



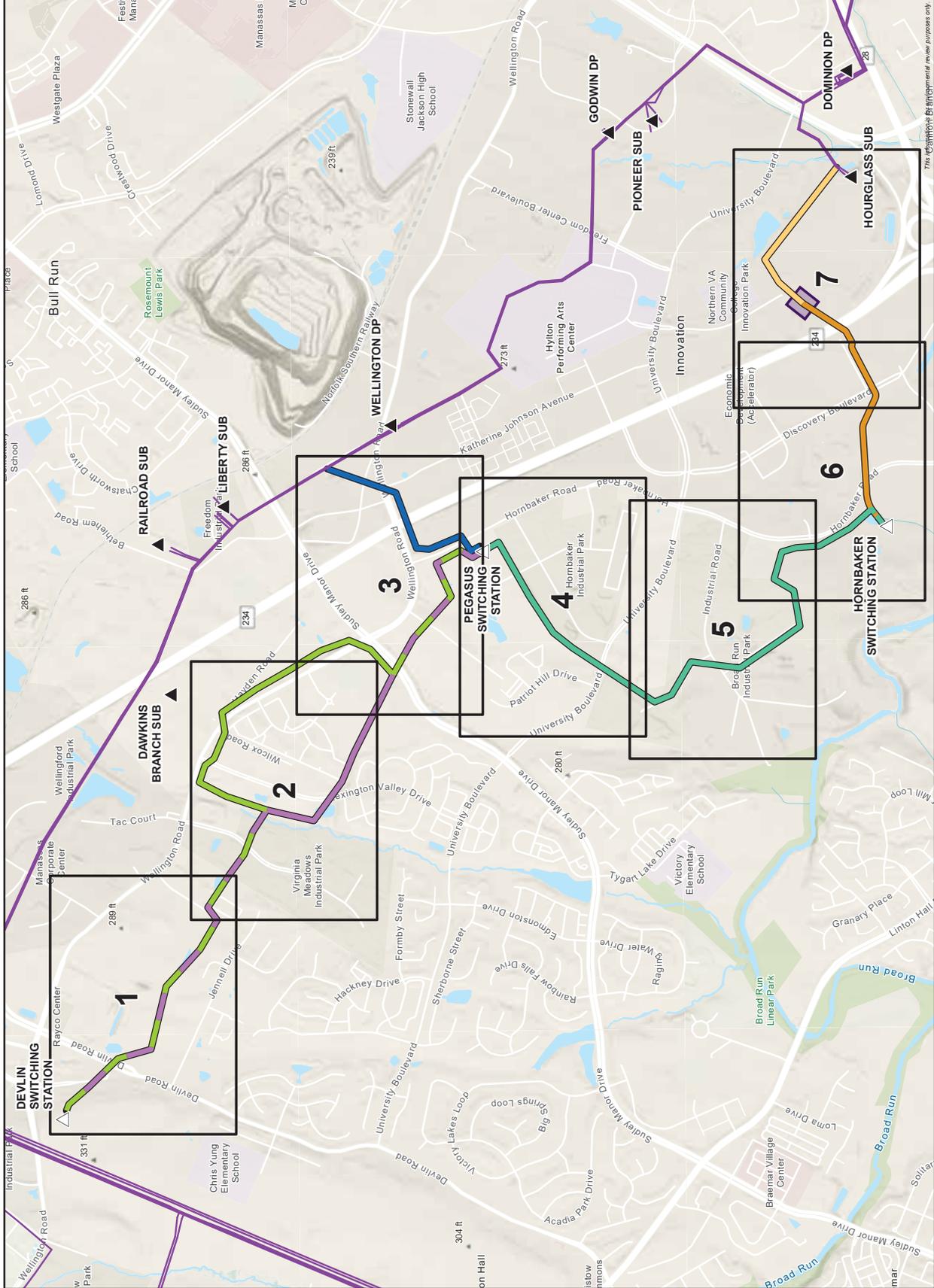
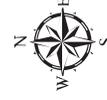
**Attachment 2**  
**Wetland Desktop Study**  
**Cowardin Classification**  
**Map Index**

**Hornbaker 230 kV**  
**Line Loop Project**  
**Domination Energy**  
**Prince William County, Virginia**

- ▲ Existing Substation
- △ Proposed Switching Station
- Existing Dominion Transmission Line
- Wellington – Pegasus Route 1
- Pegasus – Hornbaker Route 1
- Hourglass – Hornbaker Route 1 (Overhead)
- Hourglass – Hornbaker Route 1 (Underground)
- Proposed Transition Station
- Devilin – Pegasus Route 1
- Devilin – Pegasus Route 2
- Page Index



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The registration information is for review purposes only.



**Attachment 2**  
Wetland Desktop Study  
Cowardin Classification  
Mapset

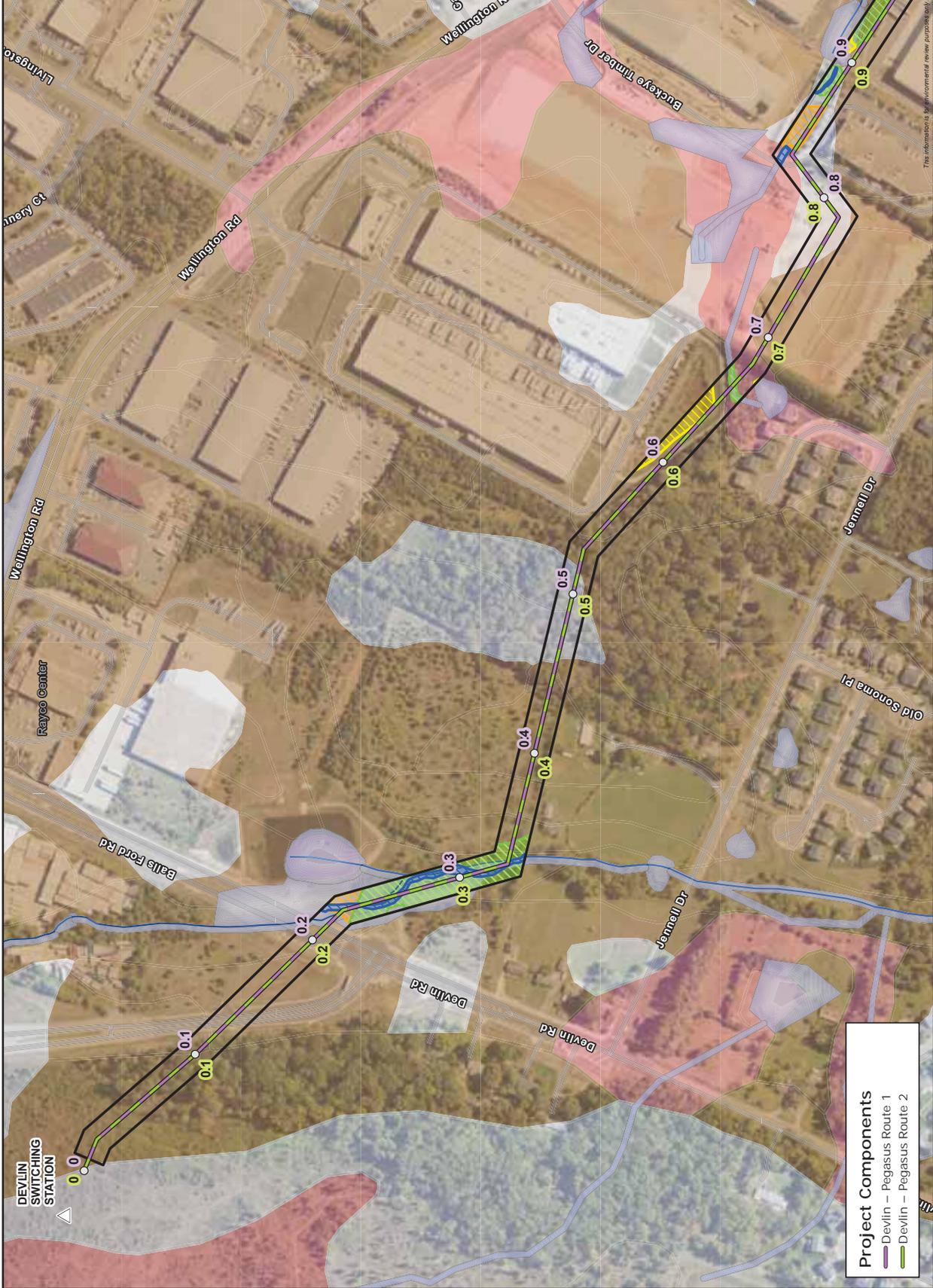
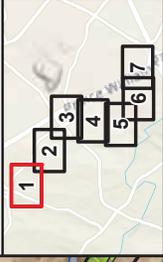
Hornbaker 230 kV  
Line Loop Project  
Dominion Energy  
Prince William County, Virginia

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- Proposed Switching
- Station
- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland
- Wetland Cover Type
- PEM
- PFO
- PUB
- Riverine
- SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric



1:3,600



**Project Components**

- Devlin - Pegasus Route 1
- Devlin - Pegasus Route 2

This information is for informational review purposes only.



**Attachment 2**  
Wetland Desktop Study  
Cowardin Classification  
Mapset

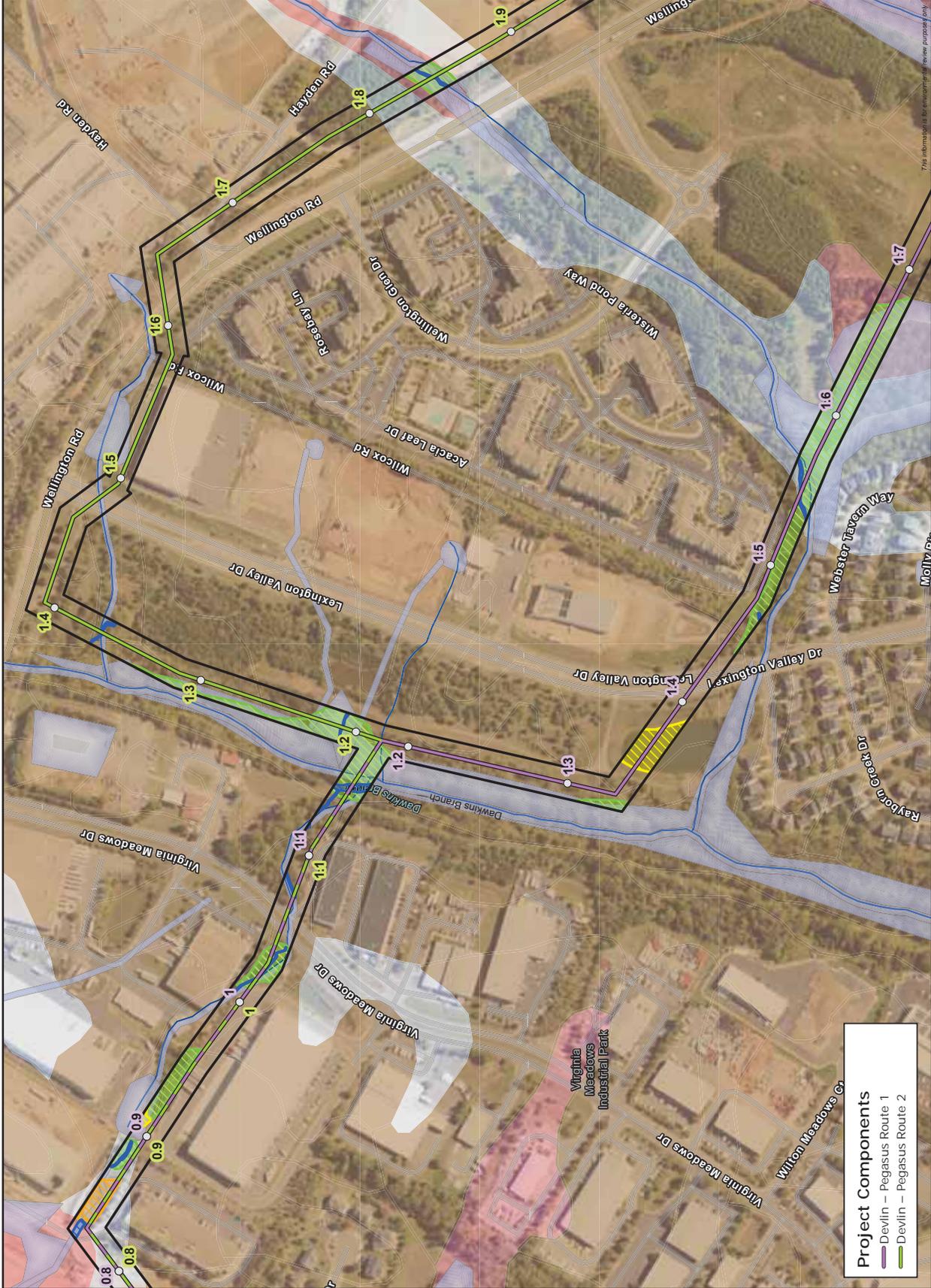
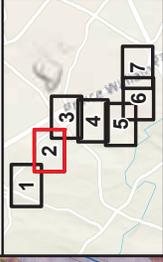
Hornbaker 230 kV  
Line Loop Project  
Dominion Energy  
Prince William County, Virginia

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- Milepost
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- ▭ NWI Wetland
- ▭ Wetland Cover Type
- ▭ PEM
- ▭ PFO
- ▭ PUB
- ▭ Riverine
- ▭ SSURGO Hydric Soil Rating
- ▭ Hydric
- ▭ Partially Hydric
- ▭ Not Hydric



1:3,800



- Project Components**
- Devlin - Pegasus Route 1
  - Devlin - Pegasus Route 2

This information is for informational review purposes only.



**Attachment 2**  
 Wetland Desktop Study  
 Cowardin Classification  
 Mapset

Hornbaker 230 kV  
 Line Loop Project  
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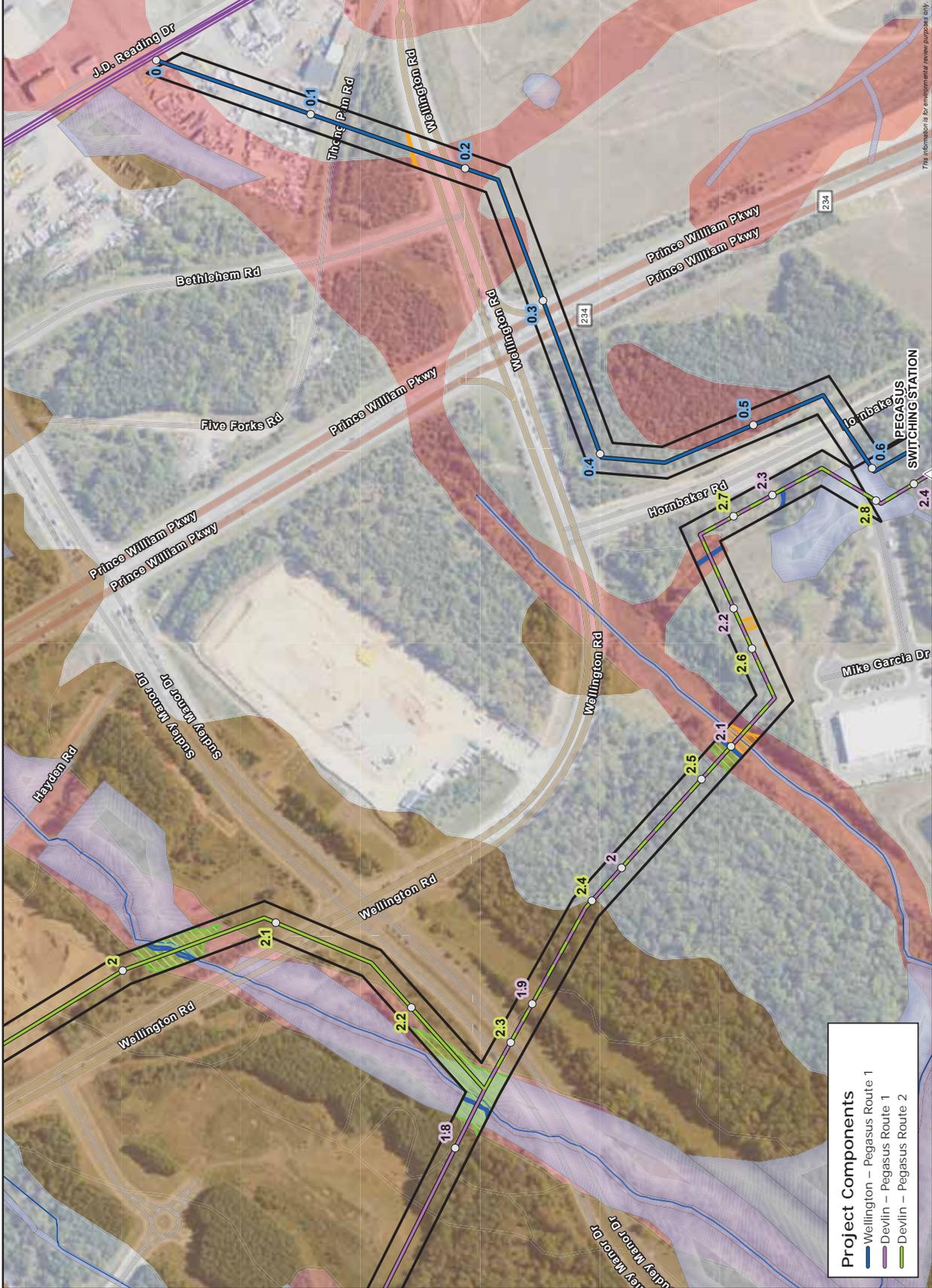
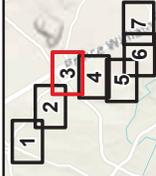
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- ▭ Wetland Cover Type
- ▭ PEM
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- ▭ Riverline
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1:3,800



ERM



This information is for environmental review purposes only.

- Project Components**
- Wellington - Pegasus Route 1
  - Devlin - Pegasus Route 1
  - Devlin - Pegasus Route 2



**Attachment 2**  
Wetland Desktop Study  
Cowardin Classification  
Mapset

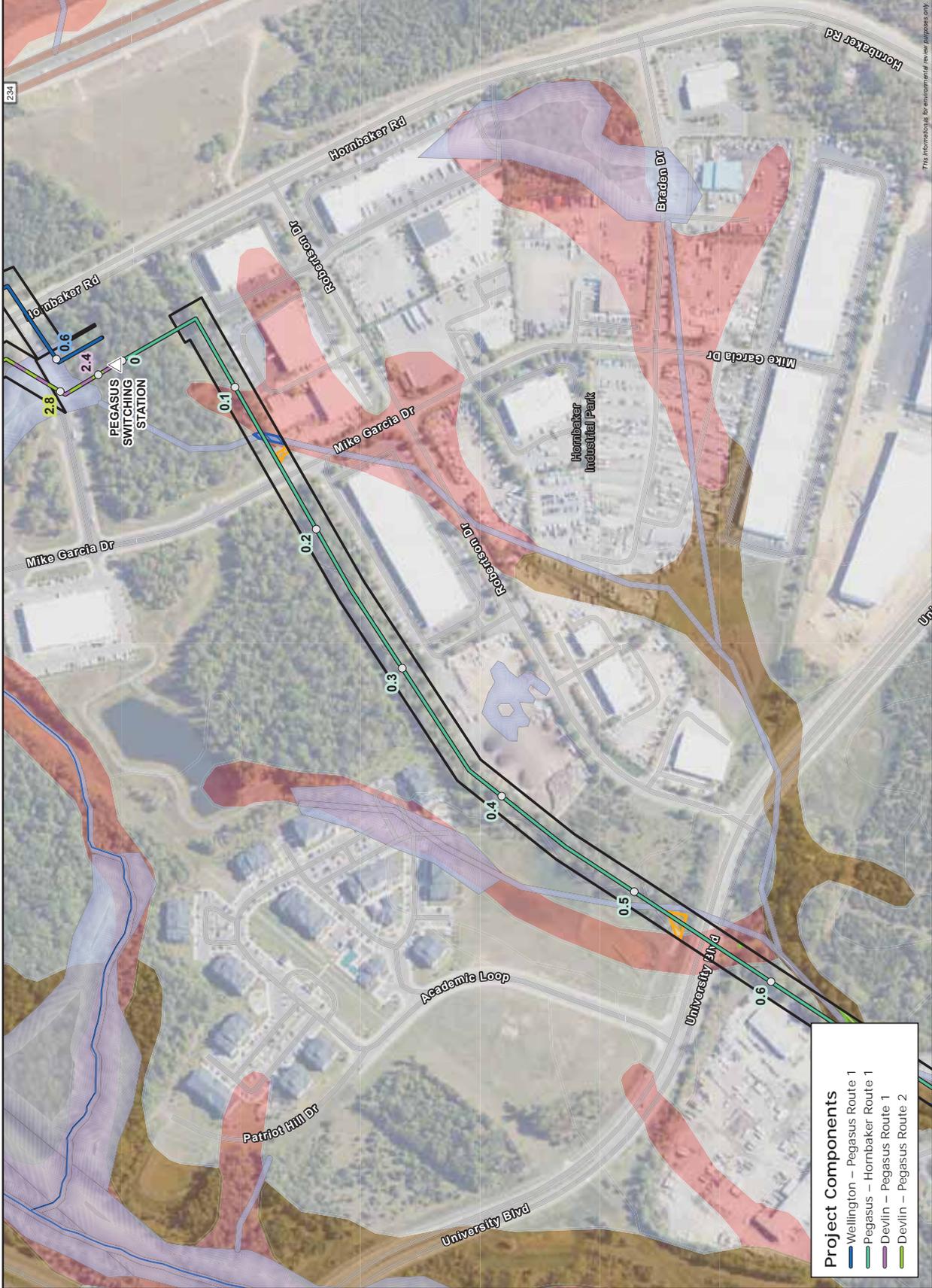
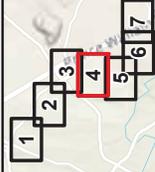
Hornbaker 230 kV  
Line Loop Project  
Dominion Energy  
Prince William County, Virginia

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- Station
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- Riverine
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1:3,600



- Project Components**
- Wellington – Pegasus Route 1
  - Pegasus – Hornbaker Route 1
  - Devlin – Pegasus Route 1
  - Devlin – Pegasus Route 2

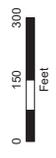
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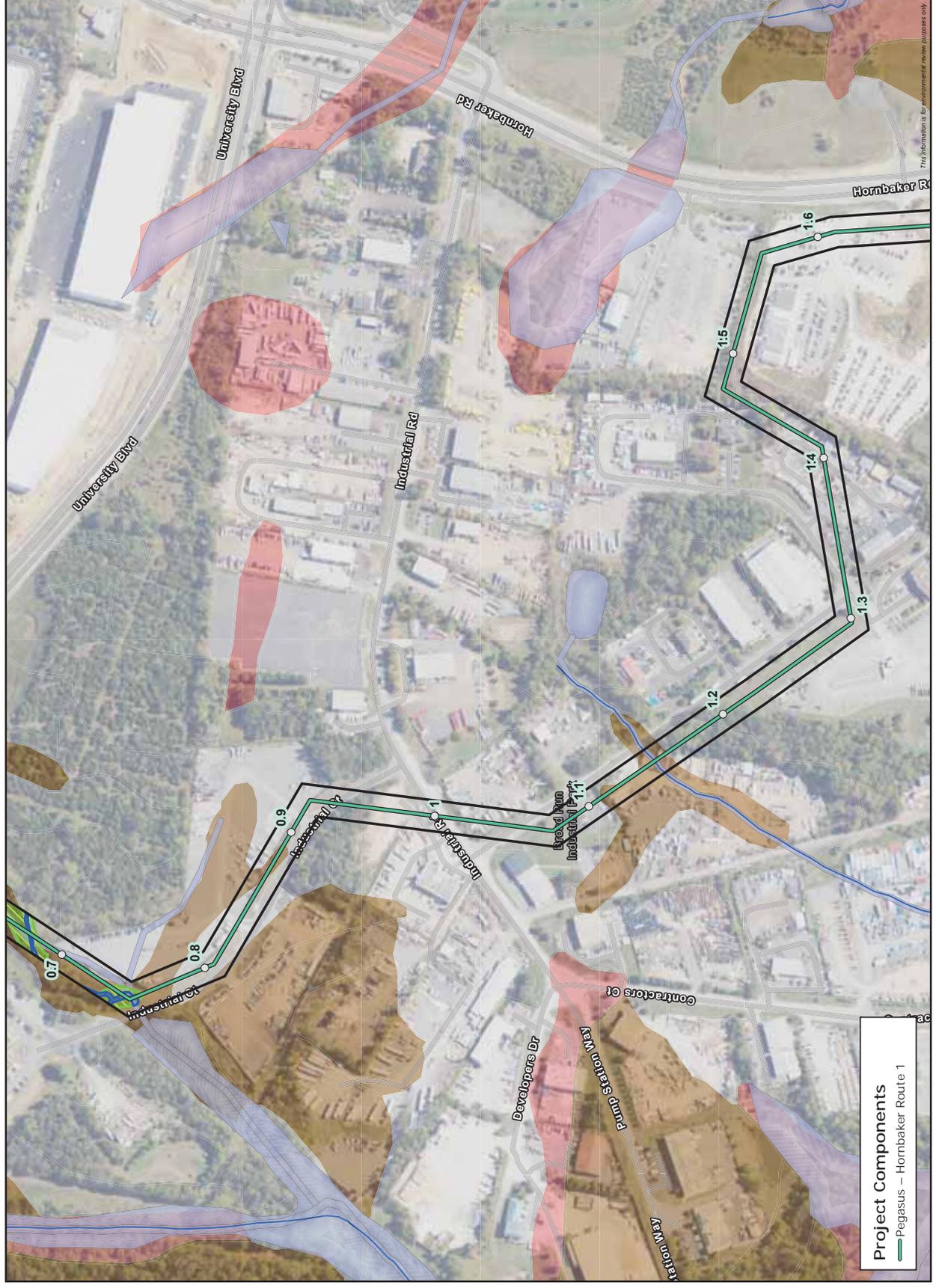
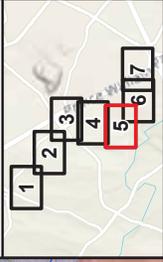
**Attachment 2**  
 Wetland Desktop Study  
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Hornbaker 230 kV  
 Line Loop Project  
 Dominion Energy  
 Prince William County, Virginia  
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- ▭ PUB
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1:3,600



**Project Components**  
 — Pegasus – Hornbaker Route 1

This information is for governmental review purposes only.



**Attachment 2**  
 Wetland Desktop Study  
 Cowardin Classification  
 Mapset

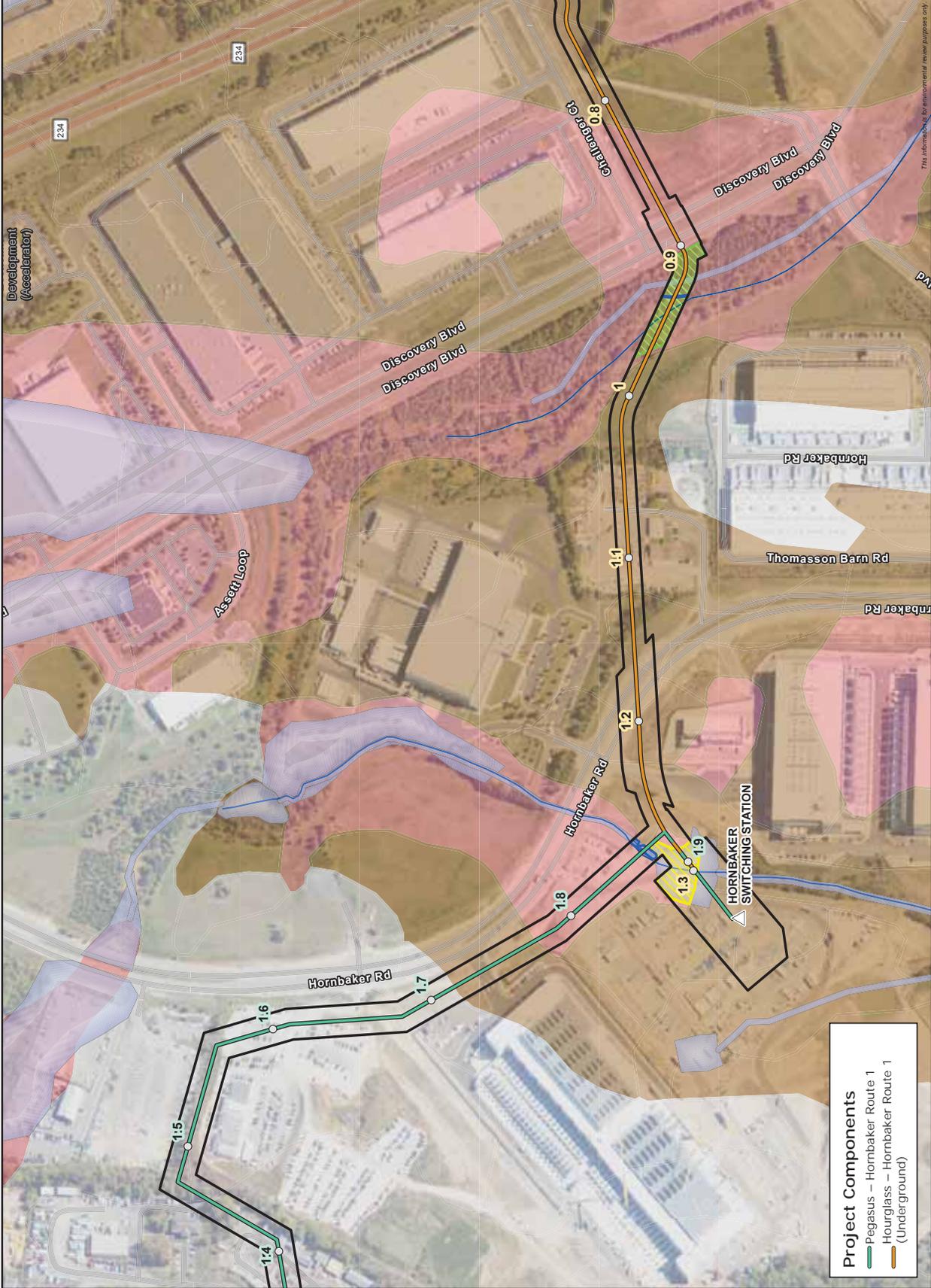
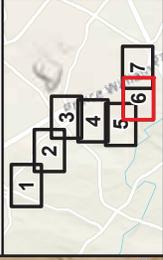
Hornbaker 230 kV  
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- Proposed Switching**
- △ Station
  - Milepost
  - ▭ Project Right of Way
  - NHD Flowline
  - NWI Wetland
- Wetland Cover Type**
- PEM
  - PFO
  - PUB
  - Riverine
- SSURGO Hydric Soil Rating**
- Hydric
  - Partially Hydric
  - Not Hydric



1:3,600



- Project Components**
- Pegagus - Hornbaker Route 1
  - Hourglass - Hornbaker Route 1
  - (Underground)

This information is for environmental review purposes only.



**Attachment 2**  
**Wetland Desktop Study**  
**Cowardin Classification**  
**Mapset**

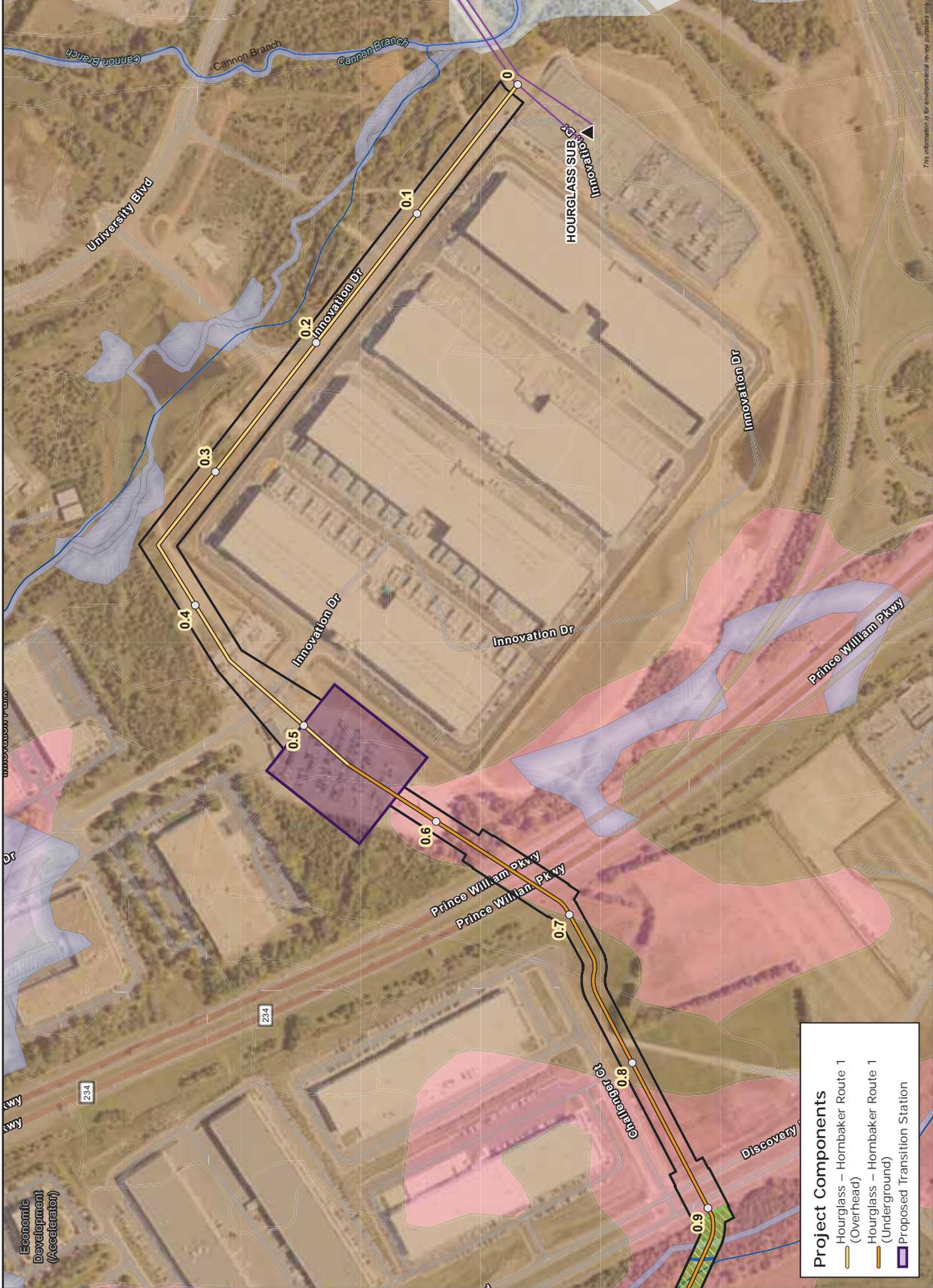
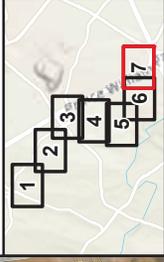
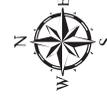
Hornbaker 230 kV  
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- ▲ Existing Substation
- Existing Dominion Transmission Line
- Milepost
- ▭ Project Right of Way
- NHD Flowline
- ▭ NWI Wetland
- ▭ Wetland Cover Type
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  - ▭ PFO
  - ▭ PUB
  - ▭ Riverine
- ▭ SSURGO Hydric Soil Rating
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  - ▭ Partially Hydric
  - ▭ Not Hydric



1:3,600



- Project Components**
- Hourglass – Hornbaker Route 1 (Overhead)
  - Hourglass – Hornbaker Route 1 (Underground)
  - Proposed Transition Station

This information is for environmental review purposes only.

## ATTACHMENT 3



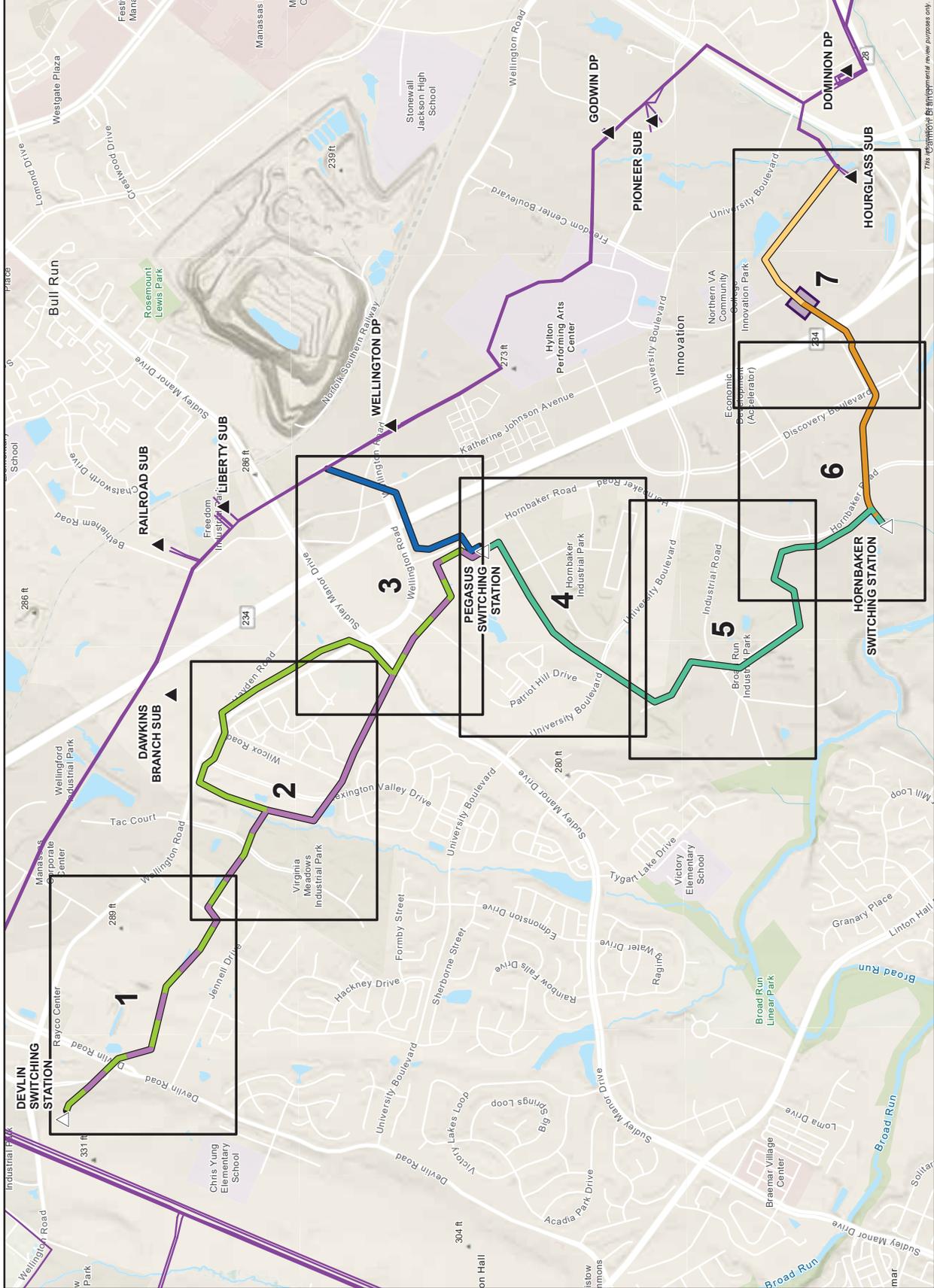
**Attachment 3**  
Wetland Desktop Study  
Probability  
Map Index

**Hornbaker 230 kV  
Line Loop Project**  
Dominion Energy  
Prince William County, Virginia

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- △ Proposed Switching Station
- Existing Dominion Transmission Line
- Wellington – Pegasus Route 1
- Pegasus – Hornbaker Route 1
- Hourglass – Hornbaker Route 1 (Overhead)
- Hourglass – Hornbaker Route 1 (Underground)
- Proposed Transition Station
- Deviln – Pegasus Route 1
- Deviln – Pegasus Route 2
- Page Index



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The registration information is for review purposes only.



**Attachment 3**  
Wetland Desktop Study  
Probability  
Mapset

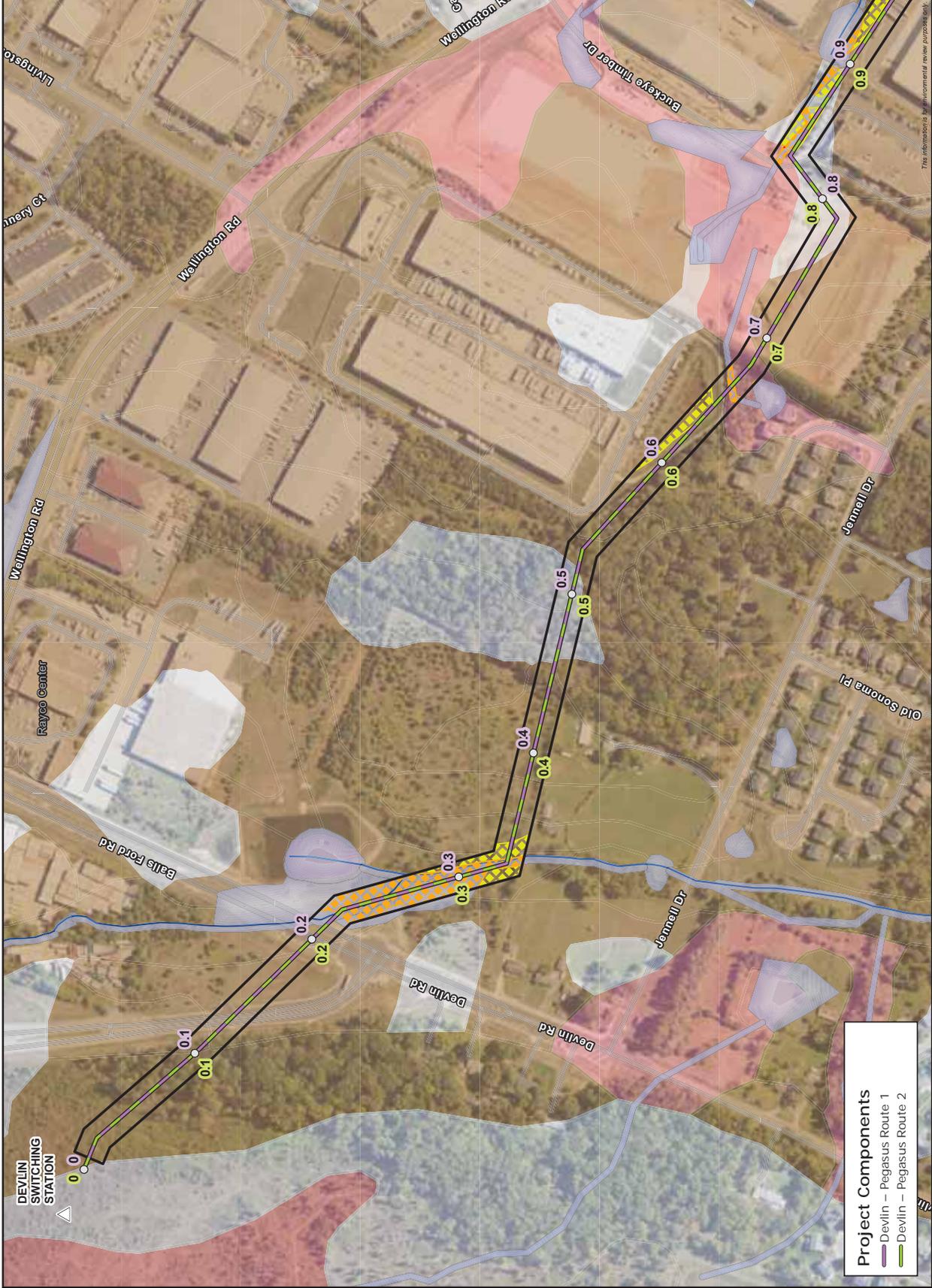
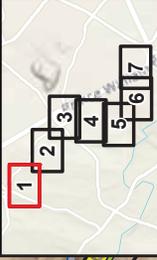
Hornbaker 230 kV  
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- Proposed Substation/  
Switching Station
- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland
- Wetland Probability
- High
- Medium/High
- Medium
- SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric



1:3,600



**Project Components**

- Devlin - Pegasus Route 1
- Devlin - Pegasus Route 2

This information is for environmental review purposes only.



**Attachment 3**  
Wetland Desktop Study  
Probability  
Mapset

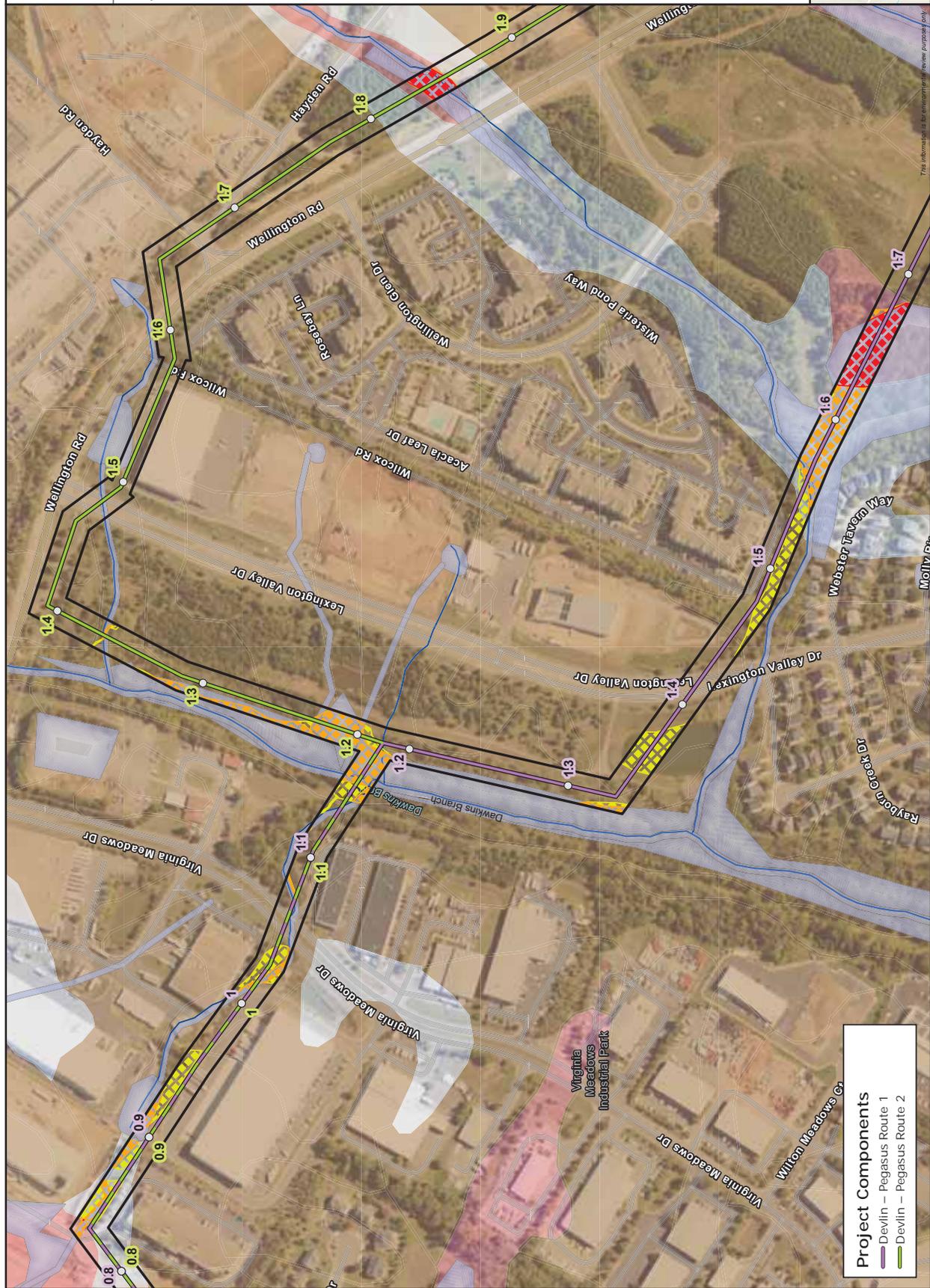
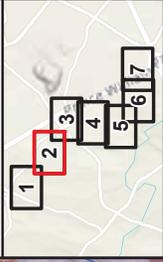
Hornbaker 230 kV  
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- Milepost
- ▭ Project Right of Way
- NHD Flowline
- ▭ NWI Wetland
- ▭ Wetland Probability
- ▭ High
- ▭ Medium/High
- ▭ Medium
- ▭ SSURGO Hydric Soil Rating
- ▭ Hydric
- ▭ Partially Hydric
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1:3,600



- Project Components**
- Devlin - Pegasus Route 1
  - Devlin - Pegasus Route 2

This information is for informational review purposes only.



### Attachment 3 Wetland Desktop Study Probability Mapset

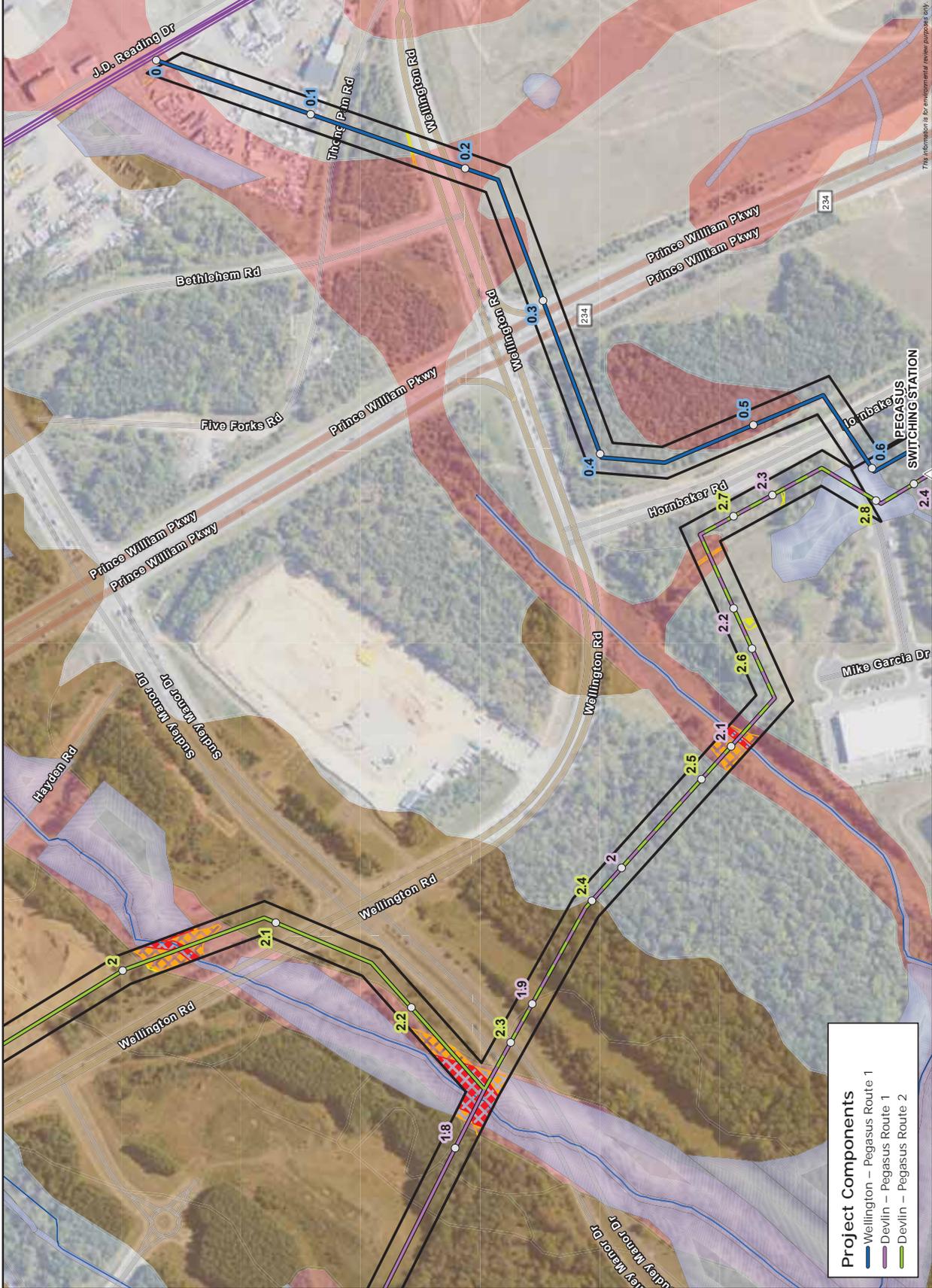
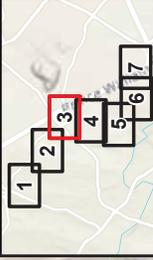
Hornbaker 230 kV  
Line Loop Project  
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- Proposed Substation/  
Switching Station
- Existing Dominion  
Transmission Line
- Milepost
- Project Right of Way
- NHD Flowline
- NWI Wetland
- Wetland Probability
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- Medium/High
- Medium
- SSURGO Hydric Soil Rating
- Hydric
- Partially Hydric
- Not Hydric



1:3,600



- #### Project Components
- Wellington - Pegagus Route 1
  - Devlin - Pegagus Route 1
  - Devlin - Pegagus Route 2

This information is for environmental review purposes only.



**Attachment 3**  
Wetland Desktop Study  
Probability  
Mapset

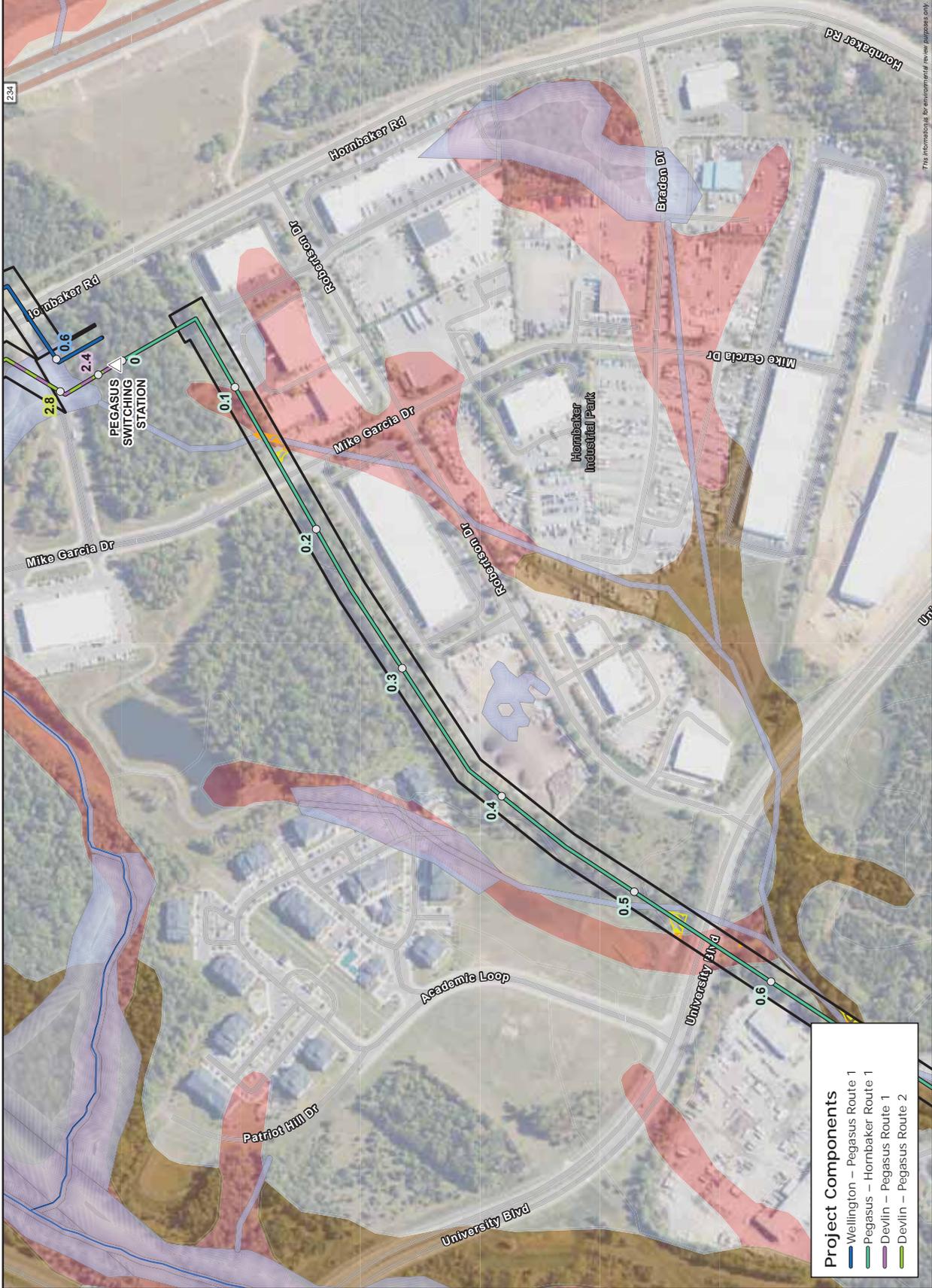
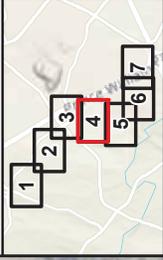
Hornbaker 230 kV  
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- △ Proposed Substation/  
Switching Station
- Milepost
- ▭ Project Right of Way
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- NWI Wetland
- Wetland Probability
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  - Medium/High
  - Medium
- SSURGO Hydric Soil Rating
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  - Partially Hydric
  - Not Hydric



1:3,600



- Project Components**
- Wellington – Pegasus Route 1
  - Pegasus – Hornbaker Route 1
  - Devlin – Pegasus Route 1
  - Devlin – Pegasus Route 2

This information is for environmental review purposes only.



**Attachment 3**  
Wetland Desktop Study  
Probability  
Mapset

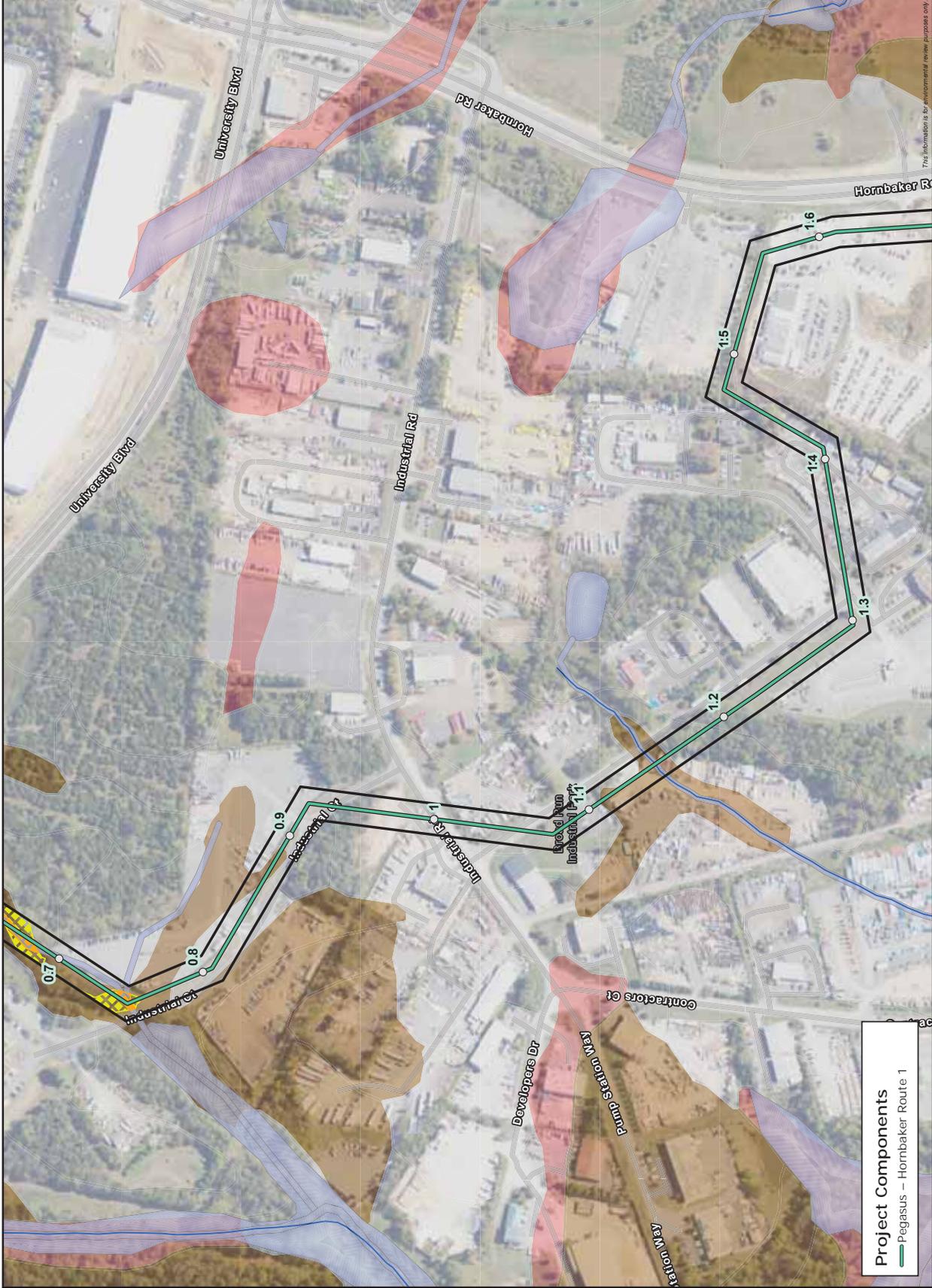
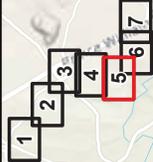
Hornbaker 230 kV  
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- Milepost
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- ▭ Medium
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**Project Components**  
— Pegagus - Hornbaker Route 1



**Attachment 3**  
**Wetland Desktop Study**  
**Probability**  
**Mapset**

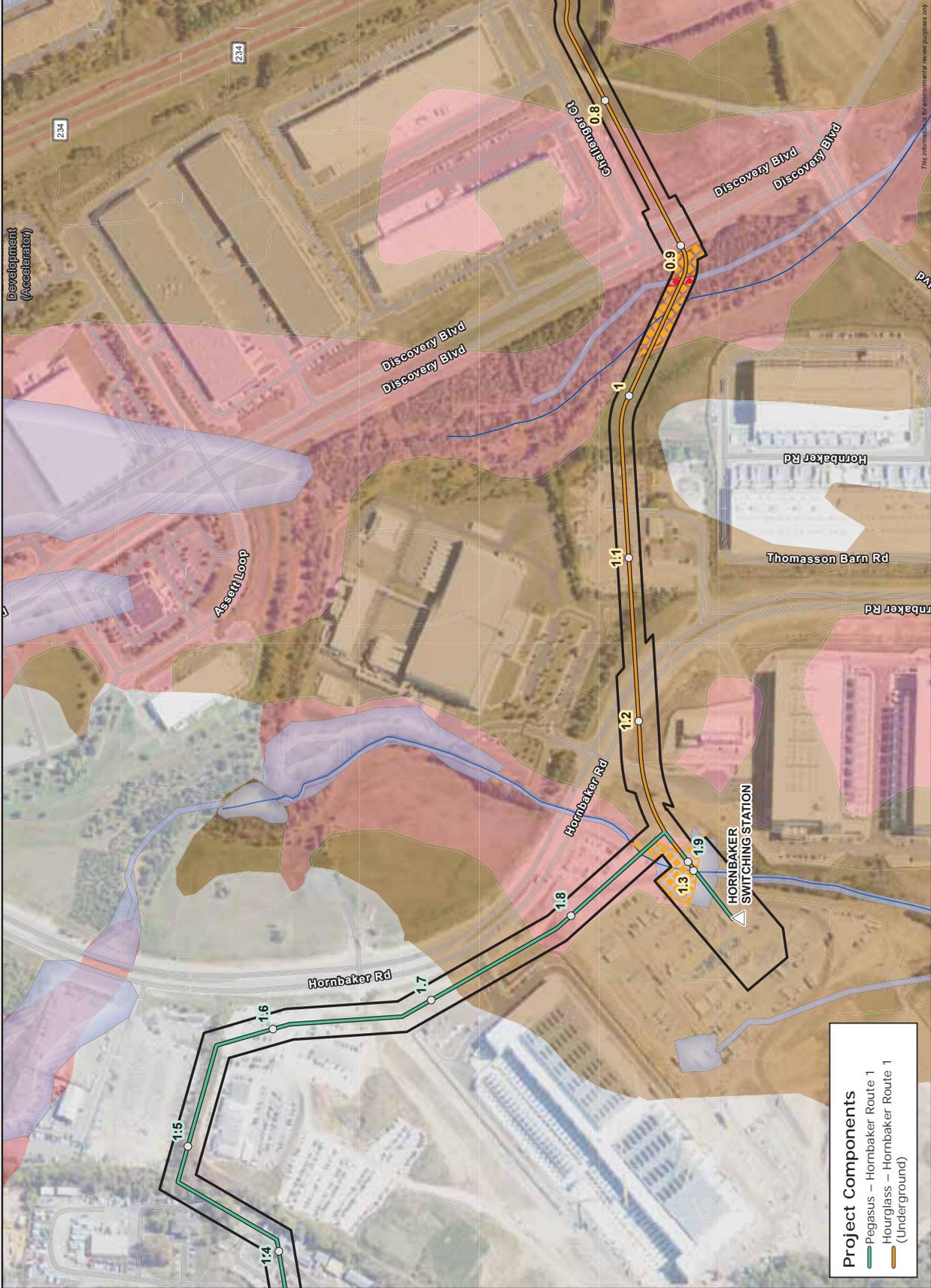
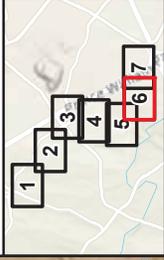
Hornbaker 230 kV  
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 Prince William County, Virginia

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1:3,600



- Project Components**
- Pegasus - Hornbaker Route 1
  - Hourglass - Hornbaker Route 1
  - (Underground)

This information is for environmental review purposes only.



**Attachment 3**  
Wetland Desktop Study  
Probability  
Mapset

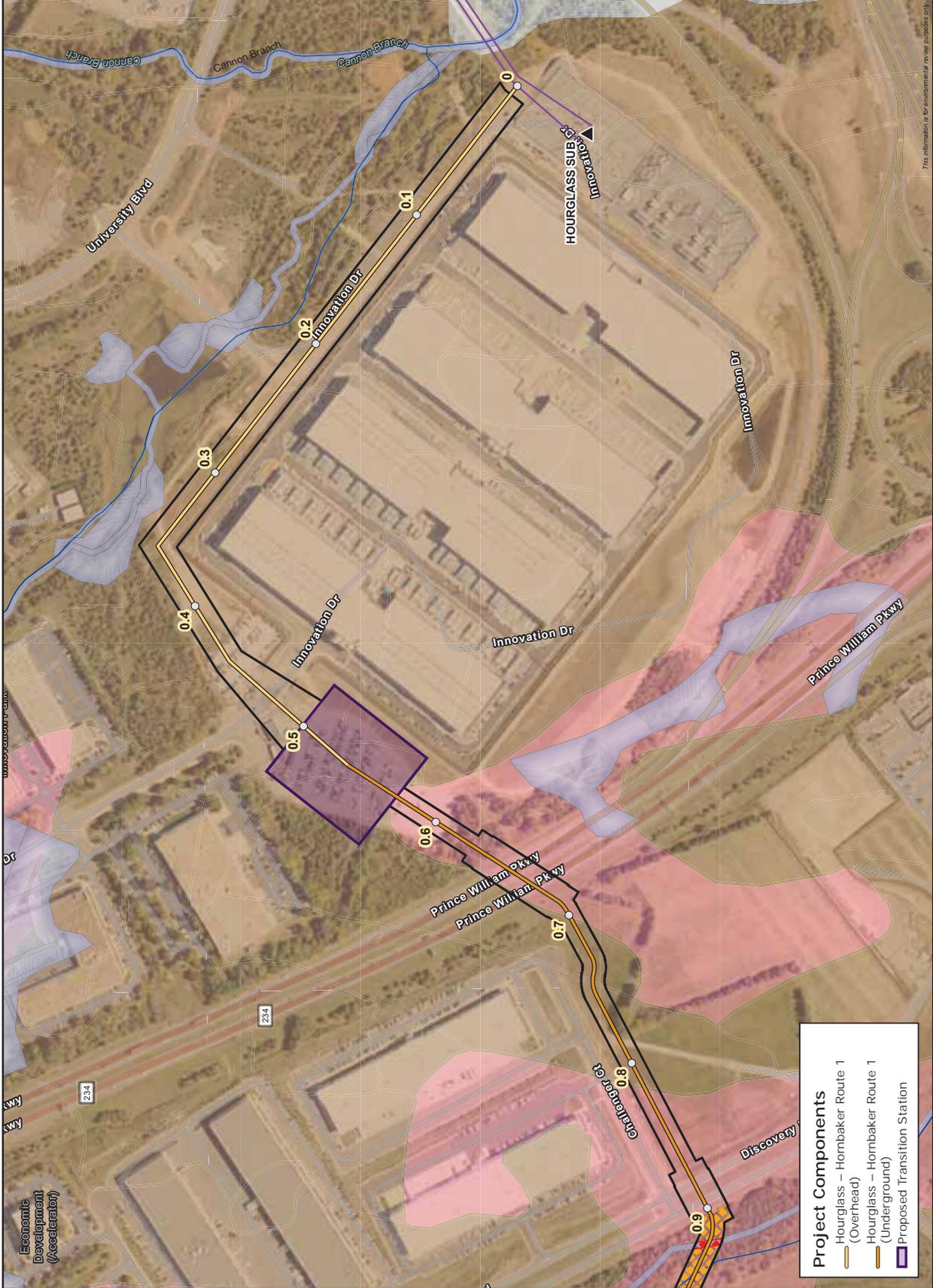
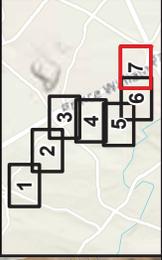
Hornbaker 230 kV  
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- ▲ Existing Substation/ Switching Station
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1:3,600



- Project Components**
- Hourglass – Hornbaker Route 1 (Overhead)
  - Hourglass – Hornbaker Route 1 (Underground)
  - Proposed Transition Station

This information is for environmental review purposes only.



APPENDIX E      VDCR CORRESPONDENCE AND FEDERAL-  
AND STATE-LISTED SPECIES DATA

Travis A. Voyles  
Secretary of Natural and Historic Resources

Frank N. Stovall  
Deputy Director  
for Operations

Matthew S. Wells  
Director



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

Andrew W. Smith  
Chief Deputy Director

**COMMONWEALTH of VIRGINIA**  
DEPARTMENT OF CONSERVATION AND RECREATION

Laura Ellis  
Deputy Director for  
Administration and Finance

September 26, 2024

Briana Cooney  
Environmental Resources Management, Inc.  
222 South 9<sup>th</sup> Street, South 2900  
Minneapolis, MN 55402

Re: 0577538, Devlin-Hornbaker

Dear Ms. Cooney:

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

According to the information in our files, the Vulcan Gainesville Tract Conservation Site is located within the project area, including a 100 foot buffer. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking (B-rank) based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Vulcan Gainesville Tract Conservation Site has been assigned a B-rank of B3, which represents a site of high significance. The natural heritage resources associated with this site are:

<i>Agalinis auriculata</i>	Earleaf false foxglove	G3/S1/NL/NL
<i>Pycnanthemum torreyi</i>	Torrey's Mountain-mint	G2/S2/SOC/LT
<i>Scleria ciliata var. ciliata</i>	Hairy nutrush	G5TNR/S1/NL/NL
<i>Solidago rigida var. rigida</i>	Stiff goldenrod	G5T5/S2/NL/NL

To minimize adverse impacts to the documented natural heritage resources as a result of the proposed activities, DCR recommends avoidance of the conservation site. In addition, according to a DCR biologist and a predicted suitable habitat layer, there is a potential for additional populations of several rare plants, which are typically associated with prairie vegetation and inhabit semi open diabase glades in Virginia, to occur in the project area if suitable habitat exists on site. Diabase glades are characterized by historically fire dominated grassland vegetation on relatively nutrient rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and

road construction (Rawinski, 1995).

In Northern Virginia, diabase supports occurrences of several global and state rare plant species: Earleaf False foxglove (*Agalinis auriculata*, G3/S1/NL/NL), American bluehearts (*Buchnera americana*, G5?/S1S2/NL/NL), Downy phlox (*Phlox pilosa*, G5/S1/NL/NL), Torrey's Mountain-mint (*Pycnanthemum torreyi*, G2/S2/SOC/LT), Stiff goldenrod (*Solidago rigida* var. *rigida*, G5T5/S2/NL/NL), and Hairy hedgenettle (*Stachys arenicola*, G5T4?/S1/NL/NL).

Please note that Torrey's Mountain-mint is currently classified as a species of concern by the United States Fish and Wildlife Service (USFWS) and listed as threatened by the Virginia Department of Agriculture and Consumer Services (VDACS).

Due to the potential for this site to support additional populations of diabase plants, DCR recommends an inventory for the resources in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at [anne.chazal@dcr.virginia.gov](mailto:anne.chazal@dcr.virginia.gov) or 804-786-9014 to discuss availability and rates for field work.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. Survey results should be coordinated with DCR-DNH. Upon review of the results, if it is determined the species is present, and there is a likelihood of a negative impact on the species, DCR-DNH will recommend coordination with VDACS to ensure compliance with Virginia's Endangered Plant and Insect Species Act.

Furthermore, the Broad Run - Cannon Branch Stream Conservation Site (SCS) is located within the project area. SCSs encompass stream/river reaches, waterbodies, and terrestrial contributing areas containing or associated with aquatic or semi-aquatic resources, including upstream and downstream reaches and tributaries up to 3-km stream distance from the aquatic resources. The size and dimensions of a SCS are based on the hydrology of the waterway and surrounding landscape, taking into consideration dam locations and whether the waterway is tidal. SCSs are given a biodiversity significance ranking (B-rank) based on the rarity, quality, and number of element occurrences they contain. The Broad Run - Cannon Branch SCS has been given a B-rank of B4, which represents a site of moderate significance. The natural heritage resource associated with this SCS is:

*Alasmidonta varicosa*

Brook floater

G2G4/S1/NL/LE

The Brook floater is a small freshwater mussel species that is known from the northeastern United States primarily in the Atlantic Slope drainages (NatureServe, 2009). In Virginia, it is recorded from the Potomac River basin with a possible record from the James River. Of 14 documented records in Virginia, only two are thought to be viable. Population declines have been documented throughout its range (NatureServe, 2009). The Brook floater typically inhabits flowing-water habitats in and near riffles and rapids of smaller creeks with rocky or gravelly substrates (Nedeau et al., 2000 per NatureServe, 2009). Many facets of its life history are unknown including its fish host. Please note that this species is currently listed as endangered by the Virginia Department of Wildlife Resources (VDWR).

Considered good indicators of the health of aquatic ecosystems, freshwater mussels are dependent on good water quality, good physical habitat conditions, and an environment that will support populations of host fish species (Williams et al., 1993). Because mussels are sedentary organisms, they are sensitive to water quality degradation related to increased sedimentation and pollution. They are also sensitive to habitat destruction through dam construction, channelization, and dredging, and the invasion of exotic mollusk species. Threats for the Brook floater in particular include poor water quality as this species does not tolerate silt or nutrient pollution well (Stevenson and Bruenderman, 1995). Due to the legal status of the Brook floater, DCR recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDWR, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

In addition, Broad Run has been designated by the VDWR as a “Threatened and Endangered Species Water” for the Brook floater.

The proposed project may impact Ecological Cores (**C3, C4, C5**) as identified in the Virginia Natural Landscape Assessment (<https://www.dcr.virginia.gov/natural-heritage/vaconvisvnl>). Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: <http://vanhde.org/content/map>.

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

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

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

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 \$1000.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24<sup>th</sup> Floor, Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The VDWR maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database

may be accessed at <https://services.dwr.virginia.gov/fwis/> or contact Hannah Schul at [Hannah.Schul@dwr.virginia.gov](mailto:Hannah.Schul@dwr.virginia.gov).

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

Sincerely,

A handwritten signature in cursive script that reads "Tyler Meader".

Tyler Meader  
Natural Heritage Locality Liaison

CC: Hannah Schul, VDWR

## Literature Cited

- NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: March 16, 2010).
- Nedeau, E.J., M.A. McCollough, and B.I. Swartz. 2000. The freshwater mussels of Maine. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. 118 pp.
- Rawinski, T.J. 1995. Natural communities and ecosystems: Conservation priorities for the future. Unpublished report for DCR-DNH.
- Stevenson, Phillip H. and Sue A. Bruenderman 1995. A Guide to Endangered and Threatened Species of Virginia. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. p. 74.
- Williams, J.D., M.L. Warren, Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. 1993. Conservation status of freshwater mussels of the United States and Canada. Fisheries 18: 6 9.

**VaFWIS Search Report** Compiled on 9/19/2024, 3:36:04 PM[Help](#)

Known or likely to occur within a **2 mile buffer around polygon; center 38.7601400 -77.5834899**  
in **153 Prince William County, 683 Manassas City, VA**

[View Map of  
Site Location](#)

566 Known or Likely Species ordered by Status Concern for Conservation  
(displaying first 30) (30 species with Status\* or Tier I\*\* or Tier II\*\* )

<a href="#">BOVA Code</a>	<a href="#">Status*</a>	<a href="#">Tier**</a>	<a href="#">Common Name</a>	<a href="#">Scientific Name</a>	<a href="#">Confirmed</a>	<a href="#">Database(s)</a>
050022	FEST	Ia	<a href="#">Bat, northern long-eared</a>	Myotis septentrionalis		BOVA
010032	FESE	Ib	<a href="#">Sturgeon, Atlantic</a>	Acipenser oxyrinchus		BOVA
060029	FTST	IIa	<a href="#">Lance, yellow</a>	Elliptio lanceolata	<a href="#">Yes</a>	BOVA,SppObs,HU6
050020	SE	Ia	<a href="#">Bat, little brown</a>	Myotis lucifugus		BOVA
050027	FPSE	Ia	<a href="#">Bat, tri-colored</a>	Perimyotis subflavus		BOVA
060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>	BOVA,TEWaters,Habitat,SppObs,HU6
030062	ST	Ia	<a href="#">Turtle, wood</a>	Glyptemys insculpta	<a href="#">Potential</a>	Habitat,HU6
040096	ST	Ia	<a href="#">Falcon, peregrine</a>	Falco peregrinus		BOVA
040293	ST	Ia	<a href="#">Shrike, loggerhead</a>	Lanius ludovicianus	<a href="#">Potential</a>	BOVA,BBA
040379	ST	Ia	<a href="#">Sparrow, Henslow's</a>	Centronyx henslowii		BOVA,HU6
100155	ST	Ia	<a href="#">Skipper, Appalachian grizzled</a>	Pyrgus wyandot		HU6
040292	ST		<a href="#">Shrike, migrant loggerhead</a>	Lanius ludovicianus migrans		BOVA
100079	FC	IIIa	<a href="#">Butterfly, monarch</a>	Danaus plexippus		BOVA
030063	CC	IIIa	<a href="#">Turtle, spotted</a>	Clemmys guttata		BOVA,HU6
030012	CC	IVa	<a href="#">Rattlesnake, timber</a>	Crotalus horridus		BOVA,HU6
010077		Ia	<a href="#">Shiner, bridle</a>	Notropis bifrenatus		BOVA

040040		Ia	<a href="#">Ibis, glossy</a>	Plegadis falcinellus		HU6
040306		Ia	<a href="#">Warbler, golden-winged</a>	Vermivora chrysoptera		BOVA
100248		Ia	<a href="#">Fritillary, regal</a>	Speyeria idalia idalia		BOVA,HU6
040213		Ic	<a href="#">Owl, northern saw-whet</a>	Aegolius acadicus		BOVA,HU6
040052		IIa	<a href="#">Duck, American black</a>	Anas rubripes		BOVA,HU6
040036		IIa	<a href="#">Night-heron, yellow-crowned</a>	Nyctanassa violacea violacea		BOVA
040181		IIa	<a href="#">Tern, common</a>	Sterna hirundo		BOVA,HU6
040320		IIa	<a href="#">Warbler, cerulean</a>	Setophaga cerulea		BOVA,HU6
040140		IIa	<a href="#">Woodcock, American</a>	Scolopax minor	<a href="#">Potential</a>	BOVA,BBA,HU6
040203		IIb	<a href="#">Cuckoo, black-billed</a>	Coccyzus erythrophthalmus	<a href="#">Potential</a>	BOVA,BBA
040105		IIb	<a href="#">Rail, king</a>	Rallus elegans		BOVA
040304		IIc	<a href="#">Warbler, Swainson's</a>	Limnothlypis swainsonii		HU6
100154		IIc	<a href="#">Butterfly, Persius duskywing</a>	Erynnis persius persius		HU6
100166		IIc	<a href="#">Skipper, Dotted</a>	Hesperia attalus slossonae		HU6

To view **All 566 species** [View 566](#)

\*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; 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.

[View Map of All Query Results from All Observation Tables](#)

Bat Colonies or Hibernacula: **Not Known**

**Anadromous Fish Use Streams**

N/A

**Impediments to Fish Passage** ( 1 records )

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
1259	<a href="#">LAKE VIEW ESTATES DAM</a>	TR-ROCKY BRANCH	<a href="#">Yes</a>

**Colonial Water Bird Survey**

N/A

**Threatened and Endangered Waters** ( 46 Reaches - displaying first 20 )

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE *	BOVA Code, Status *, Tier **, Common & Scientific Name					
<a href="#">(013393.)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">(020380.)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">(020411.)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (013301)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (014025)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (014993)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (015607)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (015608)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (016525)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (017701)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>

<a href="#">Broad Run (017774)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (017812)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (017869)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (018444)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (019062)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (019463)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (019494)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (019519)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (019594)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (019611)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (020191)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (020238)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
<a href="#">Broad Run (021076)</a>	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>

To view **All 46 Threatened and Endangered Waters records** [View 46](#)

### Managed Trout Streams

N/A

### Bald Eagle Concentration Areas and Roosts

N/A

### Bald Eagle Nests

N/A

**Species Observations** ( 199 records - displaying first 20 ,  
13 Observations with Threatened or  
Endangered species )

[View Map of All Query Results  
Species Observations](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE *	Highest Tier **	
<a href="#">55402</a>	SppObs	Aug 21 1998	BEATY, WINTERRINGER, ZIMMERMAN, MAIR, JONES, DORSEY, CHEN, , AND GILBERT, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT	6	FTSE	I	<a href="#">Yes</a>
<a href="#">55694</a>	SppObs	Aug 21 1998	Braven B. Beaty and Richard J. Neves, Virginia Cooperative Fish and Wildlife Unit, VA Tech	6	FTSE	I	<a href="#">Yes</a>
<a href="#">3602</a>	SppObs	Sep 24 1991	Div. Natural Heritage	4	FTSE	I	<a href="#">Yes</a>
<a href="#">315311</a>	SppObs	Sep 16 2005	D. Neves, J. Jones, A. Liberty, H. Dan, J. Schmerfeld, T. Bolton	2	FTST	II	<a href="#">Yes</a>
<a href="#">306561</a>	SppObs	Mar 27 2004	NEVES, WINSTON, WATSON, AND KRAVITZ, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT, VA TECH	5	FTST	II	<a href="#">Yes</a>
<a href="#">306560</a>	SppObs	Mar 27 2004	NEVES, WINSTON, WATSON, AND KRAVITZ, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT, VA TECH	5	FTST	II	<a href="#">Yes</a>
<a href="#">56232</a>	SppObs	Apr 10 1999	JESS JONES AND MATT PATERSON, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT	3	FTST	II	<a href="#">Yes</a>
<a href="#">55523</a>	SppObs	Jul 8 1998	BEATY, PATTERSON, PRINGLE, AND ZEYTOONIAN, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT.	4	FTST	II	<a href="#">Yes</a>
<a href="#">55532</a>	SppObs	Sep 4 1997	BEATY, AND JONES, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT.	3	FTST	II	<a href="#">Yes</a>
<a href="#">55533</a>	SppObs	Sep 4 1997	BEATY, AND JONES, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT.	4	FTST	II	<a href="#">Yes</a>
<a href="#">648647</a>	SppObs	Aug 15 2023	Caitlin Carey; Brian Watson; Brittany Bajo-Walker; Ki	5	SE	I	<a href="#">Yes</a>
<a href="#">5952</a>	SppObs	Aug 24 1993	Stevenson, P. H.	8	SE	I	<a href="#">Yes</a>

<a href="#">5949</a>	SppObs	Aug 23 1993	Stevenson, P. H.	9	SE	I	<a href="#">Yes</a>
<a href="#">608015</a>	SppObs	Jul 12 2009	Mark; Causey	1		III	<a href="#">Yes</a>
<a href="#">607558</a>	SppObs	Jun 6 2009	Mark; Causey	1		III	<a href="#">Yes</a>
<a href="#">602319</a>	SppObs	May 29 2009	Mark; Causey	1		III	<a href="#">Yes</a>
<a href="#">603467</a>	SppObs	May 29 2009	Mark; Causey	1		III	<a href="#">Yes</a>
<a href="#">605908</a>	SppObs	May 28 2009	Mark; Causey	1		III	<a href="#">Yes</a>
<a href="#">607095</a>	SppObs	Jul 12 2008	Mark; Causey	1		III	<a href="#">Yes</a>
<a href="#">320587</a>	SppObs	Jun 23 2007	Mark Causey	1		III	<a href="#">Yes</a>

Displayed 20 Species Observations

Selected 199 Observations [View all 199 Species Observations](#)

**Habitat Predicted for Aquatic WAP Tier I & II Species** ( 9 Reaches )

[View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species](#)

Stream Name	Tier Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
Broad Run (20700102)	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
Chinn Branch (20700102)	ST	030062	ST	Ia	<a href="#">Turtle, wood</a>	Glyptemys insculpta	<a href="#">Yes</a>
Dawkins Branch (20700102)	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
Flat Branch (20700102)	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
Holkums Branch (20700102)	ST	030062	ST	Ia	<a href="#">Turtle, wood</a>	Glyptemys insculpta	<a href="#">Yes</a>
Kettle Run (20700102)	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>
tributary (20700102)	ST	030062	ST	Ia	<a href="#">Turtle, wood</a>	Glyptemys insculpta	<a href="#">Yes</a>
tributary (20700102)	SE	060006	SE	Ib	<a href="#">Floater, brook</a>	Alasmidonta varicosa	<a href="#">Yes</a>

Youngs Branch (20700102)	ST	030062	ST	Ia	<a href="#">Turtle, wood</a>	Glyptemys insculpta	<a href="#">Yes</a>
Youngs Branch (20700102)	ST	030062	ST	Ia	<a href="#">Turtle, wood</a>	Glyptemys insculpta	<a href="#">Yes</a>

**Habitat Predicted for Terrestrial WAP Tier I & II Species**

N/A

**Virginia Breeding Bird Atlas Blocks** ( 11 records )

[View Map of All Query Results Virginia Breeding Bird Atlas Blocks](#)

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species			View Map
		Different Species	Highest TE *	Highest Tier **	
50194	<a href="#">Gainesville, CE</a>	38		III	<a href="#">Yes</a>
50193	<a href="#">Gainesville, CW</a>	48		III	<a href="#">Yes</a>
50196	<a href="#">Gainesville, SE</a>	74		III	<a href="#">Yes</a>
50195	<a href="#">Gainesville, SW</a>	45		III	<a href="#">Yes</a>
51181	<a href="#">Independent Hill, NW</a>	1			<a href="#">Yes</a>
51193	<a href="#">Manassas, CW</a>	76		II	<a href="#">Yes</a>
51195	<a href="#">Manassas, SW</a>	1			<a href="#">Yes</a>
50184	<a href="#">Nokesville, CE</a>	94	ST	I	<a href="#">Yes</a>
50183	<a href="#">Nokesville, CW</a>	69		III	<a href="#">Yes</a>
50182	<a href="#">Nokesville, NE</a>	84		II	<a href="#">Yes</a>
50181	<a href="#">Nokesville, NW</a>	84		II	<a href="#">Yes</a>

**Public Holdings:** ( 2 names )

Name	Agency	Level
Manassas National Battlefield Park	National Park Service	Federal
Conway Robinson Memorial State Forest	VA Dept. of Forestry	State

**Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:**

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
153	<a href="#">Prince William</a>	483	FESE	I
683	<a href="#">Manassas City</a>	372	FESE	I

**USGS 7.5' Quadrangles:**

- Nokesville
- Gainesville
- Independent Hill
- Manassas

**USGS NRCS Watersheds in Virginia:**

N/A

**USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:**

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
PL32	<a href="#">Broad Run-Catletts Branch</a>	58	SE	I
PL33	<a href="#">Kettle Run</a>	59	FTSE	I
PL34	<a href="#">Broad Run-Rocky Branch</a>	59	FTSE	I
PL43	<a href="#">Little Bull Run</a>	58	SE	I
PL44	<a href="#">Middle Bull Run</a>	72	FTSE	I

Compiled on 9/19/2024, 3:36:04 PM I2410851.0 report=all searchType= P dist= 3218 poi= 38.7601400 -77.5834899 siteDD= 38.7601480 -77.5834938;38.7930580 -77.5652118;38.7820430 -77.5343738;38.7673220 -77.5184948;38.7413510 -77.5131738;38.7297690 -77.5463908;38.7601480 -77.5834938

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Site Location

38,45,36.5 -77,35,00.5  
is the Search Point

Show Position Rings

Yes  No  
4 miles and 1 mile at the Search Point

Show Search Area

Yes  No  
2 Search distance miles buffer

Display	Search Point is not at center
<input type="checkbox"/> at center	<input type="checkbox"/> at map center

Base Map Choices

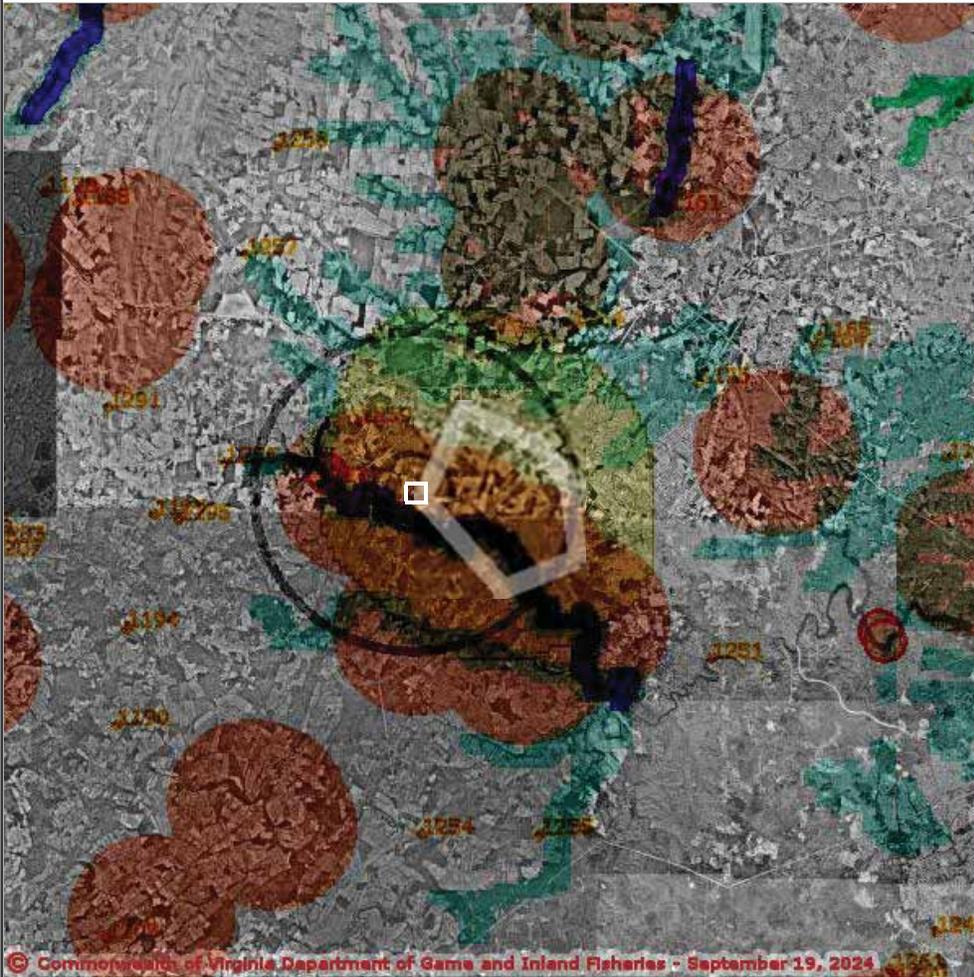
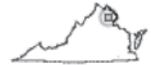
BW Aerial Photography

Map Overlay Choices

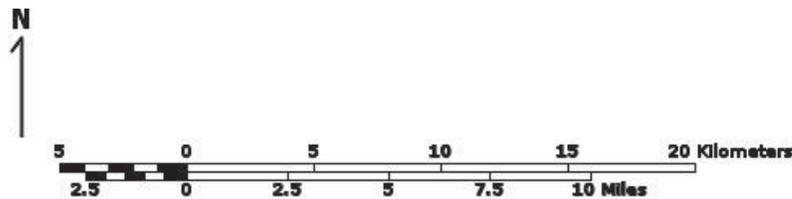
Current List: Position, Search, BECAR, BAEANests, TEWaters, TierII, Habitat, Trout, Anadromous

back [Refresh Browser Page](#)

Map Click **Pan** **Id** **M** Map Scale **In** **Zoom** Screen Size **Small** **Size** **Big** [Help](#)



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Point of Search 38,45,36.5 -77,35,00.5  
Map Location 38,45,40.2 -77,32,52.1

- Select **Coordinate System**:  Degrees,Minutes,Seconds Latitude - Longitude  
 Decimal Degrees Latitude - Longitude  
 Meters UTM NAD83 East North Zone  
 Meters UTM NAD27 East North Zone

Base Map source: Black & White USGS Aerial Photography (see [Microsoft terraserver-usa.com](https://microsoft.terraserver-usa.com) for details)

Map projection is UTM Zone 18 NAD 1983 with left 259426 and top 4312557. Pixel size is 64 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixels. The map display represents 38400 meters east to west by 38400 meters north to south for a total of 1474.5 square kilometers.

**Map Overlay Legend**

**T & E Waters**

-  **Federal**
-  **State**

**Predicted Habitat  
WAP Tier I & II**

-  **Aquatic**
-  **Terrestrial**

**Trout Waters**

-  **Class I - IV**
-  **Class V - VI**

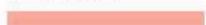
**Anadromous Fish Reach**

-  **Confirmed**
-  **Potential**

 **Impediment**



**Bald Eagle  
Concentration Areas  
and Roosts**



The map display represents 126005 feet east to west by 126005 feet north to south for a total of 569.5 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 Wildlife Resources.

map assembled 2024-09-19 15:37:48 (qa/qc March 21, 2016 12:20 - tn=2410851.0 dist=3218 1)  
\$poi=38.7601400 -77.5834899



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Virginia Ecological Services Field Office  
6669 Short Lane  
Gloucester, VA 23061-4410  
Phone: (804) 693-6694

In Reply Refer To:  
Project Code: 2024-0146765  
Project Name: Hornbaker

09/19/2024 18:52:03 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

## To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Project Code in the header of this

letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds

## OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Virginia Ecological Services Field Office**

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

## PROJECT SUMMARY

Project Code: 2024-0146765  
Project Name: Hornbaker  
Project Type: Transmission Line - New Constr - Above Ground  
Project Description: New electric transmission line and substation  
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.7614057,-77.55003549885285,14z>



Counties: Manassas and Prince William counties, Virginia

## ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a>	Proposed Endangered

## CLAMS

NAME	STATUS
Dwarf Wedgemussel <i>Alasmidonta heterodon</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/784">https://ecos.fws.gov/ecp/species/784</a>	Endangered

## INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

## USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

## BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act<sup>1</sup> and the Migratory Bird Treaty Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats<sup>3</sup>, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

1. The [Bald and Golden Eagle Protection Act](#) of 1940.
2. The [Migratory Birds Treaty Act](#) of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a>	Breeds Sep 1 to Jul 31

## PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

### Breeding Season (■)

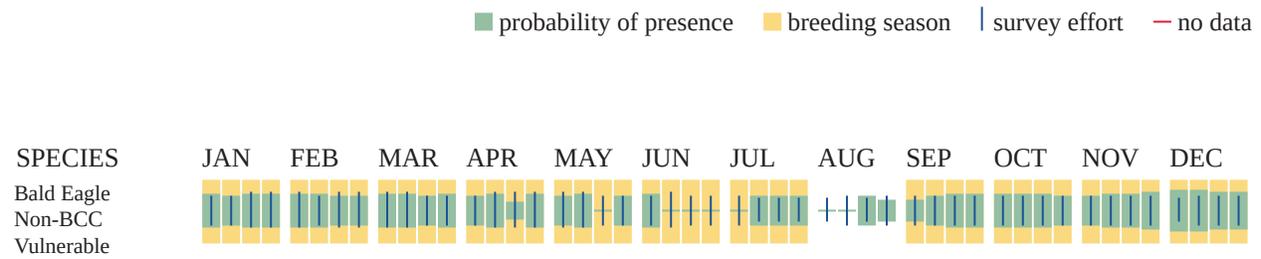
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

### Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

## MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats<sup>3</sup> should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p>Bald Eagle <i>Haliaeetus leucocephalus</i>            This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a></p>	Breeds Sep 1 to Jul 31
<p>Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a></p>	Breeds May 15 to Oct 10
<p>Cerulean Warbler <i>Setophaga cerulea</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/2974">https://ecos.fws.gov/ecp/species/2974</a></p>	Breeds Apr 28 to Jul 20
<p>Chimney Swift <i>Chaetura pelagica</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9406">https://ecos.fws.gov/ecp/species/9406</a></p>	Breeds Mar 15 to Aug 25
<p>Grasshopper Sparrow <i>Ammodramus savannarum perpallidus</i>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/8329">https://ecos.fws.gov/ecp/species/8329</a></p>	Breeds Jun 1 to Aug 20
<p>Kentucky Warbler <i>Geothlypis formosa</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9443">https://ecos.fws.gov/ecp/species/9443</a></p>	Breeds Apr 20 to Aug 20
<p>Prairie Warbler <i>Setophaga discolor</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9513">https://ecos.fws.gov/ecp/species/9513</a></p>	Breeds May 1 to Jul 31
<p>Prothonotary Warbler <i>Protonotaria citrea</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9439">https://ecos.fws.gov/ecp/species/9439</a></p>	Breeds Apr 1 to Jul 31
<p>Red-headed Woodpecker <i>Melanerpes erythrocephalus</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9398">https://ecos.fws.gov/ecp/species/9398</a></p>	Breeds May 10 to Sep 10
<p>Rusty Blackbird <i>Euphagus carolinus</i>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/9478">https://ecos.fws.gov/ecp/species/9478</a></p>	Breeds elsewhere

NAME	BREEDING SEASON
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9431">https://ecos.fws.gov/ecp/species/9431</a>	Breeds May 10 to Aug 31

## PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

### Breeding Season (■)

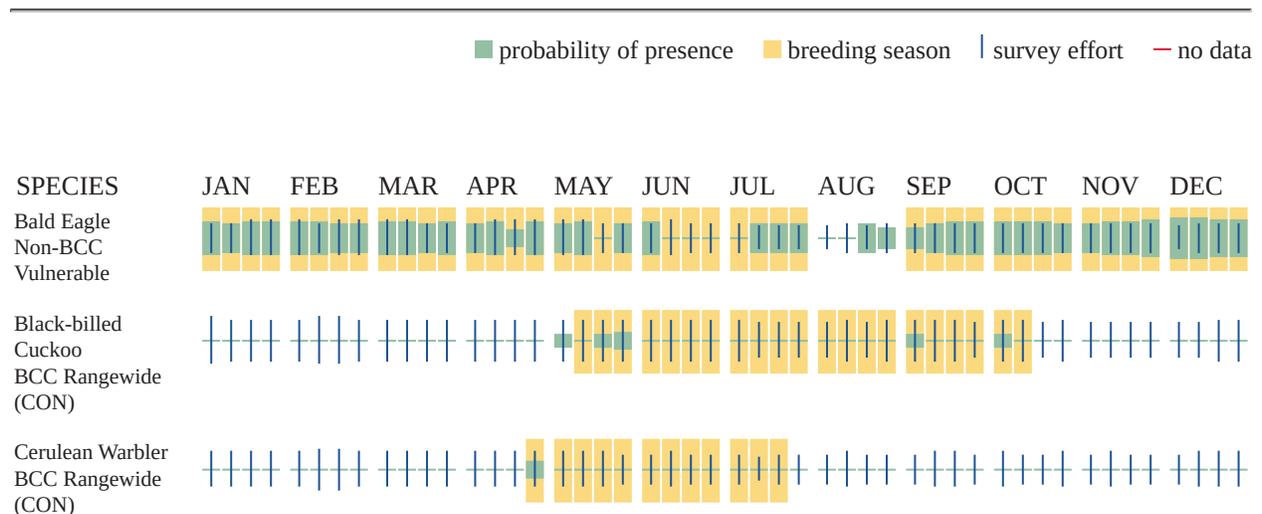
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

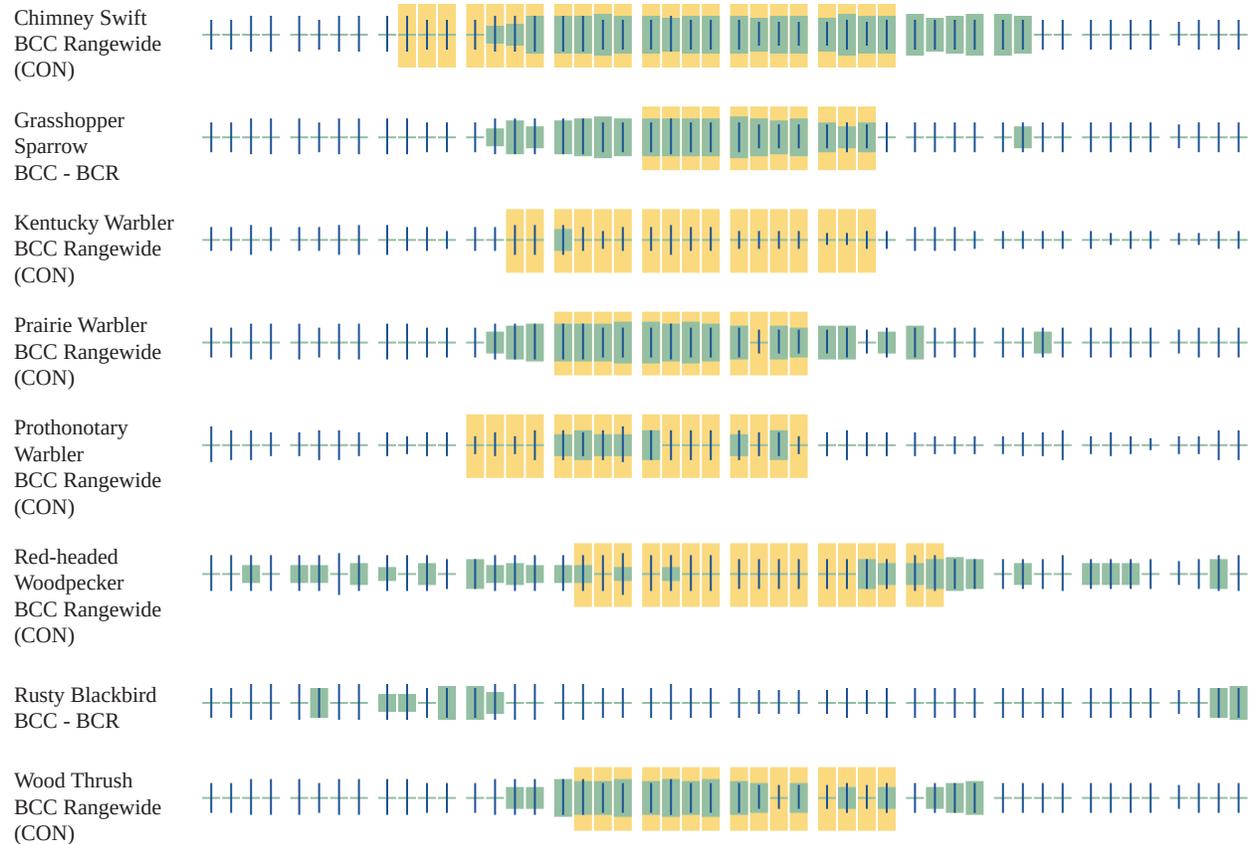
### Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.



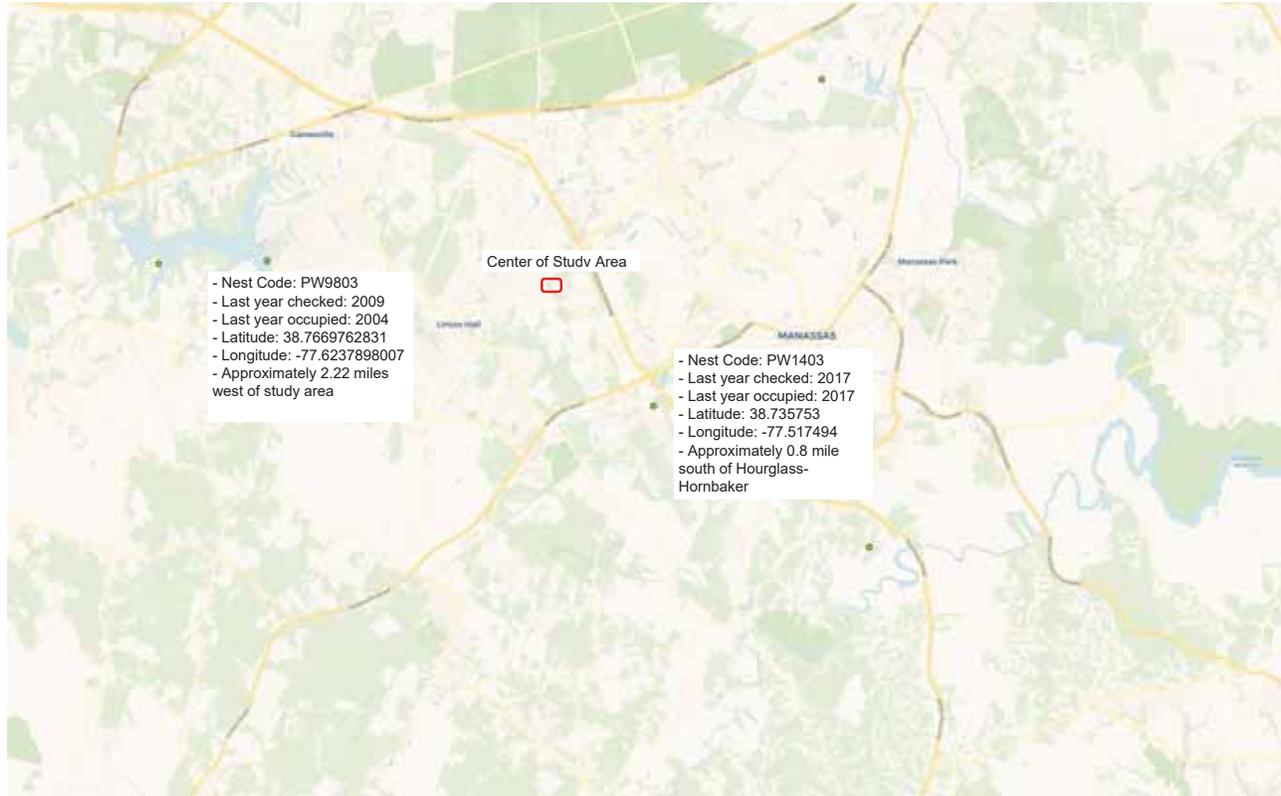


Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

## IPAC USER CONTACT INFORMATION

Agency: Private Entity  
Name: Madison Adams  
Address: 222 South 9th Street, Suite 2900  
City: Minneapolis  
State: MN  
Zip: 55402  
Email: madisonkadams16@gmail.com  
Phone: 2188397343



**Layers:** VA Eagle Nest Locator

**Map Center [longitude, latitude]:** [-77.52399444580078, 38.76378807396476]

**Map Link:**

<https://ccbbirds.org/maps/#layer=VA+Eagle+Nest+Locator&zoom=13&lat=38.76378807396476&lng=-77.52399444580078&base=Street+Map+%28OSM%2FCarto%29>

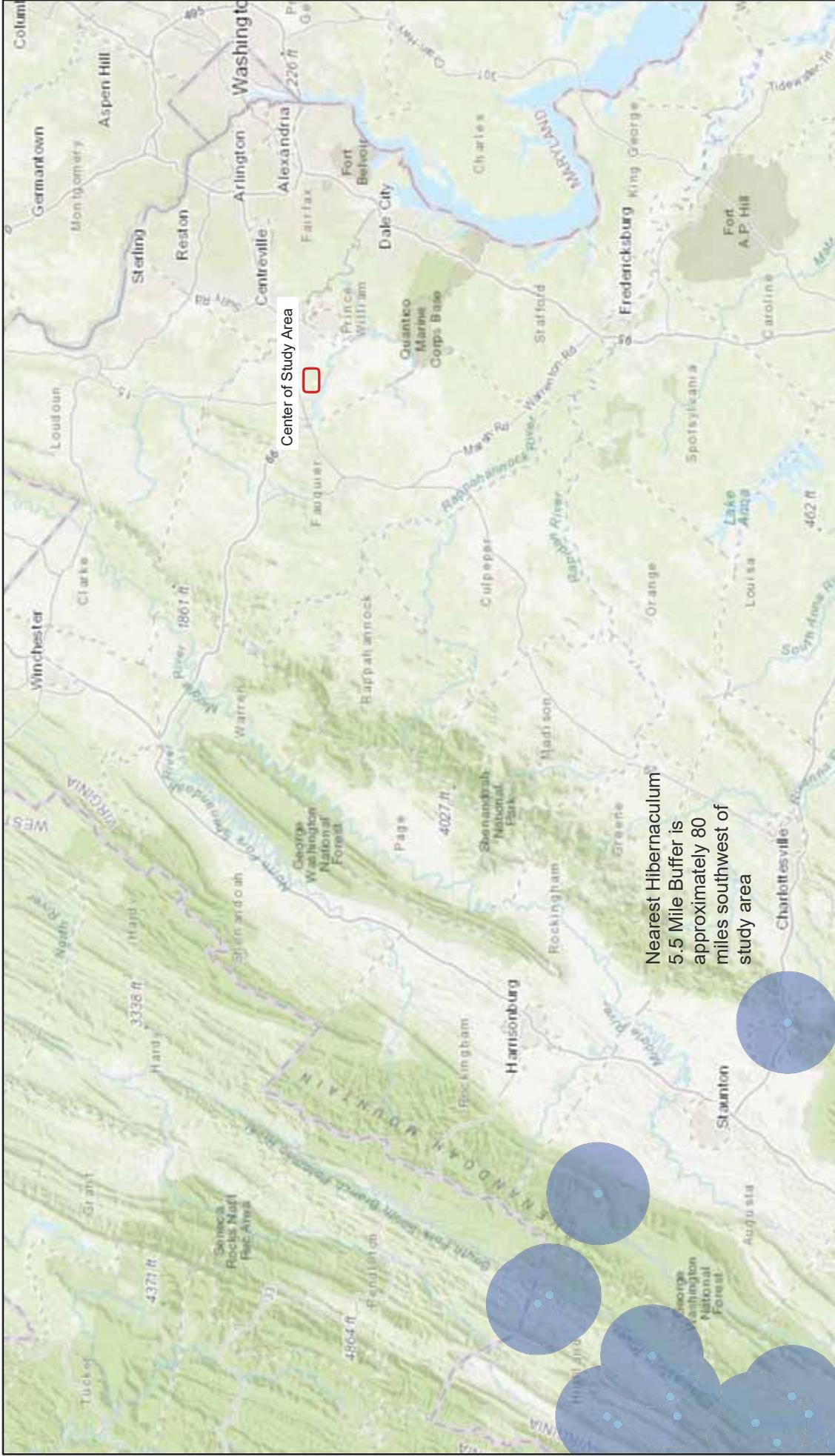
**Report Generated On:** 11/05/2024

The Center for Conservation Biology (CCB) provides certain data online as a free service to the public and the regulatory sector. CCB encourages the use of its data sets in wildlife conservation and management applications. These data are protected by intellectual property laws. All users are reminded to view the [Data Use Agreement](#) to ensure compliance with our data use policies. For additional data access questions, view our [Data Distribution Policy](#), or contact our Data Manager, Marie Pitts, at [mlpitts@wm.edu](mailto:mlpitts@wm.edu) or 757-221-7503.

Report generated by [The Center for Conservation Biology Mapping Portal](#).

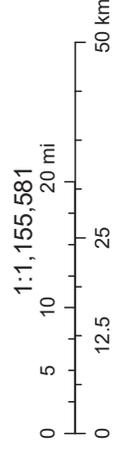
To learn more about CCB visit [ccbbirds.org](http://ccbbirds.org) or contact us at [info@ccbbirds.org](mailto:info@ccbbirds.org)

# Nearest MYLU Hibernacula - Devlin Hornbaker



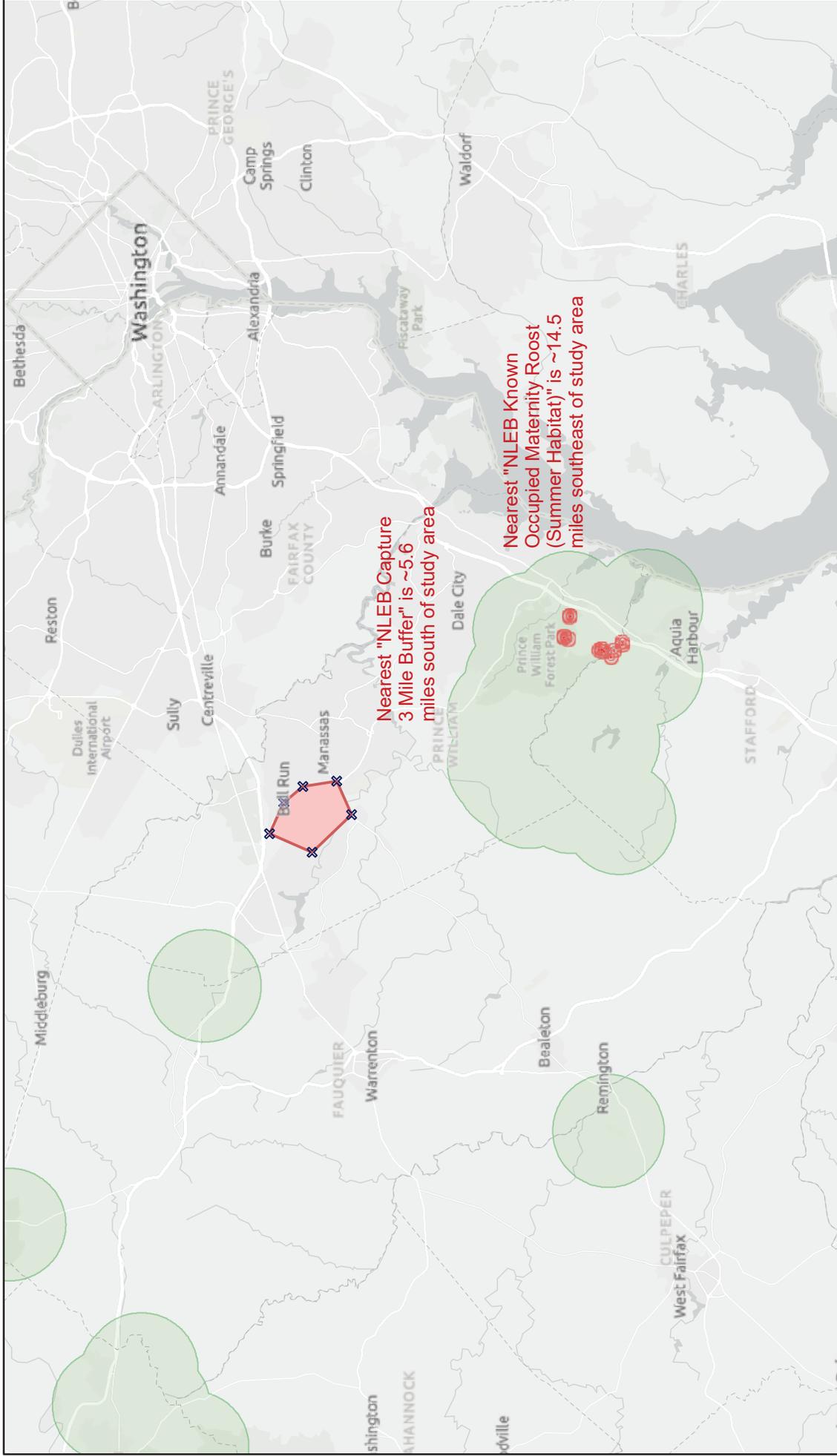
11/6/2024, 1:13:30 PM

- Tri-colored and Little Brown Hibernaculum Half Mile Buffer
- Tri-colored and Little Brown Hibernaculum 5.5 Mile Buffer



Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

# NLEB Locations and Roost Trees - Devlin Hornbaker



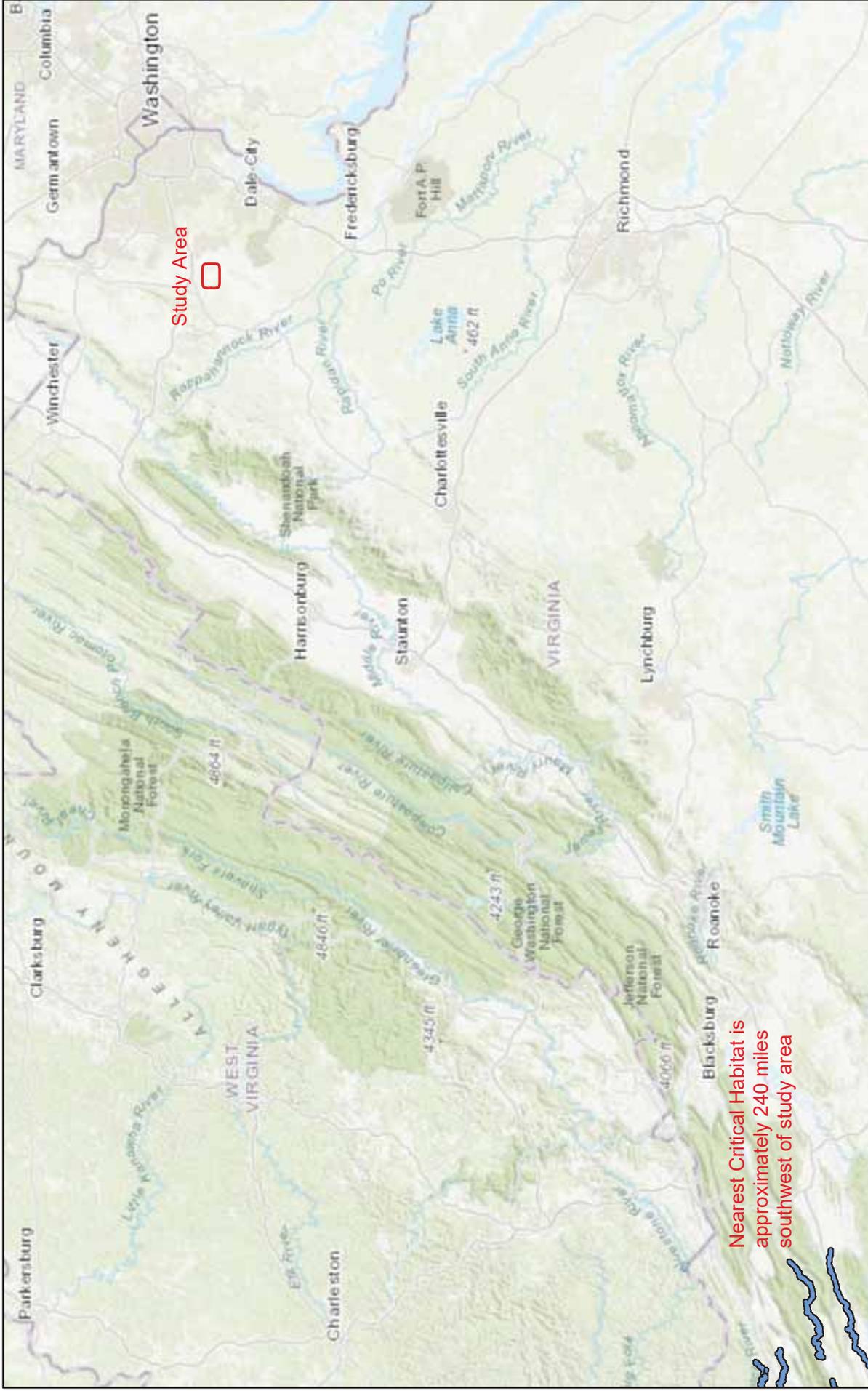
11/5/2024, 4:33:40 PM

- NLEB Known Occupied Maternity Roost (Summer Habitat)
- NLEB Roost Tree 150-Foot Buffer
- NLEB Capture 3 Mile Buffer

1:577,791  
0 3.75 7.5 15 mi  
0 5 10 20 km

County of Prince William, Fairfax County, VA, VGIN, Esri, TomTom, Garmin, SafeGraph, FAO, MET/NASA, USGS, EPA, NPS, USFWS

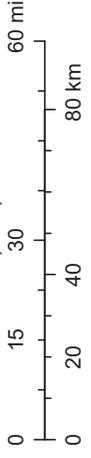
# Nearest Critical Habitat to Study Area



November 6, 2024

Virginia Critical Habitat (published)

1:2,311,162



Esri, HERE, Garmin, FAO, USGS, EPA, NPS

**From:** [nhreview \(DCR\)](#)  
**To:** [Briana Cooney](#)  
**Cc:** [Hypes, Rene \(DCR\)](#); [Weber, Joseph \(DCR\)](#)  
**Subject:** Re: 0642267, Golden-Mars  
**Date:** Thursday, May 23, 2024 9:58:13 AM  
**Attachments:** [image002.png](#)  
[image003.png](#)  
[image.png](#)  
[image.png](#)

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**EXTERNAL MESSAGE**

Briana,

Thanks for your patience with this. I've reiterated your questions in blue, with answers below.

I was reviewing the SCS shapefile you all sent, and I noticed that there are pieces of the SCS that are now developed. Have there been any studies of this area recently? Are you able to tell me when this SCS area was created or last modified?

- Our **Chief of Biodiversity Information and Conservation Tools** said that there does seem to be areas of the SCS that were developed since it was created. Much of the SCS is still intact, however, and perhaps even more important for maintaining water quality for NHR.
- It looks like the SCS was last modified 7/6/2023. Stream Conservation Sites do not represent protected areas, but waterways and terrestrial areas that contribute to the habitat quality of the documented resource. These areas will affect the water quality of the Yellow lampmussel habitat regardless of their current land use.

I also noticed that the natural heritage resource associated with this SCS is the Yellow lampmussel; however, in my database searches, I haven't seen a documented occurrence of this species within the SCS or study area. Do you have additional information on the presence of this species?

- Generally we do not share the location of our documented resources, only the associated SCS or Conservation Site. Looking at my data, the Yellow lampmussel **is documented within the SCS**. The documented locations are in Broad Run, the main branch of the SCS in the northern portion. The other stream areas included in the SCS are upstream of documented occurrences and changes to the water quality within the SCS will impact the documented resource.
- I can't really comment on the lack of the Yellow lampmussel in the databases without knowing which ones you used. It would not be found in DWR or USFWS databases as it is not a listed species. NHDE (*Natural Heritage Database Explorer*) only shows documented occurrences to Tier 3 users, which is only available to our conservation partners.

I've also noticed in this project and previous projects that some ecological cores identified are less than 100 acres, and the VDCR letter states: "Ecological Cores are areas of at least 100 acres of continuous interior..." Should we continue to study cores that are under 100 acres?

- The cores are found in [Virginia Natural Landscape Assessment](#) Ecological Cores and Habitat Fragments data layer. It looks like the feature in question is a habitat fragment, the link above can give you some more information about Cores and Habitat Fragments.
- From our Chief of Biodiversity Information and Conservation Tools: "**Smaller areas of continuous interior cover (i.e., 10 to 99 acres) called Habitat Fragments support Ecological**

**Cores and provide similar functions and values.** Both feature types are discussed on the website.

- Ecological Cores and Habitat Fragments are ranked by Ecological Integrity based on variables including rare species habitats, habitat diversity, resilience, and water quality, to reflect the wide range of important benefits and ecosystem services they provide. Brief descriptions of Ecological Integrity rankings are:
  - C1 – Outstanding: These cores tend to be large in area, of deepest interior, of greatest water quality protections, highest in habitat diversity and rich in rare species, including species listed as threatened or endangered. Of all Ecological Cores in the Commonwealth 1% are ranked as C1.
  - C2 – Very High: These cores have all or many of the same characteristics and values as C1 cores, though to a lesser extent. About 2.5% of all cores in the Commonwealth are ranked C2.
  - C3 – High, C4 – Moderate, and C5 – General: These cores, as well as **habitat fragments**, have some of the same quantifiable values and characteristics as higher-ranked cores, though much reduced due to their having substantially less interior area and smaller area overall.
  - 
  - There are no Habitat Fragments ranked above C3. "
- Due to Habitat Fragments ability to provide important ecological functions and values, we do still recommend avoiding impacts and when impacts can not be avoided to keep them to the edge of the fragment/core. We only recommend a formal impact analysis for C1 and C2 Cores, which never include fragments.

Hopefully this information is helpful. I have Cc'd Joe Weber our Chief of Biodiversity Information and Conservation Tools and Rene' Hypes our Project Review Coordinator. Let me know if you have anymore questions or if any of the information here needs clarification.

Thank you,

**Nicki Gustafson** (*she/her*)

**Project Review Assistant**

Division of Natural Heritage

Virginia Department of Conservation and Recreation

600 E. Main Street, 24th Floor

Richmond, VA 23219

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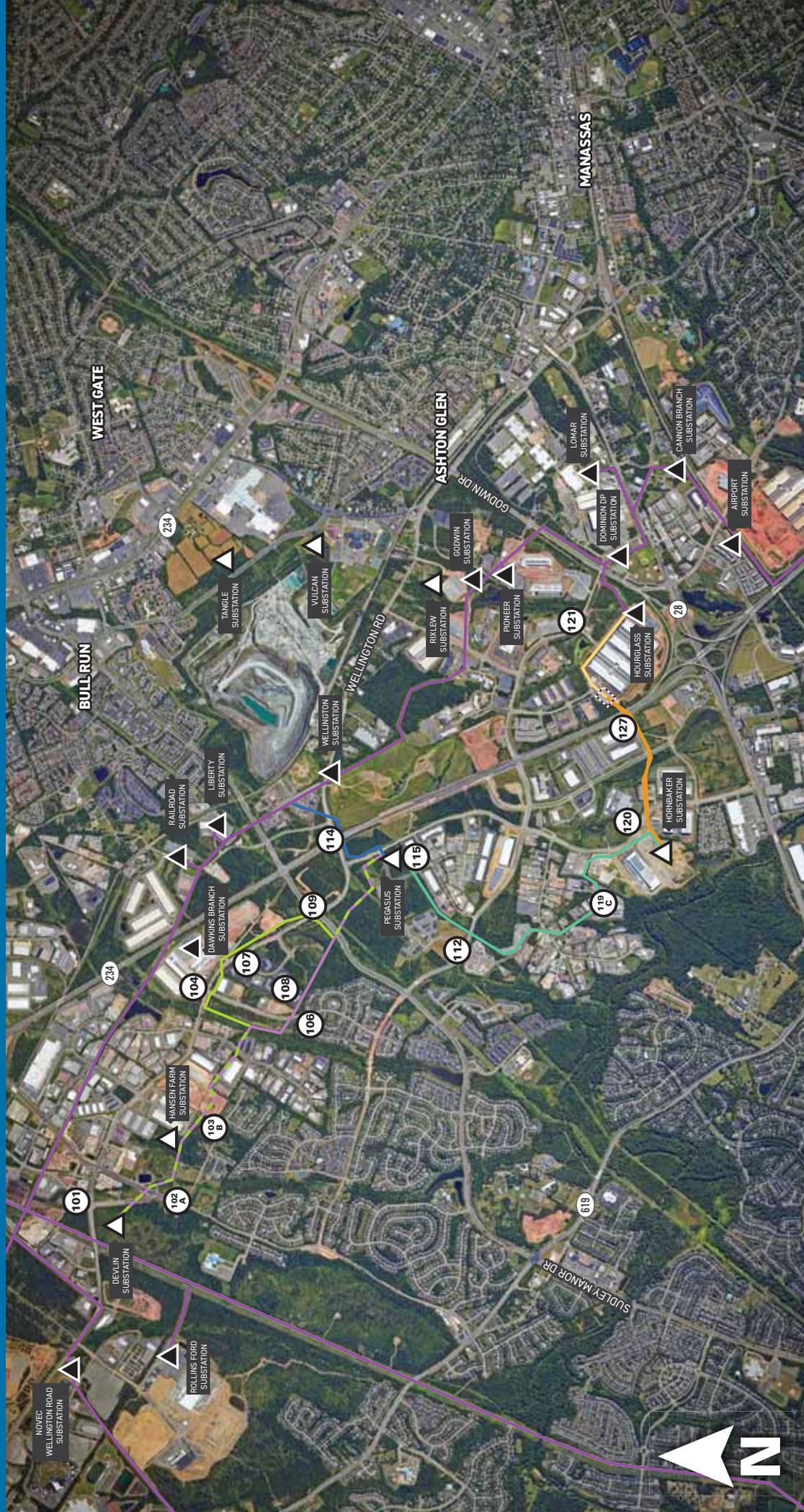
APPENDIX F VISUAL SIMULATIONS

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## PHOTO LOCATION MAP

- KOP Location
- Wellington-Pegasus Route
- Existing Transmission Line
- Existing Substation
- Proposed Substation
- Devlin-Pegasus Route 1
- Devlin-Pegasus Route 2
- Hourglass-Hornbaker Overhead
- Hourglass-Hornbaker Underground
- Transition Station



# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 101

- Date: 08/21/2024 Time: 6:52 am Viewing Direction: South  
KOP Location  Proposed Devlin Substation   
Devlin-Pegasus Route 1  Existing Transmission Line   
Devlin-Pegasus Route 2 



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 102A

Date: 08/21/2024 Time: 10:06 am Viewing Direction: North

-  KOP Location
-  Proposed Devlin Substation
-  Devlin-Pegasus Route 1
-  Devlin-Pegasus Route 2
-  Existing Transmission Line



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 103B

- Date: 08/21/2024 Time: 10:38 am Viewing Direction: North
-  KOP Location
  -  Devin-Pegasus Route 1
  -  Devin-Pegasus Route 2
  -  Proposed Hansen Farm Substation
  -  Existing Transmission Line



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 104

Date: 08/21/2024 Time: 11:10 am Viewing Direction: Southeast

-  KOP Location
-  Devin-Pegasus Route 2
-  Existing Substation
-  Existing Transmission Line



EXISTING CONDITIONS



PROPOSED CONDITIONS

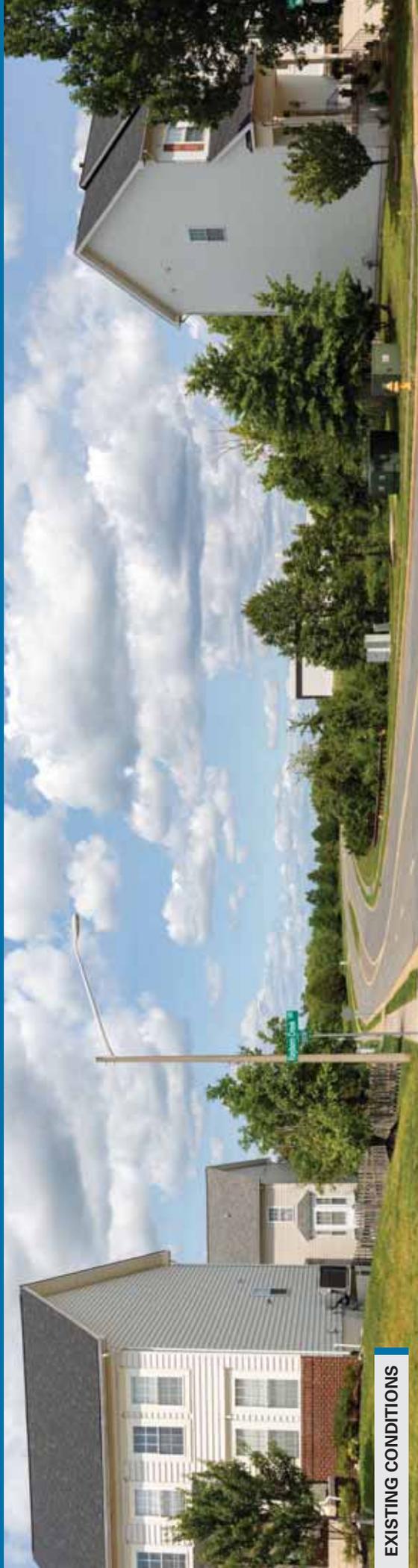
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# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 106: Route 1

Date: 08/21/2024 Time: 11:45 am Viewing Direction: North  
KOP Location  Devilin-Pegasus Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 106: Route 2

Date: 08/21/2024 Time: 11:45 am Viewing Direction: North  
KOP Location  Devilin-Pegasus Route 2



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 107

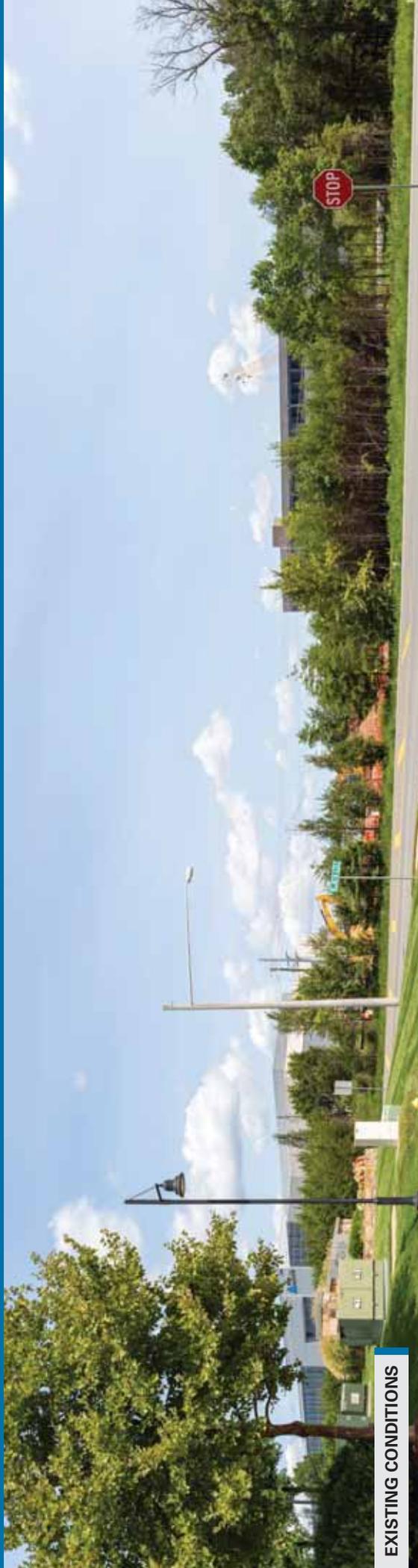
Date: 08/21/2024 Time: 11:20 am Viewing Direction: Northeast

 KOP Location

 Devlin-Pegasus Route 2

 Existing Transmission Line

 Existing Substation



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 108

Date: 08/21/2024 Time: 11:28 am Viewing Direction: Southwest

 KOP Location

 Devlin-Pegasus Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 109: Route 1

Date: 08/21/2024 Time: 7:39 am Viewing Direction: West

 KOP Location

 Devlin-Pegasus Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS



Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 109: Route 2

Date: 08/21/2024 Time: 7:39 am Viewing Direction: West

 KOP Location

 Devlin-Pegasus Route 2



EXISTING CONDITIONS



PROPOSED CONDITIONS

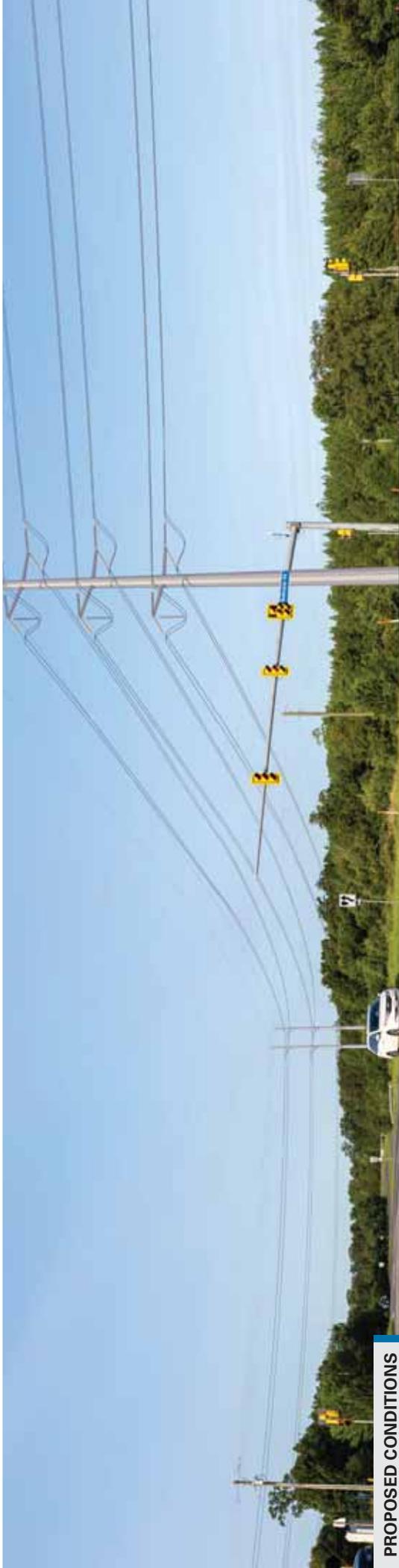


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# HORNBAKER & DEVLIN AREA

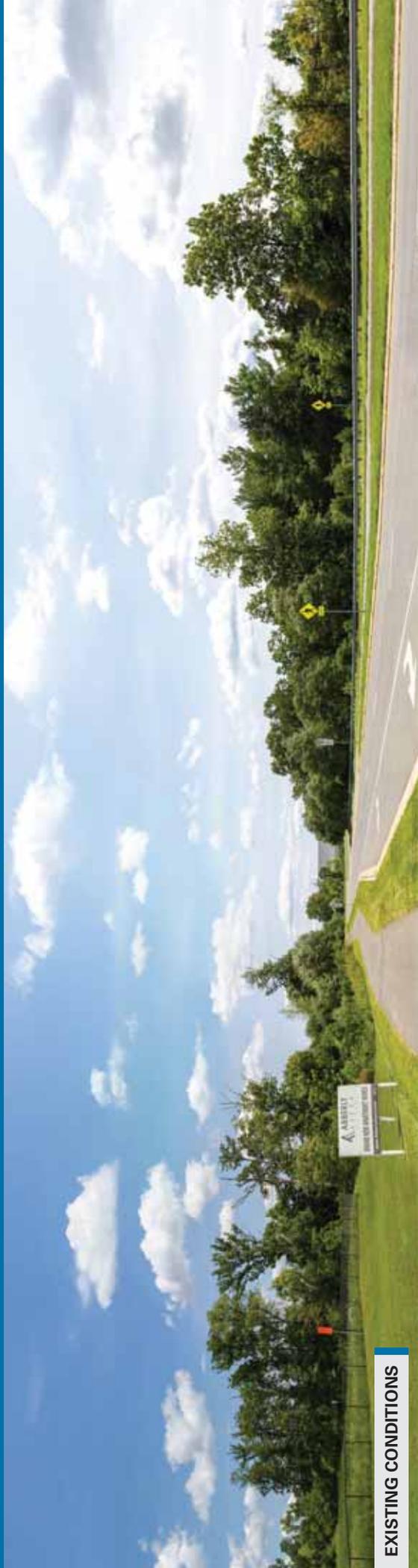
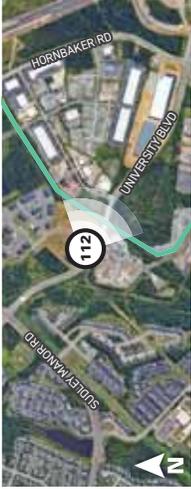
230 kV Electric Transmission Project

## KOP 112

Date: 08/21/2024 Time: 12:21 pm Viewing Direction: East

📍 KOP Location

— Pegasus-Hornbaker Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 114

Date: 08/21/2024 Time: 11:57 am Viewing Direction: Southeast

📍 KOP Location

▲ Proposed Pegasus Substation

— Existing Transmission Line

▲ Existing Wellington Substation

— Wellington-Pegasus Route



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

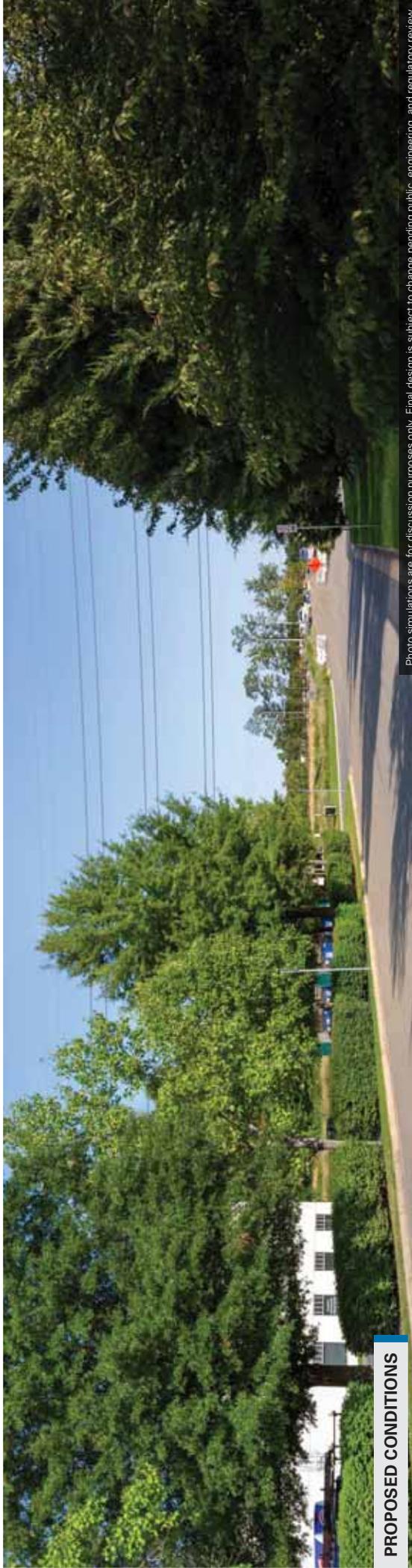
## KOP 115

Date: 08/21/2024 Time: 7:55 am Viewing Direction: Northwest

-  KOP Location
-  Proposed Pegasus Substation
-  Wellington-Pegasus Route
-  Devlin-Pegasus Route 1
-  Devlin-Pegasus Route 2
-  Pegasus-Hornbaker Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

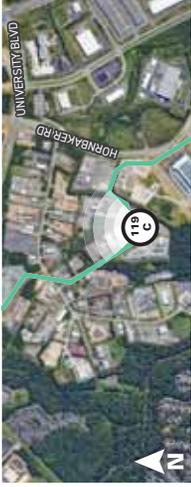
230 kV Electric Transmission Project

## KOP 119C

Date: 08/21/2024 Time: 1:41 pm Viewing Direction: North

 KOP Location

 Pegasus-Hornbaker Route 1



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 120: Option 1

Date: 08/21/2024 Time: 3:13 pm Viewing Direction: South

 KOP Location

 Transition Station

 Pegasus-Hornbaker Route 1

 Hourglass-Hornbaker Overhead

 Proposed Hornbaker Substation

 Hourglass-Hornbaker Underground



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 120: Option 2

Date: 08/21/2024 Time: 3:13 pm Viewing Direction: South

📍 KOP Location

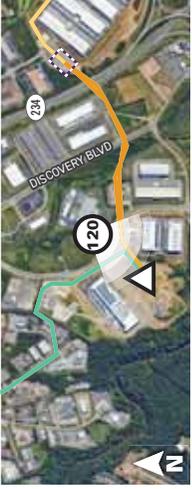
🏠 Transition Station

🟢 Pegasus-Hornbaker Route 1

🟡 Hourglass-Hornbaker Overhead

⚠️ Proposed Hornbaker Substation

🟠 Hourglass-Hornbaker Underground



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 121

Date: 08/21/2024 Time: 8:11 am Viewing Direction: Southwest

KOP Location

Existing Hourglass Substation

Transition Station

Hourglass-Hornbaker Overhead

Hourglass-Hornbaker Underground



EXISTING CONDITIONS



PROPOSED CONDITIONS

# HORNBAKER & DEVLIN AREA

230 kV Electric Transmission Project

## KOP 127

Date: 08/21/2024 Time: 2:27 pm Viewing Direction: Northeast

KOP Location

- ▲ Existing Hourglass Substation
- ▲ Proposed Hornbaker Substation
- Transition Station
- Hourglass-Hornbaker Overhead
- Hourglass-Hornbaker Underground



EXISTING CONDITIONS



PROPOSED CONDITIONS

Photo simulations are for discussion purposes only. Final design is subject to change pending public, engineering, and regulatory review.



APPENDIX G

STAGE 1 PRE-APPLICATION ANALYSIS OF  
CULTURAL RESOURCES



# Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project

Pre-Application Analysis Report

PREPARED FOR



Dominion Energy Virginia

DATE

27 February 2025

REFERENCE

0577538



# Hornbaker 230 kV Line Loop and Hornbaker Switching Station Project

## Pre-Application Analysis Report

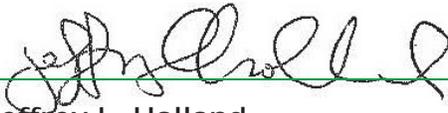
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## ACRONYMS AND ABBREVIATIONS

3D	Three dimensional
ABPP	American Battlefield Protection Program
ABT	American Battlefield Trust
APE	Area of Potential Effects
CMOA	Complementary Metal Oxide Semiconductor
ERM	Environmental Resources Management
ESRI	Environmental Systems Research Institute
GNSS	Global Navigation Satellite System
ISO	International Organization for Standardization
JPEG	Joint Photographic Experts Group format
KOP	Key Observation Point
kV	Kilovolt
MP	Milepost
NERC	North American Electric Reliability Corporation
NHL	National Historic Landmark
NOVEC	Northern Virginia Electrical Cooperative
NPS	National Park Service
NRHP	National Register of Historic Places
PBR	Physically Based Rendering
PDF	Portable Document Format
PotNR	Potential National Register Area
Project	Devlin/Hornbaker 230kV Line Project
RAW	an unprocessed image
REC	Rappahannock Electric Company
ROW	Right-Of-Way
SCC	State Corporation Commission
SLR	Single-Lens Reflex
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator
VCRIS	Virginia Cultural Resource Information System
VDHR	Virginia Department of Historic Resources
VLR	Virginia Landmarks Register



## EXECUTIVE SUMMARY

This report presents the findings of the pre-application analysis for Virginia Electric and Power Company's (Dominion Energy Virginia, Dominion, or the Company) proposed Hornbaker 230 kilovolt (kV) Line Loop and Hornbaker Switching Station Project (the Project) in Prince William County, Virginia. The purpose and need for the Project is to provide 300 MW of electrical service requested by the Northern Virginia Electrical Cooperative (NOVEC) for a data center customer in Prince William County, maintain reliable service for the overall load growth in the Hornbaker Load Area, and comply with mandatory North American Electric Reliability Corporation (NERC) Reliability Standards. Specifically, the Devlin Switching Station (proposed as part of a separate project) requires an additional 230 kV source to resolve a potential NERC reliability violation.

To meet the Project purpose and need, Dominion proposes to construct and operate the following:

- A new 230-34.5 kV Switching Station in Prince William County on property to be obtained by the Company (Hornbaker Switching Station).
- One of two transmission solutions involving new, double circuit 230 kV transmission lines in new rights-of way. Dominion would construct EITHER:
  - A series of overhead routes, including a segment from a cut in on Dominion's existing Lines #172/#2187 north of the existing Wellington Substation to the proposed Pegasus Switching Station; a segment from the Pegasus Switching Station to the proposed Hornbaker Switching Station; and a segment from the Pegasus Switching Station to the proposed Devlin Switching Station; OR
  - A hybrid route that includes an overhead right-of-way from a cut in on Dominion's existing Line #2196, adjacent to the existing Hourglass Switching Station, to a transition station east of Prince William Parkway (where the route transitions to an underground route) then underground to the proposed Hornbaker Switching Station. This option would also include an overhead right-of-way from the proposed Hornbaker Switching Station to the Pegasus and Devlin Switching Stations (proposed as part of other projects).

ERM identified five route alternatives that can be combined into two electrical solutions each with two options, consisting of a grouping of three route alternatives, to serve the Project need. These groupings are as follows:

- Solution 1A is comprised of Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1.
- Solution 1B is comprised of Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2.
- Solution 2A is comprised of Hourglass–Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 2B is comprised of Hourglass–Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2.



The routes and solutions are discussed in the Environmental Routing Study to be attached to the Company’s application to the Virginia State Corporation Commission (SCC) for the Project.

This pre-application analysis assesses and compares potential impacts on previously recorded historic and archaeological resources in relation to each route and solution. Impacts from the proposed Hornbaker Switching Station were also considered. Environmental Resources Management, Inc. (ERM) conducted the analysis on behalf of Dominion Energy Virginia to assist in the development of a feasible Project design that minimizes impacts to historic resources. The pre-application analysis is a required study for transmission line projects regulated by the SCC. The study was completed in accordance with the Virginia Department of Historic Resources’ (VDHR’s) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (VDHR 2008) (Guidelines).

ERM identified five previously recorded archaeological sites within the rights-of-way of the various routes/solutions for the Project (Table 1). Of these five sites, none have been evaluated to determine their eligibility for listing in the National Register of Historic Places (NRHP). One site each is within the right-of-way for Pegasus-Hornbaker Route 1 and the Hourglass-Hornbaker Route 1 (Hybrid). Three sites are within the right-of-way for Devlin-Pegasus Route 2. No previously recorded archaeological sites were identified with the right-of-way for Wellington-Pegasus Route 1 and Devlin-Pegasus Route 1.

**TABLE 1 EXECUTIVE SUMMARY OF NATIONAL REGISTER STATUS OF CONSIDERED ARCHAEOLOGICAL RESOURCES IN THE STUDY AREA OF THE ROUTE ALTERNATIVES**

Considered Resource	Route Alternatives				
	Wellington-Pegasus Route 1	Hourglass-Hornbaker Route 1 (Hybrid)	Devlin-Pegasus Route 1	Devlin-Pegasus Route 2	Pegasus-Hornbaker Route 1
44PW1208	-	Unevaluated	-	-	-
44PW1221	-	-	-	-	Unevaluated
44PW1454	-	-	-	Unevaluated	
44PW1455	-	-	-	Unevaluated	
44PW1456	-	-	-	Unevaluated	

Five previously recorded aboveground historic resources meeting criteria specified in the Guidelines fall within study tiers defined by the VDHR for identifying such sites along and near transmission line routes. The likely impacts on individual historic resources associated with each route are presented in Table 2.

Wellington-Pegasus Route 1 and Devlin-Pegasus Routes 1 and 2 pass near the fewest number of considered resources (one), while the Hourglass-Hornbaker Route 1 (Hybrid) passes near the greatest number (five). Pegasus-Hornbaker Route 1 passes near two considered resources. Installation of transmission infrastructure along Wellington-Pegasus Route 1 and Devlin-Pegasus



Routes 1 and 2 would have a moderate impact on the same resource. While the Hourglass-Hornbaker Route 1 (Hybrid) has the greatest number of considered resources in its vicinity, the Project would have no impact on those resources. Pegasus-Hornbaker Route 1 would have a moderate impact on one resource and no impact on another.

**TABLE 2 EXECUTIVE SUMMARY OF PROJECT IMPACTS TO CONSIDERED ABOVEGROUND HISTORIC RESOURCES IN THE STUDY AREA OF THE ROUTE ALTERNATIVES**

Considered Resource	Route Alternatives				
	Wellington-Pegasus Route 1	Hourglass-Hornbaker Route 1 (Hybrid)	Devlin-Pegasus Component, Route 1	Devlin-Pegasus Component, Route 2	Pegasus-Hornbaker Route 1
076-0285	None	No Impact	None	None	None
076-5036	None	No Impact	None	None	No Impact
076-5190	Moderate	No Impact	Moderate	Moderate	Moderate
076-5335	None	No Impact	None	None	None
155-5020	None	No Impact	None	None	None

VCRIS 2024

# 1. INTRODUCTION

This report presents the findings of a pre-application analysis conducted for Virginia Electric and Power Company’s (Dominion Energy Virginia, Dominion, or the Company) for Dominion’s proposed Hornbaker 230 kilovolt (kV) Line Loop and Hornbaker Switching Station Project (the Project). For this Project, the Company is proposing to construct and operate:

- A new 230-34.5 kV switching station in Prince William County on property to be obtained by the Company (Hornbaker Switching Station).
- One of two transmission solutions involving new, double circuit 230 kV transmission lines in new rights-of way. Dominion would construct EITHER:
  - A series of overhead routes, including a segment from a cut in on Dominion’s existing Lines #172/#2187 north of the existing Wellington Substation to the proposed Pegasus Switching Station; a segment from the Pegasus Switching Station to the proposed Hornbaker Switching Station; and a segment from the Pegasus Switching Station to the proposed Devlin Switching Station; OR
  - A hybrid route that includes an overhead right-of-way from a cut in on Dominion’s existing Line #2196, adjacent to the existing Hourglass Switching Station, to a transition station east of Prince William Parkway (where the route transitions to an underground configuration) then underground to the proposed Hornbaker Switching Station. This option would also include an overhead right-of-way from the proposed Hornbaker Switching Station to the Pegasus and Devlin Switching Stations (proposed as part of other projects).

ERM identified five route alternatives that can be combined into two electrical solutions, each with two options, consisting of a grouping of three route alternatives, to serve the Project need. A breakdown of the routes that make up the two electrical solutions are included below in Table 3.

**TABLE 3 ROUTE ALTERNATIVES AND SOLUTIONS**

Electrical Solution	Route Alternative	Summary
Solution 1 (Overhead)	Wellington–Pegasus Route 1	Overhead double circuit route from a cut-in on existing Lines #172/#2187, north of the existing Wellington Substation, to the proposed Pegasus Switching Station. <sup>a</sup>
	Pegasus–Hornbaker Route 1	Overhead double circuit route between the proposed Hornbaker Switching Station and the proposed Pegasus Switching Station. <sup>a</sup>
	Devlin–Pegasus Route 1 OR Devlin–Pegasus Route 2	Overhead double circuit route between the proposed Pegasus Switching Station and the proposed Devlin Switching Station. <sup>a</sup>
Solution 2 (Hybrid)	Hourglass–Hornbaker Route 1 (Hybrid)	Hybrid underground and overhead double circuit route between a cut in on Dominion’s existing Line #2196, adjacent to the existing Hourglass Substation, and the proposed Hornbaker Switching Station.



Pegasus–Hornbaker Route 1	Overhead double circuit route between the proposed Hornbaker Switching Station and the proposed Pegasus Switching Station. <sup>a</sup>
Devlin–Pegasus Route 1 OR Devlin–Pegasus Route 2	Overhead double circuit route between the proposed Pegasus Switching Station and the proposed Devlin Switching Station. <sup>a</sup>

<sup>a</sup> The Devlin and Pegasus Switching Stations have been proposed as part of other projects.

The five route alternatives that have been grouped into four possible solutions to serve the Project need, are as follows:

- Solution 1A is comprised of Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1.
- Solution 1B is comprised of Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2.
- Solution 2A is comprised of Hourglass–Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 2B is comprised of Hourglass–Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2.

The pre-application analysis assesses potential impacts on previously recorded historic and archaeological resources relative to each route alternative. Environmental Resources Management, Inc. (ERM) conducted the pre-application analysis on behalf of Dominion Energy Virginia to assist in the development of a feasible Project design that minimizes impacts on historic resources. The study was completed in accordance with the Virginia Department of Historic Resources’ (VDHR’s) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (VDHR 2008) (Guidelines).

## 1.1 OVERVIEW

In identifying potential routes for the proposed transmission lines, ERM considered the facilities required to construct and operate the new feeds, the length and width of new right-of-way that would be needed, the locations of existing and proposed substations and switching stations, the extent of existing development in the area, the potential for impacts on environmental and human resources, and cost. A map depicting the Project is provided as Figure 1. Descriptions of the routes comprising the various solutions are provided below.

### 1.1.1 WELLINGTON-PEGASUS ROUTE 1

The Wellington–Pegasus Route 1 is an overhead route that taps Dominion existing Line #2187 approximately 0.2 mile north of the existing Wellington Substation. From the tap, the route extends southwest for approximately 0.2 mile, crossing an industrial yard, Thong Pan Road, and Wellington Road, as well as a forested parcel bounded by these roads. The route then turns west, paralleling the south side of Wellington Road for approximately 0.2 mile (including a crossing of Prince William Parkway). The route turns south paralleling the west side of Hornbaker Road for



approximately 0.1 mile before crossing the road and terminating at the proposed Pegasus Switching Station.

Wellington-Pegasus Route 1 is approximately 0.6 mile long and requires approximately 7.2 acres of right-of-way.

### 1.1.2 PEGASUS-HORNBAKER ROUTE 1

Pegasus–Hornbaker Route 1 is an overhead route that begins at the proposed Pegasus Switching Station, extending southeast for approximately 0.1 mile and then turning southwest for approximately 0.7 mile. This segment crosses through forested land adjacent to industrial and commercial development and crosses University Boulevard. East of Industrial Court, the route turns generally southeast and collocates with the east side of the road for about 0.2 mile, crossing an industrial storage yard/parking lot. The route then turns south for about 0.1 mile, crossing Industrial Court and Industrial Road and another industrial storage yard, before turning southeast and paralleling the west side of Hawkins Drive for about 0.2 mile. At this point, the route turns east, crosses the most southern part of Hawkins Drive and an industrial storage yard for 0.1 mile. The route then turns north and then back east for 0.2 mile, following parcel lines. The Route then turns to the south-southeast for about 0.3 mile (collocated with the west side of Hornbaker Road) before terminating at the proposed Hornbaker Switching Station.

Pegasus-Hornbaker Route 1 is approximately 1.9 miles long and requires approximately 28.2 acres, including approximately 22.5 acres for transmission right-of-way and 5.7 acres for the proposed Hornbaker Switching Station.

### 1.1.3 HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

The Hourglass–Hornbaker Route 1 (Hybrid) is a combination of approximately 0.5 mile of overhead transmission with approximately 0.8 mile of underground transmission and includes an approximately 6.2-acre transition station. Hourglass–Hornbaker Route 1 (Hybrid) begins as an overhead line that taps the Company's existing Line #2196 just outside the Hourglass Switching Station. The route then extends approximately 0.4-mile northwest adjacent to an existing data center development. The route turns southwest for approximately 0.2 mile and enters the proposed transition station (currently an existing parking lot and adjacent forested area), where it transitions from overhead to an underground route. The route then continues out of the station to the southwest, including a trenchless crossing of Prince William Parkway. On the west side of the Parkway, the route turns west for approximately 0.2 mile through county-owned property, parallel to and south of Challenger Court and across Discovery Boulevard. West of Discovery Boulevard, the route turns west for approximately 0.4 mile through forested lands and an industrial parcel and crosses Hornbaker Road before terminating at the proposed Hornbaker Switching Station.

The Hourglass-Hornbaker Route is approximately 1.3 miles long and encompasses approximately 19.7 acres, including 13.5 acres of transmission right-of-way and 6.2 acres for the proposed transition station.

### 1.1.4 DEVLIN-PEGASUS ROUTE 1

Starting at the proposed Devlin Switching Station, Devlin–Pegasus Route 1 is an overhead route that heads generally southeast for approximately 0.3 mile, crossing Hansen Farm Road and Balls Ford Road. The route turns east/southeast for 0.5 mile, following vegetated/forested parcel boundaries before angling slightly to the east to pass south of a data center building currently under construction. The route then turns northeast for 0.1 mile to cross Buckey Timber Drive and then heads southeast for 0.4 mile, passing between industrial buildings and crossing Virginia Meadows Drive and Dawkins Branch. The route then turns south, paralleling the east side of Dawkins Branch for approximately 0.2 mile before turning southeast for approximately 0.8 mile. This segment crosses Lexington Valley Drive and Sudley Manor Drive, passing between residential areas east of Lexington Valley Drive. After crossing an existing natural gas pipeline near MP 2.1, the route turns northeast for approximately 0.1 mile and then southeast for approximately 0.2 mile before terminating at the proposed Pegasus Switching Station.

Devlin-Pegasus Route 1 is approximately 2.4 miles long and requires approximately 28.6 acres of right-of-way.

### 1.1.5 DEVLIN-PEGASUS ROUTE 2

Devlin–Pegasus Route 2 is an overhead route that begins at the proposed Devlin Switching Station and follows the same alignment as Devlin–Pegasus Route 1 for the first 1.2 miles, diverging just east of Dawkins Branch. At this point, Devlin–Pegasus Route 2 turns north-northeast, passing through forested land and paralleling the west side of Dawkins Branch for approximately 0.2 mile before turning east for approximately 0.2 mile, collocating with the south side of Wellington Road. The route then crosses Lexington Valley Drive and continues southeast, paralleling the north side of Wellington Road for approximately 0.5 mile. Just before Sudley Manor Drive, the route turns southwest and crosses back over Wellington Road, paralleling the north side of Sudley Manor Drive for approximately 0.2 mile. At this point the route turns southeast and follows the same alignment as Devlin–Pegasus Route 1 for the remaining 0.6 mile to the proposed Pegasus Switching Station.

Devlin-Pegasus Route 2 is approximately 2.8 miles long and requires approximately 33.4 acres of right-of-way.

## 1.2 MANAGEMENT RECOMMENDATIONS

ERM identified five previously recorded archaeological sites within the rights-of-way of the various routes/solutions for the Project. None of the five sites have been evaluated to determine their eligibility for listing in the National Register of Historic Places (NRHP). One site is within the right-of-way for Pegasus-Hornbaker Route 1, one site is within the right-of-way for the Hourglass-Hornbaker Route 1 (Hybrid), and the remaining three are within the right-of-way for Devlin-Pegasus Route 2. No previously recorded archaeological sites are within the rights-of-way for either Wellington-Pegasus Route 1 or Devlin-Pegasus Route 1. The sites could be impacted by equipment traffic, clearing, or structure installation during construction. While this report provides information on site integrity based on previous investigations and review of aerial photography, a

confident evaluation of the nature of each site's archaeological deposits would require a field survey.

ERM identified five previously recorded aboveground historic resources meeting criteria specified in the Guidelines within study tiers defined by the VDHR for identifying such sites along and near transmission line routes. Of the five resources, the Hourglass-Hornbaker Route 1 (Hybrid) passes near five; Pegasus-Hornbaker Route 1 passes near two; and Wellington-Pegasus Route 1 and Devlin-Pegasus Routes 1 and 2 each pass near one.

As discussed in more detail below, ERM recommends that installation of transmission infrastructure along Devlin-Pegasus Routes 1 and 2 and Wellington-Pegasus Route 1 would have a moderate impact on the same resource; that infrastructure installed along the Hourglass-Hornbaker Route 1 (Hybrid) would have no impact on five resources; and that Pegasus-Hornbaker Route 1 would have no impact on one resource and a moderate impact on the same resource affected by Devlin-Pegasus Routes 1 and 2 and Wellington-Pegasus Route 1.

More information about each resource and the nature of potential impacts associated with the various routes and solutions are provided in the sections that follow.



## 2. RECORDS REVIEW

### 2.1 DATA COLLECTION APPROACH

ERM conducted an analysis of potential cultural resource impacts for the route alternatives under consideration in accordance with the VDHR Guidelines. For each route, this analysis identified and considered the following previously recorded resources:

- National Historic Landmarks (NHLs) within a 1.5 mile-radius of each route centerline;
- NRHP-listed properties, NHLs, battlefields, and historic landscapes within a 1.0-mile radius of each route centerline;
- NRHP-eligible and NRHP-listed properties, NHLs, battlefields, and historic landscapes within a 0.5-mile radius of each route centerline; and
- All the above qualifying resources as well as archaeological sites within the right-of-way for each route.

Information on the considered resources in each study tier was collected from the Virginia Cultural Resource Information System (VCRIS).

In addition to the VCRIS, ERM collected information from the following sources to check for locally significant resources within a 1.0-mile radius of each route centerline: Prince William Historic Preservation Foundation (2023), Prince William County Historical Commission (2024), Prince William's Historic Landmarks (2025a), and African-American History Trail (2025b).

Along with the records review, ERM conducted field assessments of the considered aboveground resources along each route alternative in accordance with the Guidelines. Digital photographs of each historic resource and views to the proposed transmission lines were taken. Photo simulations were then prepared to assess the potential for visual impacts from the new transmission infrastructure on the resources. For previously recorded archaeological sites under consideration, aerial photographs were examined to assess the current land use conditions and the spatial relationship between the sites and any existing or planned transmission lines.

### 2.2 ARCHAEOLOGICAL RESOURCES

Crossings of archaeological sites are considered a constraint when routing electric transmission lines due to the potential for a line to impact cultural deposits in these areas (for example, due to transmission structure placement, tree clearing, or heavy equipment traffic within a site).

Information on the known archaeological sites in the right-of-way for each route is summarized in Table 3, and site locations are depicted on Figure 2. Individual route maps are provided in Attachment 1. As noted above, none of the five previously recorded sites within the rights-of-way for the routes have been evaluated to determine their NRHP eligibility.

Once a route is certified by the SCC, that route would be subject to an identification-phase survey in which additional (as of yet, unrecorded) sites could be identified and Project impacts assessed.

FIGURE 2 LOCATIONS OF ARCHAEOLOGICAL RESOURCES IN THE RIGHT OF WAY FOR EACH ROUTE ALTERNATIVE (REDACTED)



TABLE 3 ARCHAEOLOGICAL RESOURCES IN THE RIGHT-OF-WAY FOR EACH ROUTE

Route Alternative	Greenfield or Existing/ Expanded ROW	Site Number	Description	NRHP Status
Pegasus-Hornbaker Route 1	Greenfield	44PW1221	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), Lithic workshop	Unevaluated
Hourglass-Hornbaker Route 1 (Hybrid)	Greenfield	44PW1208	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), Lithic workshop	Unevaluated
Devlin-Pegasus Route 2	Greenfield	44PW1454	Prehistoric/Unknown (15000 B.C. - 1606 A.D.), Lithic scatter, 19th Century: 2nd half (1850 - 1899), 20th Century (1900 - 1999), Trash scatter	Unevaluated
	Greenfield	44PW1455	20th Century (1900 - 1999); Trash scatter	Unevaluated
	Greenfield	44PW1456	19th Century (1800 - 1899), 20th Century (1900 - 1999), Trash scatter	Unevaluated

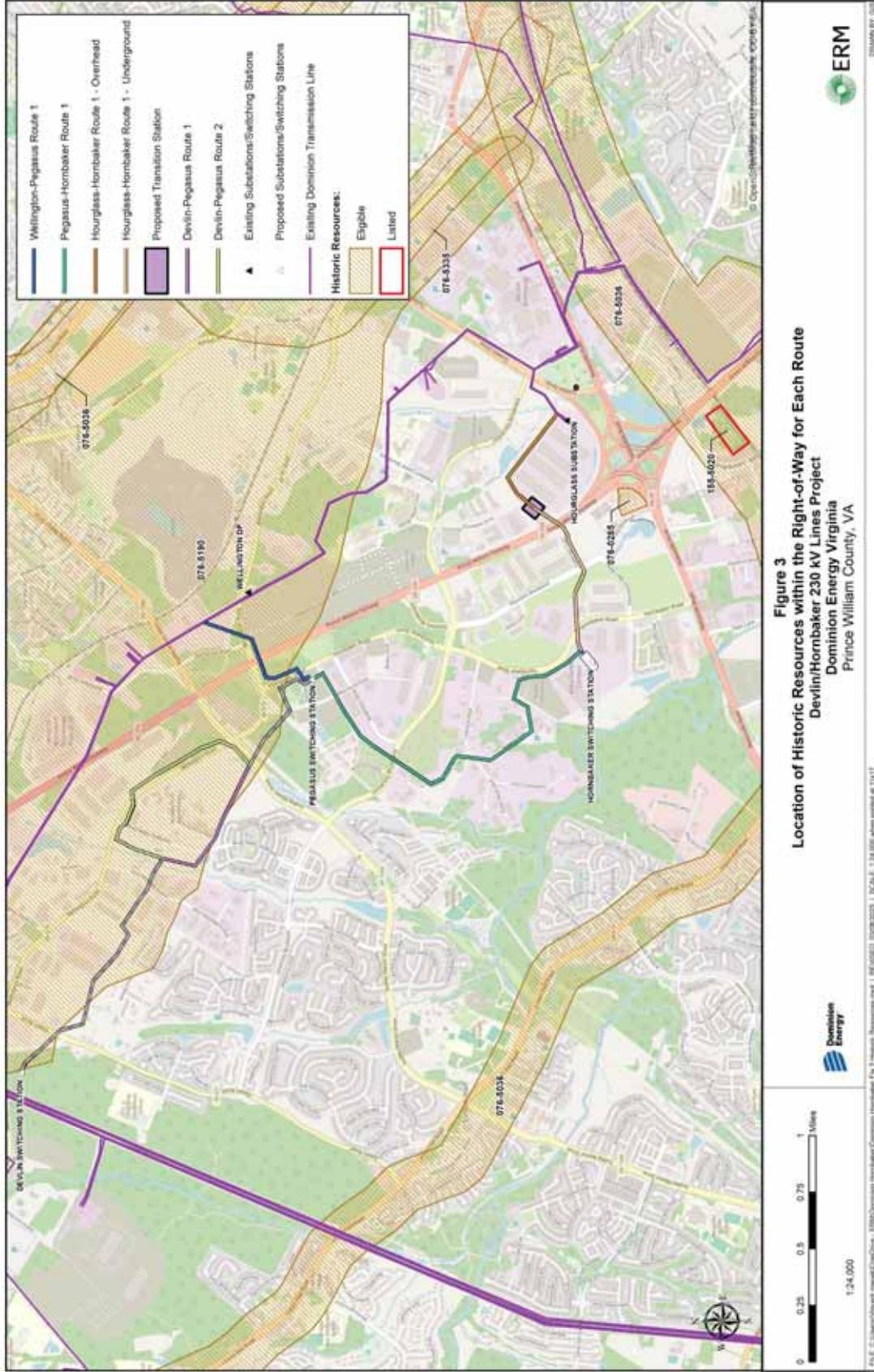
ROW = right-of-way

### 2.3 HISTORIC RESOURCES

The following discussion summarizes the known historic resources in the vicinity of each route based on the VDHR’s tiered study model defined in the Guidelines. The locations of the considered historic resources and the various routes are shown on Figure 3. Individual route maps are provided in Attachment 1.

Resources located within what the right-of-way of a route may be subject to both direct impacts from placement of the line across the property as well as visual impacts from changes to the viewshed introduced by the new transmission line structures and conductors. Resources in the 0.5-mile tier would not be directly impacted, but would likely be visually impacted, unless topography, vegetation, or the built environment obscures the view to the transmission line. At distances over 0.5 mile and over 1.0 mile, it becomes progressively less likely that a resource would be within line-of-sight of the proposed transmission line.

FIGURE 3 LOCATIONS OF CONSIDERED HISTORIC RESOURCES ALONG AND NEAR ROUTES



The nature of the impacts on aboveground resources, while estimated in this study with the assistance of photo simulations, would depend on the final Project design in which the exact placement and height of transmission structures are determined. The purpose of the simulations and associated assessments in this report are to provide data on likely impacts and to compare those impacts to support the selection of a preferred solution.

Once a route is certified by the SCC, that route would be subject to a full historic architectural survey in which additional (as of yet, unrecorded) historic properties could be identified and Project impacts assessed. The survey area would be defined based on the design height of the transmission line structures, topography, tree cover, and other factors impacting line-of-sight from historic resources to the selected route.

### 2.3.1 WELLINGTON-PEGASUS ROUTE 1

The considered resource within the VDHR tiers for Wellington-Pegasus Route 1 is presented in Table 4 and its location depicted in Attachment 1, Sheet 1. This resource was subjected to field reconnaissance and a preliminary assessment of impacts for the Project, discussed in the next chapter.

**TABLE 4 HISTORIC RESOURCES IN THE VDHR TIERS FOR WELLINGTON-PEGASUS ROUTE 1**

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 (within ROW)	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190	Second Battle of Manassas

*ROW = right-of-way*

### 2.3.2 PEGASUS-HORNBAKER ROUTE 1

The considered resources that lie within the VDHR tiers for Pegasus-Hornbaker Route 1 are presented in Table 8 and their locations depicted in Attachment 1, Sheet 2. There are two historic resources identified within the VDHR tiers for this route. They were subjected to field reconnaissance and a preliminary assessment of Project impacts, discussed in the next chapter.

**TABLE 8 HISTORIC RESOURCES IN THE VDHR TIERS FOR PEGASUS-HORNBAKER ROUTE 1**

Buffer (Miles)	Resource Category	Resource Number	Description
0.5 to 1.0	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5036 <sup>a</sup>	Manassas Station Operations Battlefield
0.0 to 0.5	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190 <sup>a</sup>	Second Battle of Manassas

<sup>a</sup> Resource is within the designated tiers for the proposed Hornbaker Switching Station

### 2.3.3 HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

The considered resources that lie within the VDHR tiers for the Hourglass-Hornbaker Route 1 (Hybrid) are presented in Table 5 and their locations depicted in Attachment 1, Sheet 3. There are five historic resources identified within the VDHR tiers for this route. The considered resources

were subjected to field reconnaissance and a preliminary assessment of Project impacts, discussed in the next chapter.

**TABLE 5 HISTORIC RESOURCES IN THE VDHR TIERS FOR THE HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)**

Buffer (Miles)	Resource Category	Resource Number	Description
0.5 to 1.0	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190 <sup>a</sup>	Second Battle of Manassas
		076-5335	First Battle of Manassas
	National Register Properties (Listed)	155-5020	Cannon Branch Fort
0.0 to 0.5	National Register – Eligible	076-0285 <sup>a</sup>	Thomasson Barn
	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5036	Manassas Station Operations Battlefield

<sup>a</sup> Resource is within the designated tiers for the proposed Hornbaker Switching Station

### 2.3.4 DEVLIN-PEGASUS ROUTE 1

The considered resource within the VDHR tiers for Devlin-Pegasus Route 1 is presented in Table 6 and its location depicted in Attachment 1, Sheet 4. The resource was subjected to field reconnaissance and a preliminary assessment of Project impacts, discussed in the next chapter.

**TABLE 6 HISTORIC RESOURCES IN THE VDHR TIERS FOR DEVLIN-PEGASUS ROUTE 1**

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 (within ROW)	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190	Second Battle of Manassas

ROW = right-of-way

### 2.3.5 DEVLIN-PEGASUS ROUTE 2

The considered resource within the VDHR tiers for Devlin-Pegasus Route 2 is presented in Table 7 and its location depicted in Attachment 1, Sheet 4. It was subjected to field reconnaissance and a preliminary assessment of impacts, discussed in the next chapter.

**TABLE 7 HISTORIC RESOURCES IN THE VDHR TIERS FOR DEVLIN-PEGASUS ROUTE 2**

Buffer (Miles)	Resource Category	Resource Number	Description
0.0 (within ROW)	National Register – Potentially Eligible (Battlefields/Historic Landscape)	076-5190	Second Battle of Manassas

ROW = right-of-way

## 2.4 PREVIOUS SURVEYS

Large portions of the various routes have previously been surveyed for cultural resources, providing information about known resources in the area, although some of the surveys focused

exclusively on archaeological sites. Ten previous cultural resource surveys intersect at least one of the routes under consideration. Information on these previous surveys—including VDHR survey number, report title, report authors, and report date—is provided in Table 9. The extent of the previous survey coverage is depicted on maps provided in Attachment 2.

**TABLE 9 CULTURAL RESOURCE SURVEYS COVERING PORTIONS OF THE ROUTE ALTERNATIVES**

VDHR Survey #	Title	Authors	Date
PW-041	Phase I Cultural Resources Survey of the Proposed Manassas Bypass, Route 234, Prince William County, Virginia	Douglas C. McLearn, Katharine E. Harbury	1988
PW-067	Supplemental Phase I Archaeological Survey of Design Changes in Ramps and Cloverleaf in Four Locations Along Rt. 234 in Manassas	Robin L. Ryder, F.T. Barker	1992
PW-158	Prince William Innovation: Phase I Archaeological Survey and Architectural History Reconnaissance Survey of the Proposed PWC Innovation Business Park, Prince William County, Virginia	Heather Crowl, David Rotenstein, Susan Travis, Richard Vidutis	2002
PW-228	Phase I Archaeological Survey for the Proposed Sudley Manor Drive Public-Private Transportation Act (PPTA) Project, Prince William County, Virginia	Michael B. Hornum, Martha Williams	2005
PW-303	Phase I Archeological Investigations of the Circa 9 Acre Ziegler Property, Prince William County, Virginia	Curt Breckenridge	2006
PW-380	Cultural Resources Survey for the Proposed University Boulevard Extension Project, Prince William County, Virginia	Joe B. Jones, Jerrell Blake, Jr.	2011
PW-442	Archaeological Survey of the 22.9 Acre Buckeye Timber, LLC Property, Prince William County, Virginia	Kerry Schamel-González	2008
PW-560	Independence Parcels A and B, Prince William County, Virginia, Phase I Cultural Resources Investigation	Jeremy Smith, Thomas Cuthbertson, Vincent Gallacci	2018
PW-561	Phase I Cultural Resources Survey of the ±42.8-Hectare (106-Acre) Wellington Road (Innovation Town Center) Property, Prince William County, Virginia	Arthur Striker, Cara Metz, Dara Friedberg	2016
PW-613	11951 Sudley Manor Drive, Prince William County, Virginia: Phase I Cultural Resources Investigation	Jeremy Smith, Rebekah Yousaf, Edward McMullen	2019

## 3. STAGE 1 PRE-APPLICATION ANALYSIS FINDINGS

### 3.1 METHODS FOR ANALYSIS

Fieldwork for the pre-application analysis was conducted by Haley Hoffman and Emma Jennings under the supervision of Secretary of the Interior Qualified architectural historian Megan Wiginton between September 24 and 25, 2024. The fieldwork involved photographing five resources requiring visual assessment according to the Guidelines and examining potential line-of-sight views from each resource toward the applicable routes. For resources where property owner approval was granted for historic resource documentation, photographs were taken toward the proposed transmission line(s) from the property at the most prominent view of the landscape. When such permission was not available, photographs were taken from the public right-of-way (typically a road) nearest to the resource facing toward the applicable route(s).

Panoramic photographs were taken from each resource, with an effort to capture the direction with the clearest, most unobstructed view toward the applicable route or routes. The precise location of the photograph was captured with a mobile tablet device connected to a sub-meter accurate Global Navigation Satellite System (GNSS) receiver, the Trimble R1. The locations where photographs were taken were noted as Key Observation Points (KOPs). Site visits to the KOPs were prioritized based on their location relative to the resource, so that viewpoints east of the resource were visited in the morning and viewpoints west of the resource were visited in the afternoon. This helped ensure, where possible, that the sun was behind the photographer at the time the viewpoint photography was captured. Additionally, minor adjustments to position were made to obtain as clear a view to the site center as possible, avoiding trees, landscaping, or built obstructions. Tablets recorded the center bearing, angle of view, altitude, and camera lens height. Upon receipt of the viewpoint location information, the viewpoints were plotted onto open source mapping from the Environmental Systems Research Institute (ESRI) using the Universal Transverse Mercator (UTM) 18N coordinate system.

The process of taking panoramas included setting up the tripod and camera. The camera was placed on the panoramic head in a landscape orientation where its lens height was confirmed and set at 1.5 meters (note: a portrait camera orientation was sometimes used in situations where the viewpoint is very close to a development so that the top of the development is not cut off by the image boundaries). The tripod head and camera combination were then leveled. With the camera's viewfinder centered on the perceived site center, exposure and focus settings were taken. These were then fixed manually on the camera so that they could not be inadvertently altered. The head was rotated 90 degrees to the left where the first frame of the 360-degree sequence was then taken. Each subsequent frame was taken using a 50 percent overlap of the previous frame until the full 360-degree sequence was captured. The camera was then removed from the tripod and a viewpoint location photograph was captured showing the tripod in its position.

The following camera and tripod configuration was used:

- Camera body: Nikon D800 professional specification digital SLR (full frame CMOS sensor)
- Camera lens: Nikkor AF 50mm f1.8 prime
- Tripod: Manfrotto 055MF4 with Manfrotto 438 ball leveler
- Panoramic head: Manfrotto 303SPH

The following camera settings were used for all photography:

- Camera mode: Manual Priority
- ISO: 100
- Aperture: f13
- Image format: RAW

After the photos were complete, they were uploaded to a server to begin the simulation/ visualization process. The single-frame photographs were opened in Adobe Photoshop CC 2022 where they were checked, and any camera sensor dust spots were removed before being saved as high-resolution JPEG images. If required, discrete color and tonal adjustments were made to each frame before they were saved. The single-frame photographs were stitched together in PTGui Pro version 12.11 professional photographic stitching software using cylindrical projection settings. The camera locations were plotted in Global Mapper version 23.1. Digital models of the transmission line structures were provided by Dominion, then cleaned up and textured in Autodesk 3DS Max 2021. The transmission structures along each route were rendered in Vray version 5.2 from each KOP camera location. 3D imagery was produced at the field of view using camera matching. Renderings for each route and each tower combination were then exported for use as an overlay.

Detailed, correctly dimensioned 3D computer models of the transmission structures along each route were generated using Autodesk 3DS Max 2021 and iToo RailClone. The virtual 3D model of the structures was created using real-world measurements and elevation drawings provided by the Company (see Attachment 3). These were textured using Vray PBR materials to simulate the weathering steel texture. The detailed, textured models were rendered to a digital image using a simulated physical camera and a sun and sky simulation lighting model in the computer software consistent with conditions within the original viewpoint photography.

Photomontages were produced by overlaying the rendered image on the photograph, using known control points and the wireline imagery showing the tower columns at the correct height and distance. Final adjustments were then made to the brightness and contrast of the rendered images to match them to the photograph. Final photomontages were prepared from each viewpoint for each route. These were then opened in Adobe Photoshop CC 2022 where minor changes were made such as placing relevant tree/building/hedge screening or telegraph wires over the proposed development renders where necessary. Finally, the final images were cropped to the proportions required for the visual simulation figures, and the visualization figures were prepared in Adobe InDesign CC2022 and exported in a PDF format.

## 3.2 ASSESSMENT OF POENTIAL IMPACTS

The assessment of potential Project impacts on individual resources made use of the visual assessment findings and categorized the level of impacts by severity according to the following scale devised by VDHR:

- **None**—Project is not visible from the resource.
- **Minimal**—Viewsheds have existing transmission lines, there would be only a minor change in height, and/or other views are partially obscured by topography or vegetation.
- **Moderate**—Viewsheds have more expansive views of the transmission line, more dramatic changes in height are proposed, and/or the overall visibility of the Project would be greater.
- **Severe**—Existing viewshed contains no transmission line, the view to the Project would be relatively unobstructed, the new transmission line would introduce a significant change to the setting of historic properties, and/or a dramatic change in the height of an existing transmission line would take place in close proximity to historic properties.

## 3.3 HISTORIC RESOURCE DESCRIPTIONS

### 3.3.1 076-0285, THOMASSON BARN

076-0285, Thomasson Barn, is located at 9935 Discovery Boulevard on the outskirts of the city of Manassas in an area characterized by industrial and commercial development. The resource is situated on the northwest corner at the intersection of Prince William Parkway (Route 234) and Nokesville Road (Route 28) (Attachment 4, Figure 1).

Thomasson Barn consists of circa 1929 dairy barn situated on a 6-acre plot of land (Flower 2016). Historically the barn was part of a larger dairy operation that contained additional associated buildings in its immediate vicinity. According to historic aerial imagery, the dairy barn was the sole remaining building on the property from 2002 until development began between 2016 and 2017. Thomasson Barn now serves as an anchoring business within an entertainment venue.

First surveyed in June of 1987 by Bill Polhill for Frazier Associates, the resource was recommended eligible for the NRHP under Criterion C for its architectural significance. The resource was surveyed again in March of 1992 by Mary Ellen Bushey. The resource was determined not eligible for the NRHP by VDHR in January of 1998, pursuant to a survey by David H. Dutton, and the same finding was made again in July of 2004 by Marc Holma. In June of 2016, Brigitte Flower from VDHR completed an additional survey, recommending the barn as eligible for the NRHP under Criterion C. In July of that same year, the VDHR Evaluation Committee determined it to be eligible under Criterion C, noting it as a “fine example of the standardized designs of the era.” It stands as an example of the hollow tile barn type popular from the 1920s to 1940s, and a lasting example of the county’s agricultural history.

The Thomasson Barn was determined eligible in September of 2016 by the State Review Board under Criterion C, with specific note made of the resource’s rare building material: hollow tile. 076-0285 is located within the half-mile study tier for Hourglass-Hornbaker Route 1 (Hybrid).

### 3.3.2 076-5036, MANASSAS STATION OPERATIONS BATTLEFIELD

076-5036 represents tracts of land associated with the battles and operations at Bristoe Station, Kettle Run, Bull Run Bridge, and Union Mills, all of which took place from August 25–27, 1862. The battlefield is primarily in northern Prince William County, with portions extending into Loudoun County on the east and Fauquier County on the west. The boundaries of the resource are defined by the American Battlefield Protection Program (ABPP) Study Area and encompass approximately 11,280 acres. The Core Areas of the battlefield, defined by the ABPP as the areas of the most significant military action, are located along the former Orange and Alexandria Railroad to the south and east of the Project area (Attachment 4, Figure 2).

In the days prior to the Second Battle of Manassas, General Stonewall Jackson marched from the Rappahannock River west and north to Manassas Gap, then followed the Manassas Gap Railroad southeast to Bristoe Station to get in the rear of Union General John Pope's Army of Virginia and attack its supply line. Jackson overran the small Union garrison at Bristoe Station at the junction of the Orange and Alexandria Railroad on August 26, overturning railcars and destroying the railroad before heading northeast along the Orange and Alexandria to Manassas Junction. A small force of Union troops advanced on Manassas Junction but were turned away by Jackson at Union Mills. A Confederate detachment at Bristoe Station held off a Union force at Kettle Run long enough to join Jackson. After raiding the Union supply depot at Manassas Junction, Jackson's forces retired to a strong defensive position on the north side of the unfinished Independent Line of the Manassas Gap Railroad. It was from that point that Jackson surprised Pope's forces returning from its position on the Rappahannock to meet Jackson's army, initiating the action of the Second Battle of Manassas (Neville et al. 1995).

The Project is located about 300 feet north of the Bristoe Station Study Area and 600 feet north of the Bristoe Station Core Area. It is within 0.5 mile of the Manassas Station Operations Core Area and the Bristoe Station Potential National Register Area (PotNR), as defined by the ABPP in 2007 (National Park Service [NPS] 2009). 076-5036 was determined potentially eligible for the NRHP in 2018. It is within the half-mile study tier for the Hourglass-Hornbaker Route 1 (Hybrid) and within the 1-mile study tier for Pegasus-Hornbaker Route 1.

### 3.3.3 076-5190, SECOND BATTLE OF MANASSAS

076-5190, the Second Battle of Manassas, encompasses over 17,000 acres in Prince William, Fairfax, and Loudoun counties (Attachment 4, Figure 3). The Second Battle of Manassas was fought August 28–30, 1862 and marked the end of what is referred to as the Northern Virginia Campaign of Confederate General Robert E. Lee. Lee's victory allowed the Confederate Army of Northern Virginia to cross the Potomac into Maryland, beginning the first invasion of the northern states that ended at the Battle of Antietam.

076-5190 represents the site of the battle and its ancillary actions, including the approach and withdrawal of the armies before and after the battle, as defined by the ABPP Study Area (NPS 2009). The ABPP Core Area of the battlefield within which the primary action took place is north of Balls Ford Road and Cushing Road, but extends south on Balls Ferry Road to its junction with the former Manassas Gap Railroad at Wellington. The most significant and well-preserved portions of

the battlefield are listed in the NRHP as the Manassas Battlefield Historic District (076-0271), which includes Manassas National Battlefield Park.

The Union forces defending Washington were organized as the Army of Virginia under General John Pope in June 1862. Lee, defending Richmond against McClellan's Army of the Potomac, sent General Stonewall Jackson to counter Pope, and after a clash at the Rapidan River with Jackson's forces, Pope withdrew to a strong position north of the Rappahannock River. Suspecting that Lee was shifting his army northward, McClellan began a withdrawal to reinforce Pope. Lee realized that if he could get to Pope before McClellan, he might have a chance to destroy his army. In order to lure Pope out of his defenses, Lee ordered Jackson to march over 50 miles to the north to strike in Pope's rear. Jackson successfully seized the Union depot at Manassas Junction on August 27, where his troops feasted on the rations there before burning the remaining supplies. Jackson then withdrew northward and took up a position on the north side of the Warrenton Turnpike near the First Manassas battlefield. Meanwhile, Lee was proceeding with Longstreet's Corps to join Jackson and reunite his army (NPS 2024b).

With his supply line cut and a threat in his rear, Pope withdrew from the Rappahannock and returned toward Manassas. As he made his way to Centerville just north of Manassas, Pope's First Division was attacked by Jackson on the Warrenton Turnpike (U.S. 29) at the Brawner Farm on August 28. A fierce fight took place there that lasted until nightfall, kicking off the action at Second Manassas. The next day, convinced that Jackson was isolated and vulnerable, Pope began a series of uncoordinated attacks of Jackson's line, which was situated behind the grade of the unfinished Independent Line of the Manassas Gap Railroad. On several occasions, Pope's forces broke through portions of the line, but the gaps were filled and the Union repulsed. Major General Fitz John Porter was sent on a movement to flank the Confederate right but was met by Longstreet's men arriving on the scene. Lee called for Longstreet to attack the Union left, but Longstreet argued that the time was not right (American Battlefield Trust [ABT] 2024b; NPS 2024b).

After the morning of August 30 passed quietly, Pope believed that Lee was retreating back to Thoroughfare Gap and ordered his army to pursue. To his surprise he found that the Confederate army had not moved from its position. Pope nevertheless continued the assault. Porter and Brigadier General John Hatch were sent into the "Deep Cut," a gap in the railroad grade, but were rebuffed by artillery fire. Lee and Longstreet took advantage of the confusion and ordered a counterattack on the Union left. With nearly 30,000 troops, one of the largest single assaults of the war, Longstreet drove the Union forces back toward Henry Hill, where the Confederates under Jackson and others had put up a ferocious defense just over a year earlier. Lee hoped to cut off Pope's escape, but the Union forces made a strong stand at Chinn Ridge and Henry Hill, holding back the surge long enough for Pope to cross Bull Run and begin his retreat back to Washington (ABT 2024b; NPS 2024b).

Second Manassas was a decisive Confederate victory against a larger Union force. The Union armies totaled approximately 70,000 men to the Confederates' 55,000. However, the Confederates suffered significant losses. Over 8,000 were killed, wounded, or missing, with nearly half of those occurring from Longstreet's massive charge on the 30<sup>th</sup>. The Union armies, however, lost an even greater percentage of its men. Nearly 14,000 men, 20 percent of the total forces



engaged, were killed, wounded, or missing. The loss destroyed Pope's career. He was relieved of command less than two weeks after the battle and was sent west to battle the Sioux. Although he was court-martialed and forever barred from holding office, he eventually was exonerated (Encyclopaedia Britannica 2024b).

The major action of the Second Battle of Manassas took place primarily to the north of the proposed Project; however, troop movements and supporting actions of the Union army did take place within the Project vicinity. On the 29<sup>th</sup>, Major General Fitz John Porter was sent around the Union left along the Manassas-Gainesville Road (current Route 674, Wellington Road), where he was met by Longstreet's forces just arriving on the scene from the Manassas Gap Railroad, blocking his progress. Wellington Road is crossed by Wellington-Pegasus Route 1 and is paralleled by Devlin-Pegasus Route 2. After skirmishing in the afternoon around Dawson's Branch, Porter shifted to his right to reinforce the main body of Pope's army on the south side of the Warrenton Turnpike (Eastern National Park and Monument Association [ENPMA] 1985). The area along Wellington Road has been heavily impacted by commercial development and major road projects.

076-5190 was determined potentially eligible for the NRHP in January of 2007 by the ABPP and again by Adrienna Birge-Wilson of VDHR under Criterion A in September of 2018. Roger Kirchen of VDHR determined the resource eligible in July of 2019; however, it was then reclassified as potentially eligible in November of 2020 by Adrienna Birge-Wilson of VDHR. The resource is located within the right-of-way of Devlin-Pegasus Routes 1 and 2. It is also located within the half-mile study tier for Wellington-Pegasus Route 1 and Pegasus-Hornbaker Route 1 and within the one-mile study tier for Hourglass-Hornbaker Route 1 (Hybrid).

### 3.3.4 076-5335, FIRST BATTLE OF MANASSAS

076-5335, First Battle of Manassas, encompasses over 18,000 acres in Prince William, Fairfax, and Loudoun counties (Attachment 4, Figure 4). The battle was fought July 21, 1861, and was the first major engagement of the Civil War. The Confederate victory embarrassed the U.S. military and demonstrated that the war would be longer and costlier than had been previously imagined. 076-5335 represents the site of the battle and its ancillary actions, including the approach and withdrawal of the armies before and after the battle, as defined by the ABPP study area (NPS 2009). The ABPP core area of the battlefield within which the primary action took place is located around the intersection of U.S. 29 and Sudley Road on the north side of Interstate 66. The most significant and well-preserved portions of the battlefield are listed in the NRHP as the Manassas Battlefield Historic District (076-0271), which includes the Manassas National Battlefield Park.

Following the bombardment of Fort Sumter in April 1861, President Lincoln had called for 75,000 volunteers from the state militias for a 90-day deployment as proscribed by laws dating to the eighteenth century. This was four times the size of the standing U.S. Army, but much less than was needed to effectively end the rebellion. After receiving training, 35,000 of these volunteers under General Irvin McDowell marched out of Washington on July 16 to capture the Confederate capital of Richmond. The first objective was to secure Manassas Junction, where the Manassas Gap and the Orange and Alexandria Railroad met. The Orange and Alexandria Railroad was an important line of communication between Washington and the Union Army and was the most direct rail line between the capitals. McDowell arrived at Centerville, on the Warrenton Turnpike

(now Lee Highway/U.S. 29) on July 18. Between him and Manassas Junction ran a small stream called Bull Run. On the opposite side of the stream, Confederate General P. G. T. Beauregard had deployed his 22,000 troops to protect all the fords from the railroad north to the stone bridge of the Warrenton Turnpike over Bull Run (ABT 2024a; NPS 2024a).

After driving into the Confederate right at Blackburn's Ford and failing to break the line, McDowell spent the next two days probing the left side of the line around the Stone Bridge. Meanwhile, Beauregard had requested reinforcements, and General Joseph E. Johnston was ordered to leave his position in the Shenandoah Valley to support Beauregard. Traveling by the Manassas Gap Railroad, Johnston arrived on the 20<sup>th</sup> and 21<sup>st</sup>, just as the action was commencing (NPS 2024a).

On July 21, McDowell sent a force north to Sudley Spring to flank the Confederate left. To protect this movement, he launched an attack at Stone Bridge early in the morning of the 21<sup>st</sup> that marked the beginning of the battle. Confederate Colonel Nathan Evans was defending the bridge and soon recognized that the push at the bridge was a feint. He left a small force at the bridge and moved his brigade to the northwest to meet McDowell's force that had crossed Bull Run and was moving south on the Manassas-Sudley road. Evans was soon reinforced by Brigadier General Barnard Bee and Colonel Francis Bartow, and the two sides faced off in an intense fire fight at Matthew's Hill. The Federals were able to continue adding more regiments and artillery to the fight, however, and the Confederate line was forced back to Henry Hill, on the south side of Warrenton Turnpike, where Bee sought to rally his men. It was during this stand that Bee bestowed on Confederate General Thomas J. Jackson his nickname "Stonewall" for his steadfast position. At Henry Hill, the Confederates were joined by Johnston's men, some of them marching directly into battle from the Manassas Gap Railroad station at Thoroughfare. Beauregard also arrived on the scene as the battle had shifted entirely to this front. After a short pause as the two sides reordered their lines at midday, the fight was resumed. With the two sides at roughly equal strength, the battle at Henry Hill became a series of attacks and counter attacks, with no side gaining an advantage. Around 4 p.m., more Confederate troops arrived and attacked the Union right at Chinn Ridge. The federal forces, exhausted and discouraged, retreated, and the remaining forces soon followed. The rebels were too disorganized to pursue, advancing only as far as Centerville. By the next morning McDowell's army had returned to the safety of Washington's defenses (NPS 2024a; ABT 2024a).

Of McDowell's roughly 30,000 men, 460 were killed, including Bee and Barstow, and 1,124 were wounded. Another 1,300 were missing or captured. Beauregard and Johnston's combined forces of some 32,000 men suffered 387 killed and 1,582 wounded, with just 13 missing or captured. The loss was an embarrassment to the Union Army and made clear the need for a larger, better trained and equipped force. The battlefield became an immediate shrine as the first major battle of the Civil War and to the men who fell there. Veterans of the fight returned to the site frequently, and in 1940, Manassas National Battlefield was established to protect the historic landscape for future generations (Encyclopaedia Britannica 2024a).

The major action of the First Battle of Manassas took place primarily to the northeast of the Project, although troop movements and peripheral actions did take place within the area. The portion of the ABPP study area that falls within a mile of the resource is an approach or withdrawal route along Wellington Road and Rixlew Lane that is located 0.9 miles northeast of the Hourglass-

Hornbaker Route 1 (Hybrid). The area has been heavily impacted by commercial and residential development and infrastructure.

076-5335 was determined potentially eligible for the NRHP in January of 2007 by the ABPP. In August of 2018, Marc Holma of VDHR determined the resource eligible; however, it was reclassified as potentially eligible by Adrienne Birge-Wilson in September of the same year. The First Battle of Manassas is located within the one-mile study tier for Hourglass-Hornbaker Route 1 (Hybrid).

### 3.3.5 155-5020, CANNON BRANCH FORT SITE

The Cannon Branch Fort Site, 155-5020, is a Civil War-era fortification located adjacent to the former Alexandria and Orange Railroad between Manassas and Bristoe, south of the intersection of Route 234 (Prince William Parkway) and Route 28 (Nokesville Road). It occupies an 11-acre wooded parcel bounded by the railroad (now the Norfolk Southern) on the south, Gateway Boulevard on the north and east, and Route 234 on the west (Attachment 4, Figure 5). The fort was constructed during the Union occupation of the area to protect the railroad, which was an important supply line for the Union army's operations in northern Virginia during its efforts to capture the Confederate capital of Richmond (Lipford 2023). The resource was listed on the NRHP in 1999.

The fort has not been documented in written records of the Civil War but was likely constructed late in the conflict to defend the supply line. The earthen works are rectangular in shape, approximately 145 feet by 105 feet, with 2- to 3-foot walls and a 1- to 2-foot-deep ditch on the exterior side. There are openings in the east and west walls near the northern end of the fort. Its orientation suggests that it protected the railroad bridge over Cannon Branch.

The Cannon Branch Fort Site was listed on the Virginia Landmarks Register (VLR) in March of 1996 by VDHR staff, and it was listed on the NRHP in August of 1999. 155-5020 is within the one-mile study tier for Hourglass-Hornbaker Route 1 (Hybrid).

## 3.4 HISTORIC RESOURCE FINDINGS FOR WELLINGTON-PEGASUS ROUTE 1

### 3.4.1 076-5190, SECOND BATTLE OF MANASSAS

The Second Battle of Manassas is transected by Wellington-Pegasus Route 1 on the resource's southern boundary (Attachment 5, Figure 1). The area crossed consists of a highway and other roads, small stands of woods, and cleared land. The wooded parcels would be altered with a tree cut to accommodate the new transmission line.

One simulation, KOP 004H, was prepared for this resource just within the resource's southern boundary. This location was chosen as the point where infrastructure installed along the route would have the greatest visual impact. As illustrated in the simulation from KOP 004H, the new transmission structures would be highly visible from this vantage point since the transmission line corridor would cut through wooded land and the transmission line structures would be near a public thoroughfare (Attachment 5, Figure 2).

A few existing transmission lines intersect the resource, the nearest one to the Project being just north of the route, which would facilitate a tie into that existing transmission line. The route

extends a short distance to the south of the resource to tie in to the proposed Pegasus Switching Station, traversing wooded land, necessitating a tree cut that would create additional viewshed effects for a small area of the battlefield. The setting of the resource in the vicinity of the route has already been compromised by the existing transmission line, in addition to modern development, which has altered the landscape.

As shown in the simulations, transmission infrastructure installed along Wellington-Pegasus Route 1 would be visible from the KOP and would potentially be visible from locations immediately adjacent to the route both within the boundary of the resource and immediately to the south. The new transmission line would add additional modern infrastructure to the viewshed. Although the resource has already been altered, Wellington-Pegasus Route 1 would add more modern elements within the boundaries of the resource's southern portion. However, the new transmission line would be a minor change within this expansive resource's 17,000 acres. Furthermore, the location of the route is not within an area of the battlefield in which major action took place. Therefore, for all these reasons, ERM recommends that there would be a **Moderate Impact** on this resource from the transmission line installed Wellington-Pegasus Route 1.

### 3.5 PEGASUS-HORNBAKER ROUTE 1

#### 3.5.1 076-5036, MANASSAS STATION OPERATIONS BATTLEFIELD

The Manassas Station Operations Battlefield is approximately 0.8 mile south of Pegasus-Hornbaker Route 1 at its closest point (Appendix 5, Figure 3). The resource boundaries create a U-shape moving from the west side of the route, dipping to a low point to its south before moving northeast. Two simulations were prepared for this resource, KOP 009H and KOP 010H. KOP 009H is approximately 0.90 mile west of the proposed route within a residential community with tree cover and winding roads lined with closely sited dwellings (Appendix 5, Figure 4). KOP 010H is approximately 0.99 mile southeast of the route within an area predominantly cleared of vegetation and containing commercial and industrial buildings (Appendix 5, Figure 5). As shown in the simulations, there would be no view of transmission infrastructure installed along the route due to the change in elevation, intervening distance, development, and vegetation. Therefore, there would be **No Impact** on this resource from use of Pegasus-Hornbaker Route 1 for the Project.

#### 3.5.2 076-5190, SECOND BATTLE OF MANASSAS

The Second Battle of Manassas is approximately 738 feet to the north of Pegasus-Hornbaker Route 1 and approximately 581 feet north of the proposed Pegasus Switching Station (Attachment 5, Figure 6). The area containing the route is forested but abuts industrial development to the south. Vegetation would be removed to accommodate the new transmission line.

One simulation was prepared for this resource, KOP 004H, located at the southern edge of the resource's boundary. This location was chosen due to the proximity of the KOP to the route and switching station where the greatest visual impact would occur. From this viewpoint, as illustrated in the simulation from KOP 004H, transmission line structures would likely only be visible during leaf off seasons, except right along the south side of the switching station, would be highly visible from this location year-round (Attachment 5, Figure 7).



While the southern viewshed already contains other modern development, such as divided highways and industrial and commercial buildings, Pegasus-Hornbaker Route 1 would introduce new modern infrastructure, which would be prominent within the landscape from a vantage point along a major public thoroughfare. Additionally, this route would tie into the Wellington-Pegasus Route 1, which would also add additional modern infrastructure to this viewshed. Thus, ERM recommends that there would be a **Moderate Impact** to this resource from the use of Pegasus-Hornbaker Route 1 for the Project.

### 3.6 HISTORIC RESOURCE FINDINGS FOR HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

#### 3.6.1 076-0285, THOMASSON BARN

Thomasson Barn is approximately 0.24 mile south-southwest of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 8). The area between the resource and the proposed line consists of a parking lot, commercial development, cleared land, and a zig-zagging tree break. One simulation was prepared, KOP 007H, which is located on the northwestern corner of the resource looking north (Attachment 5, Figure 9). As shown in the simulation, there would be no view of transmission infrastructure installed along the route due to the change in elevation, intervening distance, development, and vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

#### 3.6.2 076-5036, MANASSAS STATION OPERATIONS BATTLEFIELD

Manassas Station Operations Battlefield is, at its closest distance, approximately 0.37 mile southeast of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 10). The portion of this expansive resource in the vicinity of the Project contains extensive commercial development. The intervening land between the resource and route also contains recent construction, open land, and scattered small stands of trees. One simulation was prepared, KOP 010H, at the point in closest proximity to the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 11). As shown in the simulation, there would be no view of transmission infrastructure installed along the route due to the intervening distance, change in elevation, development, and screening vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

#### 3.6.3 076-5190, SECOND BATTLE OF MANASSAS

The Second Battle of Manassas is approximately 0.63 mile north and east of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 12). The area between the resource and the route consists of dense commercial and residential development. Additionally, a network of existing transmission lines spans the area moving in all directions. One simulation was prepared, KOP 013H, from the southern end of the resource looking west (Attachment 5, Figure 13). As shown in the simulation, there would be no view of transmission infrastructure installed along the route due to the intervening distance, development, and vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

### 3.6.4 076-5335, FIRST BATTLE OF MANASSAS

The First Battle of Manassas, which partially overlaps 076-5036, is approximately 0.94 mile northeast of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 14). The area between the resource and the proposed route consists of dense commercial and residential development. Additionally, a network of existing transmission lines spans the area moving in all directions. One simulation was prepared, KOP 013H, which is located on the southern end of the resource (Attachment 5, Figure 15). As shown in the simulation, there would be no view of transmission infrastructure installed along this route due to the intervening distance, development, and vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

### 3.6.5 155-5020, CANNON BRANCH FORT SITE

Cannon Branch Fort Site is approximately 0.79 mile southeast of the Hourglass-Hornbaker Route 1 (Hybrid) (Attachment 5, Figure 16). The area between the resource and the route consists of cleared land and commercial development. One simulation was prepared, KOP 014H, which is on the northwestern edge of the resource's boundary looking northwest (Attachment 5, Figure 17). As shown in the simulation, there would be no view to the transmission infrastructure installed along the route due to the intervening distance and vegetation. Therefore, there would be **No Impact** on this resource from use of the Hourglass-Hornbaker Route 1 (Hybrid) for the Project.

## 3.7 DEVLIN-PEGASUS ROUTE 1

### 3.7.1 076-5190, SECOND BATTLE OF MANASSAS

The southernmost extent of the Second Battle of Manassas is transected by the alignment of Devlin-Pegasus Route 1, which would weave in and out of the resource's southern boundary (Attachment 5, Figure 18). The areas transected are surrounded by commercial and residential development and dense vegetation. While heavily developed, there are also small, wooded parcels where the vegetation would be removed to accommodate the new transmission line.

Three simulations were prepared for this resource: KOP 001H, KOP 002H, and KOP 004H. KOP 001H is at the northern end of the route at the edge of the resource boundary, looking towards the proposed Devlin Switching Station (Attachment 5, Figure 19). This location was chosen to capture the view where the route overlaps the resource boundary. As shown in the simulation, this location would have an expansive and obtrusive view of the transmission infrastructure installed along the route, which would entail noticeable tree clearing, different types of transmission structures, and conductors. At this location however, there is already modern development in the form of electrical distribution lines and utility poles and a four-lane, divided thoroughfare, with commercial development immediately to the north. The introduction of a transmission line along the route would add additional modern elements to a landscape setting already cluttered with modern infrastructure.

KOP 002H is along Lexington Valley Drive within the southern boundary of the resource (Attachment 5, Figure 20). This location was chosen to capture the view where the route would traverse the battlefield in an area whose viewshed is not currently obstructed by existing

transmission lines. This simulation shows that transmission infrastructure installed along the route would be visible at certain locations where sight lines are unobstructed by vegetation and intervening development. The area is already inundated with commercial development, however, and dense vegetation will remain surrounding a portion of this segment, which would screen the view of the route from many vantage points.

Finally, KOP 004H is at the southernmost end of the route facing southwest towards the route's nexus with the proposed Pegasus Switching Station. This location was chosen based on the potential high visibility of the new infrastructure, which is demonstrated in the simulation (Attachment 5, Figure 21). The viewshed would be dominated by transmission infrastructure installed along the route and switching station, whose construction would necessitate prominent tree clearing.

The viewshed of the Second Battle of Manassas is transected to the north of the route by an existing transmission line running northwest to southeast. Additionally, the area contains heavy commercial and residential development, highways, and dense vegetation that would obstruct the view of transmission infrastructure installed along Devlin-Pegasus Route 1 in various locations along its alignment within the resource. However, as shown in the three simulations, there would be obtrusive views at locations near the route and in areas where tree coverage is limited. Overall, due to the location of the route within an area already heavily altered by development, the new transmission line would not engender a significant change to the setting of this expansive resource's 17,000 acres. Furthermore, the location of the route is not within an area of the battlefield in which major action took place. Therefore, it is recommended that there would be a **Moderate Impact** on this resource from use of Devlin-Pegasus Route 1 for the Project.

## 3.8 DEVLIN-PEGASUS ROUTE 2

### 3.8.1 076-5190, SECOND BATTLE OF MANASSAS

The southern portion of the Second Battle of Manassas is intersected in three segments by the alignment of Devlin-Pegasus Route 2 (Attachment 5, Figure 22). The areas transected consist of commercial development and dense vegetation, which would be removed to accommodate the new transmission line.

Three simulations were prepared for this resource: KOP 001H, KOP 002H, and KOP 003H. KOP 001H is at the northern end of the route at the edge of the resource boundary, looking towards the proposed Devlin Switching Station (Attachment 5, Figure 23). This location was chosen to capture the view where the route overlaps the resource boundary. As shown in the simulation, this location would have an expansive and obtrusive view of transmission infrastructure installed along the route, which would entail noticeable tree clearing, different types of transmission line structures, and conductors. At this location however, there is already modern development in the form of electrical distribution lines and utility poles and a four-lane, divided thoroughfare, with commercial development immediately to the north. The introduction of a transmission line along the route would add additional modern elements to a landscape setting already cluttered with modern infrastructure.

KOP 002H is located along Lexington Valley Drive within the boundaries of the resource's southern end (Attachment 5, Figure 24). This location was chosen due to its proximity to the route within an area with uninterrupted sight lines that does not contain existing transmission lines. This simulation shows that transmission infrastructure installed the route would be visible at certain locations unobstructed by vegetation and intervening development. The presence of existing commercial development and stands of dense vegetation would constrain sight lines to a large degree, but there are no existing transmission lines in the immediate viewshed. The proposed transmission line would represent a new element within the setting.

Finally, KOP 004H is near the southern end of the route facing southwest. This location was chosen based on the potential high visibility of the proposed transmission line within an otherwise relatively undeveloped area (Attachment 5, Figure 25). As demonstrated in this simulation, infrastructure installed along Devlin-Pegasus Route 2 would traverse the southern extent of the battlefield, where conductors, transmission line structures, and cleared right-of-way would be clearly visible along a public thoroughfare.

The viewshed of the Second Battle of Manassas is transected to the north of the route by an existing transmission line running northwest to southeast. Additionally, the area contains heavy commercial and residential development, highways, and dense vegetation that would obstruct the view of transmission infrastructure installed along Devlin-Pegasus Route 2 in various locations along its alignment within the resource. As shown in the three KOP simulations, however, there would be obtrusive views at locations in close proximity to the route and in areas where tree coverage is limited. Overall, due to the location of the route within an area already heavily altered by development, the new transmission line would not engender a significant change to the setting of this expansive resource's 17,000 acres. Furthermore, the location of the route is not within an area of the battlefield in which major action took place. Therefore, for all these reasons, ERM recommends that there would be a **Moderate Impact** on this resource from use of Devlin-Pegasus Route 2 for the Project.

### 3.9 ARCHAEOLOGY FINDINGS

Five known archaeological sites are located in the right-of-way of the transmission line routes (see Figure 2; Table 10): one within the right-of-way of Pegasus-Hornbaker Route 1 (44PW1221); one within the right-of-way of Hourglass-Hornbaker Route 1 (Hybrid) (44PW1208); and three within the right-of-way of Devlin-Pegasus Route 2 (44PW1454, 44PW1455, and 44PW1456). No previously recorded sites were identified within the right-of-way for Wellington-Pegasus Route 1 or Devlin-Pegasus Route 1.

The sites along each route alternative are described below. The descriptions include information on the NRHP eligibility status of each site as well as an assessment of each site's condition based on desktop review. A confident evaluation of the nature of archaeological deposits at each site and impacts from prior land use activities would require a field survey to verify the desktop analysis.

**TABLE 10 ARCHAEOLOGICAL RESOURCES WITHIN THE RIGHT-OF-WAY FOR THE ROUTE ALTERNATIVES**

Considered Resource	Route Alternatives				
	Wellington-Pegasus Route 1	Pegasus-Hornbaker Route 1	Hourglass-Hornbaker Route 1 (Hybrid)	Devlin-Pegasus Component, Route 1	Devlin-Pegasus Component, Route 2
44PW1208	-	-	X	-	-
44PW1221	-	X	-	-	-
44PW1454	-	-	-	-	X
44PW1455	-	-	-	-	X
44PW1456	-	-	-	-	X
<b>Total Resources</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>3</b>

**3.9.1 WELLINGTON-PEGASUS ROUTE 1**

No known archaeological sites are located within the right-of-way of this route alternative.

**3.9.2 PEGASUS-HORNBAKER ROUTE 1**

One previously recorded archaeological site, a prehistoric lithic workshop, overlaps Pegasus-Hornbaker Route 1: 44PW1221. A previous Phase I survey performed in 2001 described the site as a non-diagnostic lithic scatter with some subsurface integrity (Crowl 2001), however, the site area has since been developed and the site most likely destroyed.

**3.9.3 HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)**

One previously recorded archaeological site overlaps the Hourglass-Hornbaker Route 1 (Hybrid): 44PW1208. This site is identified as a prehistoric lithic workshop with an unidentified temporal affiliation which has not been evaluated to determine its eligibility for listing in the NRHP (VDHR 2024b). A previous Phase I survey performed in 2001 described the site as a non-diagnostic lithic scatter with some subsurface integrity (Crowl 2001). The site area is now completely covered by a business park. [REDACTED]

[REDACTED] As the entirety of the recorded site boundary has been previously disturbed by commercial development, it is unlikely that any intact cultural remains would be encountered at the site.

**3.9.4 DEVLIN-PEGASUS COMPONENT ROUTE 1**

No known archaeological sites are located within the right-of-way of this route alternative.

### 3.9.5 DEVLIN-PEGASUS COMPONENT ROUTE 2

There are three previously recorded sites that overlap Devlin-Pegasus Route 2: 44PW1454, 44PW1455, and 44PW1456. The first, 44PW1454, is a multi-component site consisting of an prehistoric lithic scatter with an unidentified temporal affiliation and historic (late nineteenth to mid-twentieth century) trash scatter which has not been evaluated to determine its eligibility for listing in the NRHP (VDHR 2024c). A previous Phase I survey performed by Thunderbird Archeological Associates in 2003 indicated that the historic component of the site was a secondary dump and that the site was largely destroyed (Bryant 2003). The site area was plowed from at least 1937 to sometime between 2004 and 2006 based on aerial photography. Thereafter, the site was planted in, maintained as, and remains pine forest. [REDACTED]

Site 44PW1455 is a historic (twentieth century) trash scatter which has not been evaluated to determine its eligibility for listing in the NRHP (VDHR 2024d). A previous Phase I survey performed by Thunderbird Archeological Associates in 2003 indicated that the trash scatter was associated with a twentieth century house and that the site had been largely destroyed (Bryant 2003). Review of aerial photography found that the site contained an apparent residential structure from at least 1937 to sometime between 2004 and 2006. After removal of the structure, the area was planted in, maintained as, and remains pine forest. [REDACTED]

Site 44PW1456 is a historic (nineteenth and twentieth century) trash scatter which has not been evaluated to determine its eligibility for listing in the NRHP (VDHR 2024e). A previous Phase I survey performed by Thunderbird Archeological Associates in 2003 indicated that the trash scatter was defined by a light surface scatter in a sod field and that the site had been largely destroyed (Bryant 2003). The site area was plowed from at least 1937 to sometime between 2004 and 2006 based on aerial photography. Thereafter, the site was planted in, maintained as, and remains pine forest. [REDACTED]

## 4. CONCLUSIONS AND RECOMMENDATIONS

The pre-application analysis gathered information on archaeological and historic architectural resources that qualify for consideration according to the Guidelines.

Five known archaeological sites are in the right-of-way of the transmission line routes reviewed in this study. An assessment of the condition and research potential of those sites is contingent upon archaeological field investigations, which will be conducted at relevant sites once a preferred alternative is selected by the SCC. Potential impacts to sites along the preferred route will be assessed as part of the field survey.

Five aboveground historic resources fall within the VDHR study tiers for the route alternatives under consideration. A comparison of the number of resources impacted and the degree of impact from each route is presented in Table 11. The specific resources affected by each alternative are discussed in the subsections that follow. A discussion of results by solution is provided in Section 4.2.

**TABLE 11 COMPARISON OF PROJECT IMPACTS ON HISTORIC RESOURCES IN THE STUDY AREAS OF THE ROUTE ALTERNATIVES**

Route Alternative	Number of Considered Resources in Each Impact Category				
	None	Minimal	Moderate	Severe	Total
Wellington-Pegasus Route 1	0	0	1	0	1
Pegasus-Hornbaker Route 1	1	0	1	0	2
Hourglass-Hornbaker Route 1 (Hybrid)	5	0	0	0	5
Devlin-Pegasus Component, Route 1	0	0	1	0	1
Devlin-Pegasus Component, Route 2	0	0	1	0	1

Final assessments of Project impacts will be dependent on the completion of identification-phase archaeological and historic structure surveys along the routes selected by the SCC and review of survey results by VDHR and other consulting parties. For any resources where the agencies concur in a finding of moderate or severe impact, the Company will propose treatments to avoid, minimize, or mitigate those impacts. Treatment options for archaeological sites could include selective structure placement to avoid direct impacts on sites, minor route adjustments to avoid crossing sites, or archaeological data recovery. Treatment options for aboveground historic resources could include detailed site documentation, historic research, and historic preservation studies; preparation of digital media or museum-type exhibits on sites for public interpretation; installation of historic markers or signs; installation of vegetative screening; or contributions to historical preservation organizations or specific preservation projects. Additional mitigations could be identified through consultation with VDHR and other consulting parties.

## 4.1 ROUTES

### 4.1.1 WELLINGTON-PEGASUS ROUTE 1

One previously recorded historic resource (076-5190) within the VDHR study tiers for Wellington-Pegasus Route 1 meets the criteria specified in the Guidelines for inclusion in the study (Table 12). Installation of transmission infrastructure along this route would have a moderate impact on the resource.

**TABLE 12 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR WELLINGTON-PEGASUS ROUTE 1**

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	-	-	-
0.5 to 1.0	National Register Properties (Listed)	-	-	-
	National Register – Eligible (Battlefields/Historic Landscapes)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register – Eligible	-	-	-
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed and Eligible)	-	-	-
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190	Second Battle of Manassas	Moderate

Source: VDHR 2024

ROW = right-of-way

### 4.1.2 PEGASUS-HORNBAKER ROUTE 1

Two previously recorded historic resources within the VDHR study tiers for Pegasus-Hornbaker Route 1 meet the criteria specified in the Guidelines for inclusion in the study (Table 16). Of these, the route would have no impact on one (076-5036) and a moderate impact on the other (076-5190).

**TABLE 16 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR PEGASUS-HORNBAKER ROUTE 1**

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	-	-	-
0.5 to 1.0	National Register Properties (Listed)	-	-	-
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5036 <sup>a</sup>	Manassas Station Operations Battlefield	No Impact

	Locally Significant	-	-	-
0.0 to 0.5	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190	Second Battle of Manassas	Moderate
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed and Eligible)	-	-	-

Source: VDHR 2024

<sup>a</sup> Resource is within the designated tiers for the proposed Hornbaker Switching Station

#### 4.1.3 HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)

Five previously recorded historic resources (076-0285, 076-5036, 076-5190, 076-5335, and 155-5020) within the VDHR study tiers for the Hourglass-Hornbaker Route 1 (Hybrid) meet the criteria specified in the Guidelines for inclusion in the study (Table 13). The route would have no impact on all five resources.

**TABLE 13 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR HOURGLASS-HORNBAKER ROUTE 1 (HYBRID)**

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	-	-	-
0.5 to 1.0	National Register Properties (Listed)	155-5020	Cannon Branch Fort	No Impact
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190 <sup>a</sup>	Second Battle of Manassas	No Impact
		076-5335	First Battle of Manassas	No Impact
	Locally Significant	-	-	-
0.0 to 0.5	National Register – Eligible	076-0285 <sup>a</sup>	Thomasson Barn	No Impact
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5036	Manassas Station Operations Battlefield	No Impact
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed and Eligible)	-	-	-

Source: VDHR 2024

<sup>a</sup> Resource is within the designated tiers for the proposed Hornbaker Switching Station

#### 4.1.4 DEVLIN-PEGASUS ROUTE 1

One previously recorded (076-5190) historic resource within the VDHR study tiers for Devlin-Pegasus Route 1 meets the criteria specified in the Guidelines for inclusion in the study (Table 14). The route would have a moderate impact on this resource.

**TABLE 14 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR DEVLIN-PEGASUS COMPONENT ROUTE 1**

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	-	-	-
0.5 to 1.0	National Register Properties (Listed)	-	-	-
	National Register – Eligible (Battlefields/Historic Landscapes)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register – Eligible	-	-	-
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed)	-	-	-
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190	Second Battle of Manassas	Moderate

Source: VDHR 2024

ROW = right-of-way

**4.1.5 DEVLIN-PEGASUS ROUTE 2**

One previously recorded historic resource (076-5190) within the VDHR study tiers for Devlin-Pegasus Route 2 meets the criteria specified in the Guidelines for inclusion in the study (Table 15). The route would have a moderate impact on this resource.

**TABLE 15 IMPACTS TO HISTORIC RESOURCES IN THE VDHR STUDY TIERS FOR DEVLIN-PEGASUS COMPONENT ROUTE 2**

Buffer (miles)	Resource Category	Resource Number	Description	Impact
1.0 to 1.5	National Historic Landmarks	-	-	-
0.5 to 1.0	National Register Properties (Listed)	-	-	-
	National Register – Eligible (Battlefields/Historic Landscapes)	-	-	-
	Locally Significant	-	-	-
0.0 to 0.5	National Register – Eligible	-	-	-
0.0 (within ROW)	National Historic Landmarks, National Register Properties (Listed)	-	-	-
	National Register – Potentially Eligible (Battlefields/Historic Landscapes)	076-5190	Second Battle of Manassas	Moderate

Source: VDHR 2024

ROW = right-of-way



## 4.2 SOLUTIONS

The routes can be combined into two electrical solutions each with two options, consisting of a grouping of three route alternatives as follows:

- Solution 1A: Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 1B: Wellington–Pegasus Route 1, Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2
- Solution 2A: Hourglass-Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 1
- Solution 2B: Hourglass-Hornbaker Route 1 (Hybrid), Pegasus–Hornbaker Route 1, and Devlin–Pegasus Route 2

Based on the desktop analysis and visual simulations described above, ERM found that transmission infrastructure installed along:

- Wellington–Pegasus Route 1 (Solutions 1A and 1B) would result in a moderate impact on 076-5190.
- Pegasus-Hornbaker Route 1 (all Solutions) would result in no impact on 076-5036 and a moderate impact on 076-5190.
- Hourglass-Hornbaker Route 1 (Hybrid) (Solution 2A and 2B) would result in a no impact on 076-0285, 076-5036, 076-5190, 076-5335, and 155-5020.
- Devlin–Pegasus Route 1 (Solution 1A and 2A) would result in a moderate impact on 076-5190.
- Devlin–Pegasus Route 2 (Solution 1B and 2B) would result in a moderate impact on 076-5190.

Given the above, and excluding resources that would not be affected, ERM concludes that each solution would have a moderate impact on the same resource, 076-5190, and Solutions 2A and 2B would have moderate impacts on the remaining four resources. Therefore, Solutions 1A and 1B would impact fewer aboveground cultural resources. These impacts would all be due to the addition of electrical transmission infrastructure to the views from these resources. The entire study area has already been heavily altered by industrial, commercial, and some residential development. In addition, the major action during the two Battles of Manassas occurred more than 2 miles away (and separated by major highways) from the solutions. As a result, while Solutions 1A and 2A would have smaller overall impacts, these differences do not meaningfully differentiate the solutions.

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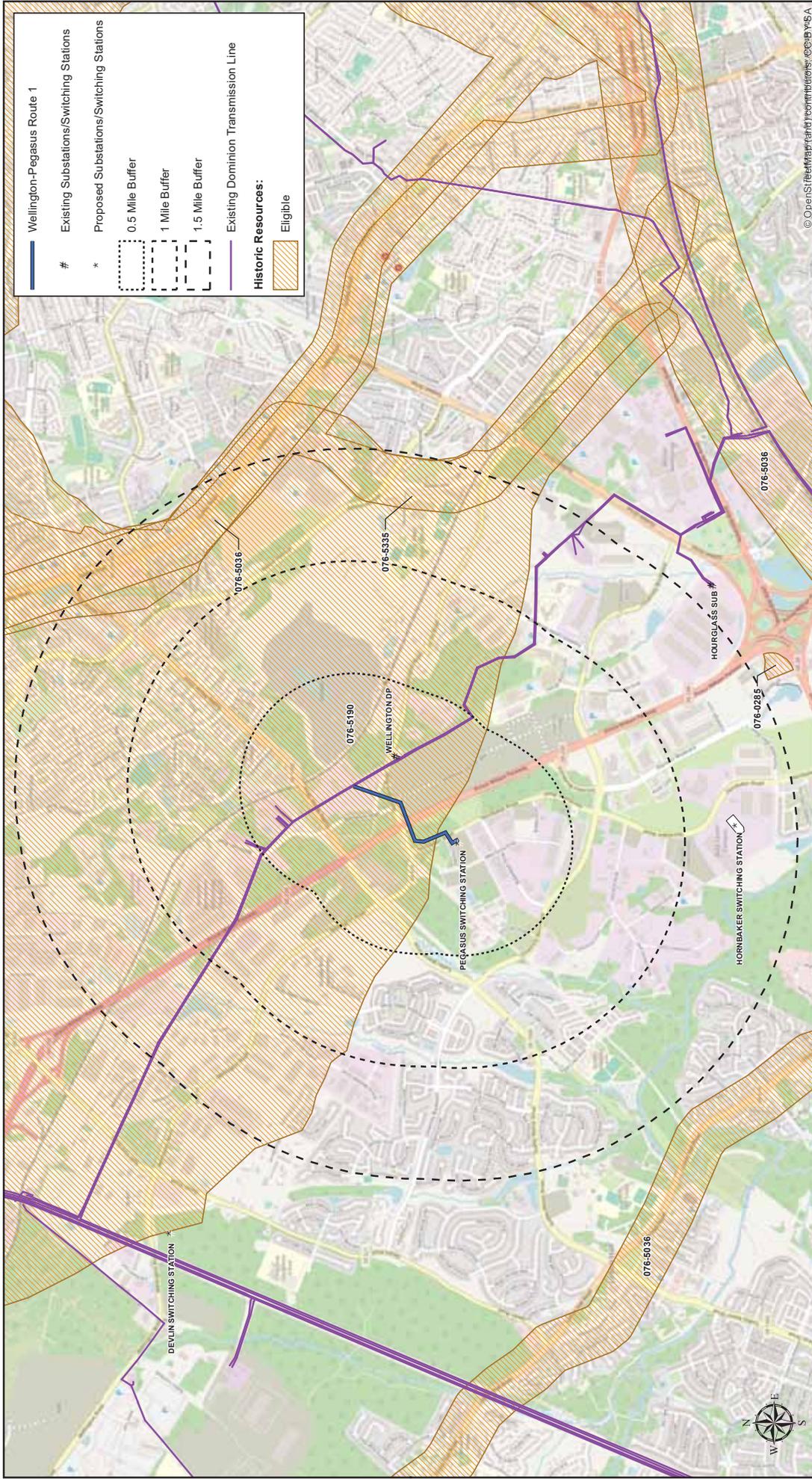
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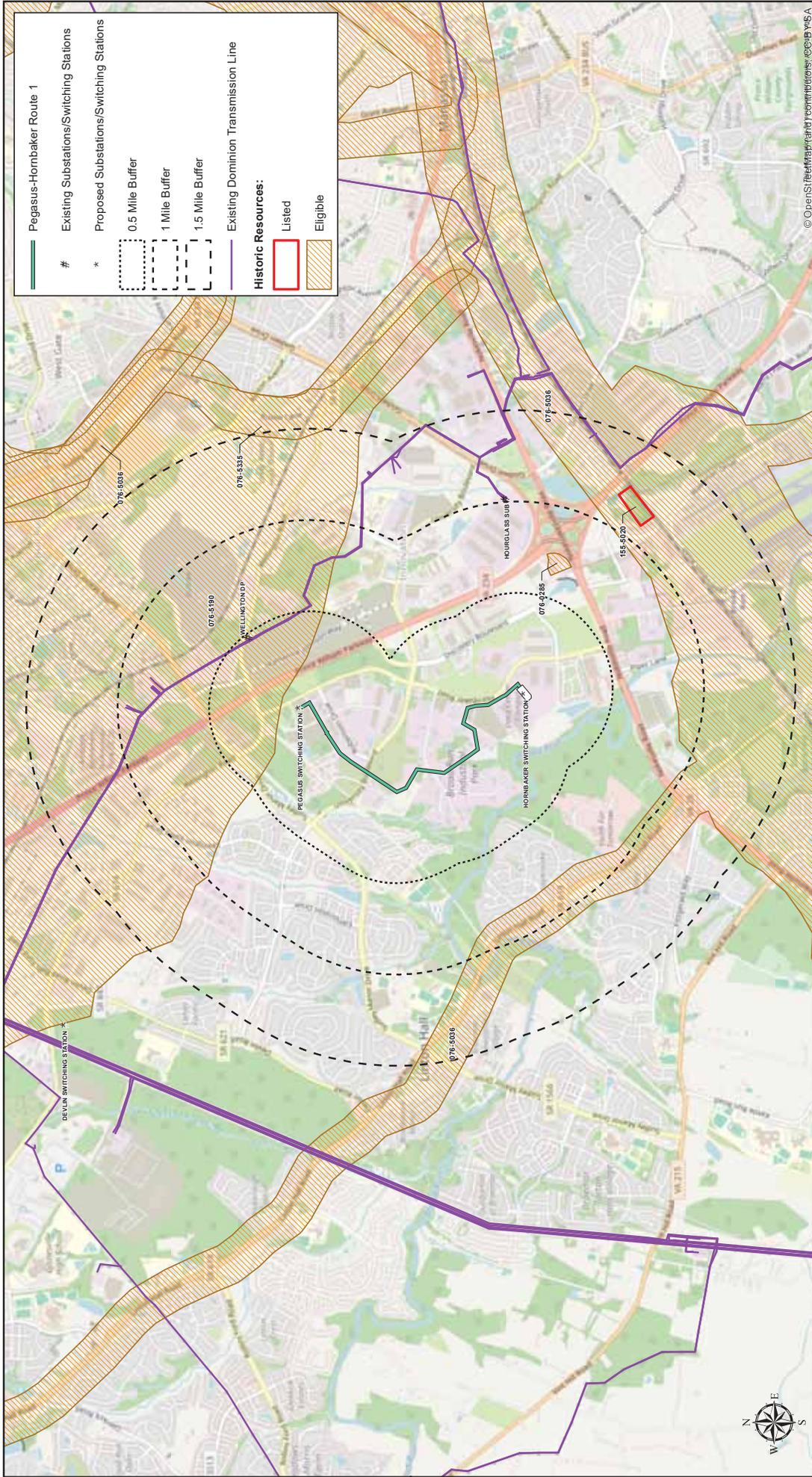


ATTACHMENT 1 LOCATIONS OF CONSIDERED  
ARCHITECTURAL RESOURCES  
ASSOCIATED WITH PROPOSED PROJECT



**Attachment 1, Sheet 1**  
**Locations of Considered Resources Associated with Proposed Project Alternatives - Wellington-Pegasus Route 1**  
 Devlin/Hornbaker 230 kV Lines Project  
 Dominion Energy Virginia  
 Prince William County, VA





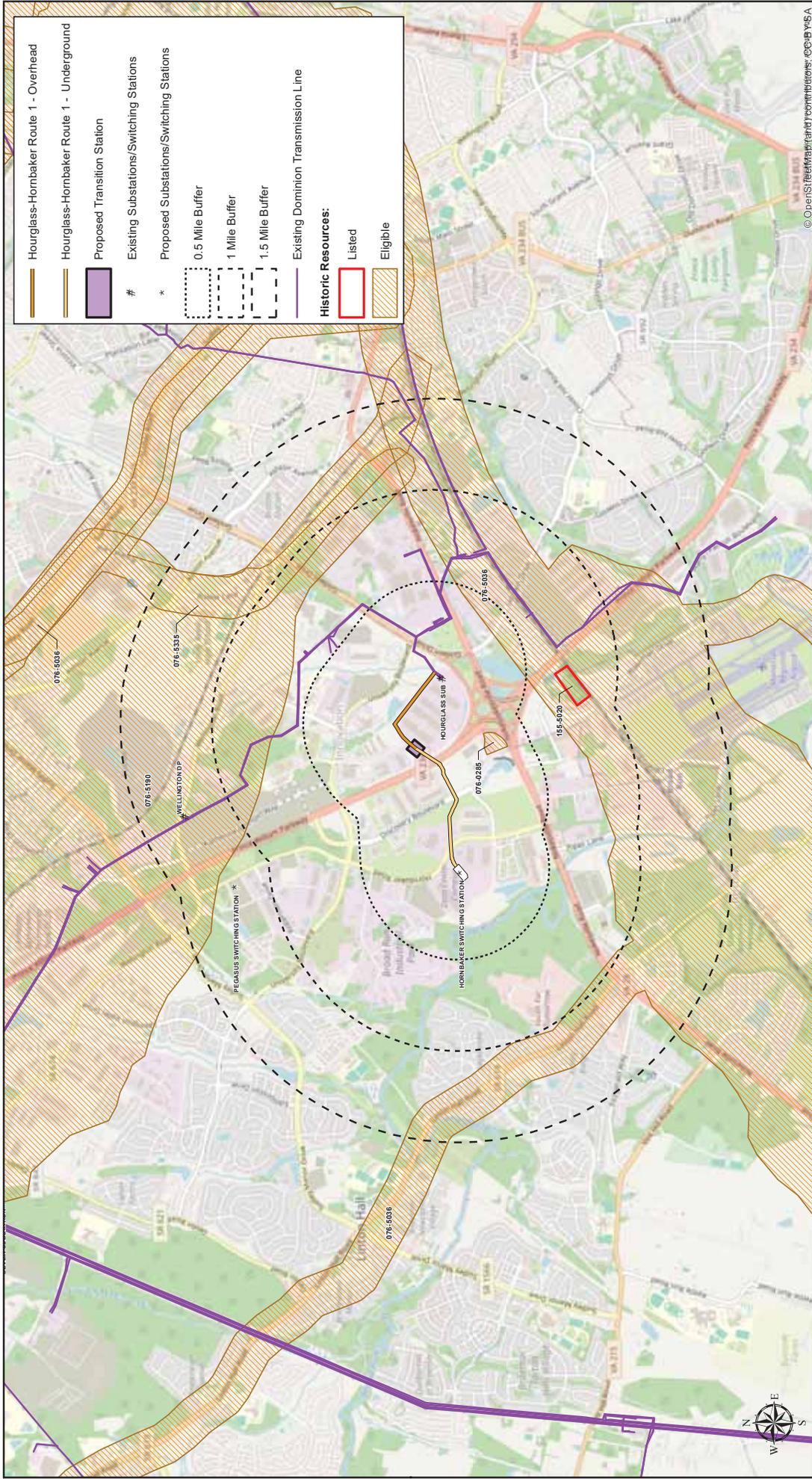
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**Attachment 1, Sheet 2**  
**Locations of Considered Resources Associated with Proposed Project Alternatives - Pegasus-Hornbaker Route 1**  
 Devlin/Hornbaker 230 kV Lines Project  
 Dominion Energy Virginia  
 Prince William County, VA



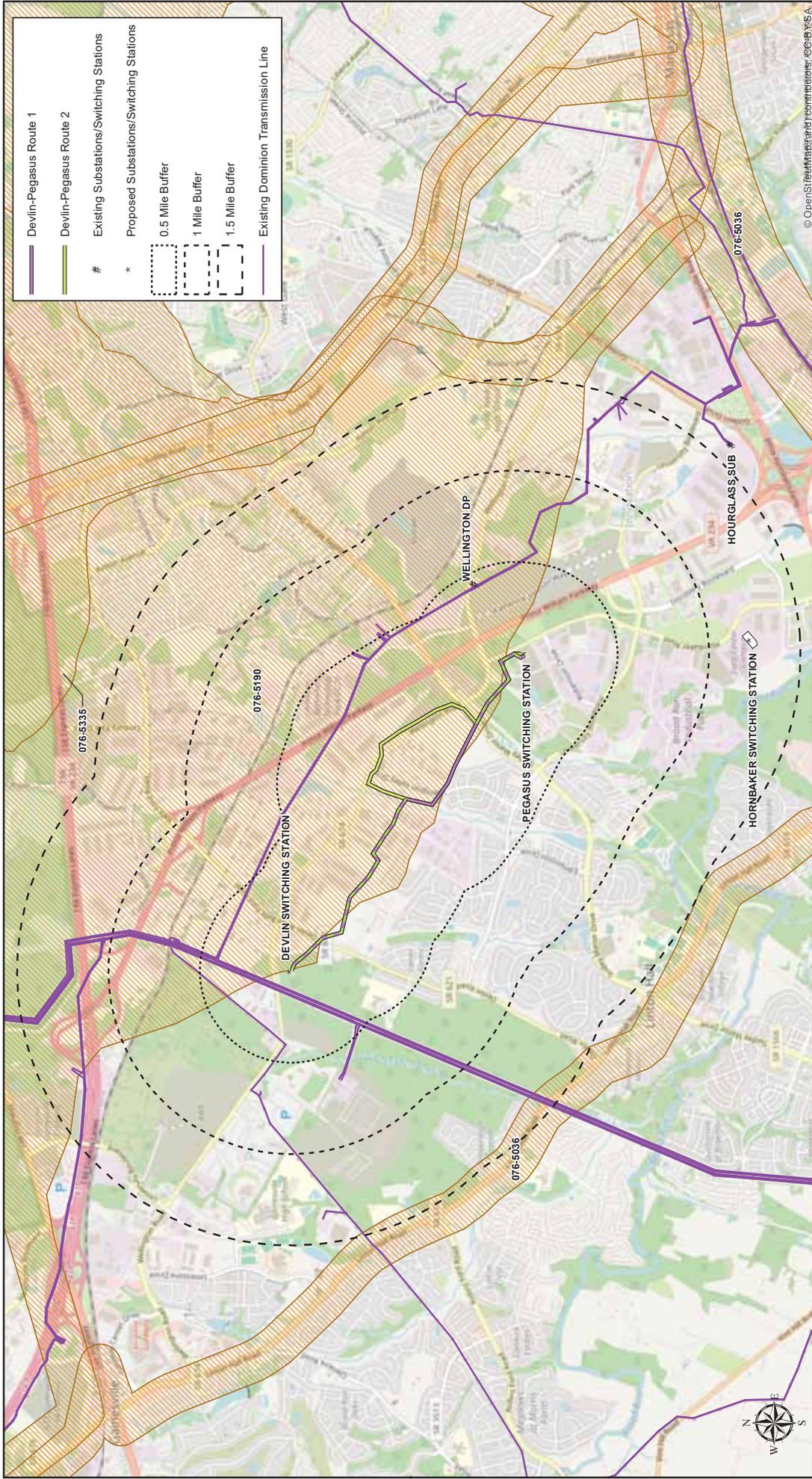
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**Attachment 1, Sheet 3**  
**Locations of Considered Resources Associated with Proposed Project Alternatives - Hourglass-Hornbaker Hybrid Route**  
 Devlin/Hornbaker 230 kV Lines Project  
 Dominion Energy Virginia  
 Prince William County, VA



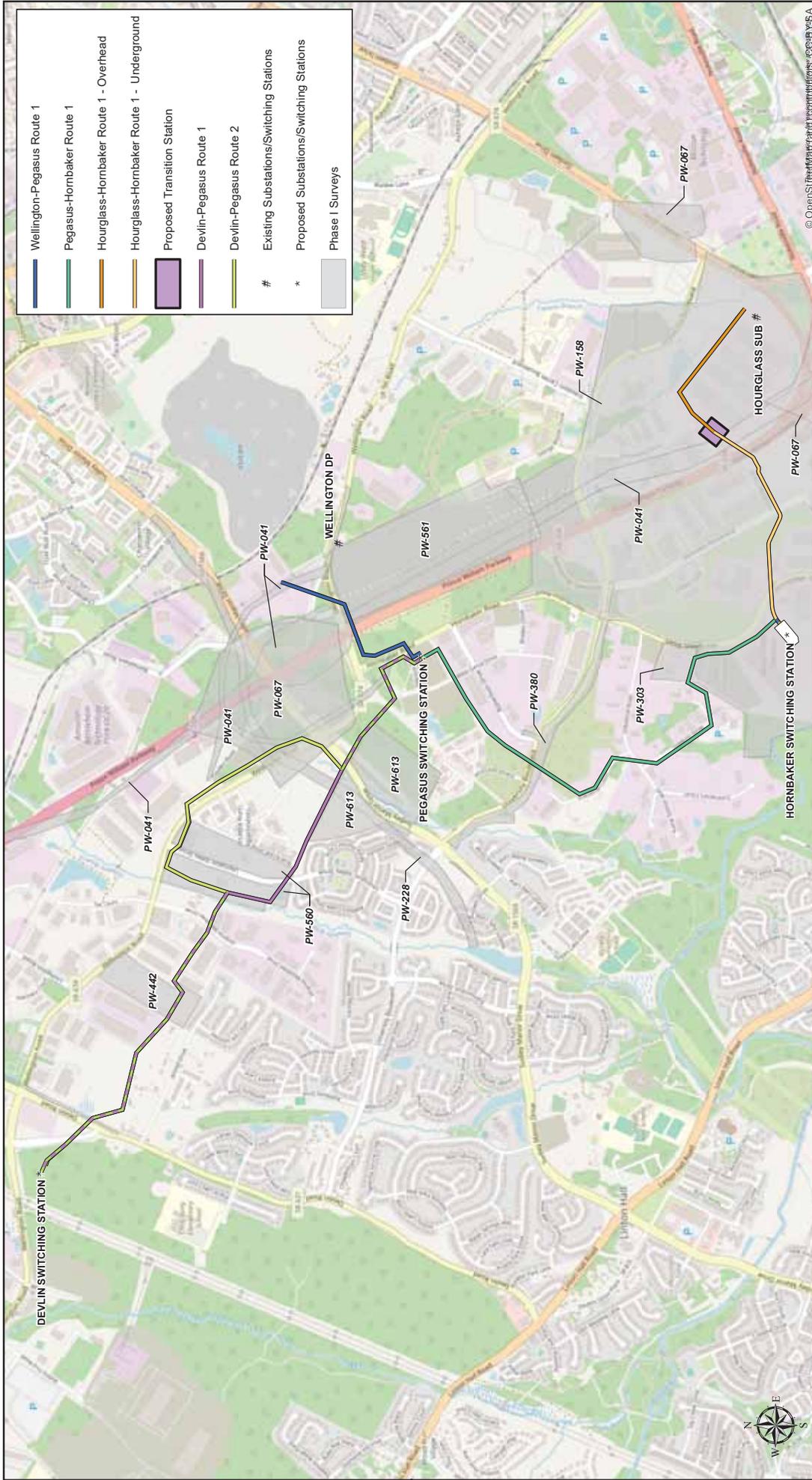


**Attachment 1, Sheet 4**  
**Locations of Considered Resources Associated with Proposed Project Alternatives - Devlin-Pegasus Component**  
**Devlin/Hornbaker 230 kV Lines Project**  
**Dominion Energy Virginia**  
**Prince William County, VA**





ATTACHMENT 2 CULTURAL RESOURCES SURVEYS  
COVERING PORTIONS OF ROUTES



**Attachment 2**

**Location of Phase I Surveys Associated with Proposed Project Alternatives**

**Hornbaker 230 kV Electric Transmission Project**

**Dominion Energy Virginia**

Prince William County, VA





0 0.25 0.5 0.75 Miles



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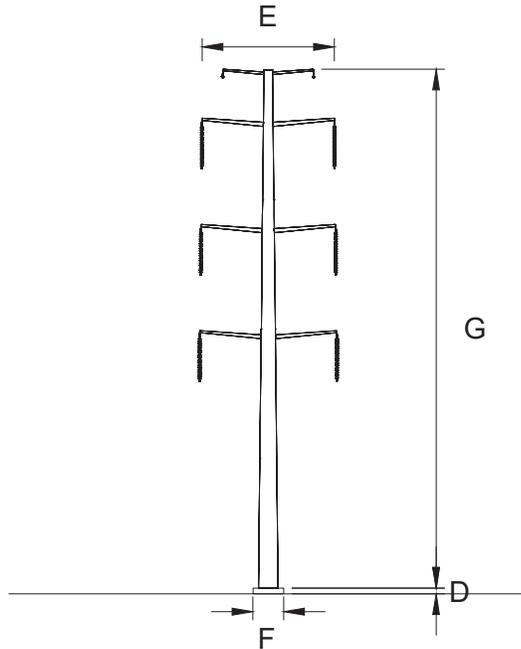
FILE: C:\Users\Wrcant\OneDrive - ERM\Documents\Hornbaker\revisions\3-7-2023\Dominion Hornbaker Attachment 2\_3-9-2024.mxd | REVISED: 03/09/2025 | SCALE: 1:19,716 when printed at 11x17

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ATTACHMENT 3 TYPICAL DESIGN AND LAYOUT

# SECTION 1 SOLUTION 1B



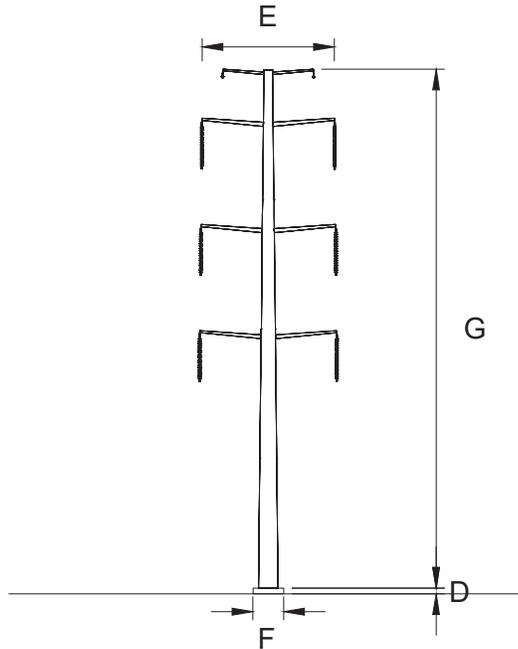
## DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	0.64 MILES (5 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	7.5' - 10' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	100'
MAXIMUM STRUCTURE HEIGHT:	120'
AVERAGE STRUCTURE HEIGHT:	108'
H. AVERAGE SPAN LENGTH:	500'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

- NOTES**
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
  2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
  3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
  4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
  5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 1 - SOLUTION 1B DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURES	ATTACHMENT NO.
 Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

## SECTION 2 SOLUTION 1B



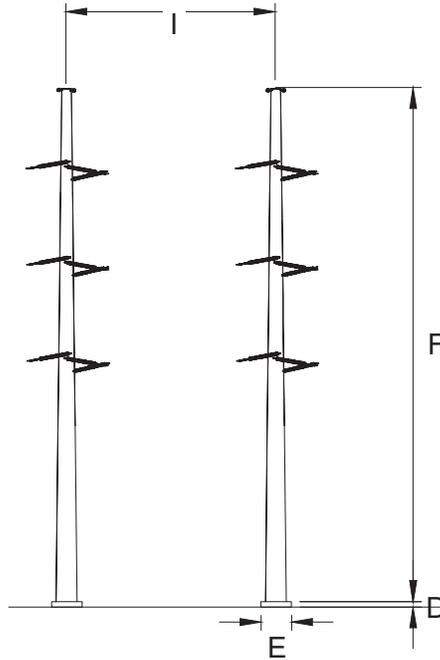
### DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF RW (STRUCTURE QUANTITY):	0.64 MILES (1 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	6' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	135'
MAXIMUM STRUCTURE HEIGHT:	135'
AVERAGE STRUCTURE HEIGHT:	135'
H. AVERAGE SPAN LENGTH:	500'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

- NOTES**
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
  2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
  3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
  4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
  5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 2 - SOLUTION 1B DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURES	ATTACHMENT NO.
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## SECTION 3 SOLUTION 1B



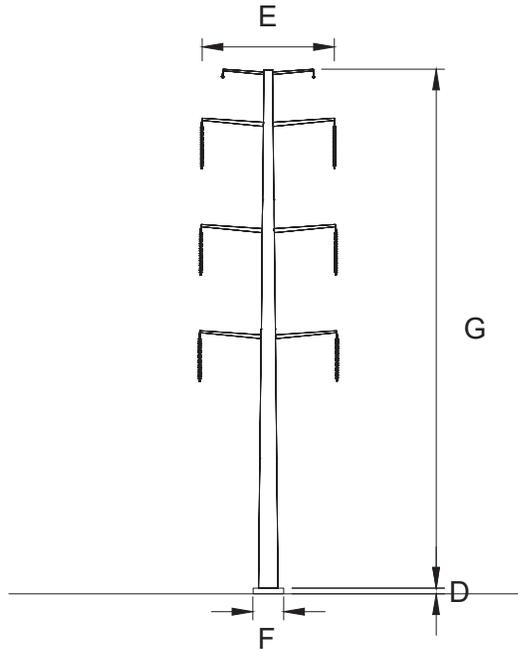
### DOUBLE CIRCUIT DEADEND STEEL 2-POLE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	0.64 MILES (1 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT BASE:	9.5' DIAMETER FOUNDATION (SEE NOTE 1)
F. MINIMUM STRUCTURE HEIGHT:	115'
MAXIMUM STRUCTURE HEIGHT:	115'
AVERAGE STRUCTURE HEIGHT:	115'
G. AVERAGE SPAN LENGTH:	500'
H. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)
I. AVERAGE DISTANCE BETWEEN POLES:	34'

- NOTES**
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
  2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
  3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
  4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
  5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 3 - SOLUTION 1B DOUBLE CIRCUIT DEADEND STEEL 2-POLE STRUCTURE	ATTACHMENT NO.
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

## SECTION 4 SOLUTION 1B



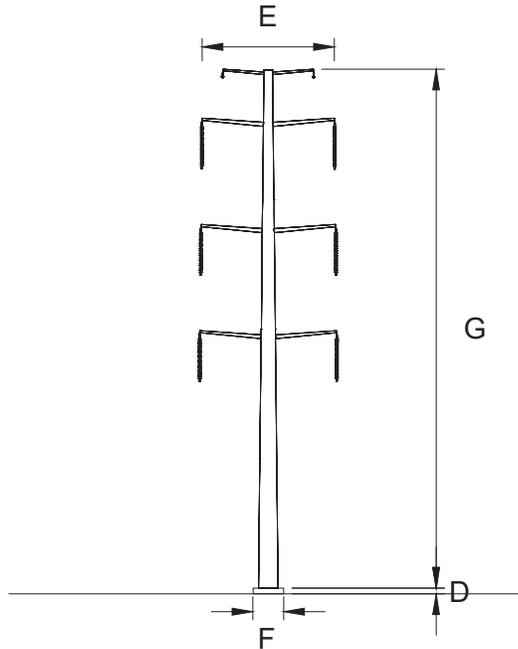
### DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	1.90 MILES (14 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	7.5' - 10' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	95'
MAXIMUM STRUCTURE HEIGHT:	115'
AVERAGE STRUCTURE HEIGHT:	108'
H. AVERAGE SPAN LENGTH:	475'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

- NOTES**
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
  2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
  3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
  4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
  5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 4 - SOLUTION 1B DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURES	ATTACHMENT NO.
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

## SECTION 5 SOLUTION 1B



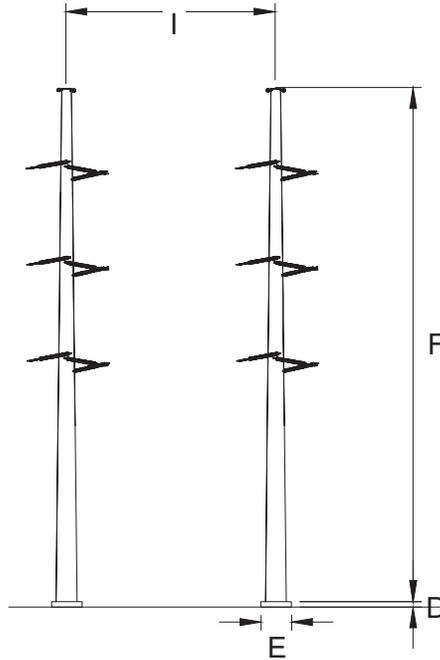
### DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF RW (STRUCTURE QUANTITY):	1.90 MILES (6 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	5.5' - 6' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	100'
MAXIMUM STRUCTURE HEIGHT:	125'
AVERAGE STRUCTURE HEIGHT:	117'
H. AVERAGE SPAN LENGTH:	475'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

- NOTES**
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
  2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
  3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
  4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
  5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 5 - SOLUTION 1B DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURES	ATTACHMENT NO.
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

## SECTION 6 SOLUTION 1B



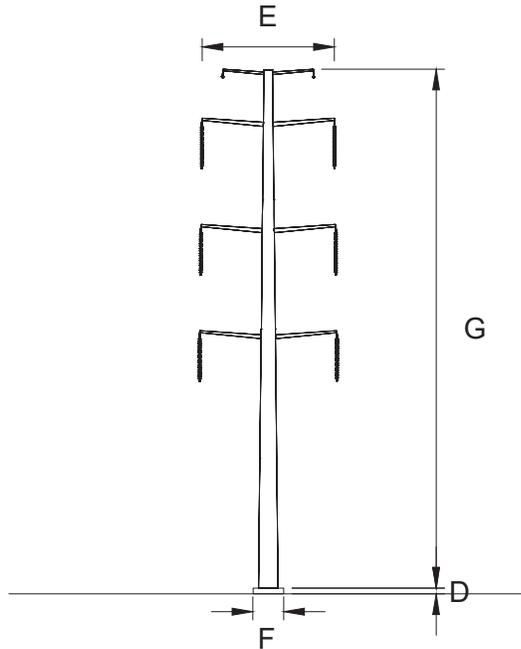
### DOUBLE CIRCUIT DEADEND STEEL 2-POLE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	1.90 MILES (1 STRUCTURE)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT BASE:	8.5' DIAMETER FOUNDATION (SEE NOTE 1)
F. MINIMUM STRUCTURE HEIGHT:	115'
MAXIMUM STRUCTURE HEIGHT:	115'
AVERAGE STRUCTURE HEIGHT:	115'
G. AVERAGE SPAN LENGTH:	475'
H. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)
I. AVERAGE DISTANCE BETWEEN POLES:	34'

- NOTES**
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
  2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
  3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
  4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
  5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 6 - SOLUTION 1B DOUBLE CIRCUIT DEADEND STEEL 2-POLE STRUCTURE	ATTACHMENT NO.
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

## SECTION 7 SOLUTION 1B



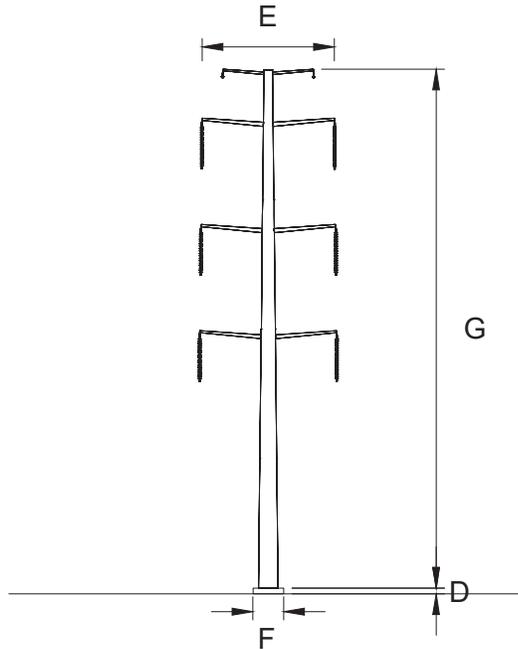
### DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	2.84 MILES (22 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	7' - 9.5' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	90'
MAXIMUM STRUCTURE HEIGHT:	130'
AVERAGE STRUCTURE HEIGHT:	105'
H. AVERAGE SPAN LENGTH:	500'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

- NOTES**
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
  2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
  3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
  4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
  5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 7 - SOLUTION 1B DOUBLE CIRCUIT DEADEND STEEL MONOPOLE STRUCTURES	ATTACHMENT NO.
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

## SECTION 8 SOLUTION 1B



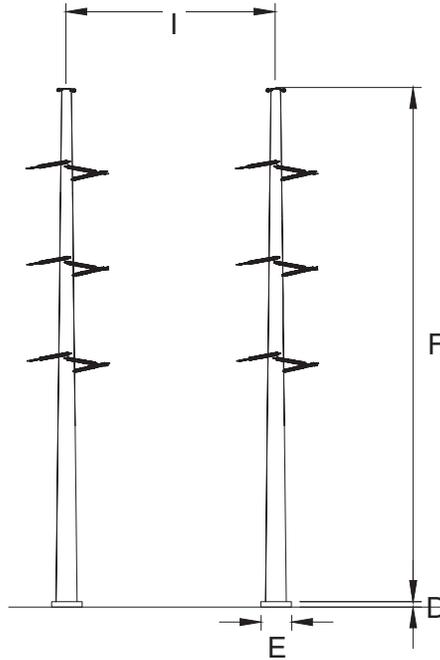
### DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF RW (STRUCTURE QUANTITY):	2.84 MILES (4 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT CROSSARM:	27.5'
F. AVERAGE WIDTH AT BASE:	5.5' - 6' DIAMETER FOUNDATION (SEE NOTE 1)
G. MINIMUM STRUCTURE HEIGHT:	110'
MAXIMUM STRUCTURE HEIGHT:	130'
AVERAGE STRUCTURE HEIGHT:	118'
H. AVERAGE SPAN LENGTH:	500'
I. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)

- NOTES**
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
  2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
  3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
  4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
  5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 8 - SOLUTION 1B DOUBLE CIRCUIT SUSPENSION STEEL MONOPOLE STRUCTURES	ATTACHMENT NO.
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

## SECTION 9 SOLUTION 1B



### DOUBLE CIRCUIT DEADEND STEEL 2-POLE

A. RATIONALE FOR STRUCTURE TYPE:	STRUCTURES ARE TO ACCOMMODATE TWO CIRCUITS
B. LENGTH OF R/W (STRUCTURE QUANTITY):	2.84 MILES (4 STRUCTURES)
C. STRUCTURE MATERIAL:	GALVANIZED STEEL
RATIONALE FOR STRUCTURE MATERIAL:	GALVANIZED STEEL WAS SELECTED TO MATCH NEARBY EXISTING STRUCTURES.
D. FOUNDATION MATERIAL:	CONCRETE
AVERAGE FOUNDATION REVEAL:	SEE NOTE 4
E. AVERAGE WIDTH AT BASE:	7.5' - 9.5' DIAMETER FOUNDATION (SEE NOTE 1)
F. MINIMUM STRUCTURE HEIGHT:	95'
MAXIMUM STRUCTURE HEIGHT:	120'
AVERAGE STRUCTURE HEIGHT:	108'
G. AVERAGE SPAN LENGTH:	500'
H. MINIMUM CONDUCTOR-TO-GROUND:	25.5' (AT MAXIMUM OPERATING TEMPERATURE)
I. AVERAGE DISTANCE BETWEEN POLES:	34'

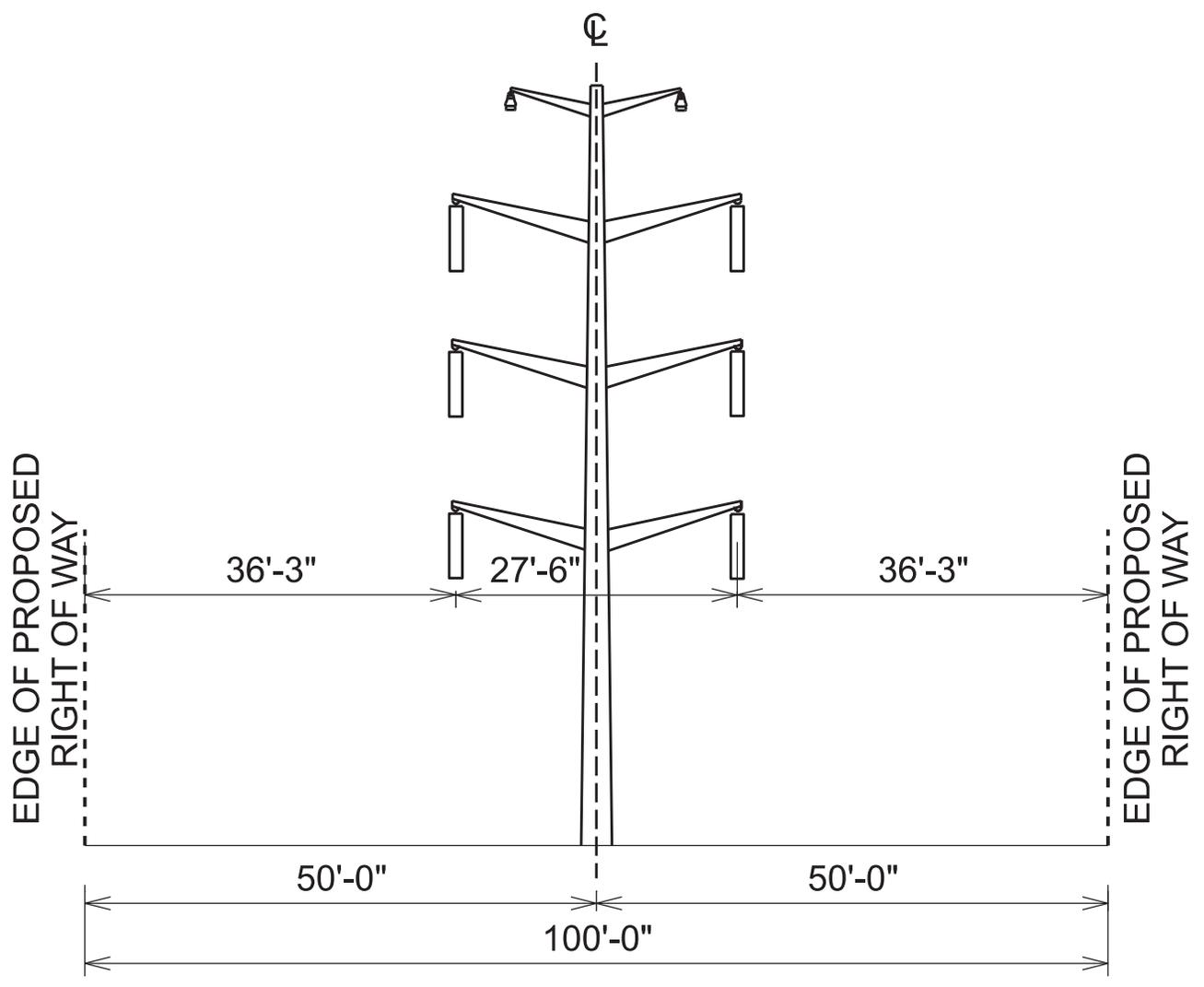
- NOTES**
1. INFORMATION ON DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL ENGINEERING
  2. INDIVIDUAL POLE HEIGHTS ABOVE GROUND MAY VARY SUBJECT TO FINAL LOCATION AND TERRAIN
  3. STRUCTURE HEIGHTS ARE MEASURED FROM STRUCTURE CENTERLINE
  4. MINIMUM FOUNDATION REVEAL SHALL BE 1.5', MAX REVEAL SUBJECT TO FINAL LOCATION AND TERRAIN
  5. THE AVERAGE SPAN LENGTH LISTED IS BASED ON THE ENTIRE ROW LISTED IN LINE (B)

Electric Transmission	SECTION 9 - SOLUTION 1B DOUBLE CIRCUIT DEADEND STEEL 2-POLE STRUCTURE	ATTACHMENT NO.
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060		DRAWN BY: CBW

# SECTION 1 - SOLUTION 1B

## LOOKING TOWARDS HORNBAKER SUB

WELLINGTON - PEGASUS ROUTE 1 PEGASUS - HORNBAKER ROUTE 1 DEVLIN - PEGASUS ROUTE 2 (NOTE 3)	230kV CIRCUIT LINE #2325 LINE #2424 LINE #2419	230kV CIRCUIT LINE #2423 LINE #2187 LINE #2420
--	---	---



**NOTES:**

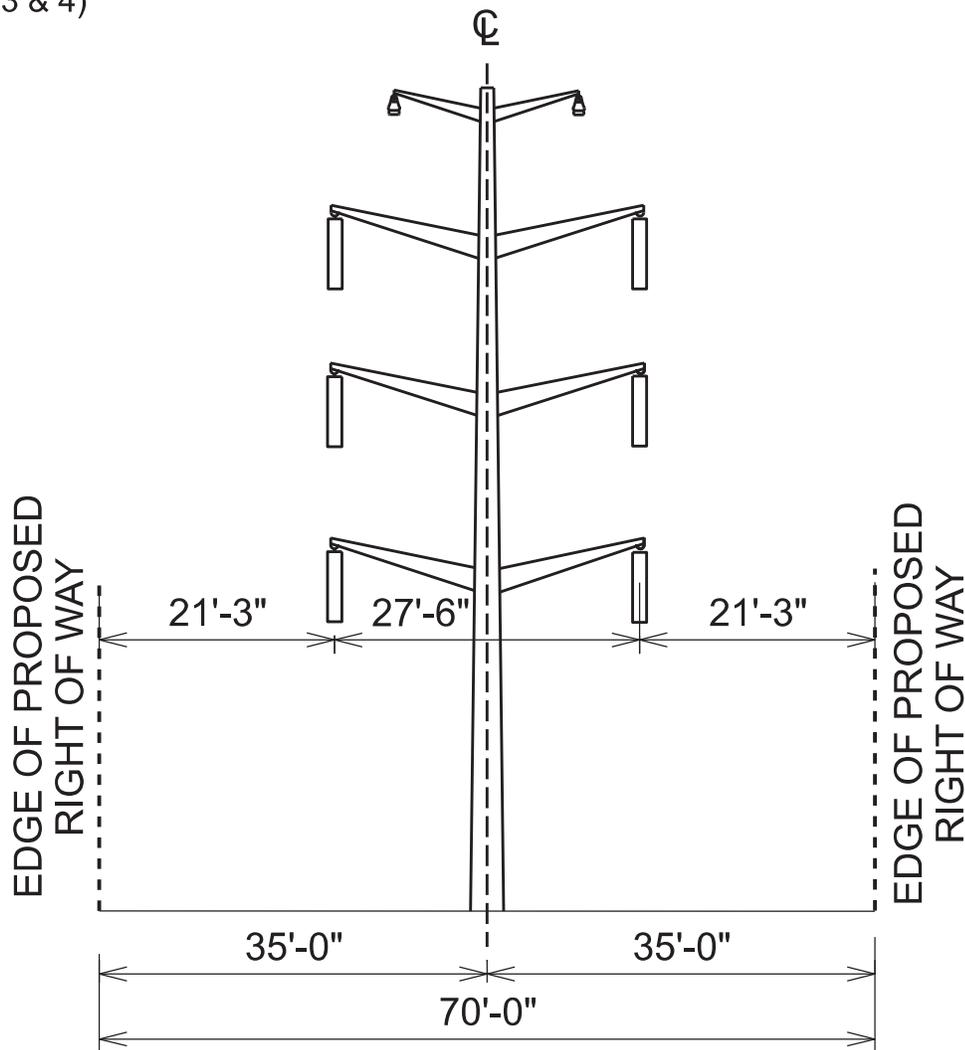
1. INFORMATION CONTAINED ON DRAWINGS IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.
2. DRAWING NOT TO SCALE.
3. SEE ATTACHMENT II.A.5.b FOR REDUCED ROW FROM STR. 2419/18 TO STR. 2419/19.

Transmission Construction	PROPOSED ROW CONFIGURATION (230KV/230KV) MONOPOLE AREAS - 100-FT WIDE ROW				
Dominion Energy 5000 Dominion Blvd Glen Allen, VA 23060	DRAWN	CHECKED	APPROVED	DATE	ATTACHMENT NO.
	STANDARD	CBW	TCG	12/30/24	II.A.5.a
REVISION					CAD NO.

## SECTION 2 - SOLUTION 1B

### LOOKING TOWARDS HORNBAKER SUB

DEVLIN - PEGASUS ROUTE 2  
(NOTES 3 & 4)
230kV CIRCUIT  
LINE #2419
230kV CIRCUIT  
LINE #2420



**NOTES:**

1. INFORMATION CONTAINED ON DRAWINGS IS CONSIDERED PRELIMINARY IN NATURE AND SUBJECT TO CHANGE BASED ON FINAL DESIGN.
2. DRAWING NOT TO SCALE.
3. CROSS-SECTION ONLY APPLIES TO THE SECTION OF ROW BETWEEN STR. 2419/18 AND STR. 2419/19.
4. FOR ALL ADDITIONAL ROW EXTENTS SEE ATTACHMENT II.A.5.a.

Transmission Construction

PROPOSED ROW CONFIGURATION (230KV/230KV)  
MONOPOLE AREAS - 70-FT WIDE ROW



Dominion Energy  
5000 Dominion Blvd  
Glen Allen, VA 23060

	DRAWN	CHECKED	APPROVED	DATE	ATTACHMENT NO.
STANDARD	CBW	TCG		12/30/24	II.A.5.b
REVISION					CAD NO.



ATTACHMENT 4 HISTORIC RESOURCE PHOTOS



Figure 1. 076-0285, Thomasson Barn, View to the Northeast



Figure 2. 076-5036, Manassas Station Operations Battlefield, Taken from Chapel Springs Rd and New Life Way, View to the Southeast



Figure 3. 076-5190, Second Battle of Manassas, Taken from Wellington Rd, View to the North

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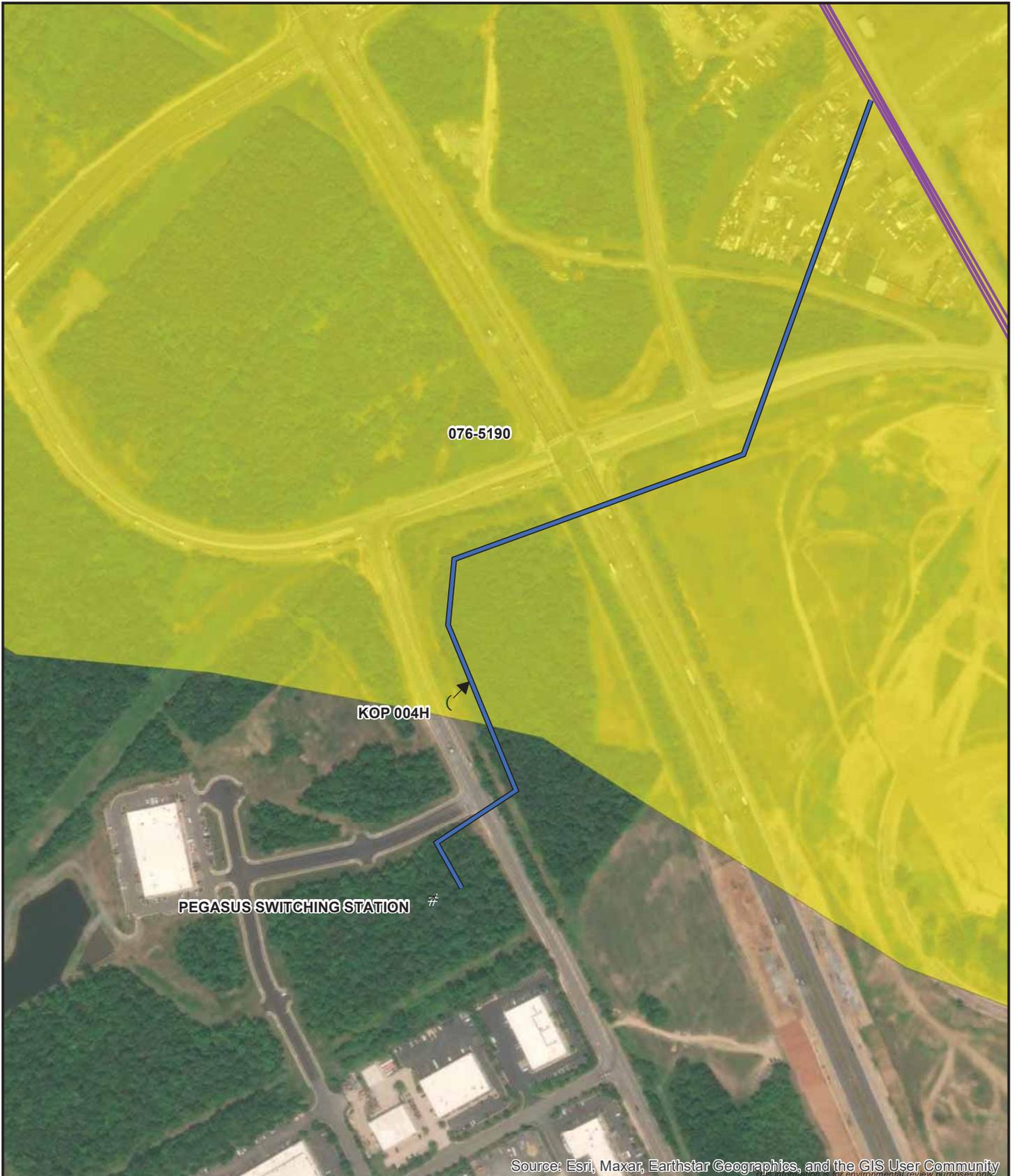
Figure 4. 076-5335, First Battle of Manassas, Taken from Rixlew Ln and Wellington Rd, View to the Southeast



Figure 5. 155-5020, Cannon Branch Fort Site, View to the Southeast



ATTACHMENT 5 PHOTO SIMULATIONS



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



1:6,370



- Wellington-Pegasus Component, Route 1
- Existing Dominion Transmission Line
- \* Proposed Substations/Switching Stations
- Historic Resource
- ( KOP Location



Figure 1. Aerial photograph depicting land use and photo view for 076-5190.



# KOP 004H

Hornbaker Rd

Figure 2  
Date: 09/25/2024  
Time: 1:53 pm  
Viewing Direction: North  
Distance to closest feature: 0.02 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wide landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community  
This information is for environmental review purposes only.



1:27,126

- Pegasus-Hornbaker Component, Route 1
- Existing Dominion Transmission Line
- \* Proposed Substations/Switching Stations
- ( KOP Location
- Historic Resource



Figure 3. Aerial photograph depicting land use and photo view for 076-5036.



# KOP 009H

Granary Pl

Figure 4  
Date: 09/25/2024  
Time: 2:36 pm  
Viewing Direction: West  
Distance to closest feature: 0.85 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS

**KOP 010H**  
 Carolina Dr

**Figure 5**  
 Date: 09/24/2024  
 Time: 1:38 pm  
 Viewing Direction: Northwest  
 Distance to closest feature: 1.00 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wide landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**



1:6,370



- Pegasus-Hornbaker Component, Route 1
- \* Proposed Substations/Switching Stations
- Historic Resource
- ( KOP Location



Figure 6. Aerial photograph depicting land use and photo view for 076-5190.



**KOP 004H**  
Hornbaker Rd

Figure 7  
Date: 09/25/2024  
Time: 1:53 pm  
Viewing Direction: Southwest  
Distance to closest feature: 0.12 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



1:7,683



- Hourglass-Hornbaker Component, Route 1 - Overhead
- Hourglass-Hornbaker Component, Route 1 - Underground
- Proposed Transition Station
- ⤴ KOP Location
- Historic Resource



Figure 8. Aerial photograph depicting land use and photo view for 076-0285.



# KOP 007H

Discovery Blvd

Figure 9

Date: 09/25/2024

Time: 10:03 am

Viewing Direction: Northwest

Distance to closest feature: 0.25 miles



Legend

Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS

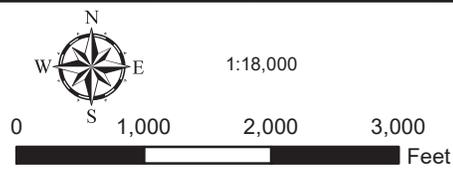


PROPOSED CONDITIONS



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

This information is for environmental review purposes only.



- Hourglass-Hornbaker Component, Route 1 - Overhead
- Hourglass-Hornbaker Component, Route 1 - Underground
- Proposed Transition Station
- Existing Dominion Transmission Line
- \* Proposed Substations/Switching Stations
- ↖ KOP Location
- Historic Resource



Figure 10. Aerial photograph depicting land use and photo view for 076-5036.

HOURGLASS-HORNBAKER  
230 kV Electric Transmission Project  
Dominion Energy Virginia  
Prince William County, Virginia



# KOP 010H

Carolina Dr

Figure 11

Date: 09/24/2024

Time: 1:38 pm

Viewing Direction: Northwest

Distance to closest feature: 0.66 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wide landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS

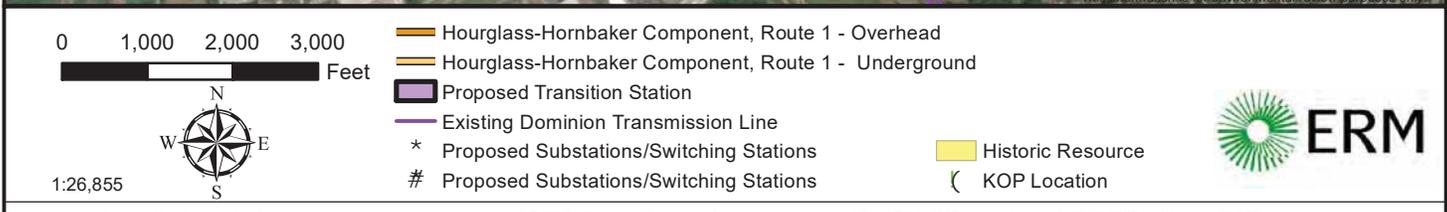
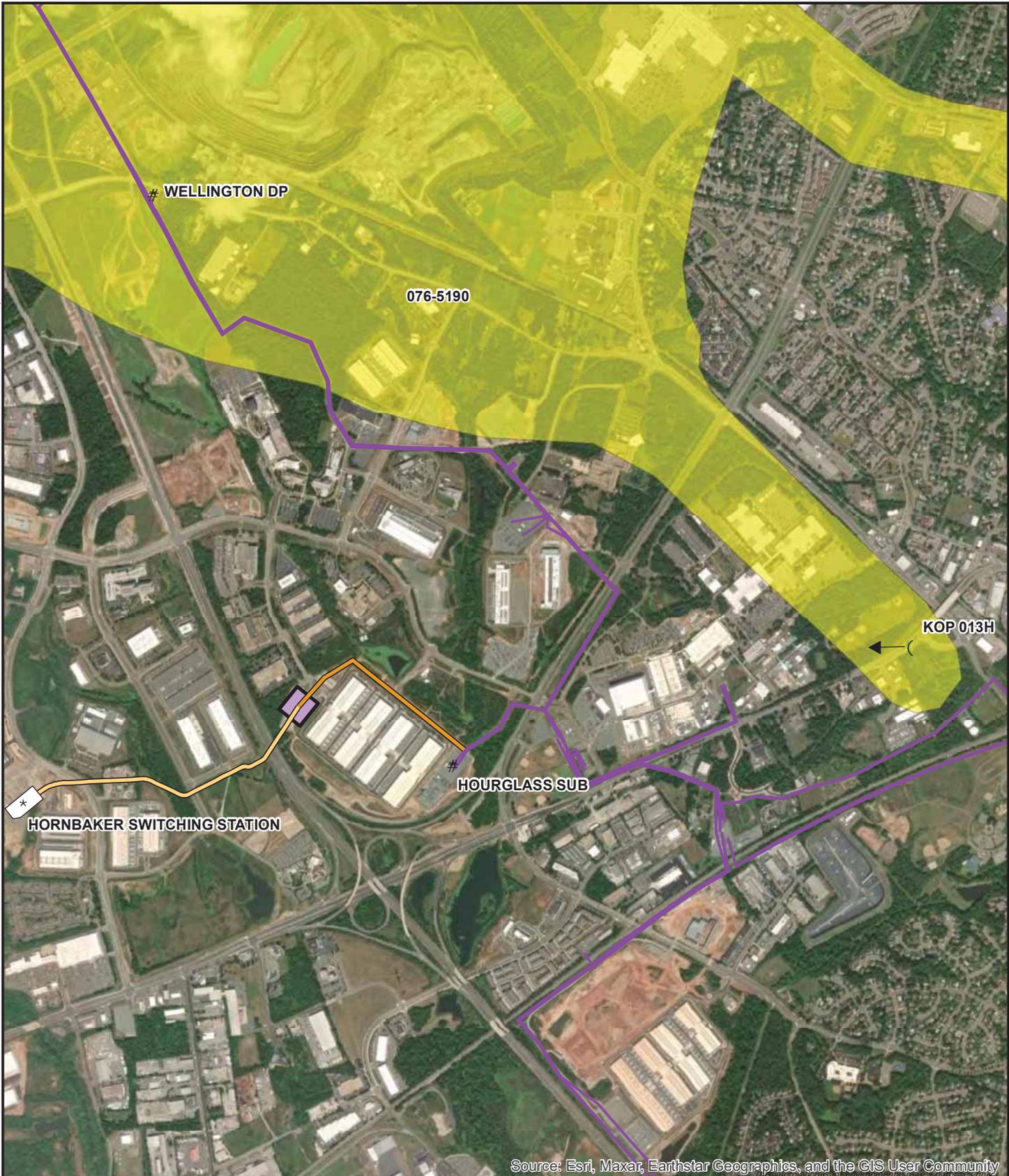


Figure 12. Aerial photograph depicting land use and photo view for 076-5190.



**KOP 013H**  
Nokesville Rd

Figure 13  
Date: 09/24/2024  
Time: 12:50 pm  
Viewing Direction: est  
Distance to closest feature: 1.14 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**

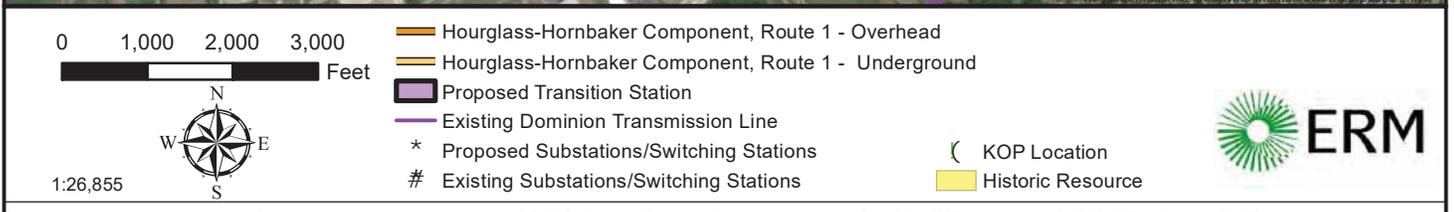
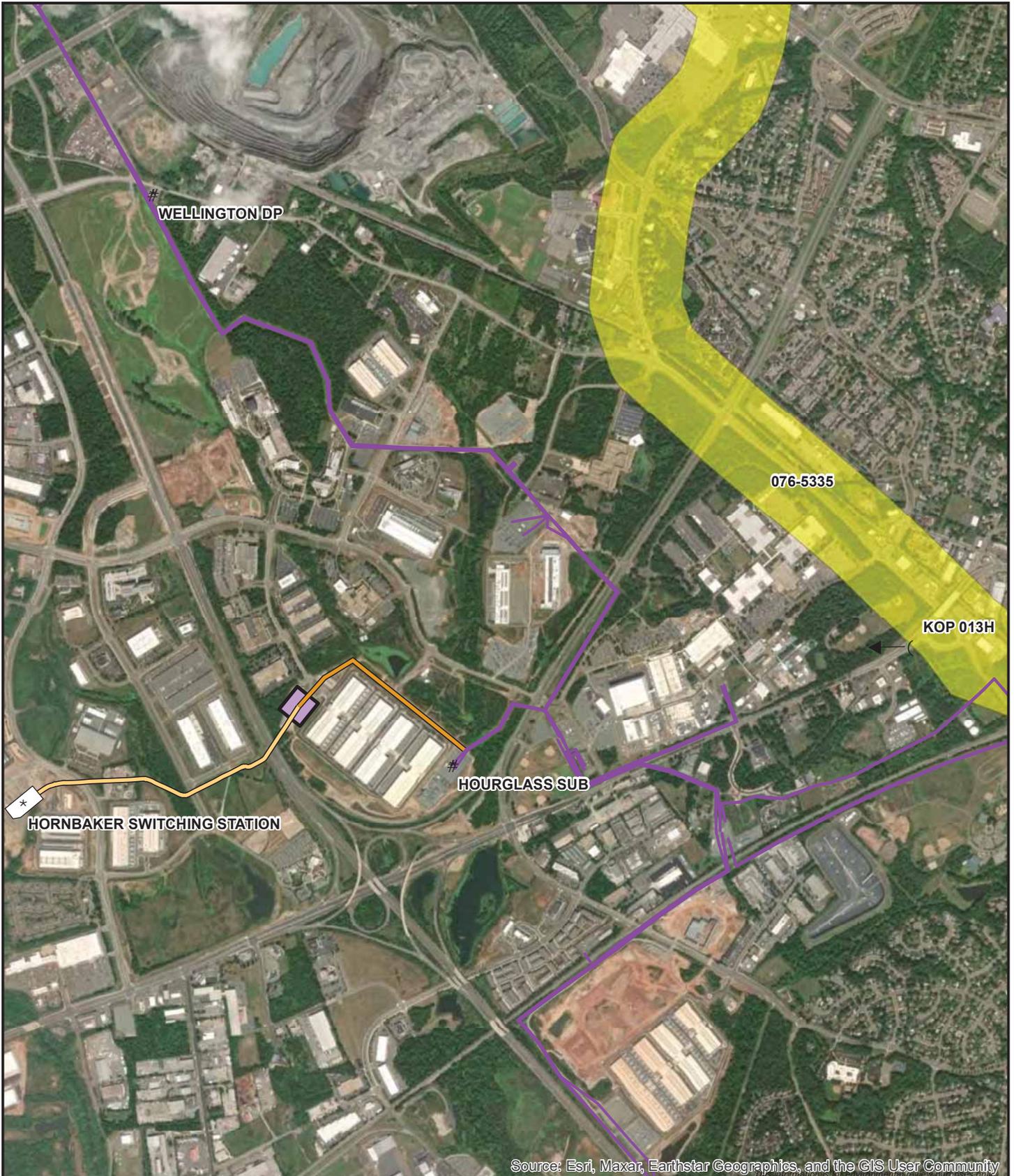


Figure 14. Aerial photograph depicting land use and photo view for 076-5335.



**KOP 013H**  
Nokesville Rd

Figure 15  
Date: 09/24/2024  
Time: 12:50 pm  
Viewing Direction: est  
Distance to closest feature: 1.14 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

0 500 1,000 1,500  
Feet



1:14,000

- Hourglass-Hornbaker Component, Route 1 - Overhead
- Hourglass-Hornbaker Component, Route 1 - Underground
- Proposed Transition Station
- Existing Dominion Transmission Line
- \* Proposed Substations/Switching Stations
- # Existing Substations/Switching Stations

( KOP Location

Historic Resource



Figure 16. Aerial photograph depicting land use and photo view for 155-5020.

HOURGLASS-HORNBAKER  
**230 kV Electric Transmission Project**  
 Dominion Energy Virginia  
 Prince William County, Virginia



**KOP 014H**  
 Gateway Blvd

Figure 17  
 Date: 09/24/2024  
 Time: 1:13 pm  
 Viewing Direction: Northwest  
 Distance to closest feature: 0.78 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**

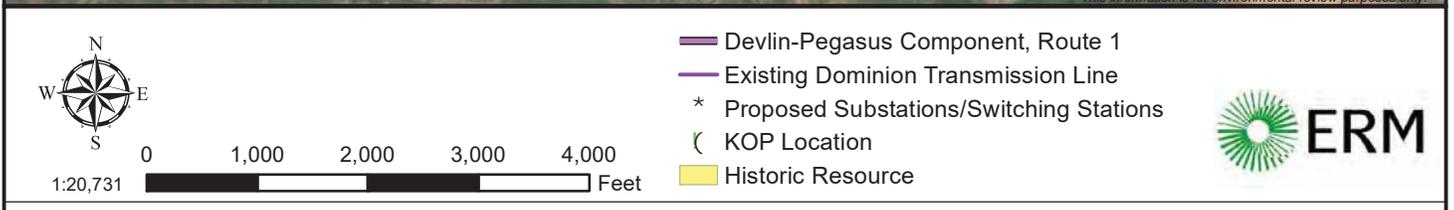
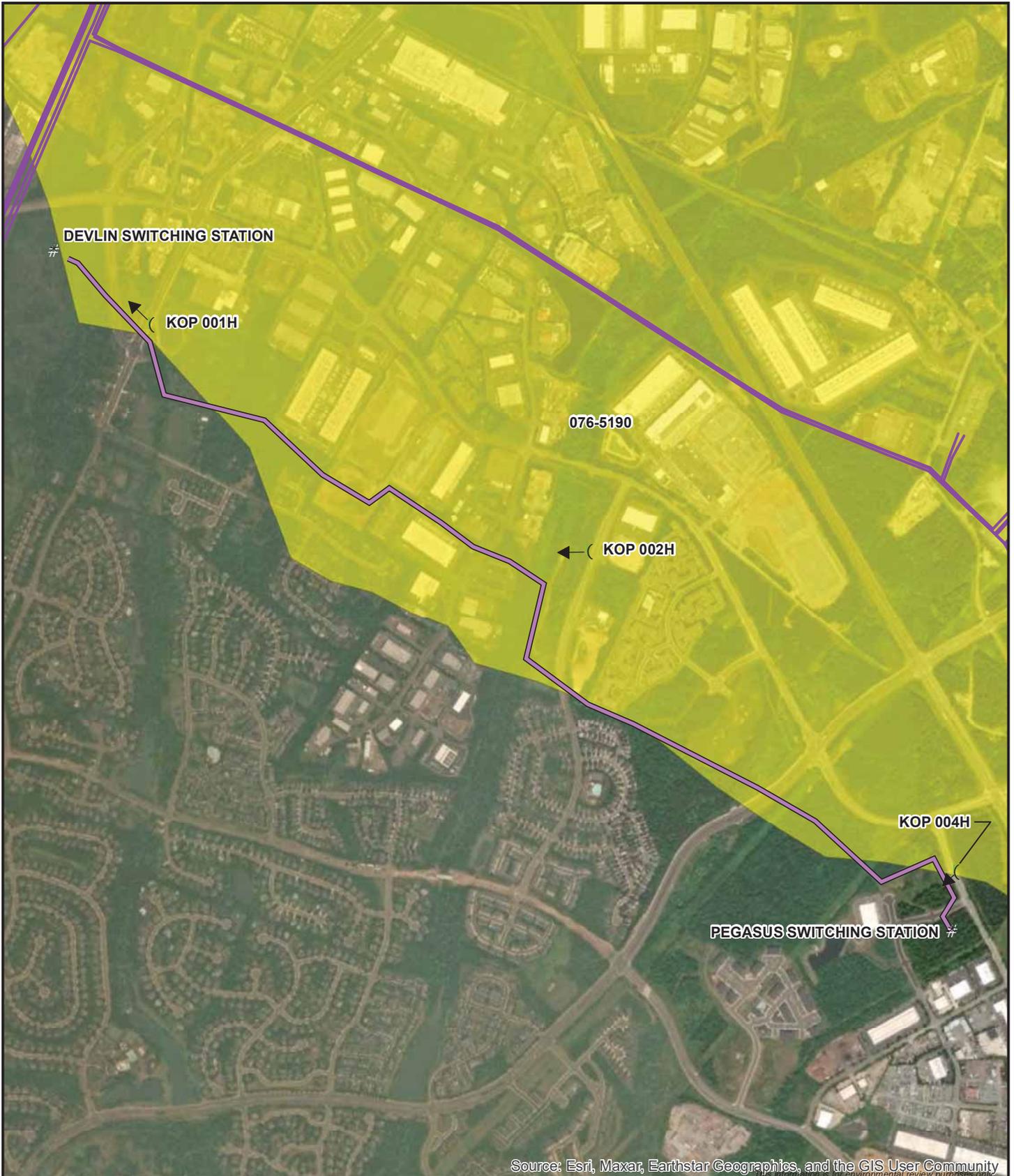
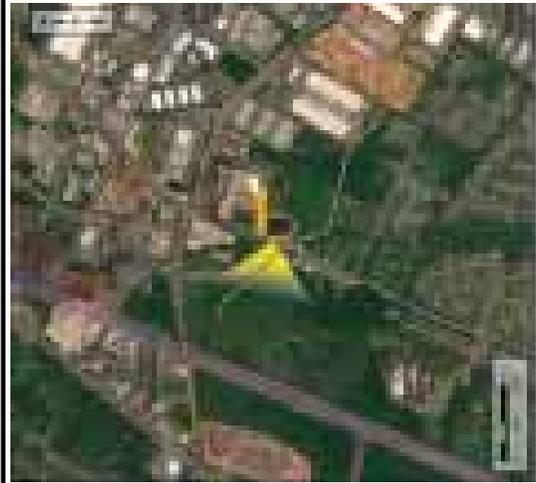


Figure 18. Aerial photograph depicting land use and photo views for 076-5190.



**KOP 001H**  
Balls Ford Rd

Figure 19  
Route 1  
Date: 09/25/2024  
Time: 9:03 am  
Viewing Direction: Northwest  
Distance to closest feature: 0.03 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**



**KOP 002H**  
Lexington Valley Dr

Figure 20  
Route 1  
Date: 09/25/2024  
Time: 9:1 am  
Viewing Direction: Southwest  
Distance to closest feature: 0.11 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**

E N-PEGASUS

**230 kV Electric Transmission Project**  
Dominion Energy Virginia  
Prince William County, Virginia



**KOP 004H**

Hornbaker Rd

Figure 21

Route 1

Date: 09/25/2024

Time: 1:53 pm

Viewing Direction: Southwest

Distance to closest feature: 0.03 miles



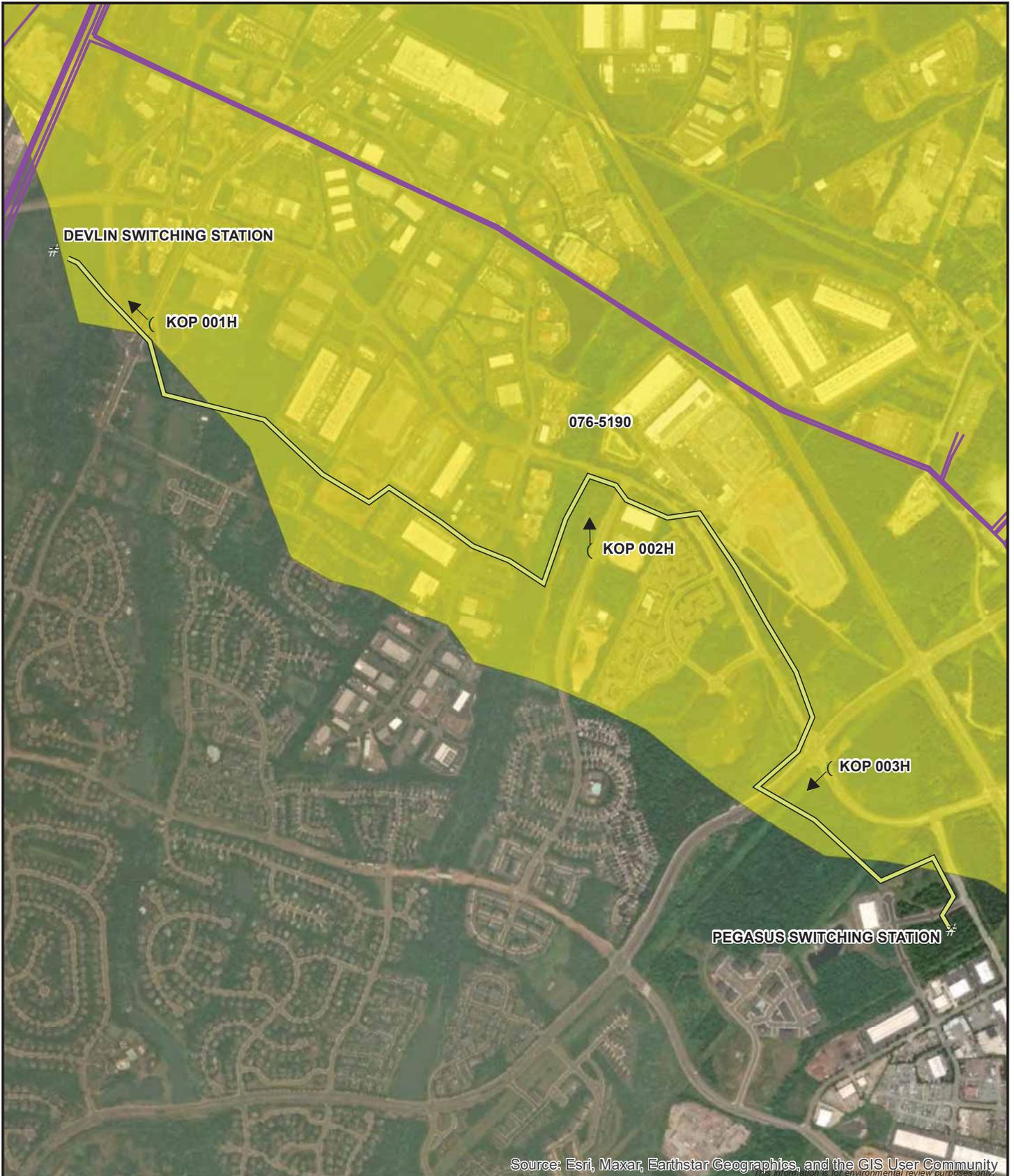
Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wide landscape context and are not representative of scale and distance when viewed from the actual view point.



EXISTING CONDITIONS



PROPOSED CONDITIONS



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



0 1,000 2,000 3,000 4,000  
1:20,731 Feet

-  Devlin-Pegasus Component, Route 2
-  Existing Dominion Transmission Line
-  \* Proposed Substations/Switching Stations
-  Historic Resource
-  ( KOP Location

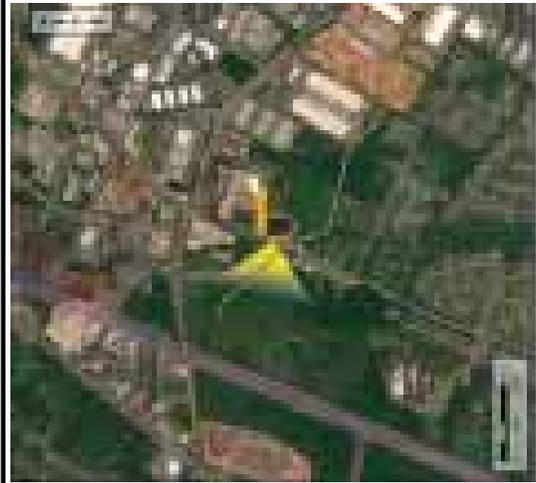


Figure 22. Aerial photograph depicting land use and photo views for 076-5190.



**KOP 001H**  
Balls Ford Rd

Figure 23  
Route: 2  
Date: 09/25/2024  
Time: 9:03 am  
Viewing Direction: Northwest  
Distance to closest feature: 0.03 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**



**KOP 002H**  
 Lexington Valley Dr

Figure 24  
 Route: 2  
 Date: 09/25/2024  
 Time: 9:1 am  
 Viewing Direction: North  
 Distance to closest feature: 0.11 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**



**KOP 003H**  
Wellington Rd

Figure 25  
Route: 2  
Date: 09/25/2024  
Time: 9:39 am  
Viewing Direction: Southeast  
Distance to closest feature: 0.10 miles



Note: Project components illustrated are based on proposed preliminary designs. The images contained on this page show the proposed project within a wider landscape context and are not representative of scale and distance when viewed from the actual view point.



**EXISTING CONDITIONS**



**PROPOSED CONDITIONS**



# ERM

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France	Senegal
Germany	Singapore
Ghana	South Africa
Guyana	South Korea
Hong Kong	Spain
India	Switzerland
Indonesia	Taiwan
Ireland	Tanzania
Italy	Thailand
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