, the Rebuild Project will include the rebuild of 16 existing transmission towers (Structures #2049/21 through #2049/36). Additionally, between Structures #2049/20 and Structure #2049/37, the Rebuild Project will include the transfer of four of the six existing sub-conductors to the new structures to be re-used, and the installation of two new sub-conductors.

The proposed Rebuild Project will replace aging infrastructure that is at the end of its service life in order to comply with the Company's mandatory transmission planning criteria (the "Planning Criteria"), thereby enabling the Company to maintain the overall long-term reliability of its transmission system, as well as to provide important system benefits to the Company's entire network. Specifically, the Company proposes to rebuild approximately 2.9 miles of existing Line #2049, which was constructed in 1967 on COR-TEN® lattice towers. Field reports and condition assessments have identified the need to replace 16 existing transmission towers within a 2.9-mile section of Line #2049 (including Structures #2049/21 through #2049/36). These COR-TEN® towers have been identified for rebuild based on the Company's assessment in accordance with the Planning Criteria. The Company retained a third-party company, Quanta, to evaluate the condition of its COR-TEN® towers. After completing its evaluation, Quanta Technology provided the Company with the 2016 Quanta Report, which confirmed the need to rebuild the COR-TEN® section of Line #2049, among other 230 kV COR-TEN® transmission lines on the Company's system.

Because the existing right-of-way is adequate to construct the proposed Rebuild Project, no new right-of-way is required. Given the availability of existing right-of-way and the statutory preference given to use of existing rights-of-way, and because additional costs and environmental impacts would be associated with the acquisition and construction of new right-of-way, the Company did not consider any alternate routes requiring new right-of-way for this Rebuild Project.

2. Environmental Analysis

The Company solicited comments from all relevant state and local agencies about the proposed Rebuild Project in August 2020. Copies of these letters are included as Attachment 2. The DEQ provided a letter in response to the Company's scoping request for the proposed Rebuild Project on August 28, 2020. A copy of this letter is included as Attachment 2.1.

A. Air Quality

For the Rebuild Project, the Company will control fugitive dust during construction in accordance with DEQ regulations. During construction, if the weather is dry for an extended period of time, there will be airborne particles from the use of vehicles and equipment within the right-of-way. However, minimal earth disturbance will take place and vehicle speed, which is often a factor in airborne particulate, will be kept to a minimum. Erosion and sediment control is addressed in Section 2.G, below. Equipment and vehicles that are powered by gasoline or diesel motors will also be used during the construction of the line so there will be exhaust from those motors.

The entire width of the existing transmission corridor is currently maintained for transmission facility operations. However, the Rebuild Project may require some trimming of tree limbs along the right-of-way edges to support construction activities. The Company does not expect to burn cleared material, but if necessary, the Company will coordinate with the responsible locality to ensure all local ordinances are met. The Company's tree clearing methods are described in Section 2.K.

B. Water Source (No water source is required for transmission lines so this discussion will focus on potential waterbodies to be crossed by the proposed transmission line rebuild.)

The majority of the Rebuild Project is located within the Appomattox (Hydrologic Unit Code 02080207) watershed, with a small portion located in the Lower James (Hydrologic Unit Code 0208206) watershed. The U.S. Geological Survey ("USGS") topographic quadrangles for Chester (2019) and Hopewell (2019) depict the study area as existing, cleared transmission line traversing through nearly level to steeply sloping terrain. No named water bodies are located within the project area. An unnamed perennial tributary to Ashton Creek crosses the right-of-way.

Any clearing required in the vicinity of streams will be performed by hand within 100 feet of both sides, and vegetation less than three inches in diameter will be left undisturbed.

The Company solicited comments from the Virginia Marine Resources Commission ("VMRC") regarding the proposed Rebuild Project in August 2020. VMRC responses have typically noted a subaqueous encroachment permit would be required for any stream crossings with a drainage area of five square miles or greater at the crossing location. If necessary, a Joint Permit Application will be submitted for review by the VMRC, DEQ, the U.S. Army Corps of Engineers (the "Corps") and the Chesterfield County Local Wetlands Board to authorize jurisdictional crossings and for any impacts to jurisdictional features.

C. Discharge of Cooling Waters

No discharge of cooling waters is associated with the Rebuild Project.

D. Tidal and Non-tidal Wetlands

No tidal wetlands were identified within the proposed Rebuild Project area.

Wetlands Impact Consultation

As part of the Chesterfield-Hopewell Rebuild Project, which was previously authorized under Case No. PUR-2018-00075, the Company delineated wetlands and other waters of the United States using the *Routine Determination Method* as outlined in the *1987 Corps of Engineers Wetland Delineation Manual* and methods described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (Version 2.0). The Company submitted the results of this delineation to the U.S. Army Corps of Engineers (the "Corps") on March 20, 2018, for confirmation. The Rebuild Project lies within the right-of-way delineated for Chesterfield-Hopewell. Wetland delineation maps are provided as Attachment 2.D.1. Total jurisdictional resources within the proposed Rebuild Project right-of-way is provided in Table 1 below and detailed in Attachment 2.D.2.

Table 1. Jurisdictional Resources Within Rebuild Project Right-of-Way

Resource	Acreage (±)
Palustrine Emergent Wetland	5.28
R3 Stream	0.02 (241 Linear Feet)
R4 Stream	0.01 (219 Linear Feet)

E. Solid and Hazardous Waste

On the behalf of the Company, Stantec Consulting Services, Inc. ("Stantec") conducted database searches for solid and hazardous wastes and petroleum release sites within a 0.5-mile radius of the proposed Rebuild Project.

Stantec obtained publicly available data from the Environmental Protection Agency ("EPA") Facility Registry System ("FRS"), which provides information about facilities, sites, or places subject to environmental regulation or of environmental interest. Although this data set includes all sites subject to environmental regulation by the EPA or other state authority, such as sites that fall under air emissions or wastewater programs, the results reported here only include those sites which fall under the EPA's hazardous waste, solid waste, remediation, and underground storage tank programs. These sites include Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA")/Superfund; Resource Conservation and Recovery Act ("RCRA"); and brownfield sites. Per this database, there are 12 registered RCRA sites present within a 0.5-mile radius of the Rebuild Project. Most sites are listed as conditionally exempt small quantity generators and are located well

outside the right-of-way. None of these sites are expected to be a concern for the Rebuild Project due to the distance and the nature of the sites.

DEQ records were also searched for the presence of solid waste management facilities, Voluntary Remediation Program sites, and petroleum releases within 0.5 mile of the proposed Rebuild Project. One solid waste permit site (Permit Number 900000002723) is located approximately 2,030 linear feet from the Rebuild Project and falls outside of the right-of-way. A total of seven petroleum release sites were identified within the search radius with the closest site (PC Number 19932342) located approximately 933 linear feet from the Rebuild Project area. Additionally, none of the identified petroleum release sites identified within 0.5 mile of the proposed project intersect with the Rebuild Project right-of-way and all cases have been closed. The Company has a procedure in place to handle petroleum contaminated soil, if encountered; however, as all the release sites are located outside of the project area, none of the petroleum release sites are expected to have an impact on the proposed Rebuild Project. A table listing these sites is included as part of Attachment 2.E.1.

In summary, a total of seven petroleum release sites, and 13 solid waste permit sites are located within a 0.5-mile radius of the Rebuild Project; however, none of the sites are located within the Rebuild Project right-of-way. No EPA registered brownfield sites, or CERCLA/Superfund sites are located within 0.5 mile of the Rebuild Project.

F. Natural Heritage, Threatened and Endangered Species

On behalf of the Company, Stantec conducted online database searches for threatened and endangered species in the vicinity of the Rebuild Project, including the U.S. Fish and Wildlife ("USFWS") Information, Planning, and Conservation ("IPaC") system, the Virginia Department of Wildlife Resources ("DWR") Virginia Fish and Wildlife Information Service ("VAFWIS"), Virginia Department of Conservation and Recreation ("DCR"), Natural Heritage Data Explorer ("NHDE"), and the Center for Conservation Biology ("CCB") Bald Eagle Nest Locator. The results are summarized in a report, included as Attachment 2.F.1, and are presented in Table 2 below.

Table 2. Threatened and endangered species within the project vicinity

Species	Status	Database	Results
Northern long-eared bat *Myotis septentrionalis*	FT ST	USFWS-IPaC, DWR-NLEB Winter Habitat and Roost Tree Map	Identified as potentially occurring near the project. No known hibernacula or maternity roost trees within the vicinity of the project.
Loggerhead shrike *Lanius ludovicianus*	ST	DWR-VAFWIS; DCR-NHD	Identified as potentially occurring near the project. The loggerhead shrike nests in small trees/shrubs. If clearing of shrubs or trees will occur during the loggerhead shrike nesting season (April 1 – July 31), DWR may require surveys.
Atlantic sturgeon *Acipenser oxyrinchus*	FE SE	DWR-VAFWIS; DCR-NHD	Identified as potentially occurring within the project watershed. This species inhabits rivers and coastal waters.
Sensitive joint vetch *Aeschynomene virginica*	FT ST	DCR-NHD	Identified as potentially occurring near the project. This species inhabits the upper limits of tidal wetlands.
Bald eagle *Haliaeetus leucocephalus*	BGEPA	CCB	Identified as occurring within one-mile of the project area. All work will be performed within existing, cleared, and maintained right-of-way and disturbance to bald eagles is unlikely

FT: federally threatened, FE: federally endangered, ST: state threatened, SE: state endangered, BGEPA: Bald and Golden Eagle Protection Act

The federally and state threatened northern long-eared bat has been identified by USFWS as potentially occurring within the proposed Rebuild Project area. However, DWR records indicate that no known hibernacula or maternity roost trees occur within the vicinity. The Rebuild Project will occur within an existing maintained right-of-way and tree removal is expected to be limited to danger trees and limbing. During the Section 404 Clean Water Act permitting, the Rebuild Project is expected to rely on the findings of the 4 (d) rule with a time-of-year restriction ("TOYR") for tree clearing of June 1- July 31.

The state threatened loggerhead shrike was identified by VAFWIS and DCR as potentially occurring within or near the Rebuild Project area. The species typically nests in shrubs or small trees in open areas and sometimes moves from pastures to shrub and open forest habitats during cold. While potential habitat is present, no conversion of habitat is expected and all work will occur within existing, cleared, and maintained right-of-way. Therefore, the project is not likely to adversely affect the loggerhead shrike.

DWR identified the lower James River as a potential anadromous fish use area with a TOYR for instream work from February 15-June 30. Additionally, the National Marine Fisheries Service has designated the main stem of the James River as critical habitat for the Atlantic sturgeon. At its closest point, the Rebuild Project is more than one mile from the James River and 0.5 mile from the Appomattox River. As such,

the Rebuild Project is not expected to adversely affect the Atlantic sturgeon or need to adhere to the TOYR.

USFWS and DCR have identified the federally and state threatened sensitive joint-vetch ("SJV") as potentially occurring within the Rebuild Project area. SJV prefers fresh to slightly brackish tidal marshes in the mid-Atlantic. No tidal marsh is present within the project area; therefore, SJV would not occur in the Rebuild Project area.

There are no bald eagle nests located within the vicinity of the Rebuild Project.

New and updated information is continually added to the DCR's Biotics database. Following the DCR-DNH SCC planning stage project review, the Company shall re-submit project information with completed information services order form and a map to DCR-DNH or submit the project or submit the project on-line through the Natural Heritage Data Explorer. This review shall occur during the final stage of engineering and upon any major modifications of the project during construction (i.e., deviations, permanent, or temporary, from the original study area and/or the relocation of a tower(s) into sensitive areas) for an update on natural heritage information and coordination of potential project modifications to avoid and minimize impacts to natural heritage resources.

The Company requested comments from the USFWS, DWR, and DCR in August 2020. DCR responded by email in August 2020 and also provided comments via letter to a prior data request July 2020. See Attachments 2.F.2 and 2.F.3, respectively. In the response, DCR noted that there were no natural heritage resources documented within 100 feet of the Rebuild Project. The DWR response is provided as Attachment 2.F.4 and noted the databases that the Company should use to assess the potential for wildlife resources.

G. Erosion and Sediment Control

The DEQ approved the Company's *Standards & Specification for Erosion & Sediment Control and Stormwater Management for Construction of Linear Electric Transmission Facilities (TE VEP 8000).* These specifications are given to the Company's contractors and require erosion and sediment control measures to be in place before construction of the line begins and specifies the requirements for rehabilitation of the right-of-way. A copy of the current DEQ approval letter dated August 13, 2019, is provided as Attachment 2.G.1. According to the approval letter, coverage was effective through August 12, 2020. The Company submitted the renewal application on August 3, 2020 and is awaiting approval.

H. Archaeological, Historic, Scenic, Cultural or Architectural Resources

Stantec was retained by the Company to conduct Stage I Pre-Application Analysis for the proposed Rebuild Project. Preliminary background research was conducted pursuant to the *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (DHR 2008) for proposed transmission line improvements. As detailed by

Virginia Department of Historic Resources ("VDHR") guidance, consideration was given to: National Historic Landmark ("NHL") properties located within a 1.5-mile radius of the project centerline; National Register of Historic Places ("NRHP") listed properties, battlefields, and historic landscapes located within a 1.0-mile radius of the project centerline; NRHP-eligible sites located within a 0.5-mile radius of the project centerline; and archaeological sites located within the project right-of-way. The Stage I Analysis is included as Attachment 2.H.1 and has been submitted to VDHR.

Archaeological Resources

Ten previously recorded archaeological resources were identified either within or immediately adjacent to the Rebuild Project right-of-way. Five resources, Sites 44CF0578, 44CF0830, 44CF0833, 440840, and 44CF0841 are Civil War-related and have been determined potentially eligible for listing on the NRHP. Two sites have been determined not eligible for listing on the NRHP and three sites are currently unevaluated.

Table 3. Archaeological resources within the Rebuild Project Right-of-Way

VDHR #	Resource Name	VDHR/NRHP Status
44CF0578	Civil War Earthworks	Potentially Eligible
44CF0830	Civil War; Mid-to-Late 19th Century Domestic Site	Potentially Eligible
44CF0831	Prehistoric – Indeterminate; Early 20th Century Scatter	Not Evaluated
44CF0832	Late 19th to Early 20th Century Domestic Site	Not Evaluated
44CF0833	Civil War; 19th to 20th Century Domestic Site	Potentially Eligible
44CF0840	Civil War Earthworks	Potentially Eligible
44CF0841	Civil War Earthworks	Potentially Eligible
44CF0834	Prehistoric Camp – Indeterminate	Not Eligible
44CF0839	19th Century Domestic Site	Not Eligible
44CF0842	Prehistoric Camp - Woodland	Not Evaluated

Architectural Resources

Within the existing right-of-way, there is one architectural resource that VDHR has determined to be eligible for listing on the NRHP, and one architectural resource that is on the NRHP and VLR listing. One architectural property is considered eligible for Environmental Review purposes only and four architectural properties are potentially eligible. One additional eligible architectural property is within 0.25-mile

of the Rebuild Project. Chesterfield County has designated historic districts; however, none are within the vicinity of the Rebuild Project. Table 4 below provides eligible historic resources within and adjacent to the Rebuild Project right-of-way.

Table 4. Architectural Resources Eligible for Listing on the NRHP Within or Adjacent to the Rebuild Project Right-of-Way

VDHR#	Resource Name	VDHR Determination	Distance to Line (Feet)
020-0123	Point of Rocks, 1005 Point of Rocks Road	NRHP-Listed	3,007
020-0232/ 043-0033-0059	Howlett Line/Parker's Battery/Parker's Battery Earthworks	Potentially Eligible	1,070
020-0506	Enon Park/Earthworks/Point of Rocks Park	NRHP-Eligible	1,255
020-5317/ VA 047	Port Walthall Junction Battlefield, Indian Hills Road	NRHP-Eligible	0
020-5318/ VA 050	Swift Creek Battlefield/Arrowfield Church	Potentially Eligible	0
020-5319/ VA 054	Ware Bottom Church Battlefield	Potentially Eligible	0
020-5320/ VA 053	Proctor's Creek Battlefield/ Drewry's Bluff (2nd) Battlefield/ Fort Darling/ Fort Drewry	Potentially Eligible	0
043-0033	Richmond National Battlefield Park	NRHP-Listed	1,062
123-5025/ VA 063	Assault on Petersburg/Petersburg Battlefield II	Potentially Eligible	258

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. The Company will meet those conditions.

J. Wildlife Resources

Relevant agency databases were reviewed and requests for comments from the USWFS, DWR, DCR, and VDACS were submitted to determine if the proposed Rebuild Project has the potential to affect any threatened or endangered species, as described in Section 2.F and included as Attachment 2.F.1. As discussed in Section 2.F and identified in Attachment 2.F.1, certain Federal and state listed species were

identified as potentially occurring in the Rebuild Project area. The Company will coordinate with the USFWS, NMFS, DWR, and DCR as appropriate to determine whether additional surveys are necessary and to minimize impacts on wildlife resources. Since the proposed Rebuild Project is a rebuild of a transmission line within existing right-of-way, no loss of wildlife habitat is anticipated.

K. Recreation, Agricultural and Forest Resources

The Rebuild Project is expected to have minimal permanent impacts on recreational, agricultural, and forest resources since no additional right-of-way is required. The general character of the Rebuild Project area is predominantly industrial with minimal residential and scattered open space.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. Land can also be considered prime farmland if subject to certain management practices such as drainage and irrigation. Land that does not meet the criteria for prime farmland can be considered to be "farmland of statewide importance." The criteria for defining and delineating farmland of statewide importance are determined by the Virginia Department of Agriculture and Consumer Services. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Other areas that are not identified as having national or statewide importance can be considered to be "farmland of local importance." This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance. A total of 40.98 acres of prime farmland and 11.59 acres of prime farmland, if drained, occurs within the Rebuild Project right-of-way. No farmland of statewide importance is located within the Rebuild Project right-of-way. No portion of the existing right-of-way for the Rebuild Project is currently in agricultural use. Chesterfield County does not have designated farmlands of local importance. Therefore, the Rebuild Project is not expected to affect agricultural land.

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. Such conservation easements must be held for no less than five years in duration and can be held in perpetuity.

In an email dated August 28, 2020, the Virginia Outdoors Foundation ("VOF") stated that there are no existing or proposed VOF open-space easements in the immediate vicinity of the proposed Rebuild Project. A copy of this response is included as Attachment 2.K.1.

The existing right-of-way is located south of the Parker's Battery unit of the Richmond National Battlefield Park. The Line #2049 structures to be replaced are not visible from the park; therefore, no effects are expected to this resource.

The existing right-of-way is also adjacent to Battery Dantzler Park, which is managed by the Chesterfield County Parks and Recreation Department. This approximately 14.7-acre historical park provides a short trail and interpretation of the Howlett Line during the Siege of Petersburg. The existing right-of-way is also adjacent to the Fort Wead Park, which is also managed by the Chesterfield County Parks and Recreation Department. It is located on approximately 0.9 acre and provides a short trail. There is also the Ware Bottom Church trailhead near the Rebuild Project area. The DHR holds an easement on this park property.

The Virginia Scenic Rivers Act seeks to identify, designate, and protect rivers and streams that possess outstanding scenic, recreational, historic, and natural characteristics of statewide significance for future generations. Within the vicinity of the Rebuild Project, the James River has been qualified as a river found worth as designation as a scenic river. Since the Rebuild Project involves the rebuild of a transmission line within an existing right-of-way containing other electric transmission lines, no impact would be expected to the scenic qualities of the James River.

The entire width of the existing transmission corridor is currently cleared and maintained for 230 kV transmission facility operations. However, the Rebuild Project may require some trimming of tree limbs along the right-of-way edges to support construction activities. Trees and brush located within 100 feet of streams will be cleared by hand in accordance with the Company approved Erosion and Sediment Control specifications.

Any tree along the right-of-way that is tall enough to endanger the conductors if it were to break at the stump or uproot and fall directly towards the conductors and exhibits signs or symptoms of disease or structural defect that make it an elevated risk for falling will be designated as a "danger tree" and may be removed. The Company's arborist will contact the property owner if possible before any danger trees are cut, except in emergency situations. The Company's Forestry Coordinator will field inspect the right-of-way and designate any danger trees present. Qualified contractors working in accordance with the Company's Electric Transmission specifications will perform all danger tree cutting. The Rebuild Project is expected to have minimal, if any, impact on agricultural or forest resources as the proposed Rebuild Project involves rebuilding a portion of an existing line which is already cleared and maintained for existing facility operation and no additional right-of-way is required.

L. Use of Pesticides and Herbicides

Of the techniques available, selective foliar is the preferred method of herbicide application. The Company typically maintains transmission line right-of-way by means of selective, low volume applications of EPA approved, non-restricted use herbicides. The goal of this method is to exclude tall growing brush species from the right-of-way by establishing early successional plant communities of native grasses, forbs, and low growing woody vegetation. "Selective" application means the

Company sprays only the undesirable plant species (as opposed to broadcast applications). "Low volume" application means the Company uses only the volume of herbicide necessary to remove the selected plant species. The mixture of herbicides used varies from one cycle to the next to avoid the development of resistance by the targeted plants. There are four means of dispersal available to the Company, including by-hand application, backpack, fixed nozzle-radiarc, and aerial. However, very little right-of-way maintenance incorporates aerial equipment. The Company uses licensed contractors to perform this work that are either certified applicators or registered technicians in the Commonwealth of Virginia.

DEQ has previously requested that only herbicides approved for aquatic use by the EPA or the USFWS be used in or around any surface water; the Company intends to comply with this request.

M. Geology and Mineral Resources

According to the Division of Geology and Mineral Resources Interactive Geologic Map, the Rebuild Project is underlain by unconsolidated sediments of the Atlantic Coastal Plain. The Rebuild Project sits atop the Charles City, Potomac, and Bacon's Castle Formations and Lower Tertiary deposits, which consist of sands and gravels with clays, mud, and silt.

According to the USGS topographic maps and aerial imagery, there are no active mines or stone quarries within the proposed Rebuild Project. A search of the Virginia Department of Mines, Minerals, and Energy online map confirms there are no active or abandoned mines within the right-of-way for any of the Sections. Mines within 0.5 mile of the Rebuild Project are provided in Table 5 below. Mine DMM04619 is noted to be a severe hazard to housing built on top of the fill; however, due to the location of the mine (0.15 mile outside the project right-of-way) and the project locations within a cleared and maintained right-of-way, the Rebuild Project is not anticipated to have an adverse impact on the identified mine. The Company does not anticipate that the proposed Rebuild Project will result in negative impacts on the geology or mineral resources.

Table 5. Mines within 0.5 Mile of the Rebuild Project

Mine ID	Mineral	Status	Latitude	Longitude
DMM04619	Sand	Orphaned	37.33987	-77.39199
DMM11113	Ochre	Orphaned	37.32067	-77.348577

N. Transportation Infrastructure

The existing right-of-way to be used for the proposed Rebuild Project crosses multiple roads in Chesterfield County. Roads within the project area are low traffic volume roads. The Company plans to apply for land use permits from the Virginia Department of Transportation ("VDOT") for the aerial crossings of VDOT maintained roads and any construction entrances from the VDOT right-of-way. All

permits will be obtained prior to construction. In August 2020, the Company requested comments from VDOT.

The Company solicited the Virginia Department of Aviation ("DOAv") for comments regarding the proposed Rebuild Project. The design of the proposed Rebuild Project must prevent interference with pilots' safe ingress and egress at the airport. Such hazard or impediments include interference with navigation and communication equipment and glare from materials and external lights. In an email dated August 31, 2020, DOAv stated that after review, it was determined that no portion of the proposed project is within 20,000 linear feet of a public use airport. A copy of this response is included as Attachment 2.N.1.

Finally, the Company has reviewed the FAA website (https://oeaaa.faa.gov/oeaaa/external/portal.jsp) to identify airports within 10 nautical miles of the Rebuild Project; the following airports were identified:

- Defense Supply Center Richmond Heliport, approximately 6.47 miles northwest of Chesterfield Power Station,
- Richmond Executive-Chesterfield County Airport, approximately 7.8 miles northwest of Chesterfield Power Station,
- Fort Lee AHP 3, approximately 5.31 miles south of Line #2049,
- Fort Lee NR 1, approximately 5.80 miles south of Line #2049.

Based on a preliminary review, impacts to air navigation are not anticipated but FAA filings are required for some of the proposed structures and construction cranes. The Company has filed for obstruction evaluation determinations for these structures.

Several private airports/helipads are located within ten miles of the line and the Company will work with private entities as appropriate.

The Company will coordinate with VDOT, DOAv, and the FAA as necessary to obtain all appropriate permits.

Attachments

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Ms. Bettina Rayfield
Department of Environmental Quality,
Office of Environmental Impact Review
P.O Box 1105
Richmond, Virginia 23218

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Ms. Bettina Rayfield,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

The Company is preparing an application for Certificate of Public Convenience and Necessity ("CPCN") from the Virginia State Corporation Commission ("SCC"). Pursuant to Va. Code §15.2-2202, the Company is writing to notify you of the proposed Rebuild Project in advance of this SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Project within 30 days of the date of this letter. Enclosed is a Project Location Map depicting the rebuild route and project location.

If you would like to receive a GIS shapefile of the rebuild route to assist in your project review or if you have any questions, please do not hesitate to contact Rachel Studebaker at (804) 217-1847 or Rachel.M.Studebaker@dominionenergy.com.

Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Ms. Robbie Rhur
Department of Conservation and Recreation, Planning Bureau
600 East Main Street, 17th Floor
Richmond, Virginia 23219

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Ms. Robbie Rhur,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Ms. Amy M. Ewing
Virginia Department of Game and Inland Fisheries
7870 Villa Park, Suite 400
Henrico, Virginia 23228

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Ms. Amy M. Ewing,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Mr. Keith Tignor
Virginia Department of Agriculture and Consumer Affairs
102 Governor Street
Richmond, Virginia 23219

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Mr. Keith Tignor,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Mr. Todd Groh
Virginia Department of Forestry, Forestland Conservation Division
900 Natural Resources Drive, Suite 800
Charlottesville, Virginia 22903

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Mr. Todd Groh,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Mr. Tony Watkinson
Virginia Marine Resources Commission,
Habitat Management Division
Building 96, 380 Fenwick Road
Ft. Monroe, Virginia 23651

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Mr. Tony Watkinson,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Mr. Troy Andersen
US Fish and Wildlife Service,
Virginia Field Office, Ecological Services
6669 Short Lane
Gloucester, Virginia 23061

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Mr. Troy Andersen,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Mr. Todd Miller, Chief
US Army Corps of Engineers,
Norfolk District- Southern Section
9100 Arboretum Parkway, Suite 235
Richmond, Virginia 23236

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Mr. Todd Miller,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Ms. S. Rene Hypes
Virginia Department of Conservation and Recreation,
Division of Natural Heritage
600 East Main Street, 24th Floor
Richmond, Virginia 23219

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Ms. S. Rene Hypes,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Ms. Trisha Beasley
Department of Environmental Quality
Wetlands Protection Program
13901 Crown Court
Woodbridge, VA 22193

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Ms. Trisha Beasley,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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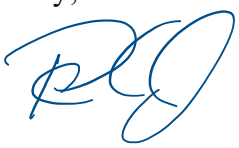
Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,



Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Services, Inc.
120 Tredegar Street
Richmond, VA 23219
DominionEnergy.com

August 24, 2020

BY EMAIL

Ms. Michelle Henicheck
Senior Wetland Ecologist
Department of Environmental Quality
P.O. Box 1105
Richmond, VA 23218

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Ms. Henicheck,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

The Company is preparing an application for Certificate of Public Convenience and Necessity ("CPCN") from the Virginia State Corporation Commission ("SCC"). Pursuant to the July 2003 Memorandum of Agreement between the SCC and the Department of Environmental Quality (DEQ) regarding Wetlands Impact Consultation, Dominion Energy is sending this letter to initiate consultation with the DEQ prior to filing an application with the SCC.

As part of the Chesterfield-Hopewell Rebuild Project, the Company delineated wetlands and other waters of the United States using the *Routine Determination Method* as outlined in the *1987 Corps of Engineers Wetland Delineation Manual* and methods described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (Version 2.0). The Company submitted the results of this delineation to the U.S. Army Corps of Engineers (the "Corps") on March 20, 2018, for confirmation. The Rebuild Project lies within the right-of-way delineated for Chesterfield-Hopewell. Total jurisdictional resources within the proposed Rebuild Project right-of-way is provided in the table below.

Table 1. Jurisdictional Features Identified within the ROW

PFO (Acres)	**PSS** (Acres)	**PEM** (Acres)	**Open Waters** (Acres)	**Stream Channels** (R3) Acres (LF)	**Stream Channels** (R4) Acres (LF)	**Stream Channels** (R6) Acres (LF)
0.00	0.00	5.28	0.00	0.02 (241)	0.01 (219)	0.00

At this time, in advance of the SCC filing, we respectfully request that you submit any comments or additional information you feel would have bearing on the Project within 30 days of the date of this letter. Enclosed is a Project Location Map depicting the rebuild route and project location.

If you would like to receive a GIS shapefile of the rebuild route to assist in your project review or if you have any questions, please do not hesitate to contact Rachel Studebaker at (804) 217-1847 or Rachel.M.Studebaker@dominionenergy.com.

Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Richard B. Gangle
Director, Environmental Services

Enclosure: Project Overview Map

Dominion Energy Virginia
10900 Nuckols Road, 4th Floor, Glen Allen, VA 23060
DominionEnergy.com

August 24, 2020
Mr. Roger Kirchen
Virginia Department of Historic Resources,
Review and Compliance Division
2801 Kensington Avenue
Richmond, Virginia 23221

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Mr. Roger Kirchen,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between the Company's existing Chesterfield Power Station and Enon Substation (Structure #2049/21 through #2049/36) (the "Chesterfield-Enon segment") in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

The Company is preparing an application for Certificate of Public Convenience and Necessity ("CPCN") from the Virginia State Corporation Commission ("SCC"). Pursuant to Va. Code §15.2-2202, the Company is writing to notify you of the proposed Rebuild Project in advance of this SCC filing. We respectfully request that you submit any comments or additional information you feel would have bearing on the Project within 30 days of the date of this letter. Enclosed is a Project Location Map depicting the rebuild route and project location.

If you would like to receive a GIS shapefile of the rebuild route to assist in your project review or if you have any questions, please do not hesitate to contact Nancy Reid at 804.293.3384 or nancy.r.reid@dominionenergy.com.

Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Nancy Reid

Nancy R. Reid
Siting & Permitting Specialist, Electric Transmission

Enclosure: Project Overview Map

Dominion Energy Virginia
10900 Nuckols Road, 4th Floor, Glen Allen, VA 23060
DominionEnergy.com

August 24, 2020
Mr. Doug Felix
Federal Aviation Administration,
Obstruction Evaluation Group, AJV-A520, Tetra Tech AMT Support
10101 Hillwood Parkway
Fort Worth, Texas 76177

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Mr. Doug Felix,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between the Company's existing Chesterfield Power Station and Enon Substation (Structure #2049/21 through #2049/36) (the "Chesterfield-Enon segment") in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Nancy Reid

Nancy R. Reid
Siting & Permitting Specialist, Electric Transmission

Enclosure: Project Overview Map

Dominion Energy Virginia
10900 Nuckols Road, 4th Floor, Glen Allen, VA 23060
DominionEnergy.com

August 24, 2020
Mr. Scott Denny
Virginia Department of Aviation,
Airport Services Division
5702 Gulfstream Road
Richmond, Virginia 23250

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Mr. Scott Denny,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between the Company's existing Chesterfield Power Station and Enon Substation (Structure #2049/21 through #2049/36) (the "Chesterfield-Enon segment") in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Sincerely,

Nancy Reid

Nancy R. Reid
Siting & Permitting Specialist, Electric Transmission

Enclosure: Project Overview Map

Dominion Energy Virginia
10900 Nuckols Road, 4th Floor, Glen Allen, VA 23060
DominionEnergy.com

August 24, 2020
Ms. Martha Little
Virginia Outdoors Foundation
600 East Main Street, Suite 402
Richmond, Virginia 23219

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Ms. Martha Little,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between the Company's existing Chesterfield Power Station and Enon Substation (Structure #2049/21 through #2049/36) (the "Chesterfield-Enon segment") in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Nancy Reid

Nancy R. Reid
Siting & Permitting Specialist, Electric Transmission

Enclosure: Project Overview Map

Dominion Energy Virginia
10900 Nuckols Road, 4th Floor, Glen Allen, VA 23060
DominionEnergy.com

August 24, 2020
Ms. Patrice Sadler
Historic Virginia Land Conservancy
5000 New Point Road, Suite 2202
Williamsburg, Virginia 23188

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Ms. Patrice Sadler,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between the Company's existing Chesterfield Power Station and Enon Substation (Structure #2049/21 through #2049/36) (the "Chesterfield-Enon segment") in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Nancy Reid

Nancy R. Reid
Siting & Permitting Specialist, Electric Transmission

Enclosure: Project Overview Map

Dominion Energy Virginia
10900 Nuckols Road, 4th Floor, Glen Allen, VA 23060
DominionEnergy.com

August 24, 2020
Mr. Bart Thrasher
Richmond District Engineer
Virginia Department of Transportation
Richmond District Office
2430 Pine Forest Drive
Colonial Heights, Virginia 23834

RE: Dominion Energy Virginia's Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project – Chesterfield County, Virginia

Dear Mr. Bart Thrasher,

Dominion Energy Virginia (the "Company") is proposing to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between the Company's existing Chesterfield Power Station and Enon Substation (Structure #2049/21 through #2049/36) (the "Chesterfield-Enon segment") in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

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Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Nancy Reid

Nancy R. Reid
Siting & Permitting Specialist, Electric Transmission

Enclosure: Project Overview Map

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

August 28, 2020

Rachel Studebaker
Environmental Specialist II
Dominion Energy Services
120 Tredegar Street
Richmond, VA 23219

RE: Proposed Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project, Chesterfield, Virginia

Dear Ms. Studebaker:

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, Dominion should coordinate 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

Department of Conservation and Recreation
Department of Health
Department of Agriculture and Consumer Services
Department of Game and Inland Fisheries
Virginia Marine Resources Commission
Department of Historic Resources
Department of Mines, Minerals, and 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:
  - http://128.172.160.131/gems2/

- 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

- DGIF 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/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx

- 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 (telephone (804) 698-4204 or e-mail bettina.rayfield@deq.virginia.gov).

I hope this information is helpful to you.

Sincerely,

Bettina Rayfield, Program Manager
Environmental Impact Review and
Long-Range Priorities

Site Data	
Project Area	69.19 Acres ±
Palustrine Emergent Wetlands (PEM)	5.28 Acres ±
Upper Perennial Stream Channels (R3)	0.02 Acres ± (241 L.F. ±)
Intermittent Stream Channels (R4)	0.01 Acres ± (219 L.F. ±)

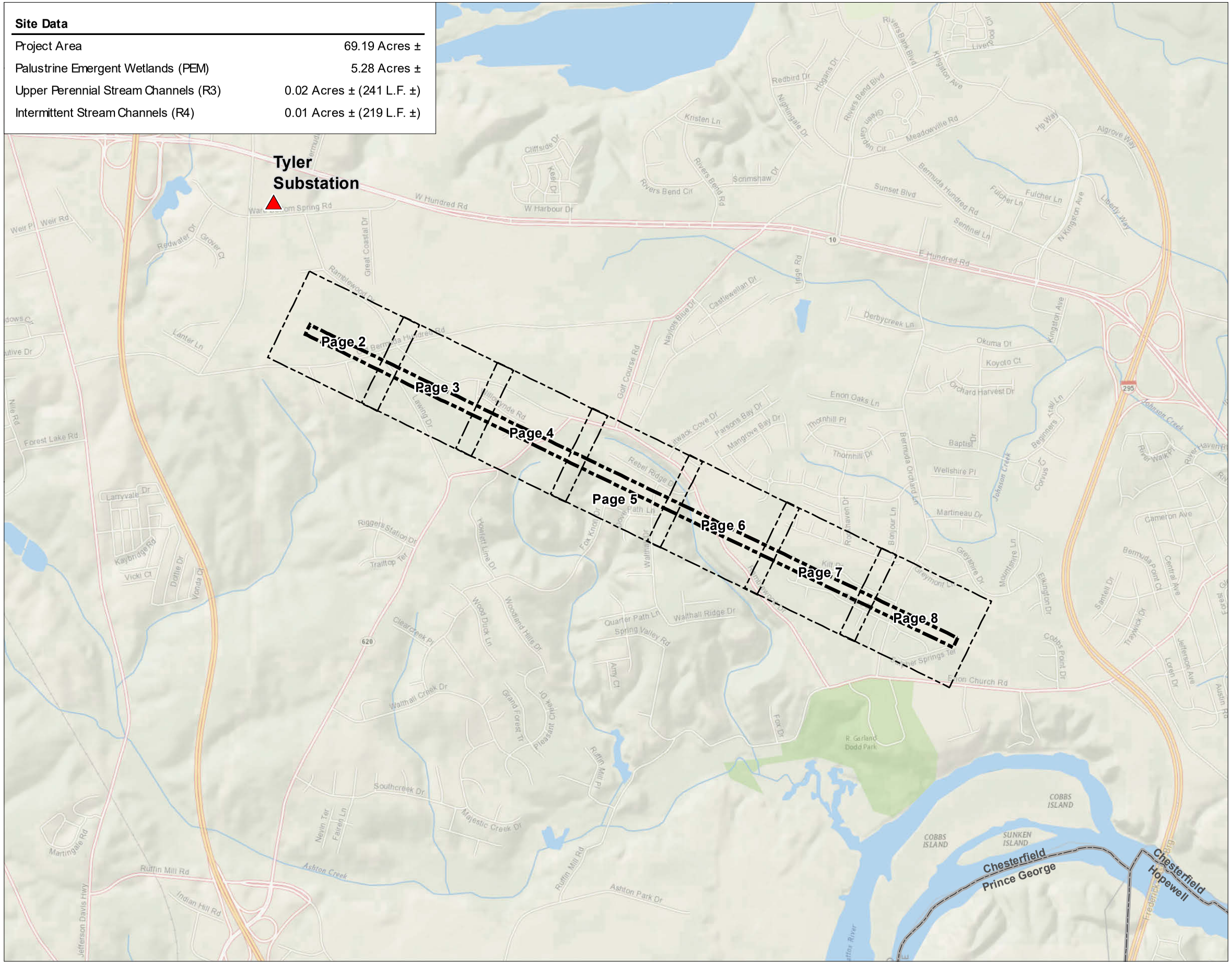


Figure No.
1

Title
Delineation Map

Client/Project 203401509
Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location
Chesterfield County, Virginia

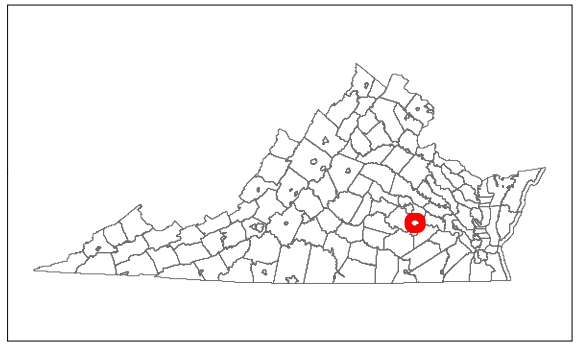
Prepared by LJJ on 2020-06-30
TR by MGS on 2020-09-10
IR by CPG on 2020-09-10

N

0 2,000 4,000 Feet

(At original document size of 11x17)
1:24,000

- Existing Substation
- Project Limits
- Page Index



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Substations exported from Ventyx, DCR
3. Base Map © National Geographic

Stantec

Page 01 of 08

Attachment 2.D.1
Page 1 of 8

Figure No.

1

Title

Delineation Map

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

Prepared by LJJ on 2020-08-10
TR by MGS on 2020-09-10
IR by CPG on 2020-09-10

N

0 200 400 Feet

(At original document size of 11x17)
1:2,400

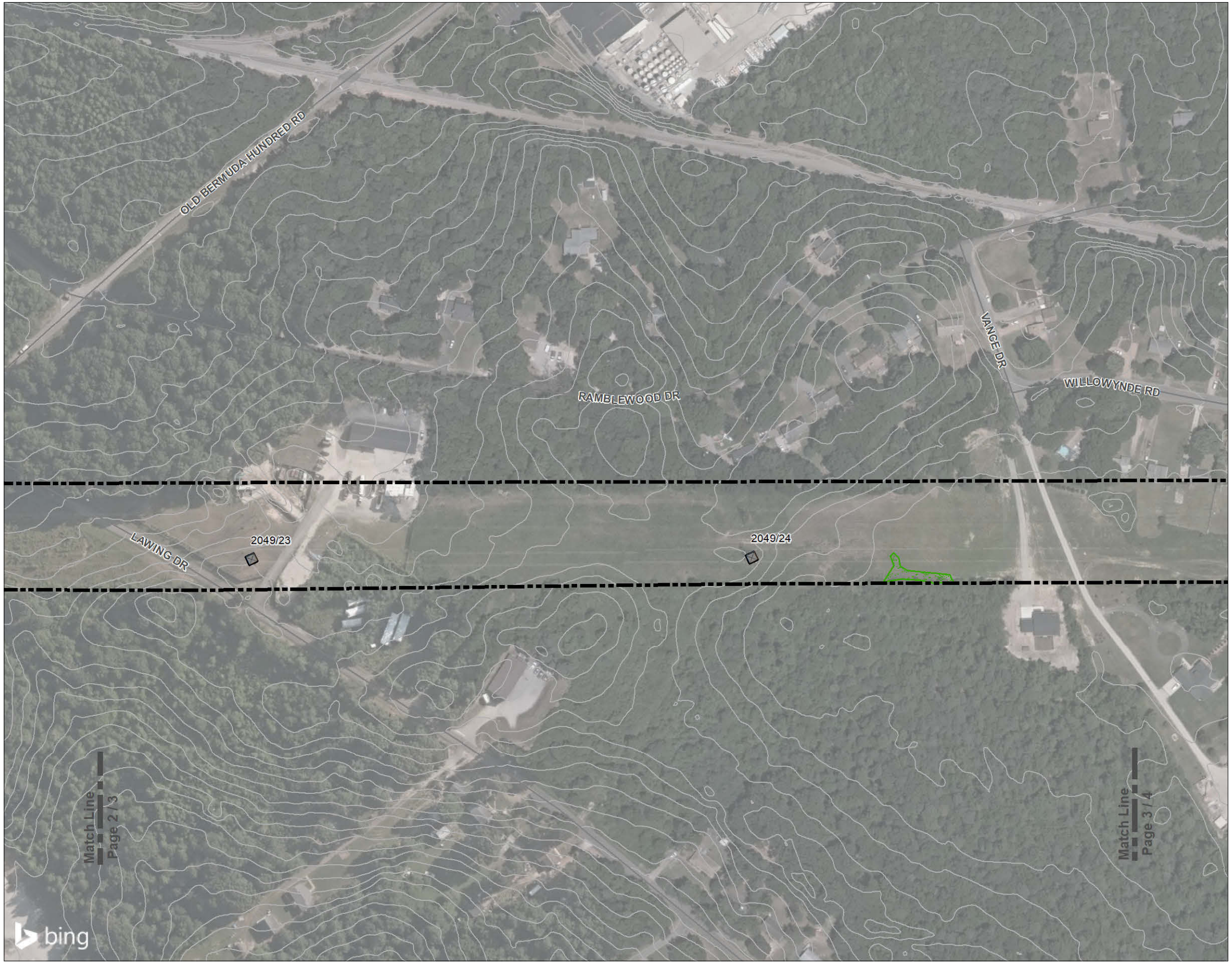
- Project Limits
- Project Right-of-Way
- Approximate Palustrine Emergent Wetland Limits (PEM)
- Approximate Upper Perennial Stream Channel Limits (R3)
- Approximate Intermittent Stream Channel Limits (R4)
- 5-Foot Contour

Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Substations exported from Ventyx, DCR, Chesterfield County GIS 2020
3. The limits of waters of the U.S., including wetlands, shown on this map have been field located by means of sub-meter capable GPS technology and are for planning purposes only.
4. Topography generated from digital elevation model derived from VGIN LiDAR.
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Stantec

Attachment 2.D.1
Page 2 of 8



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Delineation Map

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

Prepared by LJJ on 2020-08-10
TR by MGS on 2020-09-10
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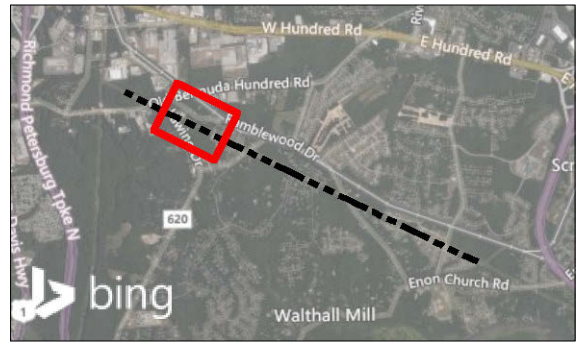

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Stantec

Attachment 2.D.1
Page 3 of 8

Figure No.

1

Title

Delineation Map

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

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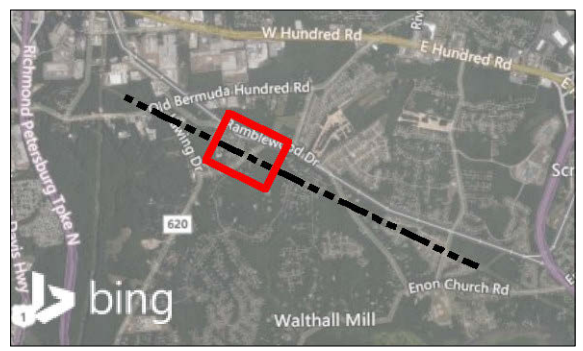

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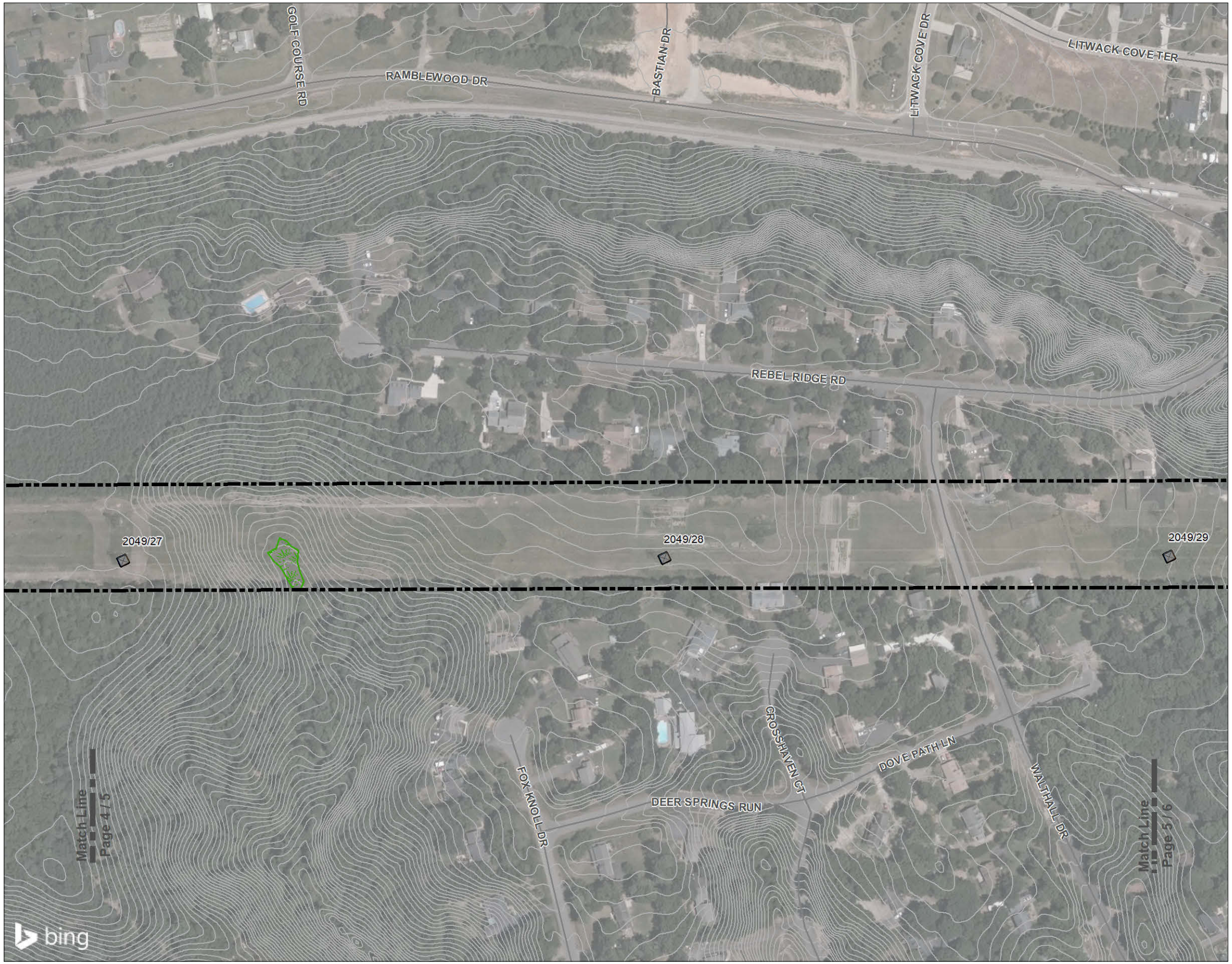
Stantec

Attachment 2.D.1
Page 4 of 8



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Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

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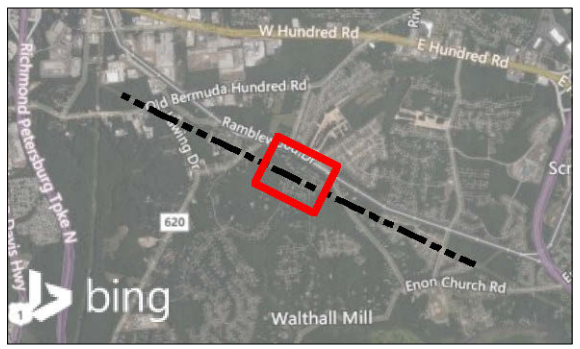

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Stantec

Attachment 2.D.1
Page 5 of 8

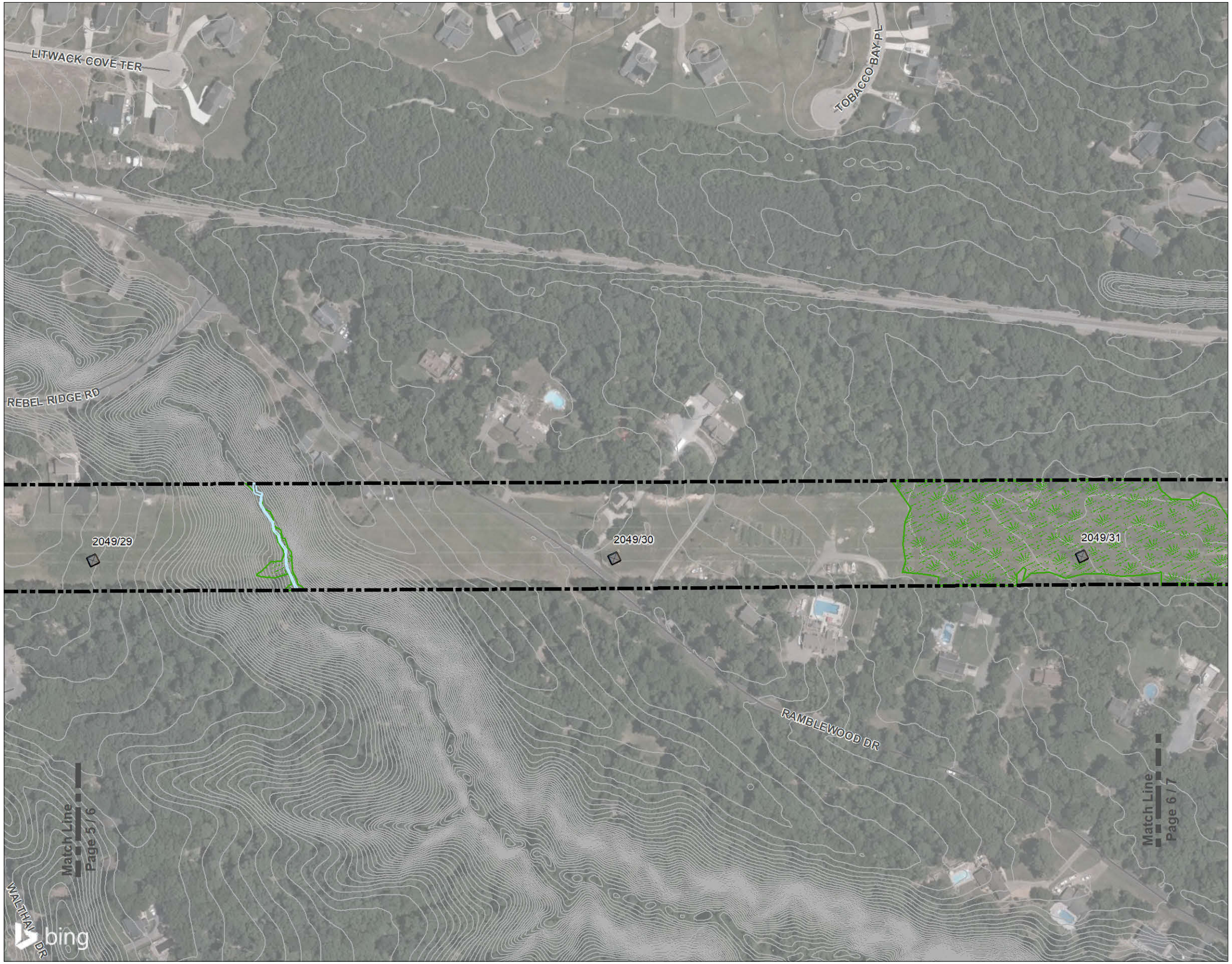

Figure No.

1

Title

Delineation Map

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

Prepared by LJJ on 2020-08-10
TR by MGS on 2020-09-10
IR by CPG on 2020-09-10

N

0 200 400 Feet

(At original document size of 11x17)
1:2,400

- Project Limits
- Project Right-of-Way
- Approximate Palustrine Emergent Wetland Limits (PEM)
- Approximate Upper Perennial Stream Channel Limits (R3)
- Approximate Intermittent Stream Channel Limits (R4)
- 5-Foot Contour

Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Substations exported from Ventyx, DCR, Chesterfield County GIS 2020
3. The limits of waters of the U.S., including wetlands, shown on this map have been field located by means of sub-meter capable GPS technology and are for planning purposes only.
4. Topography generated from digital elevation model derived from VGIN LiDAR.
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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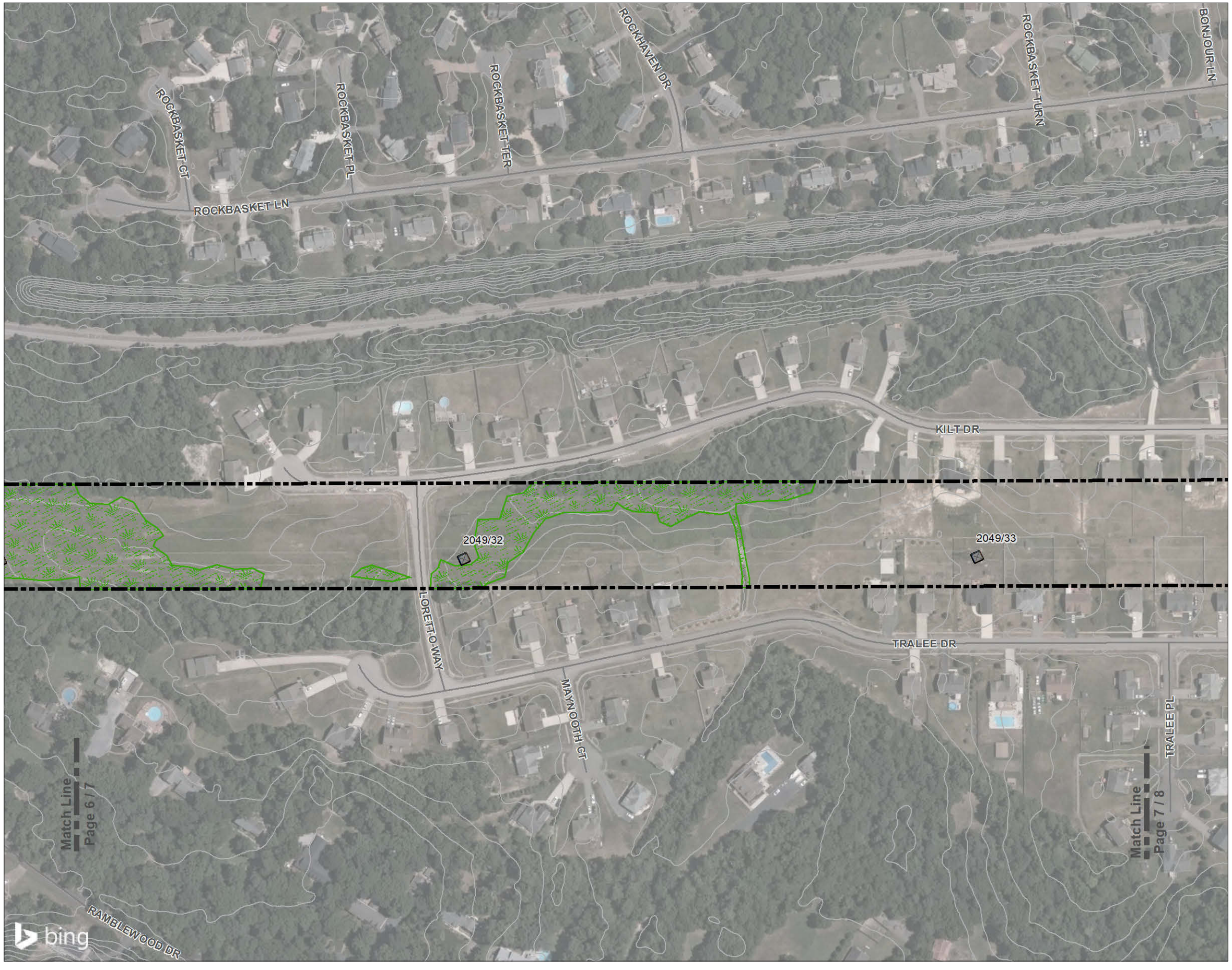
Attachment 2.D.1
Page 6 of 8



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Project Location

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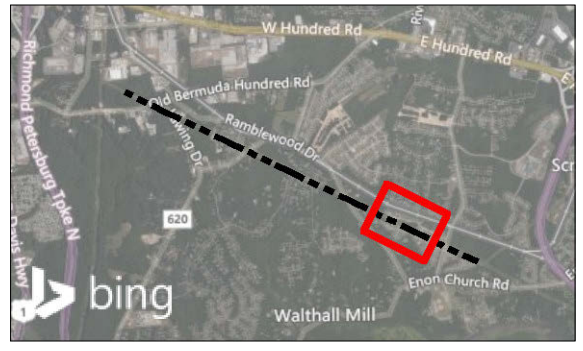

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U:\203401509\03_data\gis_cad\gis\01509_e_delin.mxd Revised: 2020-09-10 By: ljjones

Attachment 2.D.1
Page 7 of 8

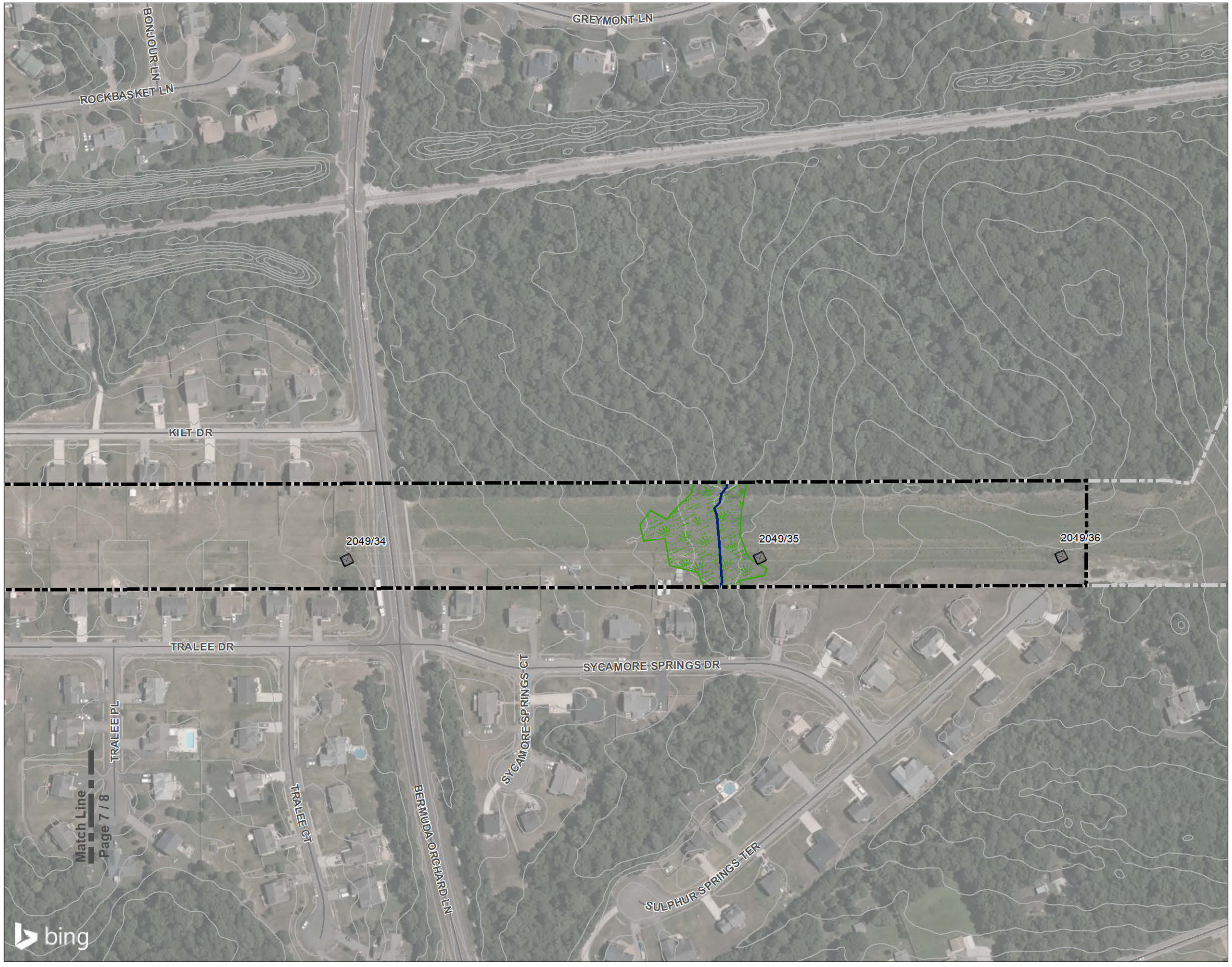

Figure No.

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Title

Delineation Map

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

Prepared by LJJ on 2020-08-10
TR by MGS on 2020-09-10
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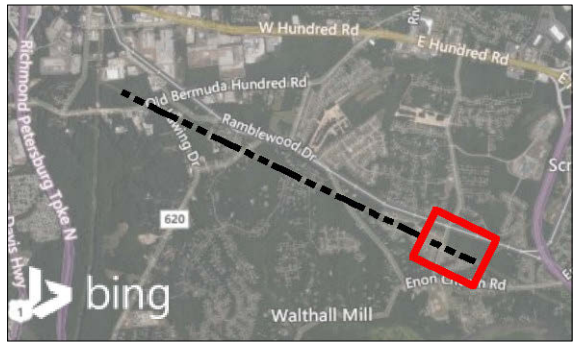

Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Substations exported from Ventyx, DCR, Chesterfield County GIS 2020
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Attachment 2.D.1
Page 8 of 8

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

September 8, 2020

Ms. Rachel Studebaker
Dominion Energy Services
120 Tredegar Street
Richmond, VA 23219

RE: Wetland Impact Consultation; Proposed Allied - Chesterfield 230 kV Transmission Lines #2049 Partial Rebuild Project, Chesterfield County, Virginia

Dear Ms. Studebaker:

In accordance with the Department of Environmental Quality-State Corporation Commission *Memorandum of Agreement Regarding Wetland Impact Consultation* (July 2003), we have reviewed the information submitted by Dominion Energy Services (here after, Dominion**)** regarding potential wetland impacts on the above referenced project. The purpose of the project proposes to rebuild an approximately 2.9-mile section of the existing 9.9-mile long 230 kV Allied-Chesterfield Line #2049, which is located between Structures #2049/20 and Structure #2049/37 in Chesterfield County, Virginia (the "Rebuild Project"). The Rebuild Project will replace aging infrastructure that is at the end of its service life, thereby continuing to enable the Company to maintain safe and reliable electric transmission service to its customers. The Rebuild Project is entirely within existing transmission line right-of-way or on Company-owned property and no additional right-of-way is necessary.

Based on review of the information provided by Dominion in an email on September 2, 2020, both wetland areas and stream corridors were identified within the existing transmission line alignment. Because this project proposes to use existing Dominion right-of-way, no other alternatives for this project were considered. Given that this project involves rebuilding the transmission line; Dominion anticipates minimum permanent impacts to State waters associated with this project.

Summary of Findings

Based on an email from Ms. Studebaker dated September 2, 2020, the following table was provided of jurisdictional state waters.

Table 1. Jurisdictional Resources within Rebuild Project Right-of-Way

PFO (Acres)	**PSS** (Acres)	**PEM** (Acres)	**Open Waters** (Acres)	**Stream Channels** (R3) Acres (LF)	**Stream Channels** (R4) Acres (LF)	**Stream Channels** (R6) Acres (LF)
0.00	0.00	5.28	0.00	0.02 (241)	0.01 (219)	0.00

The DEQ Piedmont Regional Office (PRO) will make the final permitting decisions.

Recommendations and Potential Permits

Based upon review of the information provided by Dominion, we offer the following recommendations:

1. Wetland and stream impacts should be avoided and minimized to the maximum extent practicable. Stream impacts should be minimized or avoided by spanning the transmission line across each stream. No foundations should be placed within streambeds. Where access is required across a wetland, removable mats should be used to reduce compaction and rutting. Towers should be placed avoid wetlands, wherever possible. To the extent where any footings must be installed in wetlands, each footing should occupy the minimum space necessary. When excavation for a structure is necessary in a wetland, excess spoil should not be disposed of in adjacent wetland areas unless authorized by a state or federal wetland permit.
2. If the scope of the project changes, additional review will be necessary by this office.
3. At a minimum, compensation for impacts to State Waters, if necessary, should be in accordance with all applicable state wetland regulations and wetland permit requirements, including the compensation for permanent conversion of forested wetlands to emergent wetlands.
4. Any temporary impacts to surface waters associated with this project should require restoration to pre-existing conditions.
5. No activity may substantially disrupt the movement of aquatic life indigenous to the water body, including those species, which normally migrate through the area, unless the primary purpose of the activity is to impound water. Culverts placed in streams must be installed to maintain low flow conditions. No activity may cause more than minimal adverse effect on navigation. Furthermore the activity must not impede the passage of normal or expected high flows and the structure or discharge must withstand expected high flows.
6. Erosion and sedimentation controls should be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls should be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls should remain in place until the area is stabilized and should then be removed. Any exposed slopes and streambanks should be stabilized immediately upon completion of work in each permitted area. All denuded areas should be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.
7. No machinery may enter surface waters, unless authorized by a Virginia Water Protection (VWP) permit.

8. Heavy equipment in temporarily impacted surface waters should be placed on mats, geotextile fabric, or other suitable material, to minimize soil disturbance to the maximum extent practicable. Equipment and materials should be removed immediately upon completion of work.
9. Activities should be conducted in accordance with any Time-of-Year restriction(s) as recommended by the Department of Game and Inland Fisheries, the Department of Conservation and Recreation, or the Virginia Marine Resources Commission. The permittee should retain a copy of the agency correspondence concerning the Time-of-Year restriction(s), or the lack thereof, for the duration of the construction phase of the project.
10. All construction, construction access, and demolition activities associated with this project should be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by a permit. Wet, excess, or waste concrete should be prohibited from entering surface waters.
11. Herbicides used in or around any surface water should be approved for aquatic use by the United States Environmental Protection Agency (EPA) or the U.S. Fish & Wildlife Service. These herbicides should be applied according to label directions by a licensed herbicide applicator. A non-petroleum based surfactant should be used in or around any surface waters.
12. Consider mitigating impacts to forested or converted wetlands by establishing new forested wetlands within the impacted watershed.

Further, the following permits may be required:

1. If the project qualifies for a Nationwide Permit 12 (NWP 12) from the Corps, then a Virginia Water Protection (VWP) permit is not necessary. If the applicant does not obtain a NWP 12, then a VWP permit may be necessary.
2. If the project proposes permanent impacts to more than one-half (1/2) acre of wetlands, then a VWP permit will be required from DEQ.

Should you have any questions, please don't hesitate to contact me at 804-698-4007 or at **michelle.henicheck@deq.virginia.gov**.

Sincerely,

Michelle Henicheck

Michelle Henicheck, PWS
Senior Wetland Ecologist
Office of Wetlands & Stream Protection

Cc: Jaime Bauer Robb, DEQ - PRO
Bettina Sullivan, DEQ - Office of Environmental Review

Stantec

Memo

To:	Rachel Studebaker Dominion Energy 120 Tredegar Street Richmond, VA 23219	From:	Tracey McDonald Stantec Consulting Services, Inc. 5209 Center Street Williamsburg, VA 23188
File:	203401509	Date:	September 10, 2020

Reference: Allied to Chesterfield 230 kV Partial Rebuild, Chesterfield, Virginia: Solid & Hazardous Waste Search

Stantec conducted database searches for solid and hazardous wastes and petroleum release sites within a 0.5-mile radius of the proposed Allied to Chesterfield 230kV Partial Rebuild project. The project begins at structure 2049/21 and extends for 2.9 miles, terminating at structure 2049/36 in Chesterfield County, Virginia. The project will take place within the existing cleared and maintained transmission line right-of-way (ROW) and no additional ROW appears to be required. The project involves the replacement of 230 kV weathering steel transmission towers.

Stantec obtained publicly available data from the Environmental Protection Agency (EPA) Facility Registry System (FRS), which provides information about facilities, sites, or places subject to environmental regulation or of environmental interest. Although this data set includes all sites subject to environmental regulation by the EPA or other state authority, such as sites that fall under air emissions or wastewater programs, the results reported here only include those sites which fall under the EPA's hazardous waste, solid waste, remediation, and underground storage tank programs. These sites include Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/Superfund; Resource Conservation and Recovery Act (RCRA); and brownfield sites. Per this database, there are 12 registered RCRA sites present within a 0.5-mile radius of the project (Table 1). Five of these sites are inactive, and all are located outside of the project ROW.

The Virginia Department of Environmental Quality (DEQ) records were also searched for the presence of solid waste management facilities, Voluntary Remediation Program sites, and petroleum releases within 0.5 mile of the proposed project. One solid waste permit site (Permit Number 900000002723, Table 2) is located approximately 2,030 linear feet from the project area and falls outside of the ROW. A total of seven petroleum release sites were identified within the search radius with the closest site (PC Number 19932342) located approximately 933 linear feet from the project area. Additionally, none of the identified petroleum release sites identified within 0.5 mile of the proposed project intersect with the project ROW and all cases have been closed (Table 3). Dominion Energy has a procedure in place to handle petroleum contaminated soil, if encountered; however, as all the release sites are located outside of the project area, none of the petroleum release sites are expected to have an impact on the proposed project.

In summary, a total of seven petroleum release sites, and 13 solid waste permit sites are located within a 0.5-mile radius of the project area; however, none of the sites are located within the project ROW. No EPA registered brownfield sites, or CERCLA/Superfund sites are located within 0.5 mile of the project area.

Stantec

Memo

Table 1. Solid waste sites identified by the EPA as occurring within 0.5-mile of the Allied to Chesterfield 230 kV Partial Rebuild Project.

Site Name	Permit Number	Interest Type	Location	Latitude	Longitude	Status	Proximity to Centerline (feet)
Atlantic Industrial Services Inc	VAD980555577	RCRA, toxic release inventory	Chesterfield County	37.34475	-77.38801	Active	867
Univar USA Inc	VAD041283342	RCRA, toxic release inventory	Chesterfield County	37.343644	-77.383198	Active	1252
Conway Freight	VAR000500421	RCRA, Small quantity generator	Chesterfield County	37.341622	-77.400469	Active	1948
Fedex Freight Rch	VAR000517219	RCRA	Chesterfield County	37.34749	-77.39935	Inactive	1406
Penske Truck Leasing Co	VAR000515502	RCRA, Conditionally exempt small quantity generator	Chesterfield County	37.34905	-77.40052	Active	2014
SAIA Motor Freight	VAR000519512	RCRA, Small quantity generator	Chesterfield County	37.35033	-77.39765	Active	2014
Adamson Global Technology Corp	VAD004168357	RCRA	Chesterfield County	37.346654	-77.390949	Inactive	1121
Altec Industries Inc	VAR000531525	RCRA, Conditionally exempt	Chesterfield County	37.34646	-77.38841	Active	1412

Attachment 2.E.1
Page 2 of 5

Reference: **Allied to Chesterfield 230 kV Partial Rebuild, Chesterfield, Virginia: Solid & Hazardous Waste Search**

		small quantity generator					
Browning-Ferris Ind Chemical	VAD065394223	RCRA	Chesterfield County	37.34443	-77.38777	Inactive	780
Professional Carpet Systems	VA0001020239	RCRA	Chesterfield County	37.342186	-77.390706	Inactive	317
Cannon Oliver B	VAD988187639	RCRA	Chesterfield County	37.342006	-77.393245	Inactive	753
Enon Annex	VAD988211546	RCRA, Conditionally exempt small quantity generator	Chesterfield County	37.33659	-77.38395	Active	1299

Table 2. Solid waste sites identified by the DEQ as occurring within 0.5-mile of the Allied to Chesterfield 230 kV Partial Rebuild Project.

Site Name	Permit Number	Interest Type	Location	Latitude	Longitude	Status	Proximity to Centerline (feet)
Point of Rocks Park Emergency Debris Site	900000002723	Solid Waste Permit	Chesterfield County	37.1941873	-77.214522	Active	2030

Attachment 2.E.1
Page 3 of 5

September 10, 2020

Rachel Studebaker
Page 4 of 5

Reference: **Allied to Chesterfield 230 kV Partial Rebuild, Chesterfield, Virginia: Solid & Hazardous Waste Search**

Table 3. Petroleum releases identified by the DEQ as occurring within 0.5 mile of the Allied to Chesterfield 230 kV Partial Rebuild Project.

Site Name	PC Number	Location	Latitude	Longitude	Status	Type of Release	Federally Registered Tank?	Proximity to Centerline (feet)
Maintech International Inc	19932342	Chesterfield	37.2068306	-77.2325015	Closed	Confirmed	Y	933
Primary Oil and Energy Corp	19931121	Chesterfield	37.2070937	-77.2329232	Closed	Confirmed	Y	1010
First Impressions	19890537	Chesterfield	37.2103345	-77.2332245	Closed	Confirmed	Y	2711
Continental Land Resources	19900645	Chesterfield	37.2092546	-77.2321811	Closed	Confirmed	N	2327
Primary Oil and Energy Corp	19931121	Chesterfield	37.2070937	-77.2329232	Closed	Confirmed	Y	1000
Maintech International Inc	19932342	Chesterfield	37.2068306	-77.2325015	Closed	Confirmed	Y	950
Bermuda Golf Course	19984091	Chesterfield	37.2033838	-77.22.28162	Closed	Confirmed	N	1157

Attachment 2.E.1
Page 4 of 5

Stantec

Memo

If you have any questions regarding the details presented in this report, please feel free to contact me at your convenience.

Stantec Consulting Services Inc.

Tracey McDonald
Regulatory Specialist II
Phone: 757 234 9329
tracey.mcdonald@stantec.com

Stantec

Memo

To:	Rachel Studebaker	From:	Tracey McDonald
	Dominion Energy Virginia 120 Tredegar Street Richmond, VA 23219		Stantec Consulting Services, Inc. 5209 Center Street Williamsburg, VA 23188
File:	203401509	Date:	September 10, 2020

Reference: Allied to Chesterfield 230 kV Partial Rebuild, Chesterfield, Virginia: Threatened and Endangered Species Review

Online database searches for federal and state threatened and endangered species were completed by Stantec for the Allied to Chesterfield 230 kV Partial Rebuild Project. The project begins at structure 2049/21 and extends for 2.9 miles, terminating at structure 2049/36 in Chesterfield County, Virginia. The project will take place within the existing, cleared and maintained transmission line right-of-way (ROW) and no additional ROW appears to be required. The project involves the replacement of 230 kV weathering steel transmission towers. The online database searches included the following:

- U.S. Fish & Wildlife (USFWS) Information, Planning, and Conservation (IPaC)
- Department of Wildlife Resources (DWR) Virginia Fish and Wildlife Information Service (VAFWIS)
- DWR Northern Long-eared Bat (NLEB) Winter Habitat and Roost Trees Map
- Virginia Department of Conservation and Recreation (DCR) Natural Heritage Data Explorer (NHDE)
- USFWS Bald Eagle Concentration Area Map
- Center for Conservation Biology (CCB) Bald Eagle Nest Locator for Virginia
- National Marine Fisheries Service (NMFS) Critical Habitat Map

Results

Species with confirmed or potential presence within the project vicinity have been identified by database searches and are provided below in Table 1.

Table 1. Database Search Results

Species	Status	Database	Results
Northern long-eared bat (*Myotis septentrionalis*)	FT, ST	USFWS-IPaC, DWR-NLEB Winter Habitat and Roost Tree Map	Identified as potentially occurring near the project. No known hibernacula or maternity roost trees within the vicinity of the project.

Reference: Allied to Chesterfield 230 kV, Chesterfield County, Virginia: Threatened and Endangered Species Review

Atlantic sturgeon (*Acipenser oxyrinchus*)	FE, SE	DWR-VAFWIS; DCR-NHD	Identified as potentially occurring within the project watershed. This species inhabits rivers and coastal waters.
Loggerhead shrike (*Lanius ludovicianus*)	ST	DWR-VAFWIS; DCR-NHD	Identified as potentially occurring near the project. The loggerhead shrike nests in small trees/shrubs. If clearing of shrubs or trees will occur during the loggerhead shrike nesting season (April 1 – July 31), DGIF may require surveys.
Sensitive joint-vetch (*Aeschynomene virginica*)	FT, ST	DCR-NHD	Identified as potentially occurring near the project. This species inhabits the upper limits of tidal wetlands.
Bald eagle (*Haliaeetus leucocephalus*)	BGEPA	CCB	Identified as occurring within one-mile of the project area. All work will be performed within existing, cleared, and maintained ROW and disturbance to bald eagles is unlikely

FT: federally threatened, FE: federally endangered, ST: state threatened, SE: state endangered, BGEPA: Bald and Golden Eagle Protection Act

Conclusion

The following conclusions are based upon the proposed scope of work, as described by Dominion Energy. This scope of work assumes construction access will avoid stream crossings where practical or use crane mats to span stream crossings with no in-stream work required. All work will take place within existing cleared and maintained transmission line ROW. Erosion and sediment controls will be used as appropriate throughout the project to protect wetlands and water resources.

The USFWS-IPaC database identified the northern long-eared bat as potentially occurring within or near the project area; however, the DWR-NLEB *Winter Habitat and Roost Tree Map* shows no known hibernacula or maternity roost trees are within the project vicinity. The northern long-eared bat is typically found in intact forest habitats with mixed hardwoods and often nests in and breeds in tree hollows and in woody debris (Source: NatureServe). The proposed project will take place within existing, cleared, and maintained transmission line ROW, although limited removal of danger trees and forestry work for construction access may be necessary during the project. Stantec recommends that no tree removal occur during the time-of-year restriction for tree clearing (June 1 – July 31) in adherence with the 4(d) Rule to avoid potential adverse effects to the northern long-eared bat.

VAFWIS-DWR records indicate that the federally and state endangered Atlantic sturgeon has been documented near the project area. The Atlantic sturgeon is typically found in near shore environments in bay/sound areas and migrates to rivers to spawn (Source: NatureServe). As per the

Reference: Allied to Chesterfield 230 kV, Chesterfield County, Virginia: Threatened and Endangered Species Review

NMFS *Critical Habitat Map*, the James River has been designated as critical habitat for the Atlantic sturgeon. The transmission structures being replaced are within existing, cleared, and maintained transmission line ROW with no in-water work occurring. Therefore, the project is not expected to affect the Atlantic sturgeon or critical habitat.

The federally and state endangered sensitive joint-vetch was also identified by DCR-NHD as potentially occurring within or near the project area. The sensitive joint-vetch is found in fresh to slightly brackish tidal wetlands and often grows partially submerged near river mouths (Source: NatureServe). It appears that no suitable habitat is present within the project area, and all work will occur within existing, cleared, and maintained ROW. Therefore, the project is expected to have no effect on the sensitive joint-vetch.

The state threatened loggerhead shrike was identified by DWR-VAFWIS and DCR-NHD as potentially occurring within or near the project area. The species typically nests in shrubs or small trees in open areas and sometimes moves from pastures to shrub and open forest habitats during cold. While potential habitat is present, no conversion of habitat is expected and all work will occur within existing, cleared, and maintained ROW. Therefore, the project is not likely to adversely affect the loggerhead shrike.

The USFWS *Virginia Bald Eagle Concentration Area Map* confirms that the proposed project area does not intersect with bald eagle concentration areas. No bald eagle concentration areas are located within the project area. Bald eagle nest CD1401 is located approximately 4,100 ft to the south of the project area and bald eagle nest CD1602 is located approximately 1.61-miles to the north of the project area. Since no work is occurring within 660 ft of an active eagle nest Stantec anticipates that bald eagles are unlikely to be disturbed by construction.

Based on the scope of the proposed work, adverse effects to threatened and endangered species are not anticipated. The complete results from the database searches are provided for your reference (See Attachments) for use in agency coordination.

If you have any questions, please contact me at your earliest convenience.

Regards,

Stantec Consulting Services, Inc.

Reference: Allied to Chesterfield 230 kV, Chesterfield County, Virginia: Threatened and Endangered Species Review

Tracey McDonald
Regulatory Specialist II
Phone: 757-223-9329
tracey.mcdonald@stantec.com

Attachments:

- USFWS-IPaC Database Search Results
- DWR-VAFWIS Database Search Results
- DWR-NLEB Winter Habitat and Roost Tree Map Database Search Results
- DCR Natural Heritage Data Explorer Database Search Results
- USFWS Bald Eagle Concentration Area Map
- CCB Bald Eagle Nest Locator for Virginia Database Search Results

Rachel M Studebaker (Services - 6)

From: Hypes, Rene' <rene.hypes@dcr.virginia.gov>
Sent: Tuesday, August 25, 2020 10:39 AM
To: Rachel M Studebaker (Services - 6)
Cc: nhreview, rr
Subject: [EXTERNAL] Re: Proposed Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project

Ms. Studebaker,

Thank you for your request. In order for us to initiate the review of this project, we need a completed information services order form along with the attached project map. It would also be helpful if you could provide ArcGIS shapefile of the proposed project. Please note, our standard review time is 30 calendar days; however as outlined on the information services order form there is a 15 calendar day expedited review option as well as a 5 business day review option. Please let me know if you have any questions.

Sincerely,

Rene' Hypes

On Tue, Aug 25, 2020 at 9:58 AM Rachel.M.Studebaker@dominionenergy.com <Rachel.M.Studebaker@dominionenergy.com> wrote:

> Ms. Hypes,
>
> Please see the attached letter and project map notifying you of the proposed transmission line partial rebuild project located in Chesterfield County, Virginia.
>
> Please contact me with any questions or for additional information.
>
> Thank you,
>
> Rachel Studebaker
>
> Environmental Specialist II
>
> Dominion Energy Services
>
> 120 Tredegar Street, Richmond, VA 23219

Office: (804) 273-4086

Cell: (804) 217-1847

--

S. 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 (phone)

804-371-2674 (fax)

rene.hypes@dcr.virginia.gov

Conserving VA's Biodiversity through Inventory, Protection and Stewardship

http://www.dcr.virginia.gov/natural-heritage

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

Russell W. Baxter
Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Nathan Burrell
Deputy Director of Government and Community Relations

Thomas L. Smith
Deputy Director of Operations

July 28, 2020

Lauren Pudvah
Stantec Consulting Services, Inc.
5209 Center Street
Williamsburg, VA 23188

Re: Chesterfield to Allied 230 kV Project

Dear Ms. Pudvah:

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 currently in Biotics, natural heritage resources have not been documented within the submitted project boundary including a 100 foot buffer. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources. In addition, the project boundary does not intersect any of the predictive models identifying potential habitat for natural heritage resources.

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 $90.00 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 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 from https://vafwis.dgif.virginia.gov/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dwr.virginia.gov.

Should you have any questions or concerns, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

Sincerely,

Tyler Meader

Tyler Meader
Natural Heritage Locality Liaison

From:	Rachel.M.Studebaker@dominionenergy.com
To:	Gray, Corey; Dyba, Suzanne
Subject:	FW: Re: Proposed Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project
Date:	Monday, August 31, 2020 1:04:42 PM
Attachments:	image001.png

DEQ Supp attachment 2.F.5

From: Ewing, Amy <amy.ewing@dwr.virginia.gov>
Sent: Monday, August 31, 2020 12:40 PM
To: Rachel M Studebaker (Services - 6) <Rachel.M.Studebaker@dominionenergy.com>
Subject: [EXTERNAL] Re: Proposed Allied–Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project

Thank you for contacting us about your project. Due to staffing limitations, we are unable to review and provide comments on projects that are not currently involved in one of the regulatory review processes for which we are a formal consulting agency (see https://www.DWR.virginia.gov/environmental-programs/). If your project becomes involved in one of these review processes, we will review the project at that time and provide our comments to the requesting agency. In advance of that, we recommend that you conduct a preliminary desktop analysis to evaluate your project's potential impacts upon the Commonwealth's wildlife resources by accessing our online information system, the Virginia Fish and Wildlife Information Service (VAFWIS) and using the **Geographic Search** function to generate an **Initial Project Assessment** (IPA) report.

We recommend the following steps:

A. Access VAFWIS at this link: https://vafwis.DWR.virginia.gov/fwis/

If you are not already a VAFWIS subscriber, you should request to become one by emailing a request to VAFWIS_support@DWR.virginia.gov. VAFWIS Subscriptions are free of charge. As a subscriber, one is able to generate an IPA for the project area (project site plus a minimum 2-mile buffer) which generates a list of imperiled wildlife and designated wildlife resources known from the project area. You may also access VAFWIS as a visitor, but access to data and mapping at this user level is restricted.

Alternatively, you may contact our Geographic Information Systems (GIS) Coordinator, Jay Kapalczynski, at Jay.Kapalczynski@DWR.virginia.gov to request access to the Wildlife Mapping and Environmental Review Map Service (WERMS) which allows you to download GIS data into your own system.

B. Access information about the location of bat hibernacula and roosts from the following locations:

Northern Long-Eared Bats: https://www.dwr.virginia.gov/wildlife/bats/northern-long-eared-bat-application/

Little Brown Bats and Tricolored Bats:
https://www.dwr.virginia.gov/wildlife/bats/little-brown-bat-tri-colored-bat-winter-habitat-roosts-application/

C. Access up to date information about the location and status of bald eagle nests in Virginia by accessing the Center for Conservation Biology's Eagle Nest Locator at https://ccbbirds.org/what-we-do/research/species-of-concern/virginia-eagles/nest-locator/

D. Review the DWR information, guidance, and protocols available on our website at the bottom of this page in the "Additional Resources" section and implement, as appropriate.

E. Include the results of your desktop analysis with your project documents, applications, etc.

Amy Martin Ewing
Environmental Services Biologist
Manager, Wildlife Information
P 804.367.2211
Department of Wildlife Resources
CONSERVE. CONNECT. PROTECT.

A 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228
www.VirginiaWildlife.gov

On Tue, Aug 25, 2020 at 9:57 AM Rachel.M.Studebaker@dominionenergy.com <Rachel.M.Studebaker@dominionenergy.com> wrote:

> Ms. Ewing,
>
> Please see the attached letter and project map notifying you of the proposed transmission line partial rebuild project located in Chesterfield County, Virginia.
>
> Please contact me with any questions or for additional information.
>
> Thank you,
>
> Rachel Studebaker
> Environmental Specialist II
> Dominion Energy Services
> 120 Tredegar Street, Richmond, VA 23219
> Office: (804) 273-4086

Cell: (804) 217-1847

CONFIDENTIALITY NOTICE: This electronic message contains information which may be legally confidential and or privileged and does not in any case represent a firm ENERGY COMMODITY bid or offer relating thereto which binds the sender without an additional express written confirmation to that effect. The information is intended solely for the individual or entity named above and access by anyone else is unauthorized. If you are not the intended recipient, any disclosure, copying, distribution, or use of the contents of this information is prohibited and may be unlawful. If you have received this electronic transmission in error, please reply immediately to the sender that you have received the message in error, and delete it. Thank you.

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
(800) 592-5482
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director
(804) 698-4000

August 13, 2019

Mr. Jason E. Williams
Director Environmental Services
Dominion Energy
5000 Dominion Boulevard
Glen Allen, VA 23060

Transmitted electronically: jason.e.william@dominionenergy.com

Subject: Dominion Energy (Electric Transmission) – Annual Standards and Specifications for Erosion & Sediment Control and Stormwater Management (AS&S for ESC and SWM)

Dear Mr. Williams:

The Virginia Department of Environmental Quality ("DEQ") hereby approves the Annual Standards and Specifications for Erosion & Sediment Control and Stormwater Management for Dominion Energy (Electric Transmission) dated "May 29, 2019". This coverage is effective from August 13, 2019 to August 12, 2020.

To ensure compliance with approved specifications, the Virginia Erosion and Sediment Control Law and the Virginia Stormwater Management Act, DEQ staff will conduct random site inspections, respond to complaints, and provide on-site technical assistance with specific erosion and sediment control and stormwater management measures and plan implementation.

Please note that your approved Annual Standards and Specifications include the following requirements:

1. Variance, exception, and deviation requests must be submitted separately from this Annual Standards and Specifications submission to DEQ. DEQ may require project-specific plans associated with variance requests to be submitted for review and approval.

2. The following information must be submitted to DEQ for each project at least two weeks in advance of the commencement of regulated land-disturbing activities. Notifications shall be sent by email to: StandardsandSpecs@deq.virginia.gov
    - i: Project name or project number;
    - ii: Project location (including nearest intersection, latitude and longitude, access point);
    - iii: On-site project manager name and contact info;
    - iv: Responsible Land Disturber (RLD) name and contact info;
    - v: Project description;

vi: Acreage of disturbance for project;
vii: Project start and finish date; and
viii: Any variances/exceptions/waivers associated with this project.

3. Project tracking of all regulated land disturbing activities (LDA) must be submitted to the DEQ on a bi-annual basis. Project tracking records shall contain the same information as required in the two week e-notifications for each regulated LDA.
4. Erosion & Sediment Control and Stormwater Management plan review and approval must be conducted by DEQ-Certified plan reviewers and documented in writing.

To ensure an efficient information exchange and response to inquiries, the DEQ Central Office is your primary point of contact. Central Office staff will coordinate with our Regional Office staff as appropriate.

Thank you very much for your submission and continued efforts to conserve and protect Virginia's precious natural resources.

Sincerely,

Jaime B. Robb

Jaime B. Robb, Manager
Office of Stormwater Management

Cc: Amelia Boschen, *Amelia.h.boschen@dominionenergy.com*
Elizabeth Hester, *Elizabeth.l.hester@dominionenergy.com*
Stacey Ellis, *Stacey.t.ellis@dominionenergy.com*

Case Decision Information:
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period.

STAGE I PRE-APPLICATION ANALYSIS FOR THE PROPOSED DOMINION ENERGY VIRGINIA ALLIED-CHESTERFIELD 230 kV TRANSMISSION LINE #2049 230 kV PARTIAL REBUILD, CHESTERFIELD COUNTY, VIRGINIA

September 23, 2020

Prepared for:

Dominion Energy Virginia
Attention: Nancy Reid
10900 Nuckols Road, 4th Floor
Glen Allen VA 23060
434.532.7579

Prepared by:

Sandra DeChard
Senior Architectural Historian

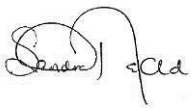
and

Ellen Brady
Cultural Resources Practice Leader

Stantec Consulting Services Inc.
1011 Boulder Springs Drive, Suite 225,
Richmond VA 23225-4951

Sign-off Sheet

This document entitled *Stage I Pre-Application Analysis for the Proposed Dominion Energy Virginia Allied-Chesterfield 230 kV Transmission Line #2049 Rebuild Project, Chesterfield County, Virginia* was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Dominion Energy Virginia (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by  _____

(signature)

Sandra DeChard, Senior Architectural Historian

Reviewed by  _____

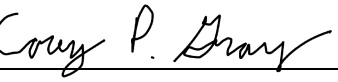
(signature)

Brynn Stewart, Principal Investigator

Approved by  _____

(signature)

Ellen M. Brady, Cultural Resources Practice Leader

Approved by  _____

(signature)

Corey Gray, Senior Environmental Scientist

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Executive Summary

Stantec Consulting Services Inc. (Stantec) was retained by Dominion Energy Virginia (Dominion Energy) to conduct a Stage I Pre-Application Analysis for the proposed partial rebuild of the Allied-Chesterfield 230 kV Transmission Line #2049 (Allied-Chesterfield) in Chesterfield County, Virginia. The project proposed by Dominion Energy is necessary in order to maintain the structural integrity and reliability of its transmission system and to comply with mandatory North American Electric Reliability Corporation (NERC) Reliability Standards. The project will be conducted entirely within an existing right-of-way (ROW) and consists of approximately 2.9 miles of existing 230 kV transmission line from Structure #2049/21 to Structure #2049/36. The partial rebuild of the Allied-Chesterfield line will require the tear-down and replacement of 16 230 kV lattice structures with steel monopoles. All proposed structure heights and locations provided in this report are based upon preliminary engineering and are subject to final design. Based on this information, the proposed monopoles, on average, will increase in height by 2.2 feet with a maximum height increase of 5.0 feet.

Background research for the Stage I Pre-Application Analysis was conducted in July 2020 by Stantec staff. The preliminary background research and the field study was conducted pursuant to the *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (Virginia Department of Historic Resources [VDHR] 2008) for proposed transmission line improvements.

As detailed by VDHR guidance, consideration was given to National Historic Landmark (NHL) properties located within a 1.5-mile radius of the project centerline; National Register of Historic Places (NRHP)-listed properties, battlefields, and historic landscapes located within a 1.0-mile radius of the project centerline; NRHP-eligible sites located within a 0.5-mile radius of the project centerline; and archaeological sites located within the project ROW. Nine previously identified architectural resources were identified for inclusion in the Stage I analysis. Ten previously recorded archaeological resources within the existing ROW were also identified during this phase of the project.

Recommendations

Architectural Resources

No NHL-listed architectural resources are located within the 1.5-mile radius of the project centerline. Two NRHP-listed resources are located within 1.0 mile and one NRHP-eligible resource was identified within 0.5 mile of the centerline. Additionally, six battlefield resources are located within the 1.0-mile buffer. One resource, the Howlett Line/Parker's Battery (VDHR #020-0232/043-0033-0059), a contributing resource to the NRHP-listed Richmond National Battlefield Park (VDHR #043-0033), is located within the 0.5-mile radius of the project centerline (Appendix B). As the study was completed prior to filing a State Corporation Commission (SCC) application, all digital images were taken from public ROW and/or Dominion Energy easements.

Based on preliminary proposed structure heights, the proposed partial rebuild of the Allied-Chesterfield 230 kV transmission line would increase in height of the structures on average, will

increase in height by 2.2 feet with a maximum height increase of 5.0 feet. Based on the analysis of the proposed structures, it is recommended that the partial rebuild would have No Visual Impact on Howlett Line/Parker's Battery (VDHR #020-0232) and the Richmond National Battlefield Park (VDHR #043-0033). The proposed rebuild project would have a Minimal Visual Impact to the Point of Rocks (VDHR #020-0123), Enon Park/Point of Rocks Park (VDHR #020-0506), and the 5 remaining battlefield resources.

Previously Recorded Architectural Resources Considered under the Stage I Pre-Application Guidelines

VDHR #	Resource Name	VDHR/NRHP Status	Distance to Centerline (Feet)	Impact
020-0123	Point of Rocks, 1005 Point of Rocks Road	NRHP-Listed	3,007	Minimal
020-0232/ 043-0033-0059	Howlett Line/Parker's Battery/Parker's Battery Earthworks	Potentially Eligible	1,070	None
020-0506	Enon Park/Earthworks/Point of Rocks Park	NRHP-Eligible	1,255	Minimal
020-5317/ VA 047	Port Walthall Junction Battlefield, Indian Hills Road	NRHP-Eligible	0	Minimal
020-5318/ VA 050	Swift Creek Battlefield/Arrowfield Church	Potentially Eligible	0	Minimal
020-5319/ VA 054	Ware Bottom Church Battlefield	Potentially Eligible	0	Minimal
020-5320/ VA 053	Proctor's Creek Battlefield/ Drewry's Bluff (2nd) Battlefield/ Fort Darling/ Fort Drewry	Potentially Eligible	0	Minimal
043-0033	Richmond National Battlefield Park	NRHP-Listed	1,062	None
123-5025/ VA 063	Assault on Petersburg/Petersburg Battlefield II	Potentially Eligible	258	Minimal

Archaeological Resources

Ten previously recorded archaeological resources were identified either within or immediately adjacent to the project ROW. Five resources, Sites 44CF0578, 44CF0830, 44CF0833; 440840, and 44CF0841 are Civil War earthworks and have been determined potentially eligible for listing on the NRHP. Two sites have been determined not eligible for listing on the NRHP and three sites are currently unevaluated (Appendix D). ***It is recommended that archaeological sites located within the ROW be investigated and evaluated as appropriate during future investigations.***

Previously Recorded Archaeological Resources Considered under the Stage I Pre-Application Guidelines

VDHR #	Resource Name	VDHR/NRHP Status	Distance to ROW (Feet)	Impact
44CF0578	Civil War Earthworks	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0830	Civil War; Mid-to-Late 19th Century Domestic Site	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0831	Prehistoric – Indeterminate; Early 20th Century Scatter	Not Evaluated	0	Investigate During Archaeological Survey
44CF0832	Late 19th to Early 20th Century Domestic Site	Not Evaluated	0	Investigate During Archaeological Survey
44CF0833	Civil War; 19th to 20th Century Domestic Site	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0834	Prehistoric Camp – Indeterminate	Not Eligible	0	Investigate During Archaeological Survey
44CF0839	19th Century Domestic Site	Not Eligible	0	Investigate During Archaeological Survey
44CF0840	Civil War Earthworks	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0841	Civil War Earthworks	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0842	Prehistoric Camp - Woodland	Not Evaluated	0	Investigate During Archaeological Survey

Abbreviations

ABPP	American Battlefield Protection Program
CCC	Civilian Conservation Corps
CWSAC	Civil War Sites Advisory Commission
DEM	Digital Elevation Model
Dominion Energy	Dominion Energy Virginia
DSM	Digital Surface Model
kV	Kilovolt
NERC	North American Electric Reliability Corporation
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PotNR	Potential National Register
ROW	Right-of-Way
SCC	State Corporation Commission
Stantec	Stantec Consulting Services, Inc.
USDI	United States Department of the Interior
V-CRIS	Virginia Cultural Resources Information System
VLR	Virginia Landmarks Register
VDHR	Virginia Department of Historic Resources

1.0 INTRODUCTION

1.1 OVERVIEW

Stantec Consulting Services Inc. (Stantec) was retained by Dominion Energy Virginia (Dominion Energy) to conduct a Stage I Pre-Application Analysis for the proposed partial rebuild of the Allied-Chesterfield 230 kV Transmission Line #2049 (Allied-Chesterfield) in Chesterfield County, Virginia. The project proposed by Dominion Energy is necessary in order to maintain the structural integrity and reliability of its transmission system and to comply with mandatory North American Electric Reliability Corporation (NERC) Reliability Standards. The project will be conducted entirely within an existing right-of-way (ROW) and consists of approximately 2.9 miles of existing 230 kV transmission line from Structure #2049/21 to Structure #2049/36. The partial rebuild of the Allied-Chesterfield line will require the tear-down and replacement of 16 230 kV lattice structures with steel monopoles. All proposed structure heights and locations provided in this report are based upon preliminary engineering and are subject to final design. Based on this information, the proposed monopoles, on average, will increase in height by 2.2 feet with a maximum height increase of 5.0 feet (Table 1).

Table 1. Structure Heights – Line #2049 Partial Rebuild Project

Structure No.	Height (FT) Existing	Height (FT) Proposed	Approximate Change in Height (FT)
2049/21	112.5	111.5	-1.0
2049/22	101.5	101.5	0
2049/23	101.5	101.5	0
2049/24	101.5	106.5	5.0
2049/25	101.5	101.5	0
2049/26	101.5	106.5	5.0
2049/27	96.5	101.5	5.0
2049/28	102.5	101.5	-1.0
2049/29	101.5	106.5	5.0
2049/30	101.5	101.5	0
2049/31	101.5	101.5	0
2049/32	101.5	106.5	5.0
2049/33	101.5	106.5	5.0
2049/34	86.5	91.5	5.0
2049/35	90.5	91.5	1.0
2049/36	80.5	81.5	1.0

*All heights include foundation reveal of approximately 1.5 feet. Proposed heights based upon preliminary engineering and subject to final design.

1.2 STAGE I PRE-APPLICATION ANALYSIS

The *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (VDHR 2008) were developed by the VDHR to assist the SCC and their applicants to address and minimize potential impacts to historic resources associated with the construction of large-scale transmission lines and associated facilities. In consideration to the general project design, as described above, and other elements associated with the proposed undertaking, including current ROW conditions within the proposed project area, Stantec designed the present study to identify all previously recorded architectural and archaeological resources requiring inclusion in a formal Stage I Pre-Application Analysis, as defined by the 2008 *Guidelines*.

As detailed by VDHR guidance, consideration was given to NHL properties located within a 1.5-mile radius of the project centerline; NRHP-listed properties, battlefields, and historic landscapes located within a 1.0-mile radius of the project centerline; NRHP-eligible sites located within a 0.5-mile radius of the project centerline; and archaeological sites located within the project ROW. This document includes a viewshed analysis to address potential visual impacts to the nine architectural resources considered during the Stage I study.

This Stage I Pre-Application Analysis project was directed by Senior Principal Investigator Ellen Brady and co-authored by Senior Architectural Historian Sandra DeChard. Ms. DeChard also conducted the visual effects survey with the assistance of Architectural Historian Technician, Jody Kutzler. GIS Coordinator Perron Singleton and GIS Technician Lauren Jones prepared the report graphics.

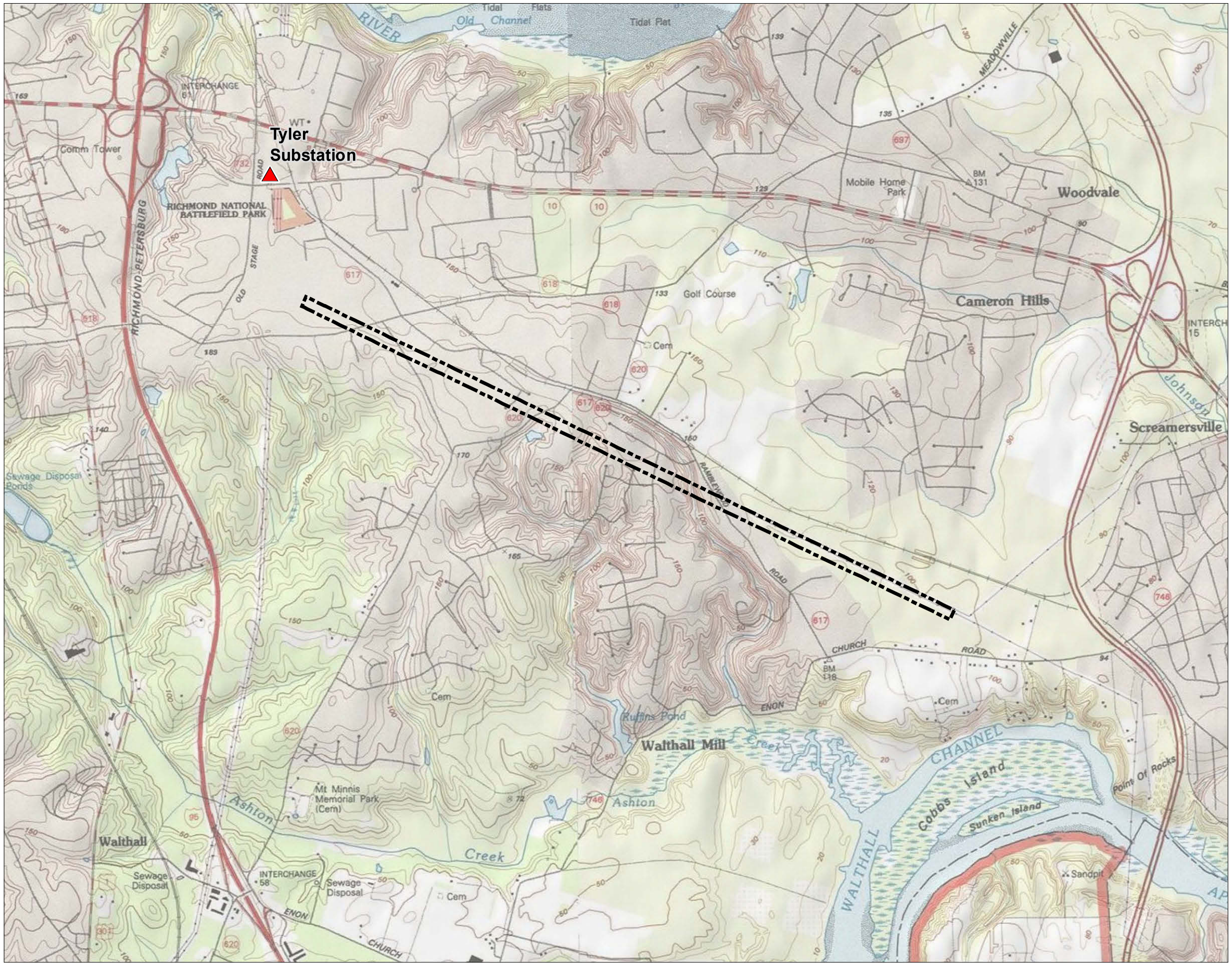


Figure No.

1

Title

Project Location Map

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

Prepared by LJJ on 2020-07-17
TR by MGS on 2020-08-20
IR by SLD on 2020-08-20

N

0 2,000 4,000 Feet

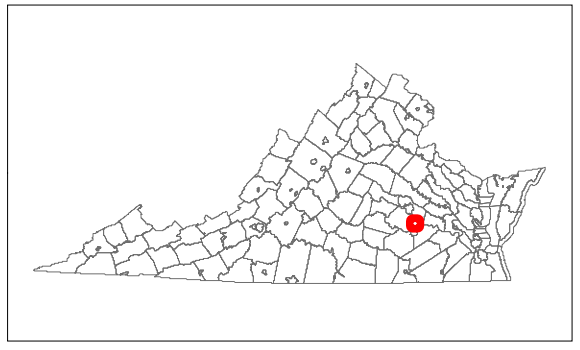
(At original document size of 11x17)
1:24,000

Existing Substation

Project Limits

Start
Latitude: 37.344029°
Longitude: -77.393021°

Terminus
Latitude: 37.326450°
Longitude: -77.348818°



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Substations exported from Ventyx
3. Topographic map © USGS 7.5 Minute Series Topographic Map, Chester, VA Quadrangle, 1994 and Hopewell, VA Quadrangle, 1996

Stantec

Attachment 2.H.1
Page 13 of 80

2.0 BACKGROUND RESEARCH

As part of the Stage I Pre-Application Analysis effort, VDHR guidance recommends a four-tier study area strategy to be considered for each alternative alignment for the proposed undertaking (Table 2). Per this guidance consideration was given to: NHL properties located within a 1.5-mile radius of the project centerline; NRHP-listed properties, battlefields, and historic landscapes located within a 1.0-mile radius of the project centerline; NRHP-eligible resources located within a 0.5-mile radius of the project centerline; and archaeological sites located within the project ROW.

Table 2. Study Areas as Defined by VDHR Guidelines for Transmission Lines

Radial Buffer (in miles)	Considered Resources
1.5	National Historic Landmarks
1.0	Above resources and: National Register Properties (listed), Battlefields, Historic Landscapes (e.g. Rural HD)
0.5	Above resources and: National Register-eligible (as determined by VDHR)
0.0 (Within ROW)	Above resources and Archaeological Sites

The background research included a review of the VDHR archives and of data collected from the VDHR's Virginia Cultural Resource Information System (V-CRIS) database using the most current data as provided by the VDHR. The VDHR files of archaeological sites and historic structures were examined and information was retrieved on all archaeological sites located up to a 0.5-mile radius of the project area and all previously recorded architectural resources up to a 1.5-mile radius of the project. ESRI ArcGIS online aerial photography of current conditions was examined for the entire project area. Photographs of each of the architectural resources under consideration, if visible, as well as their viewsheds, were taken from the public ROW.

2.1 RESULTS OF THE BACKGROUND RESEARCH

2.1.1 Architectural Resources

No NHL-listed architectural resources are located within the 1.5-mile radius of the project centerline. Two NRHP-listed resources are located within 1.0 mile and one NRHP-eligible resource was identified within 0.5 mile of the centerline. Additionally, six battlefield resources are located within the 1.0-mile buffer. One resource, the Howlett Line/Parker's Battery (VDHR #020-0232/043-0033-0059), a contributing resource to the NRHP-listed Richmond National Battlefield Park (VDHR #043-0033), is located within the 0.5-mile radius of the project centerline (Appendix B). See Table 3 for a listing of the architectural resources within the project area.

Table 3. Previously Recorded Architectural Resources Considered under the Stage I Pre-Application Guidelines

VDHR #	Resource Name	VDHR/NRHP Status	Distance to Centerline (Feet)
020-0123	Point of Rocks, 1005 Point of Rocks Road	NRHP-Listed	3,007
020-0232/ 043-0033-0059	Howlett Line/Parker's Battery/Parker's Battery Earthworks	Potentially Eligible	1,070
020-0506	Enon Park/Earthworks/Point of Rocks Park	NRHP-Eligible	1,255
020-5317/ VA 047	Port Walthall Junction Battlefield, Indian Hills Road	NRHP-Eligible	0
020-5318/ VA 050	Swift Creek Battlefield/Arrowfield Church	Potentially Eligible	0
020-5319/ VA 054	Ware Bottom Church Battlefield	Potentially Eligible	0
020-5320/ VA 053	Proctor's Creek Battlefield/ Drewry's Bluff (2nd) Battlefield/ Fort Darling/ Fort Drewry	Potentially Eligible	0
043-0033	Richmond National Battlefield Park	NRHP-Listed	1,062
123-5025/ VA 063	Assault on Petersburg/Petersburg Battlefield II	Potentially Eligible	258

2.1.2 Archaeological Resources

Ten previously recorded archaeological resources were identified either within or immediately adjacent to the project ROW. Five resources, Sites 44CF0578, 44CF0830, 44CF0833; 440840, and 44CF0841 are Civil War earthworks and have been determined potentially eligible for listing on the NRHP. Two sites have been determined not eligible for listing on the NRHP and three sites are currently unevaluated (Appendix D; Table 4).

Table 4. Previously Recorded Archaeological Resources Considered under the Stage I Pre-Application Guidelines

VDHR #	Resource Name	VDHR/NRHP Status	Distance to ROW (Feet)
44CF0578	Civil War Earthworks	Potentially Eligible	0
44CF0830	Civil War; Mid-to-Late 19th Century Domestic Site	Potentially Eligible	0
44CF0831	Prehistoric – Indeterminate; Early 20th Century Scatter	Not Evaluated	0
44CF0832	Late 19th to Early 20th Century Domestic Site	Not Evaluated	0
44CF0833	Civil War; 19th to 20th Century Domestic Site	Potentially Eligible	0
44CF0834	Prehistoric Camp – Indeterminate	Not Eligible	0
44CF0839	19th Century Domestic Site	Not Eligible	0
44CF0840	Civil War Earthworks	Potentially Eligible	0
44CF0841	Civil War Earthworks	Potentially Eligible	0
44CF0842	Prehistoric Camp - Woodland	Not Evaluated	0

3.0 STAGE I PRE-APPLICATION ANALYSIS RESULTS

3.1 VISUAL EFFECTS METHODOLOGY

Fieldwork for the proposed transmission line project was conducted by Senior Architectural Historian Sandra DeChard and Architectural Historian Technician Jody Kutzler on July 10, 2020. The fieldwork for the assessment entailed photographing the resources requiring viewshed analysis according to the Stage I Pre-Application guidelines and examining the potential views from the resources towards the proposed transmission line improvements. As the fieldwork was conducted prior to a formal SCC application submittal, all photographs were taken from public ROW locations with aerial photography utilized to supplement the analysis of project visibility and potential visual effects. As the proposed line is a rebuild of an existing transmission line and the proposed new line will be located within the existing alignment, the existing line was utilized to assist with the assessment of potential visual effects.

A detailed viewshed was modeled for the existing and proposed structures. This analysis required the creation of two datasets: a digital elevation model (DEM) which provided base ground elevations and a digital surface model (DSM) which provided overall terrain elevations including tree canopy. The DEM utilized was a 1/3 arc second elevation model downloaded from the U. S. Geological Survey (USGS). To create the DSM, the Virginia Statewide Landcover Dataset, provided by the Virginia Geographic Information Network, was used to identify areas covered by tree canopy. Those areas were then given a constant value of 75 feet, which was added to the ground elevation to account for the typical mature forest heights found in the area. Using the existing structure heights and preliminary proposed structure heights provided by Dominion Energy, two viewshed analyses were run using these datasets to determine where the existing and proposed towers are or will be visible in the landscape surrounding the project ROW. The visibility is illustrated by three color shadings:

- orange where both existing and proposed structures are/will be visible,
- red where the existing structures are visible but the proposed structures will not be, and
- blue where the existing structures are not visible but the proposed structures will be.

3.2 INDIVIDUAL ARCHITECTURAL RESOURCES CONSIDERED

Three individual NRHP-listed or eligible architectural resources identified within the 1.0-mile radius of the transmission line ROW were considered for visual effects for the proposed project. The resources are further described below along with a discussion and recommendation of potential effects as a result of the project.

3.2.1 Point of Rocks (VDHR #020-0123)

Point of Rocks is a one-story, three-bay, frame, Greek Revival-style dwelling constructed c. 1840 (Figure 2). The dwelling is supported by a stone foundation and has a center hall plan. Additional architectural features include interior chimneys, a shallow-pitched hipped roof, and gable-roofed front porch with dentiled entablature. Also noted during the previous survey are paired four-over-four wood double-hung sash windows. Secondary resources on the property include a mid-twentieth century garage, an archaeological site comprising an early kitchen, dairy, and smokehouse, and the ruins of a brick dwelling. The resource was listed on the NRHP in 2005 under Criterion A for its role in the Civil War as a military observation point, headquarters, and hospital, and under Criterion C as a unique example of Greek Revival-style architecture in Virginia. In 2013, Chesterfield County conveyed an easement to VDHR to protect the 31.53-acre parcel, which includes the house and part of the Ware Bottom Battlefield's (VDHR #020-5319) Core Area (VDHR Site Files).

Figure 2. Point of Rocks (VDHR #020-0123), Looking East.

Point of Rocks, as mapped in V-CRIS, is located at the end of a dirt road off Point of Rocks Road, within the 0.5-mile radius. At its closest point, the resource is approximately 3,007 feet southeast of the existing/proposed transmission line (Appendix B). Immediately surrounding the dwelling is a level, open landscape with a lawn. Several large trees dot the yard. To the northwest of the house, in the direction of the project transmission line, is an area of woods approximately 2,180 feet in depth which currently shields the view of the resource from the existing project transmission line corridor (Figure 3). Behind the house, to the northeast and east, is a transmission line which is not part of the current rebuild project.

In addition to the field survey, computer modeling was utilized for the visual effects assessment for the resource based on the proposed location and height of the proposed structures. According to the current design, Structures #2049/35 and #2049/36 (see Table 1) will be located in the vicinity of the resource. The viewshed modeling conducted for the resource indicated that the proposed structures would only be visible from the resource along the existing transmission line ROW. The nearest visible structure (Structure #2409/36) is approximately 3,000 feet to the northwest of the property (Figure 4). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, ***it is recommended that the proposed transmission line rebuild project will have a Minimal Visual Impact on Point of Rocks (VDHR #020-0123).***

Figure 3. View from Photo Location 25 from Point of Rocks (#020-0123), Swift Creek Battlefield (#020-5318), and Ware Bottom Creek Battlefield (#020-5319) Looking Northwest. Existing Transmission Line is Not Visible.

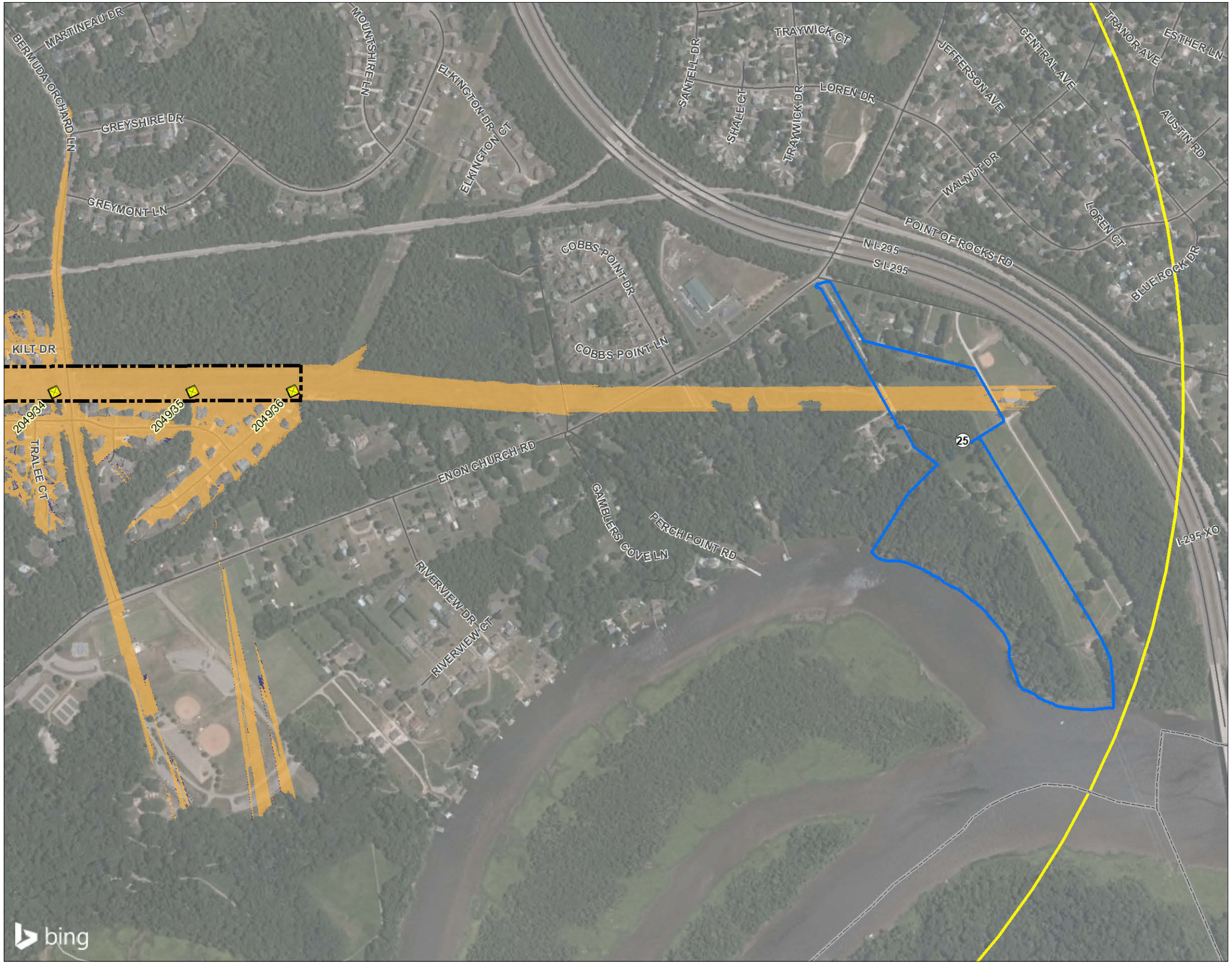


Figure No.

4

Title

Viewshed Analysis and Photo Location Map for Point of Rocks (VDHR #020-0123)

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

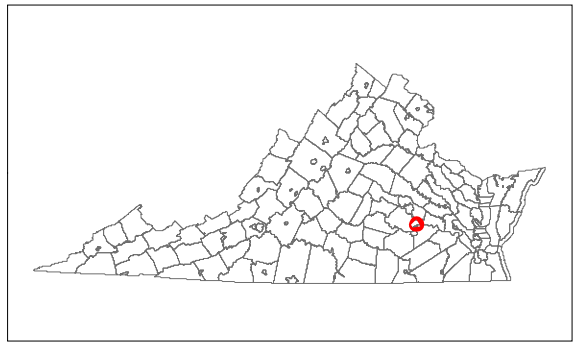
Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

N

0 600 1,200 Feet

(At original document size of 11x17)
1:7,200

- (1) Photo Location
- Proposed Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 020-0123 (Point of Rocks)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Attachment 2.H.1
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3.2.2 Howlett Line/Parker's Battery Earthworks (VDHR #020-0232/#043-0033-0059)

The Howlett Line/Parker's Battery Earthworks (Figure 5) comprise a steep embankment approximately 10 feet in height with four gun enclosures. Two collapsed structures within the earthworks appear to have been bombproofs. The structure also includes an 8-foot wide exterior moat. The earthworks were part of a defensive line, known as the Howlett Line, built in 1864, which extended from Battery Dantzler on the James River to Fort Clifton located on the Appomattox River. The earthworks are a contributing resource to the NRHP-listed Richmond National Battlefield Park (VDHR #043-0033) and part of the Bermuda Hundred Campaign (VDHR Site Files).

The Richmond National Battlefield Park was listed on the NRHP in 1966. Richmond was heavily defended during the Civil War by Confederate troops and eventually a ring of forts and earthwork defenses surround the city. The park comprises several areas of Richmond's defenses: Chickahominy Bluff, Beaver Creek Dam, Howlett Line/Parker's Battery Earthworks, and a line of defenses between Fort Brady and Fort Harrison, as well as the forts themselves. Fort Harrison was captured by the Union and expanded. Fort Brady was constructed by Union troops to protect Grant's supply lines from Confederate gunboats (NPS 2011). The Richmond National Battlefield Park is part of the National Park Service's interpretation of ten battlefields; six were part of the 1862 Seven Days' Battles and four were part of the 1864 Overland Campaign. The road network throughout the Cold Harbor Battlefield, Fort Harrison, and Fort Brady, in particular, comprise a series of Civilian Conservation Corps (CCC) constructed roads as well as dirt and chip-sealed paths constructed by park staff (VDHR Site Files; NPS 2011).

Figure 5. Howlett Line/Parker's Battery Earthworks (#020-0232) View Looking Northeast.

The Howlett Line/Parker's Battery Earthworks is located to the north/northwest of the transmission line (Appendix B) within the 0.5-mile radius of the project centerline. At its closest point, the resource is approximately 1,070 feet northwest of the existing/proposed transmission line. The resource itself is heavily wooded. A small NPS parking is located to the southwest of the resource and is accessed from Ware Bottom Springs Road. Modern industrial buildings are located to the south, including what appears to be a large warehouse. Photographs for the visual effects assessment of the Howlett Line/Parker's Battery were taken along the western edge of the resource as well as a central location within the earthworks. The resulting fieldwork indicated that the built environment and wooded areas currently shield the view from the existing transmission line structures comprising the project. Currently, the resource views the transmission lines within the adjacent corridor to the west and Structure #2049/20, which are not part of the proposed rebuild project (Figures 6 and 7).

In addition to the field survey, computer modeling was utilized for the visual effects assessment for the resource based on the location and height of the proposed structures. According to the current design, Structures #2049/21 and #2049/22 (see Table 1) will be located in the vicinity of the resource. The viewshed modeling conducted for the resource indicated that the proposed structures would also not be visible from the resource (Figure 8). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, ***it is recommended that the proposed transmission line rebuild project will have No Visual Impact on the Howlett Line/Earthworks (VDHR #020-0232/043-0033-0059).***

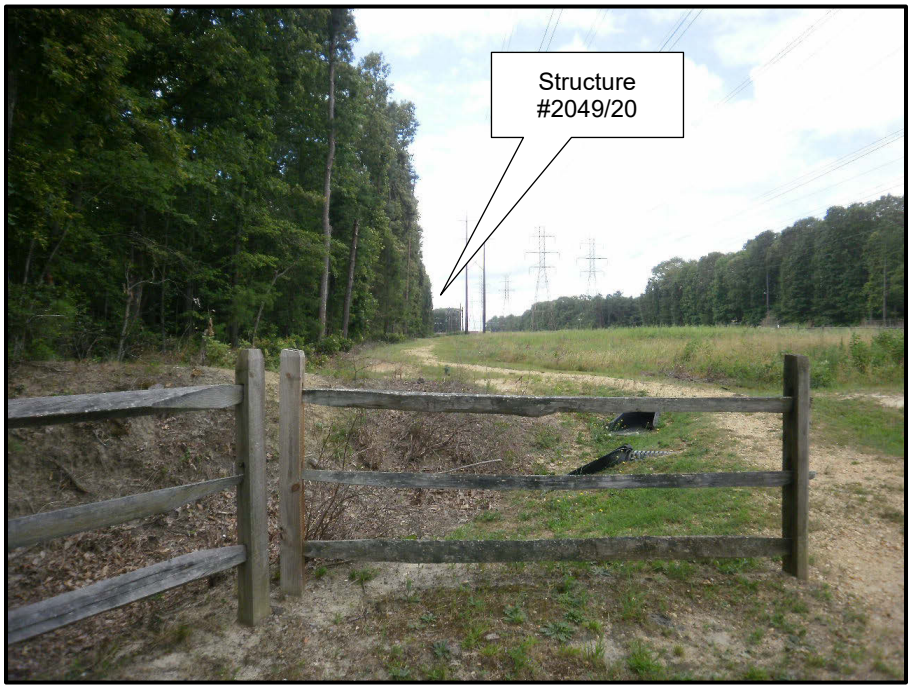


Figure 6. View from Photo Location 1 from the Howlett Line/Parker's Battery Earthworks (#020-0232) Looking Southeast. Existing Line 2049 Structures Part of the Project are Not Visible.

Figure 7. View from Photo Location 2 within the Howlett Line/Parker's Battery Earthworks (#020-0232) Looking Southeast. Existing Line 2049 Structures are Not Visible.

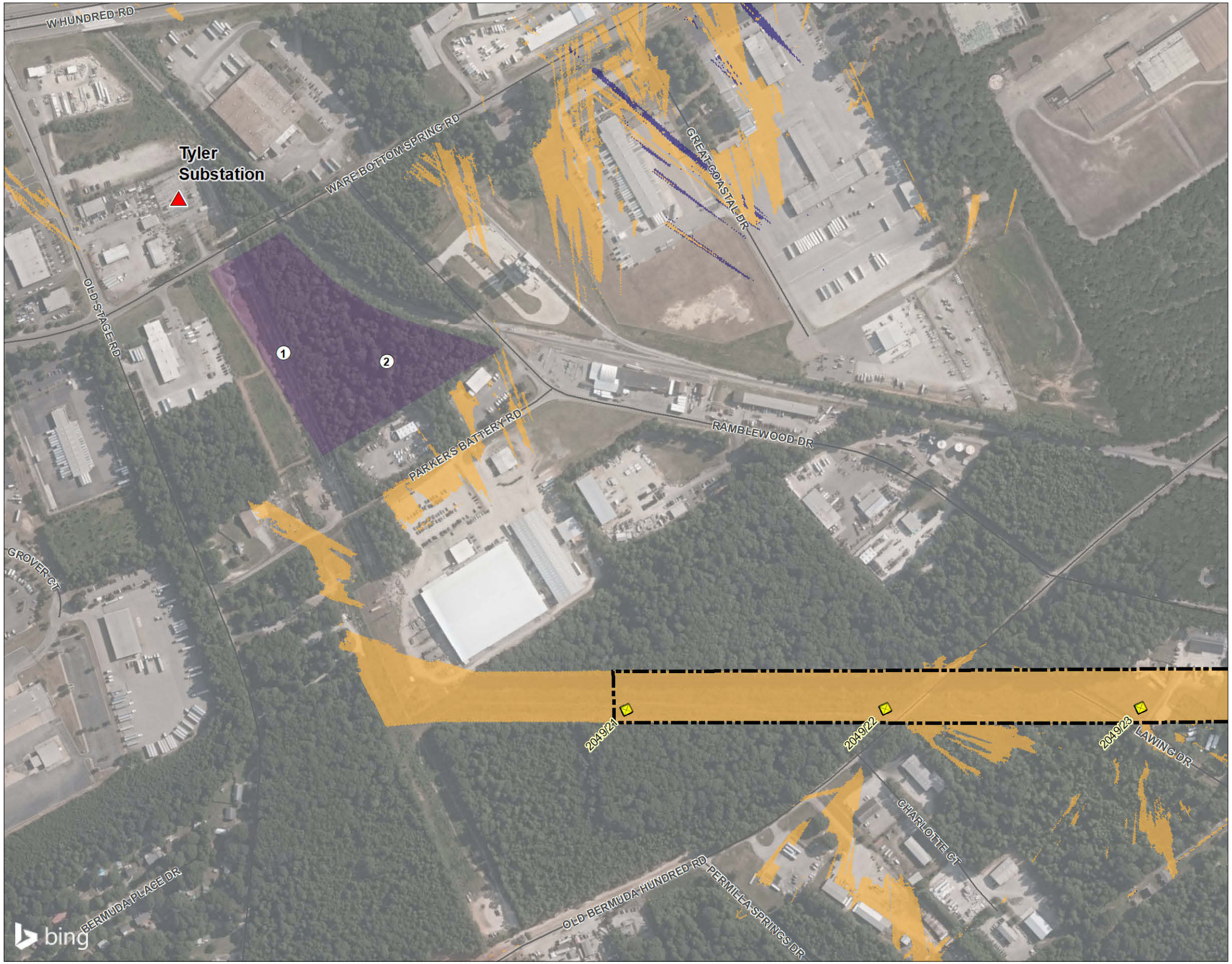


Figure No.

8

Title

Viewshed Analysis and Photo Location Map for Howlett Line/Parker's Battery Earthworks (VDHR #020-0232)

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

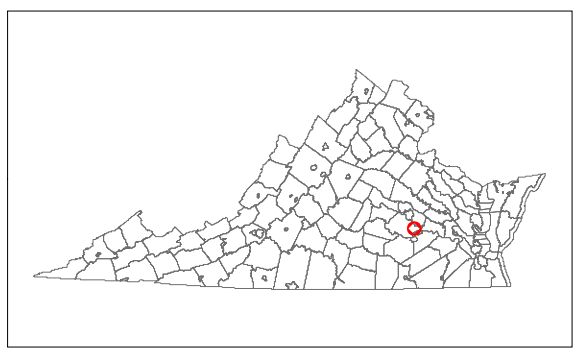
Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

N

0 400 800 Feet

(At original document size of 11x17)
1:4,800

- (1) Photo Location
- Existing Substation
- Proposed Structure
- Project Limits
- 020-0232/043-0033 (Howlett Line/Parker's Battery Earthworks)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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3.2.3 Enon Park/Earthworks (VDHR #020-0506)

Enon Park comprises sections of earthworks dating to the Civil War. The resource includes at least four lines of defense as well as a portion of the Confederate's Howlett Line and the Union's Bermuda Hundred line. Previous surveys have documented earthworks within the eastern boundary of the site, which measures approximately 700 feet in length and 8 to 10 feet in width. The ditch measures between 6 and 18 feet in depth. Sections of the earthworks have been breached by modern construction as well as erosion. The earthworks were determined eligible by VDHR in 1979 under Criterion A in association with the Bermuda Campaign and under Criterion D for their potential to yield information about the battle through the presence of Civil War period artifacts (VDHR Site Form).

Figure 9. Enon Park/Earthworks (#020-0506) Looking Northwest.

The Enon Park Earthworks are located to the southwest of the transmission line (Appendix B) within the 1.0-mile radius of the project centerline and, at its closest point, is approximately 1,294 feet from the existing/proposed transmission line. Much of the resource comprises woods; however, the eastern portion of the resource now has recreational playing fields, tennis courts, and parking lots. Photographs for the visual effects assessment for Enon Park were taken the main parking lot just northeast of the edge of the woods. The existing transmission line structures were not visible from the point of survey (Figures 10 and 11).

In addition to the field survey, computer modeling was utilized for the visual effects assessment for the resource based on the location and height of the proposed structures. According to the current design, Structures #2049/32 through #2049/36 (see Table 1) will be located in the vicinity of the resource. The

viewshed modeling indicated that the existing structures are visible and proposed structures will be visible from the resource from limited areas of the parking lots, ball fields, and access roads into the park (Figure 12). The overall visual impact of the proposed structures will not greatly change from the existing conditions in the vicinity of this resource. Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, ***it is recommended that the proposed transmission line rebuild project will have a Minimal Visual Impact on the Enon Park/Earthworks (VDHR #020-0506).***

Figure 10. View from Photo Location 19 within the Enon Park/Earthworks/Point of Rocks Park (#020-0506), Swift Creek Battlefield (#020-5318), and the Ware Bottom Church Battlefield (#020-5319) Looking Northeast. Existing Line 2049 is Not Visible.

Figure 11. View from Photo Location 19 within the Enon Park/Earthworks/Point of Rocks Park (#020-0506), Swift Creek Battlefield (#020-5318), and the Ware Bottom Church Battlefield (#020-5319) Looking Northwest. Existing Line 2049 is Not Visible.

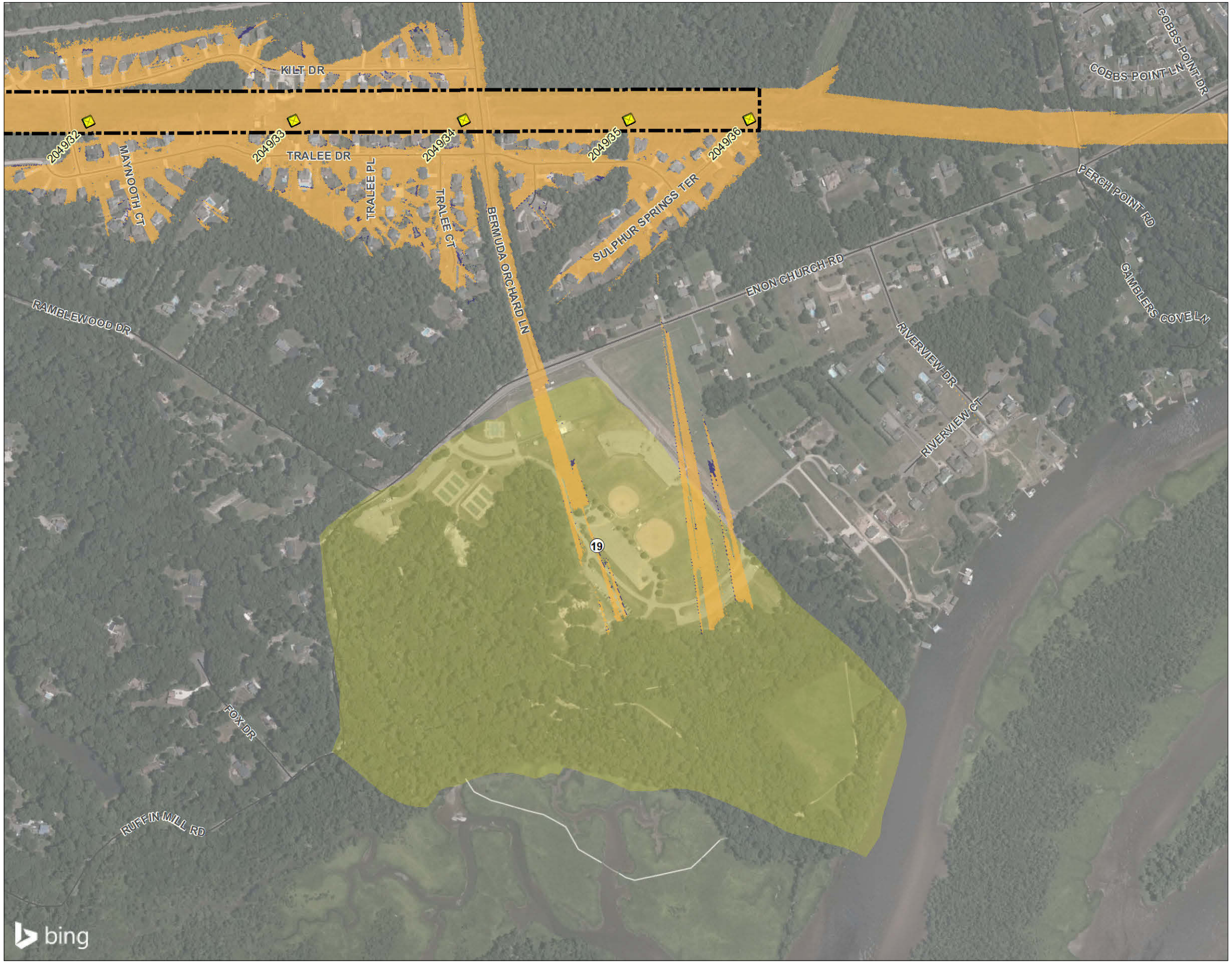


Figure No.

12

Title

Viewshed Analysis and Photo Location Map for Enon Park/Earthworks/Point of Rocks Park (VDHR #020-0506)

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

N

0 500 1,000 Feet

(At original document size of 11x17)
1:6,000

(1) Photo Location

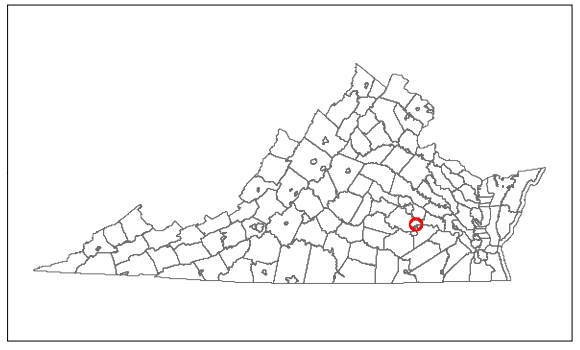
Proposed Structure

Project Limits

020-0506 (Enon Park/Earthworks/Point of Rocks Park)

Both Existing and Proposed Visible

Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Attachment 2.H.1
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3.3 BATTLEFIELD RESOURCES CONSIDERED

Battlefields and associated fortifications noted within the limits of the Stage I study area were further considered for visual effects for the proposed project. Portions of six battlefield resources are located within the Stage I 1.0-mile radius of the project centerline and are provided in Table 5. The resources are further described in the following sections along with a discussion of potential effects as a result of the project.

Table 5. Battlefield Resources Considered within the Stage I Pre-Application Process

VDHR #	Resource Name	Total Acreage of ABPP-Defined Battlefield	Acreage of ABPP-Defined Battlefield within the 1.0-Mile Buffer
020-5317/ VA 047	Port Walthall Junction Battlefield, Indian Hills Road	3,295	415
020-5318/ VA 050	Swift Creek Battlefield/Arrowfield Church	6,997	1,331
020-5319/ VA 054	Ware Bottom Church Battlefield	11,294	5,151
020-5320/ VA 053	Proctor's Creek Battlefield/ Drewry's Bluff (2nd) Battlefield/ Fort Darling/ Fort Drewry	12,684	982
043-0033	Richmond National Battlefield Park	2,879	10
123-5025/VA 063	Assault on Petersburg/Petersburg Battlefield II	15,527	458

For the assessment of battlefield resources, Stantec took into consideration the guidance and recommendations of the American Battlefield Protection Program (ABPP)'s 2009 assessment of Virginia's Civil War period resources and subsequent updates. In 2009, the ABPP revised the 1992 Civil War Sites Advisory Commission (CWSAC) boundaries for Virginia, and many of the battlefields were greatly expanded in size. For each battlefield, the ABPP defined Study Areas and Core Areas. The larger Study Area contains all resources known to relate or contribute to the battlefield event, such as where troops maneuvered and deployed immediately before or after combat, and where they fought during combat. Within the Study Area are Core Areas, which denote the actual fighting areas located within the larger battlefield. In addition, the ABPP defined Potential National Register (PotNR) boundaries for each battlefield. The PotNR boundary represents the ABPP's assessment of a Study Area's current integrity. The PotNR Area may include all or some of the Study Area or all or some of the Core Area associated with a battlefield engagement. The PotNR boundary does not constitute a formal determination of eligibility by the Keeper of the NRHP; however, it is a recommendation of potential eligibility.

Many of the Civil War battlefields within the study area overlap significantly, particularly in the location of roads. Therefore, many of the photograph locations are shared by multiple resources.

3.3.1 Port Walthall Junction Battlefield (VDHR #020-5317/APBB VA047)

The battle of Port Walthall Junction, part of the Bermuda Hundred Campaign, was fought on May 6 and 7, 1864. The battle pitted Major General Benjamin Butler's Union forces against Brigadier General Johnson

Hagood's Confederate forces. On May 5th, Butler's troops, which numbered approximately 33,000, disembarked at Bermuda Hundred with the aim of dismantling a section of the Richmond-Petersburg Railroad. Hagood's forces held Union troops back on the first day of battle; however, on May 7th Butler's forces pushed Hagood's men back from the railroad line to await reinforcements at Swift Creek. The battle was a Union victory with estimated casualties of approximately 550 (ABPP 2018; VDHR Site Files).

Approximately 415 acres of the 3,295-acre battlefield resource is located within 1.0 mile of the project centerline and consists of the ABPP-defined Study Area and a small portion of the PotNR Area (Appendix B; Table 5). The Core Area of the battlefield is located outside the 1.0-mile radius of the project centerline. A majority of the battlefield's Study and PotNR areas, however, is also outside the 1.0-mile radius. The existing transmission line crosses the battlefield Study Area just south of Ramblewood Drive and intersects Woods Edge Road and Vance Drive. The Port Walthall Junction Battlefield also overlaps with the following battlefields:

- Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318/ABPP VA050)
- Ware Bottom Church Battlefield (VDHR #020-5319/ABPP VA054)
- Proctor's Creek Battlefield/Drewry's Bluff (2nd) Battlefield (VDHR #020-5320/ABPP VA053)

The portion of the battlefield within the project area has been compromised by large-scale modern residential development throughout the ABPP Study Area (Appendix B) with the exception of a small area of woods to the east of Woods Edge Road and Howlett's Line Drive within 0.5 miles of the project centerline. The existing structures and associated wires were minimally visible from the resource from Photo Location 12 and where the line crosses Woods Edge Road, Vance Drive, and Ramblewood Drive within the APBB Study Area as observed during fieldwork (Figures 13-17; Appendix C).

In addition to the field survey, computer modeling was utilized for the visual effects assessment for the resource based on the location and height of the proposed structures. According to the current design, Structures #2049/23 through #2049/28 (see Table 1) will be located in the vicinity of the resource. The viewshed modeling indicated the existing structures are visible from the resource where the line crosses Woods Edge Road and Vance Drive as well as from open areas within the modern residential development adjacent to the existing transmission line corridor. The proposed structures will also be visible from the same areas (Figure 18). The overall visual impact of the proposed structures will not greatly change from the existing conditions in the vicinity of this battlefield. Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, ***it is recommended that the proposed transmission line rebuild project would have a Minimal Visual Impact on the Port Walthall Junction Battlefield (VDHR #020-5317/ABPP VA047).***

Figure 13. View from Photo Location 12 from Port Walthall Junction Battlefield (#020-5317), Swift Creek Battlefield (#020-5318), Ware Bottom Church Battlefield (#020-5319), and Proctor's Creek Battlefield (#020-5320) Looking Northwest. Existing Line 2049 is Slightly Visible.

Figure 14. View from Photo Location 13 from Port Walthall Junction Battlefield (#020-5317), Swift Creek Battlefield (#020-5318), Ware Bottom Church Battlefield (#020-5319), and Proctor's Creek Battlefield (#020-5320) Looking Northeast. Existing Line 2049 is Not Visible.

Figure 15 View of a Portion of the Howlett's Line within the Port Walthall Junction Battlefield (#020-5317), Swift Creek Battlefield (#020-5318), Ware Bottom Church Battlefield (#020-5319), and Proctor's Creek Battlefield (#020-5320) Looking Northwest.

Figure 16. View from Photo Location 15 from Port Walthall Junction Battlefield (#020-5317), Swift Creek Battlefield (#020-5318), Ware Bottom Church Battlefield (#020-5319), and Proctor's Creek Battlefield (#020-5320) Looking Northwest. Existing Line 2049 is Not Visible.

Figure 17. View from Photo Location 14 from the Port Walthall Junction Battlefield (#020-5317) and the Ware Bottom Church Battlefield (#020-5319) Looking North. Existing Line 2049 is Not Visible.

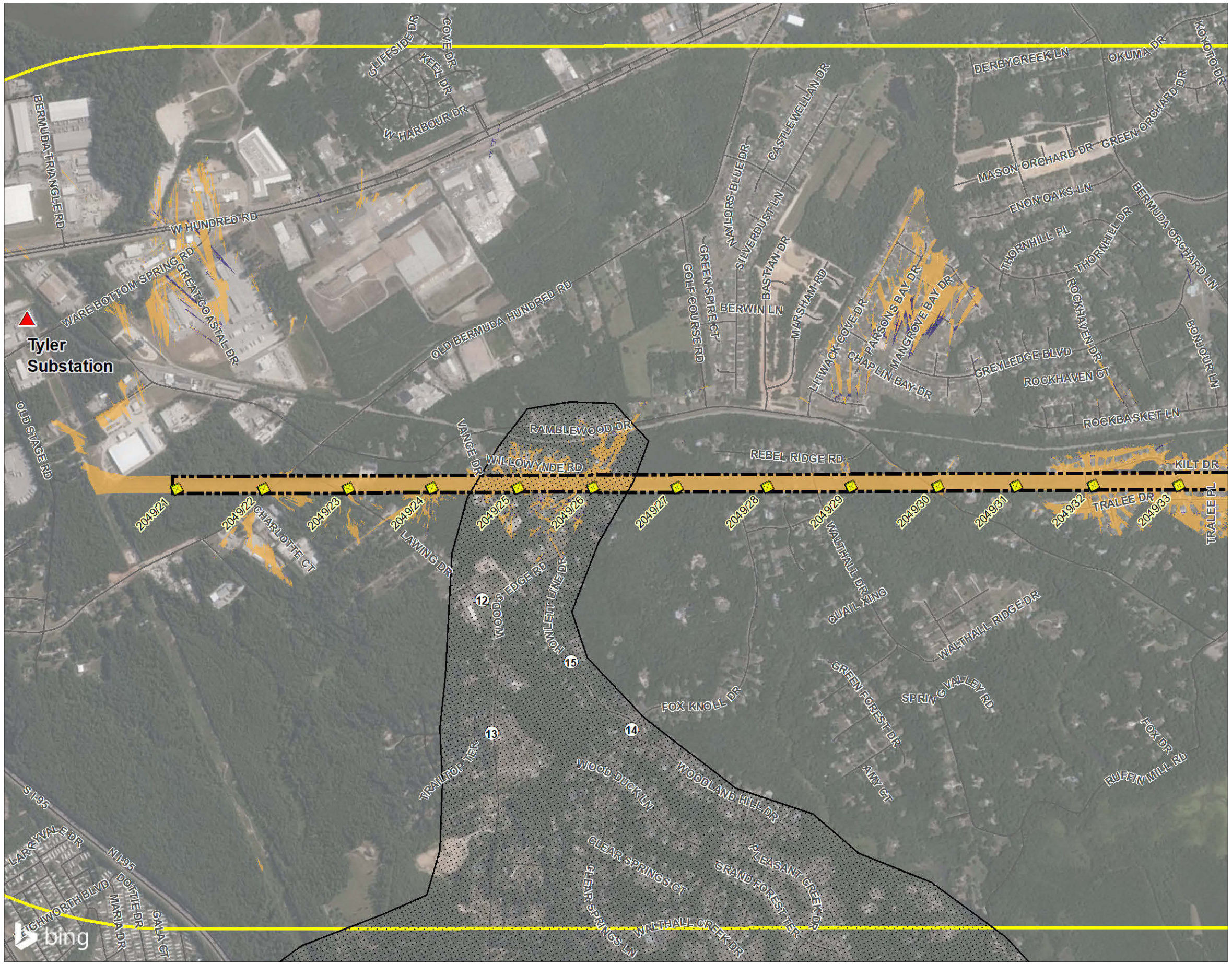


Figure No.

18

Title

Viewshed Analysis and Photo Location Map for the Port Walthall Junction Battlefield (VDHR #020-5317)

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

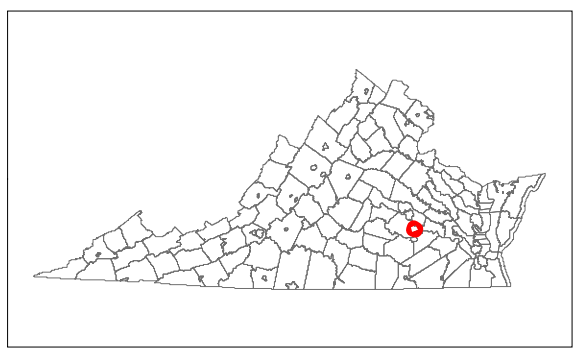
Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- (1) Photo Location
- Existing Substation
- Proposed Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 020-5317 (Port Walthall Junction Battlefield)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Attachment 2.H.1
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3.3.2 Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318/ABPP VA050)

The battle of Swift Creek, part of the Bermuda Hundred Campaign, was fought on May 9, 1864. The battle pitted Union troops commanded by Major General Benjamin Butler against General P.G.T Beauregard's forces on the Confederate side. At Swift Creek, Butler's division was met by Bushrod Johnson's division, while the Confederates attacked at Arrowfield Church. Confederate troops were pushed back. Union forces did not follow and instead pulled up the railroad tracks. A second front was located along the Appomattox River utilizing federal gunboats and Hinck's Colored Troops (infantry division) marching through marshes. Confederate troops drove off the gunboats and the efforts by the infantry were abandoned. While approximately 990 casualties were incurred during the fighting, the battle was inconclusive (ABPP 2018; VDHR Site Files).

Approximately 1,331 acres of the 6,997-acre battlefield resource is located within 1.0 mile of the project centerline and consists of the ABPP-defined Study Area and portions of the PotNR Area (Appendix B; Table 5). A majority of the battlefield's Study and PotNR areas is also outside the 1.0-mile radius. The Core Area of the battlefield is located outside the 1.0-mile radius of the project centerline. The existing transmission line crosses the battlefield Study Area to the south of Ramblewood Drive and intersects with Woods Edge Road and Bermuda Orchard Road. The Swift Creek Battlefield also overlaps with the following battlefields:

- Ware Bottom Church Battlefield (VDHR #020-5319/ABPP VA054)
- Port Walthall Junction Battlefield (VDHR #020-5317/ABPP VA047)
- Proctor's Creek Battlefield/Drewry's Bluff (2nd) Battlefield (VDHR #020-5320/ABPP VA053)
- The Assault on Petersburg/Petersburg Battlefield II (VDHR #123-5025/ABPP VA063)

The portion of the battlefield Study Area within the project vicinity has been compromised by large-scale commercial and residential development along Enon Church Road, Ramblewood Drive, and Woods Edge Road as well as secondary roads off these main routes and on the eastern side of Golf Course Road. The remaining sections of the ABPP Study Area comprise mainly small wooded parcels interspersed between developments and a larger area of woods to the south/southeast of Enon Park/Earthworks/Point of Rocks Park (VDHR #020-0506). The existing structures and associated wires were visible from Photograph Location 12 as well as Photograph Location 17 and 21 where the line crosses Bermuda Orchard Lane and Walthall Drive, respectively, and where the line crosses Ramblewood Drive and Woods Edge Road (Figures 3, 10-11,13-14, 16 and 19-21; Appendix C).

In addition to the field survey, computer modeling was utilized for the visual effects assessment for the resource based on the location and height of the proposed structures. According to the current design, Structures #2049/23 through #2049/36 (see Table 1) will be located within the resource or in its vicinity. The viewshed modeling indicated existing structures are visible from the resource where the line crosses the road as well as from open areas within commercial and residential developments adjacent to the existing transmission line corridor. The proposed structures will also be visible from the same areas (Figure 22). The overall visual impact of the proposed structures will not greatly change from the existing conditions in the vicinity of this battlefield. Based on the fieldwork, the preliminary heights of the proposed

structures, and the viewshed modeling for the resource, ***it is recommended that the proposed transmission line rebuild project would have a Minimal Visual Impact on the Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318/ABPP VA050).***

Figure 19. View from Photo Location 16 from the Swift Creek Battlefield (VDHR #020-5318) and Ware Bottom Church Battlefield (VDHR #020-5319) Looking Southwest. Existing Line 2049 is Not Visible.

Figure 20. View from Photo Location 17 from Swift Creek Battlefield (VDHR #020-5318) and Ware Bottom Church Battlefield (VDHR #020-5319) Looking Southeast. Existing Line 2049 is Visible.

Figure 21. View from Photo Location 23 from Swift Creek Battlefield (VDHR #020-5318) and Ware Bottom Church Battlefield (VDHR #020-5319) Looking Northwest. Existing Line 2049 is Not Visible.

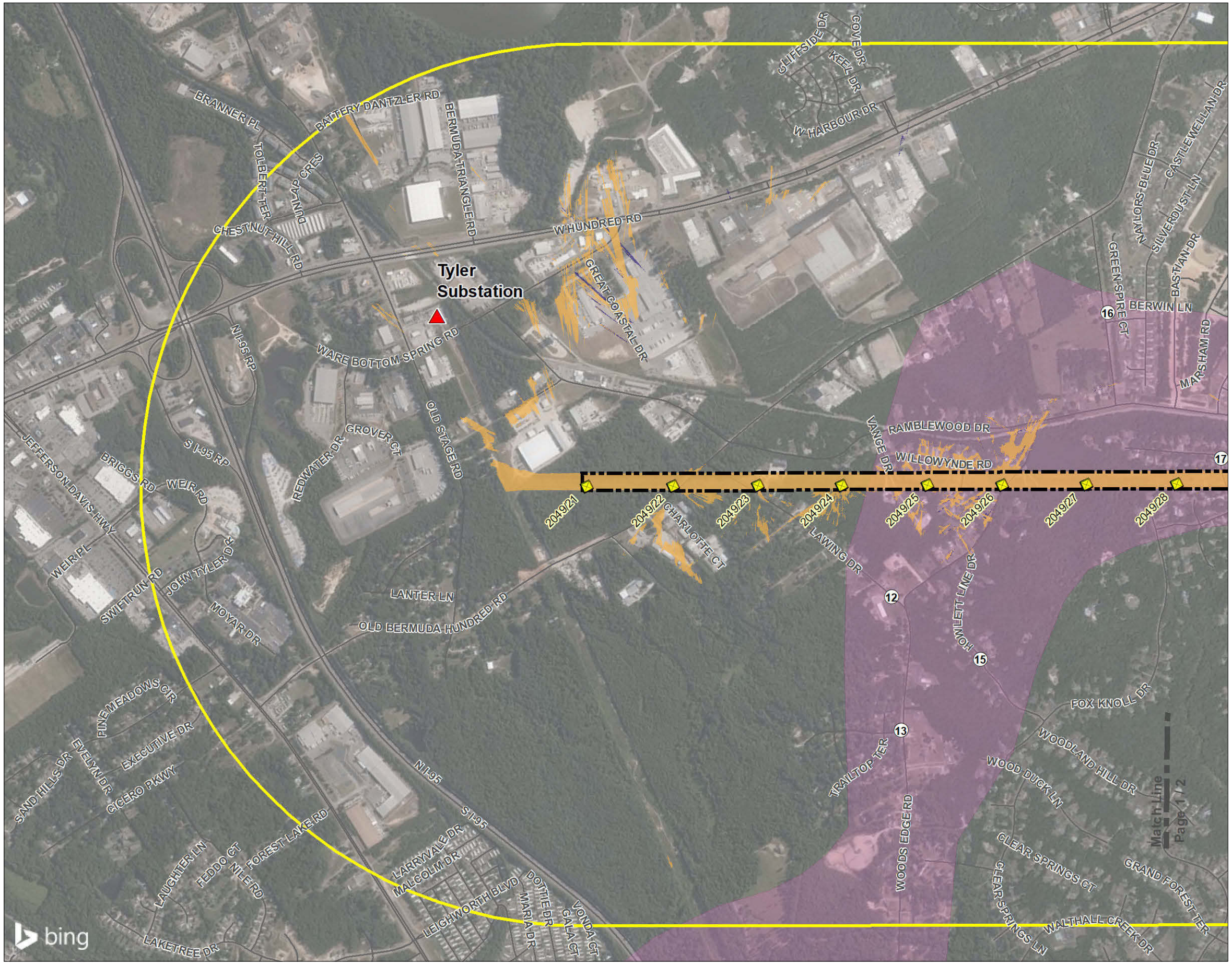


Figure No.

22

Title

Viewshed Analysis and Photo Location Map for the Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318)

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

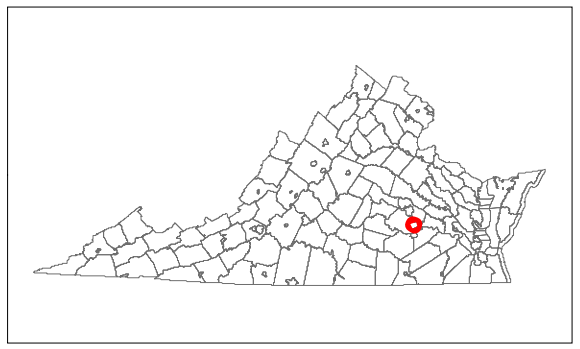
Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- 1 Photo Location
- Existing Substation
- Proposed Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 020-5318 (Swift Creek Battlefield/Arrowfield Church)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Attachment 2.H.1
Page 37 of 80

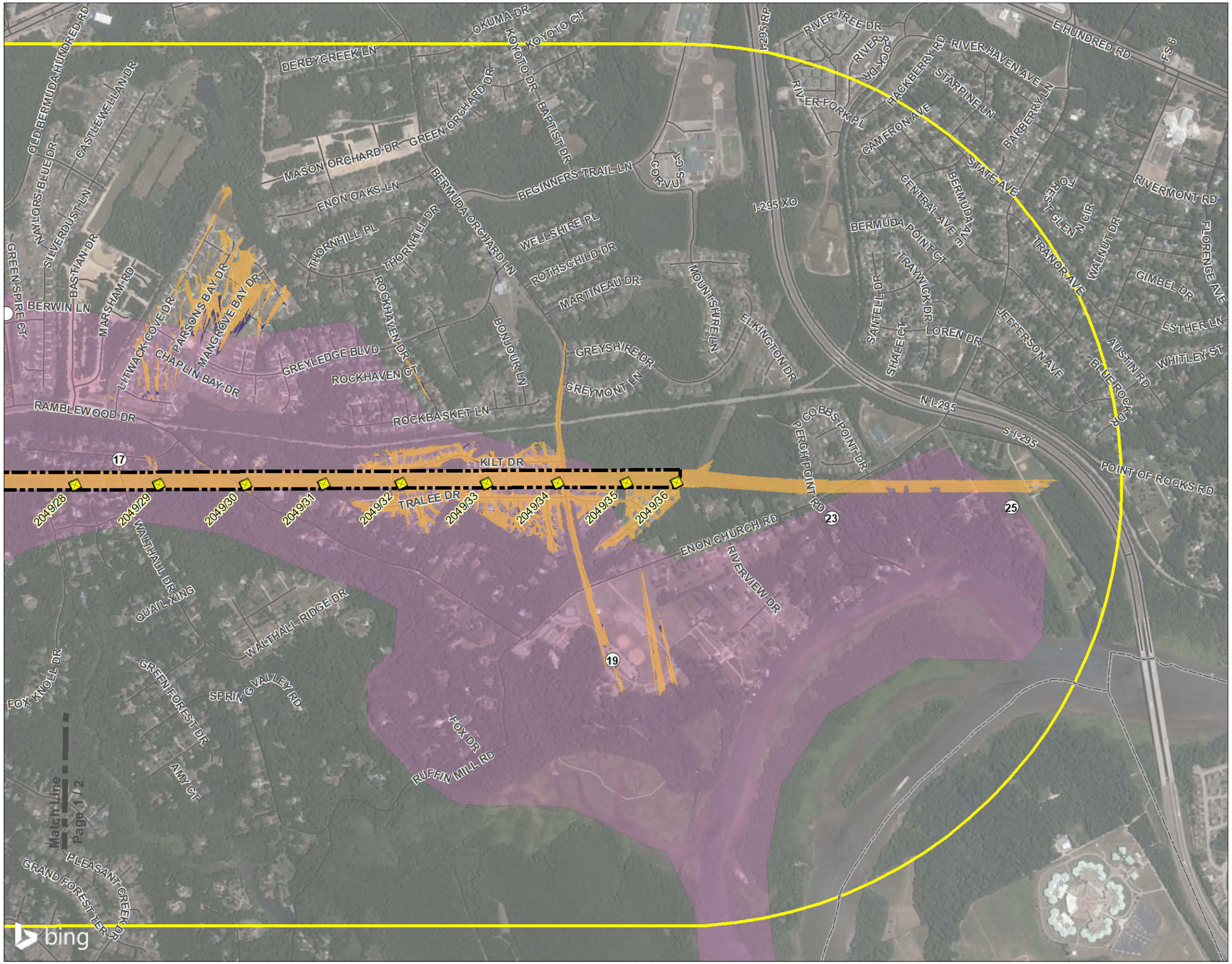


Figure No.

23

Title

Viewshed Analysis and Photo Location Map for the Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318)

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

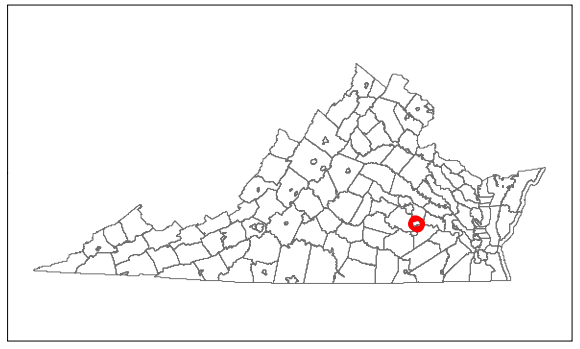
Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- (1) Photo Location
- Existing Substation
- Proposed Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 020-5318 (Swift Creek Battlefield/Arrowfield Church)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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3.3.3 Ware Bottom Church Battlefield (VDHR #020-5319/ABPP VA054)

The battle of Ware Bottom Church, part of the Bermuda Hundred Campaign, was fought on May 20, 1864. A total of 10,000 troops fought that day, commanded by Major General Benjamin Butler on the Union side and General P.G.T Beauregard on the Confederate side. During the battle, Union lines were attacked by Confederate forces at Ware Bottom. Confederate forces pushed the Union troops back, established what was later known as the Howlett Line, and were able to stop Butler at Bermuda Hundred. Approximately 1,500 casualties resulted from the fighting, which brought about a Confederate victory (ABPP 2018). The ABPP has designated approximately 11,294 acres of Study Area with approximately 5,052 of the acres considered PotNR areas (VDHR Site Files).

A total of 5,151 acres of the 11,294-acre battlefield resource is located within 1.0 mile of the project centerline and consists of the ABPP-defined Core and Study areas (Appendix B; Table 5). Both the Core and Study areas of the battlefield also extend beyond 1.0 mile and therefore outside of the project area. The battlefield encompasses all the area within the 1.0-mile project radius of Line #2049 with the exception of an area between area between the 0.5 and 1.0-mile radius from the project centerline flanked by Old Bermuda Hundred Road on the west and I-295 on the east. The Ware Bottom Church Battlefield also overlaps with the following battlefields:

- Port Walthall Junction Battlefield (VDHR #20-5317/ABPP VA047)
- Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318/ABPP VA050)
- Proctor's Creek Battlefield/Drewry's Bluff (2nd) Battlefield (VDHR #020-5320/ABPP VA053)
- The Assault on Petersburg/Petersburg Battlefield II (VDHR #123-5025/ABPP VA063)

The area to the northwest, north, and northeast of the line within the battlefield comprises dense areas of commercial and residential development, while areas to the southwest, south, and southeast of the line, although residentially developed, also have wooded parcels interspersed between the modern development. Overall, the integrity of the battlefield within a 1.0-mile radius of the project centerline has been heavily compromised by modern construction. As observed during fieldwork, the existing structures and associated wires are visible from Photograph Locations 1, 6, 12, and 17 within the portion of the resource under consideration (Figures 3, 6-7, 10-11, 13-17, 19-21, and 23-29; Appendix C).

In addition to the field survey, computer modeling was utilized for the visual effects assessment for the resource based on the location and height of the proposed structures. According to the current design, all proposed structures (see Table 1) will be located within the resource. The viewshed modeling indicated that the existing structures are visible where the line crosses the road as well as in open areas of commercial and residential development adjacent to the transmission line. The proposed structures will also be visible from these same areas (Figures 30 and 31). The overall visual impact of the proposed structures will not greatly change from the existing conditions. Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, ***it is recommended that the proposed project will have a Minimal Visual Impact on the Ware Bottom Church Battlefield (VDHR #020-5319/ABPP VA054).***

Figure 24. View from Photo Location 3 from the Ware Bottom Church Battlefield (VDHR #020-5319) Looking Southeast. Existing Line 2049 is Not Visible.

Figure 25 View from Photo Location 4 from the Ware Bottom Church Battlefield (VDHR #020-5319) and Proctor's Creek Battlefield (#020-5320) Looking Southeast. Existing Line 2049 is Not Visible.

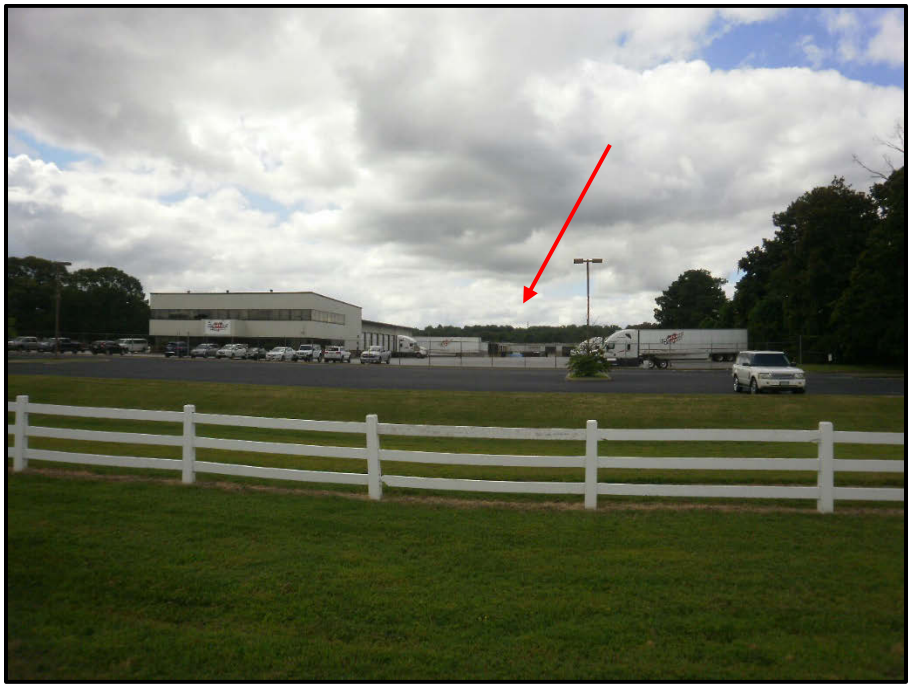


Figure 26. View from Photo Location 6 from the Ware Bottom Church Battlefield (VDHR #020-5319) and Proctor's Creek Battlefield (#020-5320) Looking Southwest. Existing Line 2049 is Visible.

Figure 27. View from Photo Location 8 from the Ware Bottom Church Battlefield (#020-5319) and Proctor's Creek Battlefield (#020-5320) Looking Northeast. Existing Line 2049 is Not Visible.

Figure 28 View from Photo Location 9 from the Ware Bottom Church Battlefield (#020-5319) and Proctor's Creek Battlefield (#020-5320) Looking East. Existing Line 2049 is Not Visible

Figure 29. View from Photo Location 11 from the Ware Bottom Church Battlefield (#020-5319) and Assault on Petersburg (#123-5025) Looking East. Existing Line 2049 is Not Visible.

Figure 30. View from Photo Location 24 from the Ware Bottom Church Battlefield (#020-5319) and Assault on Petersburg (#123-5025) Looking West. Existing Line 2049 is Not Visible.

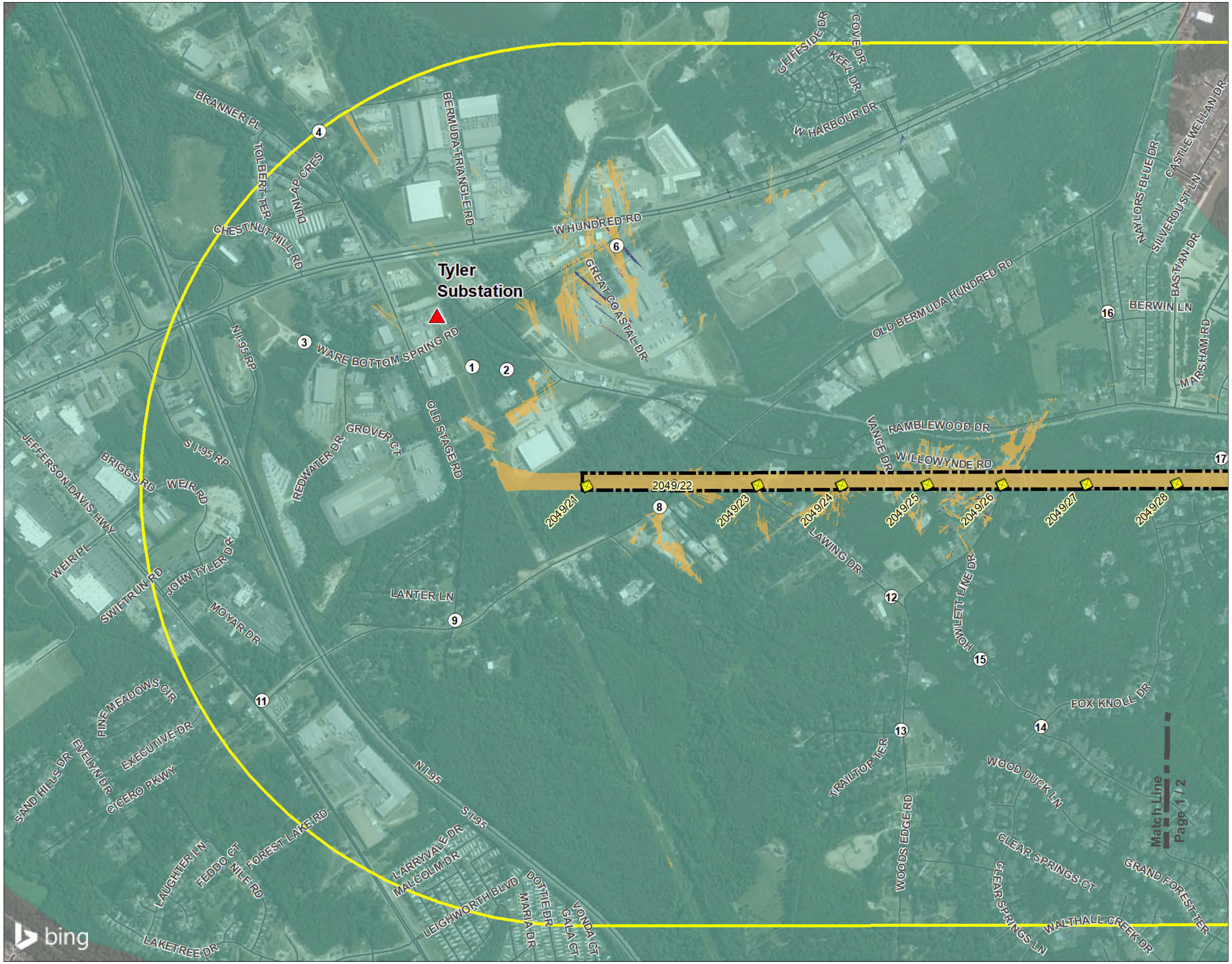


Figure No.
31

Title
Viewshed Analysis and Photo Location Map for the Ware Bottom Church Battlefield (VDHR #020-5319)

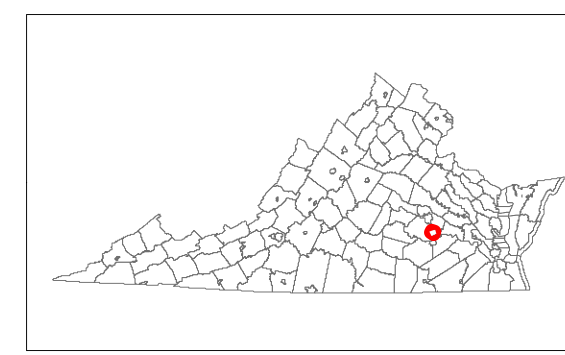
Client/Project 203401509
Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location
Chesterfield County, Virginia

Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

0 1,200 2,400 Feet
(At original document size of 11x17)
1:14,400

- Photo Location
- Existing Substation
- Proposed Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 020-5319 (Ware Bottom Church Battlefield)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Stantec

\\Us0265-ppfss01\shared_projects\203401509\03_data\gis_cad\gis\01509_c_fig31_0205319_viewshed.mxd Revised: 2020-09-02 By: psingleton

Attachment 2.H.1
Page 44 of 80

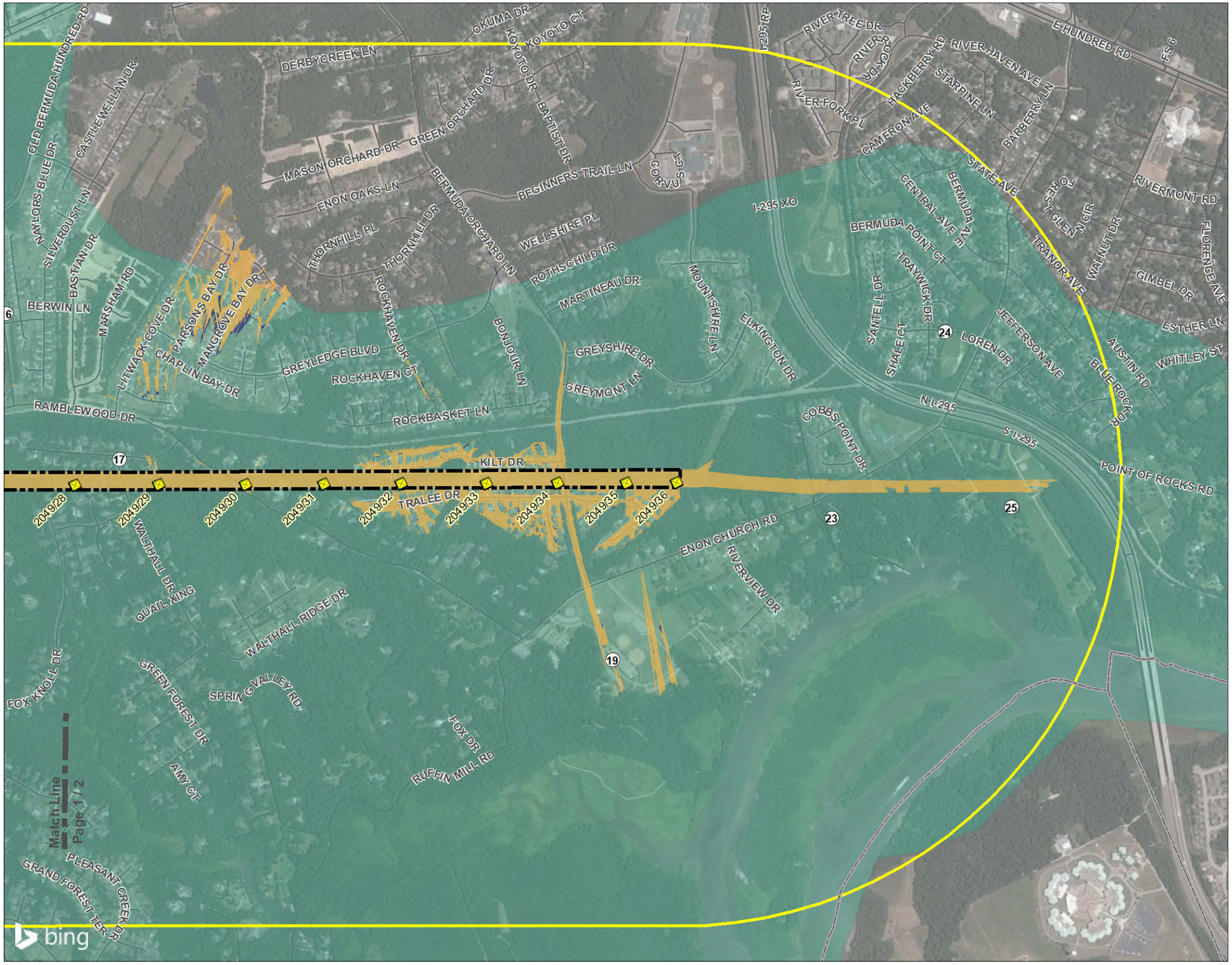


Figure No.

32

Title

Viewshed Analysis and Photo Location Map for the Ware Bottom Church Battlefield (VDHR #020-5319)

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

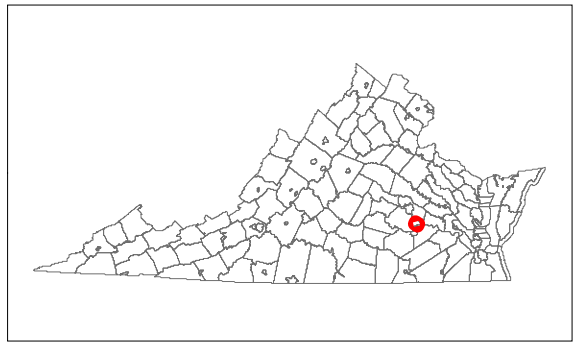
Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- (1) Photo Location
- Existing Substation
- Proposed Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 020-5319 (Ware Bottom Church Battlefield)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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3.3.4 Proctor's Creek Battlefield (VDHR #020-5320/ABPP VA053)

The battle of Proctor's Creek took place on May 12-16, 1864. The battle, part of the Bermuda Hundred Campaign, pitted Major General Benjamin Butler, commander of the Union forces, against General P.G.T. Beauregard, commander of the Confederate forces. Butler had withdrawn his forces from Swift Creek and Fort Clifton to Bermuda Hundred. During the battle of Proctor's Creek, 18,000 Confederate forces went up against 30,000 forces of the Union. On the last day of the battle, Ransom's division attacked the Union's right flank. The fog created disorganization among the troops and after the severe fighting, Union forces withdrew to Bermuda Hundred. Even outnumbered, the Confederates were victorious and successfully stopped Butler's Richmond offensive (ABPP 2018). The ABPP has designated approximately 12,684 acres of Study Area for the Proctor's Creek Battlefield site with approximately 5,090 of the acres considered PotNR areas (VDHR Site Files).

Approximately 982 acres of the 12,684-acre battlefield resource is located within the 1.0-mile Stage I study radius and consists of the ABPP-defined Study Area and a portion of the PotNR area (Table 5). The PotNR Area is located within the 0.5-mile radius of the centerline near the northwestern half of the project transmission line (Appendix B). The southern section of the battlefield, within the 1.0-mile radius, is mainly located along either side of Woods Edge Road. The Study and PotNR areas extend beyond the 1.0-mile radius to the northwest, west and south beyond the study area. The Proctor's Creek Battlefield also overlaps with the following battlefields:

- Port Walthall Junction Battlefield (VDHR #020-5317/ABPP VA047)
- Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318/ABPP VA050)
- Ware Bottom Church Battlefield (VDHR #020-5319/ABPP VA054)
- The Assault on Petersburg/Petersburg Battlefield II (VDHR #123-5025/ABPP VA063)

The portion of the battlefield Study and PotNR areas within the project vicinity has been compromised by large-scale commercial and residential development along Ramblewood Drive and Woods Edge Road as well as along the southern side of Old Bermuda Hundred Road north of Ramblewood Drive. The remaining sections of the ABPP Study Area comprise mainly small wooded parcels interspersed between modern developments. Howett Line/Parker's Battery/Richmond National Battlefield Park (VDHR #020-0232/043-0033) is also located within the PotNR area of the battlefield resource. The existing structures and associated wires are visible from Photograph Location 1, 6, 8, and 12, as well as where the line crosses roads throughout the resource (Figures 6-7, 13-16, and 24-27; Appendix C).

In addition to the field survey, computer modeling was utilized for the visual effects assessment for the resource based on the location and height of the proposed structures. According to the current design, Structures #2049/21 through #2049/28 (see Table 1) will be located within the resource or in its vicinity. The view shed modeling indicated that the existing structures are visible where the line crosses the road as well as in open areas of commercial and residential development adjacent to the transmission line. The proposed structures will also be visible from these same areas (Figure 32). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, ***it is***

recommended that the proposed transmission line rebuilding project will have a Minimal Visual Impact on the Proctor's Creek Battlefield/Drewry's Bluff Battlefield (VDHR #020-5320).

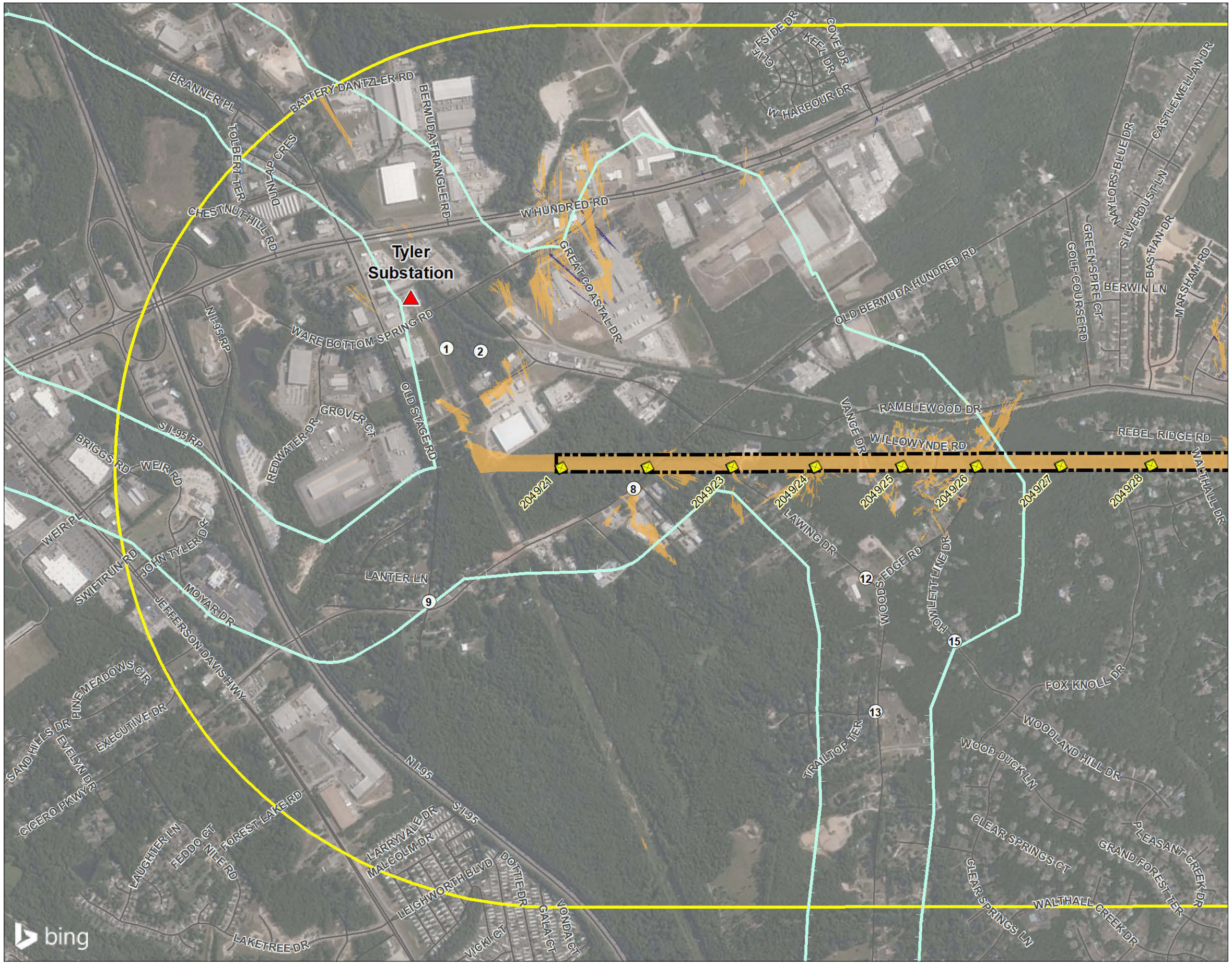


Figure No.

33

Title

Viewshed Analysis and Photo Location Map for the Proctor's Creek Battlefield (VDHR #020-5320)

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

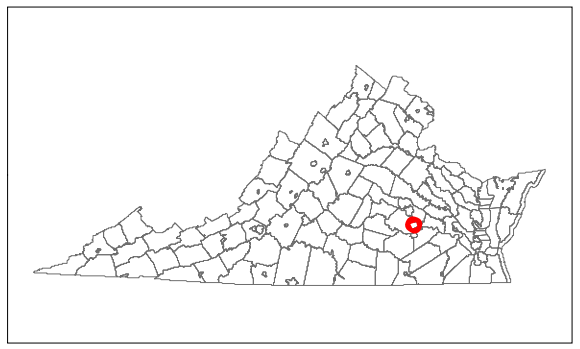
Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- (1) Photo Location
- Existing Substation
- Proposed Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 020-5320 (Proctor's Creek Battlefield)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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3.3.5 Richmond National Battlefield Park (VDHR #043-0033)

The Richmond National Battlefield Park was listed on the NRHP in 1966. Richmond was heavily defended during the Civil War by the Confederate troops and eventually a ring of forts and earthwork defenses surround the city. The park comprises three areas of Richmond's defenses; Chickahominy Bluff, Beaver Creek Dam, and a line of defenses between Fort Brady and Fort Harrison including the forts themselves. Fort Harrison was captured by the Union and expanded. Fort Brady was constructed by Union troops to protect Grant's supply lines from Confederate gunboats (NPS 2011). The Richmond National Battlefield Park is part of the National Park Service's interpretation of ten battlefields: six are part of the 1862 Seven Days' Battles and four part of the 1864 Overland Campaign. Circulation throughout the Cold Harbor Battlefield, Fort Harrison, and Fort Brady, in particular, comprise a series of Civilian Conservation Corps (CCC) constructed roads as well as dirt and chip-sealed paths constructed by park staff (VDHR Site Files; NPS 2011).

The Richmond National Battlefield Park is located to the north/northwest of the transmission line (Appendix B) within the 0.5-mile radius of the project centerline. At its closest point, the resource is approximately 1,070 feet northwest of the existing/proposed transmission line. The resource itself is heavily wooded. A small NPS parking is located to the southwest of the resource and is accessed from Ware Bottom Springs Road. Modern industrial buildings are located to the south, including what appears to be a large warehouse. Photographs for the visual effects assessment of the Howlett Line/Parker's Battery were taken along the western edge of the resource as well as a central location within the earthworks. The resulting fieldwork indicated that the built environment and wooded areas currently shield the view from the existing project transmission line structures. Currently, the resource views the transmission lines within the adjacent corridor to the west and Structure #2049/20, which are not part of the proposed rebuild project (see Figures 6 and 7).

In addition to the field survey, computer modeling was utilized for the visual effects assessment for the resource based on the location and height of the proposed structures. According to the current design, Structures #2049/21 and #2049/22 (see Table 1) will be located in the vicinity of the resource. The viewshed modeling conducted for the resource indicated that the proposed structures would also not be visible from the resource (see Figure 8). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, ***it is recommended that the proposed project would have No Visual Impact on the Richmond National Battlefield Park (VDHR #043-0033).***

3.3.6 Assault on Petersburg/Petersburg Battlefield II (VDHR #123-5025/ABPP VA063)

The Assault on Petersburg, part of the Richmond-Petersburg Campaign, took place on June 15 through 18, 1864. The battle pitted Lieutenant General Ulysses S. Grant and Major General George G. Meade's 62,000 Union troops against General Robert E. Lee and General P.G.T. Beauregard's Confederate troops, which numbered 42,000. Union troops crossed the James and Appomattox rivers on June 15th and attacked Petersburg's defensive lines successfully, driving Beauregard's troops back to Harrison Creek. Although Union troops managed to capture further Confederate defenses, Confederate reinforcements from Lee's units stopped further advancement by the Union resulting in a foiled effort by federal troops to capture Petersburg. The battle resulted in a Confederate victory with heavy Union losses totaling over 8,000 to the 3,200 casualties suffered on the Confederate side (ABPP 2018; VDHR Site Files).

Approximately 458 acres of the 15,527-acre battlefield resource are located within the 1.0-mile Stage I radius and consist of the ABPP-defined Study Area, which encompasses the locations of troop movements to and from Petersburg (Appendix B; Table 5). The Study Area, within the 1.0-mile radius, is situated at the northwestern end of the project area and follows Jefferson Davis Highway and at the southeastern end of the project area follows Enon Church Road. The Assault on Petersburg/Petersburg Battlefield II also overlaps with the following battlefields:

- Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318/ABPP VA050)
- Ware Bottom Church Battlefield (VDHR #020-5319/ABPP VA054)
- Proctor's Creek Battlefield/Drewry's Bluff (2nd) Battlefield (VDHR #020-5320/ABPP VA053)

The portion of the battlefield Study Area within the project vicinity has been compromised by large-scale commercial and residential development along Jefferson Davis Highway and Enon Church Road; however, at the southeastern end of the project area and between 0.5 and 1.0-miles from the centerline is an area of the study area remains wooded. The existing structures and associated wires were not visible from any of the points of survey within this resource (Figures 28 and 29; Appendix C).

In addition to the field survey, computer modeling was utilized for the visual effects assessment for the resource based on the location and height of the proposed structures. According to the current design, Structures #2049/21 and #2049/22 (see Table 1) will be located in the vicinity of the resource. The viewshed modeling indicated the resource currently views the existing transmission line from the existing transmission line ROW corridor. These areas will also view the proposed structures (Figure 33). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, ***it is recommended that the proposed transmission line rebuilding project will have a Minimal Visual Impact on the Assault on Petersburg/Petersburg Battlefield II (VDHR #123-5025).***

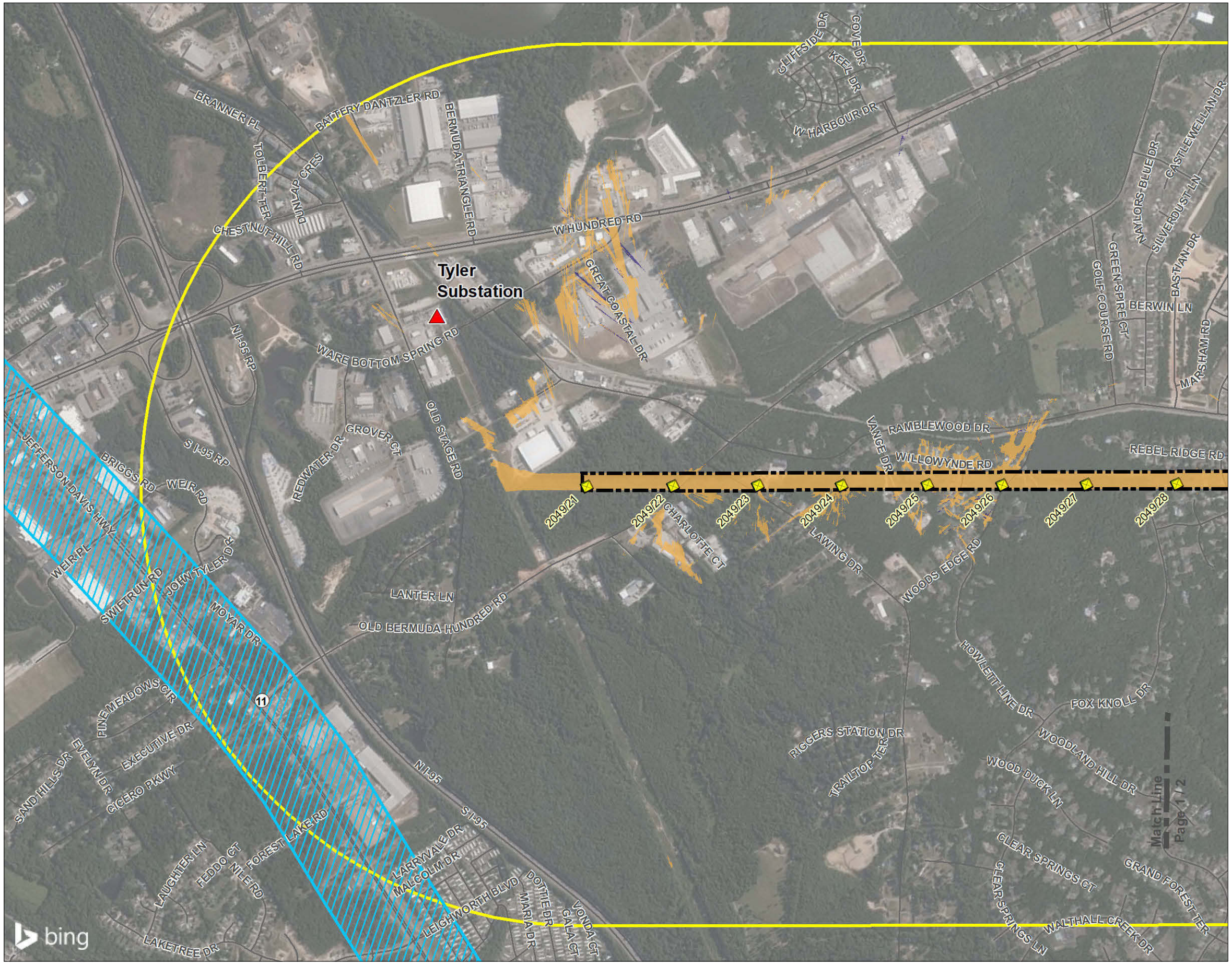


Figure No.

34

Title

Viewshed Analysis and Photo Location Map for the Assault on Petersburg/Petersburg II Battlefield (VDHR #123-5025)

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

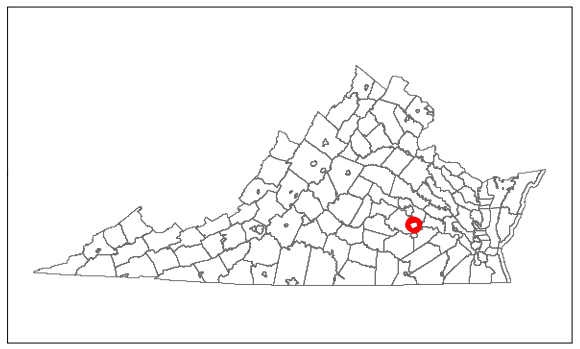
Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- Photo Location
- Existing Substation
- Proposed Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 123-5025 (Assault on Petersburg/Petersburg II Battlefield)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Page 51 of 80

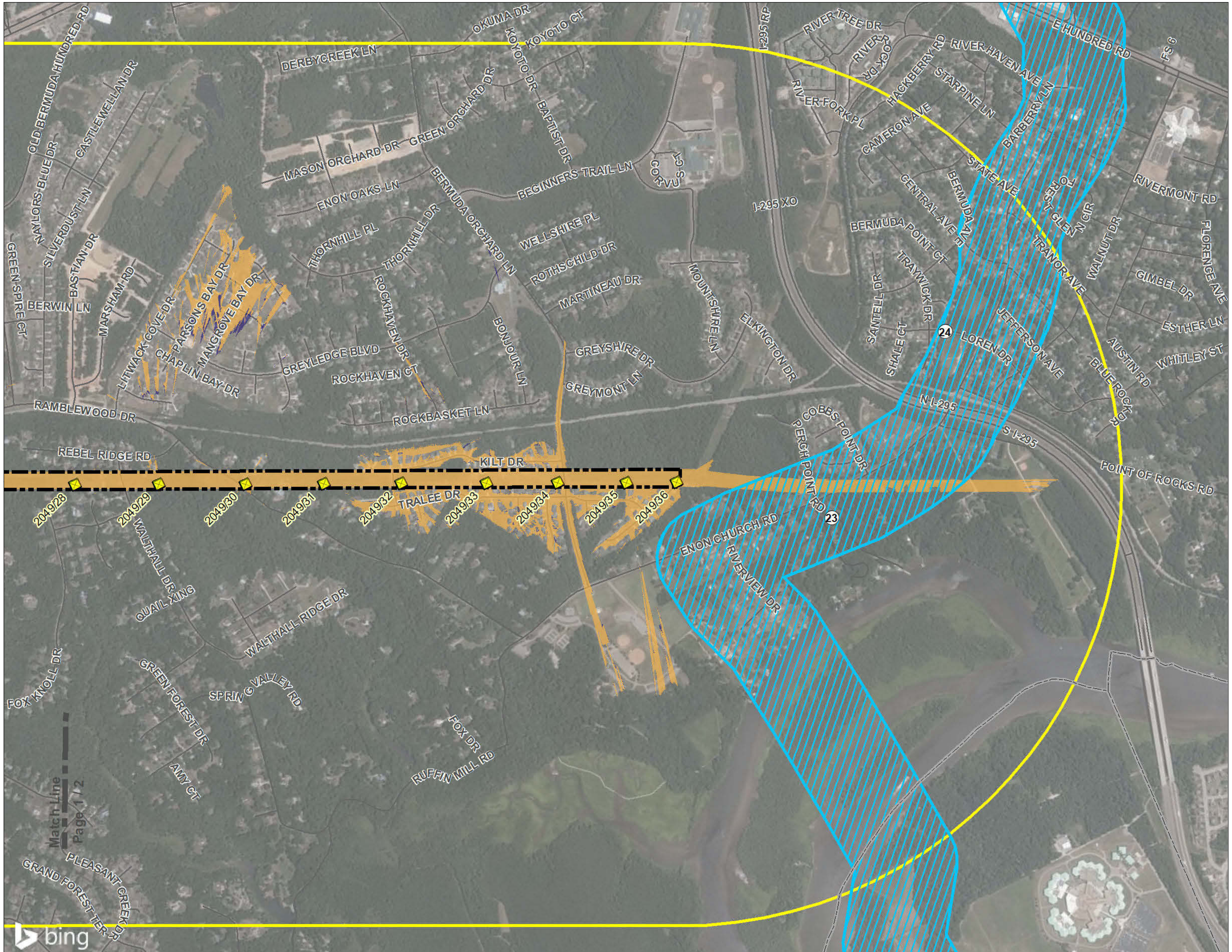


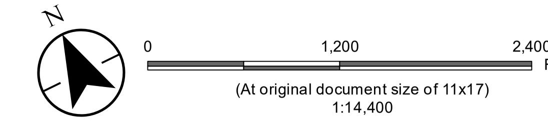
Figure No.
35

Title
Viewshed Analysis and Photo Location Map for the Assault on Petersburg/Petersburg II Battlefield (VDHR #123-5025)

Client/Project 203401509
Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

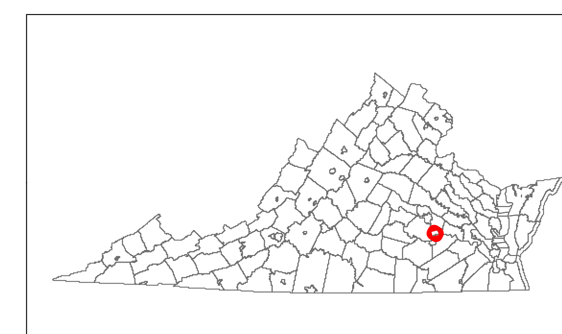
Project Location
Chesterfield County, Virginia

Prepared by TPS on 2020-08-25
TR by ECL on 2020-08-26
IR by SLD on 2020-08-26



(At original document size of 11x17)
1:14,400

- Photo Location
- Proposed Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 123-5025 (Assault on Petersburg/Petersburg II Battlefield)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



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1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Attachment 2.H.1
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4.0 CONCLUSIONS

4.1 OVERVIEW

Stantec was retained by Dominion Energy to conduct a Stage I Pre-Application Analysis for the proposed partial rebuild of the Allied-Chesterfield 230 kV Transmission Line #2049 (Allied-Chesterfield) in Chesterfield County, Virginia. The project proposed by Dominion Energy is necessary in order to maintain the structural integrity and reliability of its transmission system and to comply with mandatory NERC Reliability Standards. The project will be conducted entirely within an existing ROW and consists of approximately 2.9 miles of existing 230 kV transmission line from Structure #2049/21 to Structure #2049/36. The partial rebuild of the Allied-Chesterfield line will require the tear-down and replacement of 16 230 kV lattice structures with steel monopoles. All proposed structure heights and locations provided in this report are based upon preliminary engineering and are subject to final design. Based on this information, the proposed monopoles, on average, will increase in height by 2.2 feet with a maximum height increase of 5.0 feet.

4.1.1 Recommendations - Architectural Resources

No NHL-listed architectural resources are located within the 1.5-mile radius of the transmission line ROW centerline. One NRHP-listed resources are located within 1.0 mile and one NRHP-eligible resource was identified within 0.5 mile of the centerline. Additionally, six battlefield resources are located within the 0.5-mile buffer. One resource, the Howlett Line (VDHR #020-0232/043-0033-0059), a contributing resource to the Richmond National Battlefield Park (VDHR #043-0033), is also located within the 0.5-mile radius of the project centerline. Table 7 details the recommendations for the project.

Based on preliminary proposed structure heights, the proposed partial rebuild of the Allied-Chesterfield 230 kV transmission line would increase in height of the structures on average, will increase in height by 2.2 feet with a maximum total height increase of 5.0 feet. Based on the analysis of the proposed structures, it is recommended that the partial rebuild would have No Visual Impact on Howlett Line/Parker's Battery (VDHR #020-0232) and the Richmond National Battlefield Park (VDHR #043-0033). The proposed rebuild project would have a Minimal Visual Impact to Point of Rocks (VDHR #020-0123), Enon Park/Point of Rocks Park (VDHR #020-0506), and the 5 remaining battlefield resources **(Table 7).**

Table 6. Previously Recorded Architectural Resources Considered under the Stage I Pre-Application Guidelines

VDHR #	Resource Name	VDHR/NRHP Status	Distance to Line (Feet)	Impact
020-0123	Point of Rocks, 1005 Point of Rocks Road	NRHP-Listed	3,007	Minimal
020-0232/ 043-0033	Howlett Line/Parker's Battery/Parker's Battery Earthworks	Potentially Eligible	1,070	None

VDHR #	Resource Name	VDHR/NRHP Status	Distance to Line (Feet)	Impact
020-0506	Enon Park/Earthworks/Point of Rocks Park	NRHP-Eligible	1,255	Minimal
020-5317/ VA 047	Port Walthall Junction Battlefield, Indian Hills Road	NRHP-Eligible	0	Minimal
020-5318/ VA 050	Swift Creek Battlefield/ Arrowfield Church	Potentially Eligible	0	Minimal
020-5319/ VA 054	Ware Bottom Church Battlefield	Potentially Eligible	0	Minimal
020-5320/ VA 053	Proctor's Creek Battlefield/ Drewry's Bluff (2nd) Battlefield/ Fort Darling/ Fort Drewry	Potentially Eligible	0	Minimal
043-0033	Richmond National Battlefield Park	NRHP-Listed	1,062	None
123-5025/ VA 063	Assault on Petersburg/ Petersburg Battlefield II	Potentially Eligible	258	Minimal

4.1.2 Recommendations - Archaeological Resources

Ten previously recorded archaeological resources were identified either within or immediately adjacent to the project ROW. Five resources, Sites 44CF0578, 44CF0830, 44CF0833; 440840, and 44CF0841 are Civil War earthworks and have been determined potentially eligible for listing on the NRHP. Two sites have been determined not eligible for listing on the NRHP and three sites are currently unevaluated (Table 8; Appendix D). ***It is recommended that the archaeological sites should be investigated and evaluated as appropriate during future investigations.***

Table 7. Previously Recorded Archeological Resources Considered under the Stage I Pre-Application Guidelines

VDHR #	Resource Name	VDHR/NRHP Status	Distance to ROW (Feet)	Impact
44CF0578	Civil War Earthworks	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0830	Civil War; Mid-to-Late 19th Century Domestic Site	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0831	Prehistoric – Indeterminate; Early 20th Century Scatter	Not Evaluated	0	Investigate During Archaeological Survey
44CF0832	Late 19th to Early 20th Century Domestic Site	Not Evaluated	0	Investigate During Archaeological Survey
44CF0833	Civil War; 19th to 20th Century Domestic Site	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0834	Prehistoric Camp – Indeterminate	Not Eligible	0	Investigate During Archaeological Survey
44CF0839	19th Century Domestic Site	Not Eligible	0	Investigate During Archaeological Survey
44CF0840	Civil War Earthworks	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0841	Civil War Earthworks	Potentially Eligible	0	Investigate During Archaeological Survey

STAGE I PRE-APPLICATION ANALYSIS FOR THE PROPOSED DOMINION ENERGY VIRGINIA ALLIED-CHESTERFIELD 230 KV TRANSMISSION LINE #2049 REBUILD PROJECT, CHESTERFIELD COUNTY, VIRGINIA

CONCLUSIONS

VDHR #	Resource Name	VDHR/NRHP Status	Distance to ROW (Feet)	Impact
44CF0842	Prehistoric Camp - Woodland	Not Evaluated	0	Investigate During Archaeological Survey

5.0 REFERENCES

American Battlefield Protection Program

2018 "Assault on Petersburg" https://www.nps.gov/abpp/battles/va063.htm, accessed 26 March 2018.

2018 "Proctor's Creek" https://www.nps.gov/abpp/battles/va053.htm, accessed 4 January 2018.

2018 "Port Walthall Junction" https://www.nps.gov/abpp/battles/va047.htm, accessed 15 March 2018.

2018 "Swift Creek" https://www.nps.gov/abpp/battles/va050.htm, accessed 15 March 2018.

2018 "Ware Bottom Church" https://www.nps.gov/abpp/battles/va054.htm, accessed 4 January 2018.

Advisory Council for Historic Preservation (ACHP)

2000 *36 CFR 800: Part 800- Protection of Historic and Cultural Properties*. Federal Register, September 2, Washington, D.C.

National Park Service (NPS)

2011 "Richmond National Battlefield Park, Virginia

United States Department of the Interior (Interagency Resources Division)

1981 *Department of the Interior's Regulations, 36 CFR Part 60: National Register of Historic Places.* Interagency Resources Division, National Park Service, U.S. Department of the Interior, Washington, D.C.

1983 *Department of the Interior, Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines.* Interagency Resources Division, National Park Service, U.S. Department of the Interior, Washington, D.C.

1991 How to Apply the National Register Criteria of Evaluation. *National Register Bulletin 15.* Interagency Resources Division, National Park Service, U.S. Department of the Interior, Washington, D.C.

Virginia Department of Historic Resources (VDHR)

1997 *Historic Context Guidelines for Preparing Cultural Resource Survey Reports.* VDHR, Richmond.

2008 *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia.* VDHR, Richmond.

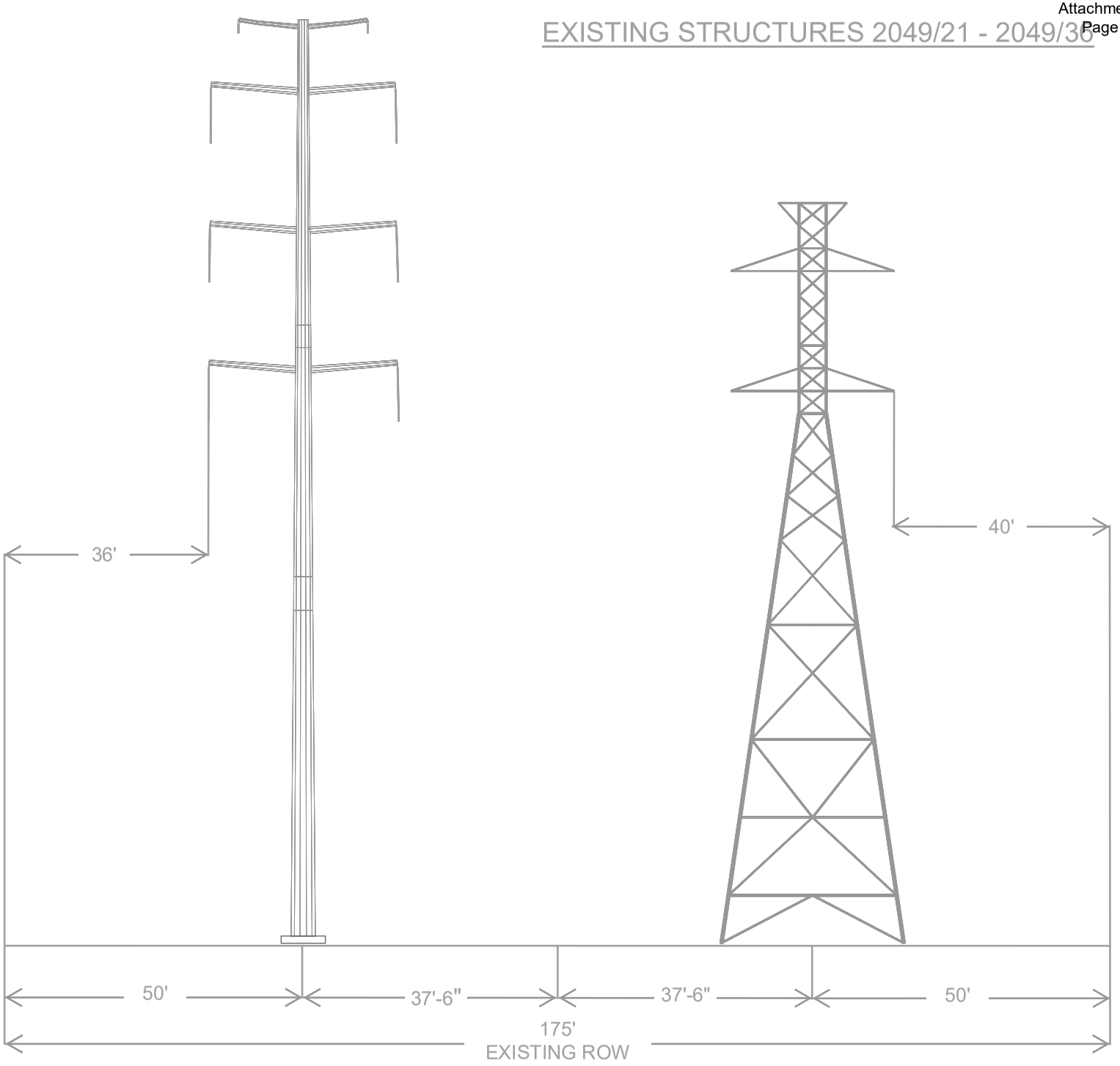
2011 *Guidelines for Historic Resource Survey in Virginia.* VDHR, Richmond.

2020 VDHR Archive Files.

Appendix A

A.1 STRUCTURE DETAILS

EXISTING STRUCTURES 2049/21 - 2049/36



TYPICAL RIGHT OF WAY LOOKING TOWARD STRUCTURE 2049/36

Attachment 2.H.1
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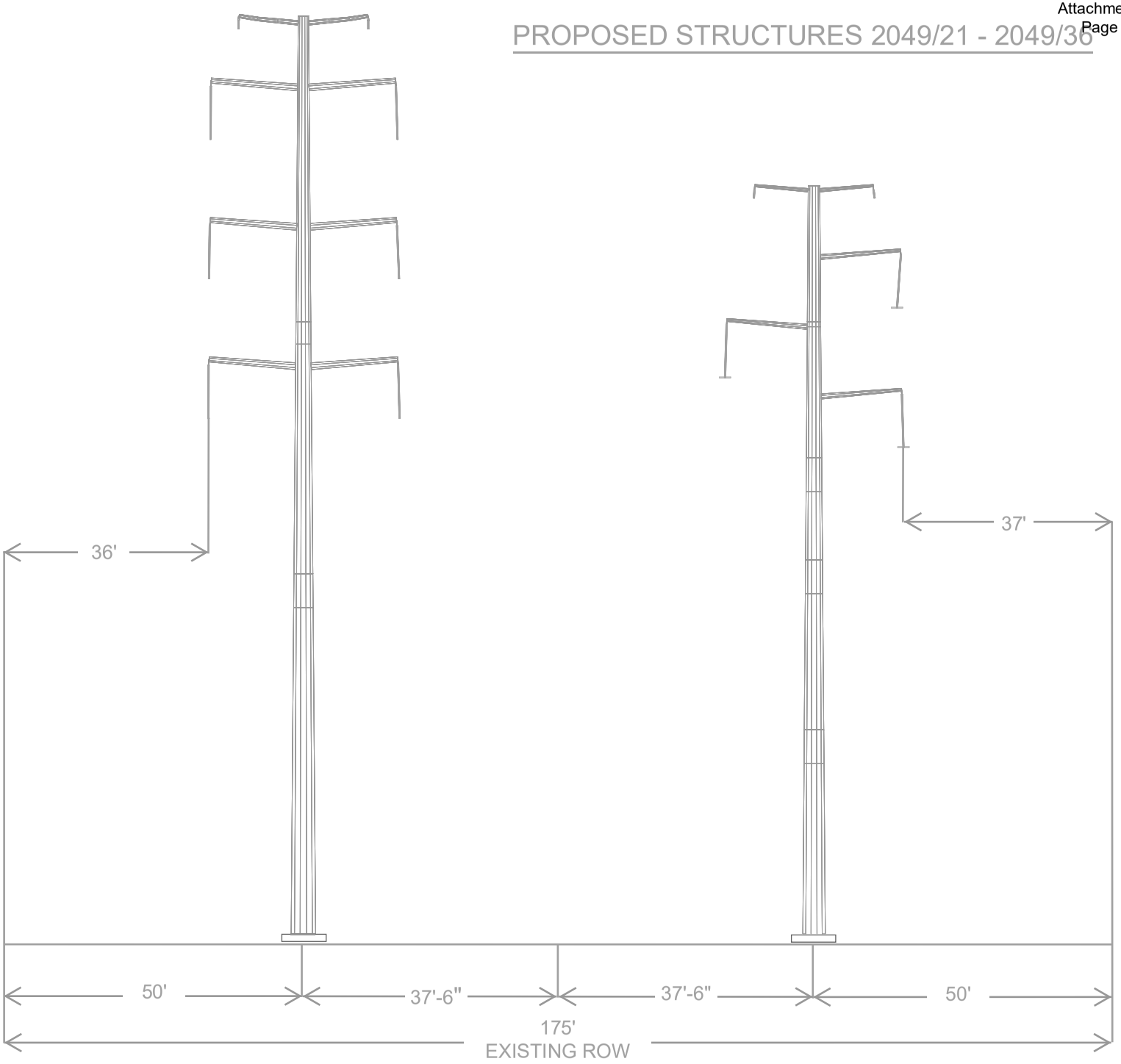
PROPOSED STRUCTURES 2049/21 - 2049/36



TYPICAL RIGHT OF WAY LOOKING TOWARD STRUCTURE 2049/36

Attachment 2.H.1
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Appendix B

B.1 ARCHITECTURAL RESOURCE MAPS – ALLIED-CHESTERFIELD REBUILD PROJECT

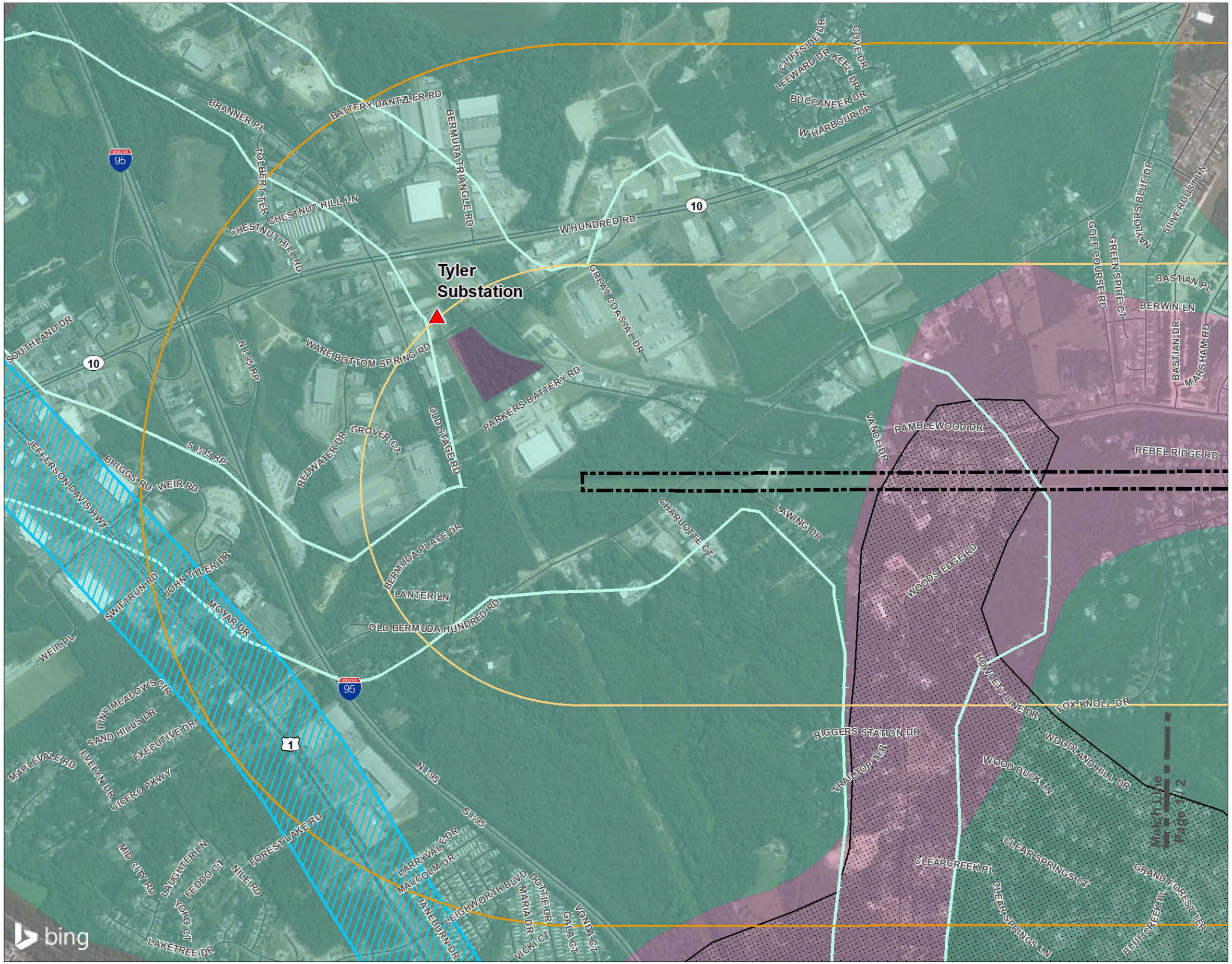


Figure No.

Appendix B

Title

Architectural Resources Under Consideration

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

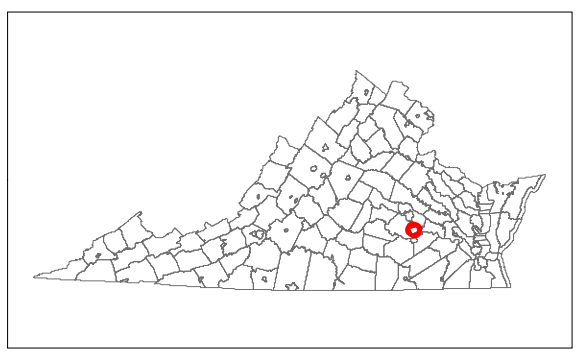
Prepared by LJJ on 2020-06-26
TR by ECL on 2020-08-20
IR by SLD on 2020-08-20

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- Existing Substation
- Project Limits
- Half-Mile Buffer
- 1-Mile Buffer
- 020-5317 (Port Walthall Junction Battlefield)
- 020-5320 (Drewry's Bluff (2nd) Battlefield, Proctor's Creek Battlefield)
- 123-5025 (Assault on Petersburg, Petersburg Battlefield II)
- 020-0232/043-0033 (Richmond National Battlefield Park, Parker's Battery, Howlett Line)
- 020-5318 (Swift Creek Battlefield)
- 020-5319 (Ware Bottom Church Battlefield)



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Orthoimagery © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Attachment 2.H.1
Page 61 of 80

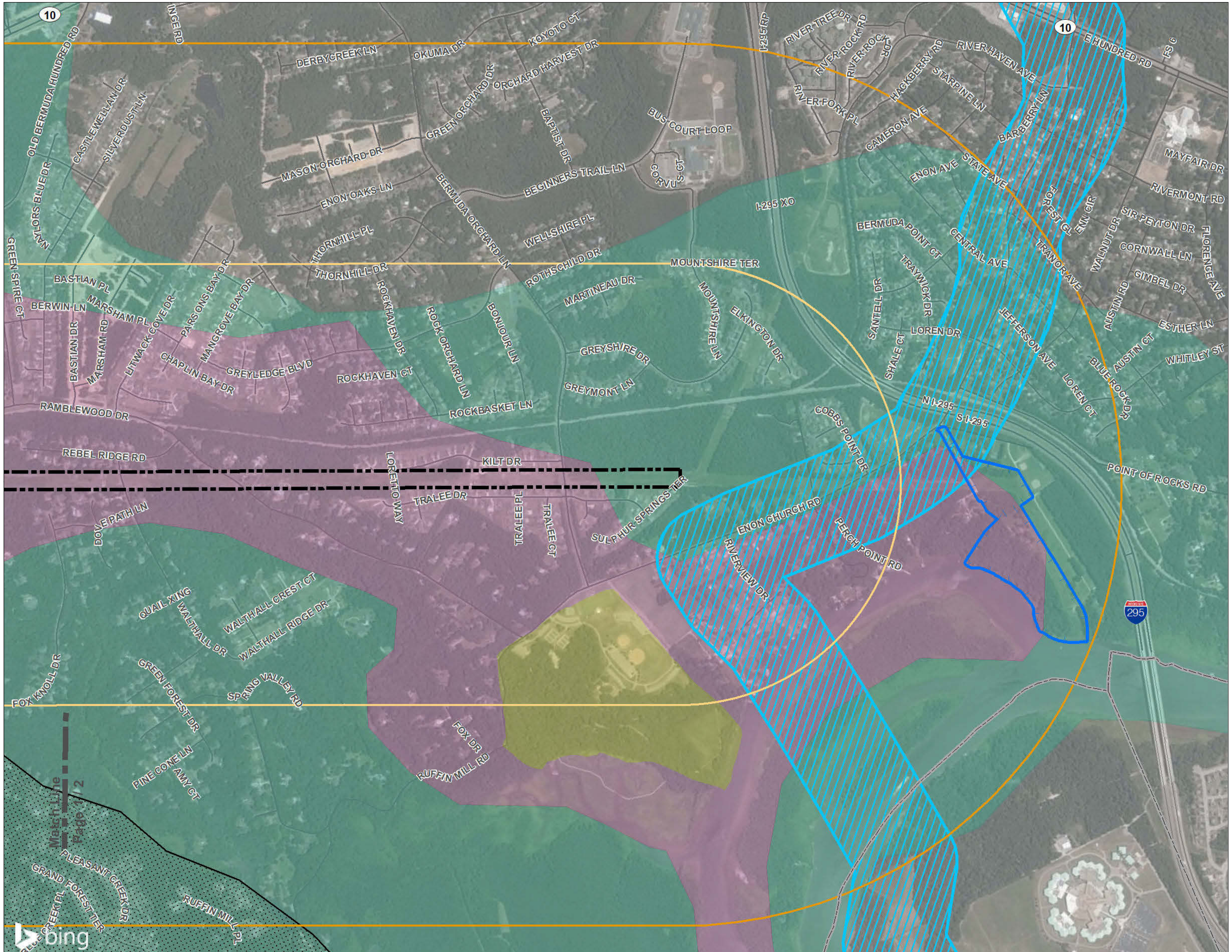


Figure No.

Appendix B

Title

Architectural Resources Under Consideration

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

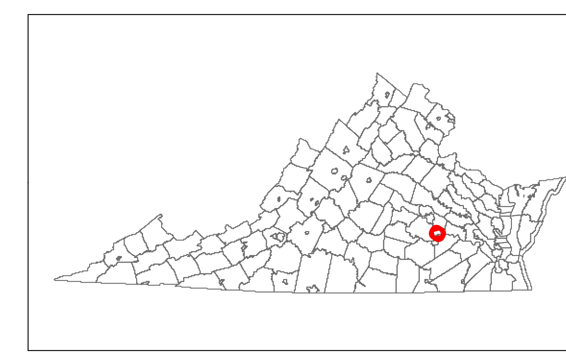
Chesterfield County, Virginia

Prepared by LJJ on 2020-06-26
TR by ECL on 2020-08-20
IR by SLD on 2020-08-20

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- Existing Substation
- Project Limits
- Half-Mile Buffer
- 1-Mile Buffer
- 020-0123
- 020-5317 (Port Walthall Junction Battlefield)
- 123-5025 (Assault on Petersburg, Petersburg Battlefield II)
- 020-0506
- 020-5318 (Swift Creek Battlefield)
- 020-5319 (Ware Bottom Church Battlefield)



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Orthoimagery © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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\\Us0265-ppfss01\shared_projects\203401509\03_data\gis_cad\gis\01509_c_archi_mileout.mxd Revised: 2020-09-01 By: psingleton

Attachment 2.H.1
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APPENDIX C

C.1 PHOTOSIMULATIONS

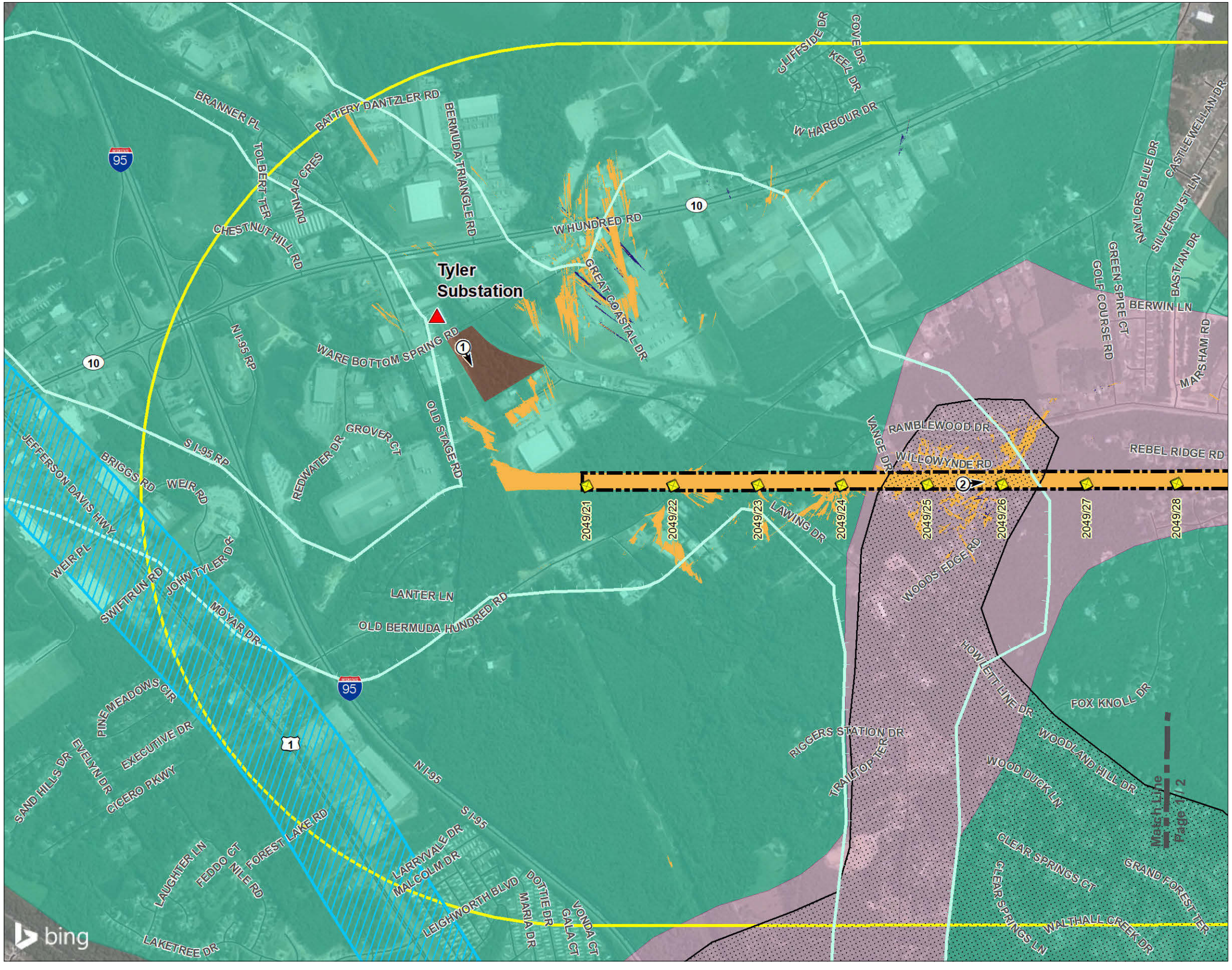


Figure No.

1

Title

Observation Point and Viewshed Map

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

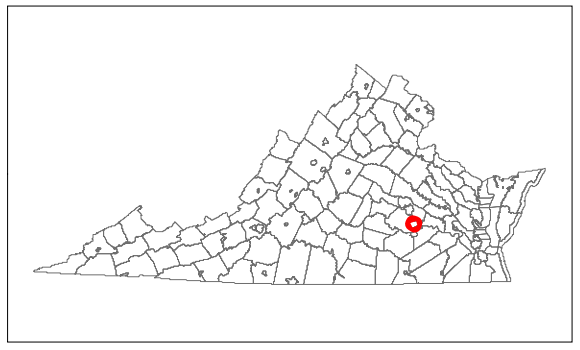
Prepared by TPS on 2020-08-21
TR by MGS on 2020-09-23
IR by CPG on 2020-09-23

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- Observation Point
- Existing Substation
- Proposed Structure
- Existing Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 020-0123
- 020-5317 (Port Walthall Junction Battlefield)
- 123-5025 (Assault on Petersburg, Petersburg Battlefield II)
- 020-0506
- 020-5318 (Swift Creek Battlefield)
- 020-5319 (Ware Bottom Church Battlefield)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



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1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Attachment 2.H.1
Page 64 of 80

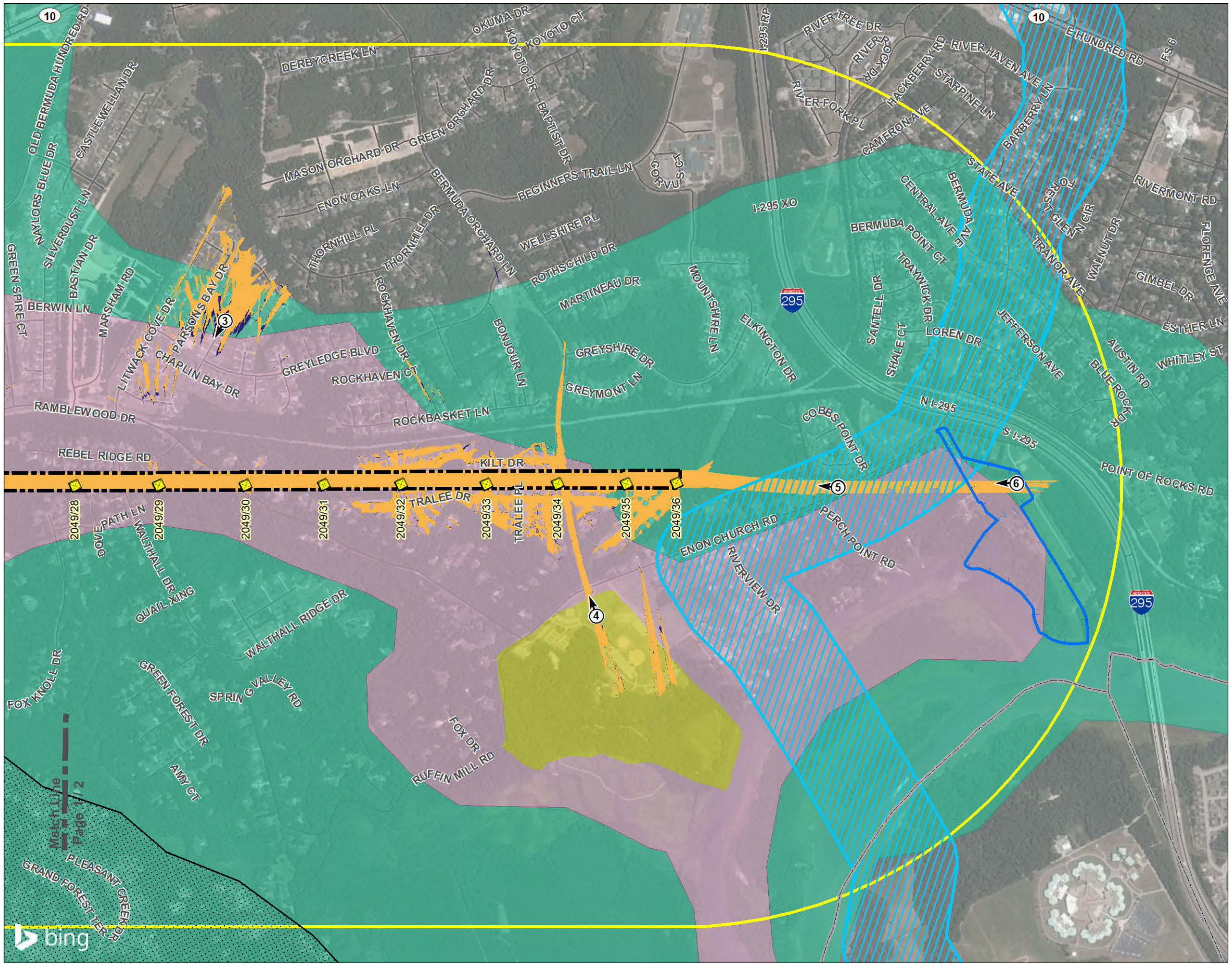


Figure No.

1

Title

Observation Point and Viewshed Map

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

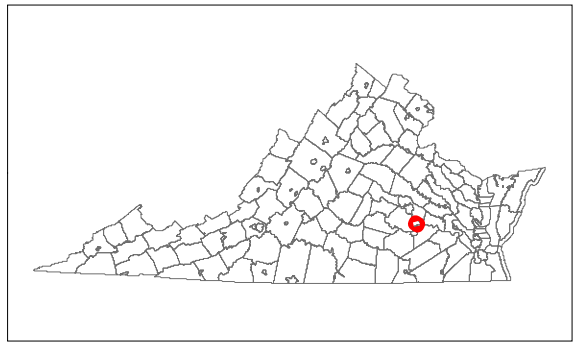
Prepared by TPS on 2020-08-21
TR by MGS on 2020-09-23
IR by CPG on 2020-09-23

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- Observation Point
- Existing Substation
- Proposed Structure
- Existing Structure
- Project Limits
- Viewshed Study Limits 1-Mile Buffer
- 020-0123
- 020-5317 (Port Walthall Junction Battlefield)
- 123-5025 (Assault on Petersburg, Petersburg Battlefield II)
- 020-0506
- 020-5318 (Swift Creek Battlefield)
- 020-5319 (Ware Bottom Church Battlefield)
- Both Existing and Proposed Visible
- Existing Not Visible, Proposed Visible



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR, ESRI, NADS
3. Viewshed analysis produced from digital elevation model and digital surface model derived from VGIN LiDAR
4. Proposed structure to be built in approximate location of existing structure
5. Orthoimagery © Bing Maps
6. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Attachment 2.H.1
Page 66 of 80

Photograph Provided by Stantec

Observation Point 1: Existing
Howlett Line/Parker's Battery Earthworks (VDHR #020-0232)
Richmond National Battlefield Park (VDHR #043-0033)

Stantec Dominion Energy

Attachment 2.H.1
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Representation Provided by Stantec

Observation Point 1: Proposed (No Visibility)
Howlett Line/Parker's Battery Earthworks (VDHR #020-0232)
Richmond National Battlefield Park (VDHR #043-0033)

Stantec Dominion Energy

Attachment 2.H.1
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Photograph Provided by Stantec

Observation Point 2: Existing
Port Walthall Junction Battlefield (VDHR #020-5317)
Proctor's Creek Battlefield (VDHR #020-5320)
Swift Creek Battlefield (VDHR #020-5318)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

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Representation Provided by Stantec

Observation Point 2: Proposed
Port Walthall Junction Battlefield (VDHR #020-5317)
Proctor's Creek Battlefield (VDHR #020-5320)
Swift Creek Battlefield (VDHR #020-5318)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

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Photograph Provided by Stantec

Observation Point 3: Existing
Swift Creek Battlefield (VDHR #020-5318)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

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Representation Provided by Stantec

Observation Point 3: Proposed
Swift Creek Battlefield (VDHR #020-5318)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

Attachment 2.H.1
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Photograph Provided by Stantec

Observation Point 4: Existing
Enon Park (VDHR #020-0506)
Swift Creek Battlefield (VDHR #020-5318)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

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Representation Provided by Stantec

Observation Point 4: Proposed
Enon Park (VDHR #020-0506)
Swift Creek Battlefield (VDHR #020-5318)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

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Photograph Provided by Stantec

Observation Point 5: Existing
Assault on Petersburg (VDHR #123-5025)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

Attachment 2.H.1
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Representation Provided by Stantec

Observation Point 5: Proposed
Assault on Petersburg (VDHR #123-5025)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

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Photograph Provided by Stantec

Observation Point 6: Existing
Point of Rocks (VDHR #020-0123)
Swift Creek Battlefield (VDHR #020-5318)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

Attachment 2.H.1
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Representation Provided by Stantec

Observation Point 6: Proposed
Point of Rocks (VDHR #020-0123)
Swift Creek Battlefield (VDHR #020-5318)
Ware Bottom Church Battlefield (VDHR #020-5319)

Stantec Dominion Energy

Attachment 2.H.1
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APPENDIX D

D.1 ARCHAEOLOGICAL RESOURCE MAPS – ALLIED-CHESTERFIELD REBUILD PROJECT

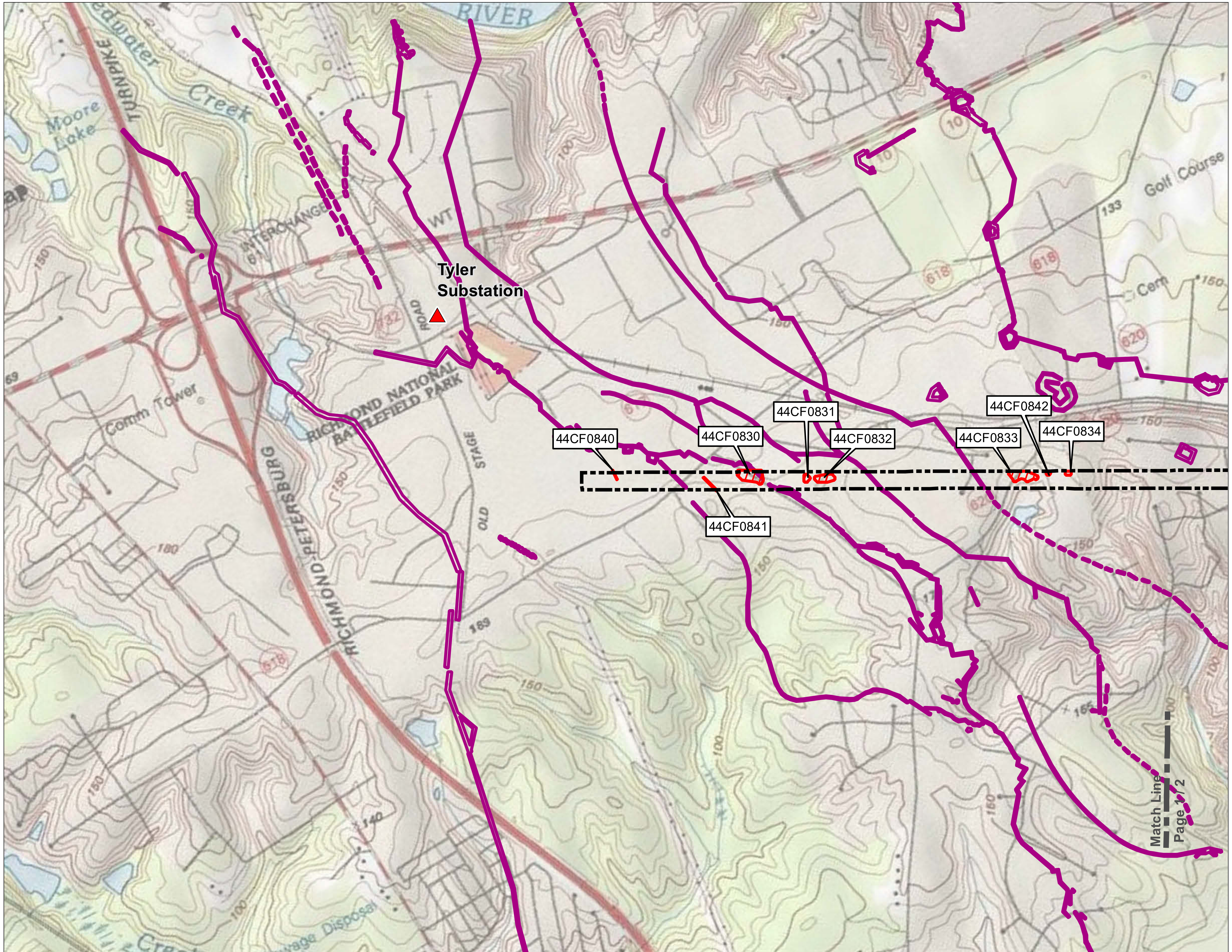


Figure No.

Appendix D

Title

Archaeological Resources Within Right-of-Way

Client/Project 203401509

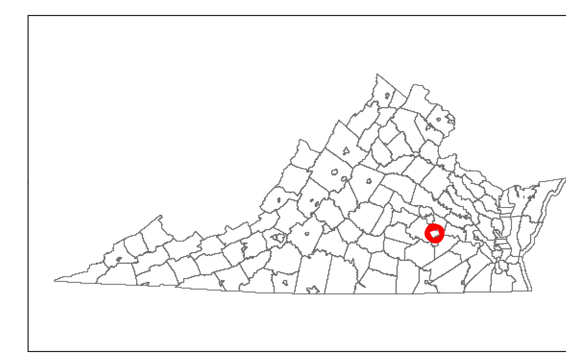
Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location
Chesterfield County, Virginia

Prepared by LJJ on 2020-06-26
TR by ECL on 2020-08-20
IR by SLD on 2020-08-20

0 1,200 2,400 Feet
(At original document size of 11x17)
1:14,400

- Existing Substation
- Project Limits
- Archaeological Resource 44CF0578
- Archaeological Resource



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2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR
3. Topographic map © USGS 7.5 Minute Series Topographic Map, Wilton, VA Quadrangle, 1964 (Rev1992)

Stantec

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Attachment 2.H.1
Page 79 of 80

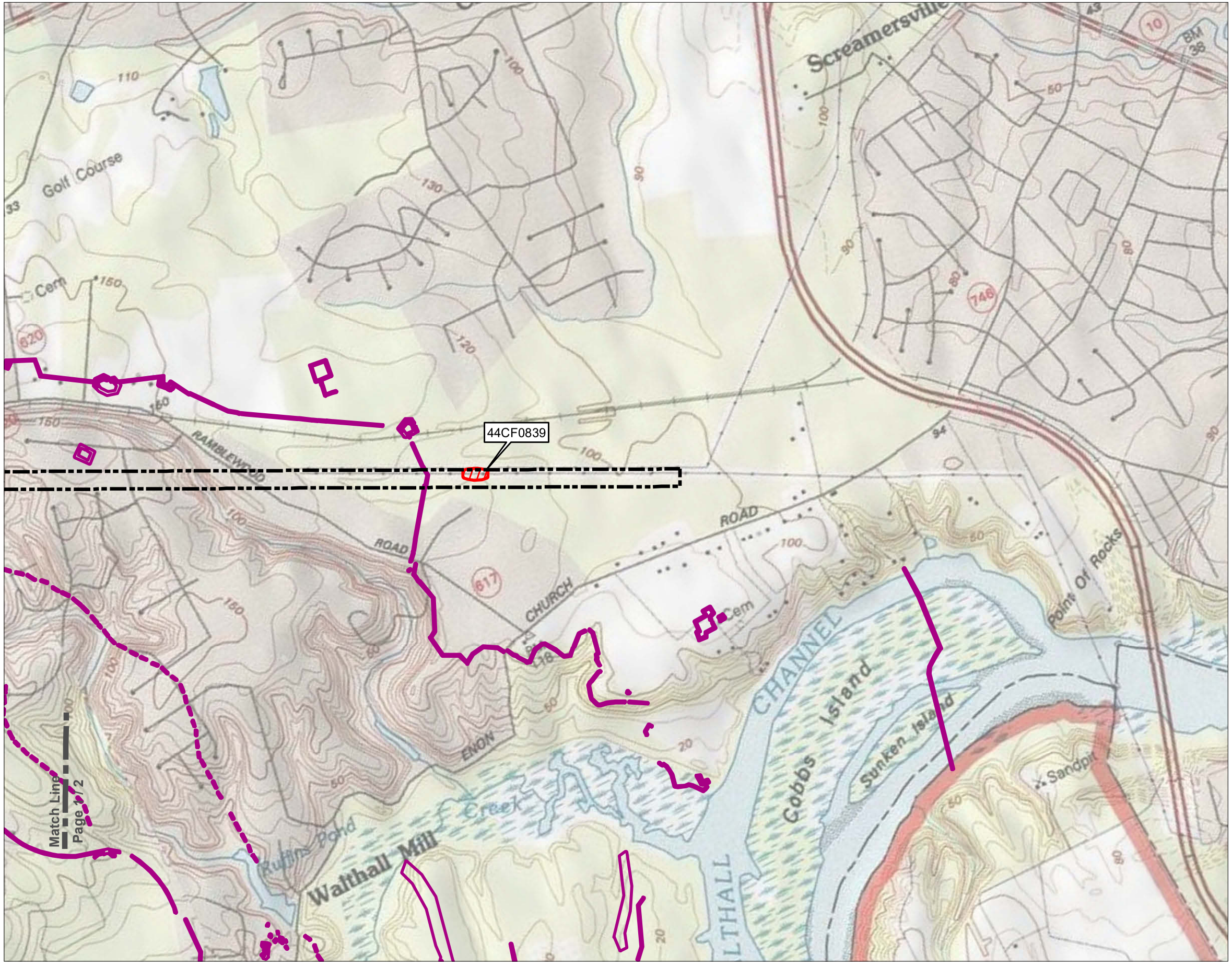


Figure No.

Appendix D

Title

Archaeological Resources Within Right-of-Way

Client/Project 203401509

Dominion Energy Virginia
Allied-Chesterfield 230 kV
Transmission Line #2049 Partial Rebuild

Project Location

Chesterfield County, Virginia

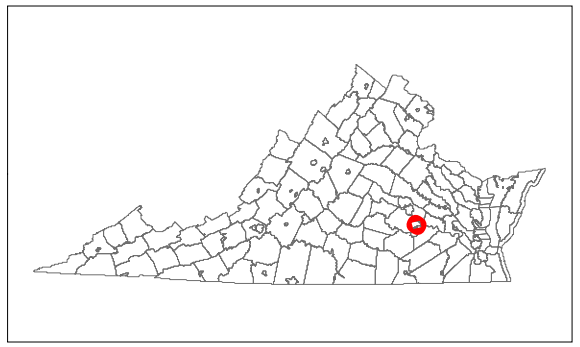
Prepared by LJJ on 2020-06-26
TR by ECL on 2020-08-20
IR by SLD on 2020-08-20

N

0 1,200 2,400 Feet

(At original document size of 11x17)
1:14,400

- Existing Substation
- Project Limits
- Archaeological Resource 44CF0578
- Archaeological Resource



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Virginia Department of Historic Resources, Virginia Cultural Resources Information System (VCRIS), DCR
3. Topographic map © USGS 7.5 Minute Series Topographic Map, Wilton, VA Quadrangle, 1964 (Rev1992)

Stantec

Attachment 2.H.1
Page 80 of 80

From: Nancy.R.Reid@dominionenergy.com
To: Gray, Corey; Rachel.M.Studebaker@dominionenergy.com
Subject: FW: VOF Response - Allied-Chesterfield 230kV Transmission Line #2049 Partial Rebuild Project - Chesterfield County, VA
Date: Wednesday, September 9, 2020 10:56:41 AM
Attachments: dominion cfd.pdf

-----Original Message-----
From: ImpactReview <impactreview@vof.org>
Sent: Friday, August 28, 2020 4:26 PM
To: Nancy R Reid (Services - 6) <Nancy.R.Reid@dominionenergy.com>
Cc: Martha Little <mlittle@vof.org>
Subject: [EXTERNAL] Allied-Chesterfield 230kV Transmission Line #2049 Partial Rebuild Project - Chesterfield County, VA

Ms. Reid,

The Virginia Outdoors Foundation has reviewed the project referenced above and described in the attached document. As of 28 August 2020, there are not any existing nor proposed VOF open-space easements in the immediate vicinity of the project.

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 review to: ImpactReview@VOF.org.

Thanks,
Mike

Mike Hallock-Solomon, AICP
Virginia Outdoors Foundation

From:	Nancy.R.Reid@dominionenergy.com
To:	Gray, Corey; Rachel.M.Studebaker@dominionenergy.com
Subject:	FW: VOF Response - Dominion Energy Virginia"s Allied- Chesterfield 230 kV Transmission Line # 2049 Partial Rebuild
Date:	Wednesday, September 9, 2020 10:59:38 AM

From: Scott Denny <scott.denny@doav.virginia.gov>
Sent: Monday, August 31, 2020 4:08 PM
To: Nancy R Reid (Services - 6) <Nancy.R.Reid@dominionenergy.com>
Subject: [EXTERNAL] Dominion Energy Virginia's Allied- Chesterfield 230 kV Tranmission Line # 2049 Partial Rebuild

Dear Ms. Reid:

The Virginia department of Aviation reviewed the information package you provided regarding the above mentioned project in your August 24, 2020 letter. Following our review, staff has determined that no portion of the proposed project is within 20,000 linear feet of a public use airport. Therefore, unless any of the structures, be they permanent or temporary, reach an above ground level height of 200' above ground level or above, no 7460 form must be submitted to the Federal Aviation Administration. If any of the proposed structures reaches a height of 200' above ground level a 7460 form must be submitted to the FAA for evaluation to determine if any portion of the project constitutes a hazard to air navigation.

Provided the FAA determines the proposed project does not create a hazard to air navigation, the Virginia Department of Aviation does not object to the project as it has been presented. Please feel free to contact me if you have any questions regarding this matter.

Sincerely,

S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation
--
S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation
804-236-3638
scott.denny@doav.virginia.gov

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