*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal PRograms 25 FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need Virginia Wildlife Action Plan Conservation Opportunity Ranking:

a - On the ground management strategies/actions exist and can be feasibly implemented.;

b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.;

c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.



Bat Colonies or Hibernacula: Not Known

Anadromo	Anadromous Fish Use Streams (1 records) View Map of All Anadromous Fish Use S				reams	
Stream ID Stream Name		Dooch Status	Anadro	Anadromous Fish Species		
Stream ID		Reach Status	Different Species	Highest TE [*]	Highest Tier ^{**}	view wiap
C92	James River 1	Confirmed	6		IV	Yes

Impediments to Fish Passage (2 records)

mp						
ID	Name	River	View Map			
1040	CHESTERFIELD POWER STATION	TR-JAMES RIVER	Yes			
1302	<u>I-95</u>	PROCTORS CREEK	Yes			

Colonial Water Bird Survey (4 records)

View Map of All Query Results Colonial Water Bird Survey

View Map of All

	NT			N Species		* 71
Colony_Name	N Obs	Latest Date	Different Species	Highest TE [*]	Highest Tier ^{**}	View Map
Western Shore, Chester, Chesterfield	1	May 4 2013	1			Yes
Western Shore, Drewrys Bluff, Chesterfield	2	May 4 2013	1			Yes
Henricus	1	Apr 28 2003	1			Yes
Aiken Swamp/Dutch Gap Cut	1	Jun 1 1993	1			Yes

Displayed 4 Colonial Water Bird Survey

Threatened and Endangered Waters (10 Read

(10 Reaches)

<u>View Map of All</u> <u>Threatened and Endangered Waters</u>

		T&E Waters Species	~ ~.
Stream Name	Highest	ب ب	View Man
	TE Î	BOVA Code, Status [°] , Tier ^{°°} , Common & Scientific Name	map

VAFWIS Seach Report

						Attachment 2.F.	.1
<u>James River (0161402</u>)	FESE	010032	FESE	Ib	<u>Sturgeon,</u> <u>Atlantic</u>	Acipenser Page 13 of 2 oxyrinchus	5 <u>Yes</u>
James River (0163242)	FESE	010032	FESE	Ib	<u>Sturgeon,</u> <u>Atlantic</u>	Acipenser oxyrinchus	<u>Yes</u>
<u>James River (0163551</u> <u>)</u>	FESE	010032	FESE	Ib	<u>Sturgeon,</u> <u>Atlantic</u>	Acipenser oxyrinchus	<u>Yes</u>
James River (0163753)	FESE	010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus	Yes
<u>James River (0167412</u> <u>)</u>	FESE	010032	FESE	Ib	<u>Sturgeon,</u> <u>Atlantic</u>	Acipenser oxyrinchus	Yes
<u>James River (0169802</u> <u>)</u>	FESE	010032	FESE	Ib	<u>Sturgeon,</u> <u>Atlantic</u>	Acipenser oxyrinchus	Yes
<u>James River (0171573</u> <u>)</u>	FESE	010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus	Yes
<u>James River (0174220</u> <u>)</u>	FESE	010032	FESE	Ib	<u>Sturgeon,</u> <u>Atlantic</u>	Acipenser oxyrinchus	Yes
James River (0179857)	FESE	010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus	Yes
<u>James River (0185318</u> <u>)</u>	FESE	010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus	<u>Yes</u>

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests (4 records)

View Map of All Query Results Bald Eagle Nests

Nest	N Obs	Latest Date	DGIF Nest Status	View Map
CD0804	7	Apr 18 2011	Unknown	Yes
CD1103	2	Apr 18 2011	Unknown	Yes
<u>CD9901</u>	22	Apr 18 2011	UNKNOWN	Yes
HE0801	8	Apr 18 2011	Unknown	Yes

Displayed 4 Bald Eagle Nests

Habitat Predicted for Aquatic WAP Tier I & II Species

N/A

Habitat Predicted for Terrestrial WAP Tier I & II Species

BOVA Code	Status*	Tier**	Common Name	Scientific Name	View Map
040105		IIb	<u>Rail, king</u>	Rallus elegans	Yes

Public Holdings: (1 names)

Name	Agency	Level
Richmond National Battlefield Park	National Park Service	Federal

Compiled on 2/12/2019, 11:00:27 AM 1959543.0 report=IPA searchType= L dist= 3218 poi= 37,22,51.6 -77,23,13.9 siteDD= 37.3810277 -77.3872221;37.3777222 -77.3864443;;37.3760000 -77.3865276;;37.3675555 -77.3939988;;37.3485555 -77.3954165

PixelSize=64; Anadromous=0.04163; BECAR=0.028581; Bats=0.02539; Buffer=0.164448; County=0.107903; Impediments=0.039388; Init=0.229615; PublicLands=0.054589; SppObs=0.357272; TEWaters=0.056375; TierReaches=0.043039; TierTerrestrial=0.084649; Total=1.304717; Tracking_BOVA=0.188759; Trout=0.033836



	Map projection is UTM Zone 18 NAD 1983 with left 283478 and top 4142820. Pixel size i Coordinates displayed are Degrees, Minutes, Seconds North and West.Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixles. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet east to west by 31501 feet north to south for a total of 35.5 square miles.
	Topographic maps and Black and white aerial photography for year 1990+- are from the United States Department of the Interior United States Geological Survey
	Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.
	Shaded topographic maps are from TOPO! ©2006 National Geographic http://www.national.geographic.com/topo
	All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.
	map assembled 2019-02-12 11:05:53 (qa/qc March 21, 2016 12:20 - tn=959543.1 dist=3218 I) \$poi=37.3810000 -77.3871944
DGIF	Credits Disclaimer Contact vafwis_support@dgif.virginia.gov Please view our privacy policy © 1998- 2019 Commonwealth of Virginia Department of Game and Inland Fisheries

0			
	0		0

Submit Query

Attachment 2.F.1 Page 17 of Threatened and Virginia Fish and Wildlife VIRGINIA **Endangered Waters** Information Service where Sturgeon, Atlantic (010032) observed back Refresh Browser Page Size Big Map Zoom Pan Map In Out Screen Small Help 37,22,51.6 -77,23,13.9 Click Size Scale is the Search Point Show Position Rings Bellwood Ma O Yes O No 2 20 1 mile and 1/4 mile at the Search Point Show Search Area O Yes O No **R**I Search distance miles 2 buffer Search Point is not Display at map center at center Base Map Choices Topography Map Overlay Choices Current List: Search, TEWaters, Position Map Overlay Legend T & E Waters amers Federal State nd Inland Fishe **Position Rings** 1 mile and 1/4 mile at the Search Point 2 mile radius Search Area 4 Miles Point of Search 37,22,51.6 -77,23,13.9 Map Location 37,21,53.1 -77,23,27.0 Select Coordinate System: O Degrees, Minutes, Seconds Latitude - Longitude O Decimal Degrees Latitude - Longitude O Meters UTM NAD83 East North Zone O Meters UTM NAD27 East North Zone Base Map source: USGS 1:100,000 topographic maps (see Microsoft terraserver-usa.com for details)

varwis Map	VaFWI	S Map	
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Bage 18 of 25 Map projection is UTM Zone 18 NAD 1983 with left 283478 and top 4142820. Pixel size i Coordinates displayed are Degrees, Minutes, Seconds North and West.Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixles. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet east to west by 31501 feet north to south for a total of 35.5 square miles. Topographic maps and Black and white aerial photography for year 1990+are from the United States Department of the Interior, United States Geological Survey. Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network. Shaded topographic maps are from TOPO! ©2006 National Geographic http://www.national.geographic.com/topo All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries. map assembled 2019-02-12 11:07:36 (qa/qc March 21, 2016 12:20 - tn=959543.1 dist=3218 I) \$poi=37.3810000 -77.3871944 | DGIF | Credits | Disclaimer | Contact vafwis support@dgif.virginia.gov |Please view our privacy policy | © 1998- 2019 Commonwealth of Virginia Department of Game and Inland Fisheries

0			
	0		0

Submit Query







2/12/2019 3:09:37 PM

Tri-colored and Little Brown Hibernaculum Half Mile Buffer

Tri-colored and Little Brown Hibernaculum 5.5 Mile Buffer

Attraction of the set of the set

40 mi

10

0

Natural Heritage Resources

Your Criteria

Taxonomic Group: Select All

Federal Legal Status: LE - Listed endangered, LT - Listed threatened

State Legal Status: LE - Listed endangered, LT - Listed threatened

County: Chesterfield

Watershed (8 digit HUC): 02080206 - Lower James River

Subwatershed (12 digit HUC): JL03 - James River-Proctors Creek, JL06 - James River-Curles Creek

Search Run: 2/12/2019 13:16:34 PM Result Summary

Total Species returned: 2

Total Communities returned: 0

Click scientific names below to go to NatureServe report.

Click column headings for an explanation of species and community ranks.

Common S	Scientific	Global	<u>State</u>	Federal Legal	State Legal	Statewide	Virginia
Name/Natural N	Jame	Conservation	Conservation	<u>Status</u>	Status	Occurrences	Coastal Zone
Community		Status Rank	Status Rank				
Chesterfield							
Lower James							
James River-Curl	les Creek						
FISH							
Atlantic <u>A</u>	Acipenser	G3	S2	LE	ГЕ	2	×
Sturgeon 0	xyrinchus						
VASCULAR PLAI	NTS						
Sensitive Joint- A	Aeschynomen	G2	S2	LT	LT	22	×
vetch <u>e</u>	s virginica						

Note: On-line queries provide basic information from DCR's databases at the time of the request. They are NOT to be substituted for a project review or for on-site surveys required for environmental assessments of specific project areas.

For Additional Information on locations of Natural Heritage Resources please submit an information request.

To Contribute information on locations of natural heritage resources, please fill out and submit a rare species sighting form.



CCB Mapping Portal

VA Eagle Nest Locations + VA Eagle Nest Buffer



VA Eagle Nest Buffer Maximum = 660'

Attachment 2.F.1 Page 23 of 25



Colonial Waterbirds 2013

Zoom to Extents

A systematic aerial and ground survey of colonial waterbirds in coastal Virginia during the 2013 breeding season. Nearly 800 surveys were conducted of 496 colonies and 24 species. More info (http://www.ccbbirds.org/what-we-do/research/species-of-concern/species-of-concern-projects/va-colonial-waterbird-survey/2013-virginia-colonial-waterbird-survey/) Black Skimmer

Black-crowned Night-Heron Brown Pelican Caspian Tern Cattle Egret Common Tern Double-crested Cormorant Forster's Tern Glossy Ibis Great Black-backed Gull Great Blue Heron Great Egret Gull-billed Tern Herring Gull Laughing Gull Least Tern Little Blue Heron Royal Tern Sandwich Tern Snowy Egret Tricolored Heron White Ibis Yellow-crowned Night-Heron Colonial Waterbirds 2008 Zoom to Extents A systematic aerial and ground survey of colonial waterbirds in coastal Virginia during the 2008 breeding season. More than 800 surveys were conducted of 446 colonies and 24 species. COLONIAL WATERBIRDS 2013 More info (http://www.ccbbirds.org/what-we-do/research/species-of-concern/species-of-concern-projects/va-colonial-waterbird-survey/) FEWER SPECIES MORE SPECIES Black Skimmer Black-crowned Night-Heron Brown Pelican Caspian Tern (http://www.dartodb.com)

Cattle Egret Common Tern Double-crested Cormorant Forster's Tern Glossy Ibis Great Black-backed Gull Great Blue Heron Great Egret Green Heron Gull-hilled Tern Herring Gull Laughing Gull Least Tern Little Blue Heron Mixed Herons Royal Tern Snowy Egret Tricolored Heron White Ibis Yellow-crowned Night-Heron Colonial Waterbirds 2003 Zoom to Extents A systematic aerial and ground survey of colonial waterbirds in coastal Virginia during the 2003 breeding season. Nearly 550 surveys were conducted of 250 colonies and 24 species. More info (http://www.ccbbirds.org/what-we-do/research/species-of-concern/species-of-concern-projects/va-colonial-waterbird-survey/) Black Skimmer Black-crowned Night-Heron Brown Pelican Caspian Tern Cattle Egret Common Tern Double-crested Cormorant Forster's Tern Glossy Ibis Great Black-backed Gull Great Blue Heron Great Egret Gull-billed Tern Herring Gull Laughing Gull Least Tern Little Blue Heron Mixed Herons Royal Tern Sandwich Tern Snowy Egret Tricolored Heron White Ibis Yellow-crowned Night-Heron Osprev OspreyWatch Nests Zoom to Extents OspreyWatch is a global community of observers focused on breeding osprey. Volunteers provide nest locations and activity reports during the breeding season. More info (http://www.osprey-watch.org/) Chesapeake Bay Osprey Nests 1995-1996 Zoom to Extents Osprey nests were surveyed by boat in the tidal portions of the Chesapeake Bay during the 1995 and 1996 breeding seasons. The Chesapeake Bay supports one of the largest osprey breeding populations in the world. More info (http://www.ccbbirds.org/what-we-do/research/species-of-concern/species-of-concern-projects/chesapeake-osprey-survey-1995/) Nightjars Nightjar Survey Network Routes Zoom to Extents The U.S. Nightjar Network is a nationwide program where volunteers monitor the abundance and distribution of declining Nightjar species. On scheduled bright moonlit nights, participants conduct 10 roadside counts along a 9-mile route. At each point, the observer counts all Nightjars seen or heard during a 6-minute period. More info (http://www.nightjars.org/) undefined Toggle Draw Tools Generate Link Print Report Search Toggle Legends Colonial Waterbirds 2013

Matthew J. Strickler Secretary of Natural Resources

Clyde E. Cristman Director



COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Attachment 2.F.2 Page 1 of 2 Rochelle Altholz Deputy Director of Administration and Finance

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

Thomas L. Smith Deputy Director of Operations

January 9, 2020

Mitch Dannon Stantec Consulting Services, Inc. 5209 Center Street Williamsburg, VA 23188

Re: 203401247, Chesterfield Tyler 230 kV Partial Rebuild

Dear Mr. Dannon:

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

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

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

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

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

A fee of \$90.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR** - **Division of Natural Heritage, 600 East Main Street, 24th Floor, Richmond, VA 23219.** Payment is due within thirty days of the invoice date. <u>Please note the change of address for remittance of payment as of July 1, 2013.</u> Late payment may result in the suspension of project review service for future projects.

600 East Main Street, 24th Floor | Richmond, Virginia 23219 | 804-786-6124

State Parks • Soil and Water Conservation • Outdoor Recreation Planning Natural Heritage • Dam Safety and Floodplain Management • Land Conservation The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <u>http://vafwis.org/fwis/</u> or contact Ernie Aschenbach at 804-367-2733 or <u>Ernie.Aschenbach@dgif.virginia.gov</u>.

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

Sincerely,

Tyle Meade

Tyler Meader Natural Heritage Locality Liaison

Stantec

STAGE I PRE-APPLICATION ANALYSIS FOR THE PROPOSED DOMINION ENERGY VIRGINIA CHESTERFIELD-TYLER 230 kV PARTIAL REBUILD PROJECT, CHESTERFIELD COUNTY, VIRGINIA

December 16, 2019

Prepared for:

Dominion Energy Virginia Attention: Amanda Mayhew 10900 Nuckols Road 4th Floor Glen Allen, VA 23060 (804) 771-6145

Prepared by:

Sandra DeChard Senior Architectural Historian

and

Ellen Brady Senior Principal Investigator

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

Sign-off Sheet

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

Prepared by

(signature)

Sandra DeChard, Senior Architectural Historian

GSA.I

Reviewed by

(signature)

Brynn Stewart, Principal Investigator

Approved by

(signature)

Corey Grey, Senior Environmental Scientist

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- APPENDIX C: PHOTOGRAPH KEY
- **APPENDIX D: PHOTOSIMULATIONS**

APPENDIX E: ARCHAEOLOGICAL RESOURCES MAP

Executive Summary

Stantec Consulting Services Inc. (Stantec) was retained by Dominion Energy Virginia (Dominion Energy) to conduct a Stage I Pre-Application Analysis for the proposed partial rebuild of the Chesterfield-Tyler 230 kV Transmission Line (Chesterfield-Tyler) in Chesterfield County, Virginia. The project proposed by Dominion Energy is necessary in order to maintain the structural integrity and reliability of its transmission system and to comply with mandatory North American Electric Reliability Corporation (NERC) Reliability Standards. The project will be conducted entirely within an existing right-of-way (ROW) and consists of approximately 3.0 miles of existing 230 kV transmission line from the Chesterfield Power Station to approximately 0.5 miles south of the existing Tyler Substation. The Chesterfield-Tyler Line consists of two 230 kV circuits, Line #205 and Line #2003, co-located on double circuit structures. The rebuild of the Chesterfield-Tyler line will require the tear-down and replacement of 24 230 kV lattice and one concrete monopole structures with double circuit steel monopoles. Two structures will be added to the line (#205/15A and #205/16A). All proposed structure heights and locations provided in this report are based upon preliminary engineering and are subject to final design. Based on this information, the proposed project will increase the average structure height by 1 foot with a maximum structure height increase of 8 feet. Two (2) existing structures (#205/1A and #2003/21A) will be replaced at the same height.

Background research for the Stage I Pre-Application Analysis was conducted in January 2019 by Stantec staff. The preliminary background research and the field study was conducted pursuant to the *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (Virginia Department of Historic Resources [VDHR] 2008) for proposed transmission line improvements.

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

Recommendations

Architectural Resources

No NHL-listed architectural resources were located within the 1.5-mile radius of the project centerline. One NRHP-listed resource and eight battlefield resources were identified within the 1.0-mile radius. One of the battlefield resources, the Howlett Line (VDHR #020-0232/043-0033-0059), determined potentially eligible by VDHR, was evaluated during the current project as the resource is contributing to the Richmond National Battlefield Park (VDHR #043-0033). As the study was completed prior to filing a State Corporation Commission (SCC) application, all digital images were taken from public ROW and/or Dominion Energy easements.

Based on preliminary proposed structure heights, the proposed partial rebuild of the Chesterfield-Tyler 230 kV transmission line would increase the average structure height by 1 foot with a maximum structure height increase of 8 feet. Based on the analysis of the proposed structures, it is recommended that the rebuild would have No Effect to two architectural resources and a Minimal Visual Impact to seven architectural resources.

Goldennes									
VDHR #	Resource Name	VDHR/NRHP Status	Distance to Centerline (Feet)	Impact					
020-0121	Osborne's Naval Battle Site	NRHP-Eligible	1,512	None					
020-0232/ 043-0033-0059	Howlett Line/Parker's Battery/Parker's Battery Earthworks	Potentially Eligible	24	Minimal					
020-5317/ VA 047	Port Walthall Junction Battlefield, Indian Hills Road	NRHP-Eligible	3,808	Minimal					
020-5318/ VA 050	Swift Creek Battlefield/Arrowfield Church	Potentially Eligible	3,716	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	16	Minimal					
043-0307/ VA 075	Battle of Chaffin's Farm/New Market Heights Battlefield	Potentially Eligible	3,755	None					
123-5025/ VA 063	Assault on Petersburg/Petersburg Battlefield II	Potentially Eligible	3,336	Minimal					

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

Archaeological Resources

Eight previously recorded archaeological resources were identified either within or immediately adjacent to the project ROW. One resource, Site 44CF0578, Civil War earthworks, has been determined potentially eligible and one resource, Site 44CF0102, Osbornes Town Site, has been determined eligible for listing on the NRHP by VDHR. The remaining six sites are currently unevaluated. *It is recommended that archaeological sites located within the ROW be investigated and evaluated as appropriate during future investigations.*

Previously Recorded Archeological Resources Considered under the Stage I Pre-Applicatio	n
Guidelines	

VDHR #	Resource Name	VDHR/NRHP Status	Distance to ROW (Feet)	Impact
44CF0102	Woodland Site; 18 th Century Osbornes Town Site	Eligible	0	Investigate During Archaeological Survey
44CF0124	Prehistoric Camp; Indeterminate 18 th Century Historic Site	Not Evaluated	0	Investigate During Archaeological Survey
44CF0125	Indeterminate 18 th Century Site; 19 th Century Trash Pit	Not Evaluated	0	Investigate During Archaeological Survey
44CF0127	Historic Road/Bridge	Not Evaluated	0	Investigate During Archaeological Survey
44CF0128	Prehistoric Camp; Indeterminate 18 th Century Historic Site	Not Evaluated	0	Investigate During Archaeological Survey
44CF0129	Prehistoric Camp; Indeterminate Quarry	Not Evaluated	0	Investigate During Archaeological Survey
44CF0130	Indeterminate Prehistoric Camp; 19 th Century Dwelling; Poss. 17 th Century Hospital	Not Evaluated	0	Investigate During Archaeological Survey
44CF0578	Civil War Earthworks	Potentially Eligible	0	Investigate During Archaeological Survey

Abbreviations

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

1.0 INTRODUCTION

1.1 OVERVIEW

Stantec Consulting Services Inc. (Stantec) was retained by Dominion Energy Virginia (Dominion Energy) to conduct a Stage I Pre-Application Analysis for the proposed partial rebuild of the Chesterfield-Tyler 230 kV Transmission Line (Chesterfield-Tyler) in Chesterfield County, Virginia. The project proposed by Dominion Energy is necessary in order to maintain the structural integrity and reliability of its transmission system and to comply with mandatory North American Electric Reliability Corporation (NERC) Reliability Standards. The project will be conducted entirely within an existing right-of-way (ROW) and consists of approximately 3.0 miles of existing 230 kV transmission line from the Chesterfield Power Station to approximately 0.5 miles south of the existing Tyler Substation. The Chesterfield-Tyler Line consists of two 230 kV circuits, Line #205 and Line #2003, co-located on double circuit structures. The rebuild of the Chesterfield-Tyler line will require the tear-down and replacement of 24 230 kV lattice and one concrete monopole structures with steel monopoles. Three structures will be added to the line (#205/16; #205/16B, and #211/16B,#2003/21). All proposed structure heights and locations provided in this report are based upon preliminary engineering and are subject to final design. Based on this information, the proposed project will increase the average structure height by 3 feet with a maximum structure height increase of 14 feet (Table 1).

Existing Structure No.	Height (FT) Existing ¹	Proposed Structure No.	Height (FT) Proposed ^{1,2}	Approximate Change in Height (FT)	Existing/Proposed Structure Type
205/1B & 2003/1A ³	65	205/1B	65	0	Backbone
205/1A, 208/97 ³	105	205/1A	105	0	Monopole
205/1C, 211/1 ³	100	205/1C	100	0	Lattice Tower
2003/1	57	2003/1	65	8	Lattice Tower/Monopole
2003/2	57	2003/2	65	7	Lattice Tower/Monopole
2003/3	61	2003/3	60	-1	Lattice Tower/Monopole
2003/4	42	2003/4	50	8	Lattice Tower/Monopole
2003/5	61	2003/5	75	14	Lattice Tower/Monopole
205/1, 2003/6	105	205/1, 2003/6	110	5	Lattice Tower/Monopole
205/2, 2003/7	115	205/2, 2003/7	116	1	Lattice Tower/Monopole
205/3, 2003/8	116	205/3, 2003/8	120	4	Lattice Tower/Monopole
205/4, 2003/9	124	205/4, 2003/9	125	1	Lattice Tower/Monopole
205/5, 2003/10	109	205/5, 2003/10	111	2	Lattice Tower/Monopole
205/6, 2003/11	111	205/6, 2003/11	115	4	Lattice Tower/Monopole

Table 1. Structure Heights – Chesterfield-Tyler Partial Repuild

Existing Structure No.	Height (FT) Existing ¹	Proposed Structure No.	Height (FT) Proposed ^{1,2}	Approximate Change in Height (FT)	Existing/Proposed Structure Type
205/7, 2003/12	116	205/7, 2003/12	120	4	Lattice Tower/Monopole
205/8, 2003/13	106	205/8, 2003/13	110	4	Lattice Tower/Monopole
205/9, 2003/14	106	205/9, 2003/14	110	4	Lattice Tower/Monopole
205/10, 2003/15	131	205/10, 2003/15	130	-1	Lattice Tower/Monopole
205/11, 2003/16	134	205/11, 2003/16	135	1	Lattice Tower/Monopole
205/12, 2003/17	126	205/12, 2003/17	130	4	Lattice Tower/Monopole
205/13, 2003/18	116	205/13, 2003/18	125	9	Lattice Tower/Monopole
205/14, 2003/19	131	205/14, 2003/19	135	4	Lattice Tower/Monopole
205/15, 2003/20	131	205/15, 2003/20	135	4	Lattice Tower/Monopole
205/16, 2003/21	131	205/15A, 2003/20A	130	-1	Lattice Tower/Monopole
-	_	205/16	105	-	-/Monopole
-	-	205/16B ⁴	25	-	-/Switch
-	-	211/16B, 2003/21	105	-	-/Monopole
211/16A, 2003/21A ³	95	211/16A, 2003/21A	95	-	Backbone
205/16A ³	52	205/16A	52	-	Backbone
205/17, 2003/22	131	205/17, 2003/22	130	-1	Lattice Tower/Monopole
205/18, 2003/23	116	205/18, 2003/23	115	-1	Lattice Tower/Monopole
205/19, 2003/24	160	205/19, 2003/24	160	0	Lattice Tower/Monopole
205/19A, 2003/25	140	205/19A, 2003/25	141	1	Lattice Tower/2-Pole
Minimum Existing Height (FT)	42	Minimum Proposed Height (FT)	50	Minimum Height Change (FT)	-1
Maximum Existing Height (FT)	160	Maximum Proposed Height (FT)	160	Maximum Height Change (FT)	14
Average Existing Height (FT)	109	Average Proposed Height (FT)	112	Average Height Change (FT)	3

1. Heights are rounded to the nearest foot and do not include the foundational reveal.

2. The heights of the proposed structures are preliminary and subject to final engineering by Dominion Energy.

3. Structures in bold will remain and are not included in the minimum, maximum, or average heights.

4. New switch structure height not included in minimum, maximum, or average heights.

1.2 STAGE I PRE-APPLICATION ANALYSIS

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

As detailed by VDHR guidance, consideration was given to National Historic Landmarks (NHL) properties located within a 1.5-mile radius of the project centerline; National Register of Historic Places (NRHP)-listed properties, battlefields, and historic landscapes located within a 1.0-mile radius of the project centerline; NRHP-eligible sites located within a 0.5-mile radius of the project centerline; and archaeological sites located within the project ROW. This document includes a viewshed analysis to address potential visual impacts to the eight resources considered during the Stage I study. Since Osbourne's Naval Battle is considered significant as an archaeological resource and not an architectural resource, a viewshed analysis was not conducted for this resource.

This Stage I Pre-Application Analysis project was directed by Senior Principal Investigator Ellen Brady and the report authored by Senior Architectural Historian Sandra DeChard. Ms. DeChard also conducted the visual effects survey with Architectural Technician, Jody Kutzler. Perron Singleton photographed the resource viewsheds during the fieldwork and Chuck Lounsberry prepared the photo simulations (see Appendix C). Visual modeling was prepared by GIS Specialist, Perron Singleton and support graphics were prepared by GIS Analysist Lauren Berryman.



Disclaimer. This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

2.0 BACKGROUND RESEARCH

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

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

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

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

2.1 RESULTS OF THE BACKGROUND RESEARCH

2.1.1 Architectural Resources

No NHL-listed architectural resources were located within the 1.5-mile radius of the transmission line ROW centerline. One NRHP-listed and one NRHP-eligible resource and five battlefield resources were identified within the 1.0-mile radius. One additional resource, the Howlett Line (VDHR #020-0232/043-0033-0059), determined potentially eligible by VDHR, was evaluated during the current project as the resource is contributing to the Richmond National Battlefield Park (VDHR #043-0033). See Table 3 for a listing of the architectural resources within the project area.

VDHR #	Resource Name	VDHR/NRHP Status	Distance to Centerline (Feet)
020-0121	Osborne's Naval Battle Site	NRHP-Eligible	1,512
020-0232/ 043-0033-0059	Howlett Line/Parker's Battery/Parker's Battery Earthworks	Potentially Eligible	24
020-5317/ VA 047	Port Walthall Junction Battlefield, Indian Hills Road	NRHP-Eligible	3,808
020-5318/ VA 050	Swift Creek Battlefield/Arrowfield Church	Potentially Eligible	3,716
020-5319/ VA 054	Ware Bottom Church Battlefield	Potentially Eligible	0
020-5320/ VA 053	Proctor's Creek Battlefield/ Drewry's Bluff (2nd) Battlefield/ Fort Darling/ Fort Drewry	Potentially Eligible	0
043-0033	Richmond National Battlefield Park	NRHP-Listed	16
043-0307/ VA 075	Battle of Chaffin's Farm/New Market Heights Battlefield	Potentially Eligible	3,755
123-5025/ VA 063	Assault on Petersburg/Petersburg Battlefield II	Potentially Eligible	3,336

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

2.1.2 Archaeological Resources

Eight previously recorded archaeological resources were identified either within or immediately adjacent to the project ROW. One resource, Site 44CF0578, Civil War earthworks, has been determined potentially eligible and one resource, Site 44CF0102, Osbornes Town Site, has been determined eligible for listing on the NRHP by VDHR. The remaining six sites are currently unevaluated (Table 4; Appendix E).

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

VDHR #	Resource Name	VDHR/NRHP Status	Distance to ROW (Feet)
44CF0102	Woodland Site; 18 th Century Osbornes Town Site	Eligible	0
44CF0124	Prehistoric Camp; Indeterminate 18 th Century Historic Site	Not Evaluated	0
44CF0125	Indeterminate 18 th Century Site; 19 th Century Trash Pit	Not Evaluated	0
44CF0127	Historic Road/Bridge	Not Evaluated	0
44CF0128	Prehistoric Camp; Indeterminate 18 th Century Historic Site	Not Evaluated	0
44CF0129	Prehistoric Camp; Indeterminate Quarry	Not Evaluated	0
44CF0130	Indeterminate Prehistoric Camp; 19 th Century Dwelling; Poss. 17 th Century Hospital	Not Evaluated	0
44CF0578	Civil War Earthworks	Potentially Eligible	0

3.0 STAGE I PRE-APPLICATION ANALYSIS RESULTS

3.1 VISUAL EFFECTS METHODOLOGY

Fieldwork for the proposed transmission line project was undertaken by Stantec's Senior Architectural Historian, Sandra DeChard and Architectural Technician Jody Kutzler on March 12, 2019. The fieldwork for the assessment entailed photographing the resources requiring viewshed analysis according to the Stage I Pre-Application guidelines and examining the potential views from the resources towards the proposed transmission line improvements. As the fieldwork was conducted prior to a formal SCC application submittal, all photographs were taken from public ROW locations with aerial photography utilized to supplement the analysis of project visibility and potential visual effects. As the proposed line is a rebuild of an existing transmission line and the proposed new line will be located within the existing alignment, the existing line was utilized to assist with the assessment of potential visual effects.

A detailed viewshed was modeled for the existing and proposed structures. This analysis required the creation of two datasets, a digital elevation model (DEM) which provided base ground elevations, and a digital surface model (DSM) which provided overall elevations for features on the terrain, such as trees and buildings. Using the existing structure heights and preliminary proposed structure heights provided by Dominion, two viewshed analyses were run using these datasets to determine where the existing and proposed structures are or will be visible in the landscape surrounding the proposed transmission line improvements (Appendix D). The visibility is illustrated by three color shadings:

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

In addition to the viewshed modeling, photo simulations were prepared to represent the degree of visibility and change in height of the proposed Chesterfield-Tyler Partial Rebuild project (Appendix D).

3.2 INDIVIDUAL ARCHITECTURAL RESOURCES CONSIDERED

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

3.2.1 Howlett Line/Parker's Battery Earthworks (VDHR #020-0232/#043-0033-0059)

The Parker's Battery Earthworks (Figure 3) comprise a steep embankment approximately 10 feet in height with four-gun enclosures. Two collapsed structures within the earthworks appear to have been

bombproofs. The structure also includes an 8-foot wide exterior moat. The earthworks were part of a defensive line, known as the Howlett Line, built in 1864, which extended from Battery Dantzler on the James River to Fort Clifton located on the Appomattox River. The earthworks are a contributing resource to the Richmond National Battlefield Park (VDHR #043-0033) and part of the Bermuda Hundred Campaign (VDHR Site Files).

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



Figure 2. Howlett Line/Parker's Battery Earthworks (VDHR #020-0232), View Looking East.

The Howlett Line/Parker's Battery Earthworks is located to the southeast/east of the transmission line and Tyler Substation (Appendix B) within the 0.5-mile radius of the project centerline. At its closest point, the resource is approximately 24 feet southeast of the existing/proposed transmission line. A majority of the resource is within a heavily wooded area with the exception of the portion within the ROW. A small NPS

parking lot is located to the west of the resource and is accessed from Ware Bottom Springs Road. Modern industrial buildings are located to the south, including what appears to be a large warehouse. The substation and existing transmission line to the south are visible from the parking lot. Photographs for the visual effects assessment of the Howlett Line were taken along the western edge of the resource at the entrance to the main trail off the parking lot. The existing substation and lattice structures were visible from the parking lot (Figures 3 and 4).

Structures #205/17 through #205/19A (see Table 1) are in the vicinity of the resource. The viewshed modeling and the fieldwork indicated that the four proposed structures would be visible from the resource (Figure 5). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, *it is recommended that the proposed transmission line rebuild project will have a Minimal Visual Impact on the Howlett Line/Earthworks (VDHR #020-0232/043-0033-0059).*



Figure 3. View from Location 8 from the Howlett Line/Parker's Battery Earthworks (VDHR #020-0232), Ware Bottom Church Battlefield (VDHR #020-5319), and Proctor's Creek Battlefield (VDHR #020-5320), Looking Northwest. Existing Substation and Line #205 are Visible.



Figure 4. View from Location 8 from the Howlett Line/Parker's Battery Earthworks (VDHR #020-0232), Ware Bottom Church Battlefield (VDHR #020-5319), and Proctor's Creek Battlefield (VDHR #020-5320), Looking Southwest. Existing Line #205 is Visible.



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3.3 BATTLEFIELD RESOURCES CONSIDERED

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

o 11			
VDHR #	Resource Name	Total Acreage of ABPP-Defined Battlefield	Acreage of ABPP-Defined Battlefield within the 1.0- Mile Buffer
020-0121	Osbourne's Naval Battle Site	155	139
020-5317/ VA 047	Port Walthall Junction Battlefield, Indian Hills Road	3,296	118
020-5318/ VA 050	Swift Creek Battlefield/Arrowfield Church	6,998	162
020-5319/ VA 054	Ware Bottom Church Battlefield	11,290	4,073
020-5320/ VA 053	Proctor's Creek Battlefield/ Drewry's Bluff (2nd) Battlefield/ Fort Darling/ Fort Drewry	12,679	1,538
043-0033	Richmond National Battlefield Park	3,000	10
043-0307/VA 075	Chaffin's Run/New Market Heights Battlefield	19,209	49
123-5025/VA 063	Assault on Petersburg/Petersburg Battlefield II	15,528	222

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

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

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

3.3.1 Osborne's Naval Battle (VDHR #020-0121)

The resource was recorded as the remains of approximately nine vessels that were sunk during this Revolutionary War battle. According to the VDHR site form, the battle at Osborne's was a major sea-land battle that occurred in 1781. Following the Battle of Blandford in Petersburg, British General William Phillips moved north in search of fresh supplies. At the same time, General Benedict Arnold took up position at Osborne's along the James River south of Richmond. During the battle, which resulted in the British capture of 12 American vessels carrying supplies including tobacco, flour, and cordage among other items, and the sinking or burning of at least nine additional American vessels, the British suffered no casualties, but struck a major blow to the American effort. As noted on the site form, the remains of the approximately nine sunken vessels were visible at low tide in the 1950s. The site significance is in the potential importance of this resource as an archaeological site. Osborne's Naval Battle was determined eligible for listing by the Historic Resource Review Board in February 1973 (VDHR Site Files). There are no additional site details or photographs available in the site files. Because this resource is identified as significant as an archaeological site, no visual effects assessment was conducted.

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

The battle of Port Walthall Junction, part of the Bermuda Hundred Campaign, was fought on May 6 and 7, 1864. The battle pitted Major General Benjamin Butler's Union forces against Brigadier General Johnson Hagood's Confederate forces. On May 5th, Butler's troops, which numbered approximately 33,000, disembarked at Bermuda Hundred with the aim of dismantling a section of the Richmond-Petersburg Railroad. Hagood's forces held Union troops back on the first day of battle; however, on May 7th Butler's forces pushed Hagood's men back from the railroad line to await reinforcements at Swift Creek. The battle was a Union victory with estimated casualties of approximately 550 (ABPP 2019; VDHR Site Files).

Approximately 118 acres of the 3,296-acre battlefield resource (Table 5) is located within 1.0 mile of the project centerline and consists of the ABPP-defined Study Area (Appendix B). A small section of the PotNR area of the battlefield is within 1.0-miles of the centerline and is located just south of Trailtop Terrace. A majority of the PotNR as well as the Core Areas of the battlefield are located outside the 1.0-mile radius of the project centerline. The Port Walthall Junction Battlefield also overlaps with the following battlefields:

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

The portion of the battlefield Study Area and PotNR Area within the project vicinity have been compromised by residential development along Woods Edge Road, Willowynde Drive, Lawing Drive, and Riggers Station Drive (Appendix B). Some modern commercial development is also present. The remaining sections of the ABPP Study Area comprise mainly small wooded parcels interspersed between developments. The existing structures and associated wires were not visible from the resource as observed during fieldwork (Figures 6-8; Appendix C).

Structures #205/19 through #205/19A (see Table 1) are located within the vicinity of the resource which, at its closest point, is approximately 3,808 feet from the centerline. The viewshed modeling indicated existing structures are visible from the areas where the resource crosses the Line #211 ROW and along Line #205 looking north to Old Bermuda Hundred Road. The proposed structures will also be visible from the same areas (Figure 8). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, *it is recommended that the proposed transmission line rebuild project would have a Minimal Visual Impact on the Port Walthall Junction Battlefield (VDHR #020-5317/ABPP VA047).*



Figure 6. View from Photo Location 12 from the Ware Bottom Church Battlefield (VDHR #020-5319), Port Walthall Battlefield (VDHR #020-5317), Swift Creek Battlefield (VDHR #020-5318), and Proctor's Creek Battlefield (VDHR #020-5320), Looking Northwest. Existing Line #205 is not Visible.



Figure 7. View from Photo Location 13 from the Ware Bottom Church Battlefield (VDHR #020-5319), Port Walthall Battlefield (VDHR #020-5317), Swift Creek Battlefield (VDHR #020-5318), and Proctor's Creek Battlefield (VDHR #020-5320), Looking Northwest. Existing Line #205 is not Visible.



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3.3.3 Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318/ABPP VA050)

The battle of Swift Creek, part of the Bermuda Hundred Campaign, was fought on May 9, 1864. The battle pitted Union troops commanded by Major General Benjamin Butler against General P.G.T Beauregard's forces on the Confederate side. At Swift Creek, Butler's division was met by Bushrod Johnson's division, while the Confederates attacked at Arrowfield Church. Confederate troops were pushed back. Union forces did not follow and instead pulled up the railroad tracks. A second front was located along the Appomattox River utilizing federal gunboats and Hinck's Colored Troops (infantry division) marching through marshes. Confederate troops drove off the gunboats and the efforts by the infantry were abandoned. While approximately 990 casualties were incurred during the fighting, the battle was inconclusive (ABPP 2019; VDHR Site Files).

Approximately 162 acres of the 6,998-acre battlefield resource (Table 5) are located within 1.0 mile of the project centerline and consists of the ABPP-defined Study Area (Appendix B). A section of the PotNR area of the battlefield is within 1.0-miles of the centerline and is located along Woods Edge Road and Trailtop Terrace as well as an area directly south of the Tyler Substation just inside the 1.0-mile radius. A majority of the PotNR as well as the Core Areas of the battlefield are located outside1.0-miles of the project centerline. The Swift Creek Battlefield also overlaps with the following battlefields:

- Ware Bottom Church Battlefield (VDHR #020-5319/ABPP VA054)
- Port Walthall Junction Battlefield (VDHR #020-5317/ABPP VA047)
- Proctor's Creek Battlefield/Drewry's Bluff (2nd) Battlefield (VDHR #020-5320/ABPP VA053)

The portions of the battlefield Study Area and PotNR Area within the project vicinity have been compromised by residential development along Woods Edge Road, Willowynde Drive, Lawing Drive, and Riggers Station Drive. Some modern commercial development is also present. The remaining sections of the ABPP Study Area and PotNR Area comprise mainly small wooded parcels interspersed between developments. The existing structures and associated wires were not visible from the resource as observed during fieldwork (Figures 6, 7, and 9; Appendix C).

Structures #205/19 through #205/19A (see Table 1) are located within the vicinity of the resource, which, at its closest point, is approximately 3,716 feet from the centerline. The viewshed modeling indicated existing structures are visible from the areas where the resource crosses the Line #211 ROW and along Line #205 looking north to Old Bermuda Hundred Road (Figure 9). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, *it is recommended that the proposed transmission line rebuild project would have a Minimal Visual Impact on the Swift Creek Battlefield/Arrowfield Church (VDHR #020-5318/ABPP VA050).*



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

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

A total of 4,073 acres of the 11,290-acre battlefield resource are located within 1.0 mile of the project centerline and consists of the ABPP-defined Core, PotNR, and Study areas (Appendix B; Table 5). The area within the 1.0-mile project radius is almost entirely comprised of the battlefield with the exception of the area to the north, northeast, and northwest of the Chesterfield Power Station (Figure 15). The Ware Bottom Church Battlefield also overlaps with the following battlefields:

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

The southern portion of the Stage I study area within the battlefield comprises dense areas of modern commercial development. The commercial development, which is mainly located on the western side of the transmission line ROW and within in the northern portion of the battlefield, is less dense. To the southeast/east of the line is the James River as well as forested areas. The adjacent parcel to the east of Structure #205/13 is the wooded 14.8-acre Battery Danzer Tract (VDHR #020-5319-0002) which is protected by a VDHR easement. Overall the integrity of the battlefield within a 1.0-mile radius of the project centerline has been heavily compromised by modern construction. Similarly, the vicinity of Structures #205/1A and #205/4 comprises part of the Dominion Energy Chesterfield Power Station, which contains ash ponds and other utility infrastructure. The integrity of the battlefield in this area has been lost due to the construction of the power station. As observed during fieldwork, the existing structures and associated wires are visible from Photograph Locations 2, and 5, 6, 7, 8, and 9 within the portion of the resource under consideration. The existing line and the Tyler Substation were not visible from Photograph Locations 12 and 13 (Figures 6, 7, and 10-16; Appendix C).

Structures #205/2 through #205/19A (see Table 1) are located in the vicinity of the resource. The viewshed modeling indicated that the existing structures are visible from the James River, Henricus Park, the area surrounding the power plant, and the commercial areas to the north and south of West Hundred Road near the Tyler Substation. The proposed structures will also be visible from these same areas (Figures 15 and 16). The overall visual impact of the proposed structures will not greatly change from the existing conditions. Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, *it is recommended that the proposed project will have a Minimal Visual Impact on the Ware Bottom Church Battlefield (VDHR #020-5319/ABPP VA054).*



Figure 10. View from Photo Location 2 from the Ware Bottom Church Battlefield (VDHR #020-5319), Looking West. Existing Line #205 is Visible.



Figure 11. View from Photo Location 5 from the Ware Bottom Church Battlefield (VDHR #020-5319) and Proctor's Creek Battlefield (VDHR #020-5320), Looking Northeast. Existing Line #205 is Visible.



Figure 12. View from Photo Location 6 from the Ware Bottom Church Battlefield (VDHR #020-5319) and Proctor's Creek Battlefield (VDHR #020-5320), Looking Northwest. Existing Line #205 is Visible.



Figure 13. View from Photo Location 7 from the Ware Bottom Church Battlefield (VDHR #020-5319) and Proctor's Creek Battlefield (VDHR #020-5320), Looking Northeast. Existing Line #205 is not Visible.



Figure 14. View from Photo Location 9 from the Ware Bottom Church Battlefield (VDHR #020-5319), Proctor's Creek Battlefield (VDHR #020-5320) and Assault on Petersburg/Petersburg II Battlefield (VDHR #123-5025), Looking Northeast. Existing Line #205 is Visible.





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

The battle of Proctor's Creek took place on May 12-16, 1864. The battle, part of the Bermuda Hundred Campaign, pitted Major General Benjamin Butler, commander of the Union forces, against General P.G.T. Beauregard, commander of the Confederate forces. Butler had withdrawn his forces from Swift Creek and Fort Clifton to Bermuda Hundred. During the battle of Proctor's Creek, 18,000 Confederate forces went up against 30,000 forces of the Union. On the last day of the battle, Ransom's division attacked the Union's right flank. Even outnumbered, the Confederates were victorious and successfully stopped Butler's Richmond offensive (ABPP 2019). The ABPP has designated approximately 12,684 acres of Study Area for the Proctor's Creek Battlefield site with approximately 5,090 of the acres considered PotNR areas (VDHR Site Files).

Approximately 1,538 acres of the 12,679-acre battlefield resource are located within the 1.0-mile Stage I study radius and consists of the ABPP-defined Study Area as well as a portion of the PotNR and Core areas (Table 5; Appendix B). The PotNR areas are located within the 1.0-mile radius of the centerline to the northwest of the Chesterfield Power Station and to the south and southeast of the Tyler Substation. The existing line, Structures #205/17 through #205/19A, traverse through the PotNR Area. The PotNR Area of the resource extends to the east and southeast of the corridor and continues beyond the 1.0-mile radius. In addition, a small section of the Core Area of the battlefield extends into the 1.0-mile radius to the northwest of the Chesterfield Power Station along Battery Brook Road. The Proctor's Creek Battlefield also overlaps with the following battlefields:

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

The portion of the battlefield Study and PotNR areas within the project vicinity have been compromised by large-scale commercial and residential development along Jefferson Davis Highway (Route 1), Ramblewood Drive, and West Bermuda Hundred Road. The remaining sections of the ABPP Study, PotNR, and Core areas comprise mainly small wooded parcels interspersed between modern developments. Howett Line/Richmond National Battlefield Park (VDHR #020-0232/043-0033) is also located within the PotNR Area of the battlefield resource. The existing structures and associated wires are visible from Photograph Locations 8 and 9 as well as where the line crosses roads throughout the resource. The existing line and the Tyler Substation were not visible from Photograph Locations 7, 12, and 13 (Figures 6-7, and 11-14; Appendix C).

Structures #205/1A through #205/19A (see Table 1) are located in the vicinity of the resource. The viewshed modeling indicated that the resource currently does not view the existing transmission line within the northern section of the resource in the vicinity of the Chesterfield Power Station and will not view the proposed structures. The existing line is visible in open areas of commercial/industrial development along and in the vicinity of Old Stage Road and West Hundred Road. The proposed structures will also be visible from these same areas (Figures 17 and 18).



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Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, *it is recommended that the proposed transmission line rebuild project will have Minimal Visual Impact on the Proctor's Creek Battlefield/Drewry's Bluff Battlefield (VDHR #020-5320).*

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

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

The portion of the Richmond Battlefield Park resource within the 1.0-mile Stage I project area radius consists of the Howlett Line/Parker's Battery Earthworks (VDHR #020-0232/#043-0033-0059) located to the east of the transmission line (see Figure 5; Appendix B). At its closest point, the resource is approximately 16 feet east of the existing/proposed transmission line. A majority of the resource is within a heavily wooded area with the exception of the portion within the ROW. A small NPS parking lot is located to the west of the resource and is accessed from Ware Bottom Springs Road. Modern industrial buildings are located to the south, including what appears to be a large warehouse. The substation is visible from the parking lot as is Line #205. Photographs for the visual effect assessment of the Richmond National Battlefield Park were taken along the western edge of the resource at the entrance to the main trail off the parking lot. The existing substation and lattice structures were visible from the point of survey (see Figures 3-5; Appendix C).

Structures #205/17 through #205/19A (see Table 1) are in the vicinity of the resource. The viewshed modeling and the fieldwork indicated that the four proposed structures would be visible from the resource (see Figure 5). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, *it is recommended that the proposed project would have a Minimal Visual Impact on the Richmond National Battlefield Park (VDHR #043-0033).*

3.3.8 Battle of Chaffin's Farm/New Market Heights Battlefield (VDHR #043-0307/ABPP VA075)

The Battle of Chaffin's Farm/New Market Heights took place on September 29 and 30, 1864 between Confederate forces led by General Robert E. Lee and Lieutenant General Richard S. Ewell and Union forces commanded by Major General Benjamin Butler. Part of the Richmond-Petersburg Campaign, the battle was initially a Union success at New Market Heights and at Fort Harrison; however, Confederate forces were able to contain Butler's army. The next day, Lee's troops counterattacked, although the strategy did not prove a success and the battle was considered a Union victory (ABPP 2018).

Approximately 49 acres of the 19,209-acre battlefield resource are located within the 1.0-mile Stage I study radius and consist of the ABPP-defined Study Area (Appendix B; Table 5). The ABPP-defined PotNR Area and Core Area are located outside the 1.0-mile radius of the project centerline. Only a small portion of the resource is located within the 1.0-mile radius and at its closest point is located approximately 3,755 feet north of the Chesterfield Power Station. The portion of the battlefield Study Area within the project vicinity comprises mainly small wooded and agricultural parcels and appears to retain its overall integrity. As observed during fieldwork, the existing structures and associated wires are not visible from the resource (Figure 19; Appendix C).

Structure #205/1A through #205/1B (see Table 1) are located in the vicinity of the resource. The viewshed modeling indicated that the resource currently does not view the existing transmission line and will not view the proposed structures (Figure 20). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, *it is recommended that the proposed transmission line rebuild project will have No Visual Impact on the Battle of Chaffin's Farm/New Market Heights Battlefield (VDHR #043-0307).*



Figure 19. View from Photo Location 10 from the Battle of Chaffin's Farm/New Market Heights Battlefield (#043-0307) Looking Southwest. Existing Line #205 is not Visible.



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

The Assault on Petersburg, part of the Richmond-Petersburg Campaign, took place on June 15 through 18, 1864. The battle pitted Lieutenant General Ulysses S. Grant and Major General George G. Meade's 62,000 Union troops against General Robert E. Lee and General P.G.T. Beauregard's Confederate troops, which numbered 42,000. Union troops crossed the James and Appomattox rivers on June 15th and attacked Petersburg's defensive lines successfully, driving Beauregard's troops back to Harrison Creek. Although Union troops managed to capture further Confederate defenses, Confederate reinforcements from Lee's units stopped further advancement by the Union resulting in a foiled effort by federal troops to capture Petersburg. The battle resulted in a Confederate victory with heavy Union losses totaling over 8,000 to the 3,200 casualties suffered on the Confederate side (ABPP 2019; VDHR Site Files).

Approximately 222 acres of the 15,528-acre battlefield resource are located within the 1.0-mile Stage I radius and consist of the ABPP-defined Study Area, which encompasses the locations of troop movements to and from Petersburg (Appendix B; Table 5). The Study Area, situated to the west of the project area and within the 1.0-mile radius, follows Jefferson Davis Highway. The Assault on Petersburg/Petersburg Battlefield II also overlaps with the following battlefields:

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

The portion of the battlefield Study Area within the project vicinity has been compromised by large-scale commercial and residential development along Jefferson Davis Highway and at its intersection with West Hundred Road. The existing structures and associated wires were visible from Photograph Location 9 (see Figure 14; Appendix C).

Structures #205/14 through #205/19A (see Table 1) are located in the vicinity of the resource. At its closet point the resource is approximately 3,336 feet from the centerline. The viewshed modeling indicated the resource currently views the existing transmission line from the West Hundred Road as well as from sections of John Tyler Community College which fall within the Study Area of the battlefield. These areas will also view the proposed structures (Figure 21). Based on the fieldwork, the preliminary heights of the proposed structures, and the viewshed modeling for the resource, *it is recommended that the proposed transmission line rebuild project will have Minimal Visual Impact on the Assault on Petersburg/Petersburg Battlefield II (VDHR #123-5025).*



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3.4 ARCHAEOLOGICAL SITES WITHIN THE ROW

Eight previously recorded archaeological resources were identified either within or immediately adjacent to the project ROW. One resource, Site 44CF0578, Civil War earthworks, has been determined potentially eligible and one resource, Site 44CF0102, Osbornes Town Site, has been determined eligible for listing on the NRHP by VDHR. The remaining six sites are currently unevaluated (Table 6; Appendix E).

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

VDHR #	Resource Name	VDHR/NRHP Status
44CF0102	Woodland Site; 18th Century Osbornes Town Site	Eligible
44CF0124	Prehistoric Camp; Indeterminate 18th Century Historic Site	Not Evaluated
44CF0125	Indeterminate 18th Century Site; 19th Century Trash Pit	Not Evaluated
44CF0127	Historic Road/Bridge	Not Evaluated
44CF0128	Prehistoric Camp; Indeterminate 18th Century Historic Site	Not Evaluated
44CF0129	Prehistoric Camp; Indeterminate Quarry	Not Evaluated
44CF0130	Indeterminate Prehistoric Camp; 19 th Century Dwelling; Poss. 17 th Century Hospital	Not Evaluated
44CF0578	Civil War Earthworks	Potentially Eligible

4.0 CONCLUSIONS

4.1 OVERVIEW

Stantec was retained by Dominion Energy to conduct a Stage I Pre-Application Analysis for the proposed partial rebuild of the Chesterfield-Tyler 230 kV Transmission Line (Chesterfield-Tyler) in Chesterfield County, Virginia. The project proposed by Dominion Energy is necessary in order to maintain the structural integrity and reliability of its transmission system and to comply with mandatory NERC Reliability Standards. The project will be conducted entirely within an existing right-of-way (ROW) and consists of approximately 3.0 miles of existing 230 kV transmission line from the Chesterfield Power Station to approximately 0.5 miles south of the existing Tyler Substation. The Chesterfield-Tyler Line consists of two 230 kV circuits, Line #205 and Line #2003, co-located on double circuit structures. The rebuild of the Chesterfield-Tyler line will require the tear-down and replacement of 24 230 kV lattice and one concrete monopole structures with double circuit steel monopoles. Two structures will be added to the line (#205/15A and #205/16A). All proposed structure heights and locations provided in this report are based upon preliminary engineering and are subject to final design. Based on this information, the proposed project will increase the average structure height by 1 foot with a maximum structure height increase of 8 feet. Two (2) existing structures (#205/1A and #2003/21A) will be replaced at the same height.

4.1.1 Recommendations - Architectural Resources

No NHL-listed architectural resources were located within the 1.5-mile radius of the transmission line centerline. One NRHP-listed and one NRHP-eligible resource and eight battlefield resources were identified within the 1.0-mile radius. One of the battlefield resources, the Howlett Line (VDHR #020-0232/043-0033-0059), determined potentially eligible by VDHR, was evaluated during the current project as the resource is contributing to the Richmond National Battlefield Park (VDHR #043-0033). Table 7 details the recommendations for the project.

Based on preliminary proposed structure heights, the proposed partial rebuild of the Chesterfield-Tyler 230 kV transmission line would increase the average structure height by 1 foot with a maximum structure height increase of 8 feet. Based on the analysis of the proposed structures, it is recommended that the rebuild would have No Effect to two architectural resources and a Minimal Visual Impact to seven architectural resources.

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

VDHR #	Resource Name	VDHR/NRHP Status	Distance to Line (Feet)	Impact
020-0121	Osborne's Naval Battle Site	NRHP-Eligible	1,512	None
020-0232/ 043-0033-0059	Howlett Line/Parker's Battery/Parker's Battery Earthworks	Potentially Eligible	24	Minimal

VDHR #	Resource Name	VDHR/NRHP Status	Distance to Line (Feet)	Impact
020-5317/ VA 047	Port Walthall Junction Battlefield, Indian Hills Road	NRHP-Eligible	3,808	Minimal
020-5318/ VA 050	Swift Creek Battlefield/Arrowfield Church	Potentially Eligible	3,716	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	16	Minimal
043-0307/ VA 075	Battle of Chaffin's Farm/New Market Heights Battlefield	Potentially Eligible	3,755	None
123-5025/ VA 063	Assault on Petersburg/Petersburg Battlefield II	Potentially Eligible	3,336	Minimal

4.1.2 Recommendations - Archaeological Resources

Eight previously recorded archaeological resources were identified either within or immediately adjacent to the project ROW. One resource, Site 44CF0578, Civil War earthworks, has been determined potentially eligible and one resource, Site 44CF0102, Osbornes Town Site, has been determined eligible for listing on the NRHP by VDHR. The remaining six sites are currently unevaluated (Table 8; Appendix E). *It is recommended, therefore, that the archaeological sites should be investigated and evaluated as appropriate during future investigations.*

Table 8. Previously Recorded Archeological Resources Considered under the Stage I Pre-Application Guidelines

VDHR #	Resource Name	VDHR/NRHP Status	Distance to ROW (Feet)	Impact
44CF0102	Woodland Site; 18 th Century Osbornes Town Site	Eligible	0	Investigate During Archaeological Survey
44CF0124	Prehistoric Camp; Indeterminate 18 th Century Historic Site	Not Evaluated	0	Investigate During Archaeological Survey
44CF0125	Indeterminate 18 th Century Site; 19 th Century Trash Pit	Not Evaluated	0	Investigate During Archaeological Survey
44CF0127	Historic Road/Bridge	Not Evaluated	0	Investigate During Archaeological Survey
44CF0128	Prehistoric Camp; Indeterminate 18 th Century Historic Site	Not Evaluated	0	Investigate During Archaeological Survey
44CF0129	Prehistoric Camp; Indeterminate Quarry	Not Evaluated	0	Investigate During Archaeological Survey
44CF0130	Indeterminate Prehistoric Camp; 19 th Century Dwelling; Poss. 17 th Century Hospital	Not Evaluated	0	Investigate During Archaeological Survey
44CF0578	Civil War Earthworks	Potentially Eligible	0	Investigate During Archaeological Survey

5.0 REFERENCES

American Battlefield Protection Program

- 2019 "Assault on Petersburg" https://www.nps.gov/abpp/battles/va063.htm, accessed 13 March 2019.
- 2019 "Proctor's Creek" https://www.nps.gov/abpp/battles/va053.htm, accessed 13 March 2019.
- 2019 "Ware Bottom Church" https://www.nps.gov/abpp/battles/va054.htm, accessed 13 March 2019.

Advisory Council for Historic Preservation (ACHP)

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

National Park Service (NPS)

2011 "Richmond National Battlefield Park, Virginia

United States Department of the Interior (Interagency Resources Division)

- 1981 Department of the Interior's Regulations, 36 CFR Part 60: National Register of Historic Places. Interagency Resources Division, National Park Service, U.S. Department of the Interior, Washington, D.C.
- 1983 Department of the Interior, Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Interagency Resources Division, National Park Service, U.S. Department of the Interior, Washington, D.C.
- 1991 How to Apply the National Register Criteria of Evaluation. *National Register Bulletin 15.* Interagency Resources Division, National Park Service, U.S. Department of the Interior, Washington, D.C.

Virginia Department of Historic Resources (VDHR)

- 1997 Historic Context Guidelines for Preparing Cultural Resource Survey Reports. VDHR, Richmond.
- 2008 Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia. VDHR, Richmond.
- 2017 Guidelines for Historic Resources Survey in Virginia. VDHR, Richmond.
- 2019 VDHR Archive Files.

Appendix A

A.1 STRUCTURE DETAILS



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Appendix B

B.1 ARCHITECTURAL RESOURCE MAP



APPENDIX C

C.1 PHOTOGRAPH KEY



Attachment 2.H.1 Page 55 of 73



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STAGE I PRE-APPLICATION ANALYSIS FOR THE PROPOSED DOMINION ENERGY VIRGINIA CHESTERFIELD-TYLER 230 KV PARTIAL REBUILD PROJECT, CHESTERFIELD COUNTY, VIRGINIA

APPENDIX D

D.1 PHOTOSIMULATIONS



Photograph provided by Stantec



Existing Angle Structure Type: Weathering Steel Lattice Tower



Photograph provided by Stantec



Existing Suspension Structure Type: Weathering Steel Lattice Tower



Proposed Angle Structure Type: Weathering Steel 2-Pole Double Deadend *Refer to Attachment II.b.3.vii for proposed orientation.





Proposed Tangent Structure Type: Steel Monopole Tangent V-String





Proposed Tangent Structure Type: Weathering Steel Monopole Tangent Double Deadend





Proposed Angle Structure Type: Weathering Steel Monopole Angle Double Deadend





KOP 4: Existing Proctor's Creek Battlefield (VDHR #020-5320); Assault on Petersburg, Petersburg Battlefield II (VDHR #123-5025); Ware Bottom Church Battlefield (VDHR #020-5319)





KOP 4: Proposed Proctor's Creek Battlefield (DHR #020-5320); Assault on Petersburg, Petersburg Battlefield II (VDHR #123-5025); Ware Bottom Church Battlefield (VDHR #020-5319)





KOP 5: Existing Howlett Line/Parker's Battery/Parker's Battery Earthworks (VDHR #020-0232); Richmond National Battlefield Park (VDHR #020-0033-0059)





KOP 5: Proposed Howlett Line/Parker's Battery/Parker's Battery Earthworks (VDHR #020-0232); Richmond National Battlefield Park (VDHR #020-0033-0059)





KOP 6: Existing Proctor's Creek Battlefield (VDHR #020-5320); Ware Bottom Church Battlefield (VDHR #020-5319)





KOP 6: Proposed Proctor's Creek Battlefield (VDHR #020-5320); Ware Bottom Church Battlefield (VDHR #020-5319)





KOP 7: Existing Proctor's Creek Battlefield (VDHR #020-5320); Ware Bottom Church Battlefield (VDHR #020-5319)





KOP 7: Proposed Proctor's Creek Battlefield (VDHR #020-5320); Ware Bottom Church Battlefield (VDHR #020-5319)



STAGE I PRE-APPLICATION ANALYSIS FOR THE PROPOSED DOMINION ENERGY VIRGINIA CHESTERFIELD-TYLER 230 KV PARTIAL REBUILD PROJECT, CHESTERFIELD COUNTY, VIRGINIA

APPENDIX E

E.1 ARCHAEOLOGICAL RESOURCE MAP



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Attachment 2.H.1

Lane E Carr (PowerDelivery - 6)

Mike Hallock-Solomon <mhallock-solomon@vofonline.org></mhallock-solomon@vofonline.org>
Friday, December 6, 2019 11:49 AM
Lane E Carr (PowerDelivery - 6)
Martha Little; Brad Baskette
[External] Proposed Chesterfield-Tyler 230kV Transmission Lines Partial Rebuild
20191203_Chesterfield-Tyler_230kV_rebuild_request-for-comment.pdf

Mr. Carr,

The Virginia Outdoors Foundation has reviewed the project referenced above and described in the attached document. As of 6 December 2019, there are not any existing nor proposed VOF open-space easements in the immediate vicinity of the project.

Please contact VOF again for further review if the project area changes or if this project does not begin within 24 months. Thank you for considering conservation easements.

In the future, please send requests for VOF review to: ImpactReview@VOF.org

Thanks, Mike

Please note all VOF email addresses will end with vof.org starting Jan. 1, as shown below.

Mike Hallock-Solomon, AICP Virginia Outdoors Foundation mhallock-solomon@vof.org



COMMONWEALTH of VIRGINIA

Mark K. Flynn Director

Department of Aviation 5702 Gulfstream Road Richmond, Virginia 23250-2422

V/TDD • (804) 236-3624 FAX • (804) 236-3635

December 6, 2019

Lane Carr, Siting and Permitting Specialist Dominion Energy Virginia 10900 Nuckols Road, 4th Floor Glen Allen, Virginia 23060

RE: Proposed Chesterfield-Tyler 230kV Transmission Line Partial Rebuild

Lane:

The Virginia Department of Aviation has received your December 3, 2019 letter requesting staff review the proposed Chesterfield-Tyler 230kV Transmission Line Replacement Project. Following our review staff has determined that the proposed project will be located at a location that is beyond 20,000 linear feet from a public-use airport. Therefore, no submission of a 7460 form to Federal Aviation Administration (FAA) is required unless any proposed structure will reach a height of 200' above ground level (agl). If this 200' agl threshold is met, a 7460 form must be submitted to the FAA. Provided the development will not require a 7460 submission, the Department has no objection to the project as ' described in your December 3, 2019 letter.

If you have any questions regarding this matter, please contact me at (804) 236-3638.

Sincerely,

S. Scott Denny

Senior Aviation Planner Virginia Department of Aviation

100 DOAVAS 20191206 Chesterfield-Tyler 230kV Transmission Line Replacement Comment Letter