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October 14, 2020

BY ELECTRONIC FILING

Mr. Bernard Logan, Interim Clerk
c/o Document Control Center
State Corporation Commission
1300 East Main Street
Tyler Building – 1st Floor
Richmond, Virginia 23219

Application of Virginia Electric and Power Company
For approval and certification of electric transmission facilities:
Allied-Chesterfield 230 kV Single Circuit Transmission Line #2049 Partial Rebuild Project
Case No. PUR-2020-00239

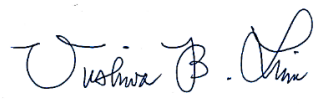
Dear Mr. Logan:

Please find enclosed for electronic filing in the above-captioned proceeding the application for approval of electric facilities on behalf of Virginia Electric and Power Company (the "Company"). This filing contains the Application, Appendix, Direct Testimony, and DEQ Supplement, including attachments.

As indicated in Section II.A.12.b of the Appendix, three (3) color copies of the map of the Virginia Department of Transportation "General Highway Map" for Chesterfield County were mailed to the Commission's Division of Energy Regulation on October 7, 2020. The Company also provided the Division of Energy Regulation electronic access, via e-room on October 8, 2020, to the digital geographic information system ("GIS") map required by § 56-46.1 of the Code of Virginia, which is Attachment II.A.2 to the Appendix.

Please do not hesitate to call if you have any questions in regard to the enclosed.

Very truly yours,



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Enclosures
cc: William H. Chambliss, Esq.
David J. DePippo, Esq.

Dominion Energy®

Application, Appendix, DEQ Supplement, Direct Testimony and Exhibits of Virginia Electric and Power Company

Before the State Corporation Commission of Virginia

Allied-Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project

Application No. 300

Case No. PUR-2020-00239

Filed: October 14, 2020

Volume 1 of 1

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC FACILITIES

Allied-Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project

Application No. 300

Case No. PUR-2020-00239

Filed: October 14, 2020

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: Allied-Chesterfield 230 kV Transmission Line #2049 Partial Rebuild Project	)	

APPLICATION OF VIRGINIA ELECTRIC AND POWER COMPANY FOR APPROVAL AND CERTIFICATION OF ELECTRIC TRANSMISSION FACILITIES: ALLIED-CHESTERFIELD 230 kV TRANSMISSION LINE #2049 PARTIAL REBUILD PROJECT

Pursuant to § 56-46.1 of the Code of Virginia ("Va. Code") and the Utility Facilities Act, Va. Code § 56-265.1 *et seq.*, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company"), by counsel, files with the State Corporation Commission of Virginia (the "Commission") this application for approval and certification of electric transmission facilities (the "Application"). In support of its Application, Dominion Energy Virginia respectfully shows as follows:

1. Dominion Energy Virginia is a public service corporation organized under the laws of the Commonwealth of Virginia furnishing electric service to the public within its Virginia service territory. The Company also furnishes electric service to the public in portions of North Carolina. Dominion Energy Virginia's electric system—consisting of facilities for the generation, transmission, and distribution of electric energy—is interconnected with the electric systems of neighboring utilities and is a part of the interconnected network of electric systems serving the continental United States. By reason of its operation in two states and its interconnections with other utilities, the Company is engaged in interstate commerce.

2. In order to perform its legal duty to furnish adequate and reliable electric service,

Dominion Energy Virginia must, from time to time, replace existing transmission facilities or construct new transmission facilities in its system.

3. In this Application, 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, the Company 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"). 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.

4. As of April 2020, the Company has approximately 3,115 miles of overhead transmission lines built prior to 1980 (approximately 47% of the overall overhead transmission system mileage). The Company has developed a proactive plan to rebuild transmission lines that are comprised of weathering steel towers (COR-TEN®[1] towers). The 230 kV system accounts for approximately 2,861 miles of the Company's total overhead transmission line system, of which approximately 1,502 miles were built primarily before 1980.

5. 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

[1] Registered trademark of United States Steel Corporation.

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.

6. The desired in-service date for the Rebuild Project is April 15, 2022. The Company estimates it will take approximately 13 months for detailed engineering, materials procurement, permitting, and construction after a final order from the Commission. Accordingly, to support this estimated pre-construction activity timeline and construction plan, the Company respectfully requests a final order by March 15, 2021. Should the Commission issue a final order by March 15, 2021, the Company estimates that construction should begin on October 1, 2021 and be completed by April 15, 2022. This construction timeline will enable the Company to meet the targeted in-service date for the Rebuild Project.

7. The estimated conceptual cost of the Rebuild Project is approximately $4.8 million, which includes $4.8 million for transmission-related work (2020 dollars). There is no substation work associated with the Rebuild Project; therefore, there are no substation-related costs. The description of the proposed Rebuild Project is described in detail in Sections I and II of the Appendix attached to this Application.

8. The length of the existing right-of-way and Company-owned property to be used for the Rebuild Project is approximately 2.9 miles. Because the existing right-of-way is adequate to construct the proposed Rebuild Project, new right-of-way is not necessary. Given the availability of existing right-of-way and the statutory preference given to the use of existing rights-of-way, and because additional costs and environmental impacts would be associated with the acquisition of and construction on new right-of-way, the Company did not consider any alternate routes requiring new right-of-way for this Rebuild Project. Section II of the Appendix addresses routing issues. The impact of the proposed Rebuild Project on scenic, environmental, and historical features is described in detail in Section III of the Appendix.

9. Based on consultations with the Virginia Department of Environmental Quality ("DEQ"), the Company has developed a supplement ("DEQ Supplement") containing information designed to facilitate review and analysis of the proposed facilities by the DEQ and other relevant agencies. The DEQ Supplement is attached to this Application.

10. Based on the Company's experience, the advice of consultants, and a review of published studies by experts in the field, the Company believes that there is no causal link to harmful health or safety effects from electric and magnetic fields generated by the Company's existing or proposed facilities. Section IV of the Appendix provides further details on Dominion Energy Virginia's consideration of the health aspects of electric and magnetic fields.

11. Section V of the Appendix provides a proposed route description for public notice purposes and a list of federal, state, and local agencies and officials that the Company has or will notify about the Application.

12. In addition to the information provided in the Appendix and the DEQ Supplement, this Application is supported by the pre-filed direct testimony of Company Witnesses Bao Pham,

Ryan Joyce, and Nancy Reid filed with this Application.

WHEREFORE, Dominion Energy Virginia respectfully requests that the Commission:

(a) direct that notice of this Application be given as required by § 56-46.1 of the Code of Virginia;

(b) approve pursuant to § 56-46.1 of the Code of Virginia the construction of the Rebuild Project; and,

(c) grant a certificate of public convenience and necessity for the Rebuild Project under the Utility Facilities Act, § 56-265.1 *et seq.* of the Code of Virginia.

VIRGINIA ELECTRIC AND POWER COMPANY

By: _____*/s/ Vishwa B. Link*_____
Counsel for Applicant

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Counsel for Applicant Virginia Electric and Power Company
October 14, 2020

COMMONWEALTH OF VIRGINIA
BEFORE THE
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

FOR APPROVAL AND CERTIFICATION
OF ELECTRIC FACILITIES

Allied-Chesterfield 230 kV Transmission Line #2049 Partial Rebuild

Application No. 300

Appendix

Containing Information in Response to
"Guidelines for Transmission Line Applications Filed Under title 56 of the Code of Virginia"

Case No. PUR-2020-00239

Filed: October 14, 2020

TABLE OF CONTENTS

EXECUTIVE SUMMARY

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, Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") 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"). 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.

As of April 2020, the Company has approximately 3,115 miles of overhead transmission lines built prior to 1980 (approximately 47% of the overall overhead transmission system mileage). The Company has developed a proactive plan to rebuild transmission lines that are comprised of weathering steel towers (COR-TEN®[1] towers). The 230 kV system accounts for approximately 2,861 miles of the Company's total overhead transmission line system, of which approximately 1,502 miles were built primarily before 1980.

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.

The length of the existing right-of-way and Company-owned property to be used for the Rebuild Project is approximately 2.9 miles. Because the existing right-of-way and Company-owned property 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.

The estimated conceptual cost of the Rebuild Project is approximately $4.8 million, which includes

[1] Registered trademark of United States Steel Corporation.

$4.8 million for transmission-related work (2020 dollars). There is no substation work associated with the Rebuild Project; therefore, there are no substation-related costs.

The desired in-service date for the Rebuild Project is April 15, 2022. The Company estimates it will take approximately 13 months for detailed engineering, materials procurement, permitting, and construction after a final order from the Commission. Accordingly, to support this estimated pre-construction activity timeline and construction plan, the Company respectfully requests a final order by March 15, 2021. Should the Commission issue a final order by March 15, 2021, the Company estimates that construction should begin on October 1, 2021 and be completed by April 15, 2022. This construction timeline will enable the Company to meet the targeted in-service date for the Rebuild Project.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The Rebuild Project is necessary to rebuild an approximately 2.9-mile section of the Allied-Chesterfield Line #2049 nearing its end of life. See Attachment I.A.1 for an overview map of the proposed Rebuild Project.

Dominion Energy Virginia's transmission system is responsible for providing transmission service: (i) for redelivery to the Company's retail customers; (ii) to Appalachian Power Company, Old Dominion Electric Cooperative, Northern Virginia Electric Cooperative, Central Virginia Electric Cooperative, and Virginia Municipal Electric Association for redelivery to their retail customers in Virginia; and (iii) to North Carolina Electric Membership Corporation and North Carolina Eastern Municipal Power Agency for redelivery to their customers in North Carolina (collectively, the "Dominion Energy Zone" or "DOM Zone").

Dominion Energy Virginia is part of the PJM Interconnection, L.L.C. ("PJM") regional transmission organization, which provides service to a large portion of the eastern United States. PJM is currently responsible for ensuring the reliability of and coordinating the movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. This service area has a population of approximately 65 million and on August 2, 2006, set a record high of 166,929 megawatts ("MW") for summer peak demand, of which Dominion Energy Virginia's load portion was approximately 19,256 MW serving 2.4 million customers. On July 20, 2020, the Company set a record high of 20,087 MW for summer peak demand. On February 20, 2015, the Company set a winter peak and all-time record demand of 21,651 MW. Based on the 2020 PJM Load Forecast, the DOM Zone is expected to be one of the fastest growing zone in PJM, with average growth rates of 1.2% summer and 1.4% winter over the next 10 years compared to the PJM average of 0.6% and 0.6% over the same period for both summer and winter, respectively.

Dominion Energy Virginia is also part of the Eastern Interconnection transmission grid, meaning its transmission system is interconnected, directly or indirectly, with all of the other transmission systems in the United States and Canada between the Rocky Mountains and the Atlantic Coast, except for Quebec and most of Texas. All of the transmission systems in the Eastern Interconnection are dependent on each other for moving bulk power through the transmission system and for reliability support. Dominion Energy Virginia's service to its customers is extremely reliant on a robust and reliable regional transmission system.

NERC has been designated by the Federal Energy Regulatory Commission ("FERC") as the electric reliability organization for the United States. Accordingly, NERC requires that the planning authority and transmission planner develop planning criteria to ensure compliance with NERC Reliability Standards. Mandatory NERC Reliability Standards require that a transmission owner ("TO") develop facility interconnection requirements that identify load and generation interconnection minimum requirements for a TO's transmission system, as well as the TO's reliability criteria.[2]

Federally-mandated NERC Reliability Standards constitute minimum criteria with which all public utilities must comply as components of the interstate electric transmission system. Moreover, the Energy Policy Act of 2005 mandates that electric utilities follow these NERC Reliability Standards, and imposes fines for noncompliance up to $1.3 million per day per violation.

PJM's Regional Transmission Expansion Plan ("RTEP") is the culmination of a FERC-approved annual transmission planning process that includes extensive analysis of the electric transmission system to determine any needed improvements.[3] PJM's annual RTEP is based on the effective criteria in place at the time of the analyses, including applicable standards and criteria of NERC, PJM, and local reliability planning criteria, among others.[4] Projects identified through the RTEP process are developed by the TO in coordination with PJM, and are presented at the Transmission Expansion Advisory Committee ("TEAC") meetings prior to inclusion in the RTEP that is then presented for approval by the PJM Board of Managers (the "PJM Board").

Outcomes of the RTEP process include three types of transmission system upgrades or projects: (i) baseline upgrades are those that resolve a system reliability criteria violation, which can include planning criteria from NERC, ReliabilityFirst, SERC Reliability Corporation, PJM, and TOs; (ii) network upgrades are new or upgraded facilities required primarily to eliminate reliability criteria violations caused by proposed generation, merchant transmission, or long-term firm transmission service requests; and (iii) supplemental projects are projects initiated by the TO in order to interconnect new customer load, address degraded equipment performance, improve operational flexibility and efficiency, and increase infrastructure resilience. While supplemental projects are included in the RTEP, and the PJM Board administers stakeholder review of supplemental projects as part of the RTEP process, the PJM Board does not actually approve such projects.

As of April 2020, the Company has approximately 3,115 miles of overhead transmission lines built prior to 1980 (approximately 47% of the overall overhead transmission system mileage). The Company has developed a proactive plan to rebuild transmission lines that are comprised of weathering steel towers (COR-

[2] See FAC-001-2, effective January 1, 2016 at http://www.nerc.com/pa/Stand/Reliability%20Standards/FAC-001-2.pdf.
[3] PJM Manual 14B focuses on the RTEP process and can be found at http://www.pjm.com/documents/manuals.aspx.
[4] See PJM Manual 14B, Attachment D: PJM Reliability Planning Criteria.

TEN® towers). The 230 kV system accounts for approximately 2,861 miles of the Company's total overhead transmission line system, of which approximately 1,502 miles were built primarily before 1980.

Line #2049 runs approximately 9.9 miles between the Company's existing Allied and Chesterfield Substations. Of the 9.9 miles, 2.9 miles were constructed in 1967 on COR-TEN® lattice towers. Field reports and condition assessments have identified the need to replace the 16 existing transmission towers within a 2.9-mile section of Line #2049 (including Structure #2049/21 through #2049/36). These COR-TEN® towers have been identified for rebuild based on the Company's assessment in accordance with the Company's Planning Criteria. Continual deterioration of the steel members and connections on these towers has severely reduced their structural capacity, therefore jeopardizing the reliability of Line #2049.

Effective March 24, 2020, the Company's Planning Criteria was updated so that infrastructure to be evaluated under end-of-life (or, "EOL") criteria changed from "all transmission lines at 69 kV and above" to "all regional transmission lines operated at 500 kV and above." The remaining transmission lines below 500 kV were provisioned to be evaluated per the Company's Attachment M-3 End-of-Life Planning Criteria. This M-3 End-of-life Planning Criteria was presented at the June 16, 2020 PJM Sub-Regional RTEP meeting. See Attachment I.A.2 for updated slides presented by the Company at that meeting. As discussed in Attachment I.A.2, EOL projects under 500 kV that were approved by PJM after March 24, 2020, were formerly designated as baseline projects and are now classified as supplemental projects. However, the process for determining that an asset has reached its EOL remains the same; therefore, the Company continues to use the criteria evaluation process outlined in Section C.2.9 of the Planning Criteria.

Section C.2.9 of the Planning Criteria addresses electric transmission infrastructure approaching its end of life: [5]

> Electric transmission infrastructure reaches its end of life as a result of many factors. Some factors such as extreme weather and environmental conditions can *shorten* infrastructure life, while others such as maintenance activities can *lengthen* its life. Once end of life is recognized, in order to ensure continued reliability of the transmission grid, a decision must be made regarding the best way to address this end-of-life asset.
>
> For this criterion, "end of life" is defined as the point at which infrastructure is at risk of failure, and continued maintenance and/or

[5] The Company's Transmission Planning Criteria can be found in revised Exhibit A of the Company's Facility Interconnection Requirements document, which is available online at the following address under the Facility Interconnection Requirements:
https://www.dominionenergy.com/our-company/moving-energy/electric-transmission-access.

refurbishment of the infrastructure is no longer a valid option to extend the life of the facilities consistent with Good Utility Practice and Dominion Energy Transmission Planning Criteria. The infrastructure to be evaluated under this end-of-life criteria are all regional transmission lines operated at 500 kV and above.

The decision point of this criterion is based on satisfying two metrics:

1) *Facility is nearing, or has already passed, its end of life, and*
2) *Continued operation risks negatively impacting reliability of the transmission system.*

For facilities that satisfy both of these metrics, this criterion mandates either replacing these facilities with in-kind infrastructure that meets current Dominion standards or employing an alternative solution to ensure the Dominion transmission system satisfies all applicable reliability criteria.

This Rebuild Project was evaluated in accordance with the Company's Attachment M-3 EOL Planning Criteria. As a supplemental project, the Rebuild Project is not subject to approval by PJM, as discussed above, but rather is evaluated through a two-phased review for inclusion in the next RTEP. The Company submitted the Rebuild Project proposal as a supplemental project to the PJM RTEP process in September and October 2020 to address the end-of-life criteria. Attachment I.A.3 contains the relevant slides presented at the September 2020 PJM TEAC meeting and Attachment I.A.4 contains the relevant slides that the Company prepared for presentation at the October 2020 PJM TEAC meeting. The Rebuild Project would rebuild 2.9 miles out of the 9.9-mile Line #2049 to present 230 kV standards.

1) Facility is nearing, or has already passed, its end of life

In regards to the first metric of the Company's Planning Criteria addressing end of life, the structures being rebuilt on Line #2049 are predominantly COR-TEN® steel lattice towers that were erected in 1967. COR-TEN® steel is now known to be problematic when used for lattice-type structures. 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.

2) Continued operation risks negatively impacting reliability of the transmission system

With regard to the second metric of the Company's Planning Criteria addressing

end of life, Line #2049 provides service to Dominion Energy Virginia's Enon and National Welders Substations, which in turn serve approximately 1,783 customers located in the Chesterfield County. The Company would be unable to continue to provide reliable transmission service to these customers unless it addresses the aging infrastructure at the end of its service life.

The Company also relied on one of the four reliability tests identified in the Company's Planning Criteria. The relevant section of the Planning Criteria states in part:[6]

> *2. Reliability and System Impact*
>
> The reliability impact of continued operation of a facility will be determined based on a planning power flow assessment and operational performance considerations. The end-of-life determination for a facility to be tested for reliability impact will be assessed by evaluating the impact on short and long term reliability with and without the facility in service in the power flow model. The existing system with the facility removed will become the base case system for which all reliability tests will be performed.
>
> The primary four (4) reliability tests to be considered are:
>
> 1. NERC Reliability Standards
> 2. PJM Planning Criteria – As documented in PJM Manual 14B – PJM Region Transmission Planning Process
> 3. Dominion Transmission Planning Criteria contained in this document
> 4. Operational Performance – This test will be based on input from PJM and/or Dominion System Operations as to the impact on reliably operating the system without the facility
>
> Additional factors to be evaluated under system impact may include but not be limited to:
>
> 1. Market efficiency
> 2. Stage 1A [Auction Revenue Rights] sufficiency
> 3. Public policy
> 4. [SERC Reliability Corporation] reliability criteria
>
> Failure of any of these reliability tests, along with the end-of-life assessment discussed herein, will indicate a violation of the End-of-Life Criteria and necessitate replacement as mandated earlier in this document.

[6] *See supra* n. 5.

First, the Company relied on Dominion Energy Virginia's Planning Criteria. The Company analyzed the permanent removal of the 16 existing structures in the 2.9-mile section of Line #2049 (Structures #2049/21 through #2049/36). This resulted in the creation of an approximately 17.35-mile-long radial line originating from Chickahominy. The radial line consists of Line #2050 (Allied-Chickahominy) and Line #2049 (Allied-Enon), thereby exceeding the Company's 700 MW/mile radial line criteria, which is in Section C.2.6 of the Company's Planning Criteria.[7]

Second, the Company relied on the fourth reliability test identified in the Company's Planning Criteria—Operational Performance—which states in part that the "test will be based on input from PJM and/or Dominion Energy System Operations as to the impact on reliably operating the system without the facility." Existing Line #2049 is an integral component to maintaining the network of Company's 230 kV system. It provides a critical outlet for Chesterfield Power Station, HCF Power Station, Hopewell Power Station.[8] This close proximity of Line #2049 to these power stations provides important system reliability benefits to the Company's entire network. Without the Rebuild Project, reliable transmission service may be compromised.

***

In summary, the proposed Rebuild Project will replace aging infrastructure at the end of its service life in order to comply with the Company's mandatory Planning Criteria, thereby enabling the Company to maintain the overall long-term reliability of its transmission system, as well as to provide important system reliability benefits to the Company's entire network.

[7] This criteria limit can be found under Section C.2.6 of revised Exhibit A of the Company's Facility Interconnection Requirements document, which is available online at the following address under the Facility Interconnection Requirements: https://www.dominionenergy.com/our-company/moving-energy/electric-transmission-access.

[8] Hopewell Power Station was formerly known as Polyester Power Station.

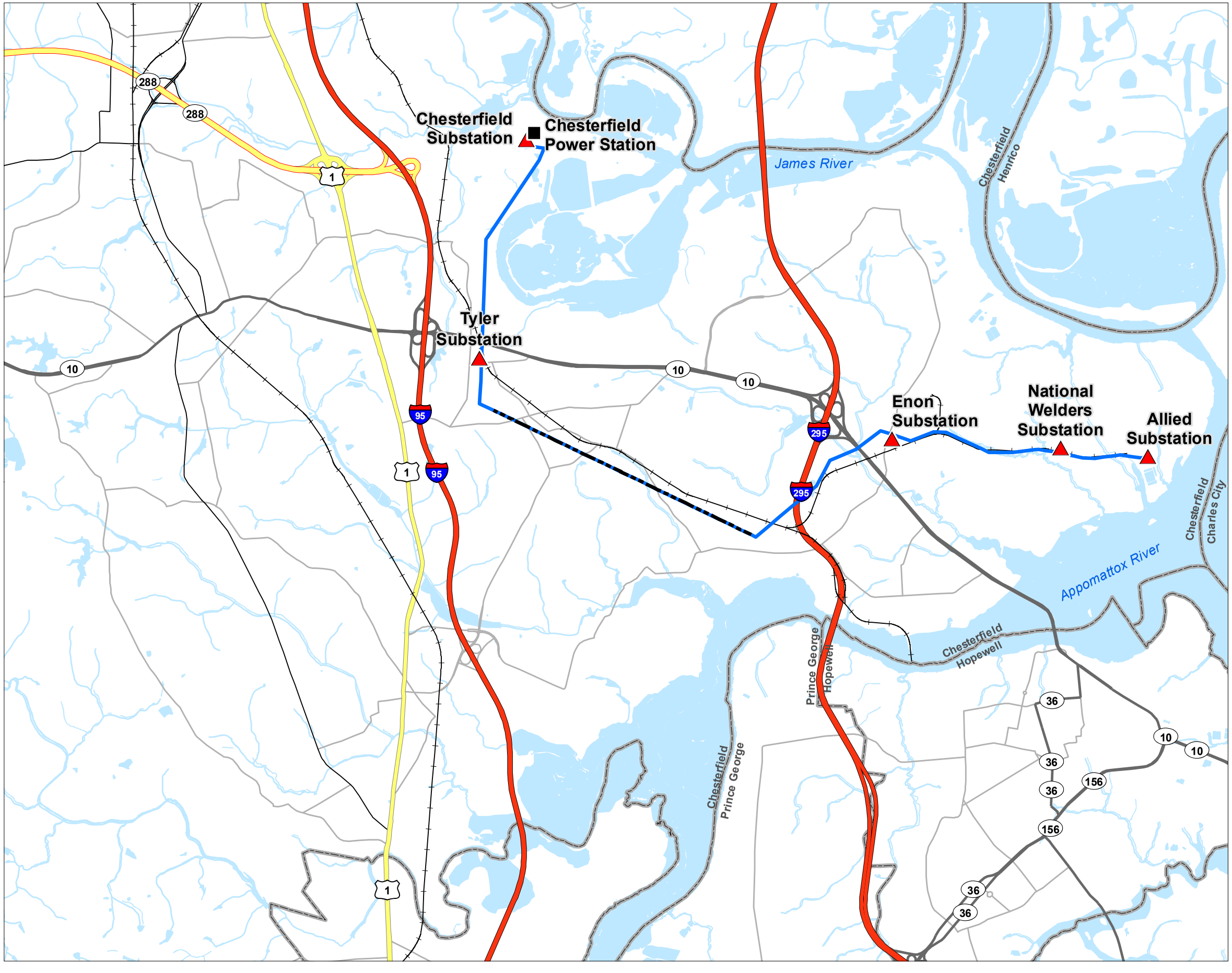


Figure No.

I.A.1

Title

General Overview Map

Client/Project 203401509

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

Project Location

Chesterfield County, Virginia

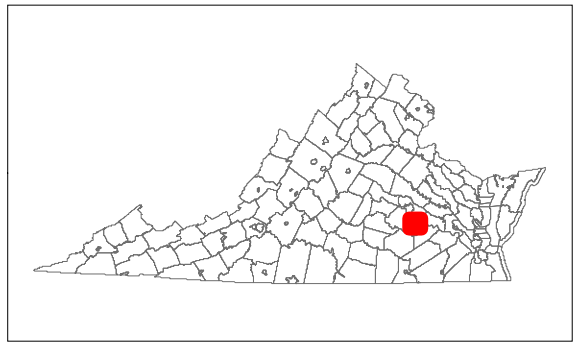
Prepared by MGS on 2020-08-20
TR by TPS on 2020-08-20
IR by CPG on 2020-08-20

N

0 5,000 10,000 Feet

(At original document size of 11x17)
1:60,000

- Substation
- Power Station
- Project Centerline
- Line #2049
- Freeway or Other Major Road
- Major Road Less Important than a Freeway
- Other Major Road
- Secondary Road
- Local Connecting Road
- Important Local Road
- Railroad
- NHD Flowline
- NHD Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Substations exported from Ventyx, VA DCR Natural Heritage Program, USGS National Hydrography Dataset (NHD), USFWS National Wetlands Inventory (NWI)

Stantec

Dominion Energy

PJM Southern Sub-Regional RTEP Meeting

- Update to the Dominion Energy Local Planning Assumptions previously discussed at the December 2019 Sub-Regional RTEP Meeting

Attachment I.A.2

Dominion Energy

Planning Criteria and Assumptions

- PJM Assumptions Apply
- All analysis and solutions must satisfy
  - NERC TPL standards
  - PJM Planning Criteria in Attachment D & G of PJM Manual 14B
  - Dominion Energy's Facility Interconnection Requirements
    - Requirements to connect to Dominion's Transmission system
    - Exhibit A – Dominion's FERC 715 Planning Criteria
    - Exhibit C – Generation Interconnection Protection Requirements
    - Supplemental Project Drivers as Described Below
- PJM and Dominion validate each other's study results to ensure solutions resolve specific need and create no other harm to system
- Proposed solutions are presented
  - TEAC for facilities 230 kV and above
  - Southern Sub-regional for facilities below 230 kV

Update to Slide #2

Dominion Energy®

Dominion Energy's Form No. 715 End of Life Planning Criteria

- Dominion has an End of Life (EOL) FERC 715 criteria for addressing transmission lines
  - The Infrastructure to be evaluated under this end-of-life criteria are all regional transmission lines operated at 500 kV and above.
  - The decision point of this criterion is based on satisfying two metrics:
    1) Facility is nearing, or has already passed, its end of life, and
    2) Continued operation risks negatively impacting reliability of the transmission system.
- Projects approved by PJM under this criteria are classified as baseline
- Detailed discussion on the End of Life criteria can be found in Exhibit A, section C.2.9 of Dominion Energy's Facility Interconnection Requirements document
- All other asset management of transmission infrastructure is covered by the M-3 Supplemental process
- The Appendix lists transmission lines expected to be evaluated using the Form No. 715 and Attachment M-3 End of Life criteria in the 2020 RTEP cycle

Update to Slide #4

Dominion Energy

Equipment Material Condition, Performance and Risk

Types of equipment assessed include but not limited to:

- Transmission Lines below 500 kV
- Line Components (not part of EOL Criteria)
- Transformers
- Breakers
- Circuit Switchers
- Reactors
- Capbanks
- Wave Traps
- Relaying
- Switches
- Bus Work, Leads
- FACTS Devices

Update to Slide #10

Dominion Energy's Attachment M-3 End of Life Planning Criteria

- Infrastructure to be evaluated under this end-of-life criteria are all transmission lines below 500 kV
- Projects must satisfy the following two decision point metrics:
  1) Facility is nearing, or has already passed, its end of life, and
  2) Continued operation risks negatively impacting reliability of the transmission system, including our ability to serve local load.
- Projects will be classified as supplemental
- The Appendix lists transmission lines expected to be evaluated using the Form No. 715 and Attachment M-3 End of Life criteria in the 2020 RTEP cycle

New Slide #14

Dominion Energy®

Appendix: Transmission lines expected to be evaluated using Form No. 715 and Attachment M-3 End of Life criteria in 2020 RTEP cycle

Line A	Line B	Line Section	Line A kV	Line B kV	Line A Year	Line B Year
293		Staunton – Valley	230		1981/1971	
1001		Battleboro – Chestnut	115		1959	
1024		Chestnut – South Justice Branch	115		1959	
2019		Greenwich – Thalia	230		1970/1988	
87		Chesapeake Energy Center – Churchland	115		1957	
514		Goose Creek – Doubs	500		1966	
204	220	Gum Springs -Jefferson St, Gum Springs - Ox	230		1966	
579	2110	Septa – Yadkin, Suffolk – Thrasher	500	230	1975	1975
26		Balcony Falls – Lexington	115		1928	
2007		Lynnhaven – Thalia	230		1970	
2049		Chesterfield – Allied	230		1994	

Note: This list covers lines to be evaluated under Dominion's Form No. 715 and Attachment M-3 End of Life criteria during the 2020 planning cycle. The evaluation could lead to some of these facilities being delayed, cancelled or removed from consideration as well as other facilities added.

Dominion Transmission Zone: Supplemental End of Life – Transmission Lines Below 500 kV

Need Number: DOM-2020-0030

Process Stage: Need Meeting 09/01/2020

Project Driver: End of Life – Transmission Lines Below 500kV

Specific Assumption References:

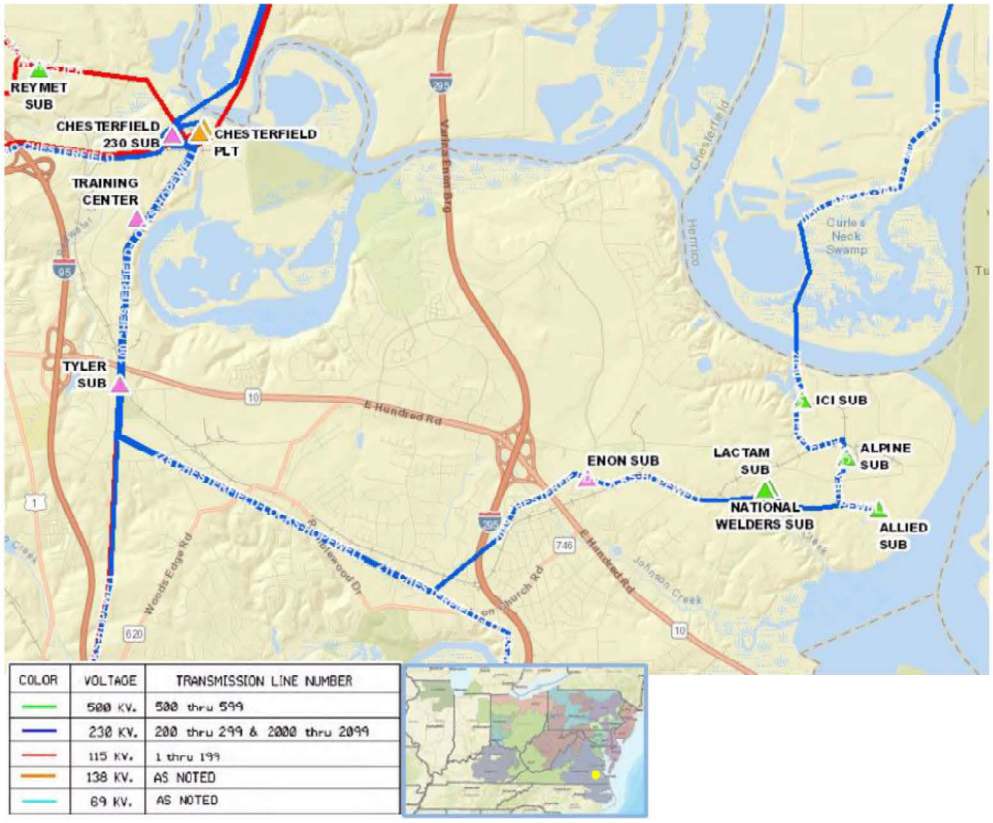
See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2019 and updated in June 2020

14

Problem Statement:

Dominion Energy has identified a need to replace 16 existing transmission towers (Chesterfield – Enon segment) of Line#2049 (Chesterfield – Allied).

- Approximately 2.9 miles of 9.9 miles of this line was constructed on CORTEN structures and these structures are at the end of their useful life.
- The Line #2049 provides service to Enon and National Welders substations with approximately 33 MW and 15 MW tapped load.
- Removal of the Chesterfield – Enon segment will create a radial line exceeding Dominion's 700 MW/miles criteria.



Dominion Energy

Attachment I.A.3

Dominion Transmission Zone: Supplemental Equipment Material Condition, Performance and Risk

Need Number: DOM-2020-0030
Process Stage: Solutions Meeting 10/06/2020
Previously Presented: Need Meeting 09/01/2020

Project Driver: Equipment Material Condition, Performance and Risk

Specific Assumption References:

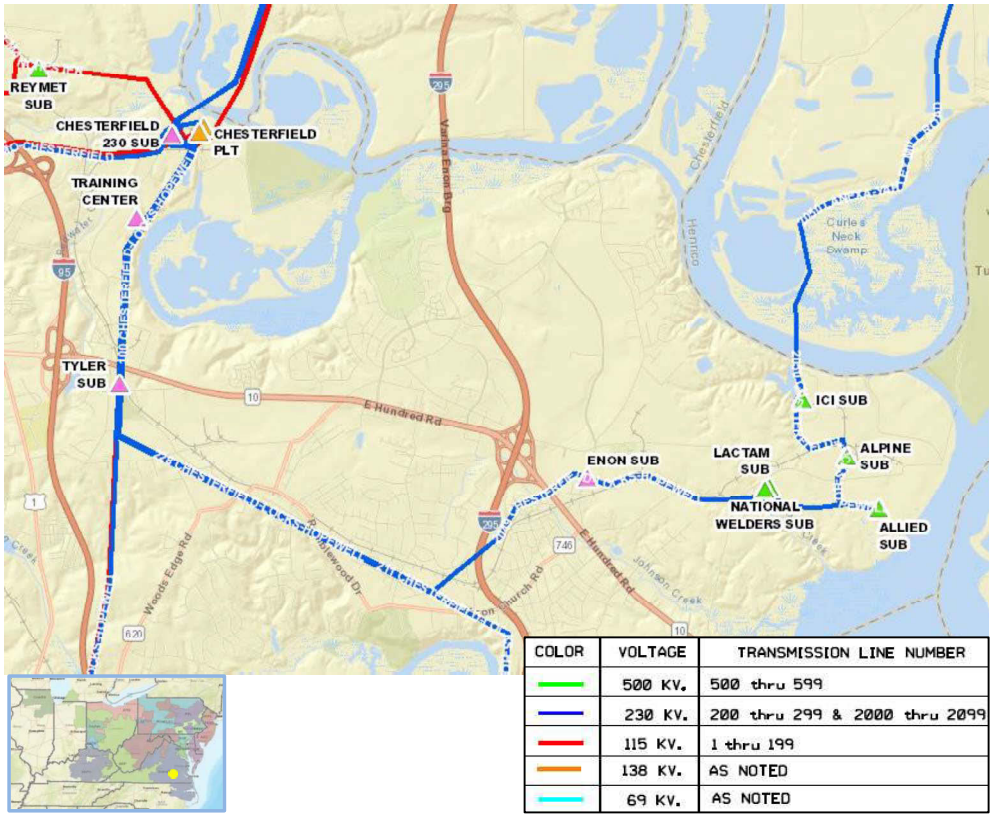
See details on Equipment Material Condition, Performance and Risk in Dominion's Planning Assumptions presented in December 2019 and updated in June 2020

15

Problem Statement:

Dominion Energy has identified a need to replace 16 existing transmission towers (Chesterfield – Enon segment) of 230kV Line #2049 (Chesterfield – Allied).

- Approximately 2.9 miles of 9.9 miles of this line was constructed on CORTEN structures and these structures are at the end of their useful life.
- The 230kV Line #2049 provides service to Enon and National Welders substations with approximately 33 MW and 15 MW tapped load.
- Removal of the Chesterfield – Enon segment will create a radial line exceeding Dominion's 700 MW/miles criteria.



Dominion Energy

Attachment I.A.4

Dominion Transmission Zone: Supplemental Line #2049 End-of-Life Rebuild

Need Number: DOM-2020-0030

Process Stage: Solutions Meeting 10/06/2020

Proposed Solution:
The 16 existing transmission CORTEN towers will be replaced with a single circuit weathering steel monopoles.

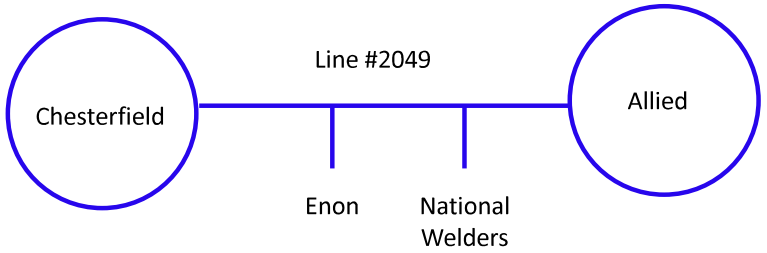
Estimated Project Cost: $4.8 M

Alternatives Considered:
No feasible alternatives

Projected In-service Date: 04/15/2022

Project Status: Engineering

Model:



16

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: [1] **Engineering Justification for Project**

For a detailed description of the engineering justification for the Rebuild Project, see Section I.A.

[2] **Known Future Projects**

There are no known future projects that require the Rebuild Project to be constructed. The Rebuild Project is required by the Company's end-of-life criteria as described in Section I.A.

[3] **Planning Studies**

The retirements of Chesterfield Power Station Units 5 and 6 that were announced on March 10, 2020, were taken into account in planning studies for this Application.

[4] **Facilities List**

Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: Attachment I.G.1 shows the portion of the Company's transmission system in the area of the proposed Rebuild Project. The existing Line #2049 is part of the Company's 230 kV network, which supports the delivery of generation to retail and wholesale customers. These lines support the network in the Central Virginia area.

The Company's Chesterfield Power Station, located near the James River in Chesterfield County, has six generating units with a net summer capacity of 1,664 MW. Chesterfield Power Station Unit #6 has a summer capacity of 670 MW and is connected to the Chesterfield Substation 230 kV bus that serves Chesterfield-Hopewell Line #211, along with 230 kV Chesterfield-Poe Line #2003, Chesterfield-Locks Line #205, Chesterfield-Lakeside Line #217, and Basin-Chesterfield Line #259. Chesterfield Power Station Units #5, #7 and #8 have a combined summer capacity of 733 MW and are connected to another Chesterfield Substation 230 kV bus that serves Chesterfield-Hopewell Line #228, along with 230 kV Chesterfield-Southwest Line #208, Chesterfield-Chickahominy Line #287, and Allied-Chesterfield Line #2049. The other two units at Chesterfield Power Station are connected to separate Chesterfield Substation 115 kV busses that serve six 115 kV lines.

The HCF Power Station, located in the City of Hopewell, has four generating units with a net summer capacity of 375 MW. The power station is connected to the Company's Hopewell Substation 230 kV bus exclusively through Line #2041. The Company's Hopewell Power Station, located in the City of Hopewell, has one generation unit with a net summer capacity of 51 MW. The power station is connected to the Company's network exclusively through Line #2046. The injection point into the network is also the Company's Hopewell Substation. The 230 kV bus at Hopewell Substation serves Lines #268, #2041, and #2046, along with 230 kV Chesterfield-Hopewell Lines #211 and #228, Hopewell-Prince George Line #2124, and Hopewell-Surry Lines #212 and #240.

The table in Attachment I.C.1 provides historical system peak loads for the Company's Chesterfield load area, which includes Line #2049. The table in Attachment I.C.1 also provides the anticipated summer and winter peak loads from 2020 to 2029 for this area. The projected loads in Attachment I.C.1 represent the Company's forecasted peaks based on actual load and the PJM 2020 Load Forecast, and demonstrate stable load demand in the area. Over the period from 2020 to

2029, the summer peak electrical demand for this area is projected to grow from 1,762 MW to 1,862 MW, and the winter peak electrical demand for this area is projected to change from 2,112 MW to 2,329 MW.

The retirement of Chesterfield Power Station Units 5 and 6 in 2023 were announced on March 10, 2020. These retirements were taken into account in the planning studies for this Application and the Rebuild Project is required by the Company's end-of-life criteria as described in Section I.A.

The existing Line #2049 cannot adequately serve the needs of the Company and its customers because of the aging infrastructure, as discussed in Section I.A. The Company has created a plan to address its end-of-life facilities, setting target completion dates for end-of-life projects based on the condition of the facilities, the Company's resources, and the need to schedule outages. The Company has set April 15, 2022, as the target in-service date for the Rebuild Project to reflect the urgent need confirmed by the 2016 Quanta Report balanced against the timeline for permitting and construction.

Completing the Rebuild Project will support Dominion Energy Virginia's continued reliable electric service to retail and wholesale customers and will support the future overall growth and system generation capability in the area.

Historical and Projected Peak Loads

	Historical Summer Peak Loads (MW)				
	2015	2016	2017	2018	2019
Chesterfield	1688	1744	1687	1650	1666

	Projected Summer Peak Loads (MW)*									
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Chesterfield	1762	1774	1788	1799	1811	1824	1830	1841	1849	1862

	Historical Winter Peak Loads (MW)				
	2014/15	2015/16	2016/17	2017/18	2018/19
Chesterfield	2231	1809	2129	2269	1863

	Projected Winter Peak Loads (MW)*									
	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Chesterfield	2112	2127	2153	2177	2200	2242	2265	2287	2308	2329

*Forecasted values are based on the PJM 2020 Load Forecast

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: No feasible alternatives have been submitted to PJM. As stated in Section I.A, not rebuilding the 2.9-mile section of Line #2049 results in a radial line exceeding the Company's 700 MW/mile criteria.

Pursuant to the Commission's November 26, 2013, Order entered in Case No. PUE-2012-00029, and its November 1, 2018, Final Order entered in Case No. PUR-2018-00075 ("2018 Final Order"), the Company is required to provide analysis of demand-side resources ("DSM") incorporated into the Company's planning studies. DSM is the broad term that includes both energy efficiency ("EE") and demand response ("DR"). In this case, the Company has identified a need for the Rebuild Project based on the need to replace aging infrastructure at the end of its service life in order to comply with the Company's mandatory Planning Criteria, thereby enabling the Company to maintain the overall long-term reliability of its transmission system.[9] Notwithstanding, when performing an analysis based on PJM's 50/50 load forecast, there is no adjustment in load for DR programs that are bid into the PJM reliability pricing model ("RPM") auction because PJM only dispatches DR when the system is under stress (*i.e.*, a system emergency). Accordingly, while existing DSM is considered to the extent the load forecast accounts for it, DR that has been bid into PJM's RPM market is not a factor in this particular Application because of the identified need for the Rebuild Project. Based on these considerations, the evaluation of the Rebuild Project demonstrated that despite accounting for DSM consistent with PJM's methods, the Rebuild Project is necessary. As noted in the 2018 Final Order, pursuant to the Grid Transformation and Modernization Act of 2018, the Company must propose $870 million of EE programs by 2028. Since July 1, 2018, the Company has proposed approximately $344 million for the design, implementation, and operation of energy efficiency programs in the Commonwealth. This amount includes approximately $173.5 million of new energy efficiency programs, designated as "Phase VIII" of the Company's DSM portfolio, which the Commission approved on July 30, 2020. These programs have not been accounted for in PJM's load forecast, and thus, were not part of the Company's planning studies.

[9] While the PJM load forecast does not directly incorporate DR, its load forecast incorporates variables derived from Itron that reflect EE by modeling the stock of end-use equipment and its usages. Further, because PJM's load forecast considers the historical non-coincident peak ("NCP") for each load serving entity ("LSE") within PJM, it reflects the actual load reductions achieved by DSM programs to the extent an LSE has used DSM to reduce its NCPs.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The Rebuild Project includes the removal of 16 existing transmission COR-TEN® towers (Structures #2049/21 through #2049/36) and replacement with 16 single circuit weathering steel monopoles with a staggered arm configuration as shown in Attachment II.A.5.b.

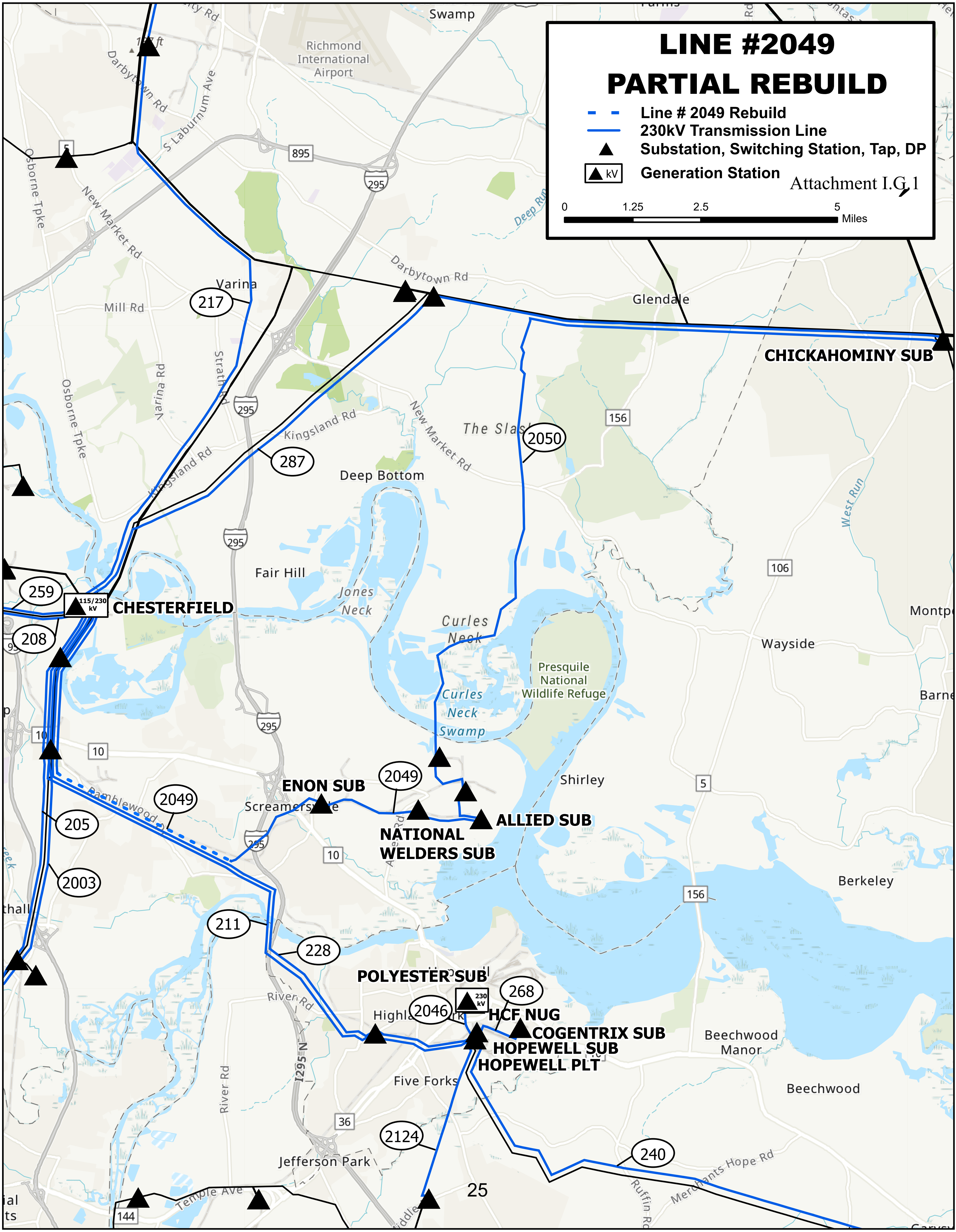
The existing three-phase twin-bundled 636 ACSR conductors were installed in 1994 and are designed for an operating temperature of 150°C, which is the standard operating temperature for Line #2049. As discussed in Section II.B.2, four of the six existing sub-conductors will be transferred to the new structures to be re-used as part of the Rebuild Project, and two sub-conductors will be replaced. There will be no lines permanently taken out of service as part of the Rebuild Project.

The existing normal/emergency ratings of the 2.9-mile section of Line #2049 between Structures #2049/20 and #2049/37 are 1047/1047 MVA summer and 1160/1160 MVA winter. The 2.9-mile section of Line #2049 being rebuilt will have normal/emergency rating of 1047/1047 MVA summer and 1160/1160 MVA winter after the Rebuild Project is complete. These ratings are consistent with the conductor ratings along the remainder of Line #2049.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: See Attachment I.G.1.


LINE #2049
PARTIAL REBUILD
Line # 2049 Rebuild
230kV Transmission Line
Substation, Switching Station, Tap, DP
Generation Station
kV
0
1.25
2.5
5
Miles
Attachment I.G.1
CHICKAHOMINY SUB
CHESTERFIELD
115/230 kV
ENON SUB
NATIONAL WELDERS SUB
ALLIED SUB
POLYESTER SUB
HCF NUG
COGENTRIX SUB
HOPEWELL SUB
HOPEWELL PLT
230 kV
2049
2050
217
287
259
208
205
2003
211
228
2046
268
2124
240
Richmond International Airport
Swamp
Varina
Glendale
Deep Bottom
Fair Hill
Jones Neck
Curles Neck
Curles Neck Swamp
Presquile National Wildlife Refuge
The Slash
Shirley
Wayside
Berkeley
Beechwood Manor
Beechwood
Five Forks
Jefferson Park
Screamersville
Darbytown Rd
New Market Rd
Kingsland Rd
Osborne Tpke
Mill Rd
Varina Rd
Strath Rd
S Laburnum Ave
Deep Run
West Run
Bamblewood Rd
River Rd
I295 N
Temple Ave
Merchants Hope Rd
Ruffin Rd
295
895
156
106
10
5
36
144
25

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The desired in-service date for the Rebuild Project is April 15, 2022.

The Company estimates it will take approximately 13 months for detailed engineering, materials procurement, permitting, and construction after a final order from the Commission. Accordingly, to support this estimated pre-construction activity timeline and construction plan, the Company respectfully requests a final order by March 15, 2021. Should the Commission issue a final order by March 15, 2021, the Company estimates that construction should begin on October 1, 2021 and be completed by April 15, 2022. This construction timeline will enable the Company to meet the targeted in-service date for the Rebuild Project.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The estimated conceptual cost of the Rebuild Project is approximately $4.8 million, which includes $4.8 million for transmission-related work (2020 dollars). There is no substation work associated with the Rebuild Project; therefore, there are no substation-related costs.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: The proposed Rebuild Project will be incorporated into PJM's RTEP process as a supplemental project. See Section I.A.

The Rebuild Project is presently 100% cost allocated to the DOM Zone.

I. NECESSITY FOR THE PROPOSED PROJECT

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

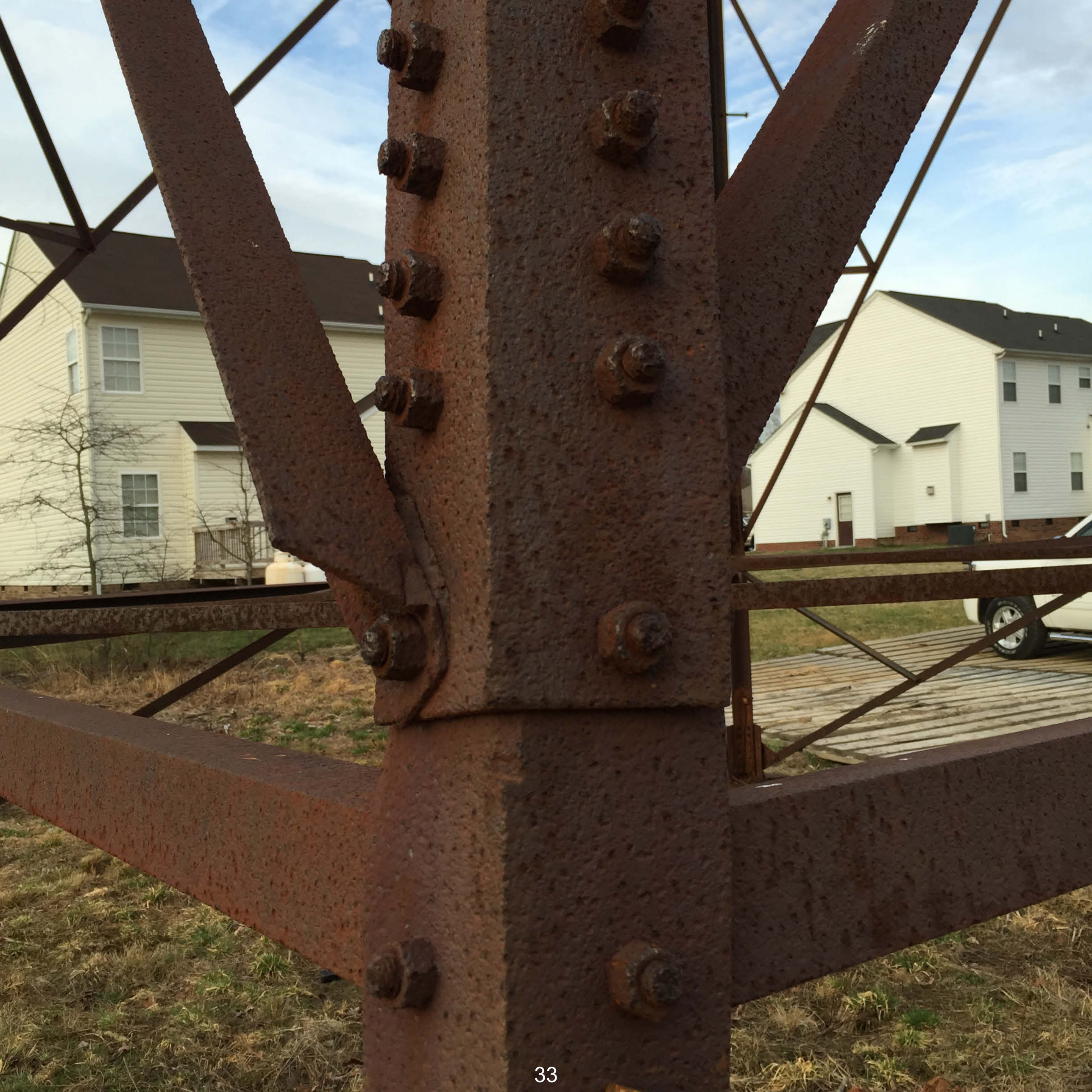
Response: The need for the Rebuild Project is not driven by outage history, but rather by the need to replace transmission infrastructure approaching its end of life. See Section I.A of this Appendix.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: See Attachment I.L.1 for representative photographs of the deterioration of the structures on Line #2049. The 2016 Quanta Report, as discussed in Section I.A, details the conditions of these deteriorating structures and additionally provides representative photos of Line #2049 in Figure 4-9 (page 29) and Figure 4-10 (page 30), which were taken at the time the report was prepared.

See Attachment I.L.2 for open notifications on structures located along the 2.9-mile section of Line #2049 identified for rebuild (Structures #2049/21 through #2049/36).




SILVERADO

OPEN NOTIFICATIONS - LINE 2049 PARTIAL REBUILD PROJECT
(Structures #2049/21-#2049/36)

LINE/STR	CAUSE GROUP	CAUSE CODE	CAUSE TEXT	NOTIF. DATE	REPORTED BY
2049/28	Structure	Ground Wire-M=Missing,C=Cut	cut ground	8/20/2014	KEVI097
2049/23	Structure	Environmental-Nest=	bird nest	3/28/2018	HELOAIR
2049/23	Structure	Structure Other=	right pole bowed at top	3/28/2018	HELOAIR
2049/33	Structure	Environmental-Nest=	Osprey nest	4/8/2020	ZACHA85

I. NECESSITY FOR THE PROPOSED PROJECT

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

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

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

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

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

4. Provide the project number and project name used by FERC in licensing hydroelectric projects; also provide the dates of all orders and citations to FERC Reports, if available; and

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

Response: Not applicable.

I. NECESSITY FOR THE PROPOSED PROJECT

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

Response: Not applicable.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: The total length of the Rebuild Project transmission corridor is approximately 2.9 miles of the approximately 9.9-mile Allied-Chesterfield Line #2049. No alternative routes are proposed for the Rebuild Project. See Section II.A.9 for an explanation of the Company's route selection process.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: See Attachment II.A.2. The existing 2.9-mile Rebuild Project segment of Line #2049 runs parallel to Lines #211 and #228 within the same existing transmission line corridor right-of-way easement. No portion of the right-of-way is proposed to be quitclaimed or relinquished.

The Company will make the digital Geographic Information Systems ("GIS") shape file available to interested persons upon request to counsel for the Company as listed in the Rebuild Project Application.

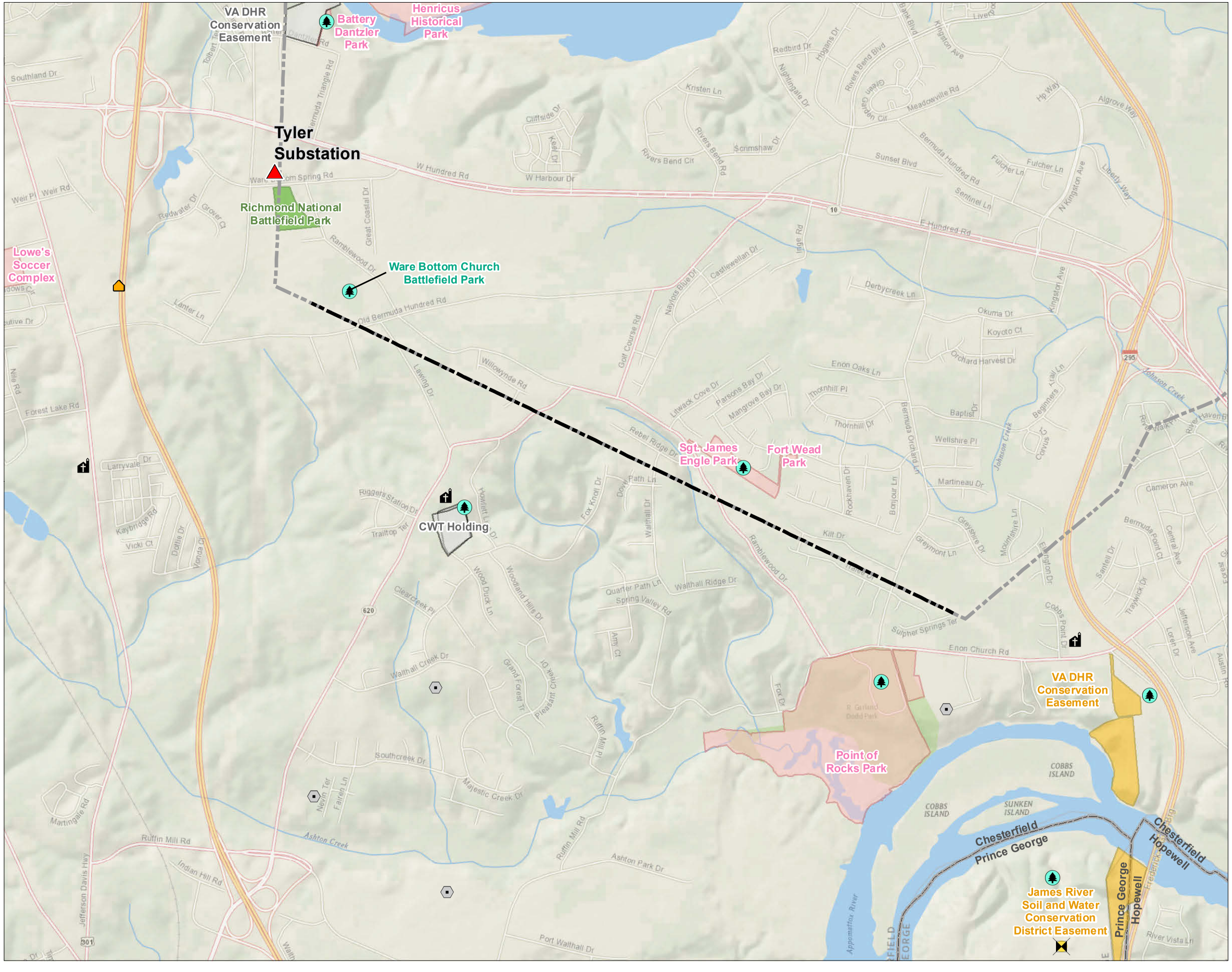


Figure No.

II.A.2

Title

Environmental Constraints Map

Client/Project 203401509

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

Project Location

Chesterfield County, Virginia

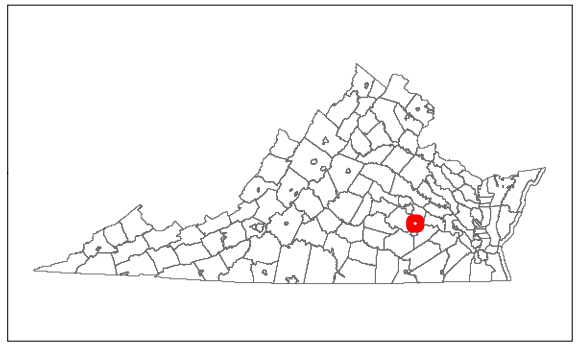
Prepared by LJJ on 2020-06-29
TR by TPS on 2020-07-20
IR by CPG on 2020-07-21

N

0 2,000 4,000 Feet

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

- Existing Substation
- Project Centerline
- Line#2049
- Cemetery
- Park
- Place of Worship
- Prison
- School
- Federal Conservation Land/Easement
- State Conservation Land/Easement
- Local Conservation Land/Easement
- Private Conservation Land/Easement



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Substations exported from Ventyx, ESRI, Google Earth, VA DCR Natural Heritage Program, PADUS
3. Base Map © National Geographic

Stantec

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: See Attachment I.G.1.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: Not applicable.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

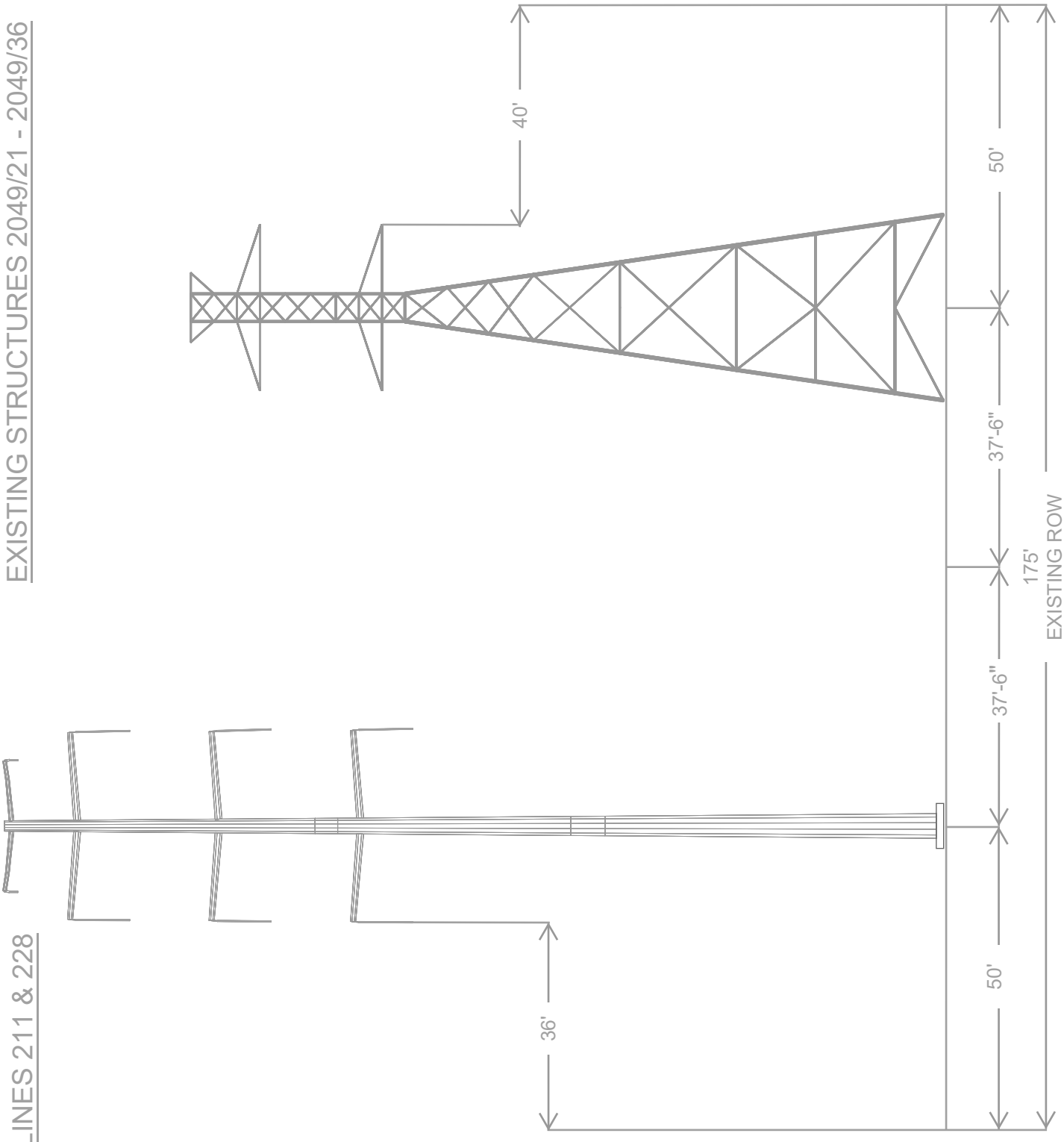
a. ROW width for each cross-section drawing;

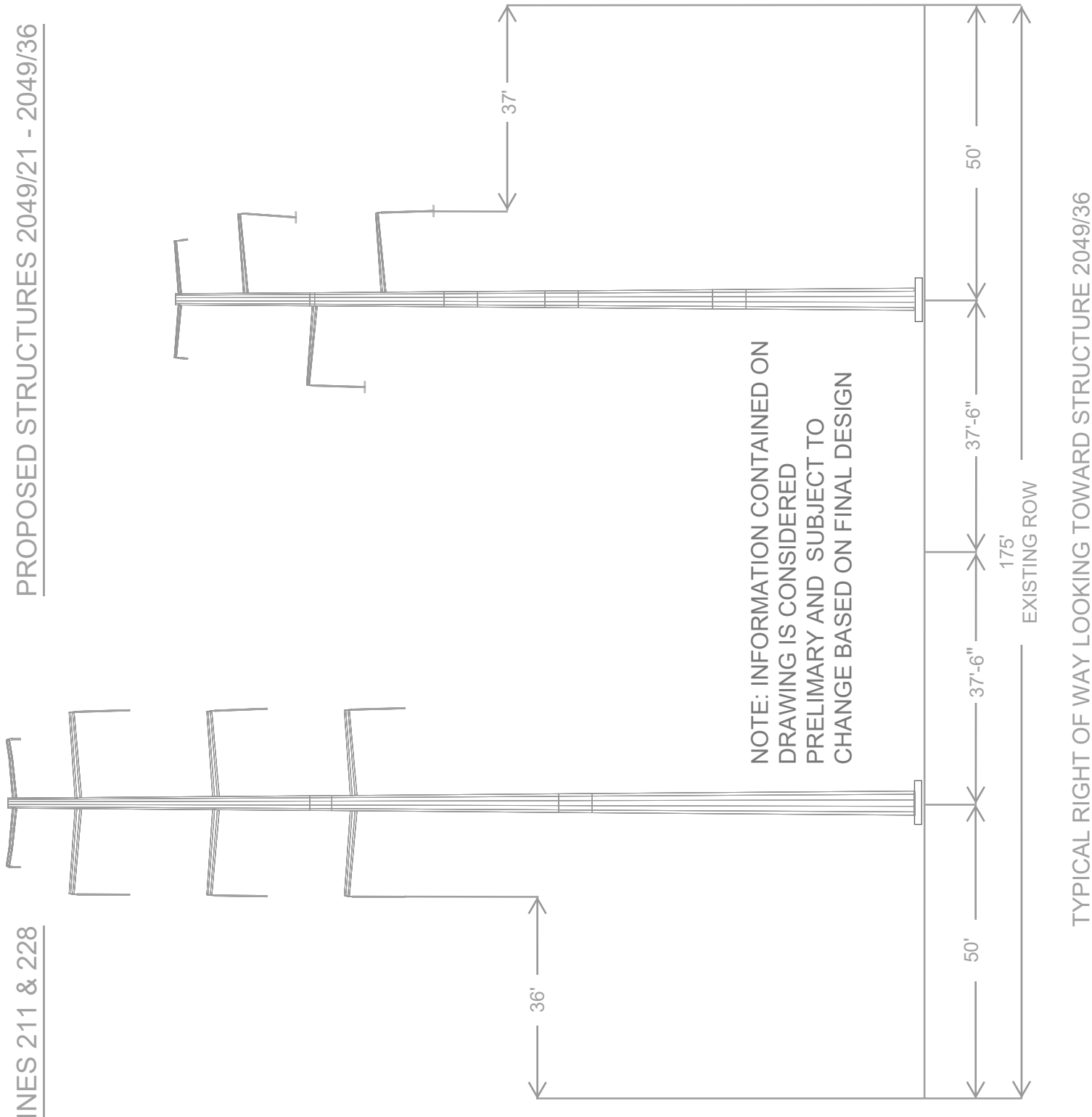
b. Lateral distance between the conductors and edge of ROW;

c. Existing utility facilities on the ROW; and

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

Response: See Attachments II.A.5.a-b.


EXISTING STRUCTURES 2049/21 - 2049/36
EXISTING LINES 211 & 228
40'
36'
50'
37'-6"
175'
EXISTING ROW
37'-6"
50'
TYPICAL RIGHT OF WAY LOOKING TOWARD STRUCTURE 2049/36


PROPOSED STRUCTURES 2049/21 - 2049/36
EXISTING LINES 211 & 228
37'
36'
NOTE: INFORMATION CONTAINED ON
DRAWING IS CONSIDERED
PRELIMARY AND SUBJECT TO
CHANGE BASED ON FINAL DESIGN
50'
37'-6"
37'-6"
50'
175'
EXISTING ROW
TYPICAL RIGHT OF WAY LOOKING TOWARD STRUCTURE 2049/36

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: The 2.9-mile Rebuild Project is located within an existing 9.9-mile long transmission line corridor right-of-way currently containing the Allied-Chesterfield 230 kV Line #2049. The existing right-of-way for the 2.9-mile segment of Line #2049 being rebuilt is 175 feet wide, which includes structures supporting Line #2049 as well as a set of structures supporting the double circuit 230 kV Lines #211 and #228. The easements for this right-of-way were acquired in the late 1940s. The new structures will be located entirely within the existing right-of-way. The Company does not anticipate that new easements will be required for this Rebuild Project. See Attachment II.A.6.a for a conservation easement map of the Rebuild Project.

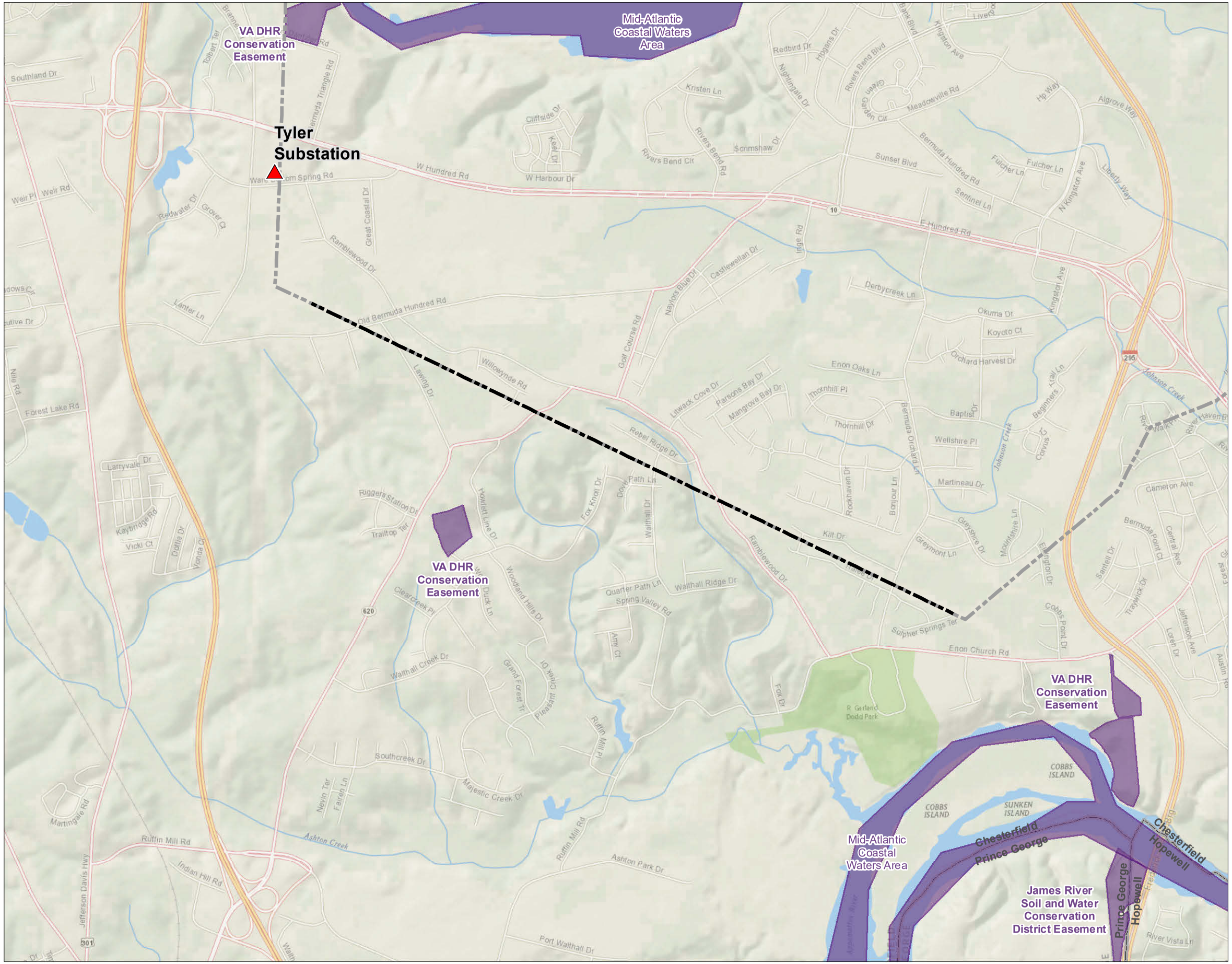


Figure No.

II.A.6

Title

Conservation Easement Map

Client/Project

203401509

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

Project Location

Chesterfield County, Virginia

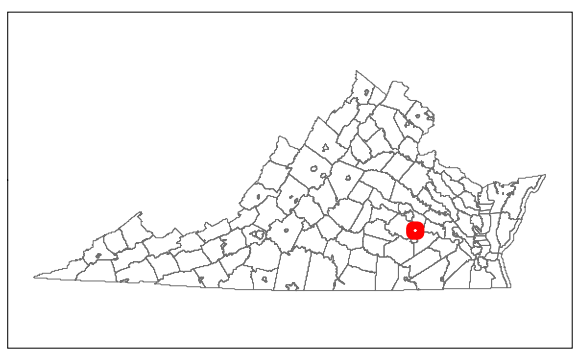
Prepared by LJJ on 2020-06-29
TR by TPS on 2020-07-20
IR by CPG on 2020-07-21

N

0 2,000 4,000 Feet

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

- Existing Substation
- Project Centerline
- Line#2049
- Conservation Easement



Notes

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

Stantec

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: The entire width of the existing transmission line right-of-way for the 2.9-mile Rebuild Project, which is 175-feet wide as shown in Attachments II.A.5.a-b, is currently maintained for operation of the existing transmission facilities. Trimming of tree limbs along the edge of the right-of-way may be conducted to support construction activities for the Rebuild Project. For any such minimal clearing within the right-of-way, trees will be cut to no more than three inches above ground level. Trees located outside of the right-of-way that are tall enough to potentially impact the transmission facilities, commonly referred to as "danger trees," may also need to be cut. Danger trees will be cut to be no more than three inches above ground level, limbed, and will remain where felled. Debris that is adjacent to homes will be disposed of by chipping or removal. In other areas, debris may be mulched or chipped as practicable. Danger tree removal will be accomplished by hand in wetland areas and within 100 feet of streams, if applicable. Care will be taken not to leave debris in streams or wetland areas. Matting will be used for heavy equipment in these areas. Erosion control devices will be used on an ongoing basis during all clearing and construction activities accompanied by weekly Virginia Stormwater Management Program inspections.

Erosion control will be maintained and temporary stabilization for all soil disturbing activities will be used until the right-of-way has been restored. Upon completion of the Rebuild Project, the Company will restore the right-of-way utilizing site rehabilitation procedures outlined in the Company's *Standards & Specifications for Erosion & Sediment Control and Stormwater Management for Construction and Maintenance of Linear Electric Transmission Facilities (TE VEP 8000)* that was approved by the Virginia Department of Environmental Quality ("DEQ"). Time of year and weather conditions may affect when permanent stabilization takes place.

This right-of-way will continue to be maintained on a regular cycle to prevent interruptions to electric service and provide ready access to the right-of-way in order to patrol and make emergency repairs. Periodic maintenance to control woody growth will consist of hand cutting, machine mowing and herbicide application.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: Any non-transmission use will be permitted that:

- Is in accordance with the terms of the easement agreement for the right-of-way;
- Is consistent with the safe maintenance and operation of the transmission line;
- Will not restrict future line design flexibility; and
- Will not permanently interfere with future construction.

Examples of typical permitted uses include, subject to the terms of the easement, but are not limited to:

- Agriculture
- Hiking Trails
- Fences
- Perpendicular road crossings
- Perpendicular Utility Crossings
- Residential Driveways
- Wildlife / Pollinator Habitat

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: The Company's route selection for transmission line rebuild projects begins with a review of existing rights-of-way. This approach generally minimizes impacts on the natural and human environments. This approach is also consistent with Attachment 1 to these Guidelines, which states that existing rights-of-way should be given priority when adding new transmission facilities, and §§ 56-46.1 and 56-259 of the Code of Virginia ("Va. Code"), which promote the use of existing rights-of-way for new transmission facilities. For the proposed Rebuild Project, the existing right-of-way that currently contains Line #2049 is adequate.

Because the existing right-of-way is adequate to construct the proposed Rebuild Project, new right-of-way is not necessary. Given the availability of existing right-of-way and the statutory preference given to the use of existing rights-of-way, and because additional costs and environmental impacts would be associated with the acquisition of and construction on new right-of-way, the Company did not consider any alternate routes requiring new right-of-way for this Rebuild Project.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: No service to customers will be interrupted during construction of the Rebuild Project, as the Company will have available a radial line to feed the National Welders and Enon Substations from Allied Chemical Substation. Assuming a final order from the Commission by March 15, 2021, as requested in Section I.H of this Appendix, the Company estimates that construction should begin on October 1, 2021, and be completed by April 15, 2022.

The Company plans to take the following sequential outages for the Rebuild Project:

Line Rebuild Activities

- Foundation Installations – No outages required
- Structure Erection and Transfer Existing Conductors – Winter 2021-Spring 2022 – Outage on Line #2049
- Removal of Existing COR-TEN® Towers – Spring 2022 – Outage on Line #2049

The Company will request line outages from PJM prior to the date of such outages. It is customary for PJM to not grant approval of the outages until shortly before the outages are expected to occur and, therefore, they may be subject to change.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

Response: Attachment 1 to these Guidelines contains a tool routinely used by the Company in routing its transmission line projects.

The Company utilized Guideline #1 (existing rights-of-way should be given priority when adding additional facilities) by siting the proposed Rebuild Project within the existing transmission corridor.

By utilizing the existing transmission corridor, the proposed Rebuild Project will minimize impact to any site listed on the National Register of Historic Places ("NRHP"). Thus, it is consistent with Guideline #2 (where practical, rights-of-way should avoid sites listed on the NRHP). See Section III.A for a description of the resources identified in the Stage I Pre-Application Analysis prepared by Stantec Consulting Services, Inc. ("Stantec") on behalf of the Company, which is included with the DEQ Supplement as Attachment 2.H.1. Consistent with its customary practice, the Company will coordinate with the Virginia Department of Historic Resources ("VDHR") regarding the findings of the Stage I Analysis.

The Company has communicated with a number of local, state, and federal agencies prior to filing this application consistent with Guideline #4 (where government land is involved the Company should contact the agencies early in the planning process). See Sections III.B, III.J, and V.D of this Appendix, and the DEQ Supplement.

The Company follows recommended construction methods on a site-specific basis for typical construction projects (Guidelines ##8, 10, 11, 15, 16, 18 and 22).

The Company also utilizes recommended guidelines in the clearing of right-of-way, constructing facilities and maintaining rights-of-way after construction. Moreover, secondary uses of right-of-way that are consistent with the safe maintenance and operation of facilities are permitted.

II. DESCRIPTION OF THE PROPOSED PROJECT

A. Right-of-way ("ROW")

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

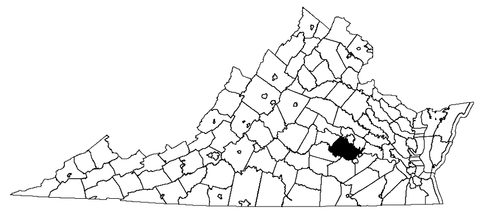
b. Provide three (3) color copies of the Virginia Department of Transportation "General Highway Map" for each county and city through which the line will pass. On the maps show the proposed line and all previously approved and certificated facilities of the Applicant. Also, where the line will be located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

Response:

a. The Rebuild Project traverses Chesterfield County, Virginia, for a total of approximately 2.9 miles along Line #2049 and is located entirely within Dominion Energy Virginia's service territory.

b. Three copies of the map of the Virginia Department of Transportation "General Highway Map" for Chesterfield County are marked as required and filed with the Application. A reduced copy of the map is provided as Attachment II.A.12.b.

Chesterfield County Road Map



This digital map depicts the Virginia Electric and Power Company ("Company") transmission facilities in this county as approved by the Virginia State Corporation Commission ("SCC"), and any proposed transmission facilities in this county, as of 9/24/20. Other Company facilities previously authorized by the SCC may be depicted on prior SCC approved county maps.

55

VIRGINIA ELECTRIC AND POWER COMPANY PLANS TO BUILD TRANSMISSION LINES AND SUBSTATIONS AS SHOWN IN BLACK DASHES ON THIS MAP.

N/A
IS NOT OPPOSED TO SUCH CONSTRUCTION IN ITS SERVICE TERRITORY.

SIGNATURE

DATE TITLE

Legend

- Proposed 230 kV Line
- (1/1) Number of Lines of Structures/Number of Circuits
- △ Proposed Substation
- ▲ Existing Substation
- 34 kV
- 34.5 kV
- 115 kV
- 230 kV
- 500 kV

Provider Service Territory

- SSEC
- VEPCO

Powhatan County
Henrico County
City of Richmond
Amelia County
Dinwiddie County
Chesterfield Court House
Bon Air
Bellwood
Chester
Colonial Heights
Ettrick
Matoaca
City of Petersburg
Prince George County
City of Hopewell
Charles City County

MIDLOTHIAN 34.5 SUB
MIDLOTHIAN 500 SUB
MIDLOTHIAN MW
TRABUE SUB
STRATFORD HILLS SUB
SOUTHWEST SUB
PLANTATION SUB
HULL ST SUB
WINTERPOCK SUB
DUPONT SUB
KEVLAR SUB
NATIONAL CYLINDER GAS SUB
IRONBRIDGE SUB
BELLWOOD SUB
CENTRALIA SUB
KINGSLAND SUB
BROWN BOVERI SUB
REYMET SUB
CHESTERFIELD 230 SUB
CHESTERFIELD 115 SUB
COTC SUB
TYLER SUB
ICI SUB
ENON SUB
ALPINE SUB
ALLIED SUB
NATIONAL WELDERS SUB
WALTHALL SUB
HARROWGATE SUB

Miles
2 1 0 2 4 6

*VDOT and other road data obtained from Navteq and County data, current as of October 2012.

Attachment II.A.12.b

Chesterfield

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

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

Response: The Rebuild Project will affect one existing circuit, Line #2049. As discussed in Section II.B.2, the Company will re-use four of the six sub-conductors, and replace two sub-conductors. Line #2049 was designed for 230 kV operation and has been and will be operated at this voltage. There is no anticipated voltage upgrade for this line.

The 2.9-mile section of Line #2049 being rebuilt will have a summer transfer capability of 1047 MVA.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

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

Response: The 2.9-mile section of Line #2049 being rebuilt currently consists of three-phase twin-bundled 636 ACSR conductors (six sub-conductors) arranged on COR-TEN® lattice towers as shown in Attachment II.A.5.a. Of note, when Line #2049 was converted from 115 kV to 230 kV, it was modified to support the top phase of conductors (two sub-conductors) with one sub-conductor split on each side of the tower.

As part of the Rebuild Project, the Company proposes to install 16 single circuit weathering steel monopoles with the sub-conductors arranged in a staggered arm configuration as shown in Attachment II.A.5.b. In order to transfer the sub-conductors from the current split configuration on the lattice towers (with the top phase split on each side of the tower) to the new staggered arm configuration of the monopoles without interfering with the static wire, the Company proposes to replace two of the sub-conductors (*i.e.*, the top phase in the current configuration) and re-use the remaining four of the six sub-conductors, which were installed in 1994.

Twin-bundled 636 ACSR conductors are the Company's standard for new 230 kV construction.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

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

a. mapping that identifies each portion of the preferred route;

b. the rationale for the selection of the structure type;

c. the number of each type of structure and the length of each portion of the ROW;

d. the structure material and rationale for the selection of such material;

e. the foundation material;

f. the average width at cross arms;

g. the average width at the base;

h. the maximum, minimum and average structure heights;

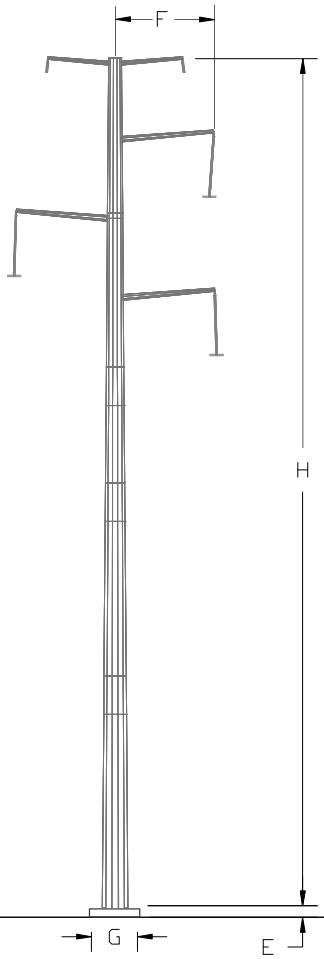
i. the average span length; and

j. the minimum conductor-to-ground clearances under maximum operating conditions.

Response: See Attachment II.B.3.a.

STRUCTURES
#2049/21 - 2049/36

230KV CIRCUIT
LINE# 2049



SINGLE CIRCUIT 1-POLE STRUCTURE

A. MAPPING OF THE ROUTE:	SEE ATTACHMENT II.B.5.a
B. RATIONALE FOR STRUCTURE TYPE:	MAINTAINS THE EXISTING CIRCUITS VERTICAL CONFIGURATION.
C. LENGTH OF R/W (STRUCTURE QTY):	2.9 MILES (16)
D. STRUCTURE MATERIAL:	WEATHERING STEEL
RATIONALE FOR MATERIAL:	WEATHERING STEEL WAS SELECTED TO MATCH THE ADJACENT WEATHERING STEEL STRUCTURES.
E. FOUNDATION MATERIAL:	CONCRETE
TYPICAL FOUNDATION REVEAL:	SEE NOTE 2
F. AVERAGE WIDTH AT CROSS ARM:	13'
G. AVERAGE WIDTH AT BASE:	8' DIAMETER FOUNDATION (SEE NOTE 3)
H. MINIMUM STRUCTURE HEIGHT:	80'
MAXIMUM STRUCTURE HEIGHT:	110'
AVERAGE STRUCTURE HEIGHT:	100'
I. AVERAGE SPAN LENGTH (RANGE):	1020'
J. MINIMUM CONDUCTOR-TO-GROUND:	22.5' (AT MAXIMUM OPERATING TEMPERATURE)

NOTE:
1. INFORMATION CONTAINED ON DRAWING IS PRELIMINARY IN NATURE AND SUBJECT TO CHANGE DURING FINAL DESIGN.
2. MINIMUM FOUNDATION REVEAL SHALL BE 1.5'.
3. FINAL FOUNDATION DIAMETER SHALL BE BASED UPON FINAL ENGINEERING.
4. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

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

Response: Not applicable.

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

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

Response: See Attachment II.B.5.a.

See the table below for the existing and proposed heights of permanent structures related to the Rebuild Project. The proposed approximate structure heights are from the conceptual design created to estimate the cost of the Rebuild Project and are subject to change based on final engineering design. The approximate structure heights do not include foundation reveal.

Structure Number	Existing Structure Height (ft.)	Proposed Structure Height (ft.)	Attachment II.B.3 Structure Type
2049/21	111	110	Attachment II.B.3.a
2049/22	100	100	Attachment II.B.3.a
2049/23	100	100	Attachment II.B.3.a
2049/24	100	105	Attachment II.B.3.a
2049/25	100	100	Attachment II.B.3.a
2049/26	100	105	Attachment II.B.3.a
2049/27	95	100	Attachment II.B.3.a
2049/28	101	100	Attachment II.B.3.a
2049/29	100	105	Attachment II.B.3.a
2049/30	100	100	Attachment II.B.3.a
2049/31	100	100	Attachment II.B.3.a
2049/32	100	105	Attachment II.B.3.a
2049/33	100	105	Attachment II.B.3.a
2049/34	85	90	Attachment II.B.3.a
2049/35	89	90	Attachment II.B.3.a
2049/36	79	80	Attachment II.B.3.a
minimum	79	80	
maximum	111	110	
average	98	100	

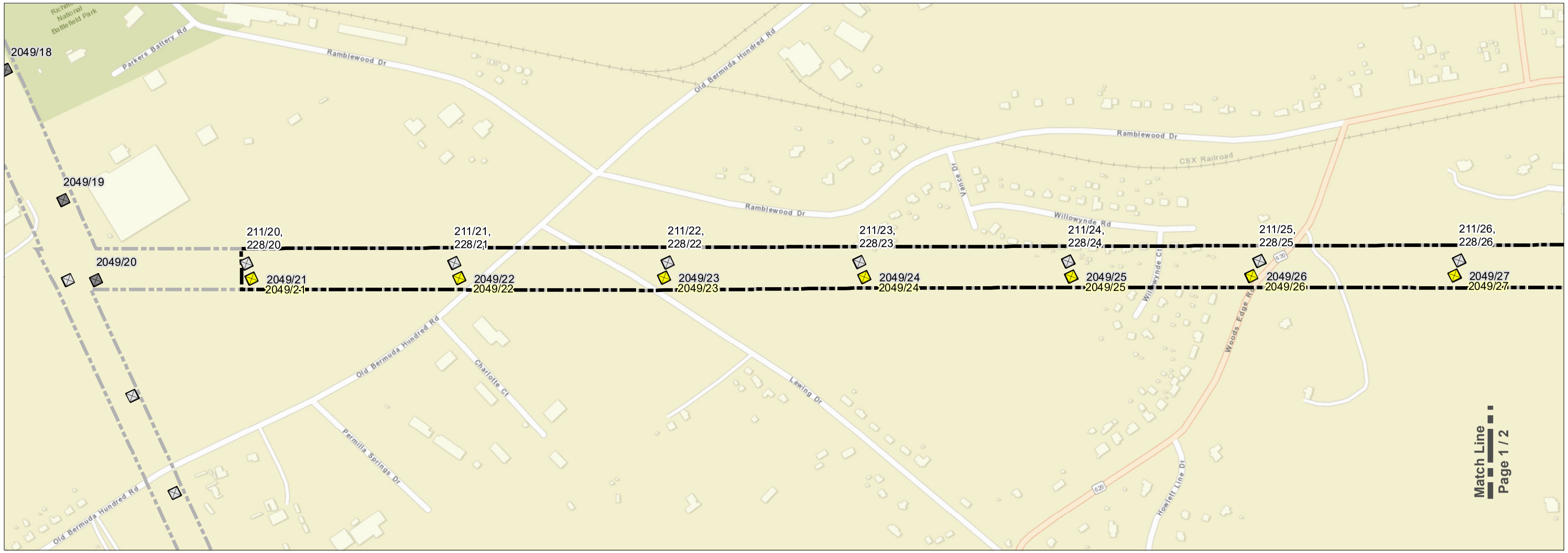


Table II.B.5

Existing Structure Number	2049/21	2049/22	2049/23	2049/24	2049/25	2049/26	2049/27
Existing Structure Height (Feet)	111	100	100	100	100	100	95

Proposed Structure Number	2049/21	2049/22	2049/23	2049/24	2049/25	2049/26	2049/27
Proposed Structure Height (Feet)	110	100	100	105	100	105	100

- Existing Structures
- Proposed Structure Location
- Line 211 & 228 Structures
- Project Limits
- Right-of-Way

0 500 1,000 Feet
(At original document size of 11x17)
1:6,000

N

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec
3. Structure locations and heights provided by Dominion Energy Virginia and information contained herein is preliminary in nature and subject to final engineering. Structure heights do not include foundation reveal.
4. Base Map © ESRI

Stantec

Dominion Energy

Project Location
Chesterfield County, Virginia

Prepared by ECL on 2020-08-06
TR by TPS on 2020-08-06
IR by CPG on 2020-08-06

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

Figure No.
II.B.5

Title
Existing and Proposed Structures

Page 01 of 01

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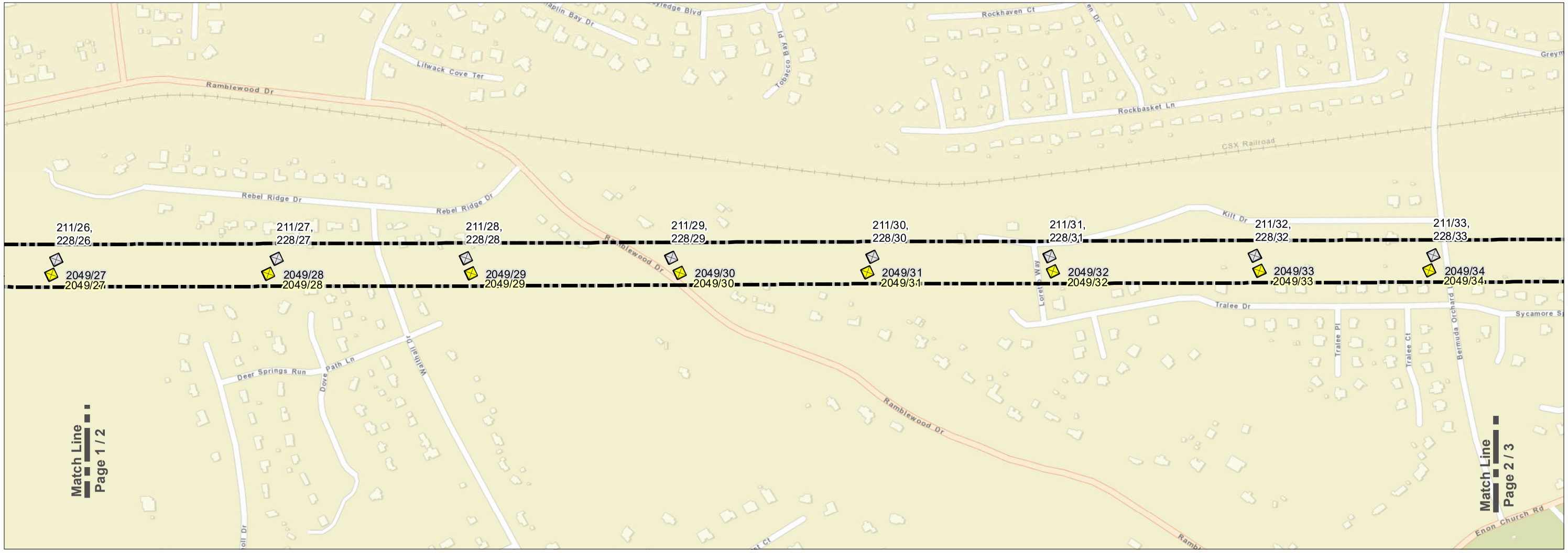
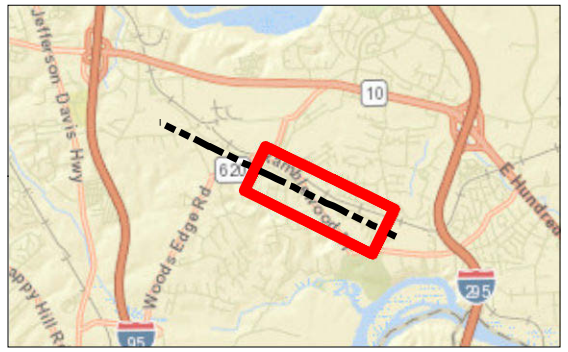


Table II.B.5

Existing Structure Number	2049/27	2049/28	2049/29	2049/30	2049/31	2049/32	2049/33	2049/34
Existing Structure Height (Feet)	95	101	100	100	100	100	100	85

Proposed Structure Number	2049/27	2049/28	2049/29	2049/30	2049/31	2049/32	2049/33	2049/34
Proposed Structure Height (Feet)	100	100	105	100	100	105	105	90



Existing Structures
Proposed Structure Location
Line 211 & 228 Structures
Project Limits
Right-of-Way

0 500 1,000 Feet
(At original document size of 11x17)
1:6,000

N

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec
3. Structure locations and heights provided by Dominion Energy Virginia and information contained herein is preliminary in nature and subject to final engineering. Structure heights do not include foundation reveal.
4. Base Map © ESRI

Stantec

Dominion Energy

Project Location
Chesterfield County, Virginia

Prepared by ECL on 2020-08-06
TR by TPS on 2020-08-06
IR by CPG on 2020-08-06

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

Figure No.
II.B.5

Title
Existing and Proposed Structures

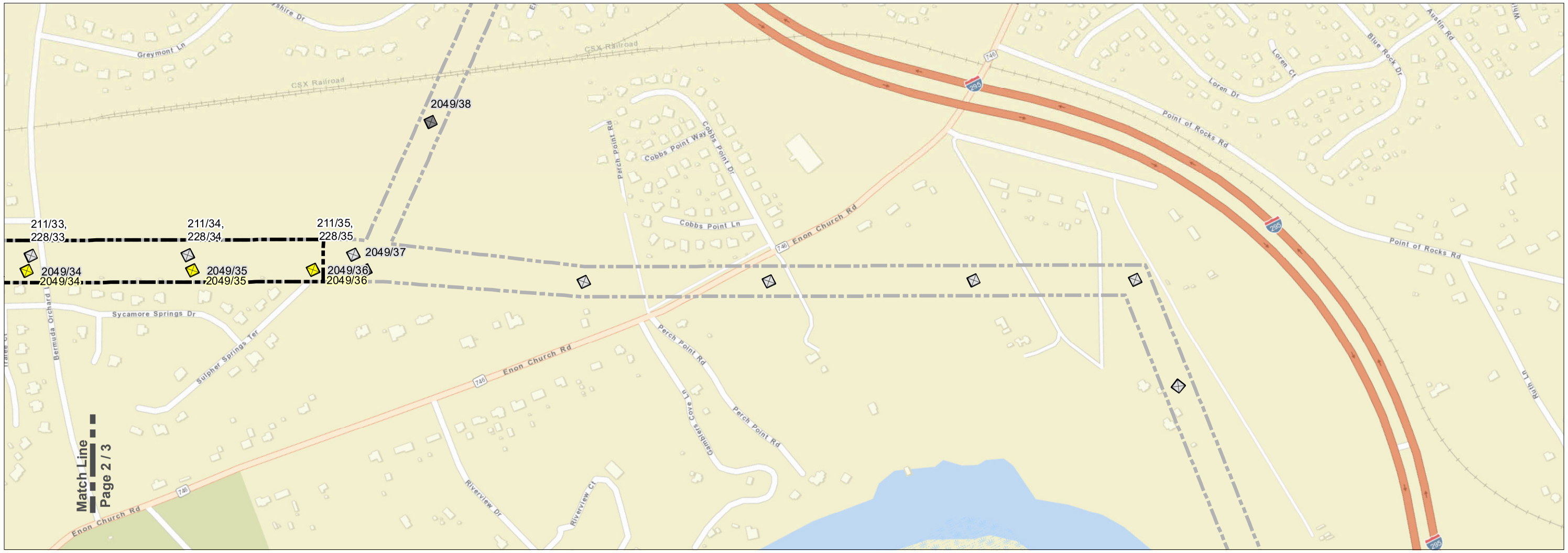
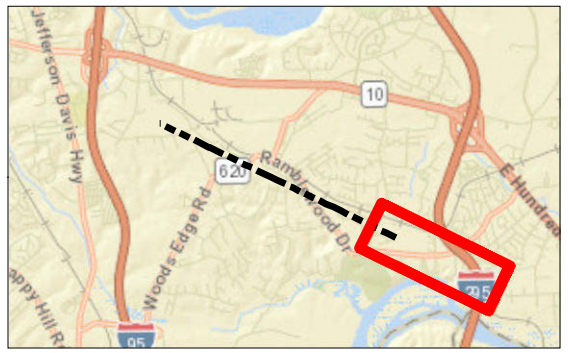


Table II.B.5

Existing Structure Number	2049/34	2049/35	2049/36
Existing Structure Height (Feet)	85	89	79

Proposed Structure Number	2049/34	2049/35	2049/36
Proposed Structure Height (Feet)	90	90	80



Existing Structures
Proposed Structure Location
Line 211 & 228 Structures
Project Limits
Right-of-Way

0 500 1,000 Feet
(At original document size of 11x17)
1:6,000

N

Stantec

Dominion Energy

Project Location
Chesterfield County, Virginia

Prepared by ECL on 2020-08-06
TR by TPS on 2020-08-06
IR by CPG on 2020-08-06

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

Figure No.
II.B.5

Title
Existing and Proposed Structures

Notes
1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec
3. Structure locations and heights provided by Dominion Energy Virginia and information contained herein is preliminary in nature and subject to final engineering. Structure heights do not include foundation reveal.
4. Base Map © ESRI

II. DESCRIPTION OF THE PROPOSED PROJECT

B. Line Design and Operational Features

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

Response: *(a) Photographs for typical existing facilities to be removed*

A representative photograph of a typical existing structure, a COR-TEN® lattice tower, is provided as Attachment II.B.6.a.

(b) Comparable photographs or representations for proposed structures

The Rebuild Project features as a typical proposed structure, a weathering steel monopole with a staggered arm configuration. A representative photograph is provided in Attachment II.B.6.b.

(c) Visual simulations from historic and other key locations

Visual simulations showing the appearance of proposed transmission structures are provided for historic properties where the Rebuild Project will be visible. Attachment II.B.6.c was created using GIS modeling to depict whether the existing and proposed structures are or will be visible from historic properties. Observation Points ("OPs") used for the simulations are indicated on the maps. Attachment II.B.6.c includes existing photographs and simulations of the proposed structures from the selected OPs. The below table identifies historic properties.

Historic Property	OP	Comments
Point of Rocks (VDHR #020-0123)	6	Existing and proposed structures visible in background
Howlett Line (VDHR #020-0232)	1	No visibility of replacement structures
Enon Park (VDHR #020-0506)	4	Existing and proposed structures visible
Port Walthall Junction Battlefield (VDHR #020-5317)	2	Existing and proposed structures visible
Swift Creek Battlefield (VDHR #020-5318)	2, 3, 4, 6	Partial existing and proposed structures visible

Ware Bottom Church Battlefield (VDHR #020-5319)	2, 3, 4, 5, 6	Partial existing and proposed structures visible
Proctor's Creek Battlefield (VDHR #020-5320)	2	Partial existing and proposed structures visible
Richmond National Battlefield Park (VDHR #043-0033)	1	No visibility of replacement structures
Assault on Petersburg (VDHR #123-5025)	5	Existing and proposed structures visible in background

Simulations of the Rebuild Project from key locations are provided in Attachment III.B.4**.**

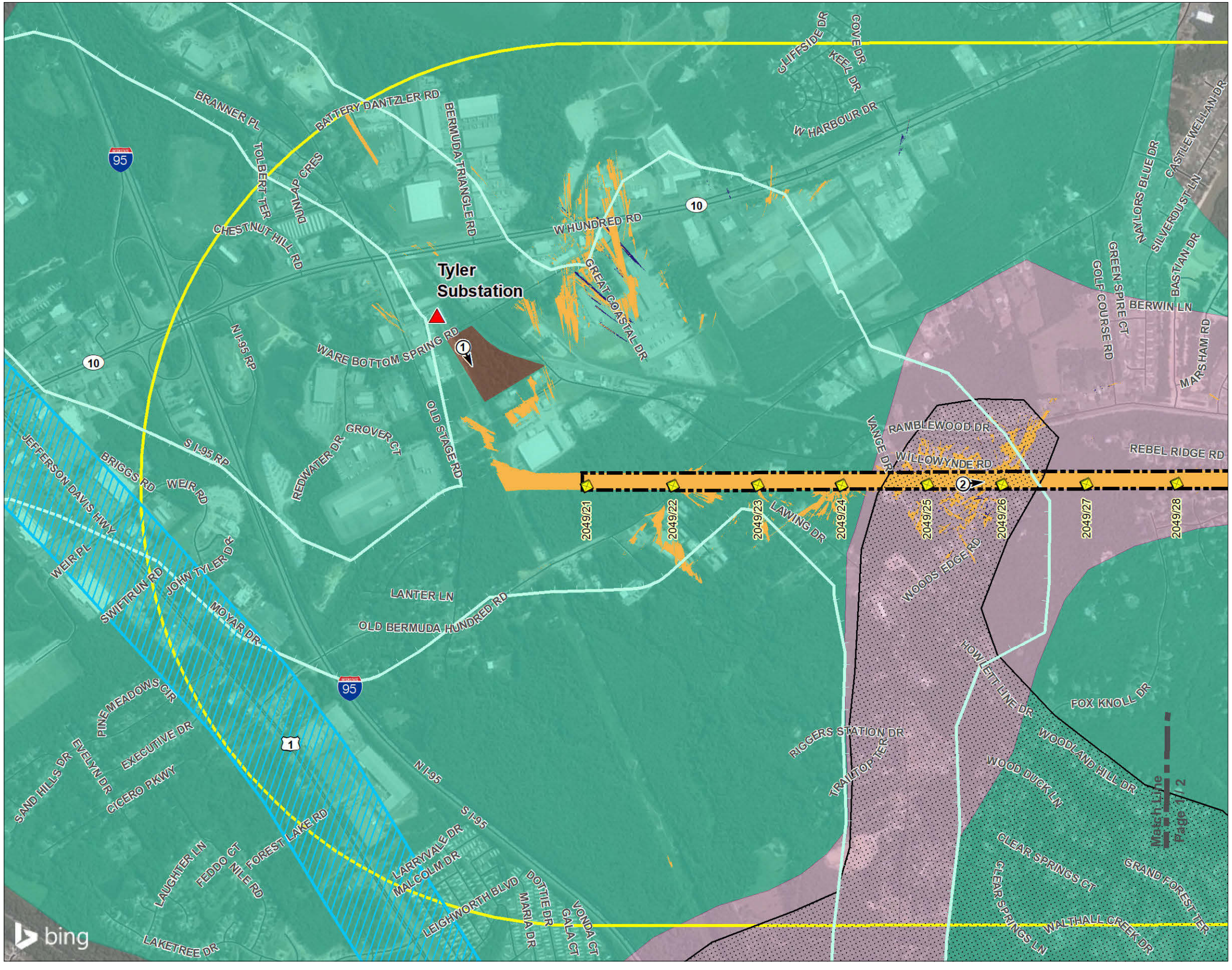


Figure No.

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

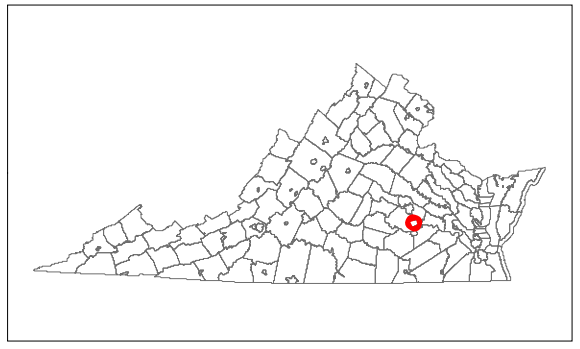
Prepared by TPS on 2020-08-21
TR by MGS on 2020-09-23
IR by CPG on 2020-09-23

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

Stantec

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

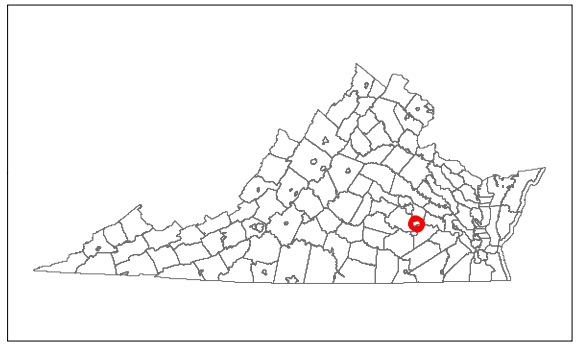
Prepared by TPS on 2020-08-21
TR by MGS on 2020-09-23
IR by CPG on 2020-09-23

N

0 1,200 2,400 Feet

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

- ① 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

Stantec

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

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

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

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

Photograph Provided by Stantec

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

Stantec Dominion Energy

Representation Provided by Stantec

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

Stantec Dominion Energy

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

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

Photograph Provided by Stantec

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

Stantec Dominion Energy

Representation Provided by Stantec

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

Stantec Dominion Energy

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

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

II. DESCRIPTION OF THE PROPOSED PROJECT

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

Response: Not applicable. There is no substation work associated with the Rebuild Project.

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

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

Response: **Land Use**

The Rebuild Project area is contained within Chesterfield County for a total project length of approximately 2.9 miles. The area is largely characterized as urban residential with scattered open space areas.

Farmland/Forests

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. See Attachment III.A.1. Chesterfield County does not have designated farmlands of local importance. No portion of the existing right-of-way for the Rebuild Project is currently in agricultural use. Therefore, the Rebuild Project is not expected to affect agricultural land.

The transmission line right-of-way is regularly maintained to keep vegetation at the emergent and scrub-shrub level for the safe operation of the existing facilities. Since the proposed Rebuild Project is to take place within the existing right-of-way, no impact to forestland is expected.

Wetlands

According to the U.S. Geological Survey ("USGS") topographic quadrangles (Chester [2019], and Hopewell [2019]), the 2.9-mile section of Line #2049 proposed for rebuild crosses no named perennial streams and crosses an unnamed perennial tributary to Ashton Creek.

As part of the Chesterfield-Hopewell Rebuild Project (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. Total jurisdictional resources within the proposed Rebuild Project right-of-way are provided in the table below.

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)

Prior to construction, the Company will obtain any necessary permits to impact jurisdictional resources.

Historic Features

In accordance with the *Guidelines for Assessing Impacts of Proposed Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (2008)*, a Stage I Pre-Application Analysis was conducted by Stantec. This analysis, which is included as Attachment 2.H.1 to the DEQ Supplement, has been submitted to VDHR. The VDHR provided preliminary comments to the Company on September 25, 2020. See Attachment III.A.2.

No National Historic Landmark ("NHL")-listed architectural resources are located within the 1.5-mile radius of the Rebuild 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 Rebuild Project centerline.

Based upon the proposed changes to structure heights, it is anticipated that the Rebuild Project will have no impact to historic properties with no view of the Rebuild Project, and a minimal impact to those historic properties that will view the Rebuild Project, as shown in the table below. Consistent with its customary practice, the Company will coordinate with VDHR regarding the findings of the Stage I Pre-Application Analysis.

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

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.

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
44CF0840	Civil War Earthworks	Potentially Eligible	0	Investigate During Archaeological Survey
44CF0841	Civil War Earthworks	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
44CF0842	Prehistoric Camp - Woodland	Not Evaluated	0	Investigate During Archaeological Survey

Wildlife

A search of the Department of Wildlife Resources ("DWR") public database identified several federal and state listed species that have the potential to occur within the project area. These resources are identified in the report included as Attachment 2.F.1 to the DEQ Supplement. The Company intends to reasonably minimize any impact on these resources and coordinate with DWR as appropriate.

Dwellings

According to Chesterfield County GIS data, there are 224 dwellings located within 500 feet of the centerline of Line #2049, 121 dwellings located within 250 feet of the centerline, and 32 dwellings located within 100 feet of the centerline.

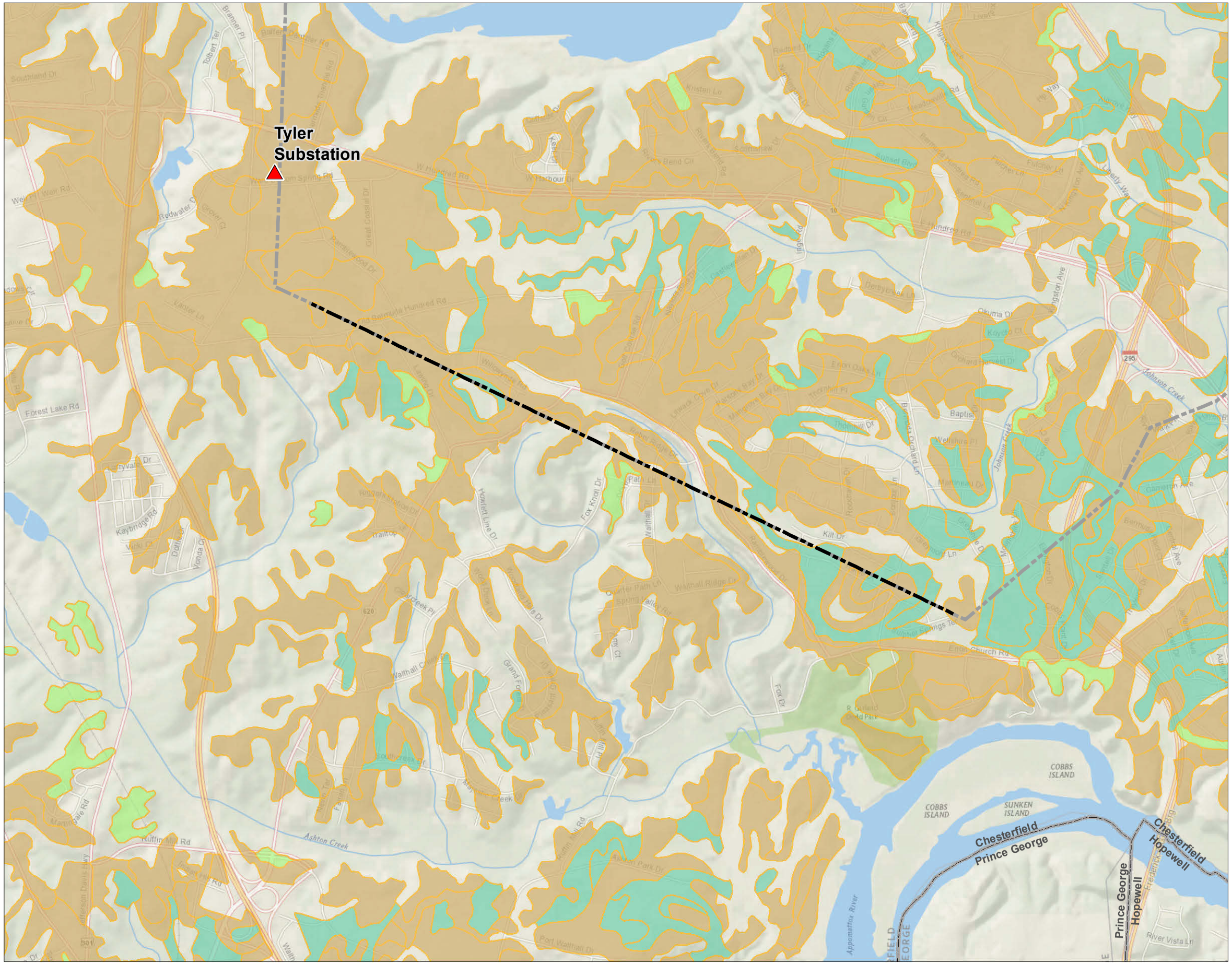


Figure No.

III.A.1

Title

Prime Farmland Map

Client/Project 203401509

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

Project Location

Chesterfield County, Virginia

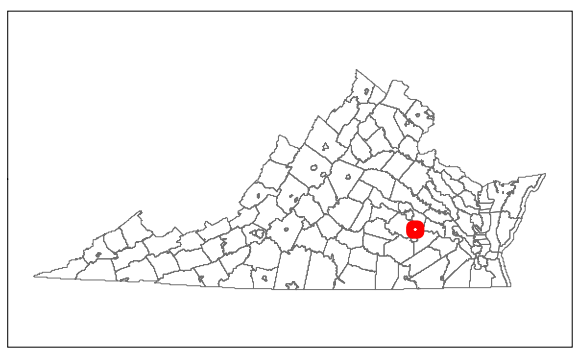
Prepared by LJJ on 2020-06-29
TR by TPS on 2020-07-20
IR by CPG on 2020-07-21

N

0 2,000 4,000 Feet

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

- Existing Substation
- Project Centerline
- Line#2049
- All areas are prime farmland
- Farmland of statewide importance
- Prime farmland if drained



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Substations exported from Ventyx, soils data provided by USDA NRCS SSURGO Soil Survey
3. Base Map © National Geographic

Stantec

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COMMONWEALTH of VIRGINIA

Matthew Strickler
Secretary of Natural Resources

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

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

September 25, 2020

Ms. Tiffany Taylor-Minor
Dominion Energy Virginia
P.O. Box 26666
Richmond, VA 23261-6666

Re: Proposed Chesterfield-Allied Electronic Transmission Line Partial Rebuild Project
DHR File No. 2020-0438

Dear Ms. Taylor:

Thank you for initiating consultation with DHR on the project referenced above. The project, as presented, consists of replacing 2.9 miles of 230 kV line within an existing corridor without requiring additional rights of way. Our comments are provided as assistance to Dominion Energy Virginia (Dominion) in the preparation of an application to the State Corporation Commission (SCC). We reserve the right to provide additional comment through the Federal Section 106 process, if applicable.

A preliminary search of our Archives shows at least five (5) historic architectural resources recorded within one-half (1/2) mile of the line that are listed or have been determined eligible or potentially eligible for listing in the Virginia Landmarks Register (VLR) and National Register of Historic Places (NRHP). In addition, the line crosses five (5) archaeological sites that have been determined potentially eligible for VLR/NRHP listing. Depending on the design specifics of the project, this project has the potential to both directly and indirectly affect significant historic resources. To aid in your assessment of potential impacts to historic resources and prior to finalizing Dominion's application to the SCC, we recommend that a pre-application analysis be prepared and submitted to DHR in accordance with Section I of the DHR's *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia*. Once an alternative is approved by the SCC, we are likely to recommend full architectural and archaeological studies and mitigation of all moderate to severe impacts to VLR/NRHP-eligible resources.

We look forward to working with Dominion throughout this project. If you have any questions, please do not hesitate to contact me at tim.roberts@dhr.virginia.gov.

Sincerely,

Timothy Roberts, Project Review Archaeologist
Review and Compliance Division

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

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

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

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

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

Response: In late August 2020, the Company launched an internet website dedicated to the proposed Rebuild Project: www.dominionenergy.com/chesterfieldallied. The website includes a description and benefits of the proposed Rebuild Project, an explanation of need, route map, photo simulations, a project overview video, and information on the Commission review process.

In early September 2020, the Company sent project announcement mailers to approximately 80 property owners and residents within 500 feet of the Rebuild Project. Each mailer included a letter and overview map. The letters provided a brief overview of the proposed Rebuild Project and advised that due to COVID-19, the Company would not host a traditional in-person open house event, but would host two virtual community meetings. In addition, the communication indicated that detailed materials would be posted to the dedicated Rebuild Project website and how to contact the project team to provide any feedback or questions. Copies of the letter and overview map are included as Attachment III.B.1.

Also in September 2020, the Company sent informational postcards to the same property owners inviting them to attend one of the virtual community meetings and to visit the dedicated Rebuild Project page. The postcard is included as Attachment III.B.2.

Newspaper print advertisements regarding the project and virtual open house were placed in Village News (circ. 12,000) and Chesterfield Observer (circ.70,789). In addition, digital and social media advertisements ran in same print publications as well as, NextDoor, Google AdWords, Twitter, FaceBook, and Instagram targeting resident and property owners in Chesterfield and Enon zip codes within close proximity to the Rebuild Project. Examples of these advertisements are included as Attachment III.B.3.

Two virtual open houses were held on September 22, 2020, at noon and at 6:00 p.m. At the virtual open houses, the Company made available details about construction, project timing, and the Commission approval process. There have been 1,442 unique page views on the Rebuild Project webpage since the virtual open house events and a total of 11 clicks on the posted YouTube link of the question and answer sessions of the virtual open houses. Traditional open house materials have been posted on the website for the proposed Rebuild Project, including simulations of the proposed Rebuild Project from key locations and demonstrative structure height boards. The key location simulations are included as Attachment III.B.4 and the structure height boards are included as Attachment III.B.5.

In addition, the Company researched the demographics of the surrounding communities using the 2017 U.S. Census American Community Survey data to determine that there are 10 Census Block Groups within the Rebuild Project area that fall within a mile of the existing transmission line. A review of minority, income, and education census data identified populations within the study area that meet the U.S. Environmental Protection Agency defined threshold for Environmental Justice protections ("EJ Communities").

Pursuant to Va. Code §§ 56-46.1 C and 56-259 C, as well as Attachment 1 of these Guidelines, there is a strong preference for the use of existing utility right-of-way whenever feasible. The Rebuild Project is within existing right-of-way and will not require any of the following: (1) additional permanent or temporary right-of-way, (2) the construction of a temporary line, or (3) an increase in operating voltage. Based on the analysis of the Rebuild Project, the Company does not anticipate disproportionately high or adverse impacts to the surrounding community and the EJ Communities located within the study area, consistent with the Rebuild Project design to reasonably minimize such impacts.

In addition to its evaluation of impacts, the Company has and will continue to engage the EJ Communities in a manner that allows them to meaningfully participate in the Rebuild Project development and approval process so that the Company can take their views and input into consideration.

Dominion Energy Virginia
Electric Transmission
P.O. Box 26666, Richmond, VA 23261-6666
DominionEnergy.com

Sept. 8, 2020

Chesterfield-Allied Electric Transmission Partial Rebuild Project

Dear Neighbor:

At Dominion Energy, we are committed to continually reviewing and analyzing our energy infrastructure to provide safe and reliable electric service to our neighbors. We are currently proposing to rebuild a 2.9-mile portion of an aging 230 kilovolt (kV) electric transmission line located near your property. The line was originally built in the 1960s and is nearing the end of its service life. The rebuild is necessary to bring facilities up to current reliability and safety standards.

Prior to filing an application with the Virginia State Corporation Commission (SCC), we would like to take the opportunity to share more information about the project and gather feedback from the community.

Due to the ongoing public health concerns resulting from the spread of the coronavirus, we do not plan to host an in-person community event at this time. In lieu of our traditional open house, we will host two virtual community meetings at noon and again at 6 p.m. on Sept. 22, 2020. We encourage you to visit the project's dedicated webpage at DominionEnergy.com/chesterfieldallied for information on the meetings and to access details on the project.

Please be on the lookout for future communications and additional materials posted to our project webpage to stay informed and up-to-date on the project.

You may also contact us by sending an email to powerline@dominionenergy.com or calling 888-291-0190 with any questions.

Thank you for your patience and understanding as we work to maintain reliable electric service and keep our communities safe.

Sincerely,

The Electric Transmission Project Team

Enclosure

93

Figure No.
1

Title
Project Overview Map

Client/Project
Dominion Energy Virginia
Chesterfield to Allied 230 kV Rebuild

203401509

Project Location
Chesterfield County, Virginia

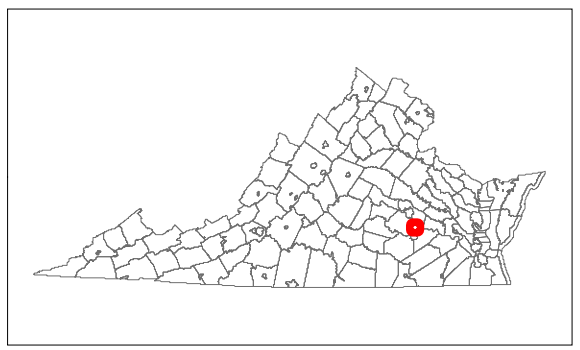
Prepared by LJJ on 2020-06-29
TR by TPS on 2020-07-20
IR by CPG on 2020-07-21

N

0 2,000 4,000 Feet

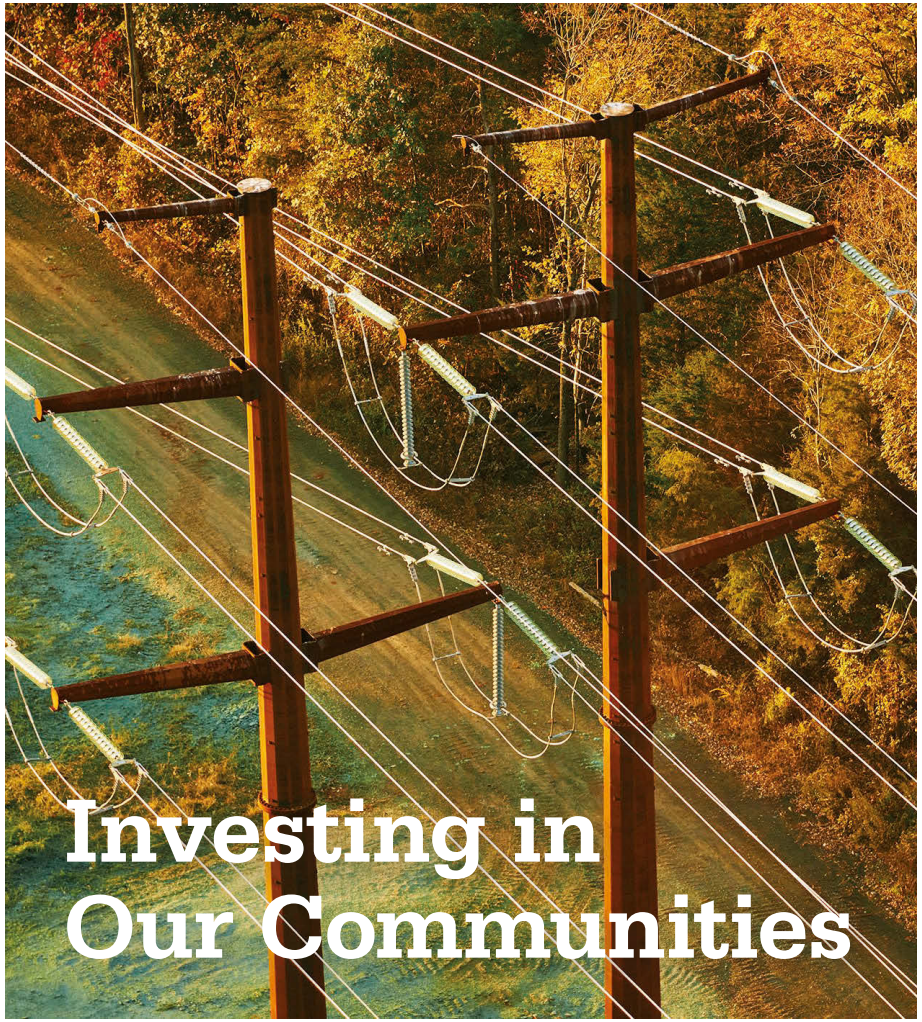
(At original document size of 11x17)
1:24,000

Existing Substation
Project Centerline



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



Dominion Energy image. Not project specific.

Electric Transmission
P.O. Box 26666
Richmond, VA 23261

Dominion Energy®

Actions Speak Louder

YOU'RE INVITED TO A VIRTUAL COMMUNITY MEETING!

DETAILS ENCLOSED

IMPORTANT

Local Power Line Project Information

Use your iPhone camera or the QR reader app on other smartphones to visit the project page on our website.

Chesterfield-Allied Transmission Line Partial Rebuild Project — Virtual Community Meeting

AT DOMINION ENERGY, we are committed to staying connected with our neighbors and providing the latest information on work being done in the communities we serve.

You are receiving this postcard because we would like to invite you to attend one of our virtual community meetings for the Chesterfield-Allied Transmission Line Partial Rebuild Project in Chesterfield County. A portion of existing transmission line has reached the end of its service life and needs to be rebuilt to current safety and reliability standards.

Upon approval from the Virginia State Corporation Commission (SCC), construction is scheduled to begin in spring 2021 and completed by April 2022. Our virtual community meetings will review details of the project, including timelines, visual simulations, and the project's impact on your community. You can also ask questions live and interact with our project team. Please choose a meeting time most convenient to your schedule.

You can access the meeting for free using a mobile device, tablet, computer, or you can simply dial-in with your telephone. For more details, visit DominionEnergy.com/chesterfieldallied.

In addition, we want to inform you that we are mindful of our activities and maintaining property owner interactions with the appropriate social distancing. The work we do is integral to maintaining grid reliability and our crews will continue to perform work as needed to provide reliable energy.

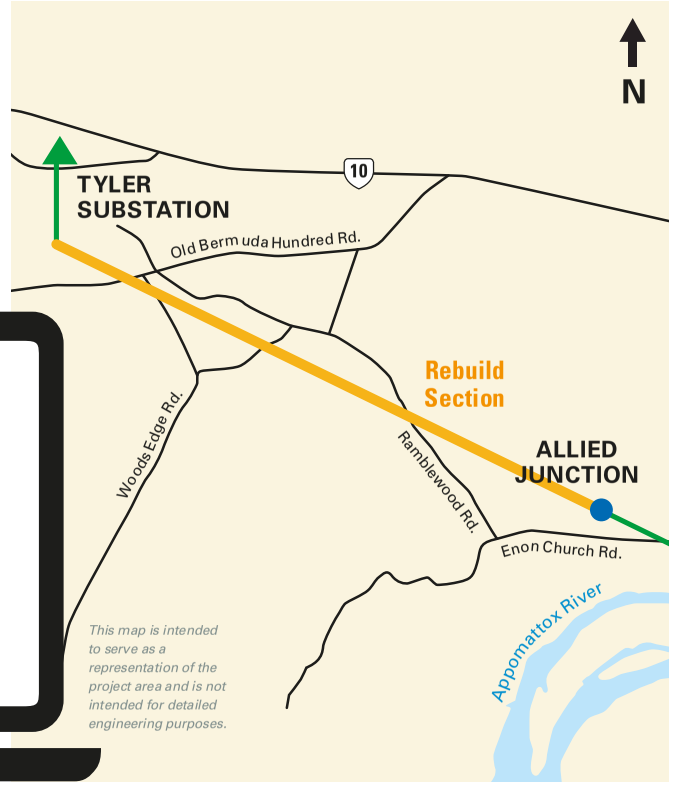
Please know that we are dedicated to working safely and courteously in your community.

VIRTUAL COMMUNITY MEETING

Tuesday, Sept. 22, 2020
Noon & 6 p.m.

Please choose the meeting time most convenient to your schedule

Check out our new virtual photo simulations and project video! Launching Sept. 21, 2020 at DominionEnergy.com/chesterfieldallied



CONTACT US

Visit our website at DominionEnergy.com/chesterfieldallied for project updates. Or contact us by calling 888-291-0190 sending an email to powerline@dominionenergy.com.

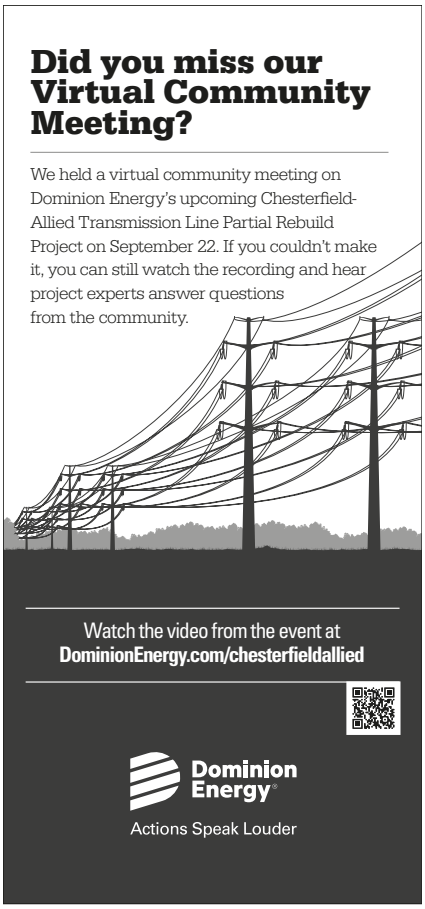
charles ryan associates

Dominion Energy
Electric Transmission

Chesterfield Allied Creative

Social Media Event Video:

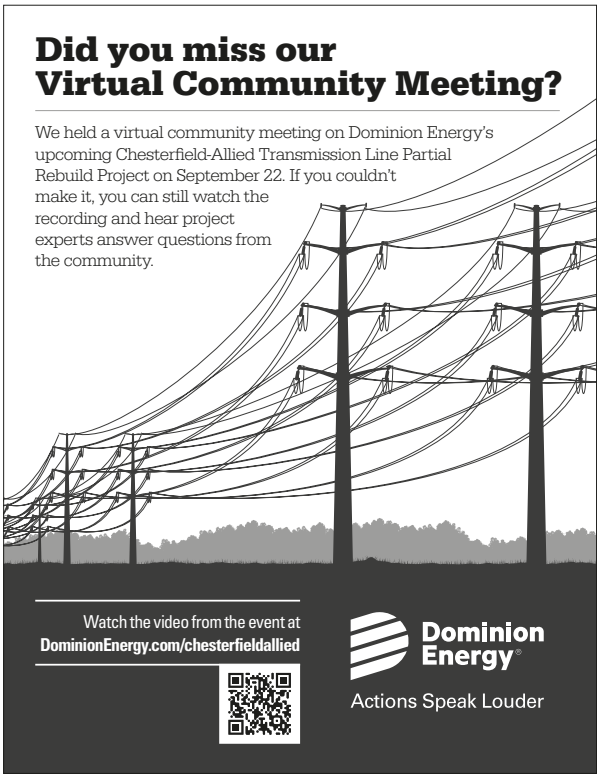
Newspaper:
The Village News
(post-event)



Dominion Energy
Electric Transmission

Chesterfield Allied Creative

Newspaper:
Chesterfield Observer
(post-event)



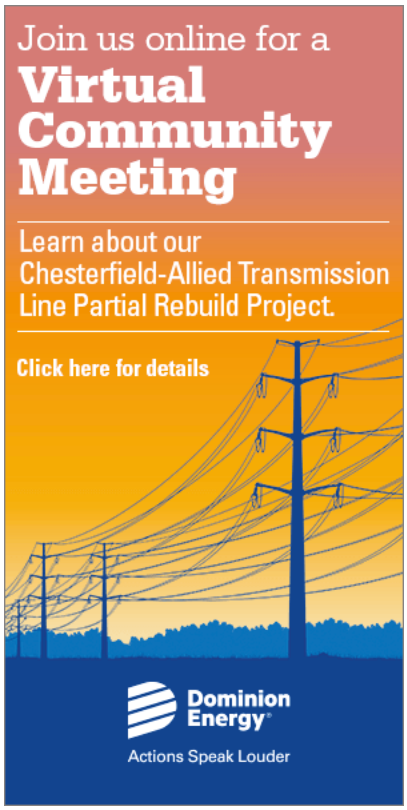
Display:
Chesterfield Observer
(awareness)

Dominion Energy
Electric Transmission

Chesterfield Allied Creative

Both versions will be resized to all of the various sizes needed for the campaign.

Event Display:



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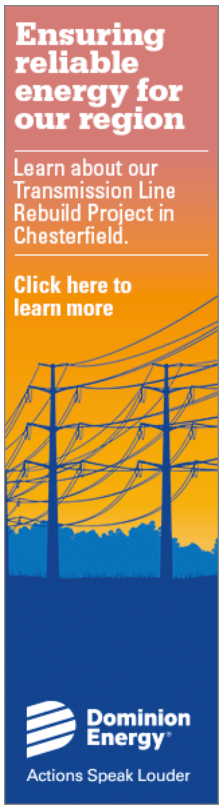
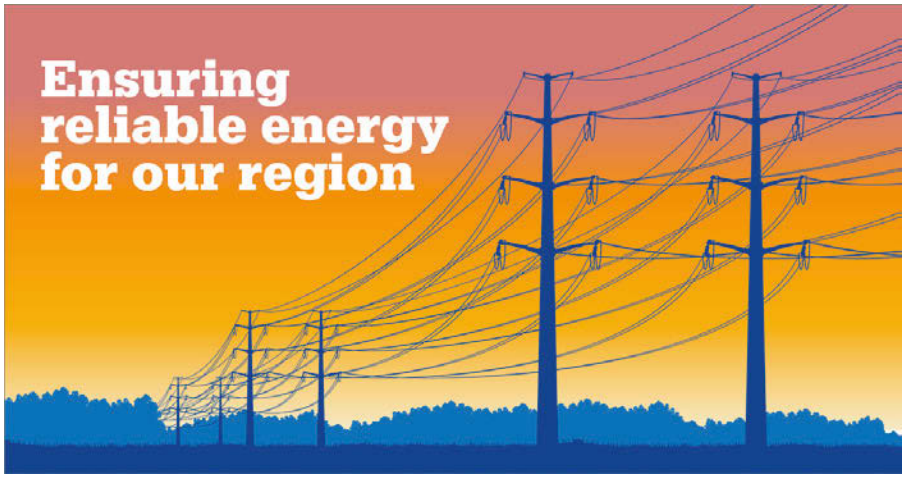


Dominion Energy Electric Transmission

Chesterfield Allied Creative

Event Post Image:

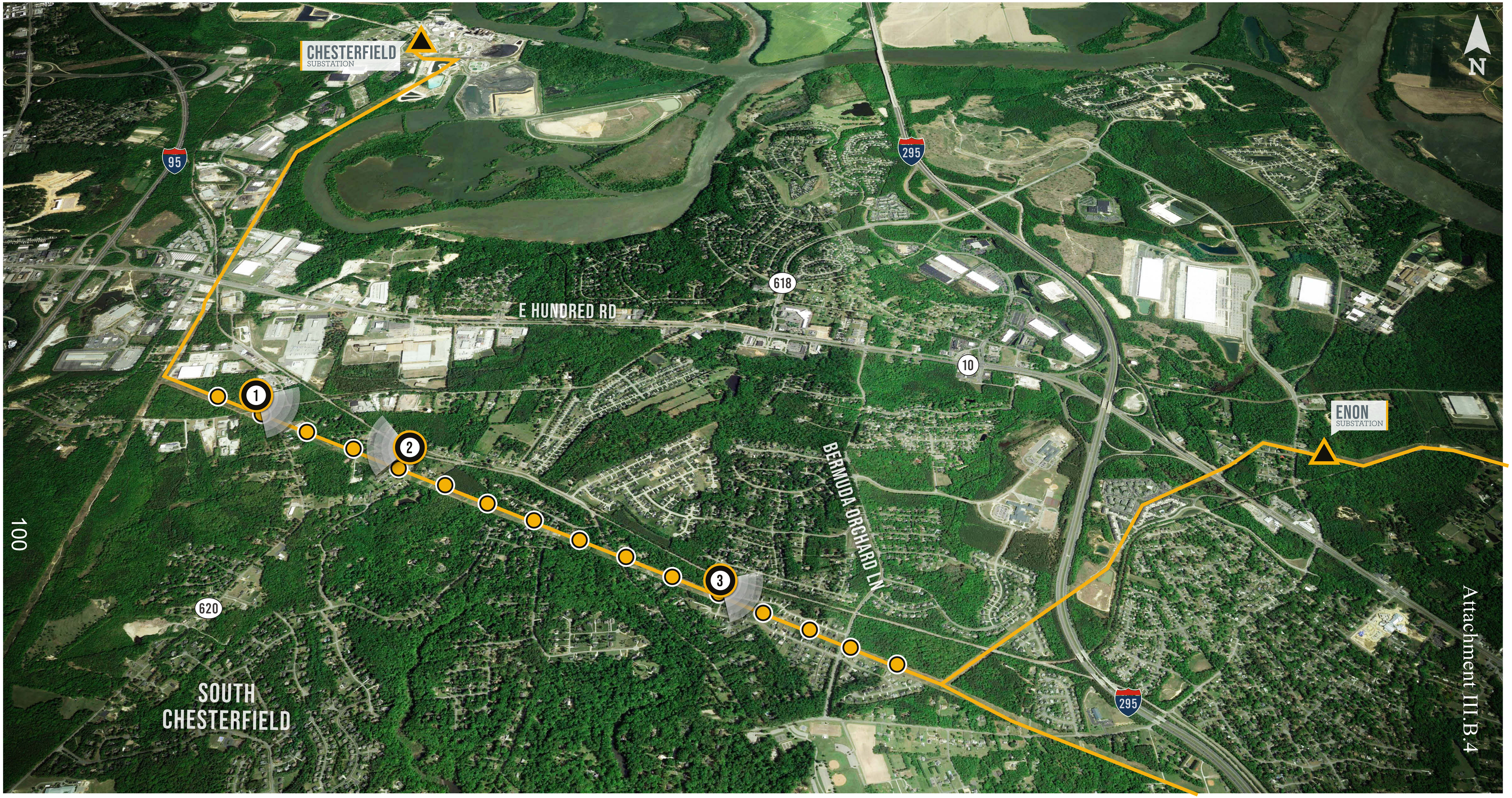
Awareness Post Image:



Post Logo:

Dominion Energy®

Actions Speak Louder



CHESTERFIELD TO ALLIED
PARTIAL REBUILD PROJECT

PHOTO VIEWPOINT MAP

- 1 PHOTO VIEWPOINT LOCATION
- PROPOSED STRUCTURES
- TRANSMISSION LINE
- EXISTING SUBSTATION

Dominion Energy®

PHOTO SIMULATION IS FOR VISUALIZATION PURPOSES ONLY, FINAL DESIGN IS SUBJECT TO CHANGE PENDING PUBLIC, ENGINEERING, AND REGULATORY REVIEW.

CHESTERFIELD TO ALLIED

PARTIAL REBUILD PROJECT

PHOTO VIEWPOINT 1

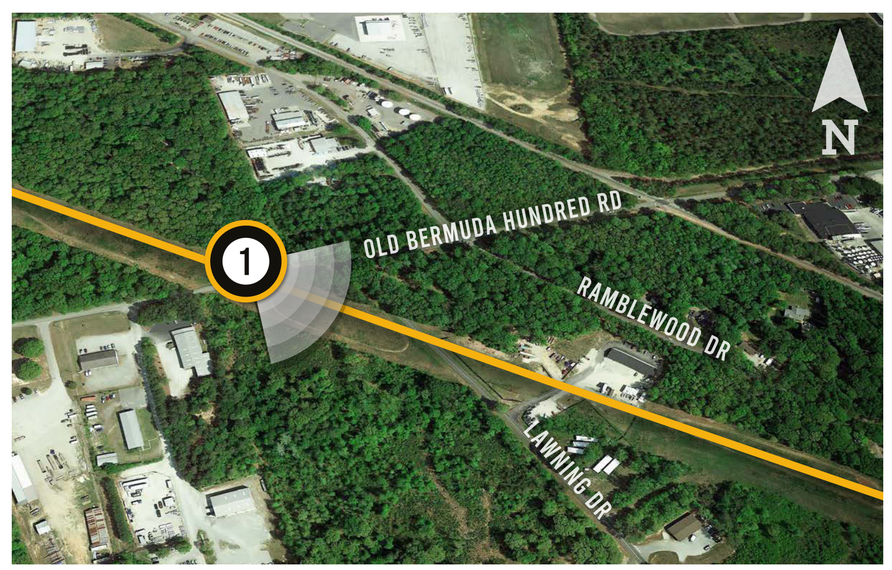
DATE: 07/14/2020

TIME: 10:20 AM

DIRECTION: SOUTHEAST

① PHOTO VIEWPOINT LOCATION

— TRANSMISSION LINE



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CHESTERFIELD TO ALLIED

PARTIAL REBUILD PROJECT

PHOTO VIEWPOINT 2

DATE: 07/14/2020

TIME: 10:39 AM

DIRECTION: WEST

2 PHOTO VIEWPOINT LOCATION

TRANSMISSION LINE

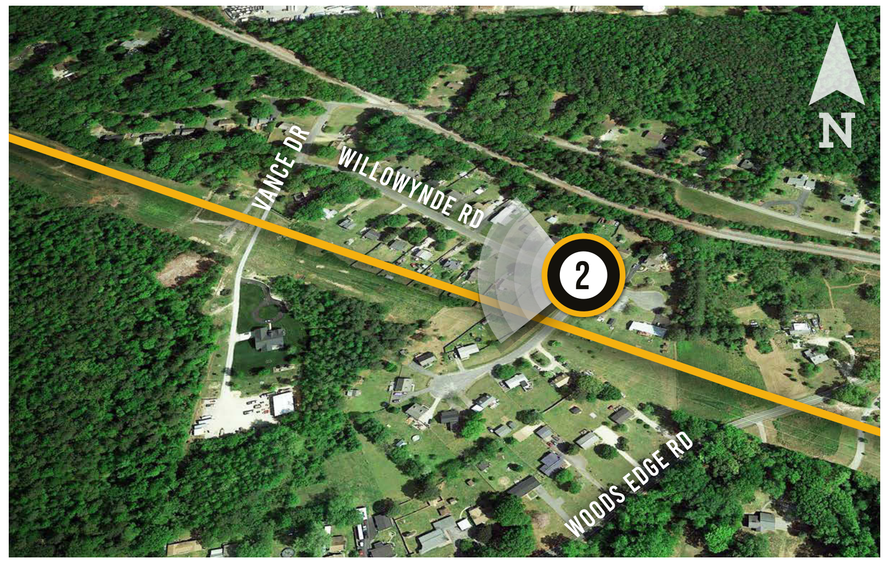

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PHOTO SIMULATION IS FOR VISUALIZATION PURPOSES ONLY, FINAL DESIGN IS SUBJECT TO CHANGE PENDING PUBLIC, ENGINEERING, AND REGULATORY REVIEW.

CHESTERFIELD TO ALLIED
PARTIAL REBUILD PROJECT

PHOTO VIEWPOINT 3

DATE: 07/14/2020

TIME: 11:54 AM

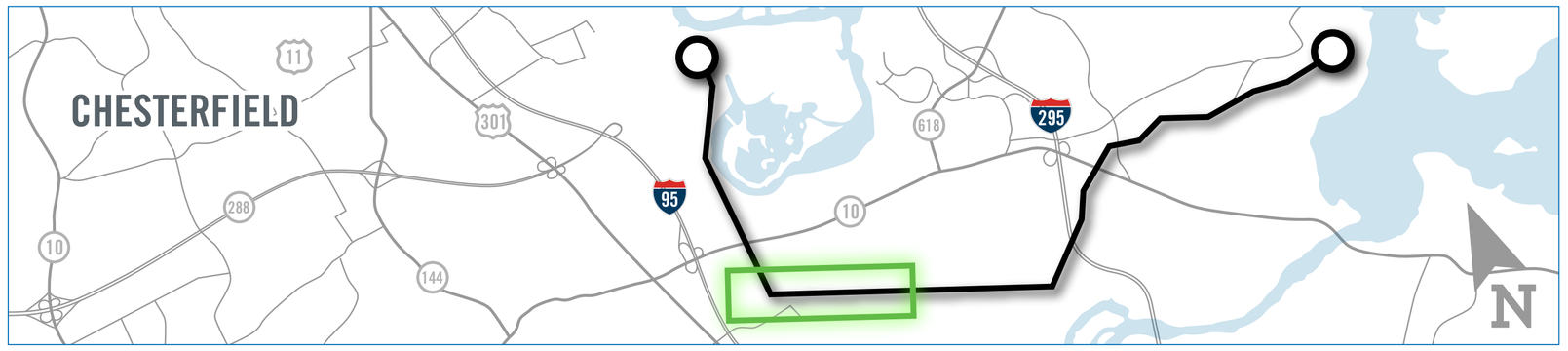
DIRECTION: SOUTHEAST

3 PHOTO VIEWPOINT LOCATION

— TRANSMISSION LINE

Dominion Energy®

CHESTERFIELD TO ALLIED
PARTIAL REBUILD PROJECT



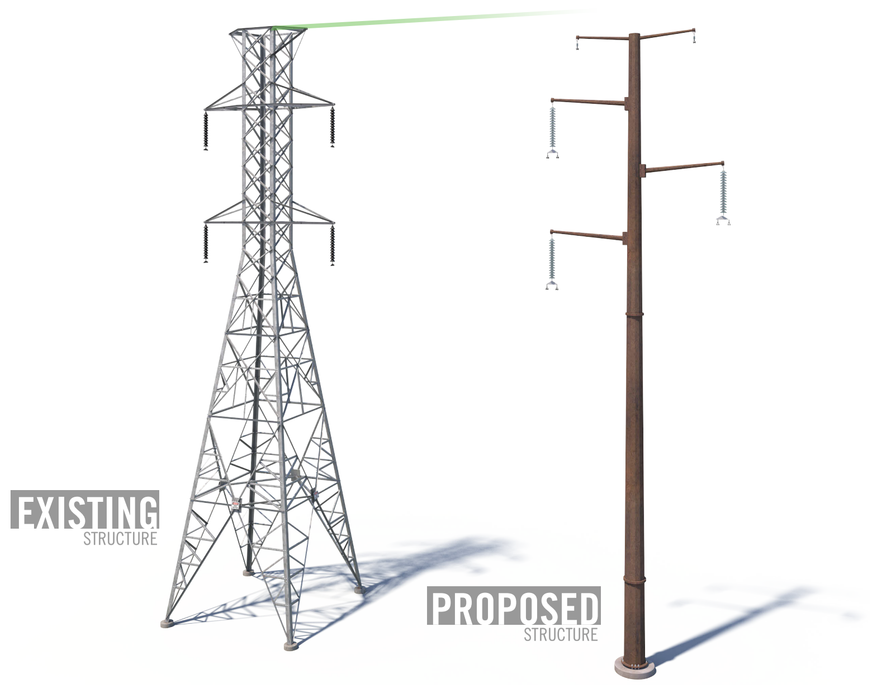
ANY FUTURE STRUCTURES DEPICTED ARE CONCEPTUAL AND SUBJECT TO CHANGE IN LOCATION AND/OR HEIGHT BASED ON FINAL ENGINEERING.

MAP BOARD
1 OF 2

Dominion Energy®

SMALLEST HEIGHT GAIN

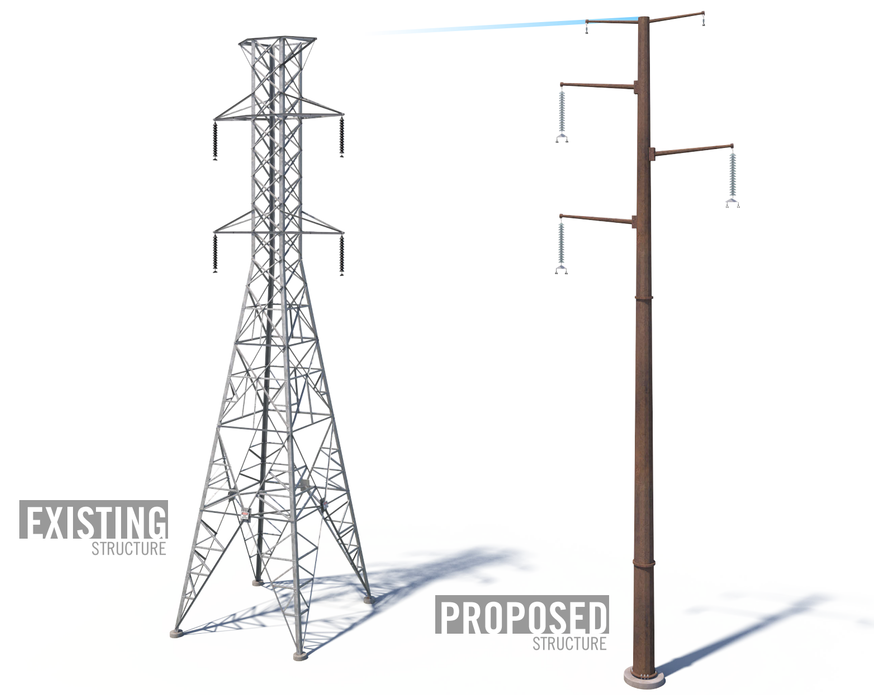
SMALLEST HEIGHT GAIN : -1.5



-1 FEET

AVERAGE HEIGHT GAIN

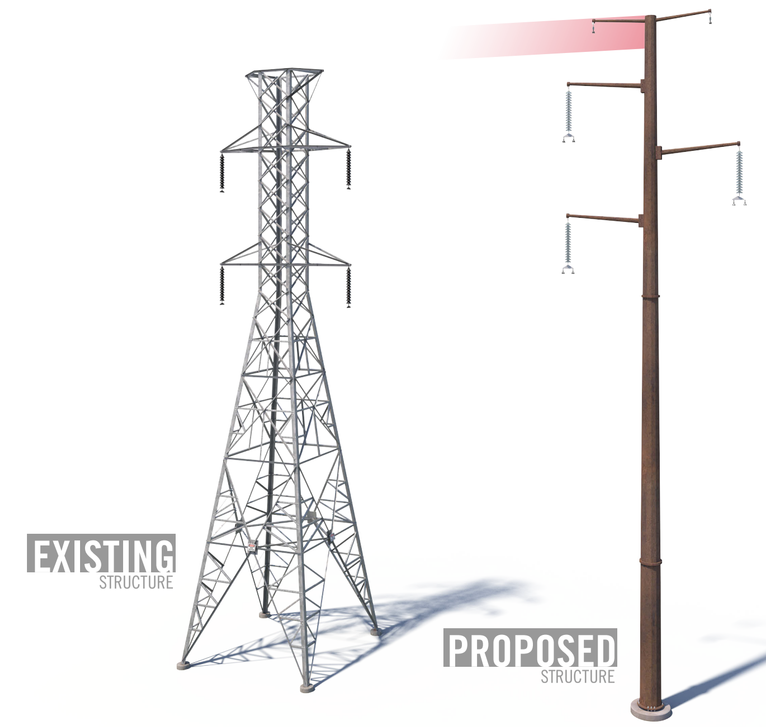
AVERAGE HEIGHT GAIN : +1.5 FT



0 FEET

LARGEST HEIGHT GAIN

LARGEST HEIGHT GAIN : +5 FT

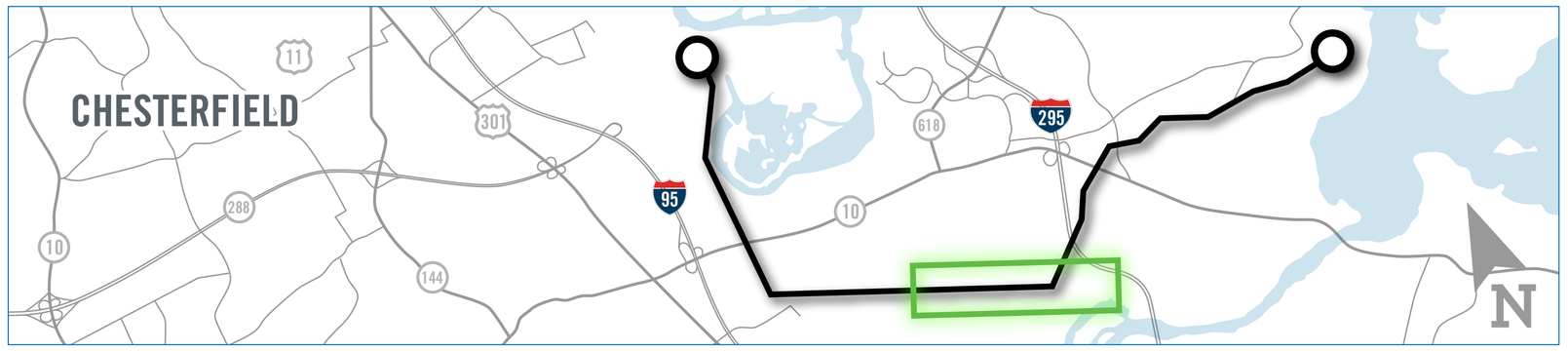


+1 FEET

+ 5 FEET

DOTS REPRESENT THE TOTAL NUMBER OF STRUCTURES THAT FALL WITHIN SPECIFIED RANGE

CHESTERFIELD TO ALLIED
PARTIAL REBUILD PROJECT



ANY FUTURE STRUCTURES DEPICTED ARE CONCEPTUAL AND SUBJECT TO CHANGE IN LOCATION AND/OR HEIGHT BASED ON FINAL ENGINEERING.

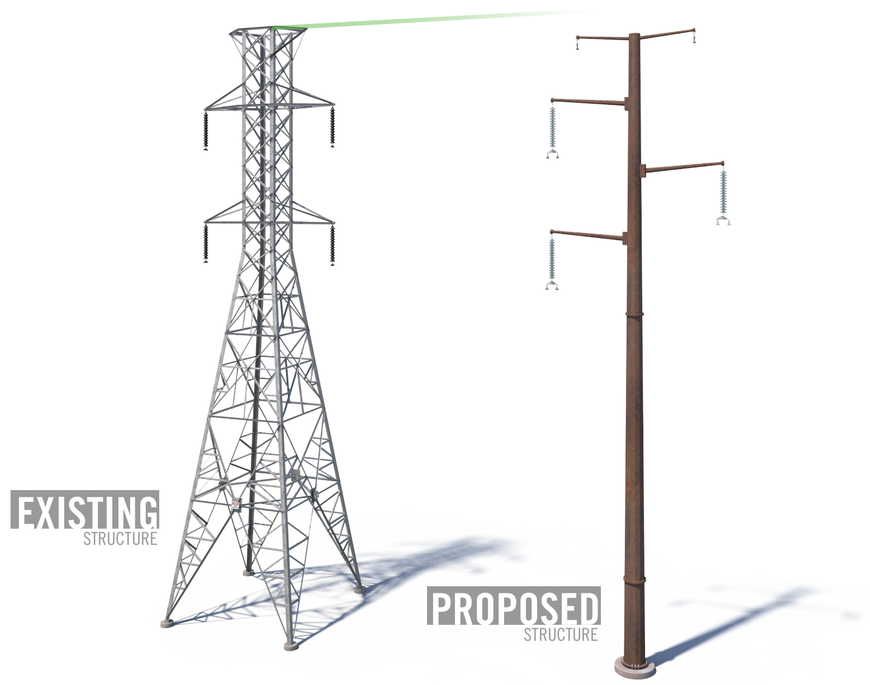
MAP BOARD
2 OF 2

Dominion Energy®

105

SMALLEST HEIGHT GAIN

SMALLEST HEIGHT GAIN : -1.5



AVERAGE HEIGHT GAIN

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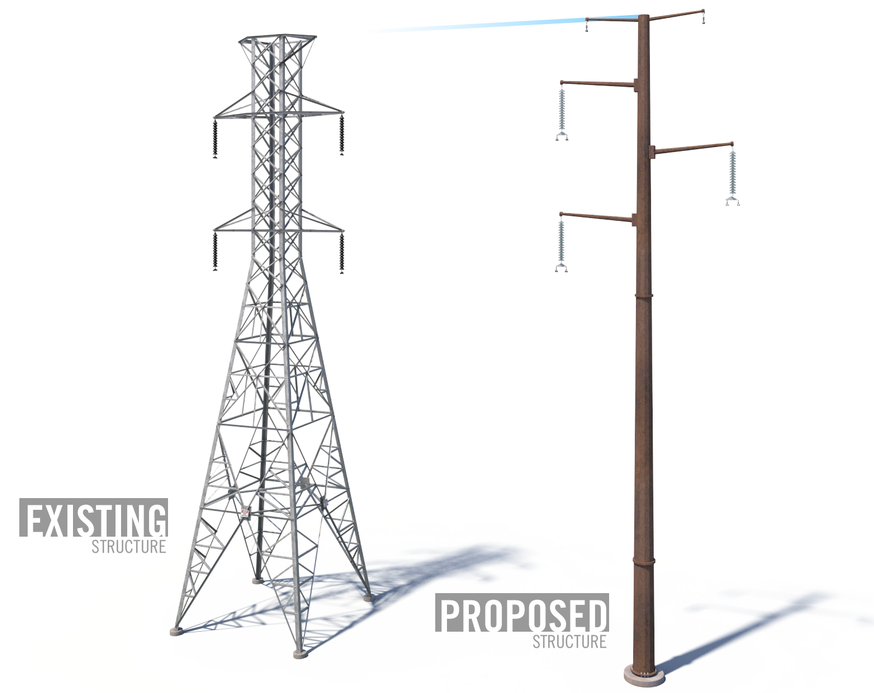
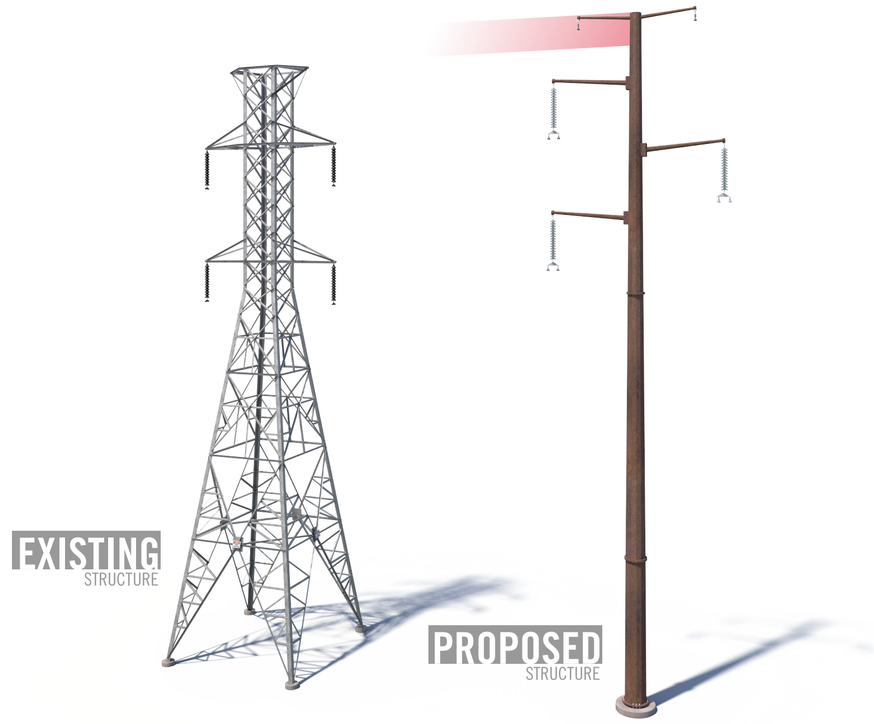


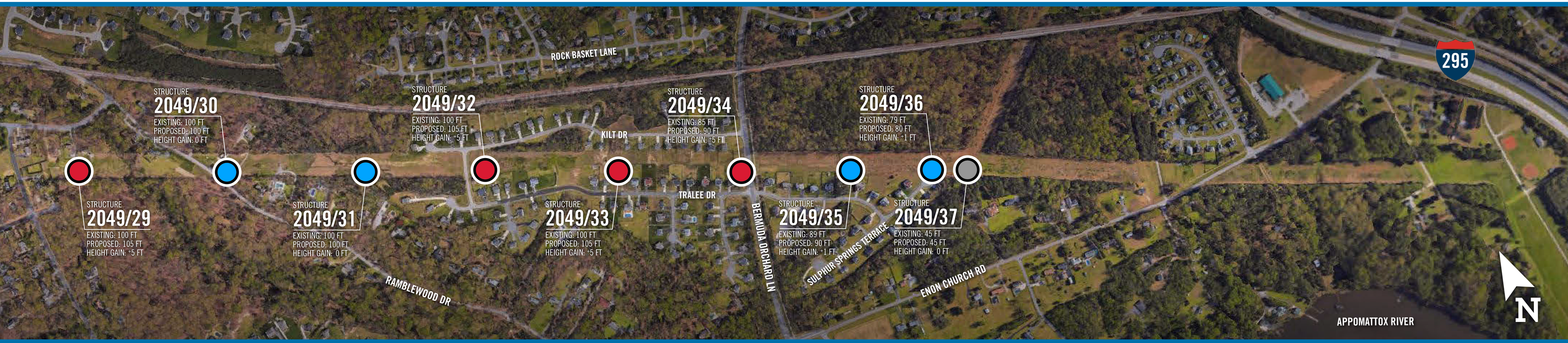
LARGEST HEIGHT GAIN

LARGEST HEIGHT GAIN : +5 FT



-1 FEET | 0 FEET | +1 FEET | + 5 FEET

DOTS REPRESENT THE TOTAL NUMBER OF STRUCTURES THAT FALL WITHIN SPECIFIED RANGE



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

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

Response: During the Company's review of the existing corridor, it identified approximately 20 unauthorized encroachments within the Rebuild Project right-of-way. The majority of these encroachments are sheds in the easement. The encroachments will need to be addressed with the respective property owners as the Company continues to investigate the right-of-way.

In support of the Rebuild Project, the Company will be reviewing the entire corridor width prior to construction and plans to address unauthorized encroachments and easement violations, as appropriate.

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

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

Response: The 2.9-mile Rebuild Project segment of Line #2049 runs parallel to Lines #211 and #228 within the same existing transmission line corridor right-of-way easement. Construction of Line #2049 was completed in 1967 and the easements for the transmission right-of-way has been in use since the late 1940s.

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

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

Response: The Company reviewed *The Comprehensive Plan for Chesterfield County* to evaluate the potential effect the Rebuild Project could have on future development. The placement and construction of electric transmission lines is not addressed within the plans. The Rebuild Project is entirely within existing easement and would not affect land use. The Rebuild Project is not expected to impact the character of these localities as the transmission corridor has been in use for at least 50 years and the structure heights are only increasing incrementally.

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

F. Government Bodies

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

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

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

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

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

Response: 1. Chesterfield County has no designated important farmlands or agricultural districts within their jurisdiction.

2. Not applicable.

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

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

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

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

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

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

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

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

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

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

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

10. **Any state scenic river;**

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

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

Response: 1. None

2. Within the existing right-of-way, there is one architectural resource that VDHR has determined to be eligible for listing on the NRHP. One additional eligible architectural property is within 0.25-mile of the Rebuild Project. The table below provides eligible historic resources within and adjacent to the Rebuild Project right-of-way.

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 (Miles)
020-0506	Earthworks, Enon Park, Point of Rocks Park	Federal Det. of Eligibility	0.25
020-5317	Port Walthall Junction Battlefield	VDHR Eligible	0

3. Chesterfield County has designated historic districts; however, none are within the vicinity of the Rebuild Project.

4. None.

5. None.

6. None.

7. None.

8. None.

9. None.

10. None.

11. The existing right-of-way crosses Ware Bottom Church Battlefield Park, which is owned by Chesterfield County. Sgt. James Engle Historic Site and Fort Wead Historic Site, both owned by Chesterfield County, are located approximately 0.1 and 0.25 mile, respectively, from the Rebuild Project.

12. Other than those listed in items 1 through 11, the existing right-of-way does not cross any federal or state parks or forests, game preserves, Wildlife Management Areas, Conservation Sites, or Managed Conservation Lands.

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

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

Response: The Federal Aviation Administration ("FAA") is responsible for overseeing air transportation in the United States. The FAA manages air traffic in the United States and evaluates physical objects that may affect the safety of aeronautical operations through an obstruction evaluation. The prime objective of the FAA in conducting an obstruction evaluation is to ensure the safety of air navigation and the efficient utilization of navigable airspace by aircraft.

The FAA's website (https://oeaaa.faa.gov/oeaaa/external/portal.jsp) was reviewed to identify airports within 10 nautical miles of the proposed 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.

In an email dated August 31, 2020, the Virginia Department of Aviation (the "DOAv") stated that after review, it was determined that no portion of the proposed Rebuild Project is within 20,000 linear feet of a public use airport. This email is provided as Attachment 2.N.1 in the DEQ Supplement. The DOAv commented that a Form 7460 must be submitted to the FAA if any proposed transmission structures or the crane that will be used to remove or replace the structures will reach a height of 200 feet above the ground level ("agl"). The Company will file Form 7460 with the FAA for each proposed structure or crane that will exceed 200 feet agl.

Several private airports/helipads are located within 10 miles of the line and the Company will work with private entities as appropriate.

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

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

Response: The existing right-of-way to be used for the Rebuild Project does not cross any scenic Virginia byways. Use of the existing right-of-way minimizes or eliminates permanent incremental impacts at road crossings.

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

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

Response: As described in detail in Sections III.B and V.D of the Appendix, the Company solicited feedback from Chesterfield County regarding the proposed Rebuild Project. Below is a list of coordination that has occurred with municipal, state, and federal agencies:

- Coordination with the Corps, DEQ, and the Virginia Department of Transportation ("VDOT") will take place as appropriate to obtain necessary approvals for the Rebuild Project.

- A letter dated August 19, 2020, was submitted to Chesterfield County to describe the Rebuild Project and request comment. See Section V.D.

- A letter was submitted to the agencies listed in Section V.C on August 24, 2020, describing the Rebuild Project and requesting comment. (See Attachment 2 to the DEQ Supplement.)

- A Stage I Pre-Application Analysis has been prepared and was submitted to VDHR (Attachment 2.H.1 to the DEQ Supplement).

- In early September 2020, the Company solicited comments via letter from several federally recognized Native American tribes, including the Chickahominy, Eastern Chickahominy, Nansemond, Pamunkey, Rappahannock, and Upper Mattaponi, and several state recognized Native American tribes, including the Cheroenhaka, Mattaponi, Nottoway of Virginia, and Patawomeck. A copy of the letter template and project overview map are included as Attachment III.J.1.

See also Sections III.B, III.K and V.D of this Appendix, and the DEQ Supplement.

Dominion Energy Virginia
Electric Transmission
P.O. Box 26666, Richmond, VA 23261-6666
DominionEnergy.com

Sept. 8, 2020

Proposed Chesterfield-Allied Electric Transmission Partial Rebuild Project

At Dominion Energy, we are dedicated to finding the best solution for our long-term needs in the communities we serve. As a valued stakeholder with a vested interest in the community, we invite you to participate in the development of an electric transmission partial rebuild project along an existing transmission corridor.

After more than five decades of operation, weathering steel, lattice structures between our Chesterfield and Allied substations located in Chesterfield County need to be replaced in order to maintain reliability for our customers and bring facilities up to current standards. The 2.9-mile 230 kilovolt (kV) line is positioned within an existing corridor and requires no additional rights of way.

We are currently in the conceptual phase and are seeking input prior to submitting an application with the Virginia State Corporation Commission (SCC) in fall 2020. Doing so allows us to hear any concerns you may have as we work to meet the project's needs. Enclosed is a project overview map to help in your review.

We are committed to purposeful and early inclusion of tribal communities in our communication process. By reaching out early and encouraging meaningful conversation, we hope to keep tribal communities informed and engaged.

Please provide your comments by Sept. 23, 2020, so we have adequate time to review and consider your comments in our project design and as part of our SCC application. We appreciate your assistance as we move through the planning process.

Due to the ongoing public health concerns resulting from the spread of the coronavirus, we do not plan to host an in-person community event at this time. In lieu of our traditional open house, we will host two virtual community meetings at noon and again at 6 p.m. on Sept. 22, 2020. We encourage you to visit the project's dedicated webpage at DominionEnergy.com/chesterfieldallied for information on the meetings and to access details on the project.

If you would like any additional information, have any questions, or would like to set up a meeting to discuss the project, please do not hesitate to reach me at powerline@dominionenergy.com or by calling 888-291-0190. You may also contact Ken Custalow, our Tribal Liaison, at ken.custalow@dominionenergy.com or 804-837-2067.

Sincerely,

Tiffany Taylor-Minor
Communications Consultant
The Electric Transmission Project Team

Enclosure: Project Overview Map

cc Ken Custalow

Figure No.

1

Title

Project Overview Map

Client/Project 203401509

Dominion Energy Virginia
Chesterfield to Allied 230 kV Rebuild

Project Location

Chesterfield County, Virginia

Prepared by LJJ on 2020-06-29
TR by TPS on 2020-07-20
IR by CPG on 2020-07-21

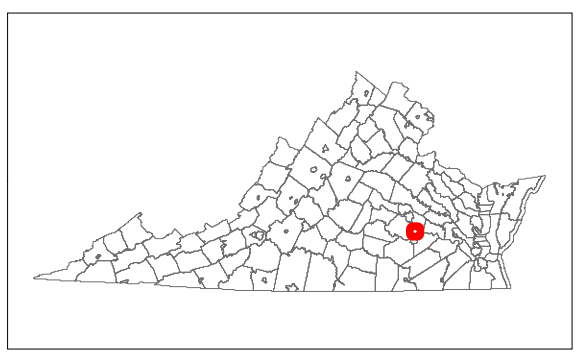
N

0 2,000 4,000 Feet

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

Existing Substation

Project Centerline



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

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

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

Response: In early September, the Company solicited comments via letter from the community leaders, environmental groups, business groups identified below. A copy of the letter template and overview map is included as Attachment III.K.1.

Name	Organization
Ms. Elizabeth S. Kostelny	Preservation Virginia
Mr. Thomas Gilmore	Civil War Trust
Mr. Jim Campi	Civil War Trust
Mr. Adam Gillenwater	Civil War Trust
Ms. Kym Hall	Colonial National Historical Park
Mr. Jack Gary	Council of Virginia Archaeologists
Ms. Leighton Powell	Scenic Virginia
Mr. Alexander Macaulay	Macaulay & Jamerson
Ms. Sharee Williamson	National Trust for Historic Preservation
Mr. Dan Holmes	Piedmont Environmental Council
Dr. Newby- Alexander, Dean	Norfolk State University
Mr. Roger Kirchen, Archaeologist	Virginia Department of Historic Resources
Ms. Adrienne Birge-Wilson	Virginia Department of Historic Resources
Mr. Dave Dutton	Dutton + Associates, LLC

Dominion Energy Virginia
Electric Transmission
P.O. Box 26666, Richmond, VA 23261-6666
DominionEnergy.com

Sept. 8, 2020

Proposed Chesterfield-Allied Electric Transmission Line Partial Rebuild Project

Dear ;

At Dominion Energy, we are dedicated to finding the best solution for our long-term needs in the communities we serve. As a valued stakeholder with a vested interest in the community, we invite you to participate in the development of an electric transmission line partial rebuild project along an existing transmission corridor.

After more than five decades of operation, weathering steel, lattice structures between our Chesterfield and Allied substations located in Chesterfield County need to be replaced to maintain reliability for our customers and bring facilities up to current standards. The 2.9-mile 230 kilovolt (kV) line is positioned within an existing corridor and requires no additional rights of way.

We are currently in the conceptual phase and are seeking input prior to submitting an application with the Virginia State Corporation Commission (SCC) in fall 2020. Doing so allows us to hear any concerns you may have as we work to meet the project's needs. Enclosed is a project overview map to help in your review. Please feel free to notify other relevant organizations that may have an interest in the project area. For reference, other recipients of this letter include countywide and statewide historic, cultural, and scenic organizations, as well as Native American tribes.

Please provide your comments by Sept. 25, 2020, so we have adequate time to review and consider your comments in our project design and as part of our SCC application. We appreciate your assistance as we move through the planning process.

Due to the ongoing public health concerns resulting from the spread of the coronavirus, we do not plan to host an in-person community event at this time. In lieu of our traditional open house, we will host two virtual community meetings at noon and again at 6 p.m. on Sept. 22, 2020. We encourage you to visit the project's dedicated webpage at DominionEnergy.com/chesterfieldallied for information on the meetings and to access details on the project.

If you have any specific questions or would like to set up a meeting to discuss the project, please do not hesitate to contact me by email at t.taylor-minor@dominionenergy.com or by calling 804-836-6390.

Sincerely,

Tiffany Taylor-Minor
Communications Consultant
The Electric Transmission Project Team

Enclosure: Project Overview Map

Figure No.

1

Title

Project Overview Map

Client/Project 203401509

Dominion Energy Virginia
Chesterfield to Allied 230 kV Rebuild

Project Location

Chesterfield County, Virginia

Prepared by LJJ on 2020-06-29
TR by TPS on 2020-07-20
IR by CPG on 2020-07-21

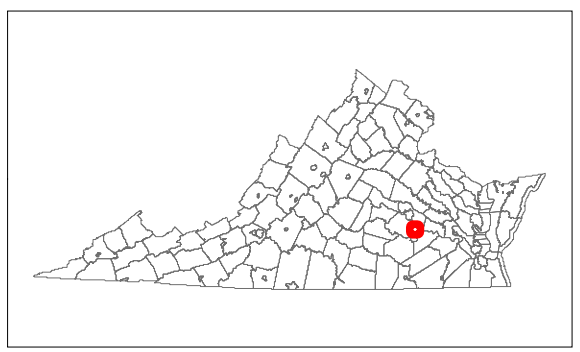
N

0 2,000 4,000 Feet

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

Existing Substation

Project Centerline



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

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

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

Response: See table below for potential permits anticipated for the proposed Rebuild Project.

Potential Permits

Activity	Permit	Agency
Impacts to wetlands and waters of the U.S.	Nationwide Permit 12	U.S. Army Corps of Engineers
Discharge of Stormwater from Construction	Construction General Permit	Virginia Department of Environmental Quality
Work within VDOT right-of-way	Land Use Permit	Virginia Department of Transportation

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

A. Provide the calculated maximum electric and magnetic field levels that are expected to occur at the edge of the ROW. If the new transmission line is to be constructed on an existing electric transmission line ROW, provide the present levels as well as the maximum levels calculated at the edge of ROW after the new line is operational.

Response: Public exposure to magnetic fields is best estimated by field levels from power lines calculated at annual average loading. For any day of the year, the electric and magnetic field ("EMF") levels associated with average conditions provide the best estimate of potential exposure. Maximum (peak) values are less relevant as they may occur for only a few minutes or hours each year.

This section describes the levels of EMF associated with the existing and proposed transmission lines. EMF levels are provided for both historical (2019) and future (2025) annual average and maximum (peak) loading conditions.

Existing Lines - Historical Average Loading

EMF levels were calculated for the existing lines at the ***historical average*** load condition (105 amps for Line #211, 135 amps for Line #228, and 234 amps for Line #2049) and at an operating voltage of 241.5 kV for the transmission lines when supported on the existing structures. See Attachment II.A.5.a and Attachment II.A.5.b.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical average load operating temperature.

EMF levels at the edge of the rights-of-way for the existing lines at the historical average loading:

Existing Lines - Historic Average Loading				
	Left Edge Looking Towards Str. 2049/36		**Right Edge Looking Towards Str. 2049/36**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.a	0.761	4.351	1.227	12.716

Existing Lines - Historical Peak Loading

EMF levels were calculated for the existing lines at the ***historical peak*** load condition (939 amps for Line #211, 860 amps for Line #228, and 584 amps for Line

#2049) and at an operating voltage of 241.5 kV for the transmission lines when supported on the existing structures. See Attachment II.A.5.a and Attachment II.A.5.b.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at an historical peak load operating temperature.

EMF levels at the edge of the rights-of-way for the existing lines at the historical peak loading:

Existing Lines - Historic Peak Loading				
	Left Edge Looking Towards Str. 2049/36		**Right Edge Looking Towards Str. 2049/36**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.a	0.754	32.528	1.228	32.829

Proposed Project - Historical Average Loading

EMF levels were calculated for the proposed Project at the ***historical average*** load condition (105 amps for Line #211, 135 amps for Line #228, and 234 amps for Line #2049) and at an operating voltage of 241.5 kV for the transmission lines when supported on the existing structures. See Attachment II.A.5.a and Attachment II.A.5.b.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical average load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Project at the historical average loading:

Proposed Lines - Historic Average Loading				
	Left Edge Looking Towards Str. 2049/36		**Right Edge Looking Towards Str. 2049/36**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b	0.808	6.988	1.100	14.392

Proposed Project - Historical Peak Loading

EMF levels were calculated for the proposed Project at the ***historical peak*** load condition (939 amps for Line #211, 860 amps for Line #228, and 584 amps for Line #2049) and at an operating voltage of 241.5 kV for the transmission lines when supported on the existing structures. See Attachment II.A.5.a and Attachment II.A.5.b.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a historical peak load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Project at the historical peak loading:

Proposed Lines - Historic Peak Loading				
	Left Edge Looking Towards Str. 2049/36		**Right Edge Looking Towards Str. 2049/36**	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b	0.801	42.435	1.102	36.850

Proposed Project - Projected Average Loading in 2025

EMF levels were calculated for the proposed Project at the ***projected average*** load condition (113 amps for Line #211, 145 amps for Line #228, and 251 amps for Line #2049) and at an operating voltage of 241.5 kV for the transmission lines when supported on the existing structures. See Attachment II.A.5.a and Attachment II.A.5.b.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a projected average load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Project at the projected average loading:

Proposed Lines - Projected Average Loading				
	Left Edge Looking Towards Str. 2049/36		Right Edge Looking Towards Str. 2049/36	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b	0.808	9.091	1.100	15.327

Proposed Project - Projected Peak Loading in 2025

EMF levels were calculated for the proposed Project at the ***projected peak*** load condition (1009 amps for Line #211, 924 amps for Line #228, and 627 amps for Line #2049) and at an operating voltage of 241.5 kV for the transmission lines when supported on the existing structures. See Attachment II.A.5.a and Attachment II.A.5.b.

These field levels were calculated at mid-span where the conductors are closest to the ground and the conductors are at a projected peak load operating temperature.

EMF levels at the edge of the rights-of-way for the proposed Project at the projected peak loading:

Proposed Lines - Projected Peak Loading				
	Left Edge Looking Towards Str. 2049/36		Right Edge Looking Towards Str. 2049/36	
Attachment	Electric Field (kV/m)	Magnetic Field (mG)	Electric Field (kV/m)	Magnetic Field (mG)
II.A.5.b	0.801	45.588	1.102	39.565

IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

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

Response: The conclusions of multidisciplinary scientific review panels assembled by national and international scientific agencies during the past two decades are the foundation of the Company's opinion that no adverse health effects will result from the operation of the proposed Rebuild Project. Each of these panels has evaluated the scientific research related to health and power-frequency EMF and provided conclusions that form the basis of guidance to governments and industries. The Company regularly monitors the recommendations of these expert panels to guide their approach to EMF.

Research on EMF and human health varies widely in approach. Some studies evaluate the effects of high, short-term EMF exposures not typically found in people's day-to-day lives on biological responses, while others evaluate the effects of common, lower EMF exposures found throughout communities. Studies also have evaluated the possibility of effects (e.g., cancer, neurodegenerative diseases, reproductive effects) of long-term exposure. Altogether, this research includes well over a hundred epidemiologic studies of people in their natural environment and many more laboratory studies of animals (*in vivo*) and isolated cells and tissues (*in vitro*). Standard scientific procedures, such as weight-of-evidence methods, were used by the expert panels assembled by agencies to identify, review, and summarize the results of this large and diverse research.

The reviews of EMF biological and health research have been conducted by numerous scientific and health agencies, including the European Health Risk Assessment Network on Electromagnetic Fields Exposure ("EFHRAN"), the International Commission on Non-Ionizing Radiation Protection ("ICNIRP"), the World Health Organization ("WHO"), the International Committee on Electromagnetic Safety ("ICES"), the Scientific Committee on Emerging and Newly Identified Health Risks ("SCENIHR") of the European Commission, and the Swedish Radiation Safety Authority ("SSM") [formerly the Swedish Radiation Protection Authority ("SSI")] (EFHRAN, 2010, 2012; ICNIRP, 2010; WHO, 2007; SCENIHR, 2009, 2015; SSM, 2015, 2016, 2018, 2019; ICES, 2019). The general scientific consensus of the agencies that have reviewed this research, relying on generally accepted scientific methods, is that the scientific evidence does not show that common sources of EMF in the environment, including transmission lines and other parts of the electric system, appliances, etc., are a cause of any adverse health effects. The WHO, for example, states on their website: "Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields" (WHO, 2020).

The most recent reviews on this topic include the 2015 report by SCENIHR and annual reviews published by SSM (e.g., for the years 2015, 2016, 2018, and 2019). These reports, similar to previous reviews, found that the scientific evidence does not confirm the existence of any adverse health effects caused by environmental or community exposure to EMF.

The WHO has recommended that countries adopt recognized international standards published the International Commission on Non-ionizing Radiation (ICNIRP) and the IEEE's International Committee on Electromagnetic Safety (ICES). Typical levels of EMF from Dominion's power lines outside its property and rights-of-way are far below the screening reference levels of EMF recommended for the general public and still lower than exposures equivalent to restrictions to limits on fields within the body (ICNIRP, 2010; ICES, 2019).

Thus, based on the conclusions of scientific reviews and the levels of EMF associated with the proposed Rebuild Project, the Company has determined that no adverse health effects are anticipated to result from the operation of the proposed Rebuild Project.

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IV. HEALTH ASPECTS OF ELECTROMAGNETIC FIELDS ("EMF")

C. Describe and cite any research studies on EMF the Applicant is aware of that meet the following criteria:

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

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

3. Have been subjected to peer review.

Response: The Virginia Department of Health ("VDH") conducted its most recent review and issued its report on the scientific evidence on potential health effects of extremely low frequency ("ELF") EMF in 2000: "[T]he Virginia Department of Health is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans."[10]

The continuing scientific research on EMF exposure and health has resulted in many peer-reviewed publications since 2000. The accumulating research results have been regularly and repeatedly reviewed and evaluated by national and international health, scientific, and government agencies. One of the most comprehensive and detailed reviews of the relevant scientific peer-reviewed literature was published by the WHO in 2007. The conclusion of the WHO, as currently expressed on its website, is consistent with the earlier VDH conclusions: "Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields."[11]

Research published in the peer-reviewed literature subsequent to the WHO report has been reviewed by several scientific organizations, including most notably:

- SCENIHR, a committee of the European Commission, that published its assessments in 2009 and 2015;

- The Swedish Radiation Safety Authority ("SSM"), formerly the Swedish Radiation Protection Authority ("SSI"), that has published annual reviews of the relevant peer-reviewed scientific literature since 2003, with its most recent

[10] *See* http://www.vdh.virginia.gov/content/uploads/sites/12/2016/02/highfinal.pdf.
[11] *See* http://www.who.int/peh-emf/about/WhatisEMF/en/index1.html.

review published in 2019; and,

- EFHRAN, that published its reviews in 2010 and 2012.

The above reviews provide detailed analyses and summaries of relevant recent peer-reviewed scientific publications. The conclusions of these reviews that the evidence overall does not confirm the existence of any adverse health effects due to exposure to EMF are consistent with the conclusions of the VDH and the WHO reports. With respect to the statistical association observed in some of the childhood leukemia epidemiologic studies, the most recent comprehensive review of the literature by SCENIHR, published in 2015, concluded that "no mechanisms have been identified and no support is existing [*sic*] from experimental studies that could explain these findings, which, together with shortcomings of the epidemiological studies prevent a causal interpretation" (SCENIHR, 2015, p. 16).

While research is continuing on multiple aspects of EMF exposure and health, many of the recent publications have focused on an epidemiologic assessment of the relationship between EMF exposure and childhood leukemia and neurodegenerative diseases. Of these, the following recent publications, published following the inclusion date (June 2014) for the SCENIHR (2015) report, provided additional evidence and contributed to clarification of previous findings. Overall, new research studies have not provided evidence to alter the previous conclusions of scientific and health organizations, including the WHO and SCENIHR.

Recent epidemiologic studies of EMF and childhood leukemia include:

- Bunch et al. (2015) assessed the potential association between residential proximity to high-voltage underground cables and development of childhood cancer in the United Kingdom largely using the same epidemiologic data as in a previously published study on overhead transmission lines (Bunch et al., 2014). No statistically significant associations or trends were reported with either distance to underground cables or calculated magnetic fields from underground cables for any type of childhood cancers.

- Pedersen et al. (2015) published a case-control study that investigated the potential association between residential proximity to power lines and childhood cancer in Denmark. The study included all cases of leukemia (n=1,536), central nervous system tumor, and malignant lymphoma (n=417) diagnosed before the age of 15 between 1968 and 2003 in Denmark, along with 9,129 healthy control children matched on sex and year of birth. Considering the entire study period, no statistically significant increases were reported for any of the childhood cancer types.

- Salvan et al. (2015) compared measured magnetic-field levels in the bedroom for 412 cases of childhood leukemia under the age of 10 and 587 healthy control children in Italy. Although the statistical power of the study was limited because of the small number of highly exposed subjects, no consistent statistical

associations or trends were reported between measured magnetic-field levels and the occurrence of leukemia among children in the study.

- Bunch et al. (2016) and Swanson and Bunch (2018) published additional analyses using data from an earlier study (Bunch et al., 2014). Bunch et al. (2016) reported that the association with distance to power lines observed in earlier years was linked to calendar year of birth or year of cancer diagnosis, rather than the age of the power lines. Swanson and Bunch (2018) re-analyzed data using finer exposure categories (e.g., cut-points of every 50-meter distance) and broader groupings of diagnosis date (e.g., 1960-1979, 1980-1999, and 2000-on) and reported no overall associations between exposure categories and childhood leukemia for the later time periods (1980 and on), and consistent pattern for time periods prior to 1980.

- Crespi et al. (2016) conducted a case-control epidemiologic study of childhood cancers and residential proximity to high-voltage power lines (60 kilovolts ["kV"] to 500 kV) in California. Childhood cancer cases, including 5,788 cases of leukemia and 3,308 cases of brain tumor, diagnosed under the age of 16 between 1986 and 2008, were identified from the California Cancer Registry. Controls, matched on age and sex, were selected from the California Birth Registry. Overall, no consistent statistically significant associations for leukemia or brain tumor and residential distance to power lines were reported .

- Kheifets et al. (2017) assessed the relationship between calculated magnetic-field levels from power lines and development of childhood leukemia within the same study population evaluated in Crespi et al. (2016). In the main analyses, which included 4,824 cases of leukemia and 4,782 controls matched on age and sex, the authors reported no consistent patterns, or statistically significant associations between calculated magnetic-field levels and childhood leukemia development. Similar results were reported in subgroup and sensitivity analyses. In two subsequent studies (Amoon et al., 2018a, 2019), the potential impact of residential mobility (i.e., moving residences between birth and diagnosis) on the associations reported in Crespi et al. (2016) and Kheifets et al. (2017) were examined. Amoon et al. (2019) concluded that while uncontrolled confounding by residential mobility had some impact on the association between EMF exposure and childhood leukemia, it was unlikely to be the primary driving force behind the previously reported associations.

- Amoon et al. (2018b) conducted a pooled analysis of 29,049 cases and 68,231 controls from 11 epidemiologic studies of childhood leukemia and residential distance from high-voltage power lines. The authors reported no statistically-significant association between childhood leukemia and proximity to transmission lines of any voltage. Among subgroup analyses, the reported associations were slightly stronger for leukemia cases diagnosed before 5 years of age and in study periods prior to 1980. Adjustment for various potential confounders (e.g., socioeconomic status, dwelling type, residential mobility) had little effect on the estimated associations.

- Kyriakopoulou et al. (2018) assessed the association between childhood acute leukemia and parental occupational exposure to social contacts, chemicals, and electromagnetic fields. The study was conducted at a major pediatric hospital in Greece and included 108 cases and 108 controls matched for age, gender, and ethnicity. Statistically non-significant associations were observed between paternal exposure to magnetic fields and childhood acute leukemia for any of the exposure periods examined (1 year before conception; during pregnancy; during breastfeeding; and from birth until diagnosis); maternal exposure was not assessed due to the limited sample size. No associations were observed between childhood acute leukemia and exposure to social contacts or chemicals.

- Auger et al. (2019) examined the relationship between exposure to EMF during pregnancy and risk of childhood cancer in a cohort of 784,000 children born in Quebéc. Exposure was defined using residential distance to the nearest high-voltage transmission line or transformer station. The authors reported statistically non-significant associations between proximity to transformer stations and any cancer, hematopoietic cancer, or solid tumors. No associations were reported with distance to transmission lines.

- Crespi et al. (2019) investigated the relationship between childhood leukemia and distance from high-voltage lines and calculated magnetic-field exposure, separately and combined, within the California study population previously analyzed in Crespi et al. (2016) and Kheifets et al. (2017). The authors reported that neither close proximity to high-voltage lines nor exposure to calculated magnetic fields alone were associated with childhood leukemia; an association was observed only for those participants who were both close to high-voltage lines (< 50 meters) and had high calculated magnetic fields (≥ 0.4 microtesla [i.e., 4 milligauss]). No associations were observed with low-voltage power lines (< 200 kV).

- Talibov et al. (2019) conducted a pooled analysis of 9,723 cases and 17,099 controls from 11 epidemiologic studies to examine the relationship between parental occupational exposure to magnetic fields and childhood leukemia. No statistically significant association was found between either paternal or maternal exposure and leukemia (overall or by subtype). No associations were observed in the meta-analyses.

Recent epidemiologic studies of EMF and neurodegenerative diseases include:

- Seelen et al. (2014) conducted a population-based case-control study in the Netherlands and included 1,139 cases diagnosed with amyotrophic lateral sclerosis ("ALS") between 2006 and 2013 and 2,864 frequency-matched controls. The shortest distance from the case' and control residences to the nearest high-voltage power line (50 kV to 380 kV) was determined by geocoding. No statistically significant associations between residential proximity to power lines with voltages of either 50 to 150 kV or 220 to 380 kV

and ALS were reported.

- Sorahan and Mohammed (2014) analyzed mortality from neurodegenerative diseases in a cohort of approximately 73,000 electricity supply workers in the United Kingdom. Cumulative occupational exposure to magnetic-fields was calculated for each worker in the cohort based on their job titles and job locations. Death certificates were used to identify deaths from neurodegenerative diseases. No associations or trends for any of the included neurodegenerative diseases (Alzheimer's disease, Parkinson's disease, and ALS) were observed with various measures of calculated magnetic fields.

- Koeman et al. (2015, 2017) analyzed data from the Netherlands Cohort Study of approximately 120,000 men and women who were enrolled in the cohort in 1986 and followed up until 2003. Lifetime occupational history, obtained through questionnaires, and job-exposure matrices on ELF magnetic fields and other occupational exposures were used to assign exposure to study subjects. Based on 1,552 deaths from vascular dementia, the researchers reported a statistically not significant association of vascular dementia with estimated exposure to metals, chlorinated solvents, and ELF magnetic fields. However, because no exposure-response relationship for cumulative exposure was observed and because magnetic fields and solvent exposures were highly correlated with exposure to metals, the authors attributed the association with ELF magnetic fields and solvents to confounding by exposure to metals (Koeman et al., 2015). Based on a total of 136 deaths from ALS among the cohort members, the authors reported a statistically significant, approximately two-fold association with ELF magnetic fields in the highest exposure category. This association, however, was no longer statistically significant when adjusted for exposure to insecticides (Koeman et al., 2017).

- Fischer et al. (2015) conducted a population-based case-control study that included 4,709 cases of ALS diagnosed between 1990 and 2010 in Sweden and 23,335 controls matched to cases on year of birth and sex. The study subjects' occupational exposures to ELF magnetic fields and electric shocks were classified based on their occupations, as recorded in the censuses and corresponding job-exposure matrices. Overall, neither magnetic fields nor electric shocks were related to ALS.

- Vergara et al. (2015) conducted a mortality case-control study of occupational exposure to electric shock and magnetic fields and ALS. They analyzed data on 5,886 deaths due to ALS and over 58,000 deaths from other causes in the United States between 1991 and 1999. Information on occupation was obtained from death certificates and job-exposure matrices were used to categorize exposure to electric shocks and magnetic fields. Occupations classified as "electric occupations" were moderately associated with ALS. The authors reported no consistent associations for ALS, however, with either electric shocks or magnetic fields, and they concluded that their findings did not support the hypothesis that exposure to either electric shocks or magnetic fields

explained the observed association of ALS with "electric occupations."

- Pedersen et al. (2017) investigated the occurrence of central nervous system diseases among approximately 32,000 male Danish electric power company workers. Cases were identified through the national patient registry between 1982 and 2010. Exposure to ELF magnetic fields was determined for each worker based on their job titles and area of work. A statistically significant increase was reported for dementia in the high exposure category when compared to the general population, but no exposure-response pattern was identified, and no similar increase was reported in the internal comparisons among the workers. No other statistically significant increases among workers were reported for the incidence of Alzheimer's disease, Parkinson's disease, motor neuron disease, multiple sclerosis, or epilepsy, when compared to the general population, or when incidence among workers was analyzed across estimated exposure levels.

- Vinceti et al. (2017) examined the association between ALS and calculated magnetic-field levels from high-voltage power lines in Italy. The authors included 703 ALS cases and 2,737 controls; exposure was assessed based on residential proximity to high-voltage power lines. No statistically significant associations were reported and no exposure-response trend was observed. Similar results were reported in subgroup analyses by age, calendar period of disease diagnosis, and study area.

- Checkoway et al. (2018) investigated the association between Parkinsonism[12] and occupational exposure to magnetic fields and several other agents (endotoxins, solvents, shift work) among 800 female textile workers in Shanghai. Exposure to magnetic fields was assessed based on the participants' work histories. The authors reported no statistically significant associations between Parkinsonism and occupational exposure to any of the agents under study, including magnetic fields.

- Jalilian et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of occupational exposure to magnetic fields and Alzheimer's disease. The authors reported a moderate, statistically significant overall association; however, they noted substantial heterogeneity among studies and evidence for publication bias.

- Gervasi et al. (2019) assessed the relationship between residential distance to overhead power lines in Italy and risk of Alzheimer's dementia and Parkinson's disease. The authors included 9,835 cases of Alzheimer's dementia and 6,810 cases of Parkinson's disease; controls were matched by sex, year of birth, and municipality of residence. A weak, statistically non-significant association was

[12] Parkinsonism is defined by Checkoway et al. (2018) as "*a syndrome whose cardinal clinical features are bradykinesia, rest tremor, muscle rigidity, and postural instability. Parkinson disease is the most common neurodegenerative form of [parkinsonism]"* (p. 887).

observed between residences within 50 meters of overhead power lines and both Alzheimer's dementia and Parkinson's disease, compared to distances of over 600 meters.

- Peters et al. (2019) examined the relationship between ALS and occupational exposure to both magnetic fields and electric shock in a pooled study of data from three European countries. The study included 1,323 ALS cases and 2,704 controls matched for sex, age, and geographic location; exposure was assessed based on occupational title and defined as low (background), medium, or high. Statistically significant associations were observed between ALS and ever having been exposed above background levels to either magnetic fields or electric shocks; however, no clear exposure-response trends were observed with exposure duration or cumulative exposure. The authors also noted significant heterogeneity in risk by study location.

- Huss et al. (2018) conducted a meta-analysis of 20 epidemiologic studies of ALS and occupational exposure to magnetic fields. The authors reported a weak overall association; a slightly stronger association was observed in a subset analysis of six studies with full occupational histories available. The authors noted substantial heterogeneity among studies, evidence for publication bias, and a lack of a clear exposure-response relationship between exposure and ALS.

- Röösli and Jalilian (2018) performed a meta-analysis using data from five epidemiologic studies examining residential exposure to magnetic fields and ALS. A statistically non-significant negative association was reported between ALS and the highest exposed group, where exposure was defined based on distance from power lines or calculated magnetic-field level.

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V. NOTICE

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

Response: A map showing the existing route to be used for the Rebuild Project is provided as Attachment V.A. A written description of the route is as follows:

The proposed route for the Rebuild Project is located within an approximately 2.9-mile right-of-way currently occupied by three existing overhead 230 kV transmission lines, including Line #2049. The existing transmission line right-of-way for the proposed route of the Rebuild Project, which is 175 feet wide, originates at Structure #2049/20, which is located on the eastern side of the intersection at Old Stage Road (State Route 732) and Old Bermuda Hundred Road (State Route 678) in Chesterfield County, Virginia, and then continues in a southeasterly direction along the easement for 2.9 miles, concluding at Structure #2049/37, which is located at the junction where Line #2049 and Lines #211/#228 diverge**.**

For the proposed Rebuild Project, the existing lattice towers are proposed to be replaced with new monopole structures. The minimum proposed structure height is approximately 80 feet, the maximum proposed structure height is approximately 110 feet, and the average proposed structure height is approximately 100 feet, based on preliminary conceptual design, excluding foundation reveal and subject to change based on final engineering design.

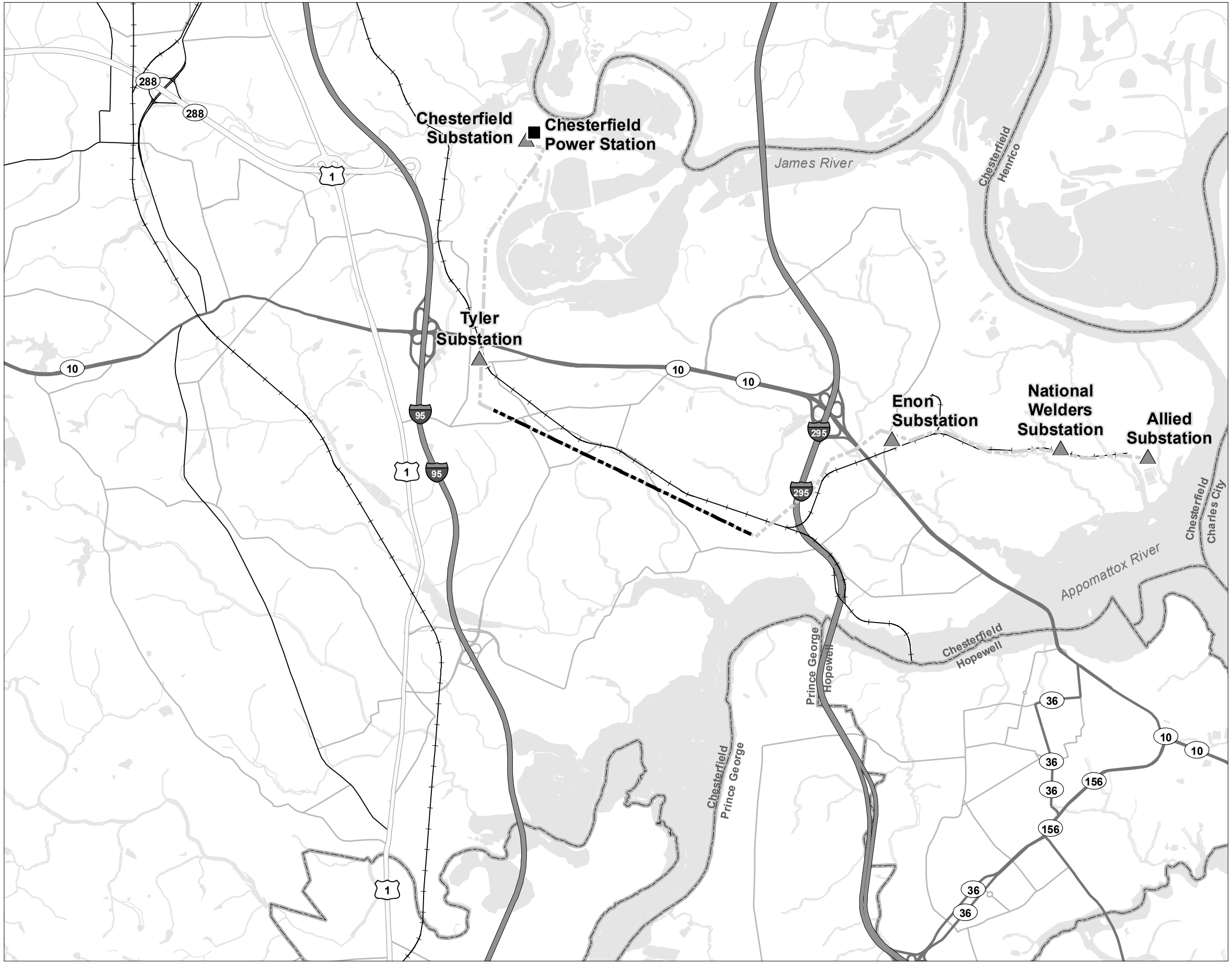


Figure No.

V.A.

Title

Notification Map

Client/Project 203401509

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

Project Location

Chesterfield County, Virginia

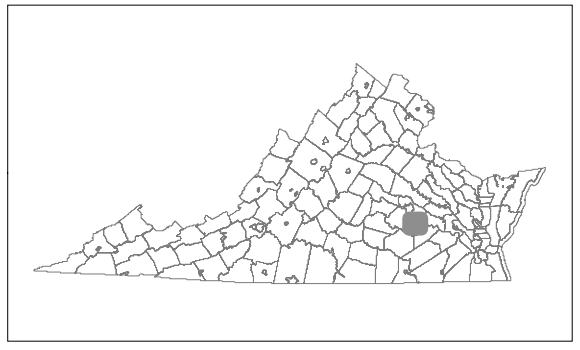
Prepared by LJJ on 2020-06-30
TR by TPS on 2020-07-20
IR by CPG on 2020-07-21

N

0 5,000 10,000 Feet

(At original document size of 11x17)
1:60,000

- Substation
- Power Station
- Project Centerline
- Line#2049
- Freeway or Other Major Road
- Major Road Less Important than a Freeway
- Other Major Road
- Secondary Road
- Local Connecting Road
- Important Local Road
- Railroad
- NHD Flowline
- NHD Waterbody



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia South FIPS 4502 Feet
2. Data Sources: Dominion Energy Virginia, Stantec, Substations exported from Ventyx, VA DCR Natural Heritage Program, USGS National Hydrography Dataset (NHD), USFWS National Wetlands Inventory (NWI)

Stantec

V. NOTICE

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

Response: Due to COVID-19, the Application will be made available electronically for public inspection at https://www.dominionenergy.com/chesterfieldallied.

V. NOTICE

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

Response:

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

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

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

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

Ms. Amy M. Ewing
Virginia Department of Wildlife Resources
7870 Villa Park, Suite 400
Henrico, Virginia 23228

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

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

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

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

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

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

Ms. Michelle Henicheck
Department of Environmental Quality
P.O. Box 1105
Richmond, Virginia 23218

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

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

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

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

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

Dr. Joseph P. Casey
Chesterfield County Administrator
PO Box 40
Chesterfield, Virginia 23832

V. NOTICE

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

Response: In accordance with Va. Code §15.2-2202 E, a letter dated August 19, 2020, was delivered to Dr. Joseph P. Casey, Administrator of Chesterfield County, where the Rebuild Project is located. The letter stated the Company's intention to file this Application and invited the County to consult with the Company about the Rebuild Project. This letter is included as Attachment V.D.1.

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

August 19, 2020
Dr. Joseph P. Casey
Chesterfield County Administrator
P.O. Box 40
Chesterfield, VA 23832

Reference: **Dominion Energy Virginia's Proposed 230 kV Transmission Line # 2049 Rebuild Project from Structure 2049/21 to Structure 2049/36 in Chesterfield County, Virginia.**

Dear Dr. Casey,

Dominion Energy Virginia is proposing the replacement of 230 kV weathering steel transmission towers starting at Structure 2049/21 and continuing to the Allied Junction (Structure 2049/36) in Chesterfield County, Virginia, entirely within existing Dominion Energy right-of-way. The existing bundled conductor and static lines are anticipated to be reused for the project. The project would rebuild approximately 2.9 miles of existing 230 kV transmission line located within cleared and maintained transmission line right-of-way. The Project is necessary to assure that Dominion Energy Virginia can maintain and improve reliable electric service to customers in Chesterfield County.

As the Project involves proposed work to an existing 230 kV transmission line, Dominion Energy Virginia is preparing an application for a certificate of public convenience and necessity from the State Corporation Commission (SCC). Pursuant to the Code of Virginia §15.2-2202, Dominion Energy Virginia is writing to notify Chesterfield County of the proposed project in advance of the SCC filing. The Company respectfully requests Chesterfield County submit any comments of additional information that would have bearing on the proposed project within 30 days of the date of this letter. If Chesterfield County would like to receive a GIS shapefile of the transmission line route to assist in the project review or if there are any questions, please do not hesitate to contact me at 804-273-3394 or Nancy.R.Reid@dominionenergy.com. Dominion Energy Virginia appreciates your assistance with this project review and looks forward to any additional information Chesterfield County may have to offer.

Sincerely,

Dominion Energy Virginia

Nancy Reid

Nancy R. Reid
Siting & Permitting Specialist, Environmental Services

Enclosure: Project Overview Map

Figure No.

1

Title

Project Overview Map

Client/Project 203401509

Dominion Energy Virginia
Chesterfield to Allied 230 kV Rebuild

Project Location

Chesterfield County, Virginia

Prepared by LJJ on 2020-06-29
TR by TPS on 2020-07-20
IR by CPG on 2020-07-21

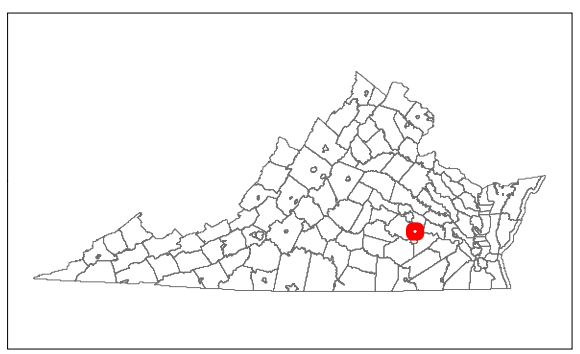
N

0 2,000 4,000 Feet

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

Existing Substation

Project Centerline



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

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